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UNIVERSITY OF ILLINOIS

Agricultural Experiment Station

BULLETIN No. 105

THE FARMER'S VEGETABLE GARDEN

By JOHN W. LLOYD



URBANA, ILLINOIS, FEBRUARY, 1906

SUMMARY OF BULLETIN No. 105

1. This bulletin contains an account of a "farmer's vegetable garden" maintained at the University of Illinois for five years. The area of the garden was one-half acre. Page 153
2. Except the first year, all vegetables were planted in rows sufficiently far apart to admit of horse cultivation. Page 153
3. In 1900, the expenses for operating the garden were \$32.06, and the value of the products \$83.84. Page 155
4. Owing to the hot, dry weather and abundance of insects in 1901, the cost of the garden was greater, and the value of its products less, than in 1900. Page 161
5. The proper arrangement of the vegetables in the garden greatly facilitates the preparation of the seed bed for the later plantings. Page 170
6. In 1902, the hand labor in the garden was greatly reduced by the free use of a wheel hoe. Page 174
7. The application of thirty-two tons of manure in the fall of 1901 was followed by enormous yields from some of the crops in 1902, when the value of the products amounted to \$124.31. Page 177
8. The cost of the garden in 1903 was \$28.10, and the value of the products \$112.73. Page 182
9. In 1904, an especial effort was made to produce large yields from some of the more exacting crops, and as a result the total value of the garden products was \$136.81, while the expenses were only \$27.73. Page 189
10. The average value of the products per year for the five years was \$105.23, and the average net profits \$74.85. Page 198
11. The proper selection of varieties plays an important part in the success of any garden. A list of the seeds purchased for the "farmer's garden" in 1904 is given. Page 199
12. **Conclusions.** Page 200

THE FARMER'S VEGETABLE GARDEN

BY JOHN W. LLOYD, CHIEF ASSISTANT IN HORTICULTURE

In the spring of 1900, one-half acre of well-drained, black prairie soil upon the grounds of the horticultural department of the University of Illinois was selected as a site for a "farmer's vegetable garden," and has been maintained as such through five successive seasons. The object of maintaining this garden was to secure data regarding the cost of such a garden and the value of its products, and to demonstrate the feasibility of securing a large assortment and continuous supply of vegetables throughout the year by a proper selection of varieties, timely planting, and judicious tillage. The same general plan was followed throughout the five years; but each year such changes were introduced as the experience of preceding years seemed to warrant. Labor saving methods were practiced as far as possible. The garden was laid out in the form of a long rectangle (280.5 feet by 77.65 feet), with the rows extending lengthwise of the area, and for the most part placed sufficiently far apart to admit of horse cultivation. Care was taken to work the ground in spring when it had reached exactly the right degree of dryness so that a seed bed could be prepared without the use of any hand tools whatsoever. The arrangement of the vegetables in the garden was, with few exceptions, in the order of their planting, so that it was possible to harrow the unplanted portion at sufficiently frequent intervals to keep it free from weeds and well supplied with moisture. Furthermore, the early crops which occupied the ground only a part of the season were planted together, so that after their removal the land might be planted to later crops, the cultivation of which would prevent the growth of weeds that might otherwise be allowed to go to seed and increase the labor of hand weeding the next year. In laying out the rows for planting, a sled marker was used, by means of which three rows could be marked at a time; and furthermore, these marks were of just the right depth for the reception of most varieties of small seeds.

Each year an accurate account was kept of all labor involved in the planting and care of the garden, as well as the cost of seeds, etc., so that the cost of the garden for each year could be determined. No charge was made for the rent of the land, nor for the manure except the hauling. Neither was any charge made for the time spent in gathering the vegetables, for in practice they would be

gathered from one to three times a day as needed for the table, and usually by those doing the kitchen work rather than by the farmer himself.

Although the price of labor in this vicinity has changed somewhat since the experiment began, and men of different degrees of efficiency have worked in the garden, it has been thought best to enter the labor at a uniform rate throughout the five years, that rate being based upon the price ruling at the beginning of the experiment.

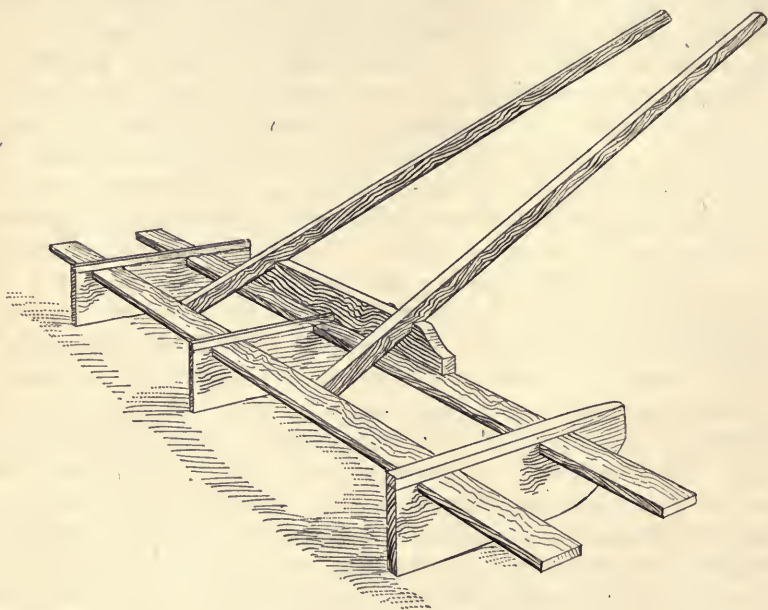


FIG. 1. SLED MARKER.

So far as possible the products of the garden were gathered each day in quantities suited to the requirements of a well regulated household; but sometimes a particular crop with a short period of edibility would yield much more heavily than was expected, and in order to avoid losing the crop, it would be necessary to harvest more at a time than one family could possibly use. In all cases, an accurate account was kept of everything gathered from the garden. At the end of the season, the garden was credited with these products at a fair, average, retail price. The prices were based upon those ruling in the local market at the time the different vegetables were gathered. If the price for a given vegetable varied considerably through the season, the entire crop was rated at about the

average price. Certain vegetables were very scarce and high priced in some years, and consequently have not been rated at the same figure every year.

Although the results of the first year's work in this garden were published in Bulletin No. 61, it has been thought best to include in the present publication some account of that year's work as well as the other four, in view of the fact that the bulletin mentioned is now out of print.

ACCOUNT OF THE GARDEN FOR 1900

Early in the spring of 1900 twenty loads of partially rotted manure were applied, and on April 7th, the land was plowed, disked and planked. April 9th, it was harrowed and again planked to complete the preparation of the seed bed.

A permanent row of perennial vegetables was planted three feet from the east boundary of the garden; then followed four rows of small-growing plants in drills one and one-half feet apart, and a vacant space for another row to be planted later at the same distance. West of these narrow rows were a row of peas and two of early potatoes, at distances of three feet. This planting was done in the freshly prepared soil April 9th. The arrangement of the different vegetables, and the amount of space allotted to each are indicated in the following tabular statement:

- Row 1.— $\frac{1}{2}$ row asparagus, $\frac{1}{6}$ row perennial onions, $\frac{1}{6}$ row horse-radish, $\frac{1}{6}$ row rhubarb.
 Row 2.— $\frac{1}{2}$ row parsnips, $\frac{1}{6}$ row parsley, $\frac{1}{3}$ row salsify.
 Row 3.— $\frac{1}{4}$ row onion sets, 20 ft. cress, $\frac{1}{6}$ row lettuce, $\frac{1}{2}$ row spinach.
 Row 4.—Onions.
 Row 5.— $\frac{1}{2}$ row early beets, $\frac{1}{2}$ row early carrots.
 Row 6.—Left to be planted with late beets and carrots.
 Row 7.—Peas: $\frac{1}{3}$ row each of Nott's Excelsior, Hosford's Market Garden and Improved Stratagem.
 Rows 8 and 9.—Early potatoes.

The division of the various rows into the fractions indicated was facilitated by the setting of conspicuous stakes at the proper distances on either side of the garden.

A few radish seeds were scattered along with the other seeds in rows 2, 4 and 5, in order that the seedlings might mark the rows, and thus allow tillage to begin before the young carrots, onions, etc., were visible.

Since in most cases only part of a row was devoted to each variety, the use of a seed drill was impracticable, and therefore all

seeds were dropped by hand. In most cases the covering was done with a rake, and the soil firmed with the back of a hoe.

The second planting in the garden was made May 1st, at which time the following vegetables were put in:

Row 6.— $\frac{1}{2}$ row late beets, $\frac{1}{2}$ row late carrots. (Marked with radishes.)

Row 10.— $\frac{2}{3}$ row cabbage and cauliflower plants: 85 Jersey Wakefield and 19 Snowball; $\frac{1}{3}$ row cabbage seeds, All Head Early.

Row 11.—Beans: $\frac{1}{2}$ row Henderson's Bush Lima, $\frac{1}{4}$ row Stringless Green Pod, $\frac{1}{4}$ row Saddleback Wax.

Row 12.— $\frac{2}{3}$ row cabbage seed, Autumn King; $\frac{1}{6}$ row spinach; $\frac{1}{6}$ row radish.

Row 13.—Peas: $\frac{1}{3}$ row of each variety as before.

Row 14.—Left for tomatoes and peppers.

Row 15.—Sweet corn: $\frac{1}{2}$ row Mammoth White Cory, $\frac{1}{2}$ row Chicago Market.

The rest of the garden was planted May 23d, as indicated below:

Row 14.—12 pepper and 69 tomato plants.

Rows 16 and 17.—Sweet corn: $\frac{1}{2}$ row each of Mammoth White Cory, Chicago Market, Stowell's Evergreen, and Country Gentleman.

Rows 18 to 22.—Vine crops: 40 hills cucumbers, 10 hills summer squash, 30 hills winter squash, 50 hills watermelons, 80 hills muskmelons.

The rows of vine crops were six feet apart, and the hills six to eight feet apart, depending upon the vigor of the particular crop. The arrangement of these crops as well as the other crops of the original planting is clearly shown in the accompanying diagram.

July 23d, the strip of land from which the early peas and potatoes had been harvested was cleared of vines, plowed with a one-

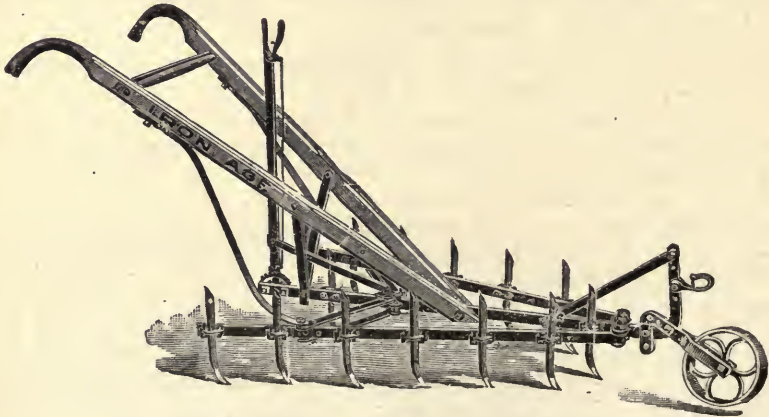


FIG. 2. NARROW-TOOTH CULTIVATOR.

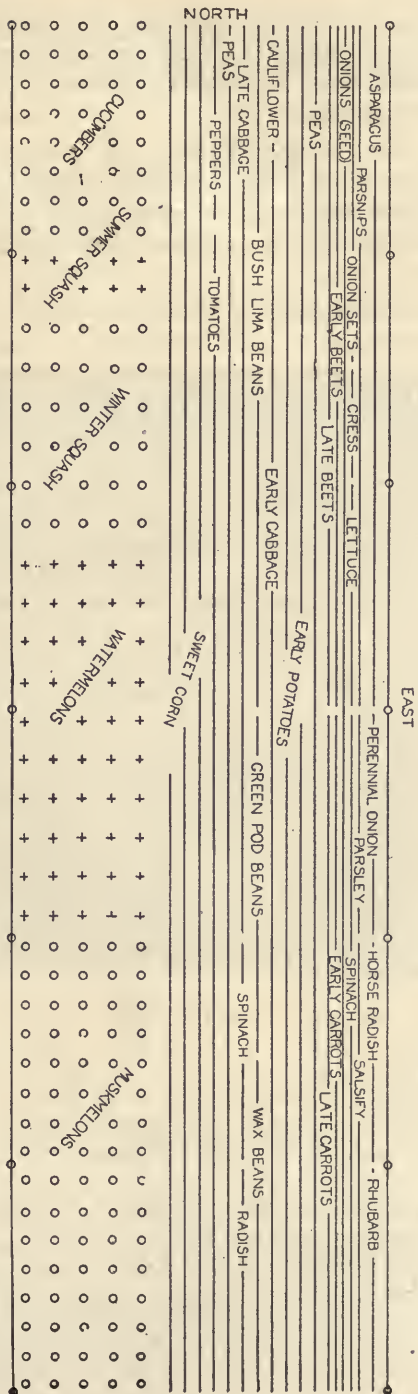
horse plow, and fitted for planting by means of a narrow-tooth cultivator and a one-horse plunker. It was then planted as follows:

Row 7.— $\frac{1}{2}$ row celery, $\frac{1}{2}$ row turnips.

Row 8.—Turnips.

Row 9.— $\frac{1}{2}$ row winter radish, $\frac{1}{4}$ row spinach, $\frac{1}{4}$ row lettuce.

DIAGRAM SHOWING SHAPE AND ARRANGEMENT OF GARDEN, 1900.



A late planting of string beans was also made at this date in the space previously occupied by the early planting of the same crop, and a few cucumbers for pickles were planted in the vacant spaces among the early cucumbers.

This season most of the tillage of the garden, except the hand hoeing, was done with a narrow-tooth cultivator drawn by one horse. More hand weeding was necessary than would have been the case if no weeds had been allowed to seed upon the area the preceding year.

The most serious insects of the season were the striped cucumber beetle, the attacks of which rendered it necessary to replant nearly all the vine crops, and the squash bug, which was an important factor in the failure of the winter squash.

The following is a summary of the labor bestowed upon the garden in 1900.

TABLE 1.—SUMMARY OF LABOR ON FARMER'S GARDEN, 1900, BY HOURS

	April.	May.	June.	July.	Aug.	Sept.	Oct.	Total.
Work with team:								
Hauling and spreading manure	20							20
Plowing, harrowing, etc.	7	$\frac{1}{2}$						$7\frac{1}{2}$
Total team work.....	27	$\frac{1}{2}$						$27\frac{1}{2}$
Work with one horse:								
Cultivating		$1\frac{1}{4}$	4	$2\frac{3}{4}$	1	1	$\frac{1}{2}$	10
Fitting land for planting.				$1\frac{1}{2}$				$1\frac{1}{2}$
Total work with one horse		$1\frac{1}{4}$	4	$3\frac{3}{4}$	1	1	$\frac{1}{2}$	$11\frac{1}{2}$
Hand labor:								
Planting.....	10	$15\frac{1}{2}$	$\frac{3}{4}$	4	1			$31\frac{1}{4}$
Hoeing and other hand tillage.....		$3\frac{3}{4}$	$13\frac{1}{2}$	17	7	3		$43\frac{3}{4}$
Weeding and thinning...		8	$7\frac{1}{2}$		8			$23\frac{1}{2}$
Fighting insects.....		1	$4\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$			$6\frac{1}{2}$
Training tomatoes.....			3	1	$2\frac{1}{2}$			$6\frac{1}{2}$
Clearing land after crops				1	2			3
Hand work on celery.....				2			8	10
Total hand labor.....	10	$27\frac{3}{4}$	$29\frac{1}{4}$	$25\frac{1}{2}$	21	3	8	$124\frac{1}{2}$

The cost of this labor was estimated as follows:

Team work, $27\frac{1}{2}$ hours, at \$3.00 per day.....	\$ 8.25
Work with one horse, $11\frac{1}{2}$ hours, at \$2.00 per day.....	2.30
Hand labor, $124\frac{1}{2}$ hours, at \$1.25 per day.....	15.56

Total

\$26.11

The only other expenses in connection with the garden were \$5.45 for seeds and plants and \$.50 for insecticides, making a total cost of \$32.06.

