

UP-TO-DATE
TRUCK GROWING
IN THE SOUTH

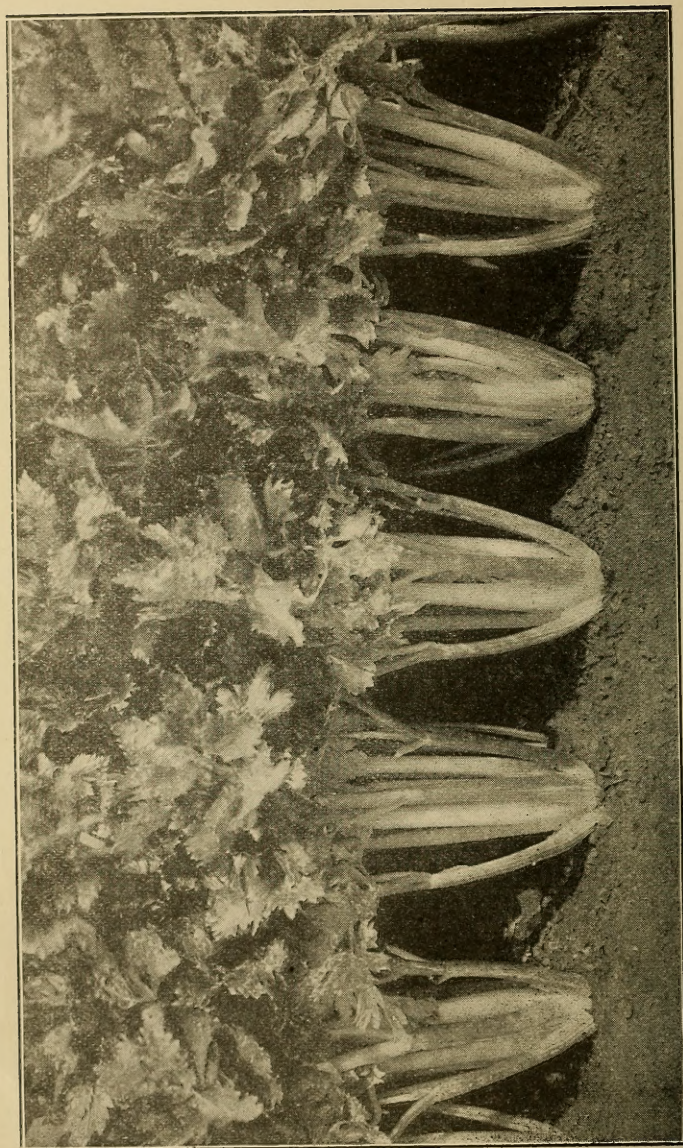


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A PEEP BETWEEN THE BOARDS.

Up-to-Date
Truck Growing
In the South



By J. R. DAVIS

Edited by

G. F. HUNNICUTT

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PUBLISHERS' PREFACE.

We call attention to the fact that Mr. Davis is a quiet, plain, straightforward writer. He makes no wonderful claims as to profits of the truck business as much depends on conditions. But if you are the *man*, and have the *land*, here is the plan.

Mr. Davis says that the knowledge portrayed in this book would have saved him thousands of dollars, if he had not had to acquire it by experience—that best but most costly of teachers. Though there is nothing sensational in these pages, a close study and careful practice of the directions here given will save you the waste of much time, energy and capital. Every fact portrayed to the most minor detail, by Mr. Davis is based on and has been substantiated by actual experience; he has made no statements from heresay, and has touched on no crops unless he has grown them with entire success. To make the work more complete, he has kindly allowed us to get a few articles from other sources, each of which is properly accredited.

Intensive farming is bound to come into its own, and we feel confident that this work will be welcomed by the many gardeners and small farmers in the Gulf and South Atlantic coast regions.

PREFACE.

In writing this book on "Southern Trucking," I desire to say that I am doing so mainly at the request of a number of my friends who are engaged in the business, and also who are prospective growers. I am persuaded to do so further, owing to the fact that there are no recent works on Southern gardening, and the trucking business has to keep up with the times as well as other enterprises. The writer does not wish to blow his own horn, but as there is no one else to do it for him in the present instance he begs pardon while he says a word or two regarding his fitness to do the work in hand. I have been engaged in the trucking business in the South for a period extending over twenty-five years, and have operated in three Southern States, but mainly in Florida. However having visited nearly all the trucking sections of the South, and many North and West, besides having visited frequently the principal markets of the United States and observed the methods of disposing of garden produce, I certainly feel that I can say something helpful to my brethren who are engaged in the business whether professional or amateur. But I am handling the subject purely from the standpoint of a practical and experienced trucker; scientific questions and theories, I leave to those who are better qualified to deal with them. However, I have tried to keep pace with these, and as far as they have proven to my satisfaction to be productive of good results, I have given my experience. There are some subjects of inter-

est to gardeners that I have not touched upon, not feeling that my information on these is full enough to justify me in handling them. But what I have said on the subject I am confident will be helpful to every one engaged in the business. The subject of agriculture is a broad one, and we have hardly started on the road to new discoveries. We are all beginners as it were and the swiftest line of progress lies in the comparison of our personal experience.

J. R. DAVIS.

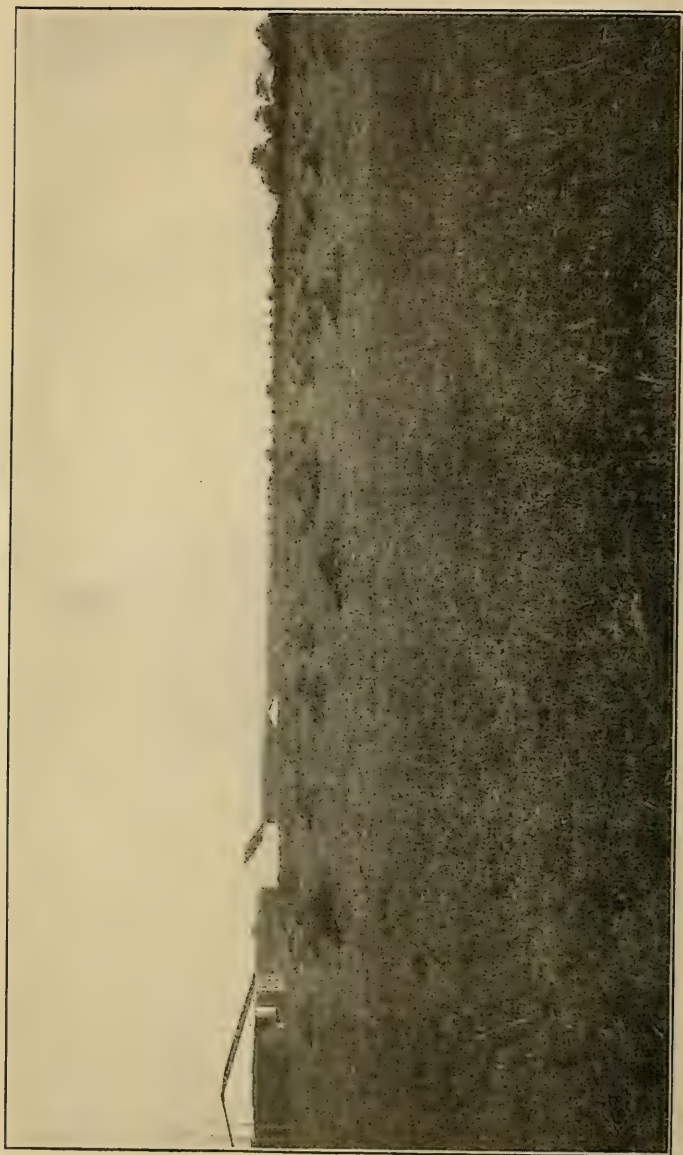
INTRODUCTION.

SOIL.

There are almost as many different kinds of soils in the South as there are varieties of vegetables grown. Some soils are suited to certain crops, and entirely unsuited to others. I shall endeavor to advise, as each crop is taken up, what class of soil is best adapted to that particular crop. In a general way, however, I will say while on this subject, that for nearly all crops of vegetables it will be found highly profitable to have a deep rich soil, well supplied always with an abundance of vegetable matter. I can not lay too much stress on the subject of soil fertility. The ground should be the farmer's bank, and he can rest assured that no bank will pay him such interest on judicious deposits. There is no truer saying than "Feed the soil and it will feed you." It may be said of clay soils that they should be broken deeply, and subsoiled; and should be turned deeper each year, but care should be taken not to turn deeply at first. In fact no soil, however sandy, should be turned deeply at first. The first turning should not be over four inches, and the depth might increase yearly by one inch, until a depth of six or seven inches is reached.

SOIL RENOVATORS.

