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PROBLEMS IN THE BASIC-SURPLUS PLAN IN THE PHILADELPHIA MILK SHED

A DISSERTATION

IN POLITICAL SCIENCE

PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL OF THE
UNIVERSITY OF PENNSYLVANIA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY

JAMES ANDES

PHILADELPHIA
1937

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Chapter I.

INTRODUCTION.

In the enactment of a great deal of the legislation during the past three years the public has become keenly aware of the relationship that politics and economics hold to each other in the process of law making. The nature of this politico-economic relationship is seen even more clearly in the use made of the ordinance power in administering that legislation. Economics has always been burdened with the task of adjusting business relationships to political objectives but "New Deal" administration has demonstrated impressively that contending forces rather than political and economic theories determined the nature and substance of much recent public regulation.

In the industrial field, under former NRA codes, in banking, in public relief, and especially in agricultural relief, under the AAA, these contending forces have been shaping legislation. In each of these fields we have seen every group of citizens who have been affected by proposed regulation come and offer the solution that was to its own interest and try to prove, naturally enough, that its interest was also for the best interest of the public. Nowhere has this idea of solving our difficulties through the open forum of debate or public hearings, rather than through pre-determined and convincing economic theories, been more manifest than in public regulation of the dairy industry.

There may not be a question as to the instructive value of these public hearings. At least, they should be sources of valuable information. But there is the question of this technique resulting in wise regulation rather than in a type of control that results from the stalemate of contending forces or from the strength of one faction. If these regulatory measures are simply the outcome of a desire to satisfy conflicting interests or to further political objectives without full consideration for their economic consequences, the result must be a further burdening of economics. For, regardless of the political pattern cut out for industry, society does

have economic foundations which must be reckoned with ultimately.

On the other hand, it is equally true that the problem of putting sound economic or political theory into practice requires an astute knowledge of public opinion. Often the public objects to theories advocated by technicians because these have not been made fully comprehensible or because their practical applications are considered invalid and unfair. Quite often sound economic theory has been condemned solely because of unwise administration of the theory in practice. Economic controls, and especially novel and drastic ones, must always meet the test of public approval before they can be operated effectively.

These difficulties of adjusting political forces to economic laws, or of adjusting economic factors to conform with political realism, are responsible for much of the dissension created by various control measures in the past few years. In no other field, perhaps, has more opposition come forth than in the field of agriculture. Production control measures of the "Triple A", of local public agencies, and of cooperative agricultural groups have created large and in some instances powerful minorities opposing these regulatory orders. An analysis of the regulations, of the interests of the contending forces, and of the economic factors involved in any one of these production adaptation programs ought to indicate some of the causes of dissatisfaction and may suggest methods for reducing minority elements opposed to it.

The desire to ascertain the effects of production control measures on the farmers concerned, with special consideration for the conflicting forces, in an effort to discover the causes and consequences of minority reactions, has led to the present study. In considering only one of the various agricultural commodities now subject to production regulation, it is with the realization that a complete study of the forces creating discontent and minority problems cannot be made. Yet there are factors and objections common to each of these

programs and an analysis of any one should afford some suggestions applicable to the others.

In selecting the dairy industry for study several considerations determined the choice. In the first place, milk control measures have aroused a great deal of public interest and they enlist the concern of more citizens than those dealing with other agricultural commodities. Due to its universality, milk, its supply and price, interests nearly every consumer and the fact that dairy products account for about one-fourth of the gross income of farmers indicates the interest of our agricultural population in any phase of milk regulation. A further proof of public interest in milk is the attention given to it by city, state, and national governments in the form of regulation and control laws.

In the second place, by choosing the dairy industry our problem becomes more simplified than would be the case with cotton, wheat, or other agricultural products. This is true not only because international aspects need not be considered, as dairy exports and imports have been almost negligible, but also because the problem of milk production control can be limited largely to one market supply area and studied through operations in that territory. For milk control schemes have been essentially local in scope and, although the factors influencing regulation vary markedly from one market area to another, the underlying principles involved are common to all.

Finally, attempts to adapt milk supply to demand through artificial control plans have been conducted over a longer period than is the case of any other farm commodity. The nature of the product creates marketing problems which clearly indicated to many dairymen the value of controlled production. As a consequence, plans for regulating milk supply were in operation in many markets years before the "Triple A" program was initiated. A study of milk production control, therefore, gives the advantages that come from a relatively long testing period.

While limiting the study to problems of milk producers within the Philadelphia supply area, a knowledge of the milk price structure and of how the supply areas for the various dairy products are constructed is essential to any discussion of milk control plans. Therefore, the problem is approached by first analyzing the factors that determine the price of milk under unrestricted competitive processes in order that the need and reasons for artificial controls over production may be fully appreciated. With these forces clearly demonstrated, the chapter on the nature of artificial price plans indicates attempts made to more fully adjust milk marketing to these competitive processes. Then the history and operation of the Philadelphia milk control plan is considered with the aid of our economic background, and marketing problems and the attempts to solve them are discussed. This is followed by an analysis of the various criticisms against these solutions offered by one minority group or another. All conclusions are based on the economic analysis with which the study began, on the assumption that all political measures, all artificial regulations, must square themselves with sound economic theory if they are to be permanently effective.

Chapter II.

FACTORS DETERMINING THE PRICE OF MILK.

Milk is utilized in different forms and the use to be made of it determines its price. Milk consumed in fluid form brings a higher price than milk going into cream uses, and milk for butter and other manufactured products receives a still lower price than milk for cream purposes. An understanding of the relationship between prices for these various classes of dairy products at the market receiving point will explain the structure of prices and the sizes of fluid milk, cream and butter zones in the producing area tributory to that market.

First, it should be clear that the market receiving point must be a primary market, one large enough to dominate the price of milk paid to dairymen in the producing regions thereto. All other sales areas located within the producing region of a primary market are secondary markets and the territory supplying most, if not all, of the fluid milk consumed by that primary market and its secondary sales areas is called a milk shed.

Dairymen supplying fluid milk and cream for the primary and secondary markets of a milk shed always receive a higher price for their product than do milk producers selling all of their supply for manufacturing purposes. This would not be the case if all milk were brought to a central market in fluid form and possessed a uniform quality when it arrived. Because of the interchangeability of the supply, prices would be the same for each unit of the product whether that unit was used as fluid milk, as cream or in some manufactured dairy product. Differences in consumers' prices for various classes of dairy products caused by variations in costs of processing and handling would not alter this situation, nor would differences in consumer demand between uses cause one unit of milk to command a higher price than another, as the price at the market would still be the same for each unit.

But all milk will not be shipped to the market in fluid form because dairymen will market their product in the form

which will net them the highest price at the farm. As the amount of fluid milk consumed by any market is rather constant while the cost of transporting different dairy products varies with the product, distance becomes a factor in determining the price. Fluid milk is a bulky commodity. Its value in comparison to weight being fairly low, a limitation is thereby placed on the proportion of the consumers' price which may be paid for transportation. Cream being less bulky, and butter still less so, farmers far from the market will receive a higher return by shipping their milk in one of these concentrated forms as transportation charges will be less than for fluid milk. Other factors excluded, the price of fluid milk in any market will be high enough to draw to the market sufficient fluid milk for consumption requirements but low enough to prevent a larger quantity from entering it. Price will determine the limits of the milk shed, those dairymen within the shed finding it more profitable to ship milk in fluid form than in any other, while those beyond its boundaries will receive less for their product in fluid form than they will gain by selling cream, because less will be subtracted from the latter for transportation costs. At the boundary of the milk shed it will, of course, be optional with the producer as to whether he ships fluid milk or sends cream, for milk in either form will net him the same price.

Differences in the cost of delivery to the market is, then, an important factor in explaining the higher price for fluid milk over other dairy products. In this price transportation is the chief cost item due to distance, but not the only one that increases as the distance from the market becomes greater. Milk is a perishable, as well as a bulky, commodity, and the sanitary and refrigerative measures necessary to protect its quality increase as the distance from the market widens. Additional apparatus for cooling may be required and more handling is usually necessary the more remote the dairy farms are from the place of consumption. The costs of maintaining and operating receiving stations is attributable to this distance factor for otherwise all fluid milk could be cooled and processed at the central market plant

with the savings associated with large-scale operations.

These factors that add more to the price as the distance from the market widens not only aid in determining price by equating demand with the costs of securing an adequate supply, but, other forces being absent, they also fix the boundaries of the milk shed rather definitely. This is true only when the milk shed is sufficiently large to permit economies through the establishment of a dairy manufacturing plant outside the market to take care of excess milk, milk not used in fluid form. If the shed is so small that the market proves to be the central point at which sufficient excess milk can be received to operate a manufacturing plant efficiently, all milk will be transported to this central place in fluid form regardless of the use made of it. We would then have the condition, formerly mentioned, of all milk bringing the same price because of the interchangeability of each unit. Only when a saving results from manufacturing dairy products at a distance and shipping them to market in a more concentrated form than fluid milk will a differential in price result because of different transportation costs and other charges due to distance from the market. This does not necessarily mean the establishment of a manufacturing business outside the city market. If producers find that they receive a higher price for cream, after apparatus and labor costs have been deducted, than for shipping a like amount of fluid milk, the conditions necessary for the price differential have been met.

Another situation may enter in to affect the differential caused by the distance from the market. Just beyond the boundary of the fluid milk zone, or between the territorial limits of two milk sheds, may be a supply of milk insufficient in quantity to permit a dairy manufacturing plant to be operated profitably. It may be cheaper to ship this excess milk to the market in fluid form and manufacture it there than to convert it into other dairy products at the source of the supply. If distributors accept this milk at the market and use it in manufactured dairy products, the fluid milk price

will not be affected provided that they deduct the transportation differential between fluid milk and the product manufactured from their price to dairymen shipping the excess supply. It is unlikely, however, that distributors will assume the added expense of setting up the separate and complicated accounts required to accomplish this, especially if the amount of milk received is relatively small. There is a greater likelihood that the added expense of handling this excess milk will become a part of the total operating expenses of the dealers, in which case the price is lowered and all producers help to pay the additional costs, thus lowering the receipts of all dairymen. In this instance the normal price differential determined by costs increasing with the distance from the market is disturbed and the boundary of the milk shed is widened.

Up to this point we have considered only costs due to the distance from the market, attempting to show how these charges create a differential between fluid milk prices and prices for other dairy products. Another cost found in practically every milk shed today, results from sanitation and health requirements for fluid milk and cream. These regulations have been set up by local or state public authorities. Although some states have certain requirements for butter and other dairy products, these are not as stringent and, therefore, not as costly as those relating to fluid milk and cream.

Sanitation and health regulations create only a part of the added costs of producing milk for fluid uses rather than for other dairy products. Supplying milk for consumption in fluid form means, as a rule, more equipment in the way of cans, strainers and towels; the expenses of proper cooling, such as a milk house and an adequate water system; and usually additional labor costs. It is difficult to arrange these expenditures into distinct categories. A milk house of some sort for cooling is a necessary part of the equipment, while the type of milk house required and its distance from the barn come under sanitation and health requirements. All of

these costs, however, are additional expenses to the dairyman producing milk for fluid use rather than for other dairy commodities, and as such they increase the size of the price differential created by costs due to the distance from the market. As every producer within the milk shed is selling milk for fluid use these costs are uniform throughout as they will be determined by the additional expenditure to the marginal producer. The price, therefore, will be increased by this additional outlay throughout the shed, otherwise it might be advantageous for some dairymen to turn their product into other uses and fluid milk demands could not be met until a higher price caused them to return to the fluid milk market. In short, the increased costs of production because of these regulations must be covered by the price or supply will be reduced over a period of time.

Let us suppose for the moment that there were no price differential due to "distance-from-the-market" costs. In that case all milk would be shipped to the market in fluid form and every unit would have to be of the same quality or nature as every other unit. If sanitation and health regulations were required for milk used in fluid form, it would appear that all milk would have to meet these requirements, causing each unit to bring the same price, although a higher value than in the absence of sanitation and health requirement costs. If this were true, costs due to the nature of the product or its use could not create a price differential within the milk shed; these could only increase the size of the differential created by such factors as different transportation charges.

It must be noted, however, that the cost of meeting health and sanitation requirements will not be the same for each unit of milk produced by every dairyman. There is a relationship between the intensity of dairy production and the cost of meeting sanitary regulations. Up to a certain point at least, the larger the dairy the smaller should be the additional cost placed on each unit of the product, for the cost

of equipment will be spread over a larger volume of milk. Large dairies can ordinarily utilize equipment more economically than smaller ones. Also, the nature of dairying suggests that large dairy farms, economically managed, have a certain amount of equipment anyway, so that additional initial expenditures due to health requirements are likely to be smaller per cow or unit of milk than with smaller dairies. In a competitive market these savings give an advantage to such producers since the size of the spread caused by health and sanitation regulations must be sufficient to take care of the marginal producer required to supply the market. This explains the efforts of large milk producers to have inspection requirements raised. Such rules increase their competitive position by forcing out of the fluid milk market those who cannot economically make the changes necessary to meet these higher regulations. If this happens, the boundaries of the fluid milk shed must be altered, the territory being reduced because producers operating advantageously in respect to sanitation requirement costs increase their production sufficiently to fulfill market demand, or new producers from outside the fluid zone enter because their more favorable position under the new restrictions enables them to overcome the larger differential caused by their distance from the market. If one or both of these changes fails to materialize, price will be increased to the point necessary to have former dairymen return to the fluid milk market, or to the point where consumption decreases to the lowered supply.

This ability of some dairymen to meet health and sanitation requirements at lower costs than others suggests the possibility of a price differential developing because of those requirements, even though a transportation differential were absent. Although all milk were shipped to the market receiving point in fluid form, those dairymen able to meet health and sanitation standards at a relatively low cost would be able to produce for fluid uses at less costs than marginal producers. Thus, these shippers operating advantageously

with respect to meeting the regulations would receive a differential over the others even though there were no transportation differential and would, therefore, tend to secure a relatively larger share of the fluid milk market. Should these health and sanitation standards be of such a nature as to restrict the distance from which milk could be shipped to the market for fluid uses, those dairymen within this restricted territory, having relatively low costs with respect to health regulations, would receive a differential advantage.

Inspection requirements may be drawn in a manner that forces a modification of the boundaries of the milk shed. A contraction of the fluid milk zone is likely to result, for example, if the regulations are of such a character that they increase as the distance from the market enlarges. The effect of these requirements will then be the same as that resulting from transportation or other "distance-from-the-market" costs, and a new differential is set up or added to the transportation spread. And the original milk shed will remain intact only if consumption is not decreased by the higher market price, or if producers close to the market fail to expand their production as a result of their higher price advantage.

Even more drastic results can be realized through inspection laws. Through health and sanitation requirements an artificial fluid milk area may be created. This can be done by requiring milk to be delivered to the consumer within a given number of hours from the time it is produced. This automatically determines the size of the fluid milk zone by setting a maximum distance over which the supply can be transported. Should this requirement reduce the fluid milk territory, one of two alternatives, or both, must follow. Either the price of the commodity will increase until consumption is reduced to the diminished supply or production will increase within this smaller zone to the point of market demand. Regardless of the remedy, the price differential between fluid milk and milk going into other uses will be enhanced.

Whatever may be the nature of health and sanitation regulations they will, as we have observed, increase the spread between fluid milk prices and prices for dairy products meeting lower inspection laws, or none at all. Thus, we have discussed two essential factors that help determine fluid milk prices in any market: one, costs that increase as the distance from the market widens, setting up a price differential between fluid milk and milk going into other uses, and limiting the size of the fluid milk shed; the other, costs due to the nature of the product, which increase the size of the spread among the various classes of dairy products. Other influences, it is true, do exert some force within this set-up but they are of lesser importance than the two described. For instance, differences between dairy farms can be a qualifying factor in deciding for which use farmers will produce milk. The nature of the land, the size of the farm, the condition of the herd, the type of equipment, the labor supply, and even personal preference may be deciding factors, and these become relatively more important as the class differential diminishes nearer the boundaries of the milk shed, making the shed limits more irregular than they would be otherwise.

To this point in our discussion of the economic factors determining price in a fluid milk shed we have assumed that production and consumption were uniform throughout. This, of course, is not the true condition in any milk zone. In fact, there are three distinct types of variation associated with milk supply and demand, and consideration of the first two of these fluctuations will affect our previous analysis materially. One is a long term variation resulting from marked shifts into and out of the dairy enterprise, conditioned largely by changes in the relative profitableness of different enterprises. To state in another way, these variations are caused by changes in opportunity costs relative to dairying which may be called cyclical shifts in supply and are not necessarily associated with changes in demand.

Seasonal variation in production is another type. These changes in supply from month to month occur largely be-

cause of the freshening period of cows, the size of the farm and the nature of the farm land, especially the extent of pasture, and feeding practices. Usually these seasonal swings in supply are not closely associated with changes in demand. Under natural conditions production is relatively low in the winter months when consumption requirements remain rather constant, while the higher summer output comes during the vacation season of many consumers. Also, the height of the ice cream season is in July and August which comes too late to take care of the excess supply during the spring months.

The third type of fluctuations is those in daily sales of fluid milk and cream. Causes of this variation are higher market requirements on some days of the week than on others, abrupt changes in weather, holidays, and similar factors. These changes call for the carrying of an operating reserve, in addition to actual sales, sufficient to meet daily fluctuations in sales.

Considering first long term variations in production and sales, let us suppose that the net price of milk increases relatively to other farm commodities and that this situation becomes more or less permanent, while consumption remains fairly constant. It is realized that a somewhat permanent decrease in consumption with the supply curve remaining intact would also permit the following analysis; but this, it must be admitted, is less likely to happen than the variation in production.

With opportunity earnings greater in dairying than in other farm enterprises more and more farmers within the milk shed will turn to dairying and a greater quantity of fluid milk will be produced than the market consumes. The tendency will be for the fluid milk shed to accommodate itself to a size commensurate with the demand, but certain forces will retard this development. Distributors having receiving stations beyond this new zone will hesitate to close them until they are convinced that the savings from costs in-

creasing with the distance from the market are as large, or larger, than the loss due to unused receiving stations. Even then they may continue these more remote stations if they are in doubt as to the permanency of the shift, for the costs of re-establishing transportation lines and acquiring new producers may be greater than any short time savings which result from a contracted shed. Also, producers located between the old and the new boundary lines of the fluid milk zone, already equipped for producing milk for fluid use, will continue to produce for this purpose until their equipment is worn out. The final result, however, will be a price which will equalize production to market needs.

The above description shows only in a simple way what occurs when long range variations in production take place, the demand remaining constant. To analyze the movement more fully we must recall that milk is produced for different uses, fluid milk, cream, butter and other dairy products. As we have observed, the price differential resulting from costs increasing as the distance from the market widens requires that milk for fluid purposes be produced nearer the market than milk for other uses. Beyond the boundaries that price sets for this fluid milk zone will be the cream territory, as a quantity of milk in the form of cream can be shipped to the market more cheaply than an equal volume of fluid milk. As butter is still less bulky than cream, the price will place the butter zone beyond that for cream.

Butter, especially has always been a determining factor in making the price of milk within any milk shed; as nearly one-half of the annual production of milk is used in butter manufacture. And the price for milk made into butter must be determined by the returns that can be secured for that butter in a national market. Data collected in more than one primary market show the difficulty in maintaining the level of milk and cream prices during a period of declining butter values. Only a relatively short period of price disparity is necessary before milk begins to flow from butter producing channels into fluid milk uses, forcing fluid milk and butter

prices into alignment, although artificial factors may prevent such a move for a time.

R. W. Bartlett of the University of Illinois in his Pamphlet L 6, issued in March, 1932, makes a comparison of butter and milk prices in the New York market from 1868 to 1931 which shows how closely milk prices follow butter values. Summarized briefly it shows:*

1 Year	When butter was 51c, 3.70% milk was $3.24, giving a ratio of 6.4 times one pound of butter for 100 pounds of milk. (Ratio obtained by dividing $3.24 by 51c equals 6.4).
3 Years	When butter was 18.7c, milk was $1.11, with a ratio of 5.9.
2 Years	When butter was 61c, milk was $3.505,, with a ratio of 5.7.
19 Years	When butter was 26.6c, milk was $1.412, with the lowest ratio of 5.3.
64 Years	When the average price of butter was 31.7c, milk was $1.736, with a ratio of 5.5.

This same milk-butter price relationship can be observed in the Philadelphia market. According to Mr. Henry N. Woolman, Vice-President of the Supplee-Wills-Jones Milk Company, the price scheme in operation there has attempted to give due weight to the significance of butter values in determining fluid milk prices. The plan, he says, aims to increase the fluid milk price (Basic price) when it is within 46 cents of the butter value of milk (Surplus price) and to reduce the basic price when it is more than 92 cents above the

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*Bartlett, R. W.: "Price Policies in Organized Milk Markets", University of Illinois Agricultural Experimental Station, Pamphlet L 6, Urbana, Ill., March, 1932; p. 5.

butter surplus price.* The following table shows how well this plan has worked in operation.

Table I. **

Date	51.60 Mile Zone Butter 100 lbs. 4% Milk Surplus	Difference	New York Butter At Date Price Was Changed
Oct. 17, 1936	$2.20	$1.68	$0.52	$0.35
July 1, 1917	2.72	1.87	.85	.39
Nov. 3, 1917	3.10	2.21	.89	.46
Jan. 7, 1918	3.78	2.49	1.29	.52
Feb. 5, 1918	3.56	2.40	1.16	.50
Apr. 1, 1918	3.10	2.01	1.09	.42
Sept. 1, 1918	3.38	2.69	.69	.56
Oct. 14, 1918	3.81	2.83	.98	.59
Feb. 21, 1919	3.38	2.49	.89	.52
Aug. 1, 1910	3.61	2.64	.97	.55
Aug. 1, 1920x	4.07	2.64	1.43	.55
Dec. 1, 1920	3.08	2.64	.44	.55
May 18, 1921	2.27	1.53	.74	.32
Oct. 1, 1922	2.77	2.21	.56	.46
May 1, 1923x	3.13	2.01	1.12	.42
Oct. 31, 1923	2.79	2.30	.49	.48
Sept. 16, 1926	3.14	2.11	1.03	.44
Sept. 16, 1929x	3.39	2.21	1.18	.46
Dec. 20, 1929	3.14	1.97	1.17	.41
Dec. 15, 1930	2.74	1.53	1.21	.32
Sept. 1, 1931	2.41	1.56	.85	.325
Feb. 16, 1932	2.07	1.08	.99	.225
July 1, 1932	1.93	.98	.95	.20
Nov. 1, 1932	1.68	.77	.91	.193

An analysis of the above table shows that the price for fluid milk fluctuated directly with the butter value until August 1, 1920. On that date the fluid milk price was raised while the butter value remained constant at 55 cents, with the result that within four months the basic price had fallen to a lower figure than it had been before the August increase,

*Woolman, H. N.: "Fundamentals in Determining Milk Price Relationships", Paper presented at the 25th Annual Convention of the International Association of Milk Dealers at Detroit, Mich., Oct. 18, 1932; p. 8.

**Woolman, H. N.: "Fundamentals in Determining Milk Price Relationships", p. 8.

butter still remaining at the same price level. The next attempt at increasing the milk price without regard to butter values was on May 1, 1923, when fluid milk was raised to $3.13 although butter was falling in price. Within six months the milk price was lower in spite of an increase in the value of butter. Again, on September 16, 1929, milk responded to a two cent increase in butter price but it could not be held at this high figure, continuing to fall steadily as butter values declined during the next three years.

Thus, we see that fluid milk prices vary directly with upward and downward fluctuations in butter values. With respect to long range variations in production, the first reaction to any favorable change in milk earnings relative to other agricultural commodities will be a shift of farmers from other products to producing milk for butter uses. The initial costs of changing from other types of farming to dairying will be less for producing milk for butter than for cream or fluid milk uses. Furthermore, under our assumption that demand remains constant, the fluid milk and cream markets are already supplied fully and any additional production within these zones must be used in making butter or other manufactured dairy products.

This increased production will find its way into butter, the supply will increase relative to demand, and butter prices will fall. This price reduction will lower the price for cream, else those dairymen outside the cream zone will equip their farms for cream production. Likewise, the fluid milk price must fall commensurately or cream producers will avert their lowered cream price by making the changes necessary to realize on the higher fluid milk price. Unless the price drop is equal to the added costs of becoming fluid milk producers, farmers in the cream belt will be encouraged to enter the fluid milk market. Thus, the change in butter prices must be reflected throughout the entire dairy industry if zone boundaries are to remain intact. Should artificial forces attempt to hold present cream and fluid milk prices in the face

of falling butter values, the whole price structure must break down in time. Under such a condition the cream shed will enlarge through additional producers equipping themselves to come into a higher class market. Once in, these dairymen will not shift back to butter production until the differential covering the additional expenditures for producing cream has been removed entirely. Even then they may continue production in the belief or hope that the price change is temporary. A like result will follow should the fluid milk price remain steady during a period of falling cream values.

Reversing the order, we can readily see the effects of a shift from dairying to other farm production, with increased butter prices resulting. Under these circumstances cream prices also must rise or in time the cream zone will be contracted through producers turning to butter production. Likewise, the fluid milk price will increase or dairymen will give up producing for the higher class market in favor of cream production. Again, butter prices will hold other dairy values in line and keep the zones intact, although price changes may respond more slowly because of the hesitancy of farmers to cease producing for the higher use products.

Should we start with the demand side, assuming a decline in the consumption of fluid milk and a constant supply, the decrease in fluid milk prices that must follow will lower the whole price structure. Otherwise, the fluid milk zone will contract and producers near its boundaries, with a lower differential than those nearer the market, will turn to production for cream uses. The change will be slow because these farmers will not shift into the lower use class at any price below that which they can secure for fluid milk until the additional costs of producing it over cream are entirely wiped out. When this equipment is worn out and must be replaced the shift will occur, unless they are convinced that the situation is only temporary.

The price relationship between butter and fluid milk may work in the opposite direction, the butter price being affected

by large quantities of milk going into fluid uses. A higher price for fluid milk brought about by increased consumption will cause the whole price structure to respond to this price increase. If not, the various zones would again change but the shifts will not occur as rapidly as the price differentials might indicate. Cream producers will hesitate to make the additional costs necessary to enter the fluid milk field until they are sure the change is a permanent one. However, it appears that farmers are less likely to use forethought in taking advantage of price gains which may be temporary in nature than they are in changing back to a former status to avoid losses.

We have observed the effects of long term shifts in production or consumption in a competitive market. Will short time changes or seasonal variations create similar results? Here, too, we find some of the same forces at work as in the more permanent shifts but with somewhat different results. Seasonal variations in sales will cause a close relationship between prices, the supplies of each product coming on the market, and changes in territorial limits of zones in which each product is produced, if we assume that the seasonal variation of output and prices of each class of milk products is directly proportional to the changes of production and prices in all other classes.

However, it is the supply factor in price that is likely to exert the more influence in these short time variations. Consumption of fluid milk and cream varies relatively little with the season but milk production, on the other hand, shows large seasonal fluctuation under natural conditions. Under these natural conditions it is obvious that the boundaries of the various production areas must shift with seasonal variations in output as the quantities produced in each zone will not exactly equal market requirements for the corresponding class of milk throughout the year. This means that in the fall months, the season of low production, the fluid milk shed will expand in order to take care of market needs and in the

spring months of heavy production it will contract because of the larger supply of milk produced nearer the market. But, other supply factors will enter into the situation to curtail the magnitude of zone alterations. Since it costs more to transport milk from beyond the normal fluid milk zone than from within, the price will increase in periods of short production, stimulating near-by producers to increase output and thereby retarding the enlargement of the fluid milk territory. Likewise, in seasons of excess production the resultant lower price will tend to discourage heavy supplies, especially for dairymen near the boundaries of the shed where any price cut lessens the differential between fluid milk and milk for other uses. Competitive processes, therefore, tend to mitigate seasonal expansion and contraction of the various milk zones by establishing a price structure which makes it profitable for producers in the upper price zones to produce milk in conformity with consumption demands.

Although the effects of seasonal variations in production appear to cause similar types of changes as those resulting from more permanent production shifts, important distinctions make the former less drastic in their effect.