THE HARVEST

The first products of the garden were gathered May 12th, and from that time until October 17th, when the first killing frost occurred, a supply of vegetables was brought in nearly every day. All the crops included in the original planting, except the cauliflower

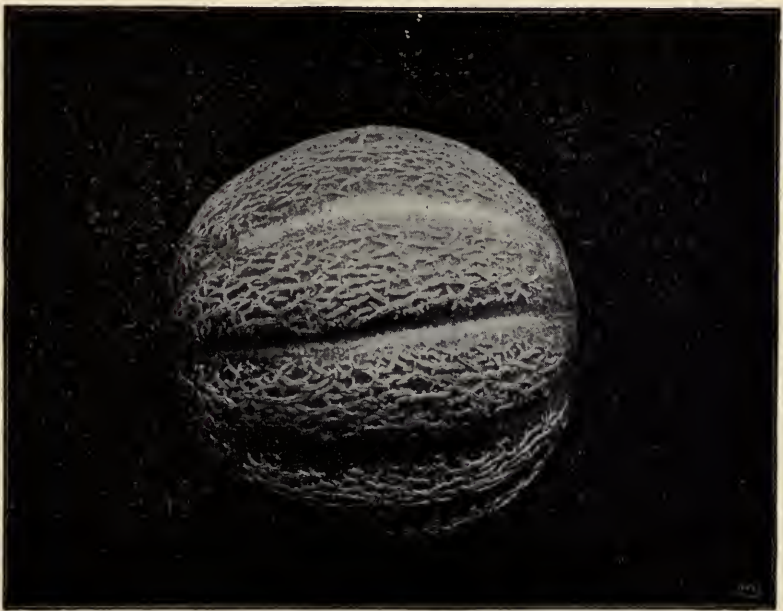


FIG. 3. NETTED GEM MELON.

and winter squash, gave satisfactory results. The cauliflower would probably have done better if planted earlier, and the squash might have made a crop if provision had been made for more perfect protection from insects. Of the vegetables planted July 23d, the celery, winter radishes, beans, and cucumbers produced good crops, but the spinach and lettuce failed to grow, and nearly all the turnips died during hot weather.

The following table shows the time during which each vegetable was used, the total yield, and a conservative estimate of the value of the crop at retail.

TABLE 2.—SUMMARY OF PRODUCTS OF FARMER'S GARDEN, AND THEIR VALUE, 1900

	Period of use.	Total product.	Retail price.	Value of crop.
Radishes.....	May 12 to June 14...	60 doz.....	\$.05	\$ 3.00
Cress.....	May 18 to June 14...	Supply.....	.....	.....
Onions:				
Green.....	May 24 to Aug. 18...	14 doz.....	.05	.70
Ripe.....	After Aug. 18.....	2 bu.....	.75	1.50
Lettuce.....	May 29 to June 25...	12 baskets*	.10	1.20
Spinach.....	May 31 to June 22...	9½ baskets.....	.10	.95
Beet greens.....	June 5 to June 16...	2 baskets.....	.10	.20
Peas.....	June 9 to July 16...	23 pecks.....	.25	5.75
Early beets.....	June 13 to July 25...	14 doz.....	.10	1.40
Early potatoes.....	June 23 to July 21...	8¼ bu.....	.75	6.19
String beans:				
Early.....	June 30 to July 13...	8 pecks.....	.30	2.40
Late.....	Sept. 18 to Oct. 5...	3½ pecks.....	.30	1.05
Cabbage:				
Wakefield.....	June 30 to Aug. 18...	65 heads.....	.03	1.95
Later varieties...	Aug. 28 to Oct. 16...	74 heads†.....	.03	2.22
Early carrots.....	July 6 to Oct. 16...	20½ doz.....	.05	1.02
Sweet corn.....	July 11 to Sept. 1...	72 doz.....	.10	7.20
Tomatoes:				
Ripe.....	July 27 to Oct. 8...	6¾ bu.....	.50	3.38
Green.....	Oct. 8.....	¾ bu.....	.50	.37
Lima beans:				
First crop.....	July 31 to Aug. 11...	7¼ pecks.....	.30	2.17
Second crop†.....	Oct. 1 to Oct. 17...	8¼ pecks.....	.30	2.63
Peppers.....	July 31 to Oct. 8...	6 pecks.....	.25	1.50
Parsley.....	Aug. 1 to Nov. 1...	Ample supply.....	.....	.....
Summer squash.....	Aug. 3 to Aug. 22...	44.....	.01¼	.55
Cucumbers:				
Slicing.....	Aug. 3 to Sept. 5...	197.....	.01	1.97
Pickles.....	Sept. 5 to Oct. 10...	600.....	.00¼	1.50
Muskmelons.....	Aug. 22 to Oct. 4...	928 lb.....	.01½	13.92
Watermelons.....	Aug. 23 to Oct. 4...	1408 lb.....	.00¾	10.56
Winter squash.....	After Oct. 5.....	19½ lb.....	.01½	.29
Late beets.....	After Oct. 16.....	4 bu.....	.50	2.00
Late carrots.....	After Oct. 16.....	2 bu.....	.50	1.00
Turnips.....	After Oct. 17.....	½ bu.....	.50	.25
Parsnips.....	After Oct. 17.....	2 bu.....	.50	1.00
Salsify.....	After Oct. 17.....	1¼ bu.....	.50	.62
Winter radishes....	After Oct. 17.....	2 bu.....	.50	1.00
Celery.....	After Nov. 5.....	12 doz.....	.20	2.40
				\$83.84

*The basket used was a ten-pound climax grape basket, and was crowded as full as it would hold.

†The cabbages gathered Oct. 16th and stored for winter are included in this number.

‡After the first crop was gathered, the plants blossomed again and produced the second crop.

This table shows that the products of the garden amounted to \$83.84. The entire expense of maintaining the garden was \$32.06, thus leaving a profit of \$51.78 from the half-acre.

ACCOUNT OF THE GARDEN FOR 1901

In order to secure a rotation of crops, the plan of the garden was reversed in 1901, so that planting began at the west side of the area with the annual crops which in 1900 occupied the east side. The general plan for planting was about the same as in 1900 except that all rows were placed sufficiently far apart to admit of horse cultivation. A few additions were made to the assortment of vegetables, with a view to securing a greater variety of products during the latter part of the growing season. Some slight alterations were also made in regard to the amount of space allotted each vegetable and to the relative dates of planting, in the hope of securing a better succession and more uniform supply of products. A few changes were also made in the selection of varieties. Extra early, smooth-seeded peas were added to the list to make sure of securing a crop even if the weather conditions were unfavorable for the early planting of wrinkled sorts. Hosford's Market Garden pea was discarded on account of the small size of the pods. Burpee's Dry Weather cauliflower was substituted for the Snowball in the hope that it might perfect a crop in spite of hot weather.

The garden was plowed November 13, 1900, and the soil left exposed to the elements during the winter. On April 10th, the earliest date at which the soil was in suitable condition for working, four loads of well rotted manure were spread upon the west third of the garden, and worked into the soil by disking six times. After the disking, the ground was smoothed down with a spike-tooth harrow and a plunker. The balance of the garden was not worked until

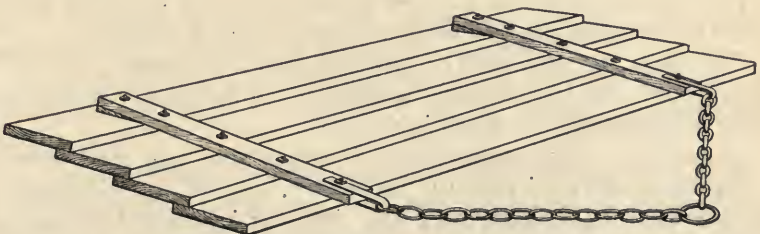


FIG. 4. PLUNKER.

April 24th, when, after the application of eight loads of well rotted manure, it was plowed and harrowed; and that portion of it which was needed for immediate planting was planked. The unplanted portion was kept harrowed until planted.

PLANTING

As soon as the ground was prepared, April 10th, the first planting of hardy vegetables was made, in rows three feet apart, as follows:

Row 1.— $\frac{1}{2}$ row parsnips, $\frac{1}{6}$ row parsley, $\frac{1}{3}$ row salsify.

Row 2.—Onions.

Row 3.— $\frac{1}{2}$ row early beets, $\frac{1}{6}$ row early turnips, $\frac{1}{3}$ row early carrots.

Row 4.— $\frac{1}{6}$ row onion sets, $\frac{1}{3}$ row lettuce, $\frac{1}{2}$ row spinach.

Row 5.—Peas: $\frac{1}{2}$ row each of Maude S. and Nott's Excelsior.

Rows 6 and 7.—Early potatoes.

Rows 1, 2 and 3 were marked with radishes.

April 24th the following vegetables were planted:

Row 8.— $\frac{3}{4}$ row peas: $\frac{1}{2}$ row Nott's Excelsior, $\frac{1}{4}$ row Improved Stratagem; $\frac{1}{4}$ row beans, Stringless Green Pod.

Row 9.— $\frac{1}{2}$ row cabbage, 70 plants Jersey Wakefield; $\frac{1}{4}$ row cauliflower, 33 plants; $\frac{1}{4}$ row kohlrabi.

May 2d, after the unplanted portion of the garden had been thoroughly harrowed, the following vegetables were put in:

Row 10.—Sweet corn: $\frac{1}{2}$ row Peep o' Day, $\frac{1}{2}$ row Early Champion.

Row 11.— $\frac{1}{2}$ row late beets, $\frac{1}{2}$ row late carrots. (Marked with radishes.)

Row 12.— $\frac{1}{2}$ row beans: $\frac{1}{4}$ row Henderson's Bush Lima, $\frac{1}{4}$ row Saddleback Wax; $\frac{1}{6}$ row spinach; $\frac{1}{3}$ row peas, Improved Stratagem.

Planting was resumed May 16th as follows:

Row 13.— $\frac{1}{2}$ row beans: $\frac{1}{4}$ row Henderson's Bush Lima, $\frac{1}{4}$ row Stringless Green Pod; $\frac{1}{2}$ row left for celery.

Row 14.— $\frac{1}{3}$ row left for egg plants and peppers; $\frac{2}{3}$ row tomatoes.

Row 15.—Sweet corn: $\frac{1}{3}$ row each of Early Champion, Early Crosby and Country Gentleman.

May 23d a ridge for sweet potatoes was thrown up with a plow and shaped with a hand rake, where row 16 was to stand. Part of this row was planted to sweet potatoes on this date, but the last plants to complete the row were not put in until June 8th.

By June 1st, the celery plants grown from seed sown under glass March 2d, had attained sufficient size for planting, and were set in the space left for them in row 13.

June 7th, sixteen plants each of peppers and egg plant were set in the north third of row 14. Rows 17, 18, and 19 were laid out six feet apart and planted to vine crops in hills six feet apart, as follows: 24 hills cucumbers, 6 hills summer squash, 18 hills winter squash, 48 hills watermelons, 45 hills muskmelons.

This completed the planting of the garden over to the permanent row of perennials. Rows 1 to 13 inclusive were three feet apart, rows 13, 14, 15 and 16 were four feet apart, and rows 16, 17, 18, 19 and 20 (the permanent row) six feet apart.

Throughout the season the garden was kept in a high state of cultivation by the use of a narrow-tooth cultivator, wheel hoe and hand hoe. Less hand weeding was required than in 1900 because no weeds had been allowed to go to seed.

INSECT ENEMIES

The first insect to cause serious damage in the garden in 1901 was a small black beetle with red thorax, which had destroyed all the spinach and begun on the beets before it was discovered. It attacked the plants soon after they appeared above ground and worked very rapidly. A spray of Paris green applied to the remaining beets was effective against this insect; but so few beets were left that the row was replanted June 1st, care being taken not to disturb the beets of the original planting. The ground left vacant by the destruction of the spinach was planted to seed of Autumn King cabbage on the same day.

The striped cucumber beetle was held in check by repeated applications of Bordeaux mixture containing Paris green. Another species of insect, however, became very abundant on the melons and cucumbers during the hot, dry weather, and played an important part in causing the failure of these crops. This insect was the melon louse or aphid (*Aphis Cucumeris*, Forbes), and made its first appearance about July 20th. Whale-oil soap, used at the rate of eight pounds to 50 gallons of water, was applied twice; but owing to the fact that the insects work upon the under sides of the leaves and cause the edges to curl down, the spray was only partially effective, and many individuals remained uninjured. The combined influence of the insects and the dry weather was such that the cucumber vines were all dead before August 15th, and the melons were so nearly dead that the rains after that date failed to revive them, and the few melons which ripened were practically worthless.

The squash bug (*Anasa tristis*) was in evidence as usual, and coöperated with the dry weather in killing all the squashes before August 7th.

A species of very small, black flea-beetle attacked the egg plants soon after they were set out. The insects appeared in immense numbers June 15th; were sprayed with Bordeaux and Paris green that evening, and caused no further trouble. However, as a precautionary measure, the egg plants were sprayed whenever the Bordeaux and Paris green mixture was applied to the vine crops for the striped beetle.

About the middle of August, the striped blister beetle (*Epicauta vittata*, Fabr.) attacked the beets and tomatoes. One application of

Paris green proved sufficient to free the plants from their presence.

Cabbage worms were quite numerous on the late cabbage, but were controlled by the free use of Paris green.

LATE CROPS

In addition to the replanting made necessary by the destruction by insects of the original plantings of spinach and beets, and the transplanting of late cabbage July 3d to fill the north half of row 4, which had been occupied by set onions and lettuce, the planting of late crops received considerable attention. By July 26th, the peas, potatoes, string beans, early cabbage, cauliflower, kohlrabi, and Peep o' Day corn had all been harvested, and the strip of land previously occupied by them (comprising rows 5, 6, 7, 8, 9, and the north half of row 10) was plowed, harrowed, and planked. However, owing to the excessively dry weather the land could not be put into proper condition for planting, and therefore planting was deferred until after the next rain. This rain was so long in coming that the planting of some of the late crops was more in the nature of an experiment than with any assurance of their having time to perfect their products before the close of the season. The first rain after July 2d, occurred August 18th. August 19th, the strip of land above mentioned was planked, cultivated and again planked; then marked out and planted as follows:

Row 5.—Peas: $\frac{1}{2}$ row each of Maude S. and Improved Stratagem.

Row 6.— $\frac{1}{2}$ row string beans, $\frac{1}{2}$ row lettuce.

Row 7.—Kohlrabi.

Rows 8 and 9.—Turnips.

Row 10.— $\frac{1}{2}$ row winter radish.

August 20th, the bean stalks were removed from the second fourth of row 13, and the land set to Giant Pascal celery. The seed from which the celery plants were grown was sown in flats May 9th and the plants pricked off into shaded frames July 8th. They grew very slowly and were none too large for transplanting when set out. For use in a normal season the seed should have been sown early in April.

The late crops were all given thorough cultivation, and thinned and weeded whenever necessary.

TRAINING TOMATOES

Two varieties of tomatoes were grown in 1901. One was an early and the other a main crop variety. To further increase its earliness, the early variety was pruned to single stems; while the plants of the main crop variety were each trained to three stems,

with a view to securing a larger yield than could be obtained from single stem plants. Whether pruned to a single stem or three



FIG. 5. TOMATO PLANT
PRUNED TO A SINGLE STEM.



FIG. 6. TOMATO PLANT
PRUNED TO THREE STEMS.

stems, each plant was supported by a single stake about five feet high, to which it was repeatedly tied by means of soft twine, as the season advanced.

LABOR

A summary of the labor account for 1901 is given in Table 3. In hauling and spreading the manure in April, two men worked with the team, so that the item, "spreading manure" appears under "hand labor" to account for the extra man. Likewise, in fighting the insects a spraying outfit drawn by one horse and operated by two men was frequently used, and the time entered under "work with one horse" and also under "hand labor." This outfit was also used in watering the celery, and the time charged accordingly.