This is a subject of vital importance to every tiller of the soil, for no matter what crop he grows, vegetable matter or humus must be supplied in all soils to maintain fer-



PEAVINE STUBBLE LEAVES LAND IN SOME SHAPE FOR TRUCK.

tility. This can be done most economically, from turning under one of the leguminous crops: such as peas, beans, butterbeans, peanuts, clover, vetch. It should be borne in mind, however, that in the South no crop of vegetables should be plowed under until well matured—in fact turning should not be commenced in any Southern State until October 1st, unless the crop be mowed down and allowed to lay for ten days. If this be done the turning may be done sooner. Turning under green crops in hot weather has proven to be detrimental to the soil. There is no crop that improves land so much as velvet beans, but they require a long growing season, and can hardly be recommended for latitudes north of Middle Georgia. They are valuable also for stock, as they produce large crops of beans, which are fine food for hogs and cattle. They can not be turned under until about three weeks after being killed by frost, when the vines begin to rot and get brittle. A good sulky turning plow with large rolling coulter is the implement to be used for turning velvet beans, and the work is done more easily about nine o'clock in the morning, after the dew has dried off of the vines, causing them to lose their toughness. This precaution however, may not be necessary in stiff clay soil. Every crop, whether field or garden, should be followed by one of the soil renovators above named. These crops gather nitrogen from the atmosphere and store it in the soil, besides improving the mechanical condition of the land. It may be said further that, in addition to the plant food obtained through their agency, it has been recently discovered by the department of agriculture of the United States, that cowpeas when following other crops have the power of

neutralizing poisonous excreta, produced by the crop preceding them; and it may be possible that the other leguminous crops referred to, produce the same results. In any case, we know from long experience and observation, that the soil improving properties of these leguminous crops is so marked that we can not afford to dispense with them. If cowpeas are used for the purpose of soil renovation, one should know whether the soil is infected with root knot. If this minute insect is present in the soil, the iron pea only should be planted, as it is the only variety that has proven immune to this insect. In fact it is my preference of varieties anyway. It is a good variety for hay, growing until frost, although it is a shy bearer.

HAY.

As the trucker must have hay, it is proper that I should say a few words on this subject. No better hay than peavine hay can be made by the Southern farmer; but unless it is first-class and the leaves retained, and free from mould, it is not worth saving. In order to do this, it must not be allowed to get wet after it has been cut and wilted. I have tested nearly all methods I have ever heard of, and the only one I have ever found to be purely productive of a first-class article of peavine hay, is one of my own origination, and while the cost of saving is more than in ordinary methods, the quality of the product will justify the additional expense. A shed of the following dimensions will cure enough hay for four or five head of horses, and if a smaller number is kept, the shed may be reduced in size. Make an open shed 16x32 feet, using

five posts on each side; cut posts 15 feet long, and put them in the ground four feet deep; nail 2x6 planks across from post to post, beginning three feet from the top, and leave a space of about three feet between joists. Then put strips about $1\frac{1}{2} \times 1\frac{1}{2}$ lengthways, resting on the joists, allowing a space of 12 inches between the strips. Cover the shed so as to exclude rain, and leave the sides and the ends open. After the vines have matured, cut them after allowing the dew to dry, and allow them to lay in the field five or six hours after cutting. Haul up and scatter on racks, the same day cut, not allowing them to be wet with rain or dew. They can be piled two and a half feet deep on the racks, being careful to leave space of six inches between racks, and not to pack the hay in putting it up. This finishes the job, and in six days you have nice sweet hay, well cured, with the leaves on. Whether it rains or not, after six days the hay can be baled or stored away and the racks refilled. Other methods are good if you have fair weather, but one hard rain will spoil the hay, causing it to mould and the leaves to drop. Beggar weed makes very fine, sweet hay, but must be cured without rain; and it should be mowed when about a foot high, in order that suckers may put out, and to make the stems more numerous and smaller. This hay, however, lies very close, and can not be well cured by the plan just described.

FERTILIZERS.

This is a subject well deserving the careful consideration of every tiller of the soil, and more especially the trucker, who requires a soil high in fertility, and capable

of producing large crops of first-class quality. Quality as well as quantity depend, to a large extent, upon abundance of plant food ever ready in the soil. In some sections commercial fertilizer has scarcely had an introduction to the gardeners, and stable manure is the only plant food ever used. This is a great mistake. There is no better manure than stable manure, so far as it goes, but it is incomplete ration, and in all cases should be supplemented with potash and phosphoric acid. A limited quantity of stable manure is advisable for any and all soils, where the price is reasonable; but it will hardly pay to use in any quantity where the price is above two dollars per two-horse load, delivered in the field. Its value is based not only on its plant food contents, but aside from this it has the power of improving the mechanical condition of the soil, and supplying nitrogen-producing bacteria. However it is not advisable to use it too liberally on sandy soil, as it has a tendency to cause the land to dry out, and renders it thirsty. Care should be taken to avoid manure which contains seeds of plants which are objectionable such as weeds, crab grass, etc. Broadcasting is advisable in applying stable manure, as it brings the manure more thoroughly into contact with the soil, and causes less drying out of the lands. Commercial fertilizers are little understood by the farming public in general, and they need to be better educated along this line. My experience in the home-mixing of commercial fertilizers has been highly satisfactory, and the best crops I have ever grown have been produced with my own mixtures. While I know that I am antagonizing the interests of fertilizer manufactures by advocating home mixtures, I wish

to say I am writing this book in the interest of truck growers and propose to give my experience and ideas on this. Ready mixed goods are sold everywhere on time and agricultural chemicals are strictly cash. The reason for this should be obvious to every thinking mind. The fact is, that on mixed goods the profit is large and on un-mixed it is small. Mixing can be done with a hoe for fifty cents per ton and you know what you have when it is mixed. Besides you are saving five to ten dollars per ton by doing your own mixing. You are buying a pig in the bag when you buy a ton of mixed fertilizer; there is not living the chemist who can tell you what you are buying. The fertilizer manufacturer does not tell you what you are buying; he says "made from dried blood, tankage, nitrate of soda, ground bone and sulphate of potash." He does not say how much of each ingredient is used in the mixtures. It matters not whether the home mixtures fit the formula exactly and while it may not be quite so exact as the machine mixed goods you will surely get the results provided the ingredients are purchased of a reliable dealer. Besides you have the privilege of having analysis made free of charge in most States; every gardener should avail himself of this privilege. In all mixture some organic matter should be used, be the quantity ever so small: either blood, blood and bone, ground fish, cottonseed meal, or linseed-meal. This is for the purpose of supplying to the soil micro-organisms, which will facilitate nitrification. The kind of organic material to be used should depend upon the market value. Of the kinds named above, I prefer cottonseed-meal. It must, however, be borne in mind, that when the percentage of am-

monia is largely from organic sources, the fertilizer must be applied about two weeks in advance of planting or plant setting; and then should be well stirred before planting is done. If, however, the percentage of organic matter, is small, say one or two per cent. of ammonia derived from organic matter, fertilizer can be applied at the time of planting, provided not more than 800 pounds per acre be used, but it should be well stirred with the soil. Plants are often killed or nearly so by injudicious fertilizing. In all cases where plants or seeds are put in the furrow and fertilizing is done at planting time, a small ridge should be thrown up, with a double shovel; the fertilizer thrown upon the ridge; and the ridge opened with a bull tongue. This prevents the fertilizer from coming in direct contact with the roots of plants or seeds, and enables them to start off before being affected by the fertilizer. If the plants or seeds are put upon a ridge, mix the fertilizer thoroughly with the soil before planting. A good all-round fertilizer should analyze about 5 per cent. ammonia, 6 per cent. available phosphoric acid, and 5 per cent. potash. Some crops require a little more potash. Potatoes should have about 8 per cent. potash. In case of excessive rains, it is advisable to use a little nitrate of soda scattered broadcast over the ground. One to two hundred pounds per acre will be sufficient for most crops. The additional use of nitrate of soda is advisable on crops requiring luxuriant growth of foliage such as cabbage, lettuce, beets, celery, etc., and should be applied at intervals of about ten days or two weeks. It is unnecessary to plow in soda as the dew will dissolve it, and nothing is lost by evaporation. For all crops requiring more than 90 days to mature, two

or more applications of fertilizer should be made. This is more important on sandy soils.

AMMONIA.

As sources of ammonia, I would advise the following ingredients: Dried blood, blood and bone, cottonseed-meal and ground fish as organic, and sulphate of ammonia or nitrate of soda, as inorganic—one per cent. at least, of nitrate of soda should be used in all mixtures to start the plant.

POTASH.

While many use sulphate, at an additional cost of about five dollars per ton, I have used muriate for the past fifteen years, and I am sure the results justify my action. By using muriate there is a saving of about five dollars per ton, and I believe for most crops it is to be preferred to sulphate. Muriate does not make mealy potatoes like sulphate, but this difference rarely ever makes any difference in the market value of the product. Muriate has a tendency to sweetness, and sulphate to acidity, in some fruits and vegetables.

KAINIT.

Some recommend kainit as a source of potash. From an economical standpoint I would not recommend it, but it may have some merit as a preventer of rust in some crops. In this case it might be advisable.

FORMULA.

The following is a good all-round formula for truck crops generally:

800 lbs. cottonseed-meal, 8 per cent. ammonia.

200 lbs. nitrate of soda, 18 per cent. ammonia.

800 lbs. acid phosphate, 14 per cent. available phosphoric acid.

200 lbs. muriate of potash, 50 per cent. actual potash.

2,000

This gives 2,000 pounds, analyzing 5 per cent. ammonia, 5 3-10 per cent. available phosphoric acid, and 5 per cent. actual potash. If the mixture is wanted to use at planting time, the quantity of cottonseed-meal should be cut down, so as not to exceed 2 per cent. ammonia derived from that source, and the supplement of nitrate of soda increased to make about 5 per cent. of the total mixture. In case cottonseed-meal should be too high to justify its use, other organic materials should be used. It should be borne in mind that no commercial mixtures will have the full effect, unless the soil is kept well supplied with humus as heretofore directed. An excessive quantity of ammonia should never be used on tomatoes and eggplant, as it causes a rank vine growth and shedding of fruit. Its detrimental effect is marked more on these crops than others.

MIXING.