In the first place, these short time variations are more easily predictable than the more permanent ones and preparations can be made to counteract them; also, their relatively short duration makes for less market disturbance. During the season of declining production zones will not be expanded immediately because dairymen will hesitate to make the additional expenditures necessary to shift into the production of a higher use product. As this additional cost is one primarily of new equipment and improvement of dairies, it represents a fixed cost rather than an outlay which is variable with each unit of milk produced. Considered, therefore, as annual costs the price advance must be sufficiently large to cover those expenditures for the entire year before they will be induced to shift production. In the meantime producers nearer the market will have increased output through the

stimulus of the steadily increasing price, and supply and demand may become equated before it is profitable for the outside dairyman to prepare for the higher class production. Only under the circumstance which finds during the short production period an available supply of milk in lower class territories which meet health and sanitation requirements, or where those requirements are the same for all classes, will an increase in price due to seasonal variation bring about an immediate widening of the fluid milk shed.

Another fact of significance tending to make less drastic shifts into and out of various production classes is the short time involved in seasonal variations. Although the lower class producer may hesitate to make the additional expenditures required for a higher class product, once in the new zone he is likely to remain. For, the following period of high production with its tendency to reduce the size of the fluid milk belt is not long enough to completely wipe out the added expense of meeting health and sanitation standards. Although this part of the differential would be lost while supply was increasing and zones contracting, appreciable readjustment would not occur before the period of declining production set in. Therefore, both the enlarging and the contracting of various zones will not follow as swiftly as the inequalities in market supply and demand relationships might indicate at a glance.

As suggested above, there are many factors operating to check seasonal fluctuations in prices for milk products. Perhaps the most significant of these is the advantage of producers located near the market. Any shift, whether in production or consumption, is more favorable to them than to the more remote dairymen in the shed. Lower transportation costs give them an advantage at the outset and they can usually meet inspection requirements more economically than farmers farther from the market. These gains encourage a more intensive system of herd management which in turn tends to make the seasonal difference in cost smaller.

Since economical management requires high production per cow at all seasons of the year, these farmers are better able to take advantage of any upward price change, and find it profitable to increase output in the short period thereby holding prices more constant than otherwise would result. And this tendency operates throughout the zone until seasonal fluctuations in price are reduced to the point where no further adjustment is profitable. At least, production should tend to become more uniform the nearer the producer is situated to the market.

Furthermore, during periods of low production distributors will find it more economical to pay prices high enough to cause the required volume of milk to be produced within the same area, rather than having to enlarge their range of operations at these low output intervals. In fact, they will be willing to stimulate quantity production by a price increase equal to the additional transportation costs necessary to tap new territory, plus the expense involved in adding new producers.

Finally, the ultimate check to price increase due to seasonal shortages will be a change in consumer demand. Even though that demand is relatively inelastic, consumption will be curtailed before the high price required to cause a large increase in the size of the milk shed becomes effective.

Through lower prices, also, many of the tendencies leading to a contraction of the fluid milk shed in seasons of heavy production will be checked. As with short production, dairymen near the market are in a better position than those at a distance. The price drop accompanying excess supplies will take away first the differential necessary for those at the zone border to produce profitably, and tend to force them into a lower class output. We have noticed that these farmers near the boundary line will continue to produce milk for fluid use until the sanitation requirement differential is entirely abolished, and perhaps longer. Moreover, it is possible that these dairymen may be in a better position during the season of heavy production than those close to the market. Because of lower feed costs their production expenses may be much less as more remote producers usually possess large pastures, while dairymen nearer the market, with less pasture, may have higher feed costs. The difference in this feed item between the distant and near-by producer may be more than sufficient to overcome the differential in which case dairymen near the market will be forced to reduce output, or they will find that the low returns on their excess milk make their composite prices insufficient for operating expenses. Furthermore, the distributor, knowing the cost of discontinuing purchases from farmers distant from the market, may attempt to keep the price fairly stable, especially as he expects to need the supply of these producers during seasons of short production.

The third type of variations, daily fluctuations in sales, does not affect our analysis of the price structure in a truly competitive market. It is necessary that a larger volume of fluid milk be shipped to the market than is consumed because of the inability to forecast the amount needed each day. This reserve, returned from the route milk wagons, is usually converted into manufactured dairy products. That it must be directed to lower price uses does not alter the fact that it must arrive at the market in fluid form and, therefore, must be a part of the supply determining price in the fluid milk market.

Such are the major forces determining the price of milk in a competitive milk market. These economic factors cannot be disregarded in studying the milk problems of any market, but they can be and are modified by artificial influences in every community. Free competitive conditions cannot exist because man is attempting constantly to alter them either in his own interest or in the interest of the larger community. The changes that have occurred in our economic life have created marketing conditions and practices of such a nature

that they need some measure of artificial control. What are the objectives and nature of these man-made plans and what fundamental principles do they involve in their operation? These questions must be answered before any attempt can be made to estimate the validity of the criticisms of the milk control plan in any market.

Chapter III.

MILK PRICE PLANS.

In the evolution of milk marketing many changes have occurred to interfere with the operation of competitive forces described in the preceding chapter. In the early days of the producer-distributor serving his small group of customers with no thought of health ordinances, milk prices were determined mainly by free competitive processes. The development of modern institutions, such as large urban centers and present day transportation facilities, has brought changes in the operation of the competitive system. Not the least of these institutionalizing forces has been the creation of large milk distributing corporations resulting from economies in processing and distribution that large scale operations encourage. Yet these large dealers encountered marketing problems of greater magnitude than the small producer-distributor, due chiefly to the relationship of milk supply to demand. Whereas the small distributor could adjust supply to demand at all seasons of the year without great difficulty, these larger buyers, requiring the production of hundreds of farmers, found it a more difficult task to make this adjustment.

In order to insure a sufficient supply during periods of low production these dealers found it necessary to handle more milk than could be sold in fluid form at other seasons. This surplus necessitated additional handling facilities and created the problem of disposing of it in competition with manufacturers of dairy products. Thus the large distributors assumed the risk of selling this excess supply at whatever prices they could receive for it, sometimes disposing of it at a loss. As a result they protected themselves against losses by paying farmers prices low enough to insure a net profit on total sales. Because of their size and the large number of dairymen dependent upon them for a market, the

bargaining power of the large distributors was enhanced, giving them an advantage in trading relations with the individual producer who could rarely afford the loss of his market. The producer often found it impossible to secure a more advantageous market because of limited transportation facilities, and the costs of meeting the regulations of city health ordinances precluded competition with large dealers by distributing his own milk. Furthermore, these conditions tended to reduce unrestricted competition among buyers and often caused prices to be influenced more or less by artificial manipulations, which not only placed shippers at a further disadvantage in price bargainings but proved detrimental to the interests of some distributors as well.

As a result of these marketing conditions, dairymen were encouraged to cooperate in efforts to increase their bargaining power, for as long as farmers remained unorganized it was impossible to formulate plans for securing prices for their product that free competitive processes warrant. In order to free dairy prices from the injurious effects resulting from institutionalizing forces, producer cooperatives realized that measures for restoring more unrestricted competition were essential. To be effective such plans should enable producers to secure from distributors prices for milk based upon its value in different uses, as determined by truly competitive processes. As seasonal variation in production, causing excess supplies at one season and a shortage at another period, was largely responsible for low prices any plan for encouraging uniform output would increase returns to dairymen. Although efforts can be made to effect seasonal coordination of production to consumption through raising and lowering prices, any plan that would result in a distribution of payments, based upon each producer's contribution of value proportionate to the total value of the milk sold would be more likely to encourage uniform and economic production and marketing of milk.

Building up workable price plans has been slow and

difficult, largely due to the nature of the product itself. Milk in fluid form is perhaps the most highly perishable commodity used in large quantities. The greater the perishability of a product, the more variations exist as to quality and marketing methods, and the greater is the difficulty encountered in putting organized price plans into effect.

It should be clear that in the absence of any artificial price plan all fluid milk entering the market sells at the same price regardless of the use made of it. This single price for all milk irrespective of the use is generally called a Flat Price. Milk used in fluid form, separated for cream, or converted into manufactured products at the market is paid for at a flat price. This price may be an average one, based upon values of milk as utilized in the market but there is no distinction made as to what percentage of milk is used in each form. The distributor buys the milk at a given price and sells all that he can for fluid use, manufacturing or disposing of the remainder as profitably as possible. This usually means that the buyer must integrate by-product enterprises, butter, cheese, etc., with his major business of distributing fluid milk and sell these by-products in competition with manufacturers who specialize in the production of these commodities. Not being specialized in the manufacture of these by-products, the fluid milk dealer runs the risk of losing on his sales because of this competition with other manufacturers having lower costs. Since he takes whatever risk is involved in having to dispose of this part of the milk supply at a price lower than the fluid milk price, his flat price is established so low that the average price of all the milk sold in all forms will compensate him for any risk involved. As it is not generally known by the dairymen just how much is necessary to compensate the distributor for the risk taken, it is possible for the latter to take a larger proportion of the price than is justified.

This marketing practice not only fails to protect producers as it gives them no assurance that they will receive

the higher price for all their milk going into fluid uses, but it is also detrimental to certain milk dealers. The distributor using a relatively large proportion of his product in lower class forms objects to paying the same flat price as the dealer who sells a greater portion of his milk for fluid consumption, because a larger volume of the former's milk has a market value below the average on which the flat price is based.

Therefore, producers championed any control plan that would guarantee them the same differential on all their milk sold in each class as they would receive under free competitive processes, and those distributors using a relatively large proportion of their milk in lower price products favored any plan that would not require them to pay a higher differential than truly competitive conditions warranted. The result was the adoption in many markets of the Classification or Use Plan of marketing milk. As the name suggests, it is a method for selling milk to distributors according to the use to which it is put. The milk dealers show the producers the exact quantities sold for the different uses, fluid milk, cream, etc., and a basis for payment according to the various amounts sold in each use is arranged between the cooperative and the distributors. Milk sold in fluid form is usually designated as Class I milk and all excess milk as Class II, although a cream class is sometimes inserted between the two making the excess milk Class III.

The plan is based on the theory that milk in fluid form is worth a higher price than in other forms and therefore should command a premium over the price of butter and other manufactured dairy products. From our previous analysis the economic justification for that assumption was made clear. The differential in transportation and other costs enlarging with the increase in distance from the market is the basis of this higher fluid milk price. Added to it is the further cost of higher health and sanitation requirements for fluid milk which increases the spread, especially when seasonal variation in production and sales is taken into account.

For, the uncertainty of a year-the-round market for all the milk makes the additional fixed costs of meeting these inspection standards a greater factor in the price differential than otherwise would be.

Since these factors create a differential between fluid milk prices and those of other dairy products, the classification price plan attempts to release the higher fluid milk values from the depressing effects of its former close relationship to excess milk, which goes into lower price uses. This attempt to guarantee the value of all milk as determined by the use made of it is the most significant feature of the Use plan, but it does not control one of the fundamental factors causing instability in milk marketing. This factor is the seasonal variation in production, not closely associated with demand, which results in excess production at certain periods and a shortage of fluid milk at other seasons. As fluid milk is highly perishable and bulky and must be sold quickly after it reaches the market or processed into manufactured products, any adjustment of supply and demand of the fluid commodity through storage is impossible.

Our analysis has shown the effects of this seasonal variation on price and how competitive processes tend to lessen seasonal expansion and contraction of the various zones by establishing a price structure which makes it profitable for producers in the higher price zones to produce milk in conformity with consumption demands. Institutional forces, however, have interfered with this operation in ways that the Use plan can not remedy effectively. In the first place, distributors finding it necessary to enlarge the fluid milk zone in periods of low production may continue to operate in this enlarged territory throughout the year. It may be more economical for them to hold these additional producers permanently than to add new shippers and re-establish transportation lines at intervals of low supply. Or, the distributors may use the enlarged shed as a weapon in bargaining, citing the heavy supply as a reason for lower prices, and lower prices

will eventually lower production, which may cause another expansion of the fluid milk belt when the season of low output arrives.

Again, we have seen that the distributor assumes the task of disposing of all excess milk in the form of by-products and that he runs the risk of losing on his sales because he must compete with manufacturers who may have lower costs because they specialize in the manufacture of these commodities. As the dealer takes whatever risk is involved in having to dispose of this part of the milk supply at a price lower than the fluid milk price, the larger the excess over fluid uses the lower may be the composite price received by the dairyman. Although the Use plan will show the individual producer the percentage of his milk consumed in fluid form in any month, it is a rather weak indicator of the value of his milk for the following month.

This practical difficulty of securing a close adjustment of output to demand for fluid milk was the stimulus for inaugurating some plan whereby the proceeds from the sale of milk might be distributed in a manner that would tend to discourage seasonal variations in production. This plan would have to create an incentive for evening up production which, we have observed, is the tendency anyway under unrestricted competition when the market has high inspection requirements for fluid milk.

There is little doubt that dairymen near the market formed the nucleus for early cooperatives fostering price schemes that benefit the producer who evens up his production. We explained previously that the near-by milk farmer has an economic advantage because of transportation and other costs increasing with the distance from the market. He has the further advantage of making contacts with distributors more easily and gaining information on the market situation. Generally speaking, he has usually adjusted his production to market demands, having less seasonal variation in supply than the more remote farmer. For this reason, the small dealer, especially, can afford to pay this close-by dairyman a premium for his milk as the even supply may cost him less in the end. Moreover, dairies that have been producing milk for the fluid market for years in most cases show far less seasonal fluctuation than those who have been shipping for a shorter period. Thus, as the distance from the market widens, seasonal variation tends to increase, for the more distant producer was probably selling his output for lower class dairy products a short time before. All of these factors enable the shipper near the market to secure a relatively higher net price than the farmer farther out.

In spite of their advantage, it can readily be seen that in seasons of heavy production these dairymen will have their earnings forced down by uneven producers who market a large proportion of their product during this season when much milk is turned into low price products. It was these former shippers, usually close to the market and receiving the highest differential under normal supply and demand conditions, who saw their profits threatened by the uneven production of those dairymen located farther from market. These near-by producers had attempted, in many cases, to keep the fluid milk zone from enlarging by supplying a uniform production throughout the year, because they received a larger share of the high price in periods of low production and a higher composite price in the season of heavy production. They were the first to argue that dairymen attempting to stabilize the market through evened production should be protected against price declines caused by farmers who flooded the market during the season of excess output.

The plan for controlling this seasonal variation in production is the Base-Surplus or Base-Rating Plan. Hereafter, in this chapter we shall call it the base-rating plan as the term "surplus" gives the implication that there is more milk than the market needs, which is not true; it really means that there is more milk than the market needs in fluid form and that the so-called surplus is the excess supply over fluid

consumption which is used in lower price products.

The base-rating plan is one distributing to producers the proceeds from the sale of milk to buyers at various prices according to the market value of the milk contributed by each producer. The dairymen are paid in a manner that rewards the shipper who supplies milk throughout the year in close conformance to seasonal market needs, while the farmer who produces a volume that varies greatly from month to month receives a relatively smaller portion of the fluid milk market. Part of this reward for even production results from the minimizing of the distributors' risk from carrying excess milk. The more even the supply, the less excess milk distributors will have to dispose of, sometimes at a loss which is subtracted from the fluid milk price. Or, stated another way, the dealers' savings through more efficient operation, because of a more uniform supply, can be passed back to the producer in the form of a higher price for Class I milk. Furthermore, with the price of milk in each use the same to every distributor in the market, milk can be transferred from one buyer to another so that it can be put to the most profitable use.

Under the base-rating plan each producer's share of the fluid milk market is determined in a manner which attempts to relate his production to the Class I needs of the market. Although there are various ways of deciding what this share or base, as it is called, shall be, the most common method of determining original bases has been to take the the average production of each dairyman for the fall months (usually October, November and December), as his base for the following year because this period is under normal conditions the time of least excess, or greatest shortage, in the market. Since market demand for fluid milk is relatively uniform, this method is justified on the grounds that minimum production for fluid uses should be measured by total output during the period of least excess and that additional supplies in any other period must necessarily be considered as excess.

Other methods of determining basics have been used in various markets. The Connecticut plan permitted each producer to specify the quantity of milk that should constitute his basic volume for the ensuing year with penalties for production over or under this amount. Another idea followed in some markets is the granting to each dairyman as his base amount the volume included within a certain percentage range from his average monthly production for the year. None of these methods, or any other, can exactly equate production and market demand but each attempts to reward the producer according to the value of his product on the market.

The merits of any price plan should be determined by its degree of success in maintaining the most economical supply for the market and, at the same time, in creating the minimum of discontent among the various groups concerned, producers, distributors, and consumers. The principles of determining prices according to the different values of milk in different uses and of prorating the fluid milk market among producers according to their year round ability to supply that market are in themselves fundamentally sound. The use plan and the base-rating plan are more likely to work in practice than any other control programs that have been tried. One alternative, the attempt at exchanging fluid milk and cream between markets drawing their supplies from areas in which the seasonality of production differs has usually failed because of the inability to prevent those supplies continuing when they are no longer needed. There is also the tendency for all markets to be short at the same time. Another method of maintaining supply is having an area, usually near the fluid milk zone border, equipped for the production of fluid milk but taking the milk in this form only when needed. But this practice becomes less economical as higher sanitation requirements or other fixed costs are added to the production of milk for fluid uses, and the difficulty of keeping this supply from the market at other than

the short season is great. Although certain circumstances, such as the character of health and sanitation regulations, may cause any one or a combination of these various methods to be the most economical, the use plan combined with the base-rating plan is usually more satisfactory than the others.

In turning to a consideration of these two plans in operation, we find great variety in methods of administering them. The base-rating scheme, especially, has been modified in some markets to meet their own peculiar conditions and in many markets the two plans have been combined in one form or another. We have noticed that the main object of the base-rating plan is minimizing market instability caused by seasonal variations in production. Before considering these seasonal changes, let us ask what effect either plan may have on the more permanent variations within the milk industry.

It appears that the use plan has no significant influence on long term changes. The factors creating these long time shifts in production will function whether milk is sold at a flat price or according to use. If the opportunity costs of producing milk become relatively more favorable the classification price plan will not discourage a shift to the upper class supply because every producer will receive his proportionate share of the fluid milk market as under a flat price. Likewise, a more permanent shift out of milk production will not be retarded as the use scheme cannot prevent a fall in price due to continued excess production. As the amount of fluid milk entering the market increases, the percentage going into Class I will decrease until the point is reached where it will be more profitable for dairymen to shift to production for other uses.

The base-rating plan, on the other hand, probably has an indirect influence on these more permanent shifts into and out of production. On account of his base the fluid milk producer has a sort of vested interest in the Class I market which may have some effects on his reaction to price changes.

A shift out of production may be retarded by this hold on the market supply. Under ordinary circumstances the dairyman may sell part of his herd in a period of falling prices, figuring that he can return to his present production volume when opportunity costs become more favorable. Yet, realizing the difficulty of regaining his base under the control plan and uncertain as to the length of the falling price period, he may keep his herd intact, protecting his base, with the hope that a more favorable market will soon return.

Again, a period of relatively increasing prices may affect the shift into production for fluid use. Bases are often determined from long time production records, sometimes extending over several years, making it easier for the producer already in the market to increase his basic than for the new producer to establish one. This practice enables the old shipper to receive a larger share of the gain from a long range price rise and may cause him to increase rapidly his herd at the same time that others are entering the market for the first time. This same factor may retard the entrance into the market of the new producer if the fluid milk price is such that his composite price will not equal his present returns for a lower use product under present production methods. In other words, the additional costs of shifting high output to the base forming period may more than offset the gain to be received under the prevailing method of establishing basics, considering his present seasonal variation in production.

The effect of the base-rating plan on the more permanent changes in the milk industry may be, therefore, uneconomical in so far as it retards shifts out of production for the fluid milk market and further repressing the price on the one hand, and, on the other hand, as it increases the price by delaying the entrance of new producers into the market when the shift into production takes place.

Regarding daily variation in sales these artificial price schemes have no effect upon supply and demand factors.

This necessary market reserve is distributed among producers for fluid uses in the form of a lower use price for this portion of their product. Its only influence is to raise the price of the basic quantity or Class I milk to a point where the composite price for all milk required to be shipped to the market in fluid form equals the price for fluid milk shipped in under free competitive processes. The only way that producers can free the Class I price from the effects of this daily operating excess is for them to service distributors in accordance with their needs, which would relieve the dealers from any burden with respect to their supply of milk and take care of the excess. To do this the producers' marketing association must control all the milk that comes on the market, a rare occurrence in any market. Otherwise distributors cooperating with the association might be placed at a disadvantage in competition with buyers securing their supplies elsewhere and the plan would break down, unless the association's price for assuming this added risk of servicing dealers is lower than the distributors' costs of buying outside the cooperative and disposing of the normal reserve themselves. This is doubtful considering the present organization of the dairy industry in most markets.

Another danger in producers servicing distributors results from the weak bargaining position in which the buyers are placed by this operation. Having complete control over the supply, the producers' group may attempt to force dealers in price matters by establishing an artificial price level for milk. It is true that artificial price levels have been maintained for periods through the operation of control schemes as indicated by Table I * which lists Class I prices in the Philadelphia market under the base-surplus plan. But these periods were of short duration and followed in each instance by a sharp drop in price, and it is doubtful if any artificially high price level could be maintained for long. At least dis-

*p. 22.

tributors would make every effort to avoid these artificial prices by developing and keeping open new sources of supply, thereby increasing the size of the milk shed with the consequent threat to the whole price structure. Only through complete control over supplies and the maintenance of a price that competitive processes warranted could producers service distributors effectively, and these conditions would be affected by the existing plants established by distributors to handle excess supplies.

Another method of approaching this daily reserve problem is through measures which attempt to force distributors to keep these reserves at a minimum. Artificial price plans cannot accomplish this but it has been tried through laws granting producers' associations the right to audit the accounts of distributors and to require accurate reports on supply and on sales according to uses. However, to date, attempts along this line have not been satisfactory because of the difficulty of securing fully reliable reports from distributors even when disinterested parties inspect their records. Yet, it is doubtless true that buyers in some markets have used this reserve milk at times to beat down the prices dairymen receive for their Class I milk. This can be done because, in most markets, the producers' organization would find it very difficult to combat excessive reserves through processing even a small quantity of the supply; and even if it did succeed in turning it into manufactured products the effect of this shift upon those dairy products would be to lower their price, thereby tending to check the shift. However, if a more stable equalibrium would result from producer control of any part of their excess production it would be reflected in a higher fluid milk price, which would offset any drop in the price of manufactured dairy commodities. Any plan that can be devised to free fluid milk prices from other than a normal relationship to excess prices will benefit the producer.

The base-rating plan may be administered in such a man-

ner as to minimize the disadvantage caused by distance from the market. If through his base each producer is allotted a definite portion of the fluid milk market, regardless of the economies which give the near-by dairyman a price differential over the more remote shipper, such actions will prevent a contraction of the Class I zone when distance differentials are most pronounced. In so far as the plan gives a premium for evening up production the near-by producers' disadvantage from the effects of excess supplies may be removed, but his ease of making contact with distributors may still enable him to make a more profitable bargain than participation in a pool with distant producers. Thus, the producers' association experiences the difficulty of trying to give equal consideration to all shippers without causing near-by dairymen to become dissatisfied with a plan that does not compensate them for their natural advantages. In fact, the adoption of this feature in some base-rating plans has perhaps caused more dissatisfaction with, protest against, and evasion of these plans than any other factor.

This distance factor may have another effect on the practical workings of the base-rating plan. Not only does the relatively lower differential provide less incentive for farmers to produce evenly as their distance from the market increases, but also the method of computing transportation charges on the different classes of milk may discourage even production. Transportation costs, we know, enter into supply-costs and under the plan these are placed mainly on the basic quantity of milk, for these costs are subtracted from the basic price in each freight zone, while the same excess price prevails in all zones. Therefore, the difference between basic and excess milk prices is less for dairymen at the outer edge of the zone than for those nearer the market, making the excess price a higher percentage of the basic price for these distant shippers than for near-by milk farmers. Lininger illustrates how this feature works to stimulate

close to the market producers to increase their basic amounts by an example from the Philadelphia milk shed:*

> "In June, 1926, a producer in the 41 to 50 mile zone, who was producing no surplus and selling 10,000 lbs. of milk, would have received $214. If he had produced 4000 lbs. of 'basic' and 6000 lbs. of surplus, he would have received only $170.20, a difference of $43.50, or 20.5 per cent reduction. With similar changes in the basic amounts, however, the difference would have been only $28.20, or only 15.0 per cent reduction for the producer in the 291 to 300 mile zone. In order to have a deduction of but 15 per cent the producer in the 41 to 50 mile zone would have to have a basic of approximately 5000 lbs., instead of 4000 lbs."

Artificial price plans, which tend to separate somewhat the otherwise close relationship between fluid milk and milk going into lower class uses, sometimes lead producers' associations to believe that prices for Class I milk are freer from economic laws than formerly. This belief has often brought about unstable marketing conditions by encouraging association officers to attempt to maintain an artificially high price for milk going into fluid uses. The result is often greater instability. If fluid milk prices are too high during the season of greatest supply, price cutting by unorganized competitor dealers results, bringing down the price to organized producers. The ability of the price-cutter to operate depends upon the size of the spread between Class I and the composite price. As the margin between Class I and the net composite price is determined primarily by the difference between Class I fluid price and Class II excess price, the greater the difference the higher the spread, which makes price cutting possible by new and unorganized distributors. This results in a lowered fluid price but not before increased supplies have come on the market or the organized producers have had their bargaining power weakened through the desertion of members. Furthermore, these price-cutters seldom

*Lininger, F. F. and Weaver, F. P.: "How to Adjust Milk Production to the Philadelphia Marketing Plan", Pa. State College Agricultural Circular 123, March, 1929; P. 7.

carry their proportionate share of the excess fluid milk and by selling more of their supplies as Class I milk they are able to cut the price still lower. A high fluid milk price during the season of greatest supply also encourages a greater production at that season and thus defeats the very aim that these price plans set out to achieve, a more even seasonal production.

To prevent the breakdown of their artificially high price structure, some markets have attempted to control supply in a manner that will prevent price-cutting. The most common method used is the exclusion of outside producers through rather drastic health and sanitation requirements. The result is the expansion of production by dairymen within the closed zone, stimulated by the high price. Even though the boundaries of the zone are arbitrarily fixed by such regulations, the tendency is for producers nearest the market to secure most of the gain resulting from the high price until dairymen at the edge of the belt receive no higher price than they would without the restriction on the zone. And, even when the attempt is made to control production on individual farms through a rating plan providing for a closed base, producers close to the market can gain a disproportionate share of this high price by distributing their own milk. In any case, it is difficult for the producers' cooperative to maintain for long this monopoly price without creating discontent among the more distant producers.

Another method of price adjustment attempted in some markets is a low cream price permitting dealers large margins on cream sales in the belief that producers will be more than compensated through increased Class I sales. As consumer interest is centered mainly on Class I price, this device gives the appearance that consumers are paying a reasonable price for fluid milk judged by competitive standards, while the nature and various classes of cream make it difficult to determine what the distributors' margins on cream should be. Under restricted competitive processes

high margins on cream sales will enable dealers to lower their margin on fluid milk sales and consumption of Class I milk will increase, since consumers will purchase milk instead of cream. But the result of this manipulation is to lower total consumption while enlarging the zone of fluid milk production. In the end it will reduce the total returns to dairymen for all classes of milk, unless market cream requirements are being supplied from sources outside the milk shed.

Our analysis has shown that any artificial price, whether too high or too low, will produce market instability after a time. Since the quantity of milk produced responds rather quickly and markedly to changes in the relative price of milk, while demand is only slightly affected by moderate changes in price, a price either too low or too high may cause production to adjust itself to the new price level long before what is taking place is definitely realized. If the price is too high the most immediate response will be the bringing of new territory into the milk shed, which will result in time in an excess over the volume required for consumption in fluid form with price-cutting, a widening of the fluid milk zone, and general instability, which must finally result in a lower price. If the price is too low, production will soon fall off until it is not sufficient for fluid requirements. In that case, prices must be advanced which will stimulate production again and, if consumption is not reduced, other areas must be drawn upon to make up the deficit. If distributors continue to receive milk from outside areas after the regular producers have had time to respond to the price increase, or when output increases seasonally, the market will be called upon to absorb more milk; in the end this must result in a lower price.

The higher Class I price is above the price of milk used in manufactured dairy products, the greater will be the quantity of milk in any milk shed in excess of that needed for fluid purposes. Because of this extra supply that might be used for fluid consumption, every dairyman within the milk

shed is a potential fluid milk producer. Therefore, the difference in prices for Class I milk and milk for manufacturing purposes can only be a little above what the increased care in producing milk for the fluid market costs the producer. If the spread between these is wide it is impossible to keep distributors from purchasing this excess milk at lower prices and underselling their competitors. Milk for cream purposes in such an area must also be sold at practically the same price as that sold for manufactured products. The average selling price which the distributors receive for milk must necessarily determine an upper limit on fluid milk prices.