TABLE 3.—SUMMARY OF LABOR ON FARMER'S GARDEN, 1901, BY HOURS

	Nov., 1900	April.	May.	June.	July.	Aug.	Sept.	Oct.	Total.
Work with team:									
Hauling and spreading manure.....		8	1						9
Plowing, harrowing, etc.....	2½	6	3						11½
Total team work....	2½	14	4						20½
Work with one horse:									
Fitting land for planting.....		1½			5	1½			8
Cultivating			5¾	4¼	1½	1½	1	½	14½
Spraying.....				2¼	¾	2½			8
Watering celery, etc.					2	3	½		5½
Total work with one horse.....		1½	5¾	6½	11¾	8½	1½	½	36
Hand labor:									
Spreading manure...		8							8
Planting.....		7	7½	13¾	2	6		1	37¼
Hoeing and other hand tillage.			2½	11	17½	8	5	1	45
Weeding and thinning.....				3			3½		6½
Fighting insects ..			½	2¾	5¼	¾	¼		12¼
Training tomatoes...				4	4½	1			9½
Clearing land after crops					2½			2½	5
Watering celery, etc.					2	3	½		5½
Total hand labor		15	10½	34½	33¾	21½	9¼	4½	129

The cost of this labor was estimated as follows:

Team work, 20½ hrs. at \$3.00 per day	\$ 6.15
Work with one horse, 36 hrs. at \$2.00 per day	7.20
Hand labor, 129 hrs. at \$1.25 per day	16.13
Total	\$29.48

A comparison of the labor accounts for 1900 and 1901 shows that the cost was somewhat greater in 1901, although less manure was applied and the team work thus reduced. The insects were much worse than in 1900, necessitating the employment of considerable time in spraying. An attempt was also made to produce a crop of celery in spite of the drought. This necessitated the hauling of considerable water. Some time was consumed in replanting where the first plantings failed to grow, and in experimenting with late crops planted after the rains in August, so that the total time occupied in planting was greater than in 1900. The amount of hand hoeing was not reduced as had been hoped. Late in June and in July, the wheel hoe should have been used more than it was. The large

amount of time expended in hand hoeing in July became necessary because of a very heavy, beating rain, followed by hot, dry weather which baked the soil so hard that the wheel hoe could not properly stir it. It is probable that if the soil had been worked at just the proper time after the rain, this difficulty could have been avoided. More time than necessary was employed in an attempt to work up the strip of land from which early crops had been harvested, in July. Three hours were lost somewhere in the pruning and training of the tomatoes, though the number of plants was slightly less than in 1900. On the other hand the item on which the great saving of time was made, was "weeding and thinning," which in 1900 occupied $23\frac{1}{2}$ hours, and in 1901 only $6\frac{1}{2}$ hours. This great reduction was due largely to the fact that no weeds were allowed to go to seed in 1900.

THE HARVEST

The first products of the garden, the perennial onions, were ready for use May 1st, and from that time until October 5th, when the first killing frost occurred, a supply of vegetables of some sort was constantly available.

Owing to the excessively hot, dry weather during July and August, and the abundance of injurious insects, more crops failed than in 1900. The spinach and part of the beets failed because of insects; the second planting of Stringless Green Pod beans and the late corn, because of hot weather; and all the vine crops, on account of a combination of insects and dry weather.

Of the late crops planted August 19th and 20th, only the turnips and winter radishes produced satisfactory results. The kohlrabi seed failed to germinate; the lettuce gave a very poor stand; the beans were injured by a slight frost September 19th and produced no crop; the Maude S. peas set a small crop which had not quite reached edible condition when ruined by frost, October 5th; and the late celery was too small to be of any value. It is worthy of notice that the turnips produced a fair crop in 1901, while they were an entire failure in 1900. This difference was probably due to the difference in time of planting.

Aside from the late turnips, the only crop successful in 1901 which was a failure in 1900, was the crop of early cauliflower. Stronger plants were used than in 1900, and they were set out a week earlier. Furthermore the variety grown in 1901 was Burpee's Dry Weather. The 33 plants produced 28 fine heads, averaging nine to ten inches across.

Although more crops failed than in 1900, a slightly larger assortment was planted, so that the failures did not so seriously interfere with the continuity of the supply as they might otherwise have done. The thinnings from the early turnips and part of the lettuce were used for greens in place of spinach; the egg plants added to the variety in September, and the sweet potatoes were available in October.

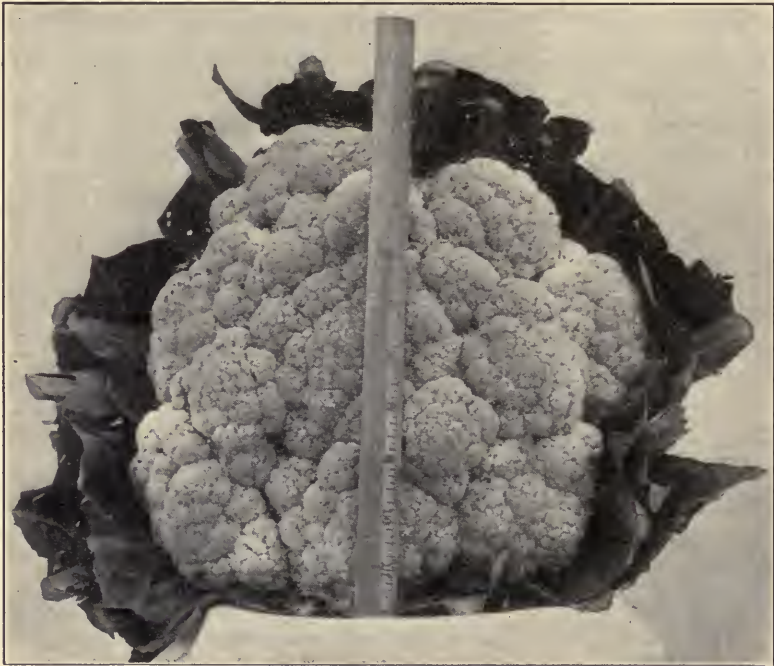


FIG. 7. BURPEE'S DRY WEATHER CAULIFLOWER.

The only vegetables left in the ground after the frost of October 5th, were those intended for winter use. Of course they could have been drawn upon for use during October, but in order to save time in gathering, they were left in the ground until nearly the end of the month, and then the entire product was gathered and stored.

Table 4 gives a condensed summary of the products of the garden, including the retail prices upon which their values were based. Owing to the scarcity of vegetables in the market during the drought, the prices of some things were very high. This explains why a few of the products were rated higher than in 1900.

TABLE 4.—SUMMARY OF PRODUCTS OF FARMER'S GARDEN, AND THEIR VALUE, 1901

	Period of use.	Total Product.	Retail Price.	Value of crop.
Onions:				
Green.....	May 1 to Aug. 3. . .	61½ doz.	\$.05	\$3.08
Ripe.....	After Aug. 9. . . .	1⅝ bu.	1.00	1.63
Radishes:				
Earliest White ...	May 11 to June 29... .	58 doz. ....	.02½	1.45
Cincinnati Market	May 18 to July 11 ...	81 doz. ....	.05	4.05
Lettuce:				
Regular crop.....	May 23 to July 3 . .	24½ baskets ...	.10	2.45
Late planting. . .	Oct. 31.....	½ basket.....	.10	.05
Turnip greens . . .	May 24 to 30	6 baskets.....	.10	.60
Peas.....	June 13 to July 18... .	16⅞ pks. ....	.25	4.09
Early turnips	June 18 to July 10... .	4½ doz. ....	.05	.23
Early cabbage.....	June 19 to July 26... .	60 heads . . . .	.05	3.00
String beans.....	June 28 to July 13... .	5 pks. ....	.30	1.50
Early potatoes.....	June 29 to July 25... .	7¾ bu.	1 00	7.75
Early beets.....	July 1 to Oct. 2.....	11 doz. ....	.10	1.10
Kohlrabi.....	July 3 to 26	5½ doz. ....	.10	.55
Cauliflower.....	July 5 to 20	28 heads . . . .	.10	2.80
Tomatoes:				
Ripe.....	July 9 to Oct. 4.....	9½ bu.	1.00	9.50
Green.....	Oct. 5	6¾ bu. ....	.50	3.38
Peppers	July 11 to Oct. 5	3¼ pks. ....	.25	.88
Early carrots.....	July 11 to Aug. 19... .	12½ doz. ....	.05	.63
Sweet corn.....	July 12 to Aug. 10	21 doz. ....	.10	2.10
Lima beans.....	July 29 to Sept. 24	6⅞ pks. ....	.40	2.45
Parsley	Aug. 3 to Nov. 1	Supply.....		
Egg plant.	Sept. 4 to Oct. 5	20 fruits . . . .	.05	1.00
Sweet potatoes.....	After Sept. 23.....	3½ bu.	1.00	3.50
Late beets.	After Oct. 24.....	1 bu. ....	.50	.50
Late carrots.....	After Oct. 24.....	2¼ bu. ....	.50	1.38
Celery	After Oct. 24.....	17 doz. . . . .	.10	1.70
Parsnips.....	After Oct. 26.....	4¾ bu. ....	.50	2.38
Salsify.....	After Oct. 26.....	2 bu. ....	.50	1.00
Horse-radish.. . . .	After Oct. 28.....	30 lb. . . . .	.02	.60
Late cabbage.....	After Oct. 31.....	38 heads.....	.03	1.14
Turnips.....	After Oct. 31.....	2 bu. ....	.50	1.00
Winter radishes	After Oct. 31.....	2 bu. ....	.50	1.00
				\$68.47

PROFITS

As shown in the table the value of the products from the garden in 1901 was \$68.47. The items of expense for the year were as follows:

Seeds and plants.....	\$4.08
Insecticides.....	1.50
Labor.....	29.48

Total... .. \$35.06

The net profits from the season's operations were therefore \$33.41. This amount is considerably less than the profits in 1900

owing partly to the greater amount of labor occasioned by the greater abundance of insects, but more largely to the failure of certain crops, notably the melons, which in 1900 produced a crop valued at \$24.48.

ACCOUNT OF THE GARDEN FOR 1902

In 1902 the plan of the garden was again shifted so that planting began at the east side as in 1900. An attempt was made to reduce the amount of hand labor by making free use of the wheel hoe, and by doing less experimenting upon uncertain late crops than in 1901. A few changes in the list of varieties were introduced, and the times of planting so regulated as to provide a continuous succession of vegetables throughout the season. Since the spring opened earlier than in the two preceding years, most of the plantings were made relatively earlier.

From October 26 to November 2, 1901, twenty-seven loads of half-rotted manure were hauled and spread upon the garden. These loads averaged 2,400 pounds each, so that the weight of the manure applied to the half-acre was approximately 32 tons. The land was plowed deeply November 6th, without any difficulty being experienced in turning under the heavy application of manure.

March 29, 1902, the entire garden was disked and harrowed and the east third was planked for immediate planting. The ground was so loose that it worked up very nicely without plowing. All of the garden except that planted March 29th was harrowed at frequent intervals until time for planting the later crops. The land used for the vine crops, late corn, tomatoes, etc., was harrowed four times between April 1st and May 10th. Usually the harrowing was done while going to the field to do other work, so that very little time was consumed in the operation.

PLANTING

Beginning with row 2, three feet from the permanent row of asparagus, etc., the following vegetables were planted in rows three feet apart, March 29th.

Row 2.— $\frac{1}{2}$ row parsnips, $\frac{1}{6}$ row parsley, $\frac{1}{3}$ row salsify.

Row 3.—Onions.

Row 4.— $\frac{1}{2}$ row early beets, $\frac{1}{2}$ row early carrots.

Row 5.— $\frac{1}{6}$ row onion sets, $\frac{1}{6}$ row lettuce, $\frac{1}{6}$ row early turnips, $\frac{1}{2}$ row spinach.

Row 6.—Peas: $\frac{1}{2}$ row Maude S., $\frac{1}{2}$ row Nott's Excelsior.

Rows 7 and 8.—Early potatoes.

Rows 2, 3 and 4 were marked with radishes.

The method of sowing the peas was as follows: With one

plowshare on the Iron Age wheel hoe rigged as a single wheeler, a drill was made. The seed was sown by hand. Then, without changing the position of the first plowshare, the other was put on and the seed covered by running the implement with one plow on each side of the drill.

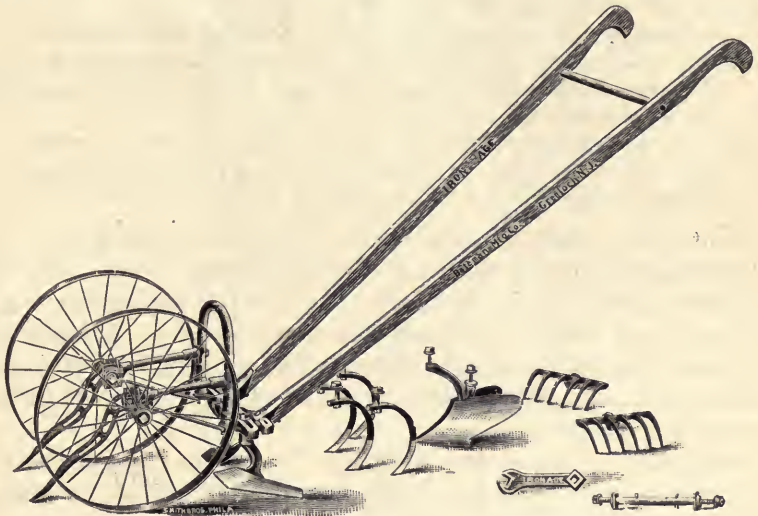


FIG. 8. WHEEL HOE.

April 18th, row 9 was planted as follows :

$\frac{1}{4}$ row Wakefield cabbage, 35 plants; $\frac{1}{4}$ row cauliflower, 35 plants; $\frac{1}{2}$ row peas, Nott's Excelsior.

The cabbage and cauliflower plants had been grown under glass at a comparatively low temperature, from seeds planted in flats March 1st. The cabbage plants had been shifted to other flats March 26th, and the cauliflowers, April 1st. April 11th, these flats were placed in a coldframe and the plants hardened off. At the time of transplanting into the garden, the cabbage plants were of just the right size, but most of the cauliflowers were still rather small; they would have been better if the seed had been planted a week earlier than the cabbage.

April 28th, the following vegetables were planted :

Row 10.— $\frac{1}{2}$ row peas, Improved Stratagem; $\frac{1}{2}$ row beans, Stringless Green Pod.

Row 11.—Sweet corn: $\frac{1}{2}$ row Mammoth White Cory, $\frac{1}{2}$ row Chicago Market.

Row 12.— $\frac{1}{2}$ row late beets, $\frac{1}{2}$ row late carrots.

Row 13.— $\frac{1}{2}$ row beans, Henderson's Bush Lima; $\frac{1}{4}$ row cabbage, 35 plants Market Gardener's No. 2; $\frac{1}{4}$ row of same (seed sown in drill).

The beets were marked with Cincinnati Market and the carrots with Earliest White radishes. The cabbage plants were from seed planted under glass March 15th and handled as those previously mentioned.

The main planting of warm season crops was made May 10th, when the following vegetables were put in:

Row 14.—Cabbage, Autumn King (seed sown). (Marked with radishes.)

Row 15.— $\frac{1}{4}$ row peppers, 24 plants Ruby King; $\frac{3}{4}$ row tomatoes, 24 plants Freedom and 47 plants Stone. (This row was four feet distant from the rows upon either side.)

Row 16.—Sweet corn: $\frac{1}{2}$ row Chicago Market, $\frac{1}{2}$ row Country Gentleman.

Rows 17, 18, 19.—Vine crops: 21 hills cucumbers, 9 hills summer squash, 15 hills winter squash, 45 hills watermelons, 45 hills muskmelons.

The tomato plants were exceedingly well grown specimens. The seed had been planted in flats in a cool greenhouse March 15th, and the plants shifted to $2\frac{1}{2}$ inch pots April 12th, and again to $3\frac{1}{2}$ inch pots April 30th. They were hardened off in a coldframe before being transferred to the garden. The peppers were still very small when transplanted. The seed should have been planted March 1st instead of March 15th.

In addition to the regular planting of vine crops indicated above, a row of summer squash was planted three feet west of row 19, to be used as a trap crop for the striped beetle.

May 29th, row 20, the last row on the west side of the garden, was planted to 24 egg plants and $\frac{3}{4}$ row of sweet potatoes. The sweet potato plants had been grown in sand on the propagating bench of a greenhouse, from home grown tubers stored over in a box of dry white sand in the basement. The tubers were placed on the bench April 1st. In order to save labor, the plants were set on the level instead of on a ridge as in 1901. As will be seen later on, the season proved unfavorable for level culture, so that nothing was gained.

At this date also, the cucumbers and part of the watermelons had to be replanted, owing to the destruction of the original planting by the striped beetle. A few vacant spaces in the row of bush limas, where the seed had failed to grow, were also filled at this time.

The plan of the garden this year was superior to those of the two preceding years in that the vegetables were arranged strictly in the order of planting, and could, therefore, be planted in freshly worked soil without the inconvenience of preparing a narrow strip of unplanted land between rows already planted. The accompanying diagram will serve to fix in mind the exact arrangement.