If mixing is to be done by hand, the different ingredients should be spread upon a smooth floor, taking care

to have the layers of each uniform, and as near the same thickness as possible. Then take a wide hoe and commence on one side of the pile and mix thoroughly. Then rake up the whole mass into a sharp pile. Turn the pile from one side until the whole has been turned, and then turn back in the opposite direction. Three turnings will suffice, and the cost will be about fifty cents per ton. Of course the mixing can not be done as accurately by hand as by machinery, but it is good enough for all practical purposes. If the grower should prefer having it mixed by machinery, he can give his formula and have his fertilizer dealer do so at a nominal cost. Some growers make their formulas and stipulate what materials are to be used in their manufacture, and have the dealers put them up for a specified sum. This plan is good if you are dealing with a reliable house. You can also purchase hand or power mixers at a low cost, or make one still cheaper.

ROTATION.

In order to produce good crops where the land is used continually, rotation of crops is of the utmost importance. One crop should not be followed by another of the same kind under any circumstances. Even where a summer crop of legumes, weeds, grass, or clover follow any crop of vegetables, it is better to let the succeeding crop of vegetables be different from the kind last planted, and as much different in character as possible. For instance a root crop should not follow a root crop nor a vine crop follow vine crop. Extended experience and observation



SHOWING SYSTEM OF "DOUBLE CROPPING"—NOTE YOUNG PLANT
ROWS BETWEEN LARGER ONES.

have demonstrated this. One important reason for rotation is to avoid disease. All plants are subject to some disease or diseases, and a continued planting of the same crop on the land causes the disease to increase, often rendering it impossible to grow that particular crop at all. This is especially true of tomatoes. Continued growing of tomatoes on the same land causes the land to become infested with blight, which it requires years to eradicate from the soil.

The prevention of disease is one of the most important features of successful gardening, and the best and surest way of preventing it is by judicious rotation. The old adage, "an ounce of prevention is worth a pound of cure," never finds a more appropriate place than here. I have little faith in growing vegetables successfully where the soil is infested with disease. It is sometimes advisable to spray for diseases, but the safest way of obviating them is to never let them get a hold on the land, and this can be best accomplished by proper crop rotation.

ROOT KNOT.

There is a minute insect, visible only through the microscope, which causes enlargement of roots of many crops; and where the soil is badly infested with it, it is very destructive to many vegetables. Some plants are entirely immune, others partially, while a great many succumb to it. It is a great pest, and once present in the soil it is very difficult to eradicate. I know of no practical way of dealing with it, except to starve it, and by planting for a number of years crops that are immune.

Machines that are used in France which pump bisulphide of carbon through the soil, but this method of eradication is necessarily very expensive, and hardly worth considering. Here the ounce of prevention attains its highest value. Perhaps the most universal means of distributing this great pest is through the agency of plants from seed beds which are infested. Plants coming from an infested seed bed should never be used, or preferably no ground that contains the smallest quantity of root knot should be used for seed beds. New ground should always be used, but if it is adjacent to infested fields, care should be taken that the new ground contains no weeds, as this insect will go from old fields to weeds that grow on virgin soil. Therefore before planting your seed bed, examine the weeds, if any are growing, and see that you have no root knot. Very few garden vegetables are immune to this insect, some however have great power of resistance, but never produce maximum crops where it is present. Sweet peppers and carrots are the only vegetables that I know to be entirely immune. Cabbage, cauliflower, lettuce, squash, eggplant, tomatoes, and beets have great power of resistance, and will produce good crops where the land is infested very badly, provided they are kept in a thrifty condition. Okra, cukes, cantaloupes and watermelons can scarcely be grown at all on infested land.

PLANT DISEASES.

Plant disease is nearly always caused by continuous cropping or unfavorable conditions. The gardener should always aim to exercise judicious rotation, keep the

soil well stirred, and avoid deep planting on wet lands or in cold weather. The lack of air in the soil and excessive moisture often bring on disease. Low lands should be well drained, and if they are ever liable to become soggy from excessive rains they should be tiled. Crops that are to be grown in winter or early spring should be planted on a slight ridge, and the surface of the ground should be frequently stirred. This lets in the air and sunshine to the roots of the plants and causes a healthy growth. It goes a long way toward warding off disease. Any check in the growth of a plant, no matter from what cause, invites disease, and furthermore renders the plant less capable of resistance. Plants should never be transplanted before a healthy growth is shown by the leaves. Plants that are stunted and have not begun a vigorous growth will show disease after being transplanted, where healthy plants would not. I have used nearly all the standard fungicides which are recommended for various plant diseases, and I must say that results rarely ever justify their use. In lieu of fungicides I would prescribe the harrow, drainage, irrigation, and nitrate of soda, as the best remedy for plant diseases in general. If disease is caused from continuous growth of a crop on one piece of land, I would advise a discontinuation of that crop until disease has disappeared. Certain diseases are peculiar to certain crops, and will not effect others, except in rare instances. For instance I have grown 1,000 crates per acre of egg-plant when it would not have produced ten crates per acre of tomatoes, although these plants belong to the same family. This land was badly infested with bacterial to mato blight and would not grow tomatoes.

INSECTS.

The amount of damages done by insects to the crops of the United States is something alarming, and the trucker comes in for his share of the damages rendered by the bug. There should be concert of action by truckers of the same community, with a view to reducing the number of injurious insects which would go far toward reducing to a minimum the ravages done to garden crops. By co-operation of the gardeners of the same community, there are many kinds of injurious insects that could be almost annihilated. The preservation of insect enemies, such as insectivorous birds, lizards, toads, wasps, etc., would go far toward solving the insect problem. However there are methods by which loss by insects may be reduced if persistently followed. Of all the insects which the gardener has to deal with perhaps the most destructive is the cut-worm. There are a number of different species of this worm, but their habits are practically the same, and all can be destroyed by the same methods. In warm climates such as Florida and the Southern portion of the Gulf States, this worm never hibernates, but is active all winter. This continuous increased activity of the worm calls for increased activity on the part of the trucker. In order to deal intelligently with this worm, some knowledge of its habits is necessary. The butterfly deposits the egg only where there is some green crop growing at the time of laying. In about a week the egg hatches and the worm starts out on his destructive career. He cuts down the plants and lives on the fat of the land until he is full grown. Then he puts on his overcoat and remains inactive for a while.

After a short while he emerges a full fledged butterfly again and sallies forth in search of pastures green and remember he never stops until he finds them. A knowledge of this habit is valuable to every trucker. If his land is broken and free from vegetation for three or four weeks before planting, he need have no fear of cut worms in latitudes where they do not hibernate, because that space of time allows the larvae to become grown, they enter the pupa state, then the butterfly, and go away in search of crops. However as it is not always practicable to get the land free of vegetation for the length of time required, other preventive or destructive measures are necessary. It is well to know what crops attract this worm, and the ones that do not. You will never find the worm on land where there grows a crop upon which they do not feed. The method of cleaning the ground before planting is therefore unnecessary in such cases. Most vegetables are inviting to worms with the following exceptions however, snap beans, squashes, carrots, turnips, ruta bagas. They are especially fond of beets and English peas. Summer crops of cowpeas afford inviting pastures for worms, but velvet beans, beggar weeds, corn, oats and sweet potatoes do not attract them. If it is not practicable to keep the land clean for several weeks before planting, where worms are liable to be plentiful, it is well to make two applications, broadcast, about a week apart, of the following mixture: One bushel wheat bran, two pounds paris green, one quart molasses mixed in enough water to wet the bran so as it will be thoroughly wet. Mix thoroughly and scatter one-half bushel per acre and repeat in about a week. If, however, you find, after setting your plants

that the worms are present in large numbers, go over immediately after setting, late in the afternoon, and drop by each plant a small lump of the mixture about the size of a pea. If the worms are not numerous enough to justify in doing this, but only a few hills cut down, before replanting drop a little of the mixture by each plant cut down, and replant the next day. One application will generally get all the worms which are hatched, but as others may be hatching it is well to repeat the dose in about a week. Frequently when there are no cutworms at planting time, the crop planted attracts the butterfly, and you have plenty of worms in a few weeks after setting. They are often destructive to fruit, especially tomatoes and eggplant. It is advisable in such cases, to go over the field about when the plants begin to set fruit, and drop a little of the mixture by each plant. Use the poisoned bran liberally, and you will get back five to ten dollars for every dollar spent.

Aphids are another pest causing great loss, to vine crops particularly. They appear on the under side of the leaf and suck the vitality out of the plant. They have a special liking for eggplant, and are most active during dry, cool weather. Usually they disappear after a few hard rains, and when the nights begin to grow warm. This class of insects can be handled only by mixtures which suffocate them by stopping the pores in their bodies through which they breathe. Rosin wash is perhaps the best, being cheap and harmless to plants. It will be necessary to apply the wash with a nozzle and elbow in order to reach the insect. The proper time to make the application is when the aphids first appear. If the work is

thorough, they may be stamped out with a minimum of spraying. They increase with marvelous rapidity, and unless they are checked at the outset destructive measures will be found very costly.

Practically all leaf eating insects can be handled satisfactorily with paris green. The best method of applying is with a blow-gun. Use the pure paris green, putting it on while the plants are wet with dew, or just after a rain. The paris green should be put on just heavy enough to be able to detect it when it comes out of the blow-gun. Some plants have foliage so tender that green can not be used. Snap beans and butterbeans will require arsenate of lead used as a spray, as this preparation is less caustic than paris green. However most garden vegetables are sufficiently resistant to the caustic effects of the paris green to admit of its use without injury to the foliage.