Often the price of milk is raised although too large a quantity is already being received at the market, because producers contend that they are not securing the cost of production. Under such circumstances there is no economic justification for raising the price merely because the average cost of production is high. If there are excess supplies, a higher price will produce more instability and value will fall even below its former level in time. If prices are to be stabilized production must be relatively uniform and a higher price in a period of excess output will not bring stability.

The degree of success of the base-rating plan, when administered so as to attempt to control the supply, depends a great deal upon conditions within the particular milk shed. If the boundaries of the shed are well defined and production is not greatly in excess of fluid milk requirements a reasonable control of supply through bases may not be difficult. In a shed where large quantities of milk are free from this control or where much natural pasture land enables many dairymen to produce more cheaply a varying amount rather than a constant volume, the plan is less likely to succeed. There is no doubt that a base-rating plan operating with a "closed" base system is, in many respects, more difficult to operate successfully than the use control measure. The weakness of the latter arises from the difficulty of securing adequate and reliable reports on Class I sales of milk from all distributors.

On the other hand, the use plan is inherently more self-adjusting and requires less manipulation than a base-rating scheme which attempts through artificial means to prevent distributors from obtaining large quantities of excess milk. For that very reason it results in higher prices to farmers than the use plan, if it can be operated successfully.

A criticism of the base-rating plan may arise from the fact that the distributors' excess over fluid sales differs from the producers' excess over basic volumes, since buyers do not pay each producer prices corresponding to the potential values of milk based upon its uses. Rather, the dealers assume the risk that basic purchases may exceed Class I sales while they receive whatever benefit may accrue from using excess milk for fluid purposes. If one portion of a buyers' producers ship excess milk at one season and less than their basics at another period, while a second group of dairymen are reversing this order, the distributor may benefit through using some lower price milk as Class I. For this arrangement may work so that the total basic purchases of the dealer will always be less than total fluid sales while some producers will be shipping excess milk at every season. At least, there is a tendency for the dealer carrying a high excess of fluid milk to gain an advantage over the low excess distributor, as the former will be more likely to gain from using this milk for fluid purposes while the latter may be forced to pay higher prices for fluid milk in times of shortage. However, it is probable that gains and losses will approximately equalize each other, if bases are determined on the basis of average yearly sales.

As the base-rating plan usually exacts no penalty for production under the basic quantity it may fail to eliminate seasonal variations in the end. The producer may try to make his basic period the time of peak production with the result that he may establish a quota in excess of the average volume he can, or expects to, produce throughout the year. If the majority of dairymen adopt this practice the result

may be simply to shift the period of excess output from one season to another. Of course, this can be averted through various methods of determining yearly bases or by the reduction of basics if the producer fails to deliver a volume of milk at least approximately equal to his quota.

The successful operation of the base-rating plan is in direct proportion to the percentage of total market supply controlled by it. The higher the quantity of milk controlled, the more successful the price plan, while complete control over total supplies permits a price that insures the full value warranted by competitive conditions, but it also creates the incentive to establish the most arbitrary price level. It is obvious that the greater the quantity of milk in the market free from price regulations, the greater is the opportunity for price-cutting which is the real threat to the maintenance of any price scheme.

As cooperative associations fostering these artificial price plans have never had complete control of the supply in any market, the use of artificial price levels as a means of controlling production has decided limitations. The maintenance of any such scheme has required that it be operated in such a fashion that it will encourage an increase in membership in order to bring a larger proportion of the total supply under the contract terms designated by the plan. This very fact makes it extremely difficult for any association to exercise very marked control over the total volume of the milk that it handles.

With respect to the base-rating plan, this limited control over supply precludes the use of the device as a supply restrictive measure, since it is obviously not to the best interests of association members to restrict their output while more or less of the supply is contributed by non-members and is not under their control. This circumstance also places limitations on the use of fixed bases for controlling seasonal variations. In any shed there are some association members

so situated that they are able to expand production profitably and these are decidedly opposed to drastic supply limitation measures. To adopt such a policy results in dissatisfaction on the part of these members. Since cooperative associations must necessarily allow resignations, at least at certain specified intervals, such procedure is likely to result in the loss of membership and, therefore, in the volume controlled. Moreover, as the bargaining strength of any cooperative depends chiefly on its size, the association is compelled to maintain its position, if not to better it, by gaining new members. This means that its restriction program cannot be so drastic as to discourage membership, and it also means an increase in the volume that must be taken care of through the basic allotment plan.

This problem of increasing the membership and, at the same time, satisfying old members has been a thorny one to associations, especially when consumption remains fairly constant or is decreasing. It means, of course, the distributing of the total basic quantity among a larger number of producers with the resultant decrease in the individual basics of old producers. Due to the pressure of those already in control, the tendency is usually to make it difficult for new producers to gain at once a share of the fluid milk market proportionate to their annual volumes. This is done through various methods of determining the basics of new members, often by giving them a very low percentage of the amount produced as their basic quantities. The degree to which this program can be carried out successfully depends on market conditions. Unless the association controls a very high percentage of the total market supply there is grave danger of these new or non-member producers breaking the price level by selling their milk for a lower price.

These illustrations show how difficult it is to use the base-rating plan to restrict total market supplies or even to eliminate seasonal variations in production, since the bargaining power of cooperatives depends on factors that tend

to increase rather than lower the total volume of milk attracted to the market.

The foregoing discussion leads us to conclude that the principles to be followed in establishing the price for fluid milk in any market must follow economic laws. This does not mean, however, that artificial factors are insignificant. Although supply and demand forces must determine milk prices in the long run, there are many influences which help to determine how quickly the price will adjust itself to these forces. Not only must the general price level of all commodities, the level of milk prices as compared with costs, and the volume of excess production over that consumed in fluid form be considered in establishing a price for Class I milk, but due regard must be given to such man-made factors as sanitation restrictions, customs of the trade, and types of buying plans. Every one of these artificial forces aids or hinders the operation of fundamental economic principles. If these man-made tools are used in accordance with economic laws, prices may be determined in a fashion that will benefit the producer, but attempts to use them to further more and more monopolistic control are likely to work against the interests of the dairyman in the long run. Because of the intricate and delicate manner in which economic principles and artificial forces in marketing are interwoven, the success or failure of any control plan must be judged by its results in operation and we shall consider the Philadelphia Basic-Surplus plan by noting what its accomplishments have been.

Chapter IV.

THE DEVELOPMENT AND OPERATION OF THE PHILADELPHIA PLAN

The present plan of controlling milk production in the Philadelphia milk shed is the continuation of an experiment which was initiated more than fifteen years ago. Because of the activities of our federal government along this line we hear a great deal today about planned production, but among the first plans for controlling the output of an agricultural commodity were those set up in the milk industry immediately after the World War when Baltimore and Philadelphia cooperatives inaugurated schemes for controlling seasonal variations in milk production.

The desire to secure the full differentials for their milk, as used in the various classes, that unrestricted competitive processes warrant was the chief incentive for the creation of the Philadelphia Basic-Surplus Plan, which was the outcome of the formation of the Inter-State Milk Producers Association within the Philadelphia milk shed, for without some organization of milk producers no practical control plan can be adopted. Such unstable marketing conditions as having milk refused or returned by distributors at certain periods, uncertain milk checks, and complete ignorance as to the value of the milk shipped until payment for it was made, were additional factors stimulating the creation of the producers' organization.

It is often difficult to pick out any one factor as the immediate cause of a new movement, or of a sudden change or of a reform. Such a practice is dangerous because most of these movements are developments resulting from many factors which finally culminate in a definite plan of action. To give any one reason as the principal explanation for the Philadelphia cooperative coming into being invites criticism but the Tri-State Milk Commission appointed jointly by the governors of Pennsylvania, Delaware, and Maryland in 1916 may be considered as a significant factor in its formation.

This investigating committee was the immediate outcome of a public protest against increasing the retail price of milk from eight to nine cents in the Philadelphia market. When later in the year, the Commission through its chairman, Dr. Clyde L. King, presented its report it included this statement:

> "But the real solution of the surplus problem is to get rid of it entirely by making production more uniform throughout the year by seeing that a larger proportion of cows freshen in and around August, September and October. To aid in this the dairymen must receive a much higher price relatively in October, November and December than in May, June and July. This same end can be accomplished by contracts paying to the dairymen a steady price throughout the year for that amount of milk delivered during the season of scarcity." *

The above analysis caused many dairy farmers and some milk distributors to realize that a plan could be formulated to overcome the most distressing element of instability in milk marketing, namely, large surpluses caused by seasonal variations in production. The practice of paying a high price in winter when milk was scarce and a low price when cows were turned out to pasture had failed to bring about a uniform flow of milk. Something more was needed and the Commission's suggestion that "a steady price throughout the year for that amount of milk delivered during the season of scarcity" appeared to offer a solution. As we shall see, this idea was to become the fundamental principle of the Philadelphia price plan.

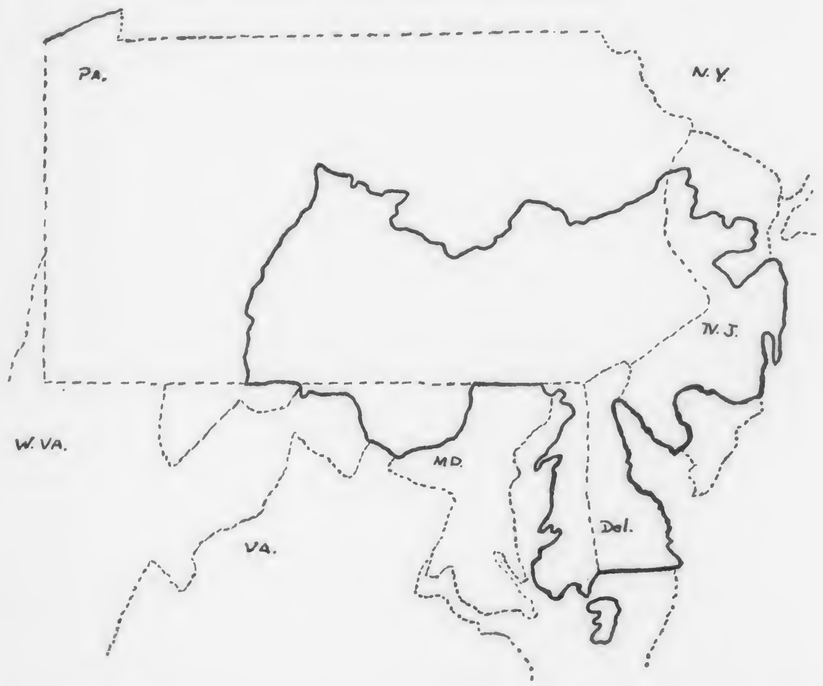
The following year, 1917, the Inter-State Milk Producers Association was incorporated in the State of Delaware as a dairymen's cooperative association. Its certificate of incorporation contains an imposing list of objectives or proposed activities, some of which have never been undertaken. The

*"Report of the Governors' Tri-State Milk Commission;" Penna. Dept. of Agriculture Bulletin No. 287, Harrisburg, Pa., 1917; p. 51.

association has always rendered the usual services of a dairy cooperative, such as bargaining with distributors in establishing prices, aiding the producer to secure a market, and check-testing and weighing of milk.

The Inter-State draws its membership from producers within the Philadelphia milk shed which includes in its territory the southeastern portion of Pennsylvania, all of Delaware, the southern half of New Jersey, eastern and north central Maryland, and the corner section of northeastern West Virginia, as indicated on the map below.

Areas of the Interstate Territory.



The association has approximately 22,000 members producing 80 per cent of the milk output within the shed. It has a contract with its members giving it exclusive right to

sell all of the milk produced by them and the stock certificate which each member holds establishes a direct relationship between the association and the members individually. Also, groups of stockholders in the various communities may form local units for the purpose of discussing and acting upon local questions. Such community groups are called "Locals", of which there are 224 at present. Although these Locals are unincorporated, having no actual power of themselves, they are important avenues for ascertaining marketing information in the secondary markets of the milk shed.

Closely associated with the work of the Inter-State is the Philadelphia Inter-State Dairy Council, a non-profit corporation organized and existing under the laws of the State of Pennsylvania and controlled jointly by the producers and the distributors. Educational services, quality improvement and other measures leading to an increased consumption of milk are the principal functions of the Dairy Council.

Although prices paid producers for their milk, together with a steady market and regularly paid milk checks, were of primary interest to the dairymen forming the Inter-State association in 1917, it was not until 1920 that the suggestion of the Tri-State Milk Commission was put into effect. In that year the Philadelphia Basic-Surplus Plan was established, past experience having indicated that the individual producer could be induced to change his methods of production only if his price would not be reduced by an excess of milk that he did not cause.

Another factor stimulating dairymen and producers to create the Philadelphia plan was the failure of price changes to cause a more even production in the near-by New York milk shed. They had observed that winter production within the New York shed was relatively lower than within the Philadelphia territory, although producers for the New York market received a higher price for milk going into fluid uses at that season than dairymen in the Philadelphia area

were paid. In like manner, the New York milk shed had a larger summer output than Philadelphia in spite of the lower price for fluid milk in the former market. Therefore, since the higher New York price did not increase production in winter and the lower summer price did not decrease output at that season within the New York milk shed, Philadelphia dealers and producers reasoned that something more than seasonal price changes was necessary to control seasonal production within their milk area.

It should be noted, however, that conditions existing within the New York shed, somewhat different from those within the Philadelphia zone, explain this disparity between these two milk producing territories. Unlike Philadelphia, the New York district included several large plants manufacturing condensed and evaporated milk and operating principally during the summer months when supplies are plentiful. As these manufacturing plants paid a higher than butter price for milk not used in fluid form the majority of farmers within the New York milk shed, stimulated by the relatively high composite price in summer, continued their large seasonal production rather than breed their cows for higher winter output. In the absence of such an influence within their territory Philadelphia dairymen, disturbed by the relatively low composite price for their summer milk, were anxious to try any plan that promised to encourage a more even production the year round.

The Inter-State and the individual distributors drew up the plan and changes in its operation are decided by officers of the producers association and the dealers in conference. As the Inter-State has no contract with the dealers, smooth operation of the plan is dependent on the good faith of the interested parties.

As stated previously, the basic-surplus or base-rating plan is one which distributes to producers the proceeds from the sale of milk at various prices according to the market

value of the milk contributed by each dairyman. In order to make such a distribution of producer sales a classification of milk according to use is necessary and the Philadelphia plan recognized two classes as the outset: Basic or Class I, representing all milk and cream going into fluid uses, and Class II, which included all excess production, or surplus as it was called in the plan, going into manufactured products. Later a second surplus class was added, commanding a lower price than Class II. However, these various classes were not arranged on a strictly use basis as determined by distributors' sales but the volume of milk allotted to each class was decided annually by the Inter-State and the dealers in conference.

I Methods of Establishing Basic Quantities.

The operation of this plan necessarily requires an established Class I quantity for each producer if all are to be rewarded for keeping their production within the fluid milk needs of the market, as determined by sales in a previous period. The original plan, following the idea set forth by the report of the Tri-State Commission, used the method of fixed basic months for determining individual producer basic quantities. Because October, November and December had been the months of greatest shortage in the market in the past, or the period when the likelihood of any excess had been least, the average production of each dairyman during these three months determined his basic volume during the following nine months. All milk shipped by each producer in any month during the succeeding nine in excess of his average shipment during those three fall months received the lower Class II price, although an additional percentage of these shipments received the higher price during the three summer months in the early years of the plan.

The economic justification for this control plan was based on data showing that all milk shipped during the fall months of previous years had been sold in fluid form. All

production during these months, therefore, could be considered as basic and should receive Class I price, and the average of these three months' production should be sold as Class I throughout the year, unless consumption declined during this period. All milk in excess of this total basic amount would receive the lower Class II price as it would be consumed in lower price uses. However, it can be seen that this plan only roughly equated basics and Class I sales, as it was not based on the actual quantities going into fluid use during the fall months. As long as total fall supplies did not exceed fluid milk sales during these months, all the milk would be basic, yet additional supplies might be needed to take care of consumption requirements. And total basic quantities might not be sufficient to supply the Class I market in other months of the year. This was true in the early years of the plan as additional amounts were paid Class I price in July, August and September.

This method of establishing basics gradually brought about a change in production in the milk shed, and especially in seasonal output. Although it took two years before any real change occurred, the percentage of May and June production was reduced from 128 per cent in 1921-22 to 112 per cent in 1924-25, and the output in October, November and December was increased from 92 per cent in 1921-22 to 104 per cent in 1924-25. This plan continued to change the seasonal shipments so rapidly that the incentives to prepare for fall production by paying basic price for 110 per cent of basic quantity in July and August and 115 per cent in September were removed in 1926.

The gradual increase in supply during the basic months reached the point where it became sufficient to meet the market demand and, by 1926, threatened to exceed the demand. Production had become much more uniform, variation in output being reduced from a range of 54 per cent in 1921 to a range of 23 per cent in 1925. This does not mean necessarily that all, or even the majority, of producers had reacted to

the plan in the manner intended. The large Philadelphia milk shed includes many different types of farms and farm operations and there is little doubt that different groups reacted differently to the plan, but in such a way that they complemented each other, resulting in a large degree of uniformity in total monthly production for the market as a whole. As no artificial check was placed on raising basic quantities during these years any price increase provided greater stimulation for higher production on the part of shippers near the market than for remote dairymen, whose Class I differential was less the more distant their location from the market.

Because of the progressive increase in fall production, modifications in the period used for establishing basic volumes were required to prevent excess supply during the basic months. As long as Class I price was received for all milk shipped during the fall months there was no check on higher and higher production during these months, other than price itself. As a strictly use plan was not a part of the Philadelphia scheme, difficulty was encountered when fall supplies threatened to exceed consumption for fluid uses. Under truly competitive conditions a contraction of the milk shed would result, but the Philadelphia plan discouraged this by guaranteeing each producer a share in the Class I market. Furthermore, there were shipping stations beyond the territory operating under the Basic-Surplus plan, which supplied distributors with some of their milk, a portion of which was utilized as Class I and accounted for in the average price paid. Even though production within the shed was approaching consumption for fluid needs, dealers continued to receive supplies from these outlying districts, granting them a share in the Class I market. This practice would have been impossible under the classification price plan, unless production within the Class I zone failed to equal consumption, for the Class I market would be divided entirely among dairymen within this zone operating under the Basic-Surplus plan.

Of course, changes in Class I price were often a factor in bringing about changes in output. When it seemed apparent that the October production of 1926 would be much higher than that of the previous October, due to an increase in price on September 16, 1926, it was announced that no new bases would be established for 1927. However, prior to January 1, 1927, the market indicated no over-supply and the higher of either the 1925 or 1926 base was granted for the following year.

Thus, the year 1927 saw the first significant change in the method of determining basics. Before that time each producer had been permitted to set his own base each year and he could enlarge it through increased production during the fall months. In this way each dairyman could raise his basic quantity as high as he wanted without regard to the demands of the fluid milk market. That many shippers took advantage of this opportunity made it necessary to alter the method of acquiring bases in order to have trends in the volume of production steady rather than rapidly fluctuating upward or downward. As long as there was no excess output in the fall months this fluctuation could be permitted without great danger to the plan but after 1927 the problem of excess fall supplies had to be faced in the determination of basics in the Philadelphia milk shed. The correctives used can be observed from the table below:

Table II.

Method of Determining Bases in the Philadelphia Milk Shed.

1921 Monthly base was average production of Oct., Nov. and Dec., 1920. Was increased 10% in July and August, 1921.

1922 Monthly base was average production of Oct., Nov. and Dec., 1921. Was increased 10% in July and August, and 15% in September, 1922.

1923 Monthly base was average production of Oct., Nov. and Dec., 1922. Was increased 10% in July and August, and 15% in September, 1923.

1924 Monthly base was average production of Oct., Nov. and Dec., 1923. Was increased 10% in July and September, 1924.

1925 Monthly base was average production of Oct., Nov. and Dec., 1924. Was increased 10% in July and August, and 15% in September, 1925.

1926 Monthly base was average production of Oct., Nov. and Dec., 1925. Was increased 10% in July and August, and 15% in September, 1926.

1927 Monthly base was higher of 1925 or 1926 average production of Oct., Nov. and Dec.

1928 Monthly base was average production of Oct., Nov. and Dec., 1927, plus 1927 base, divided by 2. Herds TT* during 1927 paid on 1926 base, if higher.

1929 Monthly base was average production of Oct., Nov. and Dec., 1928, plus average production of Oct., Nov. and Dec., 1927, plus 1927 base, divided by 3. Herds TT during 1928 paid on 1926 base, if higher.

1930 Monthly base was average production of Oct., Nov. and Dec., 1929, plus 1929 and 1928 bases, divided by 3.

1931 Monthly base was average production of Oct., Nov. and Dec., 1930, plus 1930 and 1929 bases, divided by 3.

1932 Monthly base as in 1931.

1933 Monthly base was 1932 base, plus production of Oct., 1932, divided by 2; or average of 1931 and 1932 bases, if higher.

1934 Monthly base was 1933 base, plus average production of July and November, 1933, divided by 3. No base was increased more than 15% over 1933 base.

Monthly base was average of monthly sales during 1932 and 1933 and if 1933 base were 20% lower than 1932 base, one-half of this difference was added to 1933 base for computing the average, or present base (for Penna. producers only after April 1, 1934).
Monthly norm was entire production from June 1, 1932, to May 31, 1933, divided by 12—(for New Jersey producers only).

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*Tuberculosis tested.

1935 Monthly base was 1934 base, or average monthly delivery from Jan. 1, 1934, to Aug. 31, 1934, if higher. If total bases of all producers selling to any dealer be increased by this method, new base of each producer is reduced by same percentage that dealer's total bases have been increased by new bases.
Monthly norm was 1934 norm, or average monthly production of 1932-33 and 1933-34 (June to July). No norm could be increased more than 10% over 1934 norm (for New Jersey producers only).

The average of two years, 1927 base and 1927 fall production, was used for the 1928 base, and a three year average was taken for determining basic quantities in 1929, 30 and 31. No new basics were established in 1932, the former ones being held over for another year. In determining the 1933 Class I quantities the plan of taking the average production of October, 1932, plus the old base, divided by two, was adopted. This was the first time that producers were not informed in advance of the method for forming their future basics. Only one day's notice was given, the agreement having been reached on September 29, 1932, but this fact evidently did not cause a lowering of the 1933 bases for the October supply was unusually high.

Although decreasing consumption was reflected in lower prices beginning in 1930, the percentage of basic quantities receiving Class I price fell recessively lower. As a result, efforts were made to keep total basics from increasing and in a manner that would enable old producers to retain their proportionate shares in the Class I market. The base-surplus plan protected the quotas of the more remote dairymen during this period of falling consumption for under truly competitive processes shippers nearer the market would have supplied a greater portion of the Class I market, causing a contraction of the milk shed.

The establishment of basics for 1934 was affected by the entrance of the Federal Government and later the states of New Jersey and Pennsylvania into the Philadelphia milk marketing situation. Under the Agricultural Adjustment Act of May 12, 1933, the Secretary of Agriculture approved

and executed a milk marketing agreement and license for the Philadelphia milk shed on August 21, 1933. By the terms of this agreement the 1934 bases of all producers within the shed were determined by adding the established monthly basic for 1933, the July 1933 production, and the November 1933 output, and dividing this total by three. But, no individual base could be increased more than 15 per cent over the 1933 basic quantity.

On January 17, 1934, Secretary Wallace gave notice of the termination of all existing milk agreements with the provision that the license of distributors would remain in effect until further notice. Although it was stated that this action was taken to permit the A. A. A. to proceed with the establishment of new agreements under a new policy, no further action was taken in the Philadelphia market. The license, also, was cancelled later.

In the meantime the State of New Jersey provided for a Milk Control Board which was organized on May 23, 1933, to be continued until June 30, 1935. In 1934 the New Jersey state legislature passed a continuing bill for two additional years. The act gave the board power to supervise and regulate the entire milk industry of the state of New Jersey, including the production, transportation, importation, manufacture, storage, distribution, delivery and sale of milk products in the State.

One of the first acts of the board was to establish a method of determining the base or norm, as it was called, of each New Jersey producer. This norm was to be the yearly average production for the period ending May 31, 1933, and in case of disagreement between the dealer and the producer in fixing the norm the board would arbitrate. New herds could not be established or herds increased unless written permission had first been secured from the board. From time to time this body also set prices to be paid producers.

By taking the average production of the preceding year

for the basic amount, this New Jersey ruling favored shippers who had not held down supply to Class I market requirements.

For 1935 the board ruled that each producer be given the higher of the two following quantities: his present norm, or the average of the past two years calculated by taking his production from June 1, 1933 to May 31, 1934, dividing this amount by twelve, adding this quantity to his present norm and dividing the result by two. This average could not exceed the 1932-33 norm by more than 10 per cent. This rule not only favored shippers who had increased output during the preceding year but also protected those who had failed to average their norms against any decrease in the Class I market.

At a later date another board ruling required any dealer to pay New Jersey producers the fluid or norm price for each grade of milk as specified in the monthly orders of the board, if during that month the distributor's sales in New Jersey exceeded purchases from New Jersey dairymen. The result of this order was the paying to New Jersey shippers supplying Philadelphia dealers who sold as much milk in Jersey as they received from these producers, Class I prices for all their fluid milk up to the norm quantities at the same time other shippers to this distributor might be receiving the higher fluid price for only a percentage of their bases. The effect was to stimulate production in southern Jersey and to decrease the percentage of basics receiving Class I price for other shippers to that distributor.

On January 3, 1934, the State of Pennsylvania set up a milk control board with wide powers, to be continued until April 30, 1935. The next legislature provided for a two year extension. The first general order of the board, issued on March 30, 1934, changed the method of computing basics for

the remainder of the year in the Philadelphia area as follows:

> "The basic quantity of fluid milk which a producer may sell shall be an amount equal to the average monthly quantity of fluid milk which was produced by his herd, and was sold in fluid form during the two calendar years previous to January 1, 1934. If, however, a producer can show that his established base was at least 20% lower the second year of this period, then he may add one-half of this difference to a second base year for computing his basic quantity of milk to be governed by this order." *

This method of base computation copied the New Jersey plan of averaging annual production and favored the producer who had not lowered his output. The Inter-State protested against this rule, claiming it was unfair to dairymen who had been producing uniformly and selling only according to the needs of the market. It pointed out, from a study of its records, that a penalty of 547,712 pounds of milk per month had been levied against 2983 Pennsylvania milk shippers by the board ruling that their basics must be determined according to the monthly average of their sales during 1932 and 1933, since this average was 3.9 per cent under the average of the established basic quantities of those same producers at the beginning of the year, 1933. The Association asked that instead of the two year average of 1932 and 1933, which was the practical effect of the rule, that producers be given the higher of the method contained in the control board order or their present established base. This request was granted in May 1934, and meant an increase in the total basic quantities as no shipper's base was lowered while some had their shares in the Class I market increased. With consumption rather constant, the result was a decrease in the percentage of the total basic volume receiving Class I prices.

This method of fixing 1934 basics applied only to Pennsylvania producers in the Philadelphia milk shed as the State

*Pennsylvania Milk Control Board Order No. 6, Harrisburg, Pa., March 30, 1934.

board had no authority outside its borders. As New Jersey had its own plan, milk from the remainder of the territory included in the shed was being bought under the schedule set up in the A. A. A. license and the bases of Inter-State members and non-members generally followed the Pennsylvania rule, except for New Jersey dairymen.

On July 13, 1934, the Pennsylvania Milk Control Board issued Order Number 13 which, among other features, provided for the complete abandonment of production control. Referring to the basic-surplus plan the order declared that it "has been operated to the detriment of dairy farmers living within a radius of 270 miles from Philadelphia and to the financial advantage of large distributing companies buying under the plan . . . That the basic surplus plan controls production is merely a smoke screen thrown up by members of the milk trusts under the cloak of which they have been robbing producers, when as a matter of fact production has increased under the plan."*

Because of the general protest which followed immediately after the issuance of this measure it was cancelled just one month later by Order Number 16 which, in effect, restored the basics that had been in use previous to July 13th.