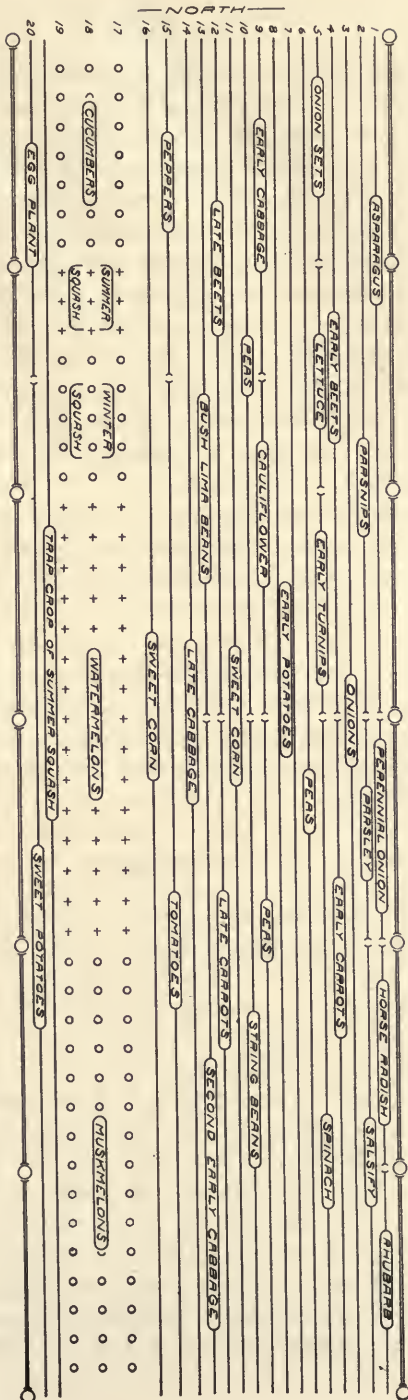


DIAGRAM OF GARDEN, 1902.

CULTIVATION

The garden was kept in a high state of cultivation throughout the entire season. Tillage with the wheel hoe was commenced April 18th, and up to May 10th, no other tool was used. While the plants were small, the rake attachments of this implement were employed. Later, the cultivator teeth were used almost exclusively. Before tillage with the horse cultivator was commenced, the wheel hoe was run both astride and between the rows, thus stirring the entire surface. Later on, it was run simply astride the rows to stir the soil close about the plants. This tool was also used in cultivating among the melons after the vines had run so far as to make horse-tillage inconvenient. No hand hoeing was done except where it was impracticable to use the wheel hoe to advantage; for example, between the tomatoes, egg plants, cabbages, and melons, after they had nearly completed their growth.

The narrow-tooth cultivator was used in most of the horse-tillage, though occasionally after the soil had become packed by a heavy rain, the five-shovel cultivator was first run through, and then followed by the narrow-tooth.

Although the season was wet and the conditions extremely favorable for weed growth, the tillage was so thorough and the weed seeds so scarce on account of good tillage the two preceding years, that very little hand weeding became necessary, no more time being consumed in weeding and thinning than in 1901 when the weather was exceptionally dry.

INSECT ENEMIES

The cucumbers and other vines came up Sunday, May 18th. The striped beetles immediately began working upon them and devoured most of the cucumbers before Monday morning. Tobacco powder was applied Monday to the regular plantation, and pure dry Paris green to part of the trap crop of squashes previously mentioned. The following day, a mixture of air-slaked lime, Paris green and turpentine was applied. Rain occurred in the afternoon and following night, and washed off most of the material so that a fresh application had to be made the next morning (May 21st). A number of dead beetles were seen lying about the plants at this time. After this the plants were sprayed with Bordeaux mixture and Paris green three times; viz.: May 26th, June 6th, June 10th.

In spite of this thorough treatment, it seemed impossible to maintain a stand of cucumbers. As already mentioned, the patch was replanted May 29th. By June 27th, the striped beetles had

devoured the last of the plants from this second planting, and the area was planted for the third time.

Small black flea-beetles repeatedly attacked the egg plants, puncturing the leaves full of small round holes. A mixture of air-slaked lime and Paris green was applied for the purpose of killing these insects July 3d, and Bordeaux and Paris green mixture was used August 8th, 22d, and September 5th. Adults of the Colorado potato beetle also attacked the egg plants, biting off many of the leaves. They were killed by the use of lime and Paris green July 21st. Another lot were working on the plants August 22d, and were treated with Bordeaux and Paris green along with the flea-beetles.

Cabbage worms caused very little trouble this year. Only once during the season was the application of an insecticide necessary. That was late in July, when an application of air-slaked lime and Paris green was made to the late cabbage. The plants were still quite small and had not begun to form heads at this time.

The squash bugs laid a good many eggs, but did no serious damage to the crop. The squash vines made an exceedingly vigorous growth owing to rich soil and moist weather, and rooted at the joints so that they would not easily have succumbed to even a severe attack.

TRAINING TOMATOES

A stake five feet long was driven beside each plant the same as in preceding years, and the plant was kept tied to this stake, by tying at intervals of about two weeks from the time the plants were well established until they had extended above the tops of the stakes. Early in the season the plants were pruned as well as tied. The Freedom plants were pruned to single stems and the Stone to three stems per plant. The Freedom were pruned four times between May 27th and July 10th, and then tied twice more. The Stone were pruned only three times and then simply kept tied to the stakes. The last tying was done August 14th.

LATE CROPS

By July 5th, all the vegetables had been harvested from rows 5, 6, and 7, and the strip of land thus left vacant was plowed and fitted for planting on that date. A one-horse plow and narrow-tooth cultivator were used for this work. On this area two rows of late crops were planted 3½ feet apart, as follows: ½ row string beans, ½ row celery, ½ row sweet corn (Chicago Market), ½ row field corn west of celery to shade the same.

The celery plants had been grown from seed sown in flats in a greenhouse April 1st, and later pricked out into other flats and kept in an open frame. They were good strong plants, though a trifle

too tall. They might have been sheared to advantage a couple of weeks before transplanting. These plants were set in the bottom of a furrow about six inches deep made with a one-horse plow. The early tillage of the celery was given by means of a double wheel hoe, with only one cultivator tooth on each side. With the tool arranged thus, it was possible to work close to the plants in the bottom of the trench. The trench was gradually filled up as the season advanced and the celery was finally "handled" and banked in the usual manner.

July 22d, the cabbage and cauliflower stumps, pea vines, and bean stalks were cleared from rows 9 and 10, and August 2d, the corn stalks were cut from row 11. August 7th, the strip between the late planted corn above mentioned, and row 12, was plowed, cultivated, and planked. On the same date it was planted in rows three feet apart to $\frac{1}{2}$ row of winter radishes, and $3\frac{1}{2}$ rows of turnips. The turnips and winter radishes were cultivated with the wheel hoe once, and with the narrow-tooth cultivator twice. They were weeded and thinned September 3d.

LABOR

A summary of the labor account for 1902 is given in Table 5.

TABLE 5.—SUMMARY OF LABOR ON FARMER'S GARDEN, 1902, BY HOURS

	Oct. and Nov., 1901.	March.	April.	May.	June.	July.	August.	September.	October.	Total.
Work with team:										
Hauling and spreading manure.....	27									27
Plowing, harrowing, etc....	$2\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$						$6\frac{3}{4}$
Total team work.....	$29\frac{1}{2}$	$3\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$						$33\frac{3}{4}$
Work with one horse:										
Fitting land for planting....				$\frac{1}{2}$		1	$1\frac{1}{2}$			3
Cultivating.....				2	7	4	1	$1\frac{1}{4}$	$\frac{1}{2}$	$15\frac{1}{2}$
Spraying.....				$\frac{1}{2}$	1		$\frac{1}{2}$	$\frac{1}{4}$		$2\frac{1}{4}$
Total work with one horse..				3	8	5	3	$1\frac{1}{4}$	$\frac{1}{2}$	$20\frac{3}{4}$
Hand labor:										
Spreading manure.....	27									27
Planting.....		4	$3\frac{1}{2}$	$6\frac{1}{2}$		$3\frac{1}{2}$	1			$18\frac{1}{2}$
Cultivating with wheel hoe.			2	$3\frac{3}{4}$	$\frac{1}{2}$	4	$1\frac{1}{2}$			$10\frac{3}{4}$
Hand hoeing.....				$1\frac{1}{4}$	$1\frac{3}{4}$	$2\frac{1}{4}$	$1\frac{1}{4}$			$6\frac{1}{2}$
Weeding and thinning.....				$2\frac{1}{2}$	1	$\frac{1}{2}$				$6\frac{1}{2}$
Fighting insects.....				2	$1\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$2\frac{1}{2}$		$4\frac{3}{4}$
Training tomatoes.....				$3\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$		$9\frac{1}{4}$
Clearing land after crops...					$\frac{3}{4}$	1	1		5	$7\frac{3}{4}$
Handling and banking celery								1	4	5
Total hand labor.....	27	4	$5\frac{1}{2}$	$19\frac{1}{2}$	$7\frac{3}{4}$	$14\frac{1}{2}$	5	$3\frac{3}{4}$	9	96

The cost of labor on the garden for 1902 may be estimated as follows:

Team work, 33¾ hrs. at \$3.00 per day.....	\$10.13
Work with one horse, 20¾ hrs. at \$2.00 per day.....	4.15
Hand labor, 96 hrs. at \$1.25 per day.....	12.00
Total.....	\$26.28

Comparing the labor items with those of the two preceding years it will be seen that a larger amount of team work was employed, owing to the much larger amount of manure hauled and applied. The spreading of so much manure also greatly added to the account for hand labor. That this time was well spent can be seen by reference to the table giving the yields of vegetables. A great saving was made in the time required to plant the garden. This was largely due to the following facts: The ground was always in prime condition at the time of planting; one man worked alone and so lost no time in directing the work of others; moreover, this man thoroughly understood his business and worked with a view to making the labor account as small as possible. This same statement is true in reference to nearly all of the hand labor in the garden this season. As a result, the time spent in hand labor was much less than in the preceding years in spite of the fact that 27 hours were consumed in spreading manure. The substitution of the wheel hoe for the hand hoe whenever possible, reduced the hand hoeing to 6½ hours. The total amount of time consumed in hand tillage (with hand and wheel hoe) was only 17¼ hours, against 43¾ hours in 1900 and 45 hours in 1901. The item for weeding and thinning was only 6½ hours, the same as in 1901, even though the season was very wet. Insects were much less troublesome than in 1901, so less time was consumed in fighting them. More time was used in clearing land after crops than should have been. The man who did the final clearing in October preparatory to plowing stretched the job over a full half day. Aside from the spreading of manure, the total amount of hand labor expended on the half-acre garden in 1902 was only 69 hours. In 1901, it was 121 hours and in 1900, it was 124½ hours.

THE HARVEST

The perennial onions were ready to pull April 18th, and the first asparagus was cut April 23d. From that time there was a constant supply of vegetables through the whole season, and plenty to store for winter. Nearly all the vegetables planted yielded satisfactory crops and some of the yields were enormous. The season was

rather cool and wet, so that the cool season crops did especially well. The few exceptions to the generally good crops were the watermelons, a part of which were damaged by floods and the rest of which were so delayed by cool weather that only part of the crop ripened even though there was no frost until the night of October 13th; the sweet potatoes, which were small and slender owing to wet weather and unfavorable position; the cucumbers, which were nearly ruined by insects, and the turnips, which failed from some unknown cause.

Table 6 gives the amount of space occupied by each planting of each vegetable, the date of planting, the number of days from planting until the first of the crop was in edible condition, the period of use, and the yield.

TABLE 6.—PRODUCTS OF FARMER'S GARDEN, 1902

	Space occupied, rows.	Date of planting.	Days to edible condition.	Period of use.	Yield.
Onions:					
Green—					
Perennial.....	$\frac{1}{6}$	March 29...	48	April 18 to May 15	60 doz.
From sets	$\frac{1}{6}$	March 29...	90	May 16 to June 26	16 doz.
From seed.....	1	March 29...	147	June 27 to July 1	2 doz.
Ripe.....	$\frac{1}{2}$	March 29...		After August 23	2 bu.
Asparagus†..	$\frac{1}{2}$			April 23 to May 14	24 $\frac{1}{2}$ lb.
Radishes††					
Earliest White—					
First planting....	2	March 29...	39	May 7 to 14.....	58 doz.
Second planting...	$\frac{1}{2}$	April 28....	25	May 23 to 26.....	18 doz.
Cincinnati Market—					
First planting. . .	1	March 29...	47	May 15 to 22.....	31 doz.
Second planting...	$\frac{1}{2}$	April 28....	29	May 27 to June 3	17 doz.
Third planting....	1	May 10.....	25	June 4 to 16.....	65 doz.
Lettuce:.....	$\frac{1}{6}$	March 29...			
Thinnings.....			47	May 15 to June 10	10 $\frac{1}{2}$ bsks.
Heads.....			76	June 13 to 18....	1 doz.
Turnip greens.	$\frac{1}{6}$	March 29...	47	May 15 to 20.....	5 bsks.
Spinach.....	$\frac{1}{2}$	March 29...	53	May 21 to June 14	27 bsks.
Beet greens:					
Thinnings from early beets	$\frac{1}{2}$	March 29...	57	May 26 to 28. . .	2 bsks.
Thinnings from late beets	$\frac{1}{2}$	April 28....	49	June 16.....	6 bsks.
Peas:					
Maude S.....	$\frac{1}{2}$	March 29...	66	June 3 to 14.....	3 $\frac{1}{2}$ pks.
Nott's Excelsior—					
First planting.....	$\frac{1}{2}$	March 29...	72	June 9 to 12.....	2 $\frac{3}{4}$ pks.
Second planting...	$\frac{1}{2}$	April 18....	59	June 16 to 18....	2 $\frac{1}{2}$ pks.
Improved Stratagem	$\frac{1}{2}$	April 28....	75	July 12 to 21....	1 $\frac{1}{4}$ pks.
Early beets	$\frac{1}{2}$	March 29...	73	June 10 to Aug. 30	28 doz.
Early turnips.....	$\frac{1}{6}$	March 29...	74	June 11 to 26....	8 doz.
Cauliflower	$\frac{1}{4}$	April 18....	55	June 12 to July 22	33 heads
Earlv potatoes.....	2	March 29...	77	June 14 to July 23	8 $\frac{3}{8}$ bu.

TABLE 6.—Continued.

	Space occupied, rows.	Date of Planting.	Days to edible condition.	Period of use.	Yield.
Cabbage:					
Wakefield.....	$\frac{1}{4}$	April 18....	57	June 14 to July 5	33 heads
Market Gardener's No. 2—					
Transplanted.....	$\frac{1}{4}$	April 28....	75	July 12 to Aug. 8	32 heads
From seed.....	$\frac{1}{4}$	April 28 .	103	Aug. 9 to 30.....	32 heads
Autumn King.....	1	May 10....	114	Sept. 1 to Oct. 17	100 heads
String beans:					
Early crop.....	$\frac{1}{2}$	April 28....	52	June 19 to July 9	6 $\frac{3}{4}$ pks.
Late crop.....	$\frac{1}{2}$	July 5.....	52	Aug. 26 to Sept. 10	4 $\frac{1}{2}$ pks.
Early carrots.....	$\frac{1}{2}$	March 29... 90	90	June 27 to Oct. 8	18 doz.
Parsley.....	$\frac{1}{2}$	March 29... 94	94	July 1 to Nov. 12	Supply
Sweet corn:					
Cory.....	$\frac{1}{2}$	April 28 ..	71	July 8 to 23	16 doz.
Chicago Market—					
First planting.....	$\frac{1}{2}$	April 28....	80	July 17 to 22	8 $\frac{1}{2}$ doz.
Second planting....	$\frac{1}{2}$	May 10....	75	July 24 to 30	10 $\frac{1}{2}$ doz.
Late planting	$\frac{1}{2}$	July 5	65	Sept. 8 to 10	4 $\frac{1}{2}$ doz.
Country Gentleman .	$\frac{1}{2}$	May 10....	88	Aug. 6 to 25.....	25 doz.
Tomatoes:					
Freedom.....	$\frac{1}{4}$	May 10.....	63	July 12 to Oct. 13	4.85 bu.
Stone.....	$\frac{1}{2}$	May 10.....			
Ripe fruit.....			72	July 21 to Oct. 13	13.49 bu.
Green fruit.....				Oct. 1 and 2	3 $\frac{3}{4}$ bu.
Squash:					
Summer Crookneck..		May 10....	63	July 12 to Sept. 9	129
Faxon.....	15 hills	May 10....	126	After Sept. 13 ...	689 lb.
Lima beans.....	$\frac{1}{2}$	April 28....	89	July 26 to Sept. 29	5 $\frac{3}{4}$ pks.
Peppers:.....	$\frac{1}{4}$	May 10....	89	Aug. 7 to Oct. 13	
Large.....					29 doz.
Small.....					3 $\frac{1}{2}$ pks.
Egg plant.....	$\frac{1}{4}$	May 29. .	81	Aug. 18 to Oct. 13	85 fruits
Cucumbers.....	24 hills	June 27....	56	Aug. 22 to Sept. 9	13
Muskmelons:					
Netted Gem.....	24 hills	May 10....	108	Aug. 26 to Sept. 24	194 $\frac{3}{4}$ lb.
Beck's Strawberry ..	21 hills	May 10....	115	Sept. 1 to Oct. 6	262 $\frac{3}{4}$ lb.
Watermelons:					
Fordhook.....	24 hills	May 10....	115	Sept. 1 to Oct. 8	190 lb.
McIver's Sugar.....	21 hills	May 10....	138	Sept. 25 to Oct. 8	345 lb.
Sweet potatoes.....	$\frac{3}{4}$	May 29....	137	After Oct. 13....	2 $\frac{1}{2}$ bu.
Winter radishes.....	$\frac{1}{2}$	Aug. 7.....	71	After Oct. 17....	2 $\frac{3}{4}$ bu.
Late turnips.....	3 $\frac{1}{2}$	Aug. 7.....	71	After Oct. 17....	1 $\frac{1}{2}$ bu.
Late carrots.....	$\frac{1}{2}$	April 28....	171	After Oct. 17....	7 $\frac{1}{2}$ bu.
Late beets.....	$\frac{1}{2}$	April 28....	171	After Oct. 17....	9 bu.
Parsnips.....	$\frac{1}{2}$	March 29... 201	201	After Oct. 17....	3.8 bu.
Salsify.....	$\frac{1}{2}$	March 29... 201	201	After Oct. 17....	1 bu.
Celery.....	$\frac{1}{2}$	July 5.....	128	After Nov. 10....	15 $\frac{1}{2}$ doz.