For worms boring into the tomato, thorough hand picking is the only practical remedy. These worms usually begin their work as soon as the fruit begins to set. The butterfly deposits the egg on the surface of the tomato, and as soon as the egg hatches the larva bores into the tomato, placing itself beyond the reach of poison. The field should be gone over carefully once a week for several weeks, and every tomato picked off that shows a worm hole. This fruit should be buried deeply in the ground and covered up. While the picking of wormy tomatoes is being done every scarred tomato should be taken off also, and you will find that you will have a crop of beautiful fine smooth fruit with very few culls. This method of hand-picking will be found profitable especially in tomato fields that are pruned and staked.

Grasshoppers sometimes do considerable damage, especially in early fall crops. The mixture recommended for cutworms is destructive to grasshoppers as well as worms, and in using it in the fall two birds may be killed with one stone. Grasshoppers are rarely ever troublesome in early spring.

SEEDS.

In dealing with this subject quality should be the only question considered. Buy your seeds only from houses that are known to be reliable beyond question. Poor seeds will often entail a loss amounting to a hundred sometimes a thousand times the value of the seed even if they show good vitality. Perhaps the safest and most economical rule is to get in touch with reliable growers and buy direct from the grower. Communities can bunch their orders and get their seeds at wholesale by this plan. In buying potatoes, it is advisable, if possible, to have the seed fields inspected, and get seeds free from blight. This disease has been carried over the entire South through the agency of infected seed and no doubt the yields are materially reduced on account of its prevalence. Most seeds are just as good grown in the South as Northern grown, and better for certain plants. The following seeds are recommended to be grown in the South: Watermelons, cucumbers, okra, sweet peppers, eggplant, and squash. However it is well to get Northern grown seed every few years, with which to grow your seed stock. For fall crops of potatoes, the small Southern grown seed matured in early summer is recommended, and the potato should be



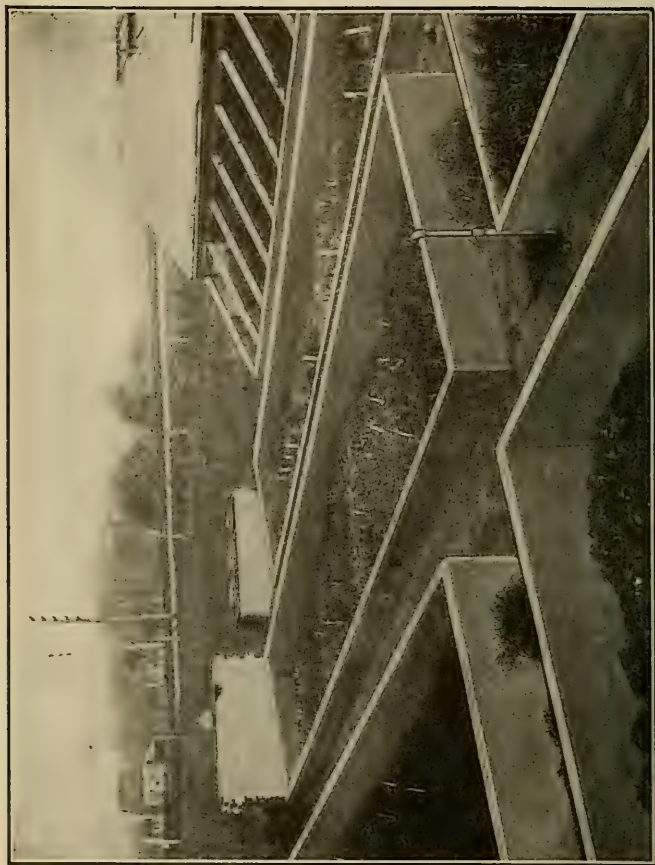
A HOT HOUSE PAYS FOR ITSELF IN A FEW YEARS ON THE TRUCK
FARM.

planted whole. Potatoes should be dug and dried out for several months before planting, to insure prompt germination. It is well to test seeds before planting, especially if you have any doubt of their vitality. Some seeds require a high temperature to germinate—such are peppers and eggplant. Most seeds however will germinate at a temperature of 80 degrees. A good and convenient way of testing seeds, is to take a few bushels of stable manure and dampen it, and put your seeds in a wet cloth and place in the centre of the manure heap. If the seeds are good they will sprout in a few days. Another way is to plant shallow in a small box containing soil, and cover over with a pane of window glass and place in the sunshine. By this plan you can germinate most seeds any-time in winter, when the temperature does not fall below 35 degrees at night.

SEED BEDS.

For Florida and the lower part of the Gulf States, hot beds strictly speaking, are rarely necessary. For sections further north, however, artificial heat is required. In preparing hot beds I will say that there are better authorities on the subject, but for the amateur the following instructions will be found useful. If sash are to be used, the bed should be as wide as the sash is long, and made as near air-tight as possible and built sloping toward the South. The northern sides being of inch boards about 18 inches in height and ten inches for the south side. Take out about three inches of the top soil, place it on one side of the bed, then dig out six inches deeper, placing this soil

on the north side of the bed and banking it up against the boards, after the latter are placed in position. Put in the bottom of the bed six inches of fresh stable manure and wet it thoroughly, tramping it down after wetting. In about a week fork this over, wetting again. Then place on this manure about three inches of surface soil, pack and rake off smoothly. Then sow the seed and keep the soil sufficiently moist to insure germination. If covered with sash, the bed should be watched, and the temperature never allowed to go above 85 degrees. A thermometer should be kept inside, and the sash raised when the temperature goes above 80. Sash are quite expensive, and may be dispensed with in most localities, by using a heavy domestic. Where cloth is used instead of sash, the bed should be eight feet wide and ten-inch boards north and south may be used, taking care to have the plank fit tight. Rake up the soil and bank it for six inches on the plank so as to exclude cold. Sew the domestics three widths together, in length from 80 to 100 feet. Then soak it in boiled linseed oil, wring it as dry as possible, and let it lay in the sun till dry. The bed should have pieces about two by two running across at intervals of eight feet nailed to each side, but coming one inch below the top of the boards. Then drive a stake underneath each cross piece about center of bed. Then lay small strips lengthwise the bed about two or three feet apart. Drive a six-penny nail every two feet into the top of each side, slanting outward. These nails are for the purpose of hooking on the sheet. The sheet can then be rolled on a round pole about ten feet long, and when wanted for a cover, roll out on the bed and hooked on. If



CONCRETE COLD FRAMES AT WESTCHESTER, N. Y.

this oiled sheet is kept on, it will produce almost as much heat as glass. The same precaution against high temperature should be used as in the case of sash. It is well to have a lot of grass or hay handy, and in case of severe cold, this should be piled on the sheet to the depth of twelve inches. By this method, I have saved the tenderest plants at a temperature of 17 degrees, and I believe it would save them as low as 14. Remember all plants need all the sunshine possible, and should be uncovered every two days and let them have sun. The ground should be frequently stirred also, in order to admit the air to the roots. The ground should be kept sufficiently moist to insure healthy growth, but in case of peppers and egg-plant, should be kept as dry as possible consistent with steady growth. These directions apply to the growing of tender plants and are not necessary in growing such plants as lettuce, cabbage, cauliflower, etc. In growing these the cloth may be used without oil, and a smaller quantity of stable manure used. In many sections this class of plants can be grown in the open, however with some risk of being killed. No plant while in this seed bed should be stimulated into rapid growth. You should endeavor to maintain a steady, healthy growth and keep the soil well stirred to insure an abundant root growth. If the plants should cease growing and become stunted, a light application of nitrate of soda and a little watering will put them in shape. In selecting the seed bed, care should be taken to destroy cutworms before planting, and it should not be planted on any land that has been planted in the same vegetables for several years previous. New soil is preferable.

TRANSPLANTING.

In all sections of the South, transplanting of tomatoes and eggplant into cold frames is advisable. It not only enables one to get in the crop earlier, but insures the plant against dying, and nearly always enables the grower to produce a better crop. It is not so important that sweet peppers be transplanted, as they produce a heavy root even where they are grown thick in the bed, but to insure good roots slow growth and well aerated soil are required. The distance given plants in transplanting depends upon the length of time plants are to remain in the bed, and whether they are to be taken up without loosing the dirt from their roots. In the latter case 5x5 is a good distance, and care should be taken to have all sticks and trash out of the transplanting bed, in order that the plants may be taken out in squares of dirt with a sharp butcher's knife. This method of transplanting, however, is quite expensive, except on a small scale. For field work I would give the following directions. Prepare your transplanting bed the same as for the seed bed, except leave out stable manure. Use about 1,000 pounds per acre of good vegetable fertilizer, using no organic matter. Fertilize broadcast and stir in well with cultivator, allowing the bed to remain ten days before transplanting, then open a furrow with a sharp pointed tool the entire length of the bed. Have furrows seven inches apart. Open one furrow, place plant roots in bottom of furrows two inches apart, and put in just enough dirt to cover the roots. Then pour in enough water to soak the roots well, covering them with wet dirt. Then fill the furrow and open another

and so on until the bed is finished. Care should be taken to use plenty of water. Then cover the bed with the sheet and allow it to remain for three days; after three days, allow sunshine at least every other day. One watering will do for tomatoes, but eggplant should be watered every two days for a week after setting. Remember never to transplant or set a plant in the field until the ground is warm. Never set when a cold spell is coming. You should keep in touch with the weather man. No plant will root at a low temperature, and if a cold spell should come on immediately after setting your plant will suffer because they are unable to take root. In the case of eggplant and peppers, at the transplanting, commencing a week afterward, take a long, sharp tool and keep the ground between the rows opened as deep as or deeper than the roots of the plants. This is not necessary with tomatoes. However the soil should be kept well stirred. When the plants are ready to go in the field, they may be taken up with a prong hoe in order to save all the roots possible. Other than tomatoes and eggplant it is hardly advisable to transplant in the bed.