On October 1, 1934, Order Number 17 of the control board gave the method for determining 1935 basics for Pennsylvania producers shipping to the Philadelphia market. This order allowed each dairyman the higher of his 1934 base or the average production during the first eight months of 1934. It was agreed by the Philadelphia distributors buying milk in Delaware and Maryland that they would establish basics for producers in those states on the same basis as in Pennsylvania, these quotas to carry through the year 1935. A further provision of the same order stated that if total basic quantities of all producers selling to any dealer were in-

*Pennsylvania Milk Control Board Order No. 13, Harrisburg, Pa., July 13, 1934.

creased by this method the new basic amount for each shipper should be reduced by the same percentage that the dealer's total basic volume had been increased by the new basics, so that the total bases of all producers selling to any distributor would not be increased thereby. In other words, if the combined basics of any dealer should be raised under this new method, then each dairyman shipping to that distributor would have his base reduced on a percentage basis in order that the total of all quotas would be the same as previously.

Not only does the above ruling give every producer a readjusted share in the Class I market but it is unique in that it is the first time since 1926 that a dairyman need not be handicapped by the low production of previous years in establishing his basic quantity. It will be realized, however, that former basics had some influence on the formation of the new ones and more especially since this plan was not announced until October 1, 1934, after the eight month period of production used for determining new bases had passed. Yet, this regulation did give the shipper who had complained of a small quota a chance to make a new one if his output justified it during the first eight months of the year. The effect was to give the producer who had shipped more milk in 1934 than previously, or who had continually produced his basic quantity, a proportionately larger share of the total basic price, and to reduce the proportionate share of dairymen who had high basic amounts in 1934 but who did not ship their full quotas. It also affected adversely the even producer by making him share the Class I market with those who had not kept supply as low as their basic quantities. In fact, everyone of those orders by the New Jersey and Pennsylvania control boards, by favoring those shippers having relatively heavy production, with the consequent decrease in the percentage of basics receiving Class I price, caused the near-by producers with uniform production to lose some of their differential advantage.

Beginning in 1930 retail sales began to decrease and the distributors from that time to the present have paid Class I prices for that portion of producers' bases that their sales warranted. In some months that percentage was as low as 68 per cent of the established basic quantities. Until 1933 the Philadelphia dealers were not following the use plan for classifying milk as basics were determined according to the methods described above and these amounts were paid for at Class I prices until 1930. When the dealers forecast the danger of future basics being greater in volume than average yearly sales, they and the Association officers would work out a schedule for establishing bases which they believed would hold total production down to total sales in the fall period. The distributors consistently maintained that a sales reporting plan for determining basics and Class I prices, whereby the dealer only pays Class I price for the milk he sells in fluid form, makes him careless as to the exact needs of his market. They contended that the distributor, as the middleman, can more quickly gauge both production trends and the consumption trends. And, if he is not responsible for any surplus amount of basic milk he will be sure to have enough Class I milk for his sales at all times and he will become careless, take on new producers, and open up new receiving stations. This will result in creating a surplus supply in the milk shed and ultimately will cause price decline.

It must be noted that this theory does not fit in well with another contention made by distributors to the effect that they often sell their excess milk at a loss because they cannot compete successfully with makers of manufactured dairy products. If this is true, the danger of sustaining losses on excess supplies should be sufficient incentive to make every dealer careful as to the exact needs of his market at all times.

However, when sales decreased markedly during the depression years it was necessary to cut basics or pay Class I price on only a percentage of these bases. As stated, the lat-

ter method was adopted and each month the dealers collectively reported the percentage of the total basic quantities their sales would warrant and paid Class I price for that amount. This continued until the Federal Marketing Agreement became effective in 1933. This agreement provided for the Use plan of payment. From that time the distributors have been reporting their monthly sales and paying the Class I price for that percentage of basics that their fluid milk sales totalled, using the average sales for the entire market.

When the Pennsylvania control board issued its first order in April, 1934, it retained the Use plan but stated that, "payment in full to producers shall be made at least monthly, not later than the fifteenth day of each month, for all milk delivered the previous month." The distributors construed this to mean that each dealer was compelled to pay according to his own sales instead of paying the percentage of basics resulting from the combined sales of all distributors. The dealers have followed this plan since the issuance of the order. This has caused variation, sometimes wide variation, in the percentages paid by the different dealers as can be observed in the following table:

Table III.
Percentage of Basics Paid for at Class I Price, July-December, 1934. (Four largest Philadelphia distributors)

	July	Aug.	Sept.	Oct.	Nov.	Dec.
Dealer A—						
Pa., Dela., My.	82%	78	78	84	87	80
N. J.	95	93	100	100	100	100
Dealer B—						
Pa., My.	100	98	93	97	97	89
N. J.	100	98	93	97	97	89
Dealer C—						
Pa., Dela., My.	94	93	94	105	105	103
N. J.	100	100	100	All	All	All
Dealer D—						
All States	—	—	—	100	100	100

This table also shows that those producers fortunate enough to ship to Dealer C who buys a higher percentage at Class I prices than the others, receive a higher composite price for the same quantity of milk than the other dairymen, although their basics may be the same or even lower. This gives these fortunate producers an artificial differential over the others, encouraging the former to increase their output and secure a larger proportion of the total basic volume. A continuation of this practice will result in Dealer C paying Class I prices for a lower percentage of these basic quantities and the other dairymen will receive a higher percentage on their lowered basics. This plan would also cause shippers to switch from distributors buying lower percentages to the dealer buying the highest percentage at Class I prices, if transportation facilities did not usually prevent such a practice.

The higher New Jersey percentages in Table II are of the Norms, established by the State control board, and are the result of the ruling that each dealer must pay Class I prices for all production up to the Norm of his New Jersey shippers unless the amount of fluid sales in that State was less than these total Norms. The table indicates that Dealer C, selling more milk in Jersey than he bought there in some months, paid these producers the fluid milk price for their total shipments although the sum of the individual quotas may have been much lower. No records are available for Dealer D until October, 1934.

Relief milk had a significant effect on the determination of 1935 basic quantities and on Class I percentages paid to producers in 1934 and 1935. The original policy of granting milk orders to families on relief increased substantially the volume of Class I sales as 40,000 families were on relief in Philadelphia County in 1934. The survey of milk consumption made in Philadelphia in June, 1934, by the Pennsylvania State College and the United States Department of Agriculture showed that families on relief were consuming about 2.12 quarts per family each week, while those who were re-

ceiving a very low income but not on relief were using substantially less than that amount of milk.*

This increase in consumption resulting from the order system for relief milk raised the percentages of basics receiving Class I price. Consequently, the higher composite prices received by dairymen encouraged production, or prevented output from falling as low as would have been the case in the absence of orders for relief milk, thereby enabling many producers to demand higher basics for 1935.

Beginning November 11, 1934, the cash systems of issuing checks to families on relief was substituted for the former milk orders. This change permitted families on relief to spend their relief money for any purposes they desired. Consequently, there was a large reduction in the volume of relief milk sales as pointed out by Mr. C. I. Cohee, Secretary of the Philadelphia Inter-State Dairy Council. He writes:

> "The Philadelphia County Relief Board states that there were 40,000 families in Philadelphia receiving milk orders prior to the change to cash. Records were obtained from dealers book on 33,069 of these 40,000 families. These 33,069 families purchased 365,963 quarts of milk a week prior to the change to cash. During the week the change was made, the amount dropped but inasmuch as some were still on orders and others purchasing on their cash allowances, this week was disregarded. The following week all the families were receiving cash and during this week they purchased 283,751 quarts of milk, a decline of 82,212 quarts among the families actually studied.
>
> "Since there were 40,000 families on relief who received milk orders, and only 33,069 of that number were studied, if the same ratio of decline held true in the remaining 6,931 families, the total decline would be 109,388 quarts weekly, or a drop of 22% in milk consumption in the first week of cash relief.

*Cowden, T. K. & Sturges, A.: "The Consumption of Fluid Milk and other Dairy Products in Philadelphia, Pa., June, 1934"; Technical Paper No. 659, Pennsylvania Agricultural Experiment Station, July, 1934.

> "Many people have thought that families who left the milk dealer would purchase milk at the stores, as some stores in Philadelphia are selling at one cent below the wagon price. A study was made of 3,154 stores, which is approximately 95 to 97% of the stores in Philadelphia which sell milk. In these stores the total sales of milk increased only 7,069 quarts—less than two quarts per store per week. Since this is only the natural week to week variation that occurs because of weather or other factors, it is safe to say that consumption of milk in relief families declined 22%, or a total of 109,388 quarts weekly."*

The above statement reveals the large falling off in Class I sales resulting from the change in the method of administering relief. A later report of the Dairy Council announced that milk purchases by families receiving relief dropped 29.6 per cent in five weeks time,—from November 5-11 on milk order relief to December 11-16, 1934, on cash relief. Also, that during this five week period 17.3 per cent of the 31,851 relief families studied stopped buying fresh milk altogether. One large Philadelphia distributor reported that its relief sales dropped more than 50 per cent within two weeks after cash payments for relief began.

This rather sudden drop in fluid milk sales was reflected in a lower percentage of basics receiving Class I prices and, therefore, in a lower composite price than formerly. With almost 11 per cent of milk sales going to families on relief before the change in relief methods, the cash system meant a reduction of three per cent in Class I sales, with the excess amount going into Class II or Class III milk with its correspondingly lower price. As the relief policy stimulated milk production at its initiation, increasing the 1935 bases of many producers, while later it curtailed consumption with the consequent reduction in the composite prices of these dairymen, it was responsible for many farmers demanding a higher price in order to maintain composite returns.

*Letter of C. I. Cohee, Sec. of Philadelphia Inter-State Dairy Council, to the Contributors of the Inter-State Dairy Council, Dec. 18, 1934.

As the Basic-Surplus plan attempts to divide the Class I market among its producers according to their ability to produce a relatively uniform flow of milk throughout the year, the plan must contain some provision for taking care of new shippers within the milk shed. Although the rate of increase or decrease in the number of dairy farmers within the shed is not rapid under ordinary circumstances, changes into and out of the dairy business are always taking place, as well as transfers of herds and farms, and temporary decreases in production because of tuberculosis tests and other diseases. All of these varying forces must be considered in operating a control plan successfully, with a minimum of dissatisfaction on the part of those producers affected directly by them.

Concerning the transfer of basics the Philadelphia plan has always adhered to the principle that the basic goes with the herd. A tenant producer with an established base and renting a farm, for example, may transfer his individual base from farm to farm, provided that he sells his milk in the same market as theretofore, and a landlord is entitled to the entire base to the exclusion of the tenant, if the landlord owns the entire herd on such farms. Where cattle are owned jointly, the quota is divided between the joint owners according to the ownership of the cattle. Bases may be combined by any dairyman acquiring a herd or herds that possess basics. Where a producer's ability to maintain his basic quantity has been impairied through a tuberculosis test the usual adjustment has been to give him the option of retaining his old base for the following year or accepting the provisions governing other old shippers.

The provisions controlling the entrance of new shippers into the Class I market have varied from year to year and apply to producers according to the season they commence to ship to the market. The most outstanding of these rules will be considered, while the exact changes from year to year are included in the following table:

Table IV.

Provisions Governing New Producers.

Year	Date of First Shipment	Method of Establishing Base
1921 -25	During any of first 9 months of 1922	One-half of daily average production during first 30 days and thereafter counting it as base during remaining months. 1922 base established same as old shipper.
1926	Oct. 1, 1925—Jan. 1, 1926	Allowed option of using base
	Jan. 1, 1926—Sept. 16, 1926	85% of 1926 fall production.
	After Sept. 16, 1926	70% of fall production.
	After Jan. 1, 1927	One-half of daily average production during first 30 days and counted as base during remaining months.
1928	After Oct. 1, 1927	70% of 1927 fall production
	After Jan. 1, 1927 and having less than 70% on or after Oct. 1, 1927	1927 fall production plus 70% of full production for that period, divided by 2.
	After Jan. 1, 1928	Base according to agreement.
1929	After Jan. 1, 1928	70% of 1928 fall production
	After Oct. 1, 1928	70% of 1928 fall production
	During first 9 months of 1929	One-half of daily average production during first 30 days.
1930	During fall of 1927	1927 fall production plus 1929 base plus 1929 fall production, divided by 3.
	Jan. 1, 1929—Sept. 30, 1929, having 50% of first 30 days, or any base not over 70% of same	70% of 1929 fall production.
	Oct. 1, 1929—Dec. 31, 1929	70% of 1929 fall production.
	After Jan. 1, 1930	70% of first 30 days shipment
1931	Starting during fall of 1928 and having 1929 base	Average daily production times 30 made in Oct., Nov. and Dec., 1928, plus 1930 base, plus 1930 fall production, divided by 3

	Old shipper without 1929 base and having 1930 base	1930 base plus fall production, 1929, plus fall production, 1930, divided by 3
	Jan. 1, 1930—Sept. 30, 1930	70% of 1930 fall production
	Oct. 1, 1930—Dec. 31, 1930	70% of 1930 fall production
	After Jan. 1, 1931	70% of first 30 days shipment
1932	Jan. 1, 1931—Sept. 30, 1931	70% of 1931 fall production
	Oct. 1, 1931—Dec. 31, 1931	60% of 1931 fall production
1933	Jan. 1, 1932—Sept. 30, 1932	50% of first 30 days shipment plus Oct., 1932, production, divided by 2
	After Oct. 1, 1932	70% of average daily production during Oct., 1932.
1934	Any time	Certificate of necessity— 70% of average daily production for such part of 90 days falling within July 1 to April 30 and 60% of the 90 days falling within May 1 to June 30.
1935	Any time	Authorization of Penna. Milk Control Board Permission of New Jersey Milk Control Board

From the beginning of the plan until 1926, a five year period, any new shipper could establish a base during the fall months on the same basis as old shippers. If his shipments began during the first nine months of the year he would receive, until the following October, a base equal to one-half of his average daily production during the first thirty days. At most, a new producer had to wait only nine months before being placed on an equal basis with old shippers. This ruling, in effect, carried through until 1929 when a new shipper was granted only 70% of his 1928 fall production as his basic for the following year. From 1929 to 1933 the most a new shipper could receive, according to the rules, was a 70-30 basis of his fall output. As basics were being determined on a three year average this handicap could not be entirely overcome until the end of the first three full years of shipments.

In 1935 more limited control was placed on the new shipper when he was permitted to establish a quota equal to only 50 per cent of his first thirty days shipment plus his October output divided by two, unless he began to ship after October 1, 1932, in which case his base would be 70 per cent of his average daily production during the month of October.

By the beginning of 1933 distributors were taking on few new dairymen as the market excess was mounting. Many of the dealers refused to add more shippers to their lists and the largest distributor, having for a time attempted to absorb all excess production, finally followed the exclusion example of the others, with a few exceptions. The Federal Marketing Agreement of 1933 required a new producer to first obtain a certificate of necessity from the Philadelphia Inter-State Dairy Council before he could establish a basic quantity and sell milk on the basis of such established volume. In the event that a certificate of necessity was issued to the new producer his base could equal slightly more than two-thirds of his average daily production for a ninety day period. No certificates were ever issued, however. Indeed, the original reason for requiring certificates of necessity was not to protect old shippers from the entrance of new producers into the market. Rather it was to protect the licensing feature of the Federal Milk Marketing Agreement from the legal side by permitting new producers to enter the market upon proof of the need for their supplies.

The excess milk problem was also recognized in those provisions of the Marketing Agreement which required any dairyman dispersing his herd without a transfer of its base to replace the herd within sixty days if he wished to retain his established base, and which destroyed the base of any producer who voluntarily ceased to market fluid milk in the Philadelphia sales area for a period of more than sixty days. Also, a penalty provision for low shipments was provided for the first time. Any producer whose average daily production for any three consecutive months was less than 70 per

cent of his established base was given a new quota equal to his average daily output.

Perhaps this penalty innovation should have been a feature of the plan from the outset. A plan that protects the Class I market for old producers and makes it difficult for new dairymen to enter it ought to provide against shippers retaining a higher share in that market than they can or do supply, except perhaps during a few months out of the year. This practice of retaining a higher quota than production warrants is made more difficult when basics are determined by average monthly supply. However, in periods of falling consumption penalty provisions may aid in keeping production higher than it might be otherwise, because dairymen may feel that the condition is temporary and that it will be to their best interests to retain their full quotas.

When the Pennsylvania Milk Control Board came into existence it retained the essential features of the Federal Agreement regarding new producers and required any dairymen entering the market for the first time to obtain authorization from it before selling milk in fluid form within the Commonwealth. Nor could a distributor of fluid milk accept the product from a new producer without first obtaining written authorization to do so from the board. The New Jersey board passed a similar ruling in reference to new shippers within that State.

It is evident that the methods of establishing basics within the Philadelphia Milk shed have tended increasingly to limit the expansion of milk production for the fluid milk market by reserving for old shippers the greater portion of the market and by preventing the new producer from entering it on a par with them.

II. THE OPERATION OF THE PHILADELPHIA PLAN AND MARKET PRICE

Any plan for regulating seasonal production, no matter how rigid it may be, cannot for long ignore competitive

factors which aid in determining price. The validity or impracticability of any artificial control scheme will be reflected through changes in the market price and the degree of success of the plan will depend, in a large measure, upon the ability of the planners to foresee relative changes in the many variable factors influencing price, and to adjust price in a manner that will cause the plan to work successfully.

Our price analysis of the Philadelphia plan must be based almost entirely on available records of the four largest distributors in the Philadelphia market, who retail about 85 per cent of the fluid milk and cream sold in that area. Complete records of production and purchases by these dealers are available for the period between January 1, 1925, and December 1, 1933.

We have noticed that the first five years of the base-surplus plan brought about more uniform production by decreasing the high seasonal output in the spring months and by increasing the fall supply. Yet, it took all of this period to bring fall production up to sales, so that the problem of excess supplies in the normally short season did not present itself. Consequently, in the period from 1920 to 1925 prices of Class I milk moved, on the whole, to stimulate the increase of fall production, although the depression year of 1921 caused a drop in price in June of that year from $3.48 to $2.67 per hundredweight. After remaining stationary for more than a year, decreasing production and increased demand caused a fifty cent increase in October, 1923, in an effort to stimulate fall production. During the following year prices moved upward again, in May and in July, with the result that excess volume appeared, causing drops in the price in the normally short months of October and November. From that date until late in 1925 the Class I price remained steady at $3.14.

In 1925 production records show that about 90 per cent of the milk shipped was paid for at Class I price during the

first three quarters of the year, except in May when nearly 20 per cent was excess milk. October output, on the other hand, was short and a twenty-three cent price increase for November and December resulted. The last three months of 1925 was the final period that the market consumed the total supply in fluid form. In fact, the following January brought a drop to the former price of $3.14 when only 90 per cent of the shipments received Class I prices. So large did the excess become in May and June, being about one-sixth of the total production, that a further price drop followed. July saw a return to the former price level, as excess supply had been cut in half, and in September, 1926, an additional increase to $3.49 was made. This price remained unchanged for a period of three years, until September, 1929. During that time Class I purchases averaged over 88 per cent of the total supplies, with the excess running as high as 20 per cent in the spring months. However, in November and December, 1928, nearly 100 per cent of the production was marketed as Class I milk, indicating an increase in demand. Consumption was higher during these months than it had ever been at this season of the year.

In spite of the fact that the following May, 1929, brought forth the largest excess production up to that time, amounting to nearly 22 per cent, the price was changed in September for the first time in three years, an upward change, for fear that fall production would not equal the increasing market demand. Although this price increase had the desired effect, with a production more than six million pounds higher than in the previous month, practically all of it was marketed in fluid form. But, continuing high production and a large falling off in sales caused large excess quantities in November and December, and the artificially high Class I price could not be maintained, a drop to the former price of $3.49 occurring in December, 1929. This price remained throughout 1930, the year when the largest volume of fluid milk was marketed, with a yearly average of more than 87 per cent of

the total production going into fluid uses. Yet, for seven months of the year, from February to September, all excess milk was bought at the low second surplus price making the composite price lower than it had been during the three previous years.

In 1931 total Class I purchases fell to the 1928 figure, with about the same percentage of production going into the highest price milk. This decrease in demand with output remaining fairly constant caused a drop in price in December, 1930, and another in September, 1931, to $2.76. From that time until June, 1933, when the new price plan stimulated by the A. A. A. came into effect, there was a steady decrease in the percentage of production sold in fluid form, reaching the low mark of less than 68 per cent in October, 1932, and again in May, 1933. One price drop followed another until the low of $1.98 in November, 1932, which remained until the June, 1933, price of $2.27 when an upward swing began. In an effort to improve the situation caused by falling prices, an attempt was made to better the composite price by establishing an additional 10 per cent of Class I purchases as a cream price, higher than the first surplus. This plan was initiated in June, 1932, and continued under the Federal Marketing Agreement and afterward.

The weighted average price for all milk shipped to the Philadelphia market increased from $3.106 in 1925 to $3.440 in 1929, after which there were downward trends until June, 1934. The weighted average price for all milk, 3.5 per cent test, from 1928 to 1932 inclusive, declined 39.20 per cent. At the same time the percentage of milk marketed as base or Class I declined 11.88 per cent. As the percentage of excess milk increased only from 11.84 per cent in 1928 to 12.06 per cent in 1931, while it reached the high figure of 21.84 per cent in 1932, most of the decline in the composite price percentage for this five year period was due to the large volume purchased at the low excess price in the final year of 1932.

During this same period the average of monthly butter prices, 92 score New York butter, declined 55.71 per cent, yet the average price received for a pound of butterfat in the Philadelphia market declined only 39.20 per cent. And while the price paid for excess or Class II milk in this market declined 55 per cent, the price paid for basic or Class I milk, 3.5 per cent test, fell but 34.38 per cent.

This comparison of the trends of Class I prices in the Philadelphia market with butter values indicates that fluid milk prices were higher than competitive factors warranted, especially in 1931 and 1932. Although consumption declined during this period, the fact that there was a steady decrease in the percentage of production sold for fluid use, reaching less than 70 per cent in some months, implies that Class I prices kept supplies from falling rapidly or lowered consumption, or both. The following table, showing the fluctuations in the relationship between butter prices and those for fluid milk in Philadelphia, points to the above conclusion:

Table V. *

Comparison of Basic Prices and Butter Values in Philadelphia Market.

Year	Pounds Butter to Equal Basic Price	Period (Months)
1920	5.68	6½
1920	6.76	4
1921	6.16	5
1921	5.84	17
1922	5.56	7
1923	7.44	5
1924-25-26	6.36	36½
1926-27-28-29	6.60	35½
1929	7.52	3½
1929	8.44	12
1930	9.80	8½
1931	8.40	5
1932	9.44	8

Although this table gives evidence of a gradual increase

*Woolman, H. N.: "Fundamentals in Determining Milk Price Relationships;" p. 11A.

in the value of milk sold in fluid form over that sold for butter, or in the number of pounds of butter equivalent to 100 pounds of milk, it also indicates the danger in setting the basic price too high above butter values. This tabulation points out that during the six year period, 1924-1929, with an average of six and one-half pounds of butter, the producers' price did not change for 72 months. In 1921 with a low average of 5.84 pounds of butter purchasable with 100 pounds of milk the price remained for 17 months. On the other hand, when the pounds of butter purchasable increased to seven and one-half pounds in 1929, the price held only three and one-half months. After 1929 the price of butter declined much more rapidly than the milk price and the price changes were also rapid as shown by the low number of months each price lasted.

Although a forty cent drop in Class I price occurred in December, 1930, it was not equivalent to the sharp decline in butter values. As a result of this attempt to hold fluid milk price higher than competitive processes warranted a further break was necessary nine months later, although butter was slightly higher in value. This Class I price remained until the following February when falling butter prices caused another drop of thirty-four cents. But again the decline in fluid milk values had not been sufficient and in July, 1932, another decrease slightly larger than the fall in butter values resulted. Finally, in November, 1932, another price drop brought the Class I price more in line with butter values where it remained until the Federal Agreement brought about an increase in fluid milk prices. *

During this same five year period the dealers' spread per hundredweight on Class I milk was $2.35 in 1928 and $2.12 in 1932. The range was from the high $2.58 in 1929 to the low $2.12 in 1932. At these periods the producers were receiving $3.74 and $2.34, respectively.

*Table I, p. 22.

Comparing the prices received by producers in the Philadelphia milk shed with producer prices in other large markets, we find that dairymen supplying the Philadelphia area with milk have fared better than those producing for many of the other markets. Table VI, summarized from a bulletin issued by the United States Department of Agriculture shows that Class I prices paid to Philadelphia producers from 1920 to 1928, inclusively, have been relatively higher than those in the other five markets listed, and that the cost to consumers has been lower than in the markets compared with it. This is proof that Philadelphia distributors have taken a narrower margin on Class I milk sold off wagons than the dealers in the other markets listed.

Table VI. *

Producer and Consumer Prices in Six Primary Markets, 1920-1928.

Market	Weighted Ave. Price, 4% Milk F. O. B. City, to Producer	Ave. Retail Wagon Price to Consumer
Philadelphia	7.29c per quart	12.4c per quart
Baltimore	7.26c	13.5c
Pittsburgh	7.22c	14.2c
New York	7.05c	15.1c
Boston	6.82c	14.7c
Cincinnati	6.29c	13.3c

From a report issued by the Farm Credit Administration at Washington in 1933 covering the dairy industry in eastern markets the following table is presented. It lists the average producer and consumer prices for the 28 month period from January, 1931, to April, 1933:

*Metzger, H.: "Co-operative Marketing of Fluid Milk;" U. S. Dept. of Agric. Technical Bulletin No. 179, May, 1930; p. 7.

Table VII. *

Producer and Consumer Prices in Eastern Markets, 1931-1933.

Market	Producer Received cents per quart	Consumer Paid cents per quart
Philadelphia	4.28	10.57
Boston	3.37	11.44
Baltimore	4.68	11.79
Richmond	5.26	12.50
New York	2.90	12.87
Washington	6.07	13.60

Table VII shows that Philadelphia consumers received standard grade milk at the lowest price of any market studied and that producers in this market area received a larger portion of every dollar the consumer spent than did the dairymen in the New York, Boston or Baltimore sheds.

This report also brought out the fact that surplus milk sales for the six markets amounted to 56 per cent of the total receipts, while the surplus milk sent to market by Inter-State members during the same period was only 17 per cent of the total, indicating a significant cause of the relatively favorable price to the producers within the Philadelphia milk shed. This low surplus percentage for Philadelphia means that dairymen in that shed sent a relatively small amount of excess milk during this period, unless there was a wider difference between Class I and surplus prices in the Philadelphia market than in other cities, which does not appear to be the case.

In an analysis made by the National Cooperative Milk Producers Federation covering prices for January, 1935, in the thirty-four cities in which members of the Federation operate, the Philadelphia market compares favorably with

*Compiled by H. E. Jamison, Assistant Secretary of the Inter-State Milk Producers Association from the "Report on the Survey of Milk Marketing in Northeastern States;" Farm Credit Administration in co-operation with National Cooperative Milk Producers Federation and U. S. Dept. of Agriculture, Washington, D. C., July, 1933; pp. 87, 89, 90 and 91.

the others.* The Class I price to dealers, F. O. B., city, 3.5 per cent milk for 100 pounds, was $2.56 for Philadelphia. This amount was sixth highest and when this price was adjusted to the butterfat content of the quart of milk sold, it ranked tenth from the top with $2.64 per 100 pounds. This made the dealers' price per quart of milk sold 5.675 cents, the tenth highest of the 34 cities, but in only one of these ten, Pittsburgh, was the dealers' selling price per quart as low as in Philadelphia, both being eleven cents.

It is interesting to note that, in this comparison, there were only three of the 34 markets in which the producer received a higher percentage of the retail price of milk sold off the wagon, the Philadelphia dealers' percentage being lower than that of 28 other cities. But, on quarts retailed through stores, while the share going to the producer remained the same as in off the wagon sales, six other markets gave their producers a larger percentage, and the distributors of 19 other markets received a lower percentage of store sales than the Philadelphia dealers. This means, of course, that Philadelphia stores retailing milk received a small percentage of the retail price, lower than that received in 29 of the cities. As a result of this difference in the distribution of the off the wagon price and the retail store price only three of the listed markets gave the producer a larger percentage of the consumer price than Philadelphia, but that city's distributors took a higher percentage of the retail price than did the dealers of from 10 to 15 other markets.

While this comparison indicates that dairymen in the Philadelphia milk shed are receiving a relatively high proportion of the retail price of fluid milk, undue weight should not be given to comparative costs in determining the value of any price plan. In the first place, a much larger percentage of fluid milk is sold at the lower wholesale price in some markets than in others, and it is the average of retail and wholesale prices that must form the basics for determining prices to producers. It should be recognized, also that distributors' margins cannot be constant for all markets. Although operating with equal efficiency variation in distribution costs in different markets may result from differences in labor and transportation charges. The general wage scale, the degree of unionization of labor, the size of the city, and the location of milk terminals, all influence these factors. The relatively low margin of dealers in one market does not necessarily imply that distributors in another market must operate on that spread in order to be efficient. It is probably true, however, that the low distributor margin on milk sold off the wagon in the Philadelphia territory is the result of a relatively high efficiency in distribution and that much of the saving resulting therefrom is reflected in higher producer prices.