† The asparagus was cut only three weeks because the roots were young.

‡‡ The radishes were planted mainly to mark the rows of other vegetables, so the yields were much smaller than if the crop had occupied the whole space.

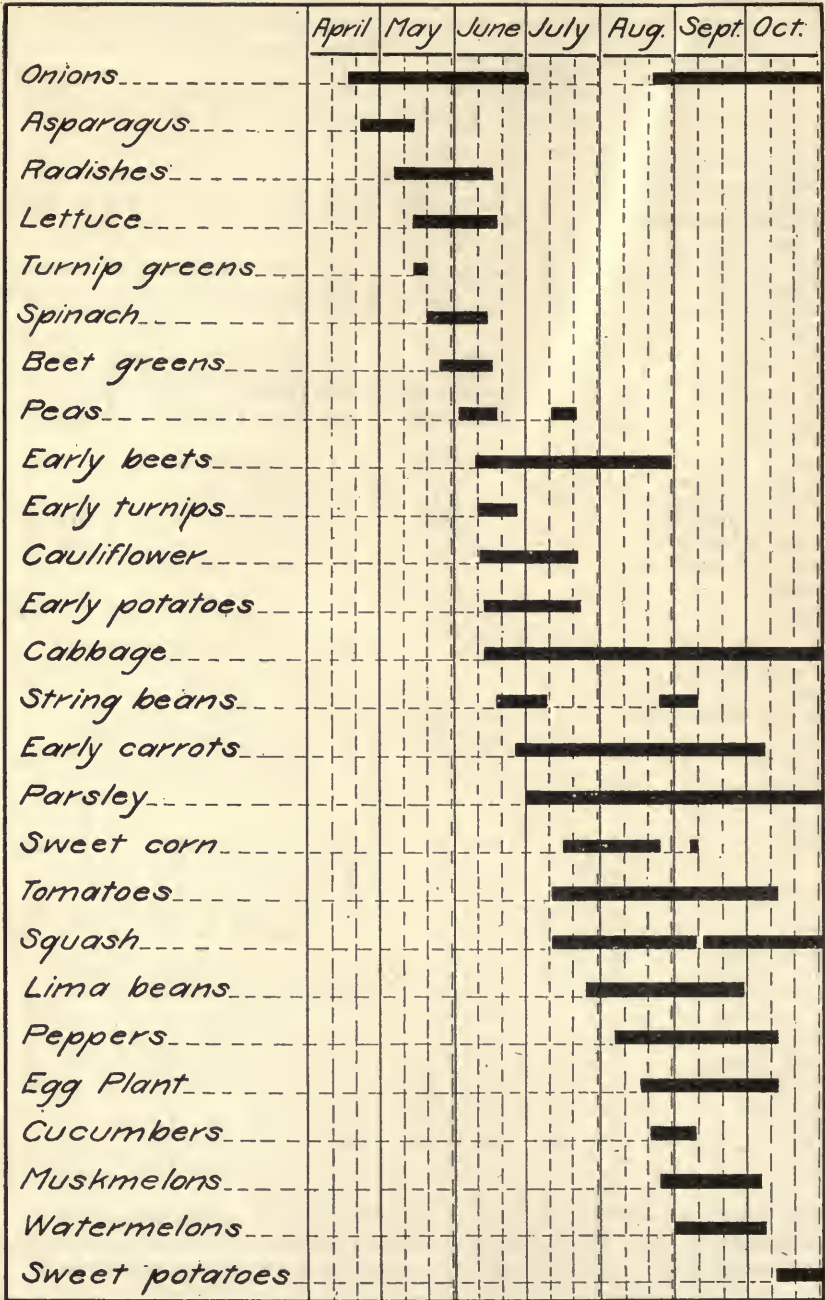


DIAGRAM SHOWING SUCCESSION OF VEGETABLES IN 1902.

The succession of vegetables through the season is graphically represented by the accompanying diagram, and a summary of the products, including the retail price and the value of the crop for each vegetable, is given in Table 7. The root crops, etc., stored for winter use are not included in the diagram.

TABLE 7.—SUMMARY OF PRODUCTS OF FARMER'S GARDEN, 1902

	Period of use.	Total product.	Retail price.	Value of crop.
Onions:				
Green.....	April 18 to July 1....	78 doz.....	\$.05	\$3.90
Ripe.....	After Aug. 23.....	2 bu.....	.75	1.50
Asparagus.....	April 23 to May 14..	24½ lb.....	.05	1.23
Radishes:				
Earliest White....	May 7 to 26.....	76 doz.....	.02½	1.90
Cincinnati Market	May 15 to June 16..	113 doz.....	.05	5.65
Lettuce.....	May 15 to June 18..	12½ baskets....	.10	1.25
Turnip greens.....	May 15 to 20.....	5 baskets....	.10	.50
Spinach.....	May 21 to June 14..	27 baskets....	.10	2.70
Beet greens.....	May 26 to June 16..	8 baskets.....	.10	.80
Peas.....	June 3 to July 21..	10 pecks.....	.30	3.00
Early beets.....	June 10 to Aug. 30..	28 doz.....	.10	2.80
Early turnips.....	June 11 to 26.....	8 doz.....	.05	.40
Cauliflower.....	June 12 to July 22..	33 heads.....	.10	3.30
Early potatoes.....	June 14 to July 23..	8⅜ bu.....	1.00	8.38
Cabbage:				
Early varieties...	June 14 to Aug. 30..	97 heads.....	.05	4.85
Autumn King....	After Sept. 1.....	100 heads.....	.04	4.00
String beans:				
Early.....	June 19 to July 9... 6¾ pecks....		.30	2.03
Late.....	Aug. 26 to Sept. 10. 4½ pecks.....		.30	1.35
Early carrots.....	June 27 to Oct. 8... 18 doz.....		.05	.90
Parsley.....	July 1 to Nov. 12... Supply.....			
Sweet corn.....	July 8 to Sept. 10.. 64½ doz.....		.10	6.45
Tomatoes:				
Ripe.....	July 12 to Oct. 13... 18⅓ bu.....		.75	13.75
Green.....	Oct. 1 and 2..... 3¾ bu.....		.50	1.88
Squash:				
Summer.....	July 12 to Sept. 9... 129.....		.02½	3.23
Winter.....	After Sept. 13..... 689 lb.....		.01½	10.33
Lima beans.....	July 26 to Sept. 29.. 5¾ pecks.....		.30	1.73
Peppers:				
Large.....	Aug. 7 to Oct. 13... 29 doz.....		.08⅓	2.42
Small.....	..... 3½ pecks.....		.20	.70
Egg plant.....	Aug. 18 to Oct. 13.. 85 fruits.....		.05	4.25
Cucumbers.....	Aug. 22 to Sept. 9... 13.....		.01	.13
Muskmelons.....	Aug. 26 to Oct. 6... 457 lb.....		.01½	6.86
Watermelons.....	Sept. 1 to Oct. 8... 535 lb.....		.00¾	4.01
Sweet potatoes.....	After Oct. 13..... 2½ bu.....		1.00	2.50
Winter radishes...	After Oct. 17..... 2¼ bu.....		.50	1.13
Late turnips.....	After Oct. 17... 1½ bu.....		.50	.75
Late carrots.....	After Oct. 17..... 7½ bu.....		.50	3.75
Late beets.....	After Oct. 17..... 9 bu.....		.50	4.50
Parsnips.....	After Oct. 17..... 3.8 bu.....		.50	1.90
Salsify.....	After Oct. 17..... 1 bu.....		.50	.50
Celery.....	After Nov. 10..... 15½ doz.....		.20	3.10
				\$124.31

PROFITS

The cost of the garden for 1902 may be summarized as follows:

Seeds.....	\$ 4.18
Insecticides.....	.50
Labor.....	26.28
Total.....	<u>\$30.95</u>

The value of the products amounted to \$124.31, making a net profit of \$93.35. This is a much larger profit than that of either of the preceding years. The cost of the garden was but slightly less than before, the great difference in the net profit being due to the enormous yields. These were the result of a combination of favorable conditions, viz.: very heavy manuring, an abundance of rainfall well distributed through the season, thorough tillage, comparative freedom from serious insect attacks, constant care.

ACCOUNT OF THE GARDEN FOR 1903

The plan of the garden in 1903 was much the same as in 1902, except that the sweet potatoes were omitted on account of their rampant growth and interference with the proper development of other crops. They covered a strip of land nearly twenty feet wide. An additional row of vine crops was planted in place of the sweet potatoes. A few changes were made in the arrangement of some of the other vegetables, to avoid interference between adjoining crops.

October 29 to November 12, 1902, twenty-three loads of fairly well rotted manure were applied broadcast to the garden. The loads consisted of as much manure as could readily be piled on an ordinary set of dump boards. They were much smaller loads than those applied the preceding year, so that the total amount of manure applied was considerably less.

The land was plowed deeply, November 12th, and allowed to remain without further working until April 1st, when it was disked and harrowed, and the east third planked for immediate planting.

PLANTING

Rows 2 to 8, inclusive, were planted with the same vegetables and in exactly the same order as in 1902.

April 21st, the south half of row 9 was planted to Nott's Excelsior peas. Owing to unsettled weather, it was considered unadvisable to set the early cabbage and cauliflower at this time. The weather continued cold, and on April 23d and May 1st severe frosts occurred. On the latter date, all asparagus above ground was frozen, but the vegetables planted April 1st were not injured. All

except the potatoes were up. These were just breaking the ground. The temperature April 23d was 27 degrees F., and May 1st, 26 degrees F.

May 2d, the unplanted portion of the garden was disked, harrowed and planked, and the following plantings made:

Row 9.—North half: 40 cabbage plants, Jersey Wakefield; 30 cauliflower plants.

Row 10.— $\frac{1}{2}$ row peas, Nott's Excelsior (third planting); $\frac{1}{2}$ row string beans.

Row 11.— $\frac{1}{2}$ row left for cabbage; $\frac{1}{2}$ row beans, Henderson's Bush Lima.

Row 12.— $\frac{1}{2}$ row late beets; $\frac{1}{2}$ row late carrots. (Marked with radishes.)

Row 13.—Sweet corn: $\frac{1}{2}$ row Mammoth White Cory; $\frac{1}{2}$ row Chicago Market.

May 5th, the north half of row 11 was planted to Market Gardener's No. 2 cabbage, 35 plants being set and the rest of the space sown with seed.

May 16th, the following vegetables were put in:

Rows 14, 15, 16, and 17.—4 rows vine crops (6 feet apart and 6 feet from adjoining rows): 24 hills cucumbers, 24 hills winter squash, 12 hills summer squash, 64 hills muskmelons, 64 hills watermelons.

Row 18.—Sweet corn: $\frac{1}{2}$ row Stowell's Evergreen, $\frac{1}{2}$ row Country Gentleman.

Row 19.— $\frac{2}{3}$ row tomatoes, 44 plants Stone, 4 feet apart.

At the time this planting was done, the top soil was very dry because there had been practically no rain since May 2d. However, there was plenty of moisture below the dust mulch, and care was taken to place the seeds in contact with moist soil.

May 29th, the balance of row 19 was planted with 9 egg plants, 12 peppers, and a 40-foot drill of cabbage seed to grow plants for the late crop. At this date also, a few string beans and a little Chicago Market corn were planted in the spaces where the first planting had failed to give a full stand.

July 6th, after the early crops had been removed from rows 5, 6, and 7, the strip of land thus left vacant was plowed and planked with one-horse implements, and planted to late cabbage, cauliflower, celery and string beans.

By August 7th, the crops had been harvested from rows 8, 9, and the north half of row 10, and this strip was cleared of refuse, plowed and fitted for planting. August 14th, it was planted with two rows of turnips and one-half row of winter radishes.

CULTIVATION

The method of cultivation employed in the garden was practically the same as in 1902, except that during the absence of the superintendent, the hand hoe was used in many instances where the wheel hoe might have done the same work in much less time. Men

who are not accustomed to a wheel hoe seem to cling to the old habit of using a hand hoe, regardless of the extra labor involved.

The garden was kept in a high state of cultivation throughout the season. The one-horse cultivator was used eleven times; and each time, the cultivation included all crops which were up and which had not grown so large as to prevent the passage of the implement between the rows. Nearly all the early planted vegetables were cultivated with the wheel hoe four times during April and May. Up to June 1st, practically no hand hoeing had been done. During the following six weeks the wheel hoe was not used at all, and considerable time was consumed in hand hoeing.

FIGHTING INSECTS

The vine crops were sprayed with Bordeaux mixture and Paris green as soon as the plants were up and before they were attacked by the striped beetle. This treatment was repeated every few days until the plants were well established. Eight applications were made from May 23d to June 24th. The plants were in this way kept practically free from the striped beetle. The early cabbages were sprayed with the same material. This was from June 2d to 10th. The potatoes were sprayed only once, May 28th.

Later in the season, through an oversight on the part of the workmen, the flea-beetles and potato beetles were allowed to ruin the egg plants, and the cabbage worms to seriously damage the late cabbage and cauliflower.

TRAINING TOMATOES

The tomatoes were staked and tied up as in previous years, but were not so severely pruned. None were pruned to single stems, nor systematically maintained to three stems. Early in the season they were pruned to one stem, then allowed to branch freely higher up. This gave an abundance of fruiting branches, and the crop was enormous, averaging slightly over one-half bushel of ripe fruit per plant. The fruit was also very large and smooth, averaging nearly one-half pound per specimen for the whole season.

LABOR

A summary of the labor account for 1903 is given in Table 8. One man worked alone in hauling and spreading the manure. In the spraying, two men worked with the one-horse outfit. Therefore the item is charged under "work with one horse" and also under "hand labor, fighting insects," as in the two preceding years.