SEED SOWING.

In sowing seed, to insure a stand, three things are required: Vitality of seed, proper temperature, and sufficient moisture. As before stated some seed require a higher temperature to germinate than others. You can plant deeper when the ground is warm than when cold, therefore no standard depth of planting can be given. When the ground is at a normal temperature, planting

should be about one-sixth of an inch for cabbage and similar seeds which sprout quickly. For larger seeds such as beans, about one inch. Beets however should be planted about two inches, and unless the ground is quite moist soak for twenty-four hours in warm water. Firming the soil after planting is important in all cases, unless irrigation is used in which case it is unnecessary. Firming the soil is for the purpose of retaining moisture until the seed sprouts and is all important.

Weeds are a curse to the trucker and precautionary measures should be taken to prevent their appearance in the garden. If any should appear they should be destroyed before their seeds mature. Polk weeds carry root knot, and other weeds harbor diseases, besides they are all destructive to growing crops, and ruin the hay crop which follows vegetables. Their presence in the garden is usually attributable to the use of stable manure, and their presence in stable manure is caused by the use of hay containing weed seeds. Therefore it is important that weeds be eliminated from the hay fields thereby nipping the evil in the bud.

BERMUDA GRASS.

While this is a very fine pasture grass in the South, and especially in the lower South, it is perhaps the greatest pest that ever appeared in the garden. Great care should be taken to have no seeds or roots of this grass in the stable manure, as like weeds, its presence in the field is nearly always chargeable to the use of manure containing grass seeds. When it is discovered that a few sprigs

of this grass have obtained a foothold in the garden, it should be taken up, carefully getting every root. If the field once becomes well set with it, the process of hand-digging becomes too expensive. Heavy shading in the summer has a tendency to reduce it, and nearly destroys it sometimes, but like the cat it has nine lives and will reappear next spring. I have discovered a way of entirely eradicating it at three plowings in dry weather. If your land is set with Bermuda never turn it with a turning plow until the grass has been destroyed. The best time to destroy it is in dry, warm weather. Take a common two-horse potato digger, with a shovel and fingers. (This costs about nine dollars.) Let it go deep, and run furrows about two feet apart, so as to uproot all the grass at first plowing. The fingers of the digger bring the grass to the top of the ground. In five days go over again, running $2\frac{1}{2}$ feet, so as to leave the field in ridges. Return again in five days and burst out these ridges, and if you have no rain during the plowing, and ground remains dry, you will have entirely destroyed the grass, if your field is free from stumps and roots, so that the plow can be kept in the ground. If you have roots and stumps hand-digging will have to be resorted to, to remove it from around stumps and roots. It is presumed that the averaged gardener will realize the economy of taking out all stumps and roots from the land to be used for trucking purposes.

NUT GRASS.

This is another pest, and when once is harder to destroy than Bermuda. This is due to the fact that it produces nuts which when matured can not be destroyed by

plowing. When it first appears be careful to remove every root and shoot underneath the ground, and take out all the nuts and burn or destroy them. If the land once becomes well set there is only one practical way of dealing with it, and that is to turn in a lot of hogs. They will in the course of a few months root out and destroy practically all the nuts. They should not be fed during the while, but allowed to hustle for their living. It is preferable to allow the porkers to work in winter, as summer rooting and exposure is very injurious to the soil.

IRRIGATION.

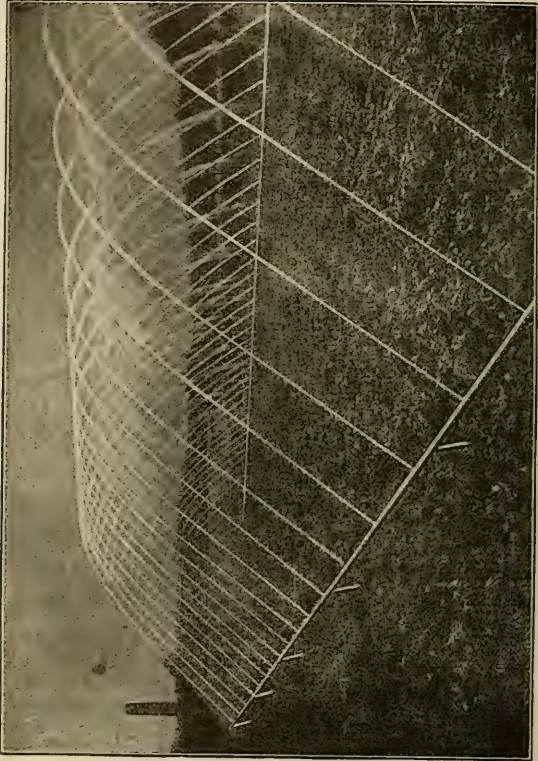
This is a subject that is now commanding the attention of intelligent gardeners everywhere. Even in Florida where the annual rainfall is over 50 inches, it is the best investment that a trucker can make, and every trucker who is able is putting in irrigation. On an average, the assurance of abundance of water when wanted about doubles the yield of vegetable crops and guarantees vegetables of first quality. The matter of quality is one of much importance. For instance, the writer, a few years ago, had under irrigation a patch of beans, which he sold right along for five dollars a bushel, while non-irrigated stock were bringing about one dollar and fifty cents. Besides the yield from the irrigated patch was perhaps four times as much per acre as the non-irrigated. The former during the driest weather were crisp and tender, while the latter were too tough to be marketable. Abundance of water frequently hasten the crop to maturity by several weeks, and consequently the product realizes a much bet-



SURFACE IRRIGATION.

ter price. There are three systems of irrigation used in gardening: First, running the water along the rows on the surface; second, sub-irrigation, which consists of carrying the water underneath the surface in porous tile; third, spraying the water over the surface by the use of pipe nozzles and pumps driven by steam or gasoline engines. While either system is far better than no irrigation, the first is to be recommended only to parties who are not able to install better systems. In using the first a uniform fall of three inches to the 100 feet is required, and a thorough wetting once a week should be made, and light harrowing should be done within a few days after watering. The second system has proven to be very satisfactory on land that is low, and requires draining, and where cheap artesian wells can be had, as no power is required to distribute the water, and the tile acts as drains during the wet weather. On all soils where cheap artesian flowing wells can not be had, or which do not require draining surface, irrigation or spraying is in all cases to be recommended. Of all the systems, the Skinner system made by the Skinner Irrigation Co., is by far the best. In fact I do not see where any material improvement can be made on this system. It consists of lines of small pipe, set upon posts overhead, fifty feet apart, with small brass nozzles, every four feet, in each line of pipe. The water is forced out through these small nozzles in the shape of fine spray, and never packs the ground. These lines of pipe can be turned at any angle, and by an ingenious turning device every pipe on a twenty-acre plant can be turned by simply moving a lever. By the use of a gasoline engine, a twenty-acre plant can be watered thoroughly and uni-

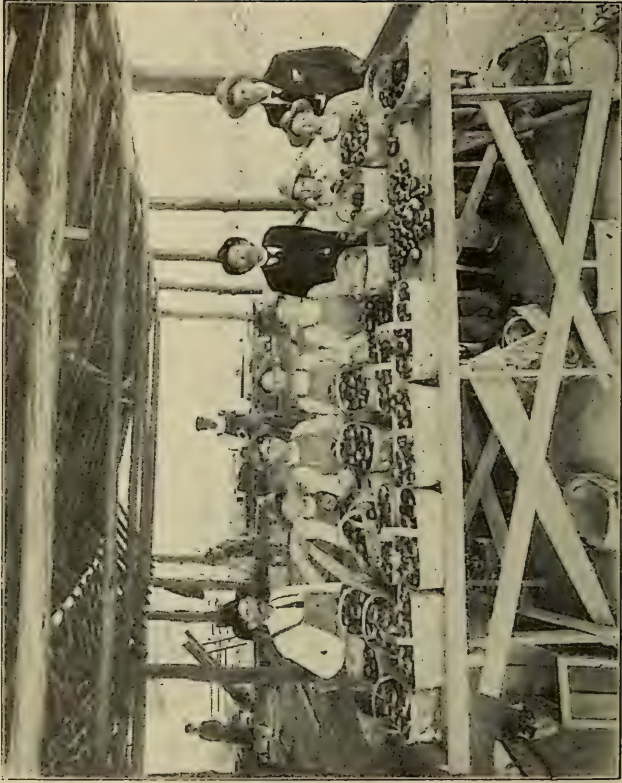
formly, at a cost of one hour of labor in addition to fuel cost. The writer now has twenty-nine acres of this system in operation, and has been putting in more of it each year. On each plot that has been installed, the first crop has paid more than twice the cost of the entire plant, including pipe, nozzles, fittings, installed complete, well, pump, engine, and piping for \$200.00 per acre. When no well has to be dug this cost can be reduced. Its advantages are first, economy of construction, from the fact that a small quantity of water is carried through the nozzles, and in consequence small pipe can be used; second, the light mist-like spray falls like a light rain, and does not pack the ground, making it unnecessary to cultivate after each watering. Third, uniformity of distribution of water. No other system of spray approaches it in this respect. Fourth, the protection against frost, afforded by wetting the ground just before frost, causing the closing of the soil pores, and the cessation of variation which produces frost. Fifth, economy of application of water. The gardener can with this system apply the water while he sits down after supper and reads his daily paper. (A visit to his engine about once per hour is all that is necessary.) Sixth, spraying for insects or disease can be done most economically and effectually by this method, and would require only twenty minutes to spray a twenty-acre field. In saying what I have about this system, I do not wish to be understood in all cases as placing it above the excellent system of sub-irrigation already mentioned. This is the system to be preferred in a low soil, and where cheap artesian wells can be had, and is being used with excellent results in many localities.