*National Co-operation Milk Producers Federation Service Bulletin No. 3, March 7, 1935.

The foregoing analysis dealt with fluid milk and cream prices in the Philadelphia market and did not include prices for cream going into ice cream and other manufactured products. Although exact proof is lacking it appears that the price plan as operated in this market tended to have this cream come largely from without the milkshed, at least until 1934. Behind the plan seems to have been the belief that the Philadelphia shed could not supply its cream requirements and to encourage its production thru price would endanger the fundamental idea of the plan, which was a high price for fluid milk. Consequently, the cream price was usually set at a figure to encourage dealers to import the cheaper western cream, rather than to stimulate a large excess of milk within the shed which could be turned into cream. Table VIII, giving the source of dairy products for Philadelphia for the year 1931, indicates the situation described above.

From this table we find that only 30.88 per cent of the cream requirements of the Philadelphia market was supplied by the milk region which produced 98.53 per cent of its fluid

milk. Nearly two-thirds of the total cream supplies came from states west of Pennsylvania and more than one-fourth of it was shipped from points west of Chicago. Indiana, supplying 28 per cent, and Wisconsin, shipping in 21.88 per

Table VIII *

Source of Milk and Cream for Philadelphia
(For the fiscal year ending Oct. 1, 1931)

	Cream		Milk	
	Amount Received (40 qt. cans)	Per cent of Total Receipts	Amount Received (1000 lbs.)	Per cent of Total Receipts
East of Pa.—Ohio line—				
Pennsylvania	44,575	13.18	454,267**	72.35
Maryland	30,829	9.11	75,474**	12.02
New Jersey	2,088	0.62	44,825**	7.14
Delaware	6,097	1.80	43,847**	6.98
New York	20,857	6.17	259**	0.04
Sub-Total	104,446	30.88	618,672	98.53
Pa.—Ohio line to Chicago—				
Ohio	21,860	6.46	88	0.02
Indiana	94,736	28.00		
Michigan	5,486	1.62		
Illinois	1,781	0.53		
Sub-Total	123,863	36.61	88	0.02
West of Chicago—				
Wisconsin	74,030	21.88	59	0.01
Minnesota	3,008	0.89		
Missouri	8,497	2.51		
Sub-Total	85,535	25.28	59	0.01
South-East and West—				
Virginia	12,311	3.64	3,214	0.51
Arkansas	406	0.12		
W. Virginia	7,626	2.25	5,821**	0.93
Kentucky	1,000	0.30		
Tennessee	2,155	0.64		
Sub-Total	24,442	7.23	9,035	1.44
Grand Total	338,287	100.00	627,854	100.00

**Within the Philadelphia Milk Shed.
*Data Published by U. S. Department of Agriculture, 1932.

cent, accounted for almost half of the Philadelphia cream requirements.

The theory that a high price for fluid milk can be maintained by a cream price that encourages distributors to use cheaper cream from distant territories is one of dubious economic validity. According to our previous analysis the cream zone, under unrestricted competitive processes, will be located immediately beyond and adjacent to the fluid milk zone, and beyond this cream territory milk will be used in butter production. If the cream price is artificially high so that distributors can buy cream more cheaply from sections farther out in spite of the transportation differential, producers in the immediate cream belt must produce either for fluid milk use or for butter. Since the butter market is national in scope these dairymen will not receive the full advantage due to location in producing for butter. On the other hand, the high price of fluid milk in the nearest market will encourage them to make the additional expenditures necessary to produce for the Class I market. Furthermore, the base-surplus plan enables them to secure a share in this Class I market and guarantees its continuance, within certain limits. At the same time, excess over Class I sales of producers within the milk shed receives the low surplus price, resulting in a lower composite price than would be the case were distributors encouraged to meet cream requirements from the shed and territories adjacent thereto. The result is a widening of the fluid milk zone, discontent on the part of the shippers near the market, and a lower price for all of their milk in the end.

Again, it is probable that this artificially high cream price will be passed on to the consumers, causing them to purchase milk instead of cream. This will result in a reduction of total consumption and reduce total returns to dairymen.

As the milk excess mounted in the Philadelphia market, the fallacy of this practice became apparent and steps were

taken to use this excess for cream purposes. As previously noted, a separate cream quota equal to 10 per cent of the Class I quantities purchased by distributors, and paying a higher than surplus price, was initiated in February, 1932. Although this change increased slightly the volume of cream supplied by local producers it was not until 1934 that a lower cream price plan was instituted, making it profitable for dealers to purchase local cream and to separate more of their cream supplies from excess milk, rather than to buy western cream. A comparison of the 1933 and 1934 receipts of cream by the states of origin shows the effects of this new policy:

Table IX. *

Receipts of Cream and Milk at Philadelphia by States of Origin, 1933 and 1934.

State	Cream		Milk	
	40 quart units		40 quart units	
	1933	1934	1933	1934
Delaware	3,178	2,556	517,018	451,705
D. of Columbia	150	690		
Illinois	2,263	1,821		
Indiana	44,434	20,538	340	
Maryland	34,202	20,634	847,706	849,866
Michigan	1,400	600		
Minnesota	5,925	1,990		
Missouri	4,009	3,506		
New Jersey	2,032	260	562,933	595,528
New York	2,121	17,902		
Ohio	8,940	9,257		
Pennsylvania	69,497	104,757	4,844,597	5,078,585
Texas	200			
Virginia	4,434	246		
W. Virginia	2,620	1,385	9,367	23,084
Wisconsin	83,172	76,470	122	
Total	268,577	262,612	6,787,631	6,998,768

Table IX shows that whereas only 41 per cent of the cream received at the Philadelphia market in 1933 came from terri-

*U. S. Dept. of Agric., Bureau of Agric. Economics, Division of Dairy and Poultry Production.

tories within or adjacent to the Philadelphia milk shed, in 1934 this percentage had been increased to 56. While less than 26 per cent came from Pennsylvania in 1933 nearly 40 per cent was produced within that state the following year. Excepting New York and Ohio, every state outside the shed reduced its cream shipments to this city in 1934, and the state supplying one-sixth of the total volume of cream in 1933, Indiana, reduced its shipments more than half. The new cream price probably attracted more cream from the neighboring state of New York while the same factor may explain the slight increase from Ohio. New Jersey's reduced cream shipments are explained by the milk totals for the two years, the 1934 volume being much larger. This was due to the order of the New Jersey control board requiring Philadelphia distributors to purchase more fluid milk in 1934 than previously.

Much of this increase in cream production occurred in the latter part of 1934. The first orders issued by the Pennsylvania control board set prices for Class II (cream) milk out of line with competitive conditions. As a result there was heavy buying of cream from points far distant. Later orders, and especially Order Number 17, effective Oct. 1, 1934, reduced the price of cream to farmers to a level which gave no advantage to dealers in buying from distant areas, thus insuring local producers a market for their entire production. It also made it possible for several more dairies to find outlets for their production within the Philadelphia market.

As an illustration of this trend we find that there was 11.4 per cent more milk, or the equivalent of milk in cream and condensed milk, shipped to Philadelphia from the local cream zone during August, 1934, than during the corresponding period in 1933. Cream receipts were 26 per cent higher in August, 1934, than a year earlier. In the same period receipts of condensed milk from the same area increased 19 per cent over those of 1933. On the other hand, western cream receipts dropped 33 per cent and condensed milk from the

west 13 per cent under the 1933 shipments. Local producers' cream began to crowd out a large proportion of the western cream in the fall of 1934 because of the lower surplus price within the Philadelphia milk shed. This rather sudden change in the cream supply is evidence of the artificial cream price in that market before 1934.

III. OTHER FACTORS AFFECTING THE PHILADELPHIA PLAN

Not only price but also inspection laws have been used in attempting to deal with the cream problem in the Philadelphia market. As city health and sanitation requirements did not keep out western cream the State Health Department endeavored to restrict the entrance of western cream into Philadelphia through the use of its inspection procedures. This was first tried by refusing to inspect creameries outside the milk shed, as all milk and cream coming into the state were subject to Pennsylvania health laws and standards. This plan did not prove to be very successful. Because of the protest of one of the leading distributors, who shipped milk into the market from two large plants in Wisconsin, the head of the state inspection service, believing the protest justified, agreed to allow cream from these Wisconsin plants to enter after they had been inspected and found to meet the Pennsylvania requirements in every respect.

Still finding it difficult to curtail other western cream shipments the state health department succeeded in having a law passed which required two and one-half pounds of salt or sugar to be added to each one hundred pounds of milk and milk products used in cream, coming into the state from unapproved sources, hoping to detect and curb interstate shipments by this means. Before this law was fully tested as to its practicality a change in leadership in the state milk inspection service took place. This new official advocated the program of definitely defining and limiting the Philadelphia milk shed, together with the creation of certain additional

areas through inspection procedures but for emergency uses only. Having definitely limited the milk shed, inspection efforts could be concentrated against all who attempted to ship milk or cream into the market from without these areas.

While the new head of the health inspection service did not succeed in carrying out the above ideas he immediately concentrated upon dairy inspection within the city's milk shed. Although threatening to keep out western cream, he did not force this issue, but sought rather to have inspection within the shed carried on by methods different from those of the past. For years this work had been conducted by the Quality Control Department of the Philadelphia Inter-State Dairy Council, which was financed by a check-off from all cooperating producers as well as from the distributors. The Federal Milk Marketing Agreement had made the Dairy Council the agency for allocating among the contracting distributors certain producers for the purpose of equalizing the percentage of purchases of Class I milk by the dealers. This agreement also authorized the payment to the council of two cents for each one hundred pounds of milk purchased by the distributors for the carrying on of its functions.

Invoking a Pennsylvania law which stated that the cost of inspecting a dairy farm must be borne by the buyer of the milk, the state health department issued an order in August 1934, instructing all distributors to refuse to recognize any inspections by an inspector employed by the Dairy Council unless the dealers specifically paid for the service. Although this order was soon withdrawn, state inspectors were sent into Maryland, Delaware, and New Jersey areas which supply Philadelphia with milk. After reviewing a cross-section of every receiving station area in these districts and finding them unsatisfactory the distributors operating these stations were called together and given the alternative of sending out their own inspectors to correct the faulty conditions found there by the state men within thirty days, or having this milk kept out of Pennsylvania. The outcome was that each deal-

er was forced to do his own inspecting rather than use the Dairy Council for this purpose as before. Whether or not this change has any effect on the normal milk supply for the Philadelphia market depends largely on the attitude of the new inspectors and upon the surveillance of the state inspection department.

If health inspection within the Philadelphia milk shed is lax, as the above description suggests, it means that those dairymen allowed to neglect these health and sanitation regulations are receiving a price differential over producers who strictly obey these requirements. And if lax enforcement of inspection laws is found in districts remote from the market while producers nearer this point have made the necessary improvements, the latter's advantage due to proximity will be counteracted by the health and sanitation differential enjoyed by the former. Such preference will result in a widening of the fluid milk zone until the additional transportation costs are equal to the larger inspection expenditures of the shipper near the market.

The Pennsylvania inspection movement also gives some indication of attempts to limit the milk shed through health regulations. When this means of control is used to maintain an artificially high price for Class I milk, the result is increased production within the fluid milk zone. Also, this artificially determined zone together with a Class I price held above the competitive level, enables the producers near the market over a period of time to secure most of this gain for themselves until the dairymen at the zone boundary receive no higher price than they would without the restriction on the size of the zone. Of course, the base-surplus plan, by assigning each individual producer a definite portion of the Class I market, protects the more remote dairymen, yet the near-by shipper can still acquire a disproportionate share of this monopoly gain by distributing his own milk or by selling to price-cutting dealers on a flat basis.

Transportation and receiving station charges in the Philadelphia milk shed have always been paid by distributors and subtracted from the price to producers. Transportation zone rates have been based on railroad rates and receiving station charges have been determined by the dealers' cost accounting systems. Although these various charges have fluctuated somewhat with changes in transportation rates and other cost factors, they have remained, on the whole, fairly stable. The Federal Marketing Agreement allowed distributors a handling charge of six cents per one hundred pounds, known as a terminal handling charge, to be subtracted from producer price. It fixed transportation rates for the various zones and permitted the higher rates charged by the railroads for less than car lots from the country point to the terminal. The receiving station charges were placed at 22 cents per one hundred pounds. All of these deductions as well as the four cents going to the Inter-State association and the Dairy Council were subtracted from the price to the producer. Many points of disagreement have arisen between the producers association and the distributors over these various charges. The Inter-State has advocated the elimination of terminal handling charges, the reduction of receiving station charges, and the deduction of carload rates from the price of milk shipped from receiving stations to terminal markets in place of the higher less than car lot rates. It has also contended that trucking expenses rather than railroad rates should determine the transportation deductions in areas where the milk is hauled by truck.

Any reduction of receiving station charges and transportation rates as well as the elimination of terminal handling charges may increase returns to dairymen slightly but its principal effect will be to penalize nearby shippers and to benefit producers at the outer boundaries of the Class I zone through reductions in the distance from the market differential.

If it is true, as contended by some nearby producers and

by the report of the Federal Trade Commission on the Philadelphia market, that distributors derive an additional gain from milk shipped by rail and from receiving station charges, they may desire a larger milk shed than competitive processes warrant. Such a practice enables dealers to receive a higher margin on milk shipped from a distance than from milk transported by trucks from near-by points. And, of course, producers near the market lose by having to share the Class I market with those who under free competitive conditions would be supplying cream instead of milk for fluid use. Such a condition could not exist for long unless the Class I price were artificially high, for otherwise returns to these remote dairymen, after the transportation charges were deducted, would not be sufficient to induce them to produce for fluid uses.

Within the last two years the Philadelphia base-surplus plan has been widened in its operations by the inclusion of several additional receiving stations located farther west in Pennsylvania than the other stations. Although these stations have been established for several years, the distributors until 1934 bought the milk at a flat price. Any portion of this supply used as fluid milk or cream was paid for at Class I price, the flat price then becoming a composite one. This scheme enabled the dealers owning these receiving stations to protect themselves against a shortage of fluid milk in times of low production.

Under the influence of the Pennsylvania control board these stations were included in the base-surplus plan in 1934, the producers supplying them establishing basics and receiving their proportionate shares of the Class I market. This action widened the normal milk shed and by additions to the total basic quantities tended to decrease the percentage of individual bases receiving the fluid price each month. One large distributor having receiving stations in West Virginia continued on the old plan of paying these producers on a flat basis.

Some of the Philadelphia dealers have followed the practice of keeping their supply territory limited to their average or minimum sales. In times of low production these distributors meet additional sales by buying milk from outside sources. This practice has been encouraged by the presence within the milk shed of the Hershey Creamery Company, a large dairy manufacturing concern which buys from producers on a flat basis. As this lower price milk meets the market requirements for fluid milk and cream, it is possible for Philadelphia distributors to rely upon this supply rather than to build up their own reserve as a protection against shortages. If these dealers are able to acquire this outside supply in periods of shortage at or below Class I prices, their spread will be larger than the distributors who handle the excess supply, sometimes at a loss.

There is also within the milk shed, and within a short distance of the market, milk supplies that are shipped to the New York market. The territories in which these supplies are produced were formerly included in the base-surplus plan but for one reason or another, among which was producer objection to tuberculosis testing, these farmers became alienated from their natural market and found buyers in New York. These sources of supply within the Philadelphia milk shed, and in some cases quite close to the market, are a constant threat to the smooth operation of the base-surplus system. This is especially true since the distributors to whom they sell have recently compelled these farmers to meet standards as high as those demanded in the Philadelphia market. Should this large output of milk enter Philadelphia it would have to be taken into the base-surplus system or that control measures would fail, or at best find its efficiency greatly impaired. The inclusion of this supply would result in a drastic contraction of the present fluid milk zone, under free competitive processes, while former producers for fluid uses excluded from the Class I market by this action, would supply the cream now coming from more

distant points. However, these dairymen in the new cream zone would hesitate to give up producing for fluid uses until their equipment for that purpose is worn out. Under any circumstances the economic waste resulting from an unused supply of milk near the market meeting health and sanitation requirements must be paid for by producers supplying that market or by consumers, or both.

IV. DISTURBANCES WITHIN THE PRODUCERS ASSOCIATION

During the past five years discontented producers have voiced a great deal of criticism against dairy cooperatives in many of our large milk sheds. No doubt the reductions in prices received by dairymen during the depression period have been a fundamental cause of this agitation. In times of falling prices producers extend a more sympathetic ear to complaints and charges against the activities of their cooperative associations than they do when milk values are higher, or when they remain fairly steady over a period of time. Nevertheless, it is at such times that members take the most interest in their organizations and it is then that activities displeasing to them individually, or as minority groups of individuals, are brought to the attention of the public. Perhaps, the principal cause for minority protests against the officers of their cooperatives arises out of the operations of control plans. These protestants have stressed grievances arising from conditions similar to those that have been pointed out in the history of the operation of the Philadelphia base-surplus plan.

This agitation has led, in some markets, to a contest for control of the association on the part of the discontented members, or even non-members, against those in power. The Inter-State Milk Producers Association not only experienced one of these contests but also was confronted by investigations and by changes ordered by public authorities during this period. Although some of the forces affecting the

Philadelphia milk industry have been referred to already in the discussion on the operation of the base-surplus plan, a short review of the happenings in the past few years is essential to an understanding of the problems that the producers' cooperative has faced, and is facing, in the Philadelphia milk shed.

We have observed that falling milk prices from 1930 to 1933 were checked in June, 1933, by an increase in price in the Philadelphia market, brought about by a tentative agreement between the Inter-State and distributors in the area in view of the aid that they expected to secure through the Agricultural Adjustment Act. This agreement, with minor changes, was agreed to by the Secretary of Agriculture in August, 1933, and it confirmed the June price increase. However, the discontent that had been developing for some time had achieved sufficient effectiveness to cause an organized protest against the proposed marketing agreement at the hearing held in Washington by the United States Department of Agriculture in June, 1933. Complaints were registered against the organization and management of the Inter-State, the production control plan in operation, and the operations of the Philadelphia milk industry in general.

In spite of their failure to keep the agreement from becoming effective the discontented groups continued to oppose it vigorously. When, in September, the Secretary of Agriculture called a re-hearing on the operation of the Philadelphia Marketing Agreement these dissatisfied elements presented a still more vigorous protest against the agreement, the Inter-State and the Philadelphia milk distributors.

In the meantime the cooperative association asked for changes in the agreement as its operation had suggested ways of improving it in a manner more favorable to producers. Perhaps, some of the changes desired were the result of criticisms offered to the agreement by the opposing producers. At any rate, the A. A. A. announced amendments to this agreement late in October, 1933, which amend-

ments had to receive the approval of all parties to the contract before becoming effective. As the amendments were substantially those suggested by the Inter-State and favored producers, the Association ratified them immediately but the contracting distributors failed to do so, leaving the situation as it was before.

As time went on the discontented groups become more vocal. On October 9, 1933, a committee of four stockholders of the Inter-State, through their attorney, published a broadside of accusations of mismanagement, misappropriation and incompetence against officers and directors of the producers association. Through their agents these stockholders made an inspection of the stock records of the organization and this was followed by two stockholders filing complaints with the court, claiming illegalities in stock membership and misappropriation of stock funds. This claim resulted in an injunction issued by the court temporarily restraining the Association from holding its annual meeting for the election of directors, in order that the court might investigate to see whether the charges were true or without foundation.

Largely through the holding of protest meetings the dissatisfied dairymen, and others directly or indirectly interested in their cause, created an organization which came to be known as the Allied Dairy Farmers Association, although it was not incorporated until October 29, 1934.

At the beginning of the year 1934 rapid changes took place in the dairy situation in Pennsylvania. On December 23, 1933, a milk drivers' strike had been called in Philadelphia. It was generally considered as a sympathy strike along with a walkout of certain other teamsters unions in sympathy with the taxicab drivers' strike which was taking place at the time. One week later, appealed to by the National Labor Board, most all drivers returned to work. On January 2, 1934, the union voted to arbitrate all their differences, dealing directly with the individual companies. Aside from the hardship on dairymen who lost several days

milk sales because of it, the strike served to add to the discontent already engendered. Receiving whole-hearted support from one Philadelphia daily newspaper the Allied group renewed their attack on the Inter-State and made charges of collusion with the milk dealers. One small group of producers attempted to open a milk store on a cash-and-carry basis in cooperation with striking drivers but the plan failed when city officials ruled that only pasteurized and properly inspected milk could be distributed.

On January 3, 1934, the Pennsylvania Milk Control Board came into existence and two weeks later Secretary Wallace announced the termination of the Federal Marketing Agreement, leaving the Pennsylvania and New Jersey boards to deal with the situation in the Philadelphia milk shed. On the same day that this agreement was cancelled, Mr. H. D. Allebach, who had served as president of the Inter-State since 1922, resigned from that office to devote all his attention to his work as sales manager, a position to which he had been appointed by the Inter-State Board of Directors in 1920, and which he had occupied continuously since that date.*

At their January meeting the Association's directors took initial steps toward reorganizing their association when they accepted the report of a "middle ground committee" recommending changes in the By-Laws which aimed at rectifying certain objections made to the method of control within the organization. After giving its report this committee continued to function and attempted to persuade the Allied Dairy Farmers Association to appoint members to serve on a new committee to draft revisions of the Inter-State By-Laws but that group refused to cooperate in this matter. Finally, at the regular bi-monthly meeting of the Inter-State directors in March a committee was appointed to revise the By-Laws.

During the middle of February, 1934, the newly created

*Resigned as Sales Manager, effective July 1, 1935.

control board held a hearing in Philadelphia prior to setting up regulations for the dairy industry within the state. At this hearing the Inter-State defended the Philadelphia marketing plan while members from the Allied group opposed it. Finding that the A. A. A., which had indicated previously that it was preparing a new agreement for the milk shed, had decided not to work in any market in which a control board was active, the Pennsylvania board took control of the situation, issuing its first order in April. This order set milk prices and stated production control methods.

Throughout all of this activity the postponed annual meeting of the producers association had not taken place. A Philadelphia County Court had appointed Mr. Thomas F. Gain as Master to investigate and report on the jurisdiction of the court in the matter. If the court had jurisdiction he was to investigate the stock records, report his findings to the court, and then supervise the election of directors when held by orders of the court. The Master having decided that the court had jurisdiction and having proceeded with the inspection of stock records, the court ordered the election to take place on June 4 and 5, 1934. This election resulted in Inter-State nominated directors being chosen by a vote of 6510 to 3365.

At the September meeting of the newly elected board the amendments to the By-Laws drawn up by the committee appointed in March were adopted. The principal changes were in requirements for stock ownership and in the method of nominating directors, the new law requiring nominations for directors to be made by the various Locals and each director to represent a certain district within the milk shed.

On May 4, 1934, at Harrisburg, a Philadelphia milk marketing committee to operate in cooperation with the control board was selected by producers supplying milk to the Philadelphia market. Although candidates from the Allied association were placed in nomination the three producer members elected were Inter-State men.

In May, 1934, Mr. Robert Brinton, a former director of the Inter-State, resigned his position as head of the milk inspection service of the State Health Department and Governor Pinchot appointed Mr. W. K. Moffett, a leader in the Allied organization, to the office. Mr. Moffett's asserted belief that the Inter-State was playing into the hands of the Philadelphia Milk Exchange, a non-profit corporation of Philadelphia milk distributors, led him to adopt milk inspection measures designed to overcome any such practice. These measures are described elsewhere.*

Because of Order Number 13, issued by the Control Board in July, which abolished the basic-surplus plan for the Philadelphia area the producers association and many individual dairymen united in protesting against this order. The result was the rescinding of the order and the resignation of one of the three board members, Dr. H. C. Reynolds, on July 27, 1934.** Dr. Reynolds appeared to be out of sympathy with the Philadelphia control plan.

The final act in connection with the whole controversy that caused so many changes in the Philadelphia milk situation was the Federal Trade Commission's investigation, hearing, and report to Congress. After a brief inspection of Inter-State records near the end of 1933 the Commission stated that it found no reason to investigate the work and activity of the association and that it, therefore, considered the files closed. This statement was made in January, 1934.

In the last session of the 73rd Congress a resolution was passed on June 15, 1934, directing the Federal Trade Commission to inquire into conditions with respect to the sale and distribution of milk and other dairy products and to report their findings to Congress. This resolution was based on a demand for an investigation which followed the preliminary audit of dealers' books. The incomplete study had

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*p. 92 and 93.

**Reappointed July 2, 1935.

indicated large profits for the period preceding the first federal milk marketing licenses. The resolution also called for a show-down on the oft repeated charges that some dairy cooperatives are run by the distributors.

After spending several weeks studying conditions in the Connecticut milk markets, and having made a preliminary study in the Boston area, the Commission began an investigation in Philadelphia on October 1, 1934. As the outcome of several weeks work there it called a public hearing on the milk industry in Philadelphia for February 5, 1935. The hearing lasted for several days and much of the information brought out had been presented at the two hearings in connection with the Federal Milk Marketing Agreement for Philadelphia in 1933. On April 5, 1935, the Commission presented to Congress a joint report on the Connecticut and Philadelphia markets in which it made several charges against the milk industries in each of the two markets, pointing out instances in which producers had been placed at a serious disadvantage and declaring that practices of distributors had substantially lessened competition. Congress to date has taken no action on the Commission's findings other than to provide additional funds for further investigations.

Chapter V.

MINORITY OBJECTIONS TO THE PHILADELPHIA CONTROL PLAN

The success of any milk control plan may be measured by the extent to which it aids in maintaining the most economical supply for the market. We have presented the forces that determine supply under unrestricted competitive processes with the belief that any artificial control which most nearly approached these competitive conditions would be the most economical one. In the previous chapter describing the development of the base-surplus plan in the Philadelphia market attempts were made to analyze its salient features in operation from this viewpoint.

The only valid method for ascertaining the success or failure of the Philadelphia plan, or any other similar device, is by the results attained. One of the outstanding objectives of the base-surplus plan has been to minimize seasonal variations in production by offering an inducement to dairymen to produce uniformly throughout the year. The economic justification for this program has been set forth revealing that it is essential to the maintenance of an economical supply for any market. The history of its operation points to the conclusion that the Philadelphia plan has been highly successful in this respect when success is measured by comparisons with other markets attempting to control the seasonal variation of their producers. Dairymen within the Philadelphia milk shed as a group have delivered a more uniform supply over a period of years than have the shippers within the producing region of any other metropolitan market.

Comparison, however, is not an entirely satisfactory measurement. There remain the questions: Was this adjustment achieved in a manner that provides the most economical supply, and might not further adjustment have been practical? Answers to these questions ought to confirm or deny

the excellence of any criticisms made against the Philadelphia control measure and its operation.

In our description of the Philadelphia base-surplus plan certain features of its operation indicated that the methods of determining basic quantities and price adjustments did not always result in fulfilling the needs of the market in the most economical manner. Had the classification price plan of reporting sales according to use been followed in the formative years of the plan, it may be that the fluid milk zone would be smaller than it now is, resulting in a more economical supply, less excess milk, and less dissatisfaction on the part of producers located near the market. Combined with this factor was a Class I price too high at certain periods when measured by butter values, which encouraged the expansion rather than the contraction of the fluid milk zone. This situation was aggravated by a high cream price forcing an extension of the Class I territory and causing producers to receive butter prices for most of their excess during part of this period, as distributors purchased the cheaper western cream.

As to methods of determining individual basic quantities we observed that at times these favored dairymen producing large excess supplies thereby discouraging uniform production, which is the principal aim of the plan. When each distributor began to pay Class I prices for the percentages of basic quantities that his sales warranted an artificial differential was set up that encouraged producers shipping to some distributors to increase output and discontent among dairymen supplying other dealers. This uneconomical practice was augmented by rules favoring producers within their territories made by different state milk control boards within the Philadelphia milk shed. Base making rules usually favored old shippers to the extent of protecting their shares in the Class I market when their production did not warrant it, as no penalty was exacted for shipments lower than established quotas in other than base forming months. And there are

charges that both in transportation rates and in the enforcement of health and sanitation inspections the more remote producer was favored to the disadvantage, of course, of near-by dairymen.