TABLE 8.—SUMMARY OF LABOR ON FARMER'S GARDEN, 1903, BY HOURS

	Oct. and Nov., 1902.	April.	May.	June.	July.	August.	September.	October.	November.	Total.
Work with team:										
Hauling and spreading manure	22									22
Plowing, harrowing, etc...	2½	4	1							7½
Total team work.....	24½	4	1							29½
Work with one horse:										
Fitting land for planting ...						¾				1¾
Cultivating			2¼	5½	2¾	1 ½		¼		11¼
Spraying.....			3¼	2½						5¾
Total work with one horse..			5½	8	3½	1½		¼		18¾
Hand labor:										
Planting.....		4½	8¾		9¾	1				24
Cultivating with wheel hoe.		½	2¾		1	11¼				5
Hand hoeing.....			2¼	6¾	8¾	5				22¾
Weeding and thinning....			3½	1¾	1		½			6¼
Fighting insects			3¼	2½	1¼	½				6¼
Training tomatoes.....				4½	1¼					5¾
Clearing land after crops...					1	2			2½	5½
Handling and banking celery							3½	7		10½
Total hand labor.....		5	20½	15½	22½	9¾	4	7	2½	86¾

The cost of the labor on the garden was as follows:

Team work, 29½ hrs. at \$3.00 per day.....	\$8.85
Work with one horse, 18¾ hrs. at \$2.00 per day.....	3.75
Hand labor, 86¾ hrs. at \$1.25 per day.....	10.84
Total.....	\$23.44

A comparison of the above figures with those of previous years shows that the cost for labor on the garden was smaller in 1903 than in any previous year. However, this was due mainly to the fact that much less time was spent in applying manure than for the crop of 1902. As stated before, the application was much lighter, and the manure was also hauled a shorter distance. Leaving out of consideration the spreading of manure, the amount of hand labor was 17¾ hours greater in 1903 than in 1902. More time was consumed in planting. This was due largely to the fact that two rows of late cabbage and cauliflower were transplanted in 1903, and none in 1902, and that the transplanting of these and the celery was done at a time when watering seemed necessary. As already mentioned, too much hand hoeing was done, so that the time spent in hand tillage (with hand and wheel hoe) was 27¾ hours, against

17¼ hours in 1902. The weeding and thinning was practically the same both years. A little more time was spent in fighting insects than in 1902, and if still more had been spent, the egg plants and late cabbage and cauliflower might have fared better. Less time was consumed in training tomatoes than in 1902 because there were fewer plants, and they were not pruned so closely. More time was spent in handling and banking the celery than in 1902, but about the same as in 1900.

THE HARVEST

The earliest products of the garden were gathered April 17th, when the first asparagus was cut and some perennial onions were pulled. The cutting of the asparagus was continued until the peas were ready for use. In the meantime, the radishes, lettuce, spinach, and turnip greens had reached edible condition, and other crops followed in rapid succession, so that the supply of vegetables was good throughout the season. The only crops which failed to produce fairly satisfactory results were the egg plants and cauliflower, and the failure of these was due mainly to the lack of proper attention at critical times, as already mentioned. The McIver's Sugar watermelons failed to mature properly, but several fairly good specimens were secured in October, after the vines would have been killed by frost in an ordinary season. On the whole the garden was very satisfactory, even the cucumbers and turnips giving fair crops.

Table 9 gives in condensed form the most important data regarding each planting of each crop, and Table 10 gives the final summary regarding the products.

TABLE 9.—PRODUCTS OF FARMER'S GARDEN, 1903

	Space occupied, rows.	Date of planting.	Days to edible condition.	Period of use.	Yield.
Onions:					
Green—					
Perennial.....	½			April 17 to June 2	102 doz.
From sets.....	½	April 1. . .	65	June 5 to 30	15 doz.
From seed.....		April 1.....		Aug. 6 to 10.....	2½ doz.
Ripe.....	1	April 1.....	146	After Aug. 25... .	2 bu.
Asparagus.....	½			April 17 to June 5	67½ lb.
Radishes:					
Earliest White—					
First planting. . .	2	April 1....	38	May 9 to 23	110 doz.
Second planting... .	½	May 2.....		June 17 to 23.....	13 doz.
Cincinnati Market—					
First planting.....	1	April 1....	49	May 20 to June 1	50½ doz.
Second planting... .	½	May 2.....	45	June 16 to 23	21 doz.
Lettuce.....	¾	April 1.....	48	May 19 to June 15	8¾ bskts.
Spinach.....	½	April 1.....	52	May 23 to June 15	7½ bskts.

TABLE 9.—Continued.

	Space occupied, rows.	Date of planting.	Days to edible condition.	Period of use.	Yield.
Turnip greens	$\frac{1}{6}$	April 1....	57	May 28 to June 5	4 bskts.
Rhubarb.....	$\frac{1}{6}$			June 5 to 27	33 $\frac{1}{4}$ lb.
Beet greens.....	$\frac{1}{2}$	April 1....	66	June 6 to 13....	3 $\frac{1}{2}$ bskts.
Peas:					
Maud S.....	$\frac{1}{2}$	April 1....	69	June 9 to July 1	2 $\frac{1}{2}$ pks.
Nott's Excelsior—					
First planting.....	$\frac{1}{2}$	April 1....	66	June 6 to July 1..	3 $\frac{1}{4}$ pks.
Second planting....	$\frac{1}{2}$	April 21....	57	June 17 to July 18	3 pks.
Third planting.....	$\frac{1}{2}$	May 2....	51	June 22 to July 18	3 $\frac{3}{8}$ pks.
Early turnips.....	$\frac{1}{6}$	April 1....	84	June 24 to July 6	5 doz.
Early beets	$\frac{1}{2}$	April 1....	84	June 24 to Aug. 13	11 $\frac{1}{2}$ doz.
Early potatoes.....	2	April 1....	85	June 25 to July 28	6 $\frac{1}{2}$ bu.
String beans:					
Early crop.....	$\frac{1}{2}$	May 2.....	60	July 1 to Sept. 1..	10 pks.
Late crop.....	$\frac{1}{2}$	July 7....	56	Sept. 1 to Oct. 6	3 $\frac{1}{2}$ pks.
Cabbage:					
Early varieties	$\frac{3}{4}$	May 2, 5 ...		July 2 to Sept. 1.	96 heads
Early carrots.....	$\frac{1}{2}$	April 1. ...			
Pulled during season			101	July 11 to Sept. 25	8 doz.
Reserved for winter..				After Oct. 28	1 bu.
Sweet corn:					
Cory.....	$\frac{1}{2}$	May 2.....	72	July 13 to 31	11 doz.
Chicago Market.....	$\frac{1}{2}$	May 2.....	83	July 24 to 31 . . .	6 $\frac{1}{2}$ doz.
Evergreen..	$\frac{1}{2}$	May 16....	88	Aug. 12 to 28.....	10 doz.
Country Gentleman..	$\frac{1}{2}$	May 16....	96	Aug. 20 to Sept. 10	16 doz.
Cauliflower:					
Early	$\frac{1}{4}$	May 2.....	80	July 21 to Aug. 6	7 heads
Late.....	1	July 6.....	95	Oct. 9 to 28	16 heads
Squash:					
Summer Crookneck..	12 hills	May 16....	72	July 27 to Sept. 16	131
Faxon (winter)	24 hills	May 16....	137	After Sept. 30 ...	355 lb.
Tomatoes:.....	$\frac{2}{3}$	May 16....			
Ripe fruit			77	Aug. 1 to Oct. 9..	22.23 bu.
Green fruit				Oct. 9.....	4 $\frac{1}{2}$ bu.
Lima beans.....	$\frac{1}{2}$	May 2	94	Aug. 4 to Oct. 6..	7 pks.
Cucumbers.....	24 hills	May 16....	82	Aug. 6 to Sept. 18	185
Watermelons:					
Cole's Early	32 hills	May 16....	97	Aug. 21 to Oct. 6	585 $\frac{1}{2}$ lb.
McIver's Sugar.....	32 hills	May 16....	143	Oct. 6 to 16.....	269 $\frac{1}{4}$ lb.
Muskmelons:					
Burpee's Netted Gem	32 hills	May 16....	101	Aug. 25 to Oct. 6	403 $\frac{1}{4}$ lb.
Beck's Strawberry...	32 hills	May 16....	101	Aug. 25 to Oct. 6	666 $\frac{3}{4}$ lb.
Egg plant.....	9 plants	May 29....	105	Sept. 11.....	1 fruit
Late cabbage, Autumn King:					
From seed bed	40 ft.	May 29....	124	Sept. 30 to Oct. 19	13 heads
Transplanted.....	1	July 6.....	114	After Oct. 28	
Good heads					27
Small heads.....					65
Peppers.....	12 plants	May 29....	133	October 9.....	2 pks.
Late beets.....	$\frac{1}{2}$	May 2.....	179	After Oct. 28....	5 bu.
Winter radishes.....	$\frac{1}{2}$	Aug. 14....	75	After Oct. 28....	3 $\frac{1}{2}$ bu.
Late turnips.....	2	Aug. 14....	75	After Oct. 28....	2 bu.
Parsnips	$\frac{1}{2}$	Apr. 1	210	After Oct. 28....	4 bu.
Salsify.....	$\frac{1}{2}$	Apr. 1....	210	After Oct. 28....	.9 bu.
Late carrots.....	$\frac{1}{3}$	May 2.....	179	After Oct. 28....	1 $\frac{1}{2}$ bu.
Celery.....	$\frac{1}{2}$	July 6. ...	139	After Nov. 22....	18 doz.

TABLE 10.—SUMMARY OF PRODUCTS OF FARMER'S GARDEN, AND THEIR VALUE, 1903

	Period of use.	Total product.	Retail Price.	Value of crop.
Onions:				
Green.....	April 17 to Aug. 10..	119½ doz.....	\$.05	\$5.98
Ripe.....	After Aug. 25.....	2 bu.....	.75	1.50
Asparagus.....	April 17 to June 5..	67½ lb.....	.05	3.37
Radishes:				
Earliest White....	May 9 to June 23 ...	123 doz.....	.02½	3.08
Cincinnati Market	May 20 to June 23..	71½ doz.....	.05	3.57
Lettuce.....	May 19 to June 15..	8½ baskets. ...	.10	.85
Spinach.....	May 23 to June 15..	7½ baskets. ...	.10	.75
Turnip greens.....	May 28 to June 5... 4	baskets.....	.10	.40
Rhubarb.....	June 5 to 27.....	33¼ lb.....	.04	1.33
Beet greens.....	June 6 to 13.....	3½ baskets.....	.10	.35
Peas.....	June 6 to July 18..	12½ pecks.....	.30	3.78
Early turnips.....	June 24 to July 6 ...	5 doz.....	.05	.25
Early beets.....	June 24 to Aug. 13..	11½ doz.....	.10	1.15
Early potatoes.....	June 25 to July 28..	6½ bu.....	1.00	6.50
String beans:				
Early crop.....	July 1 to Sept. 1 ...	10 pecks.....	.30	3.00
Late crop.....	Sept. 1 to Oct. 6 ...	3½ pecks.....	.30	1.05
Cabbage:				
Early varieties....	July 2 to Sept. 1... 96	heads.....	.05	4.80
Autumn King.....	After Sept. 30.....			
Good heads.....		40.....	.03	1.20
Small heads....		65.....	.01	.65
Early carrots:				
Pulled during season.....	July 11 to Sept. 25..	8 doz.....	.05	.40
Reserved for winter	After Oct. 28.....	1 bu.....	.50	.50
Sweet corn.....	July 13 to Sept. 10..	43½ doz .....	.10	4.35
Cauliflower:				
Early.....	July 21 to Aug. 6... 7	heads.....	.10	.70
Late.....	Oct. 9 to 28.....	16 heads.....	.03	.48
Squash:				
Summer.....	July 27 to Sept. 16..	131.....	.02½	3.27
Winter.....	After Sept. 30.....	355 lb.....	.01½	5.33
Tomatoes:				
Ripe.....	Aug. 1 to Oct. 9... 22.23	bu.....	.60	13.33
Green.....	Oct. 9.....	4½ bu.....	.40	1.80
Lima beans.....	Aug. 4 to Oct. 6... 7	pecks.....	.30	2.10
Cucumbers.....	Aug. 6 to Sept. 18..	185.....	.01	1.85
Watermelons.....	Aug. 21 to Oct. 16..	854¼ lb.....	.00¾	6.41
Muskmelons.....	Aug. 25 to Oct. 6... 1070	lb.....	.01½	16.05
Egg plant.....	Sept. 1.....	1 fruit.....	.05	.05
Peppers.....	Oct. 9.....	2 pecks.....	.25	.50
Late beets.....	After Oct. 28.....	5 bu.....	.50	2.50
Winter radishes ...	After Oct. 28.....	3½ bu.....	.50	1.75
Late turnips.....	After Oct. 28.....	2 bu.....	.50	1.00
Parsnips.....	After Oct. 28.....	4 bu.....	.50	2.00
Salsify.....	After Oct. 28.....	.9 bu.....	.50	.45
Late carrots.....	After Oct. 28.....	1½ bu.....	.50	.75
Celery.....	After Nov. 22.....	18 doz .....	.20	3.60
				\$112.73

PROFITS

The cost of the garden for 1903 may be summarized as follows:

Seeds.....	\$ 3.66
Insecticides.....	1.00
Labor.....	23.44
Total.....	<u>\$28.10</u>

The value of the products amounted to \$112.73, thus leaving a net profit of \$84.63.

ACCOUNT OF THE GARDEN FOR 1904

In 1904 the plan for the garden was again reversed so that planting began at the west side of the area, in order that a rotation of crops might be secured. Very few changes were made in the list of varieties, the one of most importance being the substitution of the Halbert Honey watermelon for the McIver's Sugar. The reason for the change was the failure of the McIver's Sugar to properly ripen its crop in 1902 and 1903.

From November 9 to 12, 1903, sixteen loads of manure, averaging slightly over one ton each, were hauled and applied to the garden. The ground was plowed November 27th.

PLANTING

The spring of 1904 was so late that no work could be done in the garden until April 16th, when the west third of the area was disked and harrowed, and the early vegetables planted. Rows 1 to 7, inclusive, were planted exactly the same as rows 2 to 8 in 1902 and 1903. April 23d, row 8 was planted to cabbage, cauliflower, and peas, the same as row 9 in 1902.

April 30th, planting was continued, as follows:

- Row 9.— $\frac{1}{4}$ row cabbage, 35 plants Market Gardener's No. 2; $\frac{1}{4}$ row same (seed sown); $\frac{1}{2}$ row beans, Improved Henderson Bush Lima.
 Row 10.— $\frac{1}{2}$ row late beets, $\frac{1}{2}$ row late carrots. (Marked with radish.)
 Row 11.—Sweet corn: $\frac{1}{2}$ row Mammoth White Cory, $\frac{1}{2}$ row Chicago Market.
 Row 12.— $\frac{1}{2}$ row peas, Nott's Excelsior; $\frac{1}{2}$ row string beans.

May 7th, the following vegetables were planted:

- Row 13.—Sweet corn: $\frac{1}{2}$ row Stowell's Evergreen, $\frac{1}{2}$ row Country Gentleman.
 Row 14.— $\frac{1}{4}$ row left vacant for egg plants and peppers; $\frac{3}{4}$ row tomatoes, 24 plants Freedom and 46 plants Stone.
 Rows 15, 16, 17, and 18.—Vine crops: 24 hills cucumbers, 24 hills winter squash, 12 hills summer squash, 64 hills muskmelons, 76 hills watermelons.

The row containing tomatoes was 4 feet from the sweet corn to admit of late tillage. Row 15 was 7 feet from row 14 and the four

rows of vine crops were six feet apart. The hills were somewhat less than six feet apart in the row. The space between row 18 and the permanent row of asparagus, etc., was slightly over six feet. May 28th, 12 egg plants and 12 peppers were planted in the space left for them in row 14.

The plan of the garden for 1904 is shown in the accompanying diagram. The distinctive feature in which the arrangement of the vegetables differed from that of previous years was the planting of a half-row of peas between two rows of corn, so that after the removal of the peas celery might be planted where it would be shaded by the corn; and after the removal of the corn plenty of soil would be available for banking the celery. It was the intention also to remove the string beans from the other half of row 12 in time to plant the late cauliflower where it would be shaded during the hot weather; but since the beans continued to produce pods, another place was found for the cauliflower.

The celery was planted July 6th, as was also a row of late cabbage and one-half row each of cauliflower and string beans, on land previously occupied by rows 4 and 5.

August 10th, 2½ rows of turnips and ½ row of winter radishes were planted in the space previously occupied by the early potatoes, cabbage, etc. (rows 6, 7, and 8).

CULTIVATION

Free use was made of the wheel hoe and the narrow-tooth cultivator throughout the season, the former being used fifteen times and the latter ten times, including the work on late crops. Considerable hand hoeing was done after the plants had become too large to permit the use of the wheel hoe, in an attempt to produce large yields from some of the more exacting crops.

FIGHTING INSECTS

Striped beetles were very abundant in 1904 and their repeated attacks upon the vine crops necessitated the free use of insecticides for over a month. Altogether the plants were sprayed with Bordeaux mixture and Paris green seven times and dusted with air-slaked lime and Paris green four times. The flea-beetles attacking the egg plants were controlled by five applications of Bordeaux mixture and Paris green and two of air-slaked lime and Paris green. Cabbage worms were abundant late in the season, and in spite of five applications of air-slaked lime, did considerable damage to the crop.