SKINNER SYSTEM OF IRRIGATION.

PACKING AND MARKETING.

A few general remarks will not be out of place on this subject. Every grower should have his private brand, and if his goods are honestly sorted and packed it will pay him. The writer has had many carloads of vegetables sold before they reach the market because his brand was known and buyers have confidence in his goods. All kinds of vegetables should be graded, and the fancy goods should be packed in the best possible manner, putting in grade goods should never be packed under this brand. After the vegetables are graded, the fancies particularly should be packed in the best popular manner, putting in enough to fill the crate so that it will appear full on arrival at destination. Further it should be made as attractive as possible, as appearance goes a long way in selling. If possible communities should get together and ship in car lots. Much is saved in freight, and the goods always arrive in better condition. The crates should be put in cars and nailed down with slats, allowing air spaces between each row of crates. The following vegetables require refrigeration: lettuce, beets, snap beans, English peas, celery, carrots, cauliflower, cantaloupes, and ripe tomatoes. Ventilated cars may be used for the following, if the weather is not too warm: cabbage, potatoes, squash, cucumbers, eggplant, peppers, tomatoes, but if weather is very warm, all of these will require ice except, perhaps, eggplant, green tomatoes and potatoes.



IN THE PACKING SHED.

TOMATOES.

To the market gardner this is the most important truck crop grown in the South, and in all probabilities the most profitable when judiciously grown and packed and marketed. The writer has more knowledge of, and experience with, this particular crop perhaps than any other. Twenty years ago this crop was grown to a very small extent in the South and scarcely at all for shipment. Now thousands of carloads are annually grown in the South for Northern use. The shipping season in extreme southern Florida begins in December and continues steadily all through winter. As the spring advances Southern shipments cease and the shipping time advances northward, until about July the fifth, when Jersey stock supplies the big Eastern markets.

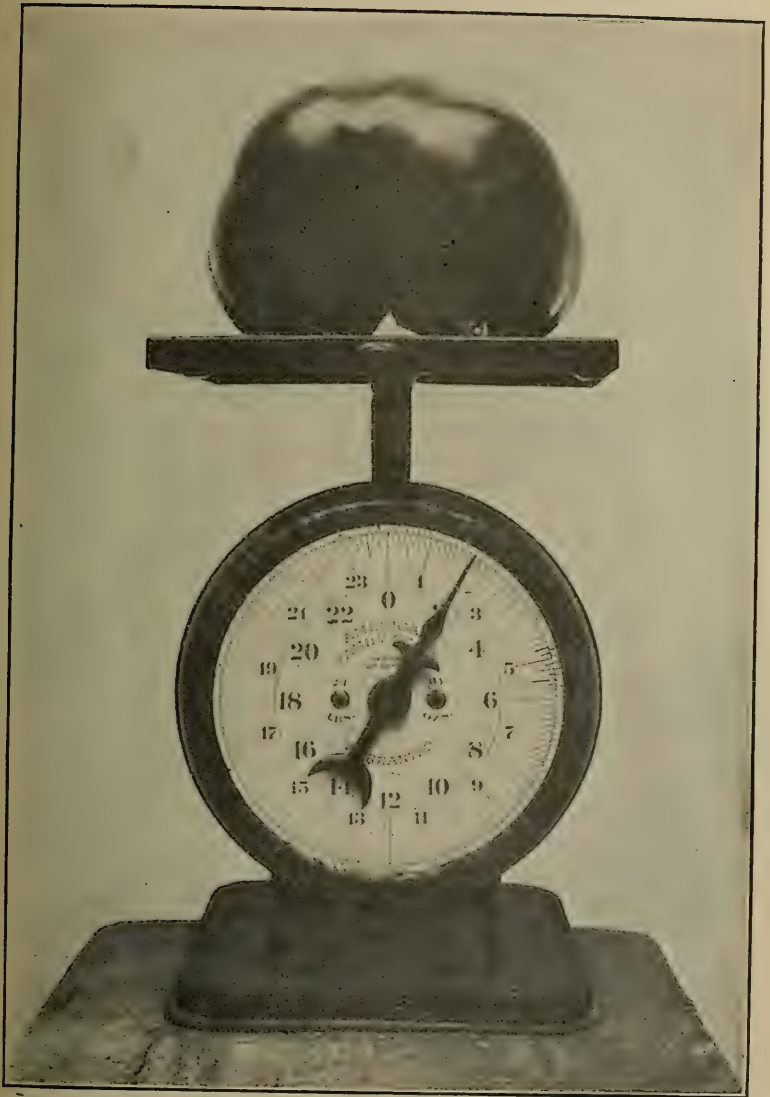
VARIETIES.

As shipping varieties only are to be considered in this work, I will name the following to be recommended for general truck growing: Paragon, Livingston's, Stone, Redfield Beauty, Globe. The Globe is a new variety that is giving excellent results, and is proving a favorite everywhere. For land that is effected with blight, Duke of York is the only variety to be recommended, in fact so far it is the only variety that has proven resistant to blight. For an extra early tomato where pruning is

adopted, the old Acme is by far the best variety. It surpasses them all in earliness and vigor, and the fruit commands a better price than any other variety. It is often quoted in the market from 25 cents to 50 cents above other varieties. It is a heavy fruiter, but in order to make fair-sized fruit, it must be pruned and topped when there are five bunches of fruit set.

ADDITIONAL ON THE SUBJECT OF TOMATOES.

Since this subject was disposed of there has come to light a new and valuable variety of tomato. In fact its virtues and superiority over other varieties are so loudly and unanimously acclaimed I feel that I should say something of my recent experience with and knowledge of it. This new tomato is the Globe. It was introduced several years ago and has been thoroughly tested all over Florida, and the writer being a grower of tomato plants for sale is in a position to know just what the trucking public thinks of it. Besides I have seen it grown and have grown a crop since this subject was closed. It is an early tomato, and a heavy early fruiter, setting nearly all the first fruits. I have frequently counted as many as six fruit on one bunch. It is well shaped and good size. But its chief merit is its hardiness. It is said by many to be blight resistant. Some say not but it is certainly the hardiest tomato now known with the exception possibly of the Duke of York. Combining as it does the features of hardiness and being early and prolific, I would unhesitatingly recommend it in preference to all other varieties for Florida and it should be tested everywhere.



A TWO-POUND "GREATER BALTIMORE" TOMATO.

SETTING.

As this crop will not stand a temperature lower than 33 under ordinary conditions, the beds must be protected from early frost. As the question of earliness is important with tomatoes, in many cases it is advisable to transplant four inches apart and hold the plants in the transplanted bed until twelve inches high. The plants should be taken up with a pronged hoe, in order to get all the soil possible with the roots. If the ground is not low, a furrow should be opened with four-inch scooter, the ground being previously fertilized. Holes four inches deep should be punched behind the plow, large enough to admit the roots of the plants, the plowman walking outside the furrow. A boy comes behind the plow, places the plants in bottom of holes, and a hand comes behind and pours about one-third of a pint of water on the edge of the hole, washing the soil over the roots. If stiff clay soil is planted, water should be poured in and the dirt pressed back with the heel. This pressing is, however, unnecessary in sandy soil. This method of setting is the best and cheapest known to the writer, after having tried them all. However if the ground is thoroughly wet, and plants are well rooted, they may be dropped in the furrow and one inch of soil pulled over the root, and the sole of the shoe pressed hard directly on the root. This method can be followed only after a good season, and the writer never recommends setting tender plants after a rain. Early in the spring (owing to the fact that cold snaps generally follow rain at that season) your plants should be set in warm weather, when the ground is warm, and they will take root immediately.

DISTANCE IN SETTING.

For general field culture, where vines are not pruned they should be set in rows five feet apart and 30 inches in the row; if plants are pruned and topped, four and one-half foot rows and 18 inch in drill is the proper distance.

PRUNING.

While this method of growing tomatoes may seem expensive to the novice, the writer has found it profitable where there is an assurance of a good crop. The process is as follows: After the plants have begun to grow and suckers are one or two inches long, go over once a week, rubbing off all suckers, except the one immediately below the first fruit stem, to grow until five bunches of fruit have been set on both branches. Then top both the branch and the main stalk, allowing no more fruit to be set. This checking the growth of the plant will cause the leaves and the stems to grow abnormally large, and throw an unusual amount of nutriment into the fruit, causing it to grow rapidly and become very solid and firm. After topping the field should be gone over two or three times and all sucker growth kept down, and the fruit should be examined carefully while small and all cracked or deformed fruit pulled off. This with a fair season will insure a crop of tomatoes running eighty to ninety per cent. fancy, and the stock will be firm and solid, commanding the highest price. I would in all cases recommend staking in addition to pruning. Three foot stakes should be driven in four inches of the plant, and the plant tied to the stake with a soft twine. In tying care should

be used to avoid getting a bunch of fruit between the string and the stake. Unless this is done you will have deformed fruit. The staking prevents sunburn, keeps off cut worms, and allows continual cultivation until shipments are half done, which is advisable; but the cultivation should be shallow. The actual yield of tomatoes when pruned and staked does not exceed the crop otherwise grown, but the difference is that when pruned and staked the gardener gets practically all his crop, and where otherwise grown the sun and worms usually get half. Besides the pruned and staked crop yields 80 to 90 per cent. fancies, and otherwise only about 50 per cent. fancies.