As these conditions could not exist under truly competitive processes because they hinder the securing of the market's milk supply in the most economical manner they endanger the permanent success of the base-surplus plan. Some of these have been remedied and no doubt further improvements are taking place. Yet it is these factors primarily that have created discontent among certain producers causing them to criticize the Philadelphia plan, although they have been more prone to criticize the officers operating the control policy than to point out economic fallacies in the theories put into practice. That the Philadelphia plan has its severe critics was made clear in the previous chapter. Not only have the Allied Dairy Farmers Association and other individual dairymen opposed the base-surplus plan but they also have denounced the organization and management of the producers cooperative, as well as certain practices of the distributors. Various charges against the devices used by the Inter-State and the Milk Exchange have been made by these minority producers. These have been crystallized, to some extent at least, in the hearing and re-hearing on the Federal Milk Marketing Agreement, the hearings before the Pennsylvania Milk Control Board and, finally, in the hearing conducted by the Federal Trade Commission. To examine these charges with the aid of available data and to interpret them with respect to our previous analysis ought to clarify still further the operations and merits of the Philadelphia control plan.

Perhaps more criticism has been leveled against the principles of the base-surplus plan and the methods of operating it in the milk shed than against any other phase of the Philadelphia milk industry. The objections presented against this plan and its practical workings at the several hearings

or by leaders of minority groups are many and varied. They make an imposing list which includes the following:

The base-surplus plan has not controlled production. It has neither evened-up production nor discouraged over-production.

Producers are required to ship their surplus to market, and at a loss.

Producers receive so little as basic that they have to increase their surplus in order to raise their basics to a point at which production is profitable.

Basics when first granted were too high.

The base-surplus plan causes new producers to overproduce the first year in order to overcome the handicap in establishing a base equal to their average yearly production.

Farmers artificially boost production during the basic periods.

When dairymen produce below their basic amounts new and lower basics must be established.

The base-surplus plan benefits old producers to the disadvantage of the newer ones.

The new producer cannot get a basic or at best a very low basic.

Basics are arbitrarily fixed by the organized distributors and the representatives of the producers association.

The base-surplus plan works to the disadvantage of the producer near the market.

The base-surplus plan enables the dealers to make exorbitant cream profits.

The production control scheme has increased the cost of producing milk.

The base-surplus plan does not take the cost of production into consideration.

Under the plan producers cannot determine whether or not they are receiving fair and equitable treatment from the purchasers of their milk.

It should be observed that most of the above criticisms apply to the practical application of the Philadelphia base-surplus plan rather than to the theory of controlling production by means of basic ratings.

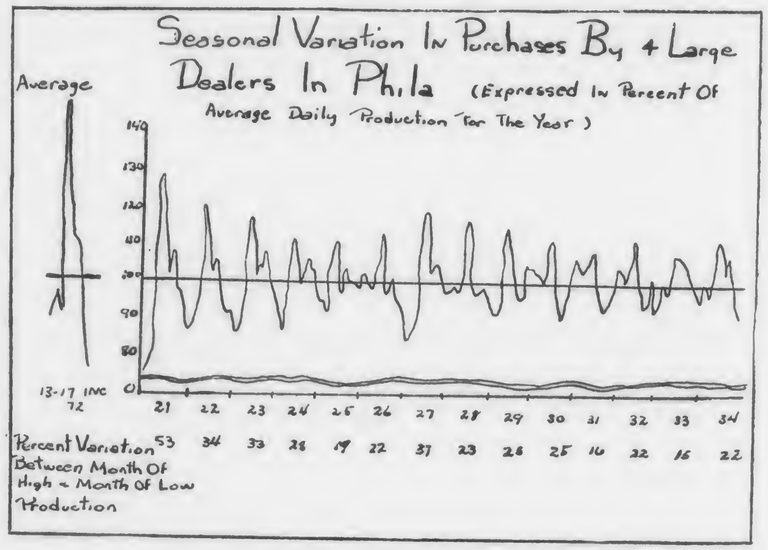
In an effort to determine the validity of these various charges a study was made of available production records of individual dairymen shipping supplies to three of the four largest distributors in the Philadelphia market. These three dealers, distributing about 75 per cent of the fluid milk sold in the Philadelphia area, permitted a study of the records of their producers as tabulated by the Inter-State Milk Producers Association. The production record of every tenth dairyman on file was analyzed, 772 cards in all out of a total of almost 8000. Much of the data presented in connection with the following discussion is the result of that analysis.

The period included in these records was from 1925 to 1933, inclusively. Before 1929, however, the records are incomplete as it was not until that year that all monthly production figures were tabulated. Therefore, the five year period between 1929 and 1933, inclusively, is used for our survey. Monthly production records for both the year 1931 and the year 1933 were totalled in order to find out how near the producers came to supplying one-tenth of the total shipments to the three distributors. In 1931 the annual output of these shippers was much lower than one-tenth of the total supplies, representing slightly more than 75 per cent of that volume, but these secondary records failed to include any of the production from several receiving stations paid on a flat basis at that time. For 1933 the total production of these dairymen was more than 98 per cent of the annual supply of these distributors, divided by ten.

Considering the first charge that the base-surplus plan has not controlled production in the Philadelphia milk shed

for it has neither evened-up production nor discouraged output in excess of fluid milk requirements, the following data are available. From 1921 to 1925, the first five years the plan was in operation, the range in seasonal variation for milk purchased under the base-surplus system was reduced from 54 to 23 per cent.* Also, within this territory during 1922-1926, inclusively, farmers selling under the base-surplus plan produced 10 per cent more milk per cow in October, November and December and 5 per cent less per cow in April, May and June than dairymen in the territory who did not sell under the plan.**

Chart I.



A chart prepared by the Inter-State in 1935 giving the percentage variation between the month of high and the

*Lininger, F. F.: "The Relation of the Basic-Surplus Marketing Plan to Milk Production in the Philadelphia Milk Shed;" Pa. State College Bulletin 21, 1928; p. 3.

**Lininger, F. F. & Weaver, F. P.: "How to Adjust Milk Production to the Philadelphia Marketing Plan;" Pa. State College Circular 123, 1929; p. 3.

month of low production from 1920, the year the plan was initiated to 1935 shows that the range is from 53 per cent in 1921 to 22 per cent in 1934. This variation was reduced every year from the beginning of the plan until it reached 19 per cent in 1925. In 1926 it rose to 22 per cent and in 1928 to the high 37 per cent. From 1928 through 1934 it never equalled more than 25 per cent, falling to 16 and 15 per cent in 1931 and 1933, respectively.

As to excess production in no year between 1925 and 1931 did it equal as much as 13 per cent of the total production for the year. The large falling off in sales in 1932 and 1933 caused the surplus to mount to more than 20 per cent in those years.

Considering the matter of excess production our analysis shows the basics to be higher than the total monthly shipments, divided by twelve, of the 772 producers for both 1931 and 1933, the two years for which all monthly production records were totaled. Their total shipments for 1931 and 1933 were 37,073,561 lbs. and 39,767,885 lbs., respectively, while their monthly established basic quantities multiplied by twelve added to 37,628,885 lbs., for 1931 and 41,801,616 lbs. for 1933.

Continuing our analysis for the five year period in which the records are complete, we discover from Taxle X that one-fifth (21.5%) of these producers did not average their basic quantities in any year, and more than one-half (52%) failed to average their basics in the majority of the years during this period. A small number of these dairymen, not more than one or two per cent in any year, may have their low averages in one of these years attributed largely to a decrease in the size of herds because of tuberculin tests. On the other hand, slightly less than one-fifth (18.6%) of the producers averaged their quotas every year and 44.3 per cent shipped more than their basic quantities, multiplied by twelve, in a majority of the years. As these samples include shippers from every territory within the Philadelphia milk

shed the data indicate that any excess was not due to high production throughout the year by a majority of the dairymen but must have been the result of excess output at certain seasons, or have been caused by a minority of farmers producing far above their basic quantities.

Table X.

Comparison of Annual Milk Shipments With Basic Quantities.

Period: 1929-1933	Distributors			Total
	A	B	C	
Averaged Base Every Year	15.4%	27.7%	17.5%	18.6%
Averaged Base Majority of Years	35.9	48.2	44.8	44.3
Average Below Base Every Year	29.9	16.9	21.2	21.5
Average Below Base Majority of Years	58.1	46.2	53.2	52.0
Even-Average Below and Above Bases	6.0	5.6	2.0	3.7

This table also suggests that another charge made against the operation of the base-surplus plan is untrue, namely, that producers are required to ship excess production to distributors. If more than one-fifth of the dairymen shipped less than their basic quantities, multiplied by twelve, in every one of these five years and more than a half of them did not average their bases in at least three of these years, it would appear that no pressure was exerted to make them ship more than their allotted quotas. On the contrary, in the latter part of this period with lowering consumption and with only a percentage of basic quantities receiving Class I prices, the distributors should have benefited through these smaller shipments. Table XI gives more evidence to discount this criticism of compulsory shipments of excess production.

Table XI.

Comparison of Monthly Shipments With Basics.

Period: 1929-1933	Distributors			Total
	A	B	C	
Below Base Every Month in One Year	34.7%	20.8%	26.7%	26.4%
Above Base Every Month in One Year	12.7	16.2	21.7	18.7
Number of Years Shipments were Below Bases Every Month	12.8	6.9	8.8	8.9
Number of Years Shipments were Below Bases 11 Months or More	21.0	12.8	16.4	16.1
Number of Years Shipments were Below Bases 9 Months or More	35.9	26.0	32.0	31.0
Number of Years Shipments were Below Bases 6 Months or More	49.9	53.0	58.3	54.8

The percentages in Table XI are based on a total of 3114 years, representing the number of producers multiplied by the number of years each one shipped to the market. As some of these dairymen became shippers after 1929 the total number of years does not amount to 3660, the number of producers, (772), multiplied by five. In more than one-half (54.8%) of these 3114 years the monthly shipments were below the established basics of the producers in at least six months out of the year. Monthly shipments were lower than basic quantities in nine or more months in nearly one-third (31%) of these years, and for more than one-sixth (16.1%) of the time the supplies did not equal basics in at least eleven months of the year. In 8.9 per cent of the years the shipments did not come up to the allotted quotas in any month of the year.

Less than one-sixth (18.7%) of the shippers more than equaled their bases throughout the entire twelve months of one or more years, while slightly more than one-fourth (26.4%) were below their established quotas during every month of one or more years. Surely, the matter of shipping milk in excess of basics did not worry the majority of these dairymen during most of this five year period nor during the majority of the months of any year. Rather, their problem appears to have been one of producing up to their quotas.

We must remember, however, that after 1930 these producers were not paid Class I prices for their entire established basics but for the percentages only that fluid milk sales warranted. This practice was no doubt influential in keeping production lower than basic quantities in many individual cases. Table XII gives further proof of this fact.

Table XII.

Number of Producers Failing to Average Basics.

Did not average Basics in	1929	1930	1931	1932	1933
Dealer A	35	46	70	72	79
Dealer B	61	88	96	94	96
Dealer C	119	154	194	212	224
Total	215	288	360	378	399

Here we notice an increase each year in the number of producers failing to average their established basic quantities. The number of shippers in the milk shed became greater each year, it is true, but the increase in the percentage of dairymen not averaging their basics is much larger than the percentage increase in new producers for each year during the period.

The foregoing statistics indicate a lowering of production as total purchases of the distributors also show. The base-surplus plan, with its two or three class price schedule, appears to have discouraged excess supplies as well as tended to even up production. In this period of falling prices the majority of dairymen, desiring to avoid low surplus prices, limited their production to a point that did not cause large excess supplies during most, if any, months of the year. These figures refute the statement made by a leader of the Allied group to the effect that producers receive basic price for such small quantities that they are forced to increase their surplus production in order to raise their basics to a point which makes production profitable. After all, Class I payments are determined by sales and the only way any shipper can benefit through increased output is through the failure of other dairymen to keep their quotas intact.

The failure of so many producers to keep production as high as their basics suggests our examining another criticism against the operation of the base-surplus plan. It is that basics, when first granted, were too high, giving the oldest shippers in point of time an advantage that has handicapped new producers. It must be recognized, of course, that any such handicap to new producers would have lost most of its effect years ago as dairymen would continue to build up their basic quantities until their totals equaled Class I sales regardless of the advantage of high bases at the outset. As farmers in the early years of the plan were permitted to set their own quotas it may be that they were too optimistic about their ability to supply given quantities of milk throughout the year, for there are no available records for that period, yet, if this were true all traces of this practice had been eliminated by 1929 as the following table discloses.

TABLE XIII.

Year in Which Basic Was Highest.

Highest Base in	1929	1930	1931	1932	1933	1934
Dealer A	7	17	27	5	29	32
Dealer B	39	30	24	1	42	60
Dealer C	65	51	49	6	79	132
Total	111	98	100	12	150	224

Although the number of dairymen with highest established quantities in 1929 is greater than the number for any of the following three years, this table shows highest basics concentrated largely in 1933 and 1934. And, there are explanations for the lower figures during the other three years. In 1932 no new basics were to be established, the 1931 quotas holding over for the following year. Beginning in 1929 a three year average was used for the first time in establishing bases and new shippers were allowed only 70 per cent of their fall production as basic for the ensuing year. These rulings tended to cut down quotas in 1930 and 1931 and this is especially true since many new producers are recorded between 1929 and 1932, while there are few for 1933 and 1934.

There were no established bases for New Jersey dairymen in 1934, nor in 1929 for New Jersey producers shipping to one of the distributors, and these omissions may have affected our analysis somewhat. Also, some 75 shippers are not included in the table because they did not enter the base-surplus system until 1933 or 1934.

Table XIV verifies the facts brought out in Table XIII by showing the upward trend of basics, in spite of a decreasing total production.

Table XIV.
Movements of Basics.

Period: 1929-1934	Distributors			Total
	A	B	C	
Increasing Since 1929	13.1%	16.3%	11.6%	13.3%
Decreasing Since 1929	6.5	13.6	8.1	9.5
Increasing Since 1932	28.2	38.3	29.9	31.7
Decreasing Since 1932	38.2	29.6	28.0	30.1
Increasing To 1934	16.4	10.5	11.9	12.3
Decreasing To 1934	0.9	2.5	6.8	4.6
Highest Base In First Year	14.5	5.6	2.9	5.6
Highest Base In Last Year	28.1	35.7	35.1	34.3

Although nearly as many shippers decreased their quotas after 1932 (30.1%) as increased them since that date (31.7%), more than one-third (34.3%) had their highest basics in the last year (1934 for most of them and 1933 for New Jersey shippers). The percentage of shippers increasing their allotted quotas to 1934 and then allowing them to drop is only 12.3. A higher percentage continued to increase their basics since 1929 than were lowered recessively since that year. Only a few (4.6%) increased their established quantities in 1934 after permitting them to fall every year previous to that date. The small number (5.6%) having their highest base in the first year of full shipments leads to the conclusion that few new shippers attempt to overcome the handicap of establishing a high base at the beginning by unusually high production the first year. Furthermore, most of the dairymen with the high first year basics

ship to the same distributor and it might be observed that the highest percentage of dairymen decreasing their quotas since 1932 ship to this same dealer.

Table XV.
1935 Basics As Determined By the Eight Months Average.

	Distributor			Total
	A	B	C	
1935 Basics Higher	45.9%	62.7%	41.6%	48.3%
1935 Basics Lower	54.1	37.3	58.4	51.7

From Table XV, representing 1935 basics if they are determined by the first eight months averaged production as provided in the Pennsylvania control board order, we find that slightly more than one-half (51.7%) would be lowered. Reviewing our data showing the failure on the part of the majority of producers to keep shipments steadily up to basics, we might expect the 1935 method for establishing these quantities to lower many of them. This downward shift would be still more pronounced if producers shipping to distributor B did not show the opposite trend. It might be noted that a higher percentage of the dairymen shipping to this dealer have increased their quotas since 1932 than those producing for the other distributors, and that these farmers received Class I prices for almost 100 per cent of their basic quantities in July and August, 1934. This fact seems to confirm a previous statement that the practice of each distributor in paying Class I prices each month on that percentage of basics that his sales warrant creates an artificial differential favorable to the producers of the dealer paying the highest percentages and this differential encourages these dairymen to increase their production, enabling them to secure a larger proportion of the total basic quantities.

The fact that total production has been decreasing while our data indicate a high percentage of increasing basics in 1933 and 1934 seems to support the charge that farmers artificially boost production during basic periods. This was quite evident in the formation of 1933 quotas when

an unusually high volume was shipped during October, 1932, the only month in which production counted in base making. It has been claimed that producers borrow cows from those on a flat price basis during the base making period, that many cows are bought immediately preceding the base period, and that feed bills are much higher during that time. If these methods are used generally to build up high output during basic months, it would be much better to determine basics on a yearly average basis and the 1934 quotas follow this plan in part in using an eight months average. However, if the foregoing practices are general and if cows with a basic do bring a much higher price when sold than non-basic herds, as contended, it is an indication that Class I prices are too high. For, otherwise, it would not be profitable for dairymen to adopt these costly practices. Yet, Table XVI implies that the majority of farmers do not follow these practices.

Table XVI.

Distribution of Production by Quarterly Periods.

Periods: 1929-1933	Distributors A	B	C	Total
Highest Production in First Quarter in Most Years	21.3%	8.7%	6.7%	9.9%
Highest Production in Second Quarter in Most Years	19.7	30.8	33.2	30.1
Highest Production in Third Quarter in Most Years	2.6	15.9	9.3	10.0
Highest Production in Fourth Quarter in Most Years	29.1	19.0	22.9	22.8
Highest Production Varies Among Quarters	27.3	25.6	27.9	27.2
Gained by 1931 Base Remaining for 1932	75.0	64.2	65.0	66.4
Lost by 1931 Base Remaining for 1932	25.0	35.8	35.0	33.6

From the above data we see that the largest group (30.1%) had their highest shipments during the second quarter of the year when the surplus price is usually lowest. The group producing highest quantities in the fourth quarter,

in which basic forming months were included most often, comprised less than one-fourth (22.8%) of the total number. Among distributors there is a wide range in the number of producers sending their highest volumes during the four different periods but this variation may be due largely to the nature of the farm land in the different territories from which the dealers collect their supplies. Distributor C, for example, receives much milk from sections where large pastures are prevalent, therefore, producers in these districts might be expected to ship more milk in the second three months of the year than in any other similar period. This table also shows that two-thirds of the shippers gained by having their 1931 basics remain for 1932, on the basis of their fall production for 1931. It indicates that these producers made no special effort to keep production high in the fall months of 1931 as no new quotas could be made for the following year.

As to the criticism that dairymen producing below their basic amounts must accept new and lower quotas, the foregoing analysis gives evidence to the contrary. Although more than one-half of the producers in this study did not average their basic quantities during the majority of these five years, it did not necessarily mean that their basics were lowered for the year following one of low production. Only when they failed to keep production as high as their quotas during the basic establishing months were their bases lowered. As every dairyman knew in advance what months were to be used in determining his basic for the following year any increase or decrease in that volume was his own individual problem. It was not until the change in the method for establishing basics for 1935 that new ones depended on average production over a series of months. For 1935 an eight month's average was used although this plan was not announced until October 1, 1934, after the base forming period was past. Yet, in this case the producer was given the option of retaining his old quota for 1935, although it might be

lowered slightly because of a redistribution of the total basic volume, in order to permit those with high output during this eight month's period their larger proportionate share of the total established basic quantities. This plan penalized the dairymen with uniform production held down to their basic amounts in order to favor shippers with large excess production during this eight months' period.

The base-surplus plan as operated in the Philadelphia milk shed with respect to the creation of basics has tended to favor old producers to the disadvantage, of course, of the newer dairymen. The absence of penalties, until 1933, for production below basic amounts was a significant phase of this favoritism. This discrimination was not present during the early years of the plan when old and new shippers were placed on the same basis with respect to Class I quantities. It was not until 1927 that the new producer was not permitted to establish a base for the following year equal to the average of his total fall production and that old shippers had their basics determined in part by quotas for previous years. Beginning in 1929 the methods for establishing basic quantities tended increasingly to favor old producers, first by using three year averages for determining quotas and finally by granting no opportunity to increase basic volumes in 1932. At the same time dairymen entering into the base-surplus system received only a percentage of their basic forming production as their established bases.

The reason advanced for this protection granted to old shippers was the danger of market instability resulting from excess production. As old producers had assumed the additional expenditures for meeting health and sanitation requirements necessary to market Class I milk, and as these were fixed costs, it was only reasonable that these dairymen should receive the benefits. Prices were relatively low, even for Class I milk, and it would not be economical to allow new producers to share this market on the same basis as old shippers when the latter were already able to supply market

needs. Furthermore, the reasoning continued, many, perhaps most, of these old shippers had made the additional outlay for evening-up production in order to gain the price benefit resulting from uniformity of supply and they should be rewarded by a sort of vested interest in the Class I market.

However, beginning in 1933 part of this advantage of old producers was removed when the practice of using a three year average was discontinued in determining quotas. Nevertheless, as no new basics had been granted in 1932, the 1933 bases, in effect, did depend to a marked degree on production as far distant as 1929. And, since the 1934 quotas were attached in part to those of 1933 this dependence on output of previous years continued. Also, during these two years new producers found difficulty in securing a market for their milk in fluid form. Therefore, it can be said that the plan for establishing 1935 basics, for the first time in several years, offered the new shipper an opportunity to secure a proportionate share of the market supply. Even then the concession was more apparent than real. First, because it was still difficult for the new producer to enter the Class I market, and also because the plan was not announced in time for him to take advantage of the opportunity. On the whole, the new method benefited old shippers with high excess production rather than the new producer.

The above description confirms the charge that the new producer cannot get a basic at all, or at best a very low one.

This protection for old shippers is an indication that Class I price is higher than a truly competitive one. Otherwise, no protection would be necessary for new producers could not afford to make the expenditures necessary to produce for fluid uses, unless they were in favorable positions enabling them to take advantage of the price differentials. But an artificially high price together with a closed base system encourages an artificially large Class I zone. Were the price reduced to the competitive level producers at the outer

boundary of the Class I zone and other marginal shippers would gradually turn from production for fluid uses and any gap left in the supply of Class I milk would be filled by new producers in a favorable position with respect to the transportation differential or the differential caused by health and sanitation requirements, or both. It is true that closed bases together with any economy resulting from a relatively uniform production would retard this shift but it would not prevent the transition. However, discriminatory inspections and monopoly transportation rates might prevent it.

Another criticism is that basics are arbitrarily fixed by the organized distributors and the representatives of the producers association. It is true that the methods for establishing these quotas have been the result of interpreting future marketing conditions by the dealers and the association representatives in conference. That these decisions have been determined arbitrarily, without study and reflection and with no regard for producer interests would be difficult to prove. Just as it is advantageous for distributors to receive a steady, adequate supply so is it beneficial for association members to have basics established in a manner that will guarantee that supply with the smallest excess possible. In arriving at this method it may not be possible, it is no doubt impractical, to adopt a plan that will affect equally all producers; the nature of milk production and of milk marketing precluded it. There is little doubt, however, that the methods adopted have benefited the majority of producers and the majority, of course, are old shippers.

With respect to the individual producer it is true that distributors have made special arrangements in specific cases, but on the whole they have followed the rulings of the Association regarding the establishment of basics. It is difficult to make an iron-clad rule in this matter and one of the duties of a producers association is the hearing of complaints concerning basics and attempting to adjust grievances. It can be said, I believe, that officers of the Inter-State have

gone more than half-way in their efforts to persuade dealers to adjust individual quotas in a manner favorable to the dissatisfied member.

In the interpretation of production records it was found that no one rule for the establishment of first basics of new shippers was followed exclusively in any of the years but a tendency to follow the stated rule was the practice. For 1929, 24 out of 45 new producers received a base equal to 70 per cent of their fall production, according to the Inter-State ruling. Fifteen, and all of them shipping to the same dealer, received basics equal to 100 per cent of their fall output. This was discrimination in favor of these shippers but there was no discrimination between individual dairymen supplying the same distributor. In fact, this same dealer also granted basics equal to 100 per cent of their fall supplies to 37 of his old shippers. Of the remaining six new producers, two began shipping too late in the year to have the rule apply but received 70 per cent of their first thirty days' shipment instead. The other four basics varied from 60 to 200 per cent of fall production records.

For 1930, 40 of the 54 new shippers were granted quotas according to the rule, while the one distributor continued to grant 100 per cent of their averaged fall production to his five new producers. The remaining 9 each received a basic quantity higher than the rule allowed. In 1931, out of 41 new dairymen 33 basics were estimated according to the rule while the dealer mentioned above still continued to allow five of his new producers quotas equal to 100 per cent of their averaged fall output, and 80 per cent to the remaining three. Fifteen new shippers received their allotted basic quantities in 1932 while the one dealer continued to vary from the rule by granting a higher base to each of his three new shippers. For 1933 the 19 new producers were all added by one distributor and there was a great deal of variance in the methods of estimating their quotas, depending on the dates the shippers entered the market. Only two new farmers were

added in 1934. These cases bear out the statement made by an officer of one large milk company that the distributor may make an agreement with a whole group of dairymen or with an individual who desires to enter the market, but that the dealers do not necessarily follow Inter-State rulings regarding basics of new producers. It can be said, however, that the dealers rarely allow less than the amount provided for by the rules of the Association.

By applying the rules for establishing basics of old shippers the following were found to be out of line with the rules for the various years:

	1929	1930	1931	1932	1933	1934
Basics too low	20	14	13	3	12	1
Basics too high	49	57	49	21	10	4

In some instances the records showed that adjustments had been made and sometimes the reasons for the changes were stated. Also, these records, being secondary ones, sometimes failed to include allowances for days in which no shipments were made for one reason or another. This omission would render invalid any mathematical check for determining how closely the rules were followed. In a few cases, however, and especially in reference to the shippers of one dealer, several higher bases for 1932 when no new quotas were to be established appeared to be warranted only on the basis of high average monthly shipments. Again, many increases in some years were in the basics of producers from some one territory for which special arrangements had been made between distributors and shippers. In one instance at least such an arrangement resulted in higher basics than the rules specified in one year, but the following year these producers received slightly lower quotas than permitted by the rule. It is true, of course, that special consideration given to any producer or group of producers in the granting of basic amounts penalizes all other dairymen in so far as it lessens their proportionate share in the fluid milk market, causing them to

receive Class I prices on a smaller percentage of the total basic volume.

To investigate the charge that the Philadelphia base-surplus plan operates to the disadvantage of dairymen near the market involves the consideration of several factors. Any base-rating plan aims to protect the Class I market against seasonal fluctuations in production for which the more remote farmers are usually more responsible, on the whole, than near-by shippers. No matter how large this seasonal excess may be the near-by dairyman can be certain that his uniform supply, if regulated by his basic, will command Class I prices as long as the total basics are kept within the volume of Class I sales. As the producer close to the market often has high feed costs and the additional expense of producing uniformly he expects this protection from the plan.

On the other side is the fact that a base-rating plan may be administered in a way that takes away some of the natural advantage possessed by the near-by dairyman because of his location. Under such a scheme he may be forced to share the market with other producers regardless of his ability to produce and market fluid milk more advantageously than dairymen at the outer boundary of the Class I zone. In periods of expanding sales this natural advantage that should aid him, ordinarily, in securing an additional portion of the market supply may be curtailed by the operation of a plan that distributes this additional fluid milk throughout the zone or among new producers. And in periods of decreasing sales the low Class I price may not enable him to meet feed costs while the more remote farmer with large pasture may keep on producing more than his allotted share of the Class I market. It is in these seasons of large excess production, when Class I prices are relatively low and these prices are paid on a smaller and smaller percentage of his basic, that the near-by producer begins to object to a plan supporting a larger milk shed than consumption for fluid uses requires. It was at such a time that some shippers close to the Phila-

lowered slightly because of a redistribution of the total basic volume, in order to permit those with high output during this eight month's period their larger proportionate share of the total established basic quantities. This plan penalized the dairymen with uniform production held down to their basic amounts in order to favor shippers with large excess production during this eight months' period.

The base-surplus plan as operated in the Philadelphia milk shed with respect to the creation of basics has tended to favor old producers to the disadvantage, of course, of the newer dairymen. The absence of penalties, until 1933, for production below basic amounts was a significant phase of this favoritism. This discrimination was not present during the early years of the plan when old and new shippers were placed on the same basis with respect to Class I quantities. It was not until 1927 that the new producer was not permitted to establish a base for the following year equal to the average of his total fall production and that old shippers had their basics determined in part by quotas for previous years. Beginning in 1929 the methods for establishing basic quantities tended increasingly to favor old producers, first by using three year averages for determining quotas and finally by granting no opportunity to increase basic volumes in 1932. At the same time dairymen entering into the base-surplus system received only a percentage of their basic forming production as their established bases.