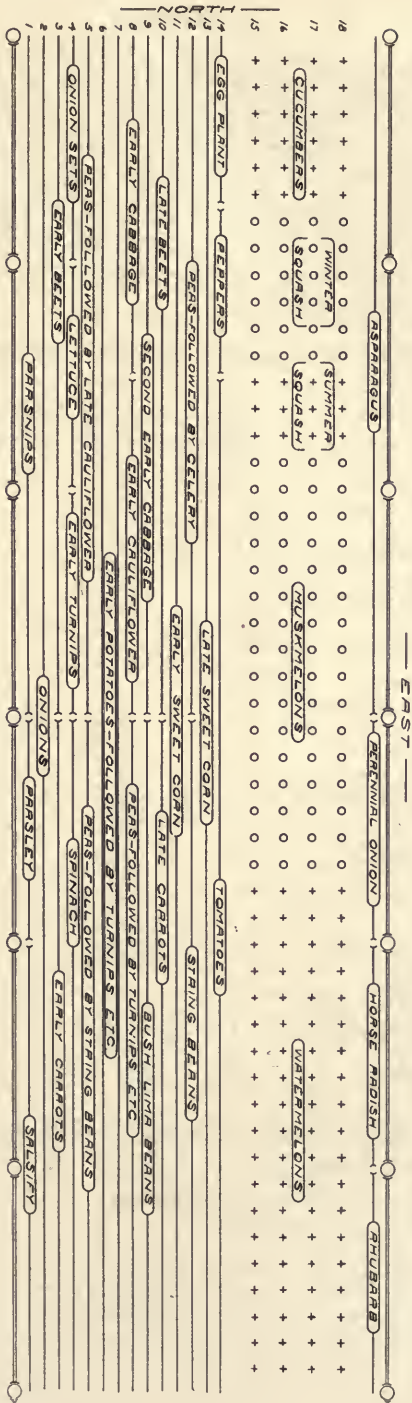


DIAGRAM OF GARDEN, 1904.

LABOR

In Table 11 is given a summary of the labor on the garden for 1904. The item "banking celery" under "team work" refers to the plowing to secure loose dirt for banking. In previous years this work was all done with one horse, and entered under "cultivating," but this season it was more convenient to use the team in the final banking. It was also found convenient to use the team in hauling away the tomato stakes and other materials when clearing this land after all crops had been harvested, instead of doing it with a wheel barrow as in previous years.

TABLE 11.—SUMMARY OF LABOR ON FARMER'S GARDEN, 1904, BY HOURS

	Nov., 1903.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Total.
Work with team:										
Hauling and spreading manure.....	25									25
Plowing, harrowing, etc.....	3	3¼								6¼
Banking celery								½		½
Clearing land after crops...									½	½
Total team work.....	28	3¼						½	½	32¼
Work with one horse:										
Fitting land for planting.. .					½	1				1½
Cultivating.....			¾	2½	2¼	½	1	1		8
Spraying.....			½	2½	¾	½				4¼
Total work with one horse			1¼	5	3½	2	1	1		13¾
Hand labor:										
Spreading manure	17½									17½
Planting.....		7¼	6¼	¼	3¾	¾				18¼
Cultivating with wheel hoe		½	2¾	¾	2¼	¾	1			8
Hand hoeing.....			2½	4½	4½	3	1¼			15¾
Weeding and thinning.....			1¾	1¾	¾		½			4¾
Fighting insects			1½	3	1¼	1	1¼			8
Training tomatoes.....				3¼	1¼	½				5
Clearing land after crops...					¾	¾	1		½	3
Handling and banking celery							1¾	4½		6¼
Total hand labor.....	17½	7¾	14¾	13½	14½	6¾	6¾	4½	½	86½

The cost of labor on the garden was as follows:

Team work, 32¼ hrs. at \$3.00 per day.....	\$ 9.68
Work with one horse, 13¾ hrs. at \$2.00 per day.....	2.75
Hand labor, 86½ hrs. at \$1.25 per day	10.81
Total	\$23.24

THE HARVEST

On account of the lateness of the spring, the perennial onions and the asparagus were much later in starting than in 1903, so that the first products of the garden were not gathered until April 30th, thirteen days later than in 1903. However, the season was about as long as usual, since no killing frost occurred until October 23d.

The season was favorable for nearly all crops, and a special effort was made to give particular care to the crops which had sometimes failed in previous years. As a result, not a single crop was an entire failure, and with the possible exception of late cabbage, cauliflower and turnips, all the vegetables produced satisfactory yields.

The most important facts in reference to each planting of each vegetable are given in Table 12, and a summary of the products, including the value of each crop, is given in Table 13.

TABLE 12.—PRODUCTS OF FARMER'S GARDEN, 1904

	Space occupied, rows.	Date of planting.	Days to edible condition.	Period of use.	Yield.
Onions:					
Green—					
Perennial.....	$\frac{1}{6}$			April 30 to June 10	22 doz.
From sets.....	$\frac{1}{6}$	April 16....	56	June 11 to 30.....	7 doz.
From seed....		April 16....	76	July 1 to 30.....	7 doz.
Ripe.....	1	April 16....	126	After Aug. 20....	2 bu.
Asparagus.....	$\frac{1}{2}$			April 30 to June 11	104 $\frac{1}{2}$ lb.
Radishes:					
Earliest White—					
First planting....	2	April 16....	33	May 19 to 25.....	43 doz.
Second planting...	$\frac{1}{2}$	April 30....	31	May 31.....	4 doz.
Cincinnati Market—					
First planting..	1	April 16....	40	May 26 to June 2.	28 doz.
Second planting...	$\frac{1}{2}$	April 30....	35	June 4 to 10.....	15 doz.
Third planting....	$\frac{1}{2}$	May 28....	25	June 22 to 30.....	13 doz.
Lettuce:.....	$\frac{1}{6}$	April 16....			
Thinnings.....			40	May 26 to June 18	10 $\frac{1}{2}$ bskts
Heads.....			68	June 23 to July 5.	36 heads
Turnip greens.....	$\frac{1}{6}$	April 16....	40	May 26 to June 2.	5 bskts.
Rhubarb.....	$\frac{1}{6}$			May 27 to June 14	34 $\frac{1}{2}$ lb.
Spinach.....	$\frac{1}{2}$	April 16....	45	May 31 to June 28	21 bskts.
Peas:					
Leader.....	$\frac{1}{2}$	April 16....	56	June 11 to July 4.	3 $\frac{1}{2}$ pecks
Nott's Excelsior—					
First planting.....	$\frac{1}{2}$	April 16....	61	June 16 to July 4.	2 $\frac{1}{2}$ pecks
Second planting..	$\frac{1}{2}$	April 23....	55	June 17 to 23.....	2 $\frac{3}{4}$ pecks
Third planting....	$\frac{1}{3}$	April 30....	56	June 25 to July 5.	2 $\frac{3}{4}$ pecks
Beet greens.....	$\frac{1}{2}$	April 30....	45	June 14 to 23....	8 bskts.
Early turnips.....	$\frac{1}{6}$	April 16....	66	June 21 to July 5.	10 doz.

TABLE 12.—Continued.

	Space occupied, rows.	Date of planting.	Days to edible condition.	Period of use.	Yield.
Cabbage:					
Jersey Wakefield....	¼	April 23....	65	June 27 to Aug. 5	34 heads
Market Gardener's No. 2—					
Transplanted.....	¼	April 30....	96	Aug. 4 to Sept. 15	35 heads
From seed.....	¼	April 30....	123	Aug. 31 to Sept. 28	39 heads
Autumn King.....	1	July 6....			
Good heads.....			122	After Nov. 5....	24
Small heads.....				After Nov. 12 ...	24
String beans:					
Early planting.....	½	April 30....	63	July 2 to Aug. 31.	12¼ pecks
Late planting.....	½	July 6.....	58	Sept. 2 to Oct. 19	4 pecks
Early potatoes.....	2	April 16....	79	July 4 to 22.....	4⅝ bu.
Parsley.....	⅙	April 16....	79	July 4 to Nov. 12.	Supply
Cauliflower:					
Early.....	¼	April 23....	72	July 4 to Aug. 10.	25 heads
Late.....	¼	July 6.....	122	Nov. 5 to 12 ...	16 heads
Early carrots.....	½	April 16....	82	July 7 to Oct. 19.	24 doz.
Early beets.....	½	April 16....	86	July 11 to Oct. 19.	15½ doz.
Summer squash.....	12 hills	May 7.....	65	July 11 to Oct. 6..	93
Winter squash....	24 hills	May 7.....	163	After Oct. 17....	330 lb.
Sweet corn:					
Mammoth White					
Cory.....	½	April 30....	75	July 14 to Aug. 2.	14¾ doz.
Chicago Market....	½	April 30....	90	July 29 to Aug. 9.	14 doz.
Stowell's Evergreen.	½	May 7.....	95	Aug. 10 to 26....	9½ doz.
Country Gentleman..	½	May 7.....	105	Aug. 20 to Sept. 5	9 doz.
Tomatoes:					
Freedom.....	¼	May 7.....			
Ripe fruit.....			70	July 16 to Oct. 17	6.85 bu.
Green fruit.....				Oct. 17.....	3¼ bu.
Stone.....	½	May 7.....			
Ripe fruit.....			76	July 22 to Oct. 17	17.95 bu.
Green fruit.....				Oct. 17.....	4¼ bu.
Cucumbers.....	24 hills	May 7.....			
Slicing.....			76	July 22 to Sept. 5	387
Pickles.....				Sept. 5 to 15....	76
Lima beans.....	½	April 30....	95	Aug. 3 to Oct. 12.	13¾ pecks
Muskmelons:					
Netted Gem.....	32 hills	May 7.....	102	Aug. 17 to Sept. 28	435¾ lb.
Beck's Strawberry....	32 hills	May 7.....	105	Aug. 20 to Sept. 27	749½ lb.
Watermelons:					
Cole's Early.....	44 hills	May 7.....	105	Aug. 20 to Oct. 3.	880¼ lb.
Halbert Honey.....	32 hills	May 7.....	111	Sept. 2 to 29....	1183 lb.
Egg plant.....	⅛	May 28....	95	Aug. 31 to Oct. 19	41 fruits
Peppers.....	⅛	May 28....	105	Sept. 10 to Oct. 12	3¾ pecks
Parsnips.....	⅛	April 16....	186	After Oct. 19....	3.4 bu.
Salsify.....	⅓	April 16....	186	After Oct. 19....	1.2 bu.
Late beets.....	½	April 30....	172	After Oct. 19....	8.9 bu.
Late carrots.....	½	April 30....	172	After Oct. 19....	7 bu.
Late turnips.....	2½	Aug. 10....	77	After Oct. 26....	2.6 bu.
Winter radishes.....	½	Aug. 10....	77	After Oct. 26....	3.1 bu.
Celery.....	½	July 6.....	144	After Nov. 28....	20 doz.

TABLE 13.—SUMMARY OF PRODUCTS OF FARMER'S GARDEN AND THEIR VALUE, 1904

	Period of use.	Total product.	Retail price.	Value of crop.
Onions:				
Green.....	April 30 to July 30..	36 doz.....	\$.05	\$ 1.80
Ripe.....	After Aug. 20.....	2 bu.....	.75	1.50
Asparagus.....	April 30 to June 11..	104½ lb.....	.05	5.23
Radishes:				
Earliest White...	May 19 to 31.....	47 doz.....	.02½	1.17
Cincinnati Market	May 26 to June 30..	56 doz.....	.05	2.80
Lettuce.....	May 26 to July 5....	22½ bskts.....	.10	2.25
Turnip greens.....	May 26 to June 2....	5 bskts.....	.10	.50
Rhubarb.....	May 27 to June 14..	34½ lb.....	.04	1.38
Spinach.....	May 31 to June 28..	21 bskts.....	.10	2.10
Peas.....	June 11 to July 5....	11½ pks.....	.30	3.45
Beet greens.....	June 14 to 23.....	8 bskts.....	.10	.80
Early turnips.....	June 21 to July 5....	10 doz.....	.05	.50
Cabbage:				
Early varieties...	June 27 to Sept. 28..	108 heads.....	.05	5.40
Autumn King.....	After Nov. 5.....			
Good heads.....		24.....	.03	.72
Small heads....		24.....	.01	.24
String beans.....	July 2 to Oct. 19....	16¼ pks.....	.30	4.88
Early potatoes....	July 4 to 22.....	4¾ bu.....	1.00	4.63
Parsley.....	July 4 to Nov. 12..	Supply.....		
Cauliflower:				
Early.....	July 4 to Aug. 10..	25 heads.....	.10	2.50
Late.....	Nov. 5 to 12.....	16 heads.....	.05	.80
Early carrots.....	July 7 to Oct. 19....	24 doz.....	.05	1.20
Early beets.....	July 11 to Oct. 19..	15½ doz.....	.10	1.55
Squash:				
Summer.....	July 11 to Oct. 6....	93.....	.02½	2.33
Winter.....	After Oct. 17.....	330 lb.....	.01½	4.95
Sweet corn.....	July 14 to Sept. 5..	47¼ doz.....	.10	4.73
Tomatoes:				
Ripe.....	July 16 to Oct. 17..	24.8 bu.....	.60	14.88
Green.....	Oct. 17.....	7.5 bu.....	.40	3.00
Cucumbers:				
Slicing.....	July 22 to Sept. 5..	387.....	.01	3.87
Pickles.....	Sept. 5 to 15.....	76.....	.00¼	.19
Lima beans.....	Aug. 3 to Oct. 12..	13¾ pks.....	.30	4.13
Muskmelons.....	Aug. 17 to Sept. 28..	1185¼ lb.....	.01½	17.78
Watermelons.....	Aug. 20 to Oct. 3....	2063¼ lb.....	.00¾	15.47
Egg plant.....	Aug. 31 to Oct. 19..	41 fruits.....	.05	2.05
Peppers.....	Sept. 10 to Oct. 12..	3¾ pks.....	.25	.94
Parsnips.....	After Oct. 19.....	3 4 bu.....	.50	1.70
Salsify.....	After Oct. 19.....	1.2 bu.....	.50	.60
Late beets.....	After Oct. 19.....	8.9 bu.....	.50	4.45
Late carrots.....	After Oct. 19.....	7 bu.....	.50	3.50
Late turnips.....	After Oct. 26.....	2.6 bu.....	.50	1.30
Winter radishes...	After Oct. 26.....	3.1 bu.....	.50	1.55
Celery.....	After Nov. 28.....	20 doz.....	.20	4.00
				\$136.81

The accompanying diagram graphically represents the succession of vegetables through the season.

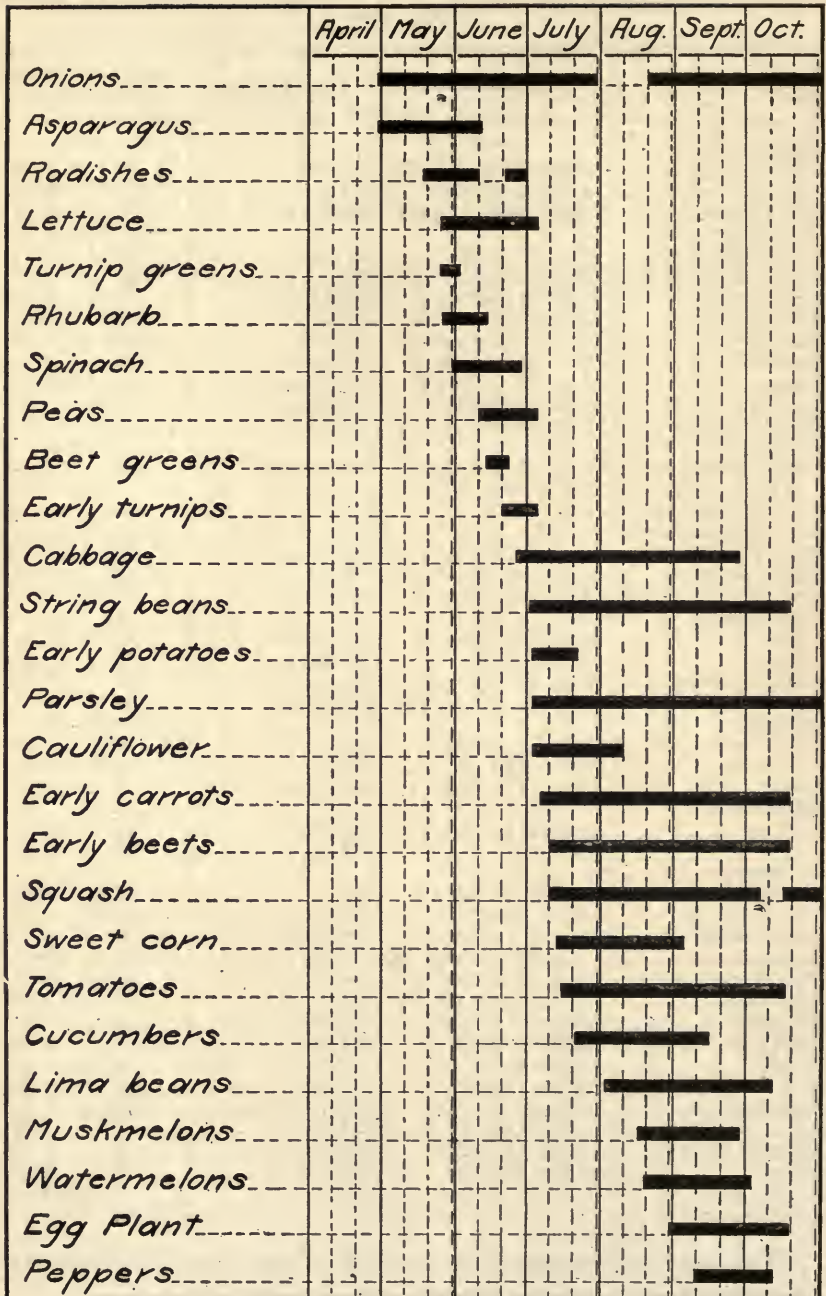


DIAGRAM SHOWING SUCCESSION OF VEGETABLES IN 1904.