PACKING.

The fruit should be picked when fully matured, before any color is shown, using lined baskets. Of course some tomatoes will show color, and some will be nearly full ripe. The bins for packing should be lined with old sacks. Padding of excelsior or moss is good. Field boxes should be provided, and these also padded. The fruit should be picked over once in three days. Carry to the packing house in field boxes. A sorting table should be provided, and four half-bushel picking baskets placed in front of the sorter. In one put red tomatoes, in the second slightly colored stock, putting in these two grades fancy and choice together. In third basket put smooth green tomatoes, not less than two and one-half inches in diameter. In the fourth put green smooth tomatoes two to two and one-half inches in diameter, and those which are slightly scarred. Throw away all bad and leaky



FROM THE FAMILY GARDEN.

stock. Now you have four grades. Have four partitions in your packing bin—one for each grade, the size of the partitions being made to suit the probable quantity of each grade. Now you are ready for packing. The six basket carrier is used principally in the South and all fruit wrapped. In Texas and Mississippi and a few other points the four-basket flat carrier is used without wrapping. Taking for granted that the six-basket carrier is used, proceed to the packing. The full ripe and colored stock can be assorted in two grades as packed. As there are only a few of these grades, they can be marked fancy and choice as they are marked up. The green stock should be packed very tightly, and the fruit should come one-half inch above the top of the basket, usually turning both layers on edge—unless fruit is large. In this case the largest fruit should be placed flat in bottom of basket. This is the most popular size and makes the prettier pack. The writer has found that it is better to designate by a particular brand instead of marking them fancy and choice. The ripe tomatoes can be used in nearby markets by express, and the colored stock marked ripe and shipped in ventilated cars with the green stock. When the car reaches market the colored stock will be in about right condition to use at once, and may be distinguished from the green stock by being branded ripe. There is a universal and growing demand for tomatoes, and it is not likely that fancy Southern stock will ever go begging.

DISEASES.

There are several kinds of fungous diseases that attack the tomatoes and also a bacterial blight which is worst of

all. The former are usually caused by unfavorable conditions and can usually be controlled by remedying those conditions, but the bacterial blight when once established on a piece of ground is beyond remedy, and the only thing to be done is to cease planting tomatoes on that particular piece of ground for a number of years. Care should be taken never to have a seed bed on or adjoining a field infected with blight or other disease.

EGGPLANT.

In the whole category of vegetables there is perhaps no plant so difficult to grow as the eggplant. Sometimes under favorable conditions the amateur may think it is an easy crop grown, but it is a very peculiar plant, and when conditions are unfavorable is very difficult to grow. The writer has grown and made a study of this plant for twenty years, and has undertaken to grow it on all classes of soil. Sometimes he has made a failure, but in rare instances only. The present year the writer has shipped 40 carloads of as fine fruit as could be produced. It is strictly a warm weather plant, and flourishes when the midday temperature reaches 90 and even 100. Cold weather and cold ground are dangerous conditions; and unless a thorough notice of the plant is had, these conditions will often prove fatal or nearly so to the seed bed, in all latitudes. In extreme southern Florida it is necessary to grow the plants in a hot bed in order to have large well rooted plants for early setting. By all means these plants should be transplanted, and kept in a protected bed until twelve inches high. This gives them a large root system, and the plant will grow off well under conditions that would prove fatal to the non-transplanted plants. In latitudes as far north as Middle Georgia, a good hot bed should be used for sowing the seed. Use six inches of stable manure and three or four inches of sandy soil on top. Domestic treated with linseed oil may be used for covering, but if planted further north sash would be

safer, as it requires a high temperature to sprout the seeds. A warm spell should be selected for sowing, and the seed will germinate in three or four days if not too cold. After the plants are up, where covers are used, the bed should be uncovered about four hours each day and allowed to have sunshine during warm weather. However the temperature should not be allowed to go above 80 or 90. During cold weather it is better to keep the bed covered tightly. This retains the heat of both stable manure and sun. Never allow the bed to be uncovered at night; keep the ground well stirred and never water until the ground is dry enough to wilt the plants. A dry atmosphere and soil is conducive to healthy growth. Keep up the slow, steady growth, but do not stimulate to a rapid growth. Disease is the great enemy to be contended with, and if this can be kept off, and your plants kept healthy until set in the field, more than half of the battle is won. In transplanting, the plants should be set in rows as previously advised, and the dirt pulled up around the plants halfway the stalk; and the soil between rows kept well loosened and stirred, so as to allow sun and air to roots. This is very important and good plants can be grown by no other method. If cut-worms appear, which is quite probable, scatter poisoned bran broadcast over the bed.

SOIL.

In all cases a sandy loam is to be recommended for this crop. Lowlands and heavy clay soil should never be used. Light hammocks are the soils adopted to this crop. No plant that I know of will stand dry weather as well as

the eggplant. If land is plentiful and no irrigation is used, plant 6x3. Lay off rows six feet apart, check three feet; open the six-foot rows with eight-inch shovel, and scatter in the furrow one thousand pounds per acre of the formula previously given. Cover with double shovel. Do this two weeks before setting. When ready to set, run in this fertilizer with a bull tongue, and throw up a ridge with double shovel. If ground is sufficiently moist, punch a hole at each three feet check, and put in the plant half the length of the stalk, pouring in a half pint of water to each plant, and washing the dirt around the roots, nearly filling the hole. If ground is too dry to punch the hole, make a small hole with pointed hoe and pour in half pint of water, and set the plant with fingers before the water has soaked in. No packing is necessary, as the water settles the dirt around the roots sufficiently.

FROST PROTECTION.

In all latitudes early setting and protection against frost is advisable for this crop, as it is a continuous bearer, and two weeks added to the shipping season will nearly always double the value of the crop. The writer has used various kinds of covers and would prefer the tomato basket used with the six-basket tomato carrier. This covering has saved plants at a temperature of 24, and can be allowed to remain for seven days, and the baskets can be used for shipping tomatoes or peppers later in the season. During the past season large size butter trays, which were tight, were used alongside the tomato basket, and the plants covered by the trays suffered far worse than those covered by tomato baskets.

VARIETIES.

Only two varieties of eggplant are to be recommended. The writer uses Burpee's Black Beauty altogether, but in some other sections the Florida High Bush is used, many preferring this variety to the Black Beauty, and claiming it to be a better shipper. In order to grow eggplant successfully the first thing to do is to provide yourself with healthy, well rooted, large, plants; second, have suitable soil, well fertilized, before setting; third, careful setting, using plenty of water in dry weather. If your plants under such circumstances start off well and show purple bud, you may feel assured of a good crop barring killing frost. If your plants stand for several weeks and shows no growth dig it up and plant something else, for this is a peculiar crop and never recovers from a severe backset, unless it has taken good roots and has shown a vigorous growth prior to the back set. In this case they generally recover and make good crops.

DISEASES.

On soil adapted to the crop eggplant rarely show disease of any kind, but for this crop as well as others the preventive is described.

INSECTS.

Aside from cutworms there are few insects affecting this. Occasionally caterpillars attack the leaves, and cutworms eat the fruit. The remedies for these have already been given. During dry weather the aphid frequently at-

tacks this crop. Rosin sprays are to be recommended for this insect. Apply thoroughly on the under side of the leaves with a vermoreal nozzle and elbow. Anyone can get the formulas for all kinds of insect sprays by writing the Department of Agriculture, Washington, D. C.

PICKING AND PACKING.

In gathering and packing the crop, lined baskets and boxes should be used, as recommended for tomatoes. A bin also lined and padded, consisting of a table fourteen feet long, three feet high, three feet wide, should be provided. The fruit is clipped one-half inch from the stem junction with the fruit. Bushel baskets with bails are used. The fruit is cut when it is large enough to pack 30 to the crate. Do not cut smaller, unless it is getting too old, which is evidenced by a wine color in the Black Beauty. On young, vigorous vines a 30-size is not full grown by any means, but this is the best size, and they should be taken off when that size is reached. As the vines grow older and more heavily fruited, they will of course have to be cut smaller. The fruit should never be cut while wet with dew or rain. The packing bin should be divided by three partitions and the brusher should set his field box just opposite the middle partition. A frame made to hold an empty crate is made at each end of the bin, and the top of the crate should come about six inches above the top of the bin. The half-barrel crate should be used 12 inches by 14 inches by 22 inches. The brusher then provides himself with a large feather dusting brush, and brushes the sand from the plant as he asorts them. All nice smooth plants running 36 and

larger are placed in the division at each end of bin, and smaller sizes and defective plants in the middle division. This grade can be packed separately and shipped out as culls, or thrown away late in the season when it does not pay to ship such fruit.

The fancy stock is sized as packed, and the number of plants marked on each box. These will run in size from 18 to 36. Some markets prefer the 36 size, but usually 30 is the best size. New Orleans prefers 36 to any other size, and Pittsburg takes the larger sizes. In wrapping, white paper 15 by 20 is to be recommended. It must be borne in mind by those that grow eggplant for market, that while there is a growing demand for this vegetable, the demand is still very limited, and there are only a few markets in the United States that will take a car of eggplant. Two cars per week will supply Chicago, while they will easily take fifty cars of tomatoes or 100 cars of potatoes.

SWEET PEPPERS.

This is a crop that is now grown for market to a considerable extent, and generally pays, but like eggplant there is a very limited demand for it. It is not near so difficult to grow however as eggplant, and can be grown on most soils that are not too low. The general rule laid down for growing plants of the eggplant, will apply to peppers, except transplanting is not necessary, as where growth is not too rapid, this plant makes a large root without transplanting. They require a high temperature to germinate, and are nearly as sensitive to cold as eggplant.