The reason advanced for this protection granted to old shippers was the danger of market instability resulting from excess production. As old producers had assumed the additional expenditures for meeting health and sanitation requirements necessary to market Class I milk, and as these were fixed costs, it was only reasonable that these dairymen should receive the benefits. Prices were relatively low, even for Class I milk, and it would not be economical to allow new producers to share this market on the same basis as old shippers when the latter were already able to supply market

needs. Furthermore, the reasoning continued, many, perhaps most, of these old shippers had made the additional outlay for evening-up production in order to gain the price benefit resulting from uniformity of supply and they should be rewarded by a sort of vested interest in the Class I market.

However, beginning in 1933 part of this advantage of old producers was removed when the practice of using a three year average was discontinued in determining quotas. Nevertheless, as no new basics had been granted in 1932, the 1933 bases, in effect, did depend to a marked degree on production as far distant as 1929. And, since the 1934 quotas were attached in part to those of 1933 this dependence on output of previous years continued. Also, during these two years new producers found difficulty in securing a market for their milk in fluid form. Therefore, it can be said that the plan for establishing 1935 basics, for the first time in several years, offered the new shipper an opportunity to secure a proportionate share of the market supply. Even then the concession was more apparent than real. First, because it was still difficult for the new producer to enter the Class I market, and also because the plan was not announced in time for him to take advantage of the opportunity. On the whole, the new method benefited old shippers with high excess production rather than the new producer.

The above description confirms the charge that the new producer cannot get a basic at all, or at best a very low one.

This protection for old shippers is an indication that Class I price is higher than a truly competitive one. Otherwise, no protection would be necessary for new producers could not afford to make the expenditures necessary to produce for fluid uses, unless they were in favorable positions enabling them to take advantage of the price differentials. But an artificially high price together with a closed base system encourages an artificially large Class I zone. Were the price reduced to the competitive level producers at the outer

boundary of the Class I zone and other marginal shippers would gradually turn from production for fluid uses and any gap left in the supply of Class I milk would be filled by new producers in a favorable position with respect to the transportation differential or the differential caused by health and sanitation requirements, or both. It is true that closed bases together with any economy resulting from a relatively uniform production would retard this shift but it would not prevent the transition. However, discriminatory inspections and monopoly transportation rates might prevent it.

Another criticism is that basics are arbitrarily fixed by the organized distributors and the representatives of the producers association. It is true that the methods for establishing these quotas have been the result of interpreting future marketing conditions by the dealers and the association representatives in conference. That these decisions have been determined arbitrarily, without study and reflection and with no regard for producer interests would be difficult to prove. Just as it is advantageous for distributors to receive a steady, adequate supply so is it beneficial for association members to have basics established in a manner that will guarantee that supply with the smallest excess possible. In arriving at this method it may not be possible, it is no doubt impractical, to adopt a plan that will affect equally all producers; the nature of milk production and of milk marketing precluded it. There is little doubt, however, that the methods adopted have benefited the majority of producers and the majority, of course, are old shippers.

With respect to the individual producer it is true that distributors have made special arrangements in specific cases, but on the whole they have followed the rulings of the Association regarding the establishment of basics. It is difficult to make an iron-clad rule in this matter and one of the duties of a producers association is the hearing of complaints concerning basics and attempting to adjust grievances. It can be said, I believe, that officers of the Inter-State have

gone more than half-way in their efforts to persuade dealers to adjust individual quotas in a manner favorable to the dissatisfied member.

In the interpretation of production records it was found that no one rule for the establishment of first basics of new shippers was followed exclusively in any of the years but a tendency to follow the stated rule was the practice. For 1929, 24 out of 45 new producers received a base equal to 70 per cent of their fall production, according to the Inter-State ruling. Fifteen, and all of them shipping to the same dealer, received basics equal to 100 per cent of their fall output. This was discrimination in favor of these shippers but there was no discrimination between individual dairymen supplying the same distributor. In fact, this same dealer also granted basics equal to 100 per cent of their fall supplies to 37 of his old shippers. Of the remaining six new producers, two began shipping too late in the year to have the rule apply but received 70 per cent of their first thirty days' shipment instead. The other four basics varied from 60 to 200 per cent of fall production records.

For 1930, 40 of the 54 new shippers were granted quotas according to the rule, while the one distributor continued to grant 100 per cent of their averaged fall production to his five new producers. The remaining 9 each received a basic quantity higher than the rule allowed. In 1931, out of 41 new dairymen 33 basics were estimated according to the rule while the dealer mentioned above still continued to allow five of his new producers quotas equal to 100 per cent of their averaged fall output, and 80 per cent to the remaining three. Fifteen new shippers received their allotted basic quantities in 1932 while the one dealer continued to vary from the rule by granting a higher base to each of his three new shippers. For 1933 the 19 new producers were all added by one distributor and there was a great deal of variance in the methods of estimating their quotas, depending on the dates the shippers entered the market. Only two new farmers were

added in 1934. These cases bear out the statement made by an officer of one large milk company that the distributor may make an agreement with a whole group of dairymen or with an individual who desires to enter the market, but that the dealers do not necessarily follow Inter-State rulings regarding basics of new producers. It can be said, however, that the dealers rarely allow less than the amount provided for by the rules of the Association.

By applying the rules for establishing basics of old shippers the following were found to be out of line with the rules for the various years:

	1929	1930	1931	1932	1933	1934
Basics too low	20	14	13	3	12	1
Basics too high	49	57	49	21	10	4

In some instances the records showed that adjustments had been made and sometimes the reasons for the changes were stated. Also, these records, being secondary ones, sometimes failed to include allowances for days in which no shipments were made for one reason or another. This omission would render invalid any mathematical check for determining how closely the rules were followed. In a few cases, however, and especially in reference to the shippers of one dealer, several higher bases for 1932 when no new quotas were to be established appeared to be warranted only on the basis of high average monthly shipments. Again, many increases in some years were in the basics of producers from some one territory for which special arrangements had been made between distributors and shippers. In one instance at least such an arrangement resulted in higher basics than the rules specified in one year, but the following year these producers received slightly lower quotas than permitted by the rule. It is true, of course, that special consideration given to any producer or group of producers in the granting of basic amounts penalizes all other dairymen in so far as it lessens their proportionate share in the fluid milk market, causing them to

receive Class I prices on a smaller percentage of the total basic volume.

To investigate the charge that the Philadelphia base-surplus plan operates to the disadvantage of dairymen near the market involves the consideration of several factors. Any base-rating plan aims to protect the Class I market against seasonal fluctuations in production for which the more remote farmers are usually more responsible, on the whole, than near-by shippers. No matter how large this seasonal excess may be the near-by dairyman can be certain that his uniform supply, if regulated by his basic, will command Class I prices as long as the total basics are kept within the volume of Class I sales. As the producer close to the market often has high feed costs and the additional expense of producing uniformly he expects this protection from the plan.

On the other side is the fact that a base-rating plan may be administered in a way that takes away some of the natural advantage possessed by the near-by dairyman because of his location. Under such a scheme he may be forced to share the market with other producers regardless of his ability to produce and market fluid milk more advantageously than dairymen at the outer boundary of the Class I zone. In periods of expanding sales this natural advantage that should aid him, ordinarily, in securing an additional portion of the market supply may be curtailed by the operation of a plan that distributes this additional fluid milk throughout the zone or among new producers. And in periods of decreasing sales the low Class I price may not enable him to meet feed costs while the more remote farmer with large pasture may keep on producing more than his allotted share of the Class I market. It is in these seasons of large excess production, when Class I prices are relatively low and these prices are paid on a smaller and smaller percentage of his basic, that the near-by producer begins to object to a plan supporting a larger milk shed than consumption for fluid uses requires. It was at such a time that some shippers close to the Phila-

delphia market began to question milk transportation rates and receiving station charges, believing that in these lay the reason for distributors continuing to receive milk from the border zone producers, not realizing perhaps that any discrimination in these matters is not necessarily the fault of the base-surplus plan. That this device does provide for a marketing system that may be detrimental to the near-by producer in a time of lowering consumption is true. The difficulty of redistributing basic quantities, the expense of rearranging transportation facilities, the accounting and other costs of shifting sources of supply, all are factors causing the distributors to continue the fluid milk zone intact. Nor are the officers of producers associations likely to enjoy the dissatisfaction among distant producers and the loss of membership that a contraction of the Class I zone would cause. There is also the argument that a reduction in the size of the zone would permit the supply to become more and more concentrated and, therefore, more susceptible to contagious diseases among cows and other unforeseen calamities which might affect a particular district as a whole which, although true, is scarcely sufficient reason in itself for maintaining a large milk shed. However, it must be repeated that if Class I prices are held close to the level that unrestricted competitive conditions warrant and there are no discriminations in enforcing inspection laws or in transportation rates, and no special considerations granted in establishing basics, the near-by producer will retain much of his natural advantage even under the base-surplus plan.

When we use the data collected in investigating this charge we find no conclusive evidence supporting it, although some of the indicators point to increased benefits to the more remote producers. By dividing our sampling of producers into four groups according to their distance from the market we arrive at the comparison found in Table XVII:

Table XVII.

Comparison of Production Records of Near-By and More Remote Producers.

Period: 1929-1933	Group I 0-50 miles	Group II 50-100 miles	Group III 1-200 miles	Group IV 2-300 miles
Averaged Bases Every Year	17.1%	15.8%	13.6%	25.4%
Averaged Bases in Majority of Years	25.2	20.9	20.4	30.3
Below Bases Every Year	21.4	22.6	18.8	14.8
Below Bases in Majority of Years	25.6	28.8	33.5	24.5
Increasing Bases since 1932	14.1	18.1	19.9	11.8
Decreasing Bases since 1932	16.7	19.2	20.4	16.0
Highest Base in Last Year	30.8	34.5	31.9	37.0
1935 Base Higher	48.1	48.6	35.6	48.7
1935 Base Lower	47.1	49.2	62.8	49.6
Highest Production in Fourth Quarter in Majority of Years	18.8	26.0	17.8	24.4
Highest Production in Second Quarter in Majority of Years	39.9	19.8	23.8	26.9

This table shows that 25.4 per cent of Group IV, representing the most remote producers, averaged their monthly basics in each of the five years (1929-1933), while the highest percentage of dairymen in any of the three groups nearer the market producing as much as, or more than, their quotas each year was only 17.1. We find that a substantially larger number of Group IV than of the other three groups averaged their monthly bases in a majority of these years, the percentage being 30.3. Also, a smaller number of these most distant shippers failed to produce their quotas in any of the five years, and fewer of them fell below their basics in production in the majority of the years, than was true of dairymen nearer the market. These percentages indicate that the most remote producers, on the whole, kept their average production at a higher point in relation to established basic quantities than the less distant farmers did, although prices were falling during the greater portion of this period.

While a smaller proportion of Group IV increased their basics progressively since 1932 than producers in the other classes, this group also had less dairymen decreasing their quotas each year since 1932. The 37.0 per cent of Group IV having their highest bases in their last year of shipment (1934) tops all other groups. Thus, these most remote shippers received a larger share of the total basic quantities in 1934 than they did in 1932, which suggests increased production on the part of these farmers near the boundaries of the shed.

Of those who would receive higher basics in 1935 on the basis of their average production for the first eight months of 1934, Group IV includes a slightly larger number than the others. Yet, the 49.6 per cent of that group to receive lower quotas, according to the above measurement, is higher than the 47.1 per cent and the 49.2 per cent of Groups I and II, respectively. The unusually high percentage (62.8) of Group III to receive lower quotas in 1935 can be explained in part by the decreasing production, in relation to bases, of many of them since 1931. Although nearly one-third (31.9) of these Group III shippers had their highest basics in 1934 it was found that the vast majority of them gained by the 1931 quotas holding over for 1932, which would indicate a lowering of production in the fourth quarter of 1931, at least. Then, too, more of that group failed to average their basics in at least three of the five years than in the other classes and these "below basic" years were in 1933 and 1934 for the majority of them. Consequently, an eight months averaged production for determining 1935 basics would result in lower quotas for many of these dairymen. No complete explanation can be given for the III Group including the highest proportion of shippers both increasing and decreasing their bases since 1932.

If we attempt to determine whether the relative advantage of the most distant group of producers in maintaining or increasing basics up to 1935 was due to their regulating production to the best advantage or to high average output, the data favor the latter explanation. As high fall production was most advantageous, on the whole, for increasing quotas during this five year period we notice that the 24.4 per cent of Group IV having their highest production in the fourth quarter of the year in the majority of the five was topped by the 26.0 per cent of Group II. For the second three months, the period of high shipments under natural conditions, more of the producers nearest the market, Group I, shipped their highest amounts in this period in the majority of the five years than was found in Group IV. The difference among the four groups of shippers in regard to quarterly periods of output varies a great deal, with no decided trends. Rather, it appears that the ability of these most distant dairymen to maintain or increase basic quantities has been because of their relatively high average output in relation to their basics and not due, in many cases, to heavy production during base-making periods. The data also lead to the conclusion that more of the near-by producers held their production within their basic amounts during this five year period than shippers near the boundaries of the milk shed. Yet, without more complete data it can hardly be said that the Philadelphia plan operates in a manner to take away most or all of the natural advantages of the near-by producer.

The claim that the Philadelphia basic-surplus plan enables distributors to make exorbitant cream profits is difficult to substantiate as there are no reliable figures from which dealers' margins on the various classes of cream can be determined. High cream profits can result from a classification price plan or from a flat price; such a practice is not peculiar to the base-surplus plan. When the price of milk for fluid uses is placed above that sanctioned by the competitive price level cream prices are likely to be depressed, and the result will be a lower composite price if producers are paid on a flat basis, or according to the use plan. The base-surplus plan, by stressing uniform production for fluid uses,

may encourage the practice of high cream margins, especially since producers associations are usually desirous of maintaining a high Class I price. Because of this desire for a high fluid milk price they may conclude that a low cream price is desirable, protecting the basic quantities against the production of large volumes of excess milk, milk to be used for cream purposes, that might come into the market and impair the Class I price. Also, paying a relatively low cream price and thereby permitting dealers to make a high profit on cream sales, will enable the distributors to pay a correspondingly higher price for basic milk. And in a market where only a portion of the cream requirements are derived from basic producers, these dairymen will gain by the higher Class I price which that disparity makes possible.

This price plan attempts to stimulate production through a high Class I price on the one hand and, on the other hand, to discourage excess production through a low cream price. But the two forces may not counteract each other. In the first place, this artificially high price for Class I milk will result in excess supplies because of efforts of old producers to raise basics, especially those with a favorable differential, and of new producers to enter the Class I market, thereby defeating the purpose of the artificially low cream price. In the second place, dairymen may receive a lower composite price than under unrestricted competition because total consumption may be reduced.

The large purchases of cream from western states by Philadelphia distributors at the same time that local producers were receiving the cream price for only a portion of their excess output (10 per cent of their basic purchases) indicates that the Philadelphia cream price was artificially high. If this is true, producers were receiving a lower composite price than competitive conditions warranted, for much of their excess output was receiving the low surplus price instead of the higher cream value, while dealers were buying cream elsewhere. The effects would be somwhat the same

as those resulting from an artificially low cream price, the dealers taking relatively high margins on cream in both instances and the dairymen relatively low composite prices. The difference is one of degree. The dealers' cream margins although artificially high, would probably be less than under a low cream price, while the producers' composite price would probably be lower than their returns from an artificially low cream price.

In connection with the importation of cream from other producing areas the Federal Trade Commission report, released April 5, 1935, referring to the Philadelphia milk shed said:

> "evidence was developed indicating that . . . much of this importation is in the form of fluid cream, and is sold as such. Some has been converted back into fluid milk and so sold. These importations have at times tended to create a surplus, which results not only in local producers receiving a lower price on the quantity of their production so displaced, but is taken into consideration in the fixing of prices, and to that extent tends to depress prices to local producers."*

Substantial evidence to the effect that distributors were converting western cream back to fluid milk and marketing it at the Class I price is not given in the report. In connection with the charge that these supplies from other areas tend to depress prices to local producers the report cites the following letter from Mr. Schilling, a member of the Federal Farm Board, to H. D. Allebach, president of the Inter-State at that time:

> "You are receiving for your surplus milk less than butterfat prices for the same . . . farmers in Minnesota and Wisconsin are receiving more for sweet cream at the present time than you are charging dealers for their butterfat in your surplus milk. It will be hard to justify this position with your members when organizations you are selling to are paying

*Federal Trade Commission's Report on Milk Inquiry, April 5, 1935; p. 9.

> farmers in Wisconsin for the same product more than they are those who live around Philadelphia and who must pay a great deal more for their feed."**

Although the date of this letter is not given in the Commission's report the Philadelphia schedule of prices over a considerable period does not substantiate Mr. Schilling's statement that Philadelphia producers received less than the butterfat prices for their surplus milk. Nevertheless, as this letter suggests, the policy in the Philadelphia market, at that time probably was to grant a low cream quota, paying an artificially low price for all excess production over that amount with the idea of maintaining the Class I price by discouraging excess output. Unless the cream price was above the competitive price it would appear that distributors would have preferred the enlargement of Class II (cream) quotas rather than to buy western cream at a higher figure than the Class III price. That this excess production (Class III) was receiving little or no more than butter value is no doubt the result of efforts to maintain Class I and Class II prices above the competitive level. As stated before, this practice reduces consumption and enlarges the fluid milk zone, resulting in lower returns to all producers.

The Federal Trade Commission report also charges "that dealer companies have paid producers 'surplus' prices for considerable quantities of milk which they have resold in fluid form to consumers at the highest prevailing prices." The only attempt made to substantiate this charge in the report is a listing of underpayments to producers that have resulted from certain practices by distributors. The data from which these underpayments are determined are not given but for most of the companies the following compilations were made for October, 1934, and for the other corporations, September, 1934:

**Federal Trade Commission's Report on Milk Inquiry, April 5, 1935; p. 53.

Underpayments on Milk Within Philadelphia Milk Shed for One Month.	
Underpayments on Milk sold under utilization basis	$ 10,562.61
Underpayments by dealers buying on a flat basis	4,045.84
Underpayments on milk sold as Class I	5,365.53
Profit on hauling producers' milk to city processing stations	24,412.30
Total for one month	44,386.28
Yearly basis	532,635.36

> "In addition to the foregoing, there are estimated to be several thousand dollars per month additional underpayments at country and city processing plants. These have not been included in the tabulation because the dealers involved claimed they had oral permission from the Pennsylvania Board of Milk Control to pay lower prices."*

These figures would have more weight if the methods of arriving at them were included in the report. Distributors have admitted that under the base-surplus plan and before the use plan was adopted in 1933 they gained at times by ability to use some surplus as fluid milk, while at other times they had to sell some basic milk at surplus prices. In the totals submitted to Dr. Clyde L. King, as Federal Milk Marketing Administrator, by the four largest dealers from October 1, 1932, to April 30, 1933, these distributors purchased more milk at Class I prices than they sold in bottled form:

Bottled Milk Sales	109,540,322 quarts
Milk Purchased at Basic Price	111,385,604 quarts
Excess Purchases of Basic Milk	1,845,282 quarts

These figures do not include fluid milk sales not in bottles. However, this omission should not affect the result materially as wholesale purchases of fluid milk usually did not exceed more than five per cent of total fluid milk sales during that period. The compilation made by the Commission is for October or September, 1934, when Philadelphia dealers were supposedly paying for Class I milk on a strictly

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*Federal Trade Commission's Report on Milk Inquiry, April 5, 1935; p. 16.

use basis, and any using of surplus as basic milk after August 25, 1933, would mean false reporting on the part of the distributors adopting this practice.

That the basic-surplus plan has increased the cost of producing milk is generally conceded. A Pennsylvania State College report states that the plan probably adds six cents per hundredweight to the cost of production. Yet the very principle of the plan is to give the uniform producer a higher yearly average price for his supply than he could realize through selling an uneven amount, and it was understood at the beginning of the scheme that dairymen would be rewarded for this increased cost of producing milk uniformly throughout the year as distributors would gain through the more even supply.

Furthermore, while uniform production is highly desirable to the distributor, it may not be to every producer, nor does the successful operation of the plan require it. It is essential that producers, as a group, supplying a market adjust production to Class I sales but it is not essential that each individual shipper produce in accordance with the market demand. Farmers who have large amounts of pasture, relative to tillage crop land, cannot, as a rule, profitably utilize all this pasture and produce an even flow of milk throughout the year. It is more economical for these dairymen to sell part of their supply at surplus prices than to get no returns from a portion of their pasture land. Adjustment to the base-surplus plan of selling milk is more adaptable to farms with little pasture and to crop farms, although there are probably few dairymen who should attempt to have no excess milk at any time during the year. Since producers near the outer boundary of the fluid milk zone receive the same net price for excess milk as the near-by dairymen and since the former are more likely to have an abundance of pasture, they continue to produce more surplus milk than those near the market. Therefore, establishing basics on the basis of average yearly production with no penalties for

shipments over or under these quotas may give these more remote dairymen a larger share in the Class I market than they can supply in a majority of the months of the year.

Of course, the base-surplus plan does not benefit the producer who, by special effort involving additional expenditures, raises his basic amount to a point that he cannot maintain throughout the year. Whenever the costs of increasing the basic quantity is greater than the gain obtained by having this higher base, the adjustment has gone too far to be economical. It is doubtful if the practice of increasing quotas by buying cows during the base forming period and selling them immediately afterward is advantageous to many farmers. This "artificial" raising of quotas at additional expense is generally done with the expectation that higher returns will be realized during the following months. But milk prices depend on a variety of factors the effects of which cannot be predicted in advance with a marked degree of accuracy and dairymen under the base-surplus plan must assume the risk of predicting market conditions correctly. No control plan can solve production problems for each individual producer.

To the charge that the base-surplus plan does not take the cost of production into consideration the answer is that no control plan can do that for individual dairymen. As long as dairymen continue to produce large excess supplies, as has been the practice of many in the Philadelphia milk shed during the past four years, any attempt to increase prices because shippers are not receiving the cost of producing their Class I milk is a dangerous practice. The increased price will not cause these dairymen to produce less milk. If the costs of producing milk for fluid uses could be determined the price would be such that only the relatively most efficient would produce the supply. This is what would happen anyway were there no monopoly elements present, and the base-surplus plan to be successful must attempt to regulate price and distribute the proceeds from the sale of milk in a manner that will reduce these monopoly elements to a minimum.

Lastly, is the criticism that producers, under the base-surplus plan, cannot determine whether or not they are receiving fair and equitable treatment from the purchasers of their milk. This criticism might be made against any control plan, and, indeed, in the absence of any artificial control scheme, for only through an audit of distributors' records could an attempt be made to find out if this charge were valid. In the first place, "fair and equitable treatment" is an elusive phrase, so indefinite as to be almost meaningless. Surely, equitable treatment does not mean that all producers ought to be treated alike for that would abolish the differentials and so disrupt the milk industry that further control would be inevitable. If the dairyman who produces uniformly according to market demands is to receive the same consideration as the producer who does not, all shippers will soon be receiving less for their supply than they now do. We may say that "fair treatment" means reasonable treatment but how shall we define "reasonable?" What may appear reasonable to one producer may not seem so to another. Will all farmers agree that it is reasonable for the near-by producer to receive the differential advantage to which his position would entitle him were competition unrestricted?

However, by considering further statements by those who offer this criticism we receive some idea of what they mean by this objection to the base-surplus plan. Two farmers, they say, in illustrating their point, may live on adjoining farms and produce throughout the year approximately the same amount of milk, but if their milk is not produced in the same quantities at the same time of the year, they receive different prices. We can readily understand how this can be true. One farmer may produce a uniform supply equal to his basic amount and receive a higher composite price than the other who has a lower basic but is supplying a yearly volume equal to his neighbor's output. Moreover, the same results could occur if the milk were paid for at a flat price. The criticism that under the base-surplus plan no

dairyman can tell until he receives his check what he is going to get for his milk is true no matter what plan of payment is adopted. But the base-surplus system enables him to foretell his future prices more accurately than a flat price plan of payment will. Prices are sensitive to the changing factors affecting supply and demand and no control plan yet devised can continue to compensate dairymen for failure to adjust output to market needs.

With respect to other charges made against milk marketing practices in Philadelphia, they can be dismissed in a summary manner either because they arise out of the base-surplus control plan and are the result of factors already discussed, or because there is no substantial evidence to support them.

One objection is to the three cents deduction from each 100 pounds of milk shipped by producers. This check-off was made mandatory by the Federal Milk Marketing Agreement and continued under the Pennsylvania Milk Control Board's supervision. Of this amount (two cents on every 100 lbs.) was to be deducted by the contracting distributors and paid on behalf of its members to the Inter-State Milk Producers Association, as had been the practice theretofore. The amount subtracted from non-members was to be paid to the Dairy Council as was an additional cent per 100 pounds from both members and non-members alike. The council was to use one-half of these payments for its general purposes and the other portion was to be expended for the purpose of securing to non-member producers check testing, weighing, and other benefits similar to those received by members of the Inter-State.

Critics of this plan argue that it penalizes other farm associations in Pennsylvania selling milk for their members and, therefore, the three cents check-off should be voluntary. However, there is no other association selling members' milk within the Philadelphia milk shed. They also contend that the farmer-dealer who produces his own milk on his farm

and retails it in the immediate community of his home should be relieved of paying money into the Dairy Council for advertising and other similar purposes. This contention seems justified but its importance is minimized by the fact that less than one per cent of the fluid milk distributed in the Philadelphia market is sold by producer-dealers. Finally, there is the criticism that no attempt has been made to determine the income that either of these organizations would have from the check-off, or would need. This objection brings up the question as to what functions these associations should perform and at what costs, which involves such matters as salaries to be paid to officers and other employees. There is no scientific method for measuring these costs, so the matter should be left to the decisions of the majority of the producers involved, and as the Inter-State advocated these payments it was assumed that the majority of the dairymen sanctioned them.

There remains the question of whether these deductions ought to be made on the physical unit basis as in the Philadelphia milk shed or on a value basis. Deductions on a quantity basis tend to make those who produce a large amount of milk during the spring months when prices are likely to be relatively low, and a small volume in the fall season when prices are higher, pay a relatively larger amount to the association in proportion to their returns than do dairymen who have more uniform production. On the other hand, deductions on a value basis make the latter pay more. As an even production throughout the year is desirable and as payments on a value basis tend to discourage quality improvement which is reflected in price, deductions on the quantity produced appears to be the more beneficial to the association as a whole.

Other criticisms refer to mismanagement on the part of officers of the producers association and the Dairy Council, and to monopoly practices of the largest distributors. An audit of the stock records of the Inter-State, previously referred to,* showed a few irregularities in stock issues but these were errors that might easily occur in any similar organization and were of no consequence in deciding the personnel in control of the Association. At the next annual election, supervised by the courts, the stock holders voted by a substantial majority to continue under the same management. Included among the production record cards analyzed in our study there were several belonging to directors of the Inter-State and these contained no proof of the charge that directors of the Association had higher basic quantities than the production of their herds warranted.

The objections to the Dairy Council center around the fact that one-half of its members are chosen in accordance with the contributions of the milk distributors, every dealer having at least one member, although each member has but one vote in electing directors to the council. As the federal agreement gave this council arbitrary power, subject to appeal to the Secretary of Agriculture, to allocate producers among the contracting distributors for the purpose of equalizing the percentage of purchases of Class I milk by the dealers, this council controlled in part at least by the largest distributors, might wreck or cripple any distributor out of favor with them. So far as is known the Dairy Council never exercised this function and there were no complaints by producers regarding involuntary shifts to new dealers.

The Federal Trade Commission report says that the lack of a written contract with the dealers to whom the Inter-State sells its members' milk and the lack of any contract requiring dealers to permit the auditing of their books to determine whether producers are receiving proper pay for their milk or not have been serious disadvantages to the producers. While there no doubt is some advantage in these contracts the auditing of distributors' books has not proved to be a satisfactory means for determining the accuracy of producers' milk checks. Audits in other markets have not

*p. 100.

disclosed the exact amounts purchased and sold in the various classes by the dealers. Nor does a written contract with distributors covering the sale of members' milk place a powerful weapon in the hands of the cooperative, for no contract can set prices over a long period of time as these must be governed by varying marketing factors which are sensitive to the slightest changes in supply or demand.