PROFITS

The expenses of maintaining the garden in 1904 were as follows:

Seeds.....	\$ 3.49
Insecticides.....	1.00
Labor.....	23.24
Total.....	\$27.73

The total value of the products of the garden was \$136.81. The profits from the half-acre were, therefore, \$111.08. Thus it will be seen that while the garden was maintained at less expense than in any other year, the value of the products was greater than ever before. This may have been due partially to the cumulative effect of heavy manuring and the favorableness of the season, but was probably due fully as much to well directed efforts, thorough tillage, and special attention at critical times.

SUMMARY OF LABOR AND PROFITS FOR THE FIVE YEARS

In order to show in condensed form the various items of labor for the five years, and to indicate the variation in the same item from year to year, Table 14 is introduced.

TABLE 14.—SUMMARY OF LABOR ON FARMER'S GARDEN, 1900-1904, BY HOURS

	1900	1901	1902	1903	1904
Work with team:					
Hauling and spreading manure.....	20	9	27	22	25
Plowing, harrowing, etc.. .. .	7½	11½	6¾	7½	6¼
Banking celery.....					½
Clearing land after crops.					½
Total team work.....	27½	20½	33¾	29½	32¼
Work with one horse:					
Fitting land for planting.....	1½	8	3	1¾	1½
Cultivating.....	10	14½	15½	11¼	8
Spraying.....		8	2¼	5¾	4¼
Watering celery... ..		5½			
Total work with one horse.....	11½	36	20¾	18¾	13¾
Hand labor:					
Spreading manure.....		8	27		17½
Planting.....	31¼	37¼	18½	24	18¾
Hoing and other hand tillage.....	43¾	45			
Cultivating with wheel hoe.....			10¾	5	8
Hand hoing.....			6½	22¾	15¾
Weeding and thinning.....	23½	6½	6½	6¾	4¾
Fighting insects.....	6½	12¼	4¾	6½	8
Training tomatoes.....	6½	9½	9½	5¾	5
Clearing land after crops.....	3	5	7¾	5½	3
Hand work on celery.....	10	5½	5	10½	6¼
Total hand labor.....	124½	129	96	86¾	86½

A summary of the expenses for the five years is given in Table 15. The expense for seeds and plants was considerably greater the first year than in any succeeding year, because asparagus roots, etc., were purchased that year. All items except the expense for insecticides are based upon accurate accounts. No insecticides were bought especially for use in the "farmer's garden," but a rough account was kept of the quantities used and their values estimated.

TABLE 15.—SUMMARY OF EXPENSES FOR THE FIVE YEARS

	1900	1901	1902	1903	1904	Average
Seeds and plants....	\$ 5.45	\$ 4.08	\$ 4.18	\$ 3.66	\$ 3.49	\$ 4.18
Insecticides.....	.50	1.50	.50	1.00	1.00	.90
Labor....	26.11	29.48	26.28	23.44	23.24	25.71
Total expenses..	\$32.06	\$35.06	\$30.96	\$28.10	\$27.73	\$30.78

Table 16 shows the value of the products and the net profits for each year, together with the average value and profits for the five years. It will be seen that the average value of the products from the half-acre was \$105.23 per year, and that the average net profits were \$74.85 per year.

TABLE 16.—SUMMARY OF PROFITS FROM THE HALF-ACRE FOR FIVE YEARS

	1900	1901	1902	1903	1904	Average
Value of products ..	\$ 83.84	\$ 68.47	\$124.31	\$112.73	\$136.81	\$105.23
Total expense	32.06	35.06	30.96	28.10	27.73	30.78
Net profits	\$ 51.78	\$ 33.41	\$ 93.35	\$ 84.63	\$111.08	\$ 74.85

PURCHASE OF SEEDS

Each year a new lot of seeds was purchased especially for the "farmer's garden." No seeds were saved over from one year to the next, nor were any home grown seeds used except potatoes two years and sweet potatoes one year. During the last two years an attempt was made to reduce the expense for seeds by discarding a few varieties which did not add materially to the assortment of vegetables, and by reducing the quantity purchased, in certain cases.

The bill for seeds purchased in 1904, and which proved ample for planting the garden that year, is given below. Many of the varieties in the list had been used throughout the four preceding years, and practically all had been used at least two years. Each

variety was selected on account of its particular fitness for aiding in the maintaining of a continuous succession of high quality vegetables through the season. There is not a variety in the list incapable of producing satisfactory results in point of yield and quality when properly grown on the black prairie soil of Central Illinois. A few of the varieties were selected on account of their extreme earliness so that the season might be prolonged by beginning earlier, but for the most part the varieties are those which continue to produce an edible product through a comparatively long season. All are of superior quality for their respective classes.

SEEDS PURCHASED IN 1904

1 pt.	Beans, Stringless Green Pod	\$0 .10
½ pt.	Beans, Improved Henderson Bush Lima.....	.10
1 oz.	Beet, Crosby's Egyptian .....	.05
1 oz.	Beet, Long Smooth Blood Red .....	.05
1 pkt.	Cabbage, Select Jersey Wakefield .....	.05
1 pkt.	Cabbage, Market Gardener's No. 2.....	.10
1 pkt.	Cabbage, Autumn King .....	.05
1 pkt.	Carrot, Early Scarlet Horn .....	.05
1 pkt.	Carrot, Chantenay .....	.05
1 pkt.	(half size) Cauliflower, Burpee's Dry Weather.....	.15
1 pkt.	Celery, Giant Pascal .....	.05
1 pkt.	Sweet Corn, Mammoth White Cory .....	.05
1 pkt.	Sweet Corn, Chicago Market .....	.05
1 pkt.	Sweet Corn, Stowell's Evergreen .....	.05
1 pkt.	Sweet Corn, Country Gentleman .....	.05
1 oz.	Cucumber, Emerald .....	.15
1 pkt.	Egg Plant, Black Beauty .....	.10
1 pkt.	Lettuce, Hanson .....	.05
1 oz.	Muskmelon, Burpee's Netted Gem .....	.06
1 oz.	Muskmelon, Beck's Strawberry .....	.10
1 oz.	Watermelon, Cole's Early .....	.06
1 oz.	Watermelon, Halbert Honey .....	.10
1 oz.	Onion, Australian Brown .....	.07
1 qt.	Onion Sets, Yellow Bottom .....	.20
1 pkt.	Parsley, Extra Dark Moss Curled .....	.05
1 pkt.	Parsnip, Improved Guernsey .....	.05
1 pt.	Peas, Barnard's Leader .....	.10
1 qt.	Peas, Nott's Excelsior .....	.30
1 pkt.	Pepper, Ruby King .....	.05
½ bu.	Potatoes, Early Ohio .....	.75
1 oz.	Radish, Earliest White .....	.06
1 oz.	Radish, Cincinnati Market .....	.06
1 pkt.	Radish, White Chinese (winter) .....	.05
1 pkt.	Salsify, Sandwich Island Mammoth .....	.05
1 oz.	Spinach, Long Standing .....	.05
1 pkt.	Squash, Giant Summer Crookneck .....	.05
1 oz.	Squash, Faxon .....	.07
1 pkt.	Tomato, Freedom .....	.05
1 pkt.	Tomato, Stone .....	.05
1 oz.	Turnip, Purple Top Strap Leaf .....	.05
	Postage .....	.16
		<hr/>
	Discount on packets	\$3.89
		.40
	Net cost.....	<hr/> \$3.49

Not all the seeds were purchased from one firm, because no one seedsman listed all of the varieties desired, and because the expense for transportation could be reduced by purchasing some of the heavier seeds from a local dealer.

CONCLUSIONS

1. There is little danger of making the soil too rich for a vegetable garden, for although a total of ninety-eight loads of manure were applied to the half-acre during the five years, none of the vegetables at any time suffered in point of productiveness by reason of too rampant a vegetative growth.

2. The use of hand tools is unnecessary in the preparation of a seed bed if the soil is worked at the proper time.

3. The labor of hand weeding may be reduced to a minimum by planting in freshly worked soil only, tilling close to the rows early in the season, and permitting no weeds to ripen their seed.

4. The use of a wheel hoe saves labor in the care of a garden, even when much of the tillage is to be done with a horse.

5. The expense for labor in caring for a garden adequate to supply the needs of an ordinary family need not exceed \$30.00 a year.

6. The retail value of the vegetables which may be grown in a carefully planned and well kept garden greatly exceeds the cost of their production.

EXPLANATION OF PLATES

Plates 1, 2, 3, and 4 represent views of the "farmer's garden" taken at various times during 1902. All were taken from the south end of the area, looking north, but not all were taken from exactly the same location, so that the same row is not in the same relative position in every picture.

Plate 1. This view was taken June 13th. At the extreme right, the broad leaves of the rhubarb in row 1 may be seen, as well as the fluffy tops of the asparagus at the north end of the same row. The next conspicuous objects are the few remaining plants of spinach at the south end of row 5. The salsify, onions and early carrots between the rhubarb and spinach do not show very distinctly. Then follow the two rows of early potatoes, which hide from view the peas in row 6. The second planting of peas, at the south end of row 9, is immediately west of the potatoes, and the early cabbage can be seen in the distance at the north end of the same row. In the next two rows appear the string beans and early sweet corn. The late carrots, immediately west of the corn, are so small that they can hardly be seen; but the cabbages in rows 13 and 14 are quite conspicuous. Beyond these are the tomatoes, with the stakes for their training. Between the tops of the stakes glimpses may be caught of the later planting of sweet corn, and the vine crops in hills.

Plate 2 is from a photograph taken August 11th. The rhubarb shows distinctly at the extreme right of the picture, almost overshadowing the salsify in row 2. The onions from row 3 have been pulled, and are curing on the ground. The early carrots show quite distinctly in row 4. West of these are the celery and corn, planted July 5th on the land previously occupied by spinach and peas. The apparently vacant space west of the corn was planted with turnips and winter radishes four days before the picture was taken. This strip was occupied earlier in the season by rows 8, 9, 10 and 11 of the original planting, and included early potatoes, early cabbage, cauliflower, peas, string beans and early corn. The late carrots, cabbage, and the tomatoes, now nearly to the tops of the stakes, appear west of this newly planted area.

Plate 3 is reproduced from a photograph taken September 6th. The rhubarb and salsify may be seen at the extreme right. However, the most conspicuous feature of the picture is the late field corn towering high above the celery it was planted to shade. West of the corn appear the four rows of turnips and winter radishes, with the late carrots, cabbage and tomatoes at the extreme left.

Plate 4. This view was taken October 16th, just before the harvesting of the root crops. The corn, which has been cut away to secure dirt for banking the celery, lies on the ground, to be placed on top of the celery ridge in case of a sudden freeze. The rhubarb and salsify, turnips, carrots, cabbage and tomatoes can be seen as in Plate 3.



PLATE 1. VIEW OF "FARMER'S GARDEN," JUNE 13, 1902.



PLATE 2. VIEW OF "FARMER'S GARDEN," AUGUST 11, 1902.



PLATE 3. VIEW OF "FARMER'S GARDEN," SEPTEMBER 6, 1902.

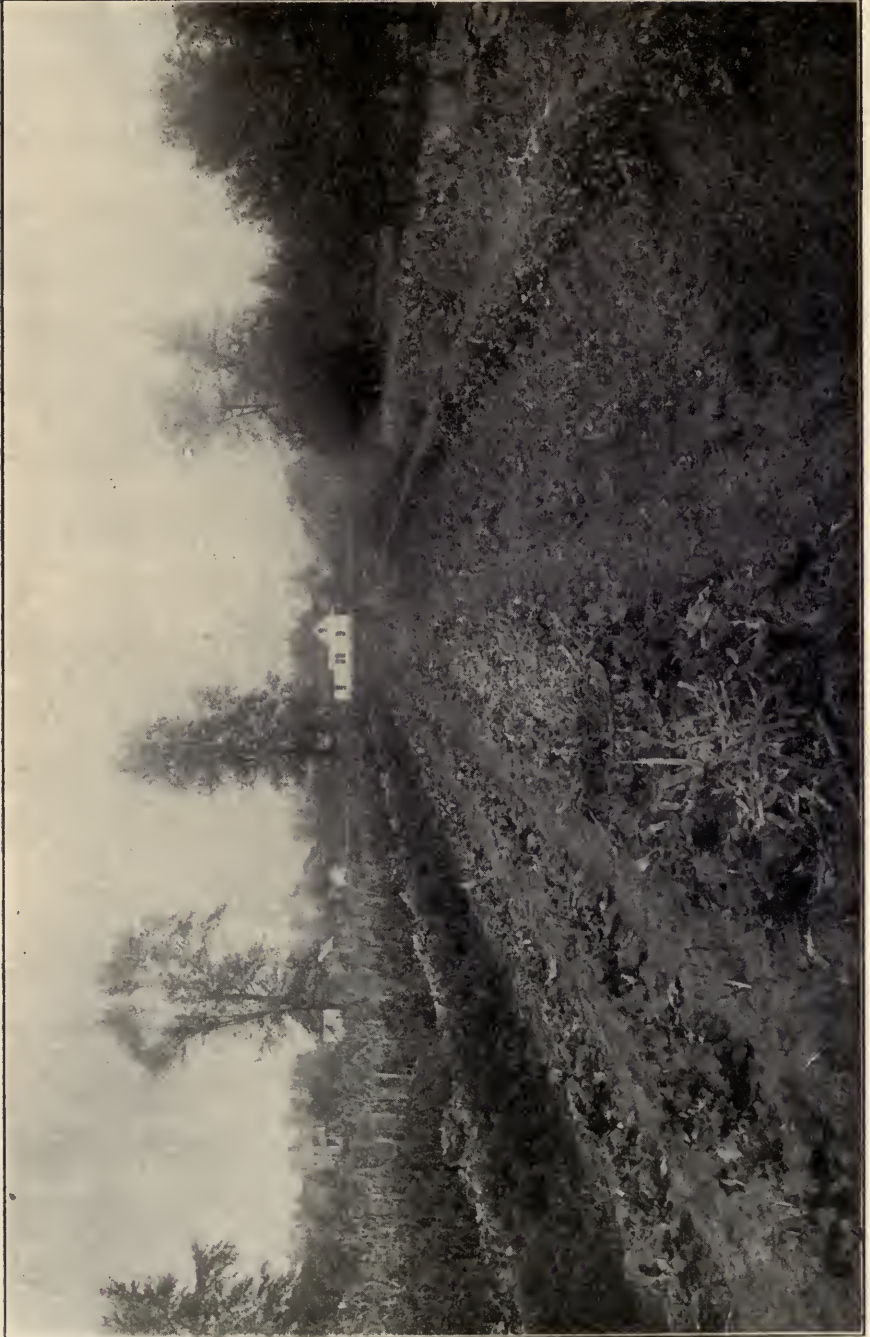


PLATE 4. VIEW OF "FARMER'S GARDEN," OCTOBER 16, 1902.















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