The Commission's report also claims that the large dealer companies, by the acquisition of the principal independent distributors, have been able to substantially lessen competition. As proof it cites that rates of return on total milk investment for a group of Philadelphia distributors ranged from 13.27 per cent in 1932, down to 5.22 per cent in 1934. The smaller companies in this group showed a loss for the last two years. During the six years, 1929 to 1934, inclusive, the National Dairy Products Corporation received from its two subsidiaries in the Philadelphia area approximately $27,500,000 in dividends, representing more than 70 per cent of its investment in the two Philadelphia companies acquired.*

Whether or not the reduction in the number of distributors in the Philadelphia market has lessened competition is not easy to determine. After all, there can be just as many milk dealers as the spread between producers and consumers prices allows. Keeping down the spread means a small number of distributors and that in turn holds down the costs of distribution which may result in higher margins for distributors or in higher prices to producers. At any rate dealers' margins should be held at a point that will constantly increase the sales of reliable distributors by driving out unreliable dealers, and yet these margins should not be so low as to force a monopoly in distribution. Therefore, it is difficult to determine the degree of monopoly element or of com-

*Federal Trade Commission's Report on Milk Inquiry, April 5, 1935; p. 8.

petition in the Philadelphia market. The Commission's statement that the gross margin to the dealers on milk for fluid consumption has remained substantially the same over a number of years, whereas prices received by producers and paid by consumers have fluctuated widely, does not necessarily indicate that margins have been high.* It may be that distribution costs have remained rather constant for a long period and, therefore, any changes in producer price must be reflected in prices paid by consumers. Also, distributor profits should be determined on actual investment and not on the amount of capital stock, for dealers may be under-capitalized or over-capitalized. One large Philadelphia distributor has consistently shown large profits on his capital stock, yet his business is under-capitalized, while another corporation, showing no profits a few years ago, had a capitalization in excess of investment.

Concerning the number of dealers that any market should possess in order to guarantee competition, it has been at the experience of cooperatives, operating under control plans, that it is easier to obtain the approval and cooperation of a few distributors handling a large proportion of supplies, than it is to convince dealers when the market is divided among a larger number of them. This is because a great many small dealers probably results in no one of them handling a large surplus. It may be that some of these buyers of small quantities carry little or no excess supplies and would, therefore, receive no benefits from a production control plan. Others may have a relatively low surplus and a control plan may affect the advantage they possess over competitors who carry larger excess amounts. Under the flat price system the former may be able to cut prices and still make a profit. A few large distributors, on the other hand, receiving large excess supplies benefit from a use plan of payment and from one that encourages uniform production.

*Federal Trade Commission's Report on Milk Inquiry, April 5, 1935; p. 2.

This is especially true in a market that handles large excess quantities. The large buyers, desiring to protect their interests, unite in cooperating with the producers association against excess output from outside producers as long as prices are held at the point justified by current market conditions.

Having reveiwed the objections to the Philadelphia basic-surplus plan made by leaders of the several minority groups of producers, as listed on pages one-hundred seven, and one-hundred eight, our analyses based on all available information leads to the following conclusions:

(1) The Philadelphia plan has been successful in controlling seasonal production of milk when success is measured by comparing seasonal output in the Philadelphia milk shed before the plan was adopted with monthly shipments since 1920, and also by comparing seasonal production in the Philadelphia shed with that of other metropolitan milk areas. Our data give definite evidence of the more even production and the desire to avoid large surplus output on the part of the majority of shippers within the milk shed since the inauguration of the basic-surplus plan.

(2) The charge that producers are required to ship their surplus to distributors is not substantiated by the production records of individual dairymen.

(3) Available evidence refutes the claim that producers are forced to increase their surplus output in order to raise their basics to a point which makes production profitable.

(4) No reliable information was available for determining whether or not basics were too high when first granted, other than data showing discrimination in favor of some new shippers receiving their initial quotas from certain dealers in certain years. On the other hand, the percentage of producers receiving their highest basics in their last year of shipments (1934) suggests that since 1929, first year quotas,

on the whole, have not been higher than production records warranted.

(5) The individual production records examined deny the charge that the basic-surplus plan causes any considerable number of new shippers to over-produce the first year in order to overcome the handicap in establishing a base equal to average yearly output.

(6) While the records indicate that some farmers artificially boost production during basic periods, they also show that a large majority of the dairymen do not follow this practice regularly.

(7) The charge that dairymen producing below their basic amounts must establish new and lower quotas is untrue. Only when they failed to keep production as high as their bases during basic establishing months were individual basics lowered.

(8) Until 1927 new producers were not discriminated against in the establishment of basic quantities but, beginning with that year, the basic-surplus plan was operated in a manner that benefitted old shippers to the disadvantage of the newer ones.

(9) Some new producers were unable to enter the basic-surplus plan, beginning with the year 1933, because dealers refused to accept their milk as excess supplies were increasing. Those new shippers taken into the plan received only a percentage of their fall or average production as basics.

(10) While there is evidence of some distributors making special arrangement with individual producers in regard to the establishment of basic quantities, the data do not support the claim that basics are arbitrarily fixed by organized distributors and representatives of the Inter-State association.

(11) The charge that the basic-surplus plan works to the disadvantage of the producer near the market is neither proved nor disproved conclusively, but the records show that the most remote shippers, as a group, have been receiving an increasingly larger share of the Class I market.

(12) The evidence does not support, nor deny, the allegation that the basic-surplus plan enables dealers to make exorbitant cream profits, but does indicate that the Philadelphia cream price has at times been artificially high, resulting in a lower composite price to producers than competitive conditions warranted.

(13) The accusation that directors of the producers' association received higher basic quantities than the production of their herds warranted was not supported by the records examined.

(14) Nothing was brought out in our analyses to substantiate the assertion that it is more difficult for producers to determine whether or not they are receiving what they believe to be fair and equitable treatment under the basic-surplus plan than under a flat price plan of payment.

Chapter VI.

CONCLUSIONS.

The history of its operation reveals that the Philadelphia milk control plan does not please all producers within the milk shed. In fact, there is no price plan yet devised for allocating surplus among farmers in a manner to please every dairyman. At best, any method of prorating the fluid milk market among shippers is likely to appear arbitrarily discriminating and in some measure unfair to certain classes of producers. Since the effects of such plans are to differentiate among farmers according to their ability to supply the milk market in such a manner as to cause considerable variation in their proceeds from the sale of milk, the practicability of a particular buying plan must be judged by the degree to which dairymen regard it as valid and fair.

Under such circumstances, realizing that any buying plan can scarcely be regarded as a complete solution for all milk marketing problems, what classes of producers are protesting against the Philadelphia price plan and what are the features of this plan in operation that they believe are discriminatory? If the beliefs of this minority regarding the entire scheme or any particular phases of it are justified and can be corrected, then any constructive measures will lessen dissatisfaction, reduce the minority opposition, and be a distinct gain to the whole milk industry.

In most instances, the minority opposing the present marketing mechanism has been so dissatisfied with the operation of the base-surplus plan that it has advocated a return to the former flat price system of payments. Now, this minority opposition, as our study has demonstrated, has been composed largely of those dairymen who receive relatively low returns under existing arrangements or of those producers, located near the market, who believe that the base-surplus plan as operated does not give them the consideration that their position deserves.

No doubt the farmers receiving relatively low returns believe that any control plan should return uniform prices

to all dairymen, at least after allowing for quality and location. It is difficult for them to understand that any plan imposing uniform buying prices based upon distributors use classification of milk, results in wide discrepancies in returns to dairymen, even to those in the same locality. They do not seem to realize that their low receipts are mainly the result of their uneven and excess production, and that no price plan can in equity or under any practical economy distribute this excess volume as a uniform burden over the whole market. Not only has no control measure been devised that causes this excess supply to be borne by all alike, but every plan has also differentiated among dairymen as market suppliers in such a way as to cause considerable variation in their returns from the sale of milk. Every plan results in increasing the proceeds and improving the market relations of those shippers who produce a uniform output and it is likely to lower the returns to those supplying an uneven quantity.

A flat price system will not change this situation and bring higher returns to these uneven producers. Their present low milk checks are the result of selling to distributors large quantities of surplus milk, milk that cannot be sold as Class I because of the relatively high degree of seasonal fluctuation in their production. Were these farmers to return to the flat price system the distributors to whom they sell would have relatively low Class I utilization with a high percentage of excess milk, caused by the uneven production of these very dairymen. As a result they would receive lower composite returns for their milk than other dairymen who produce uniformly. The latter receive higher rewards because they are giving their dealers a more convenient and satisfactory source of supply for the milk trade than are the former. Most flat price distributors tend to gauge their prices by their excess and to have with their producers some understanding reflected in price with respect to the evenness or unevenness of deliveries.

Therefore, these farmers opposing the base-surplus plan

because of the low returns they receive for their milk will be dissatisfied with any price plan until they can be made to understand that they must change their methods of production before they can secure higher rewards. These dairymen must come to realize that excess output, although unavoidable and perhaps inevitable, cannot be distributed uniformly among all producers. Our analyses of the economic factors affecting milk prices demonstrate clearly the value of uniform production. When shippers learn to fully appreciate this fact and realize that prices are determined largely by the changing forces of supply and demand there will be less opposition to any control scheme based on, and operated according to, sound economic principles. Knowing that changes in prices are the result of collective bargaining and negotiations between organized producers and distributors, who must interpret these changing forces of supply and demand, they will perhaps insist upon more systematic and painstaking observations and analyses of changing market conditions on the part of the officers of their association.

The other significant minority element is composed of those producers, located near the market and usually having uniform production, who believe that the Philadelphia base-surplus plan takes away part of their differential advantages that should result from unrestricted competition. That these farmers under freely competitive conditions are favored by a differential determined by their closeness to the market and usually by a differential due to the nature of their product, has been demonstrated. It is also true that the Philadelphia plan, by guaranteeing every producer within the milk shed a definite share in the Class I market regardless of his ability to supply that portion more economically than another, takes away part of the natural advantage of the near-by dairymen. Control plans have usually been set up in a way that does not permit them to overcome this feature without diminishing, in part at least, the advantage gained from uniform production. A flat price will restore a portion of this advantage to the near-by shipper but he will lose any precise

gain that comes from the definite incentive to produce uniformly which the base-surplus plan creates, and he will be threatened by a diminished control over the size of the milk shed. If prices are sensitive to the changing forces of supply and demand the close-by dairyman will retain much of his differential but an artificially high price under a "closed base" system enables the Class I zone to expand beyond the limits set by competitive processes; then, in periods of low consumption or of heavy production the near-by producer finds Class I prices being paid on a lower percentage of his base because shippers beyond the ordinary limits of the zone have acquired a share in the Class I market. Operations in the Philadelphia market indicate that the near-by dairyman has had a real grievance, during certain periods, with respect to the effects that prices for Class I milk and for cream have had on the volume produced and on the size of the milk shed. At least, there are indications that the relatively high Class I prices received for his basic production have not always offset the lowered returns resulting from the loss of his differential due to natural advantage and uniform output. In other words, this close-by producer, because of differential advantages, would have gained more through a lower price under the flat price system than he has from the higher Class I price under the base-surplus plan.

In this connection the matter of transportation rates and inspections are significant. Both the Federal Trade Commission report and these minority producers have claimed that Philadelphia distributors have made a profit from transportation charges deducted by the dealers from their prices to producers. Any such gains affect adversely the returns to near-by shippers in so far as they cause distributors to support an enlarged fluid milk zone. There are three methods of protection against enlargement of the milk shed through excessive transportation charges by dealers. These are: (1) An artificial limitation of the market supply, usually accomplished through inspection procedures. This inflexible method of controlling the size of the shed is

dangerous, as has been pointed out elsewhere.* (2) To hold transportation rates too low for distributors to gain therefrom, but this is a difficult task as reports on the Philadelphia milk shed indicate. (3) Producers to transport their own milk. This last method is the best because control of transportation by the producers association is essential to orderly marketing. Since the dairymens' organization sells its milk delivered at the city platform of distributors, complete control of its transportation from the farm to the platform should be in its hands. This method best serves the interest of the producer, not only in respect to reducing transportation costs and services, but also in respect to the amount of milk offered to the market for sale, the price which is received for it, the cooperation of the buyer and the knowledge of market procedure. Especially, do proper adjustments in transportation charges make for compactness of the milk shed and these adjustments can be made in a manner that will cause most of the milk used for manufacturing purposes to be left at outlying points, to the advantage of all producers and the market in general.

Inspection procedures can also reduce the differential of shippers close to the market if discriminations are made in favor of outlying producers, as has been contended. A producers association, desiring satisfied members and depending upon numbers for its bargaining power, may hesitate to force unwilling members to meet health and sanitation requirements, especially when those dairymen live far from the market where farm conditions are less likely to be observed by consumers than elsewhere. Distributors, also, are seldom concerned if the supply meets their plant inspection requirements. Therefore, it is believed that inspections should be conducted by a public body rather than by the Dairy Council, which is controlled by the producer and distributor organizations. Placing this work under the proper governmental authority would have the additional advantage of represent-

*p. 94.

ing consumer interests. The costs of these inspections could continue to be met by a check-off from producer prices in order that dairymen will appreciate fully the necessity for quality improvements.

Regarding the establishment of basics, the Philadelphia base-surplus plan, by favoring old producers, has tended on the whole to benefit near-by dairymen for most of these have been producing in accord with the plan since its beginning. Yet, producers have a point in claiming that the methods for establishing basics have not always made due allowance for relatively uniform production. It has been possible for shippers to build up large bases without producing uniformly and with no penalties attached for not maintaining these quotas throughout the year. At the same time more even producers might have supplied this difference in volume between basic quantities and actual production, and at a relatively low cost. Indeed, the methods during most of this period have encouraged some farmers to have their highest output during the base forming period, with a consequent supply below their basics during the remainder of the year. As more of the near-by dairymen have relatively uniform production than those farther out, for reasons given elsewhere,* most of the dissatisfaction with this policy has been voiced by them. And their irritation has been increased by the attempt made to remedy this very condition. The plan of using the average production of the first eight months of 1934 for determining 1935 basics penalizes these uniform shippers who have held their supply to basic amounts, or even to the approximate percentages receiving Class I prices, in favor of uneven dairymen producing large excesses, especially during the summer months.

This problem of discovering a method for allocating basics in a manner that will satisfy both close-by dairymen and the more remote shippers is a difficult one. Using the average of annual shipments will undoubtedly mean larger

*p. 36.

quotas for some remote producers with much natural pasturage and uneven production than they can supply in every month of the year. Unless a penalty provision for production under their bases is included in the plan, these remote farmers receive a larger proportion of the total basic volume than their ability as market suppliers warrants, when the matter of sharing the burden of excess supply is taken into consideration. If certain months are used in establishing quotas the same results can occur, unless penalties are imposed for uneven output. Otherwise, the near-by shipper with uniform production again sees a greater proportion of total basic amounts going to those with high but uneven production. If more of the close-by dairymen produce uniformly and in accord with market demand it appears that any method for determining bases satisfactory to them must include penalties for the uneven and high supply of other farmers. Otherwise, differentials of these uniform producers are lowered, which would also be the case if basics were manipulated in favor of the more distant producers. Although it may be true that these near-by producers will always desire to exploit their differential advantages to the full, the validity of any control plan must be judged by its ability to provide an economical supply for the market. Therefore, any plan that discriminates against near-by farmers in base forming methods, or by its price system, encourages a larger fluid milk zone than competitive processes require, and will create discontent among some producers located near the market.

The present practice by which each distributor pays Class I price for that percentage of total basic quantities that his sales warrant will not allay this dissatisfaction. It will probably increase the size of the minority element. The fact that one distributor pays Class I prices for more than 100 per cent of his total basic volume while another dealer finds that his fluid milk sales are equal to only 80 per cent of the total bases of his producers, will not reward fully a shipper to the latter distributor for his uniform production. At

the same time his neighbor may be receiving Class I prices for his entire output because he is fortunate enough to ship to the dealer having this relatively high utilization. Although these variations in percentage payments as between distributors will tend to become smaller over a period, the harm done through producer unrest cannot be measured and the practice also encourages excess production on the part of some, rather than to reveal to all dairymen the effects of excess supplies upon milk prices. These effects are made more drastic, not only because the lack of transportation facilities would often make it impossible for a shipper to transfer to a distributor paying Class I prices for a relatively higher percentage of bases, but also because it is not possible for a producer to change to another dealer, even though he may be dissatisfied, without the permission of that distributor.

Because some dealers have taken on more shippers than their Class I sales require and therefore pay fluid milk prices on a relatively low percentage of quotas is not sufficient reason for penalizing all dairymen shipping to these distributors. Usually these dealers have increased their supplies because they are now, or once were, convinced that all production within the milk shed must be brought into the control system if its price plan is to be protected. Therefore, all dairymen should pay for this protection by receiving the same percentages of basics as Class I until increased consumption or decreased supply brings sales and basics into line with one another.

It is sometimes difficult for producers to understand such a policy and especially to appreciate why, under state control board orders setting prices for the milk which the distributor pays, two dealers should return widely different average prices. The reason, of course, is that one distributor handles a greater proportion of his supply in manufacturing classes than the other. The Philadelphia plan might be improved in this respect by classifying dealers with regard to their fluid milk requirements, having those who accept surplus only because they must do so in order to cover fluid

trade requirements, account for it at prices in accord with earnings. In other words, permit such distributors to follow the practice of deducting losses on surplus from a standard price for fluid milk. Such a practice would place dealers on a uniform cost basis respecting their fluid milk needs which the inevitable gains and losses on surplus tend to defeat when they are required to account for this excess at fixed prices.

Another factor causing producer unrest is the outcome of inter-state control over milk production which makes uniform operation of the Philadelphia base-surplus plan impossible. The New Jersey Milk Control Board by its order requiring distributors to pay Class I prices for all milk purchased up to norm quantities from Jersey producers in any month that sales in that state exceed norms has given these dairymen an artificial differential over other Inter-State shippers. As the ratio of supplies to sales in New Jersey of some Philadelphia distributors has been relatively low this ruling favors their Jersey producers, stimulating them to increase output and thereby forcing Pennsylvania, Delaware and Maryland dairymen to lower production. To a lesser degree, different laws and regulations governing the sanitation conditions under which milk is produced and marketed by the five states supplying milk to the Philadelphia market have worked hardships on producers. Municipal and other local health and sanitation requirements have added to this burden. These have meant duplication of inspection by different agencies and the necessity of meeting the different interpretations of the varying regulations, all of which add to the cost of producing milk and to the creation of an artificial differential for those who escape this additional expenditure. Not until some one inter-state agency is given complete control over these regulations and inspections in the entire Philadelphia milk shed will these sources of irritation be abolished.

These real causes of dissatisfaction with the Philadelphia marketing system have naturally led the minority ele-

ment to attack the officers of the producers association, accusing them of incompetence and mismanagement and even of being controlled by distributors. Leaders of this group, whatever may have been their motives, pointed out real grievances and then added fancied ones. State milk control boards have aided these minority movements. The very formation of these boards has encouraged the development of loosely organized cooperative groups representing a minority of dairymen, for the purpose of securing marketing agreements satisfactory to them and presenting evidence at hearings. These groups may have little financial responsibility, few obligations to their members and render few services, but may be represented to be a major group of dairymen in hearings and other testimonials that go before these control boards. Quite often these minority cooperative associations develop points of friction and split apart a community of farmers rather than unite the producers into one strong minority movement.

The brief history of state milk control boards leaves much to be desired. Being political appointees, in most instances, the members of these boards are not likely to be experts in milk marketing economics nor to have a thorough training in general economics. They may be motivated by the desire to remedy existing defects in milk marketing but their lack of expert knowledge makes them susceptible to pleas of discontented minorities who suggest remedies that may aid the few temporarily but which may also create greater market instability in the end.

Attempts by federal and state authorities to regulate milk marketing within the Philadelphia shed have left much to be desired when measured by success either in providing the most economical supply for the market or in satisfying minority producers. The brief period of actual regulation by the federal government ended with many marketing problems still unsolved and subsequent control by state agencies has increased marketing instability and producer discontent.

The failure of any one state milk control board to solve producer problems is apparent. Although one Supreme Court decision upheld the right of a state to fix prices paid its farmers,* a later decision prohibits any state from fixing the price of milk from other states, not even by subterfuges such as local inspections.**

Can more effective control result from some form of inter-state cooperation? There remains the possibility of regulation through a compact among the states within the milk shed, with the consent of Congress. However, the orders of the New Jersey Milk Control Board favoring its own shippers and attempting to secure a larger share of the market for dairymen within the state suggests the impracticability of mutual agreements as a solution. Each state is primarily concerned with bettering the relative position of its own farmers.

Activities of state milk control boards, together with the problems of milk marketing economics, leads to the conclusion that the sphere of public regulation of the milk industry should be limited to health and sanitation measures and inspection services. There is no indication that public agencies can bring about effective and economical milk marketing.

It is believed that too little consideration has been given to long range factors in the past and the tendency of control boards to adopt short term programs without full regard for fundamental factors operating over a wide period of time is clearly observed in many cases. These newly created boards often feel that they must justify immediately their existence through positive action, not realizing, perhaps, that a false step in the artificial control of an intricate economic matter like milk marketing may appear to be harmless or even beneficial for many months and yet it may ultimately bring repercussions of such a nature as to cause great market in-

*Nebbia v. New York, March 5, 1934.
**Baldwin v. Sweelig.

stability for years to come.

Furthermore, in large milk sheds like Philadelphia, which transcend state boundaries, control board regulations may result in much confusion as these rules can apply fully to producers within the one state only. And where two or more state supervisory bodies are operating within the same shed this confusion will probably be increased.

Perhaps, the charge of collusion between Inter-State officers and large distributors should be expected. Aside from the fact that producer and distributor interests should be the same in the operation of any economical control plan, it is not surprising that there might be a remarkable degree of unanimity between large dealers and the officers of the Association. Excess supplies are a problem to both the large dealers and the producers association. The former have the problem of disposing of this surplus without loss and the latter realize the threat to the price system that excess production may cause. The small, independent distributors, on the other hand, may not need the use or base-surplus plans as they can adjust supply to demand for fluid uses much more readily than the large distributing companies. Since they do not handle their proportionate share of the surplus, these small dealers may be able to cut prices and still make a profit. As price-cutting endangers the established price system and the margins of large distributors, these dealers and the dairymen's cooperative unite in an effort to protect a plan that is of mutual benefit. Therefore, it is only natural that the Inter-State should find these large dealers more willing to cooperate than the small ones in the use plan of marketing and in upholding the idea of established basic quantities as an incentive for uniform production.

There is also little wonder if Association officials become tinged with distributor philosophy. In the carrying out of their program these officers are more closely associated with dealers than with members. They meet with the distributors at short intervals to discuss price and market conditions and it may be that they tend to become too conscious

of the problems of dealers and, perhaps, allow them too much weight in price negotiations. It may be, for example, that distributors are prone to exaggerate the power of price-cutters in the market and to over-emphasize the dangers from price-cutting in their price negotiations with representatives of the producers. Since the strength of the Association depends mainly on its policy of a uniform price for all milk used in each class those in control of the cooperative are naturally sensitive to such pleas.

Yet, these officials realize that the distributors sitting in conference with them are also fighting against the outstanding practice making for demoralization in the milk industry. They know that these dealers are upholding a policy which, whatever its faults, has nevertheless revealed more clearly to dairymen the effect and importance of excess supplies upon milk prices, and at the same time has placed these distributors on a fairer basis with respect to procurement than the flat price plan. It is this ever present and to some extent necessary excess portion of the milk supply that introduces a complicated and uncertain element in price negotiations. Small wonder, therefore, that Association officers may tend to be quite conscious of problems which dealers, with their practical knowledge of marketing conditions, insist are striking at the success of the base-surplus plan.

It has been the practice of the minority to stress more complete regulation of distributors' operations, but it may well be that progress in milk marketing in the Philadelphia area depends quite as much upon stimulating the initiative of the dairymen themselves. Unless the marketing plan is well understood by the producers and they take responsibility for as much of the actual conduct of the program as possible, non-compliance tends to become a serious problem and all efforts absorbed with such problems which, after all, are only negative aspects of the program. Dairymen must be induced to develop and perfect their technique of marketing and this requires a knowledge of the part played by surplus milk and of the allowance to be made for it in payment to producers,

which control plans with their emphasis on use classification and the regularity of supplies attempt to instill. There is little doubt that the making of prices would take care of itself, to a large extent, if all dairymen, and distributors as well, were prepared and disposed to function properly in the marketing process.

In all price determinations in milk markets there is probably too little factual information available and too little impartial analysis made even of facts that are available. In their dealing with bulk quantities, producers associations have often taken for stability and tranquility what was in fact a bulk of opposing forces neutralized by their oppositive direction. These associations owe it to their membership to study in detail exactly how each differential imposed operates, and this is possible only through records that reveal how the individual producer reacts to the differential in question. Any price plan must remove both the incentive of producers to exploit the market and the incentive of distributors to develop unwarranted supplies. The producers association must curb the distinct tendency for members to demand price increases which will stimulate production beyond market requirements and create a surplus. The bargaining strength of organized dairymen can obtain prices that represent the full value of the milk but it cannot increase the actual value without dangerous repercussions in the end; only a plan that induces intelligent adjustment of production to demand can do that.

It may be the nature of farmers not to be interested in the price of milk five years hence, but associations must encourage their members to develop a prospective in regard to dairying. Farmers attempt to adjust production to demand as reflected to them through price, but current price may encourage heavy output in the face of permanent changes taking place that will soon lower milk values. For example, present indications point to more land being used for hay and pasture in the future. Also, an increasing need of legume crops to restore organic matter and prevent depletion of the

soil is leading to the introduction of highly productive legume crops such as sweet clover, which may be utilized incidentally as very productive pasture. As butter values are reflected in fluid milk prices, this more or less permanent change may influence marketing in every milk shed, and it may cause dairymen in our eastern metropolitan market areas to adjust production more closely to demands for Class I milk.

On the other hand, the recent economic upturn in general may result in an increase in milk consumption. Although the demand for fluid milk is relatively inelastic within ordinary limits, recent studies indicate that reactions to price materially reduce consumption when the incomes of a large proportion of consumers have been greatly lowered, as they have been during the past five years. A return of incomes to a higher level may, therefore, increase substantially the consumption of fluid milk in all markets. Whatever future trends may be, dairymen should make every effort to collect and analyze data having a significant bearing on the future of the milk industry in their areas.

Finally, it must be admitted that the use plan, however imperfect in its operations, is far better than no plan at all. Individual farmers in the absence of a well recognized price plan can hardly avoid selling their milk more or less blindly, that is, without much knowledge of actual demand prices. Prices offered by different distributors may vary widely, depending upon competitive conditions, with the result that individual dairymen are scarcely in a position to formulate much of a judgment as to whether or not they are receiving as much as they might reasonably demand. The reasons for this situation should be obvious. They are due to the character of the commodity itself, its high perishability and also its elusive quality character, which taken in conjunction with the nature of the demand gives rise to the phenomenon of excess supplies. Also, individual farmers lack much power to assert their right to full market prices even when their judgments concerning them are well founded. Each one represents so little business that dealers may pay little heed

to his grievances. It is possible for the distributor to find new sources of supply so easily to replace the individual shipper. But the loss of a market, even temporarily, by the fluid milk shipper is a serious blow. His product is extremely perishable, and alternative disposal relatively unprofitable. Thus, the scales are balanced unequally against the producer in his trading relations with the distributor.

The use plan is, therefore, a decided improvement over the flat price system but it cannot solve one of the most pressing problems of milk marketing. It cannot bring about uniform production as it does not affect seasonal variations in supply. To secure the advantages afforded by uniform output producers must be rewarded for adjusting supply to consumption requirements. This reward the base-surplus plan will give if it is administered rationally. To provide the most economical supply for the market the base-rating plan should include the following features in its operation:

(1) Assuming that the fluid milk price is a truly competitive one, farmers should be allowed to set their own basic quantities and penalties should be imposed when monthly shipments are below these amounts. If there are no manipulations of bases, an approximate adjustment of production to sales for fluid uses will result within a few years at most, with all producers receiving their proper differentials and with the milk shed limited to the size that competitive conditions warrant. It must be admitted, however, that during these early years the matter of determining the competitive price, which will eventually cause bases to equal approximately Class I sales, will be a difficult one.

(2) Producers should transport their milk to the market receiving point thereby adding transportation costs to the cooperative's efficiency in hauling its own product to market and permitting an approximation for artificial differentials resulting from transportation charges.

(3) Health and sanitation requirements and inspections should be uniform throughout the milk shed and the

inspection service ought to be conducted by a public agency which would protect the interests of consumers.

Since some form of artificial control is necessary if producers are to receive prices for their milk that competitive conditions require, the above suggestions, if put into operation, will enable distributors to procure milk at uniform prices based upon a use classification, and farmers to receive payment not only in accordance with their relative location and quality, but also with reference to the regularity and dependability of their supplies.

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