VARIETIES.

The Ruby King is the only variety to be recommended. Other varieties supposed to be improvements have been put out, but all found wanting. Stick to the Ruby King until you have found something better.

PLANTING.

This crop, without irrigation, should be set five and one-half by two feet, with irrigation four by one and a half. (As they bear heavily while the plants are quite small they should be planted closer than eggplant.) Irrigation proves very profitable for this crop. The same rule for fertilizing and setting recommended for eggplant will ap-

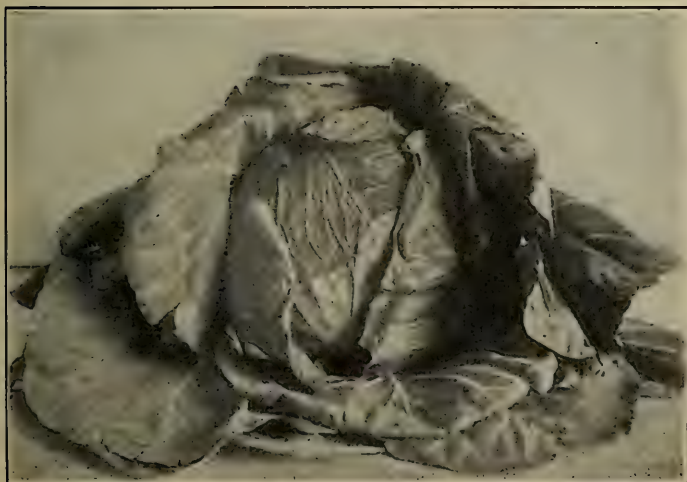
ply to pepper, except no checking is to be advised. If the seed bed is kept healthy, the crop is easily grown, and yields four to six hundred crates per acre. Like eggplant it is a continuous bearer, and shipments may continue until the market is over. The fruit is packed in six basket tomato carrier, while the price is one fifty per crate and upward. When the price falls below \$1.50 for six-basket carriers, the half-barrel eggplant crate is recommended.

CABBAGE.

This is a crop that often proves a money-maker for the South, but frequently proves unprofitable. The most important information that can be had on this crop is when to grow and when not to grow cabbage. This information is particularly valuable to the extreme Southern truckers, whose crops are due on the market in January, February and March. The quantity and quality of the Northern storage crop is almost always responsible for the price of cabbage during the months named, and they often affect the prices far into April, in seasons when they keep well. To the growers located in the lower Gulf States whose crops are to be marketed in the months above named, I would say: If the Northern storage crop is normal, let cabbage alone, or plant very lightly so as not to come in before March 10th. If there is a market shortage in the storage crop, and F. O. B. prices are sixteen dollars per ton and upward about November 1st, plant heavy in cabbage to come in in February and March. Sometimes however, it will pay to plant a crop to come in the last of March and early in April, even when there is a normal crop of storage goods, but this condition exists only when there have been killing frost in the lower South and the new crop cut short. However it is impossible to foresee this condition, and those who plant in protected localities will have to take chances on the weather. It is a mistaken idea that cabbage are immune to frost in the lower South. The writer has seen crops of cabbage practically



THE JERSEY WAKEFIELD—THE FAVORITE EARLY.



EARLY SUMMER—BEST MEDIUM CABBAGE.

ruined by cold in the latitude of Tampa, Florida. Of course this occurs only once in a while. Under normal conditions, cabbage will stand a low temperature, but if growing rapidly, as they frequently do in the lower South during midwinter, this temperature often damages them seriously. While if in dormant conditions, they will survive the temperature of 22 degrees without injuries. It is rarely ever necessary in the lower South to protect seed beds against frost and the plants are always better when grown in beds without artificial heat. In fact a slow, steady growth of the seed bed is recommended and as the plants can be grown in the field, they should be sown thinly, and fertilized lightly. In high latitudes protected beds are recommended.

DAMP-OFF.

Frequently seed beds are effected with damp-off, especially during wet weather. A good stirring of the soil followed by an application of Bordeaux will arrest this disease.

VARIETIES.

For an all-round, medium, early variety, Early Summer has proven the best for most sections. Charleston Wakefield is the popular sharp-head variety, but is not so hardy as some others. Early Flat Dutch, and Succession, are good flat varieties. New varieties are constantly being put out, and it would be advisable for those who contemplate growing cabbage for market to make comparative test each year of the new variety being put on the market.

DISTANCE.

For irrigated fields 30 by 15 inches is the distance. If no irrigation is used 40 by 50 is a good distance. Crowding produces medium size heads, running about forty to the crate, which is a very desirable size. Heads running very large are not so saleable, and command a lower price. If ground is low, plants should be set on a slight ridge; if high in a small furrow. This is a crop which requires abundance of moisture and plenty of fertilizer, and one on which irrigation pays well. This crop requires from 1,500 to 2,000 pounds of good commercial fertilizer, and an additional 200 pounds of nitrate of soda applied broadcast when the plants begin to head. A heavy soil containing abundance of humus is to be recommended for cabbage. Frequent stirring of the soil is particularly beneficial to this crop.

BURSTING.

Some varieties, especially the Wakefields, burst very quickly after the heads are matured. This can be obviated by going over and pushing over all fully matured heads with the foot. These should be pushed to the north, in order to protect them from the sun. Another way, if the patch is uniformly headed, is to go through with a bull-tongue and plow deeply on one side of each row, cutting off part of the roots and checking the growth. When ready to cut, the heads, together with several loose leaves, are cut with a sharp butcher knife. If rows are wide enough and not too stumpy, the best way to gather the

crop is to make a box about two by eight feet and 20 inches deep, attach it to two runners and hitch a horse to it, and as the cabbage are taken up, they may be put in the box and pulled out and running between every other row. These are hauled into convenient piles and there packed into crates holding about 100 pounds.



CHARLESTON WAKEFIELD AND SUCCESSION CABBAGE.

CUCUMBERS.

This is a crop now grown very largely in the South, for the Northern markets. It is a crop that contains over 90 per cent. water, and is most successfully grown with irrigation. In the absence of irrigation, a low dark soil should be selected, rich in vegetable matter, and well drained. Muck lands are admirably adopted to cucumbers. This plant is more sensitive to frost perhaps than any other vegetable, and a few cold nights where there is only slight frost often ruins the crop. And if there is cold weather enough to take the green color out of the leaves, it will pay to plant over. For this reason it pays to protect this crop against frost by using covers on cold nights. If frost protection is used, a good distance is 6 by 3 feet, leaving two stalks to each hill. If low land be used, which is to be recommended in all cases where not irrigated, land should be thrown up in six-foot beds with turning plow, the top of the beds fertilized, and the seed planted three feet apart. Select a warm spell, when the ground has begun to get warm, and make a slight impression with the toe of the shoe. Drop in five or six seed, and cover just enough to hide the seed. Then press firmly with the toe of the shoe. Presuming that you have sufficient moisture, and the ground is warm, your cukes will be up in four days. If ground is not sufficiently warm to germinate the seed at once they will rot, and must be planted over. They are rapid growers after the weather gets warm. Just before the vines meet in the



ENGLISH TELEGRAPH CUCUMBERS GROWING ON FRAME.

rows, or when about a foot long, an application of 200 pounds per acre of nitrate of soda should be used. Where this crop is irrigated early plantings are frequently made, the seed being sown in drills five or six feet apart and protected from frost by two ten-inch planks nailed together and turned over the plants during cold nights. If however cold weather should be encountered, the crop will never amount to much, as they never recover from a severe set back. Large sums of money, however, have been made on these early protected plantings, but the expense is rarely ever justified, except where irrigation is used, and a maximum crop is made.

VARIETIES.

Livingston Extra Early White Spine and Early Fortune, are the two varieties to be recommended, as these hold their dark green color, and are early heavy bearers. When the fruit is six to eight inches long, they should be picked and packed in bushel hampers, discarding all that are deformed and too old. They are heavy bearers, and in some cases 1,000 bushels or over have been grown on an acre.



MR. C. H. KENNERLY GATHERING CUCUMBERS ON HIS FARM.

SQUASHES.

Of all the vegetable crops this perhaps is the easiest grown, and the freest from disease or insect. The early varieties are ready for the table in 60 to 70 days from planting. While there is considerable demand for early squash, one or two messes seem to satisfy most people, and when they get plentiful on the market, they are hard to move at any price, so I would advise all truckers to go slow on squash, and never plant more than a few acres.

DISTANCE.

For the small bush varieties five by three feet is a good distance, and a level culture should be followed.

VARIETIES.

Of all the white varieties Woods' Early Prolific is the earliest, best bearer, and best seller. The yellow crook-neck sells well in some markets. The white bush variety should be gathered just as the gloss disappears from the young squash, regardless of size. They should be carefully handled, wrapped and packed in half-barrel crates. If the price is high, perhaps bushel hampers would be preferable. Every farmer should raise a few Boston Narrows for pies and baking. Two dozen hills will supply an ordinary family, and may be kept for months. These are great runners and should be planted 8 by 8. I can hardly recommend these for shipping.



THIS KIND OF MOTLEY ARRAY MUST BE TAGGED BY THE BUSINESS FARMER.

BEANS.

This is a vegetable that is grown in the South extensively for the Northern and Southern markets, and usually proves profitable. There is a great demand for this vegetable, both in the North and South, and when scarce, and of good quality, it often commands extreme prices, sometimes selling as high as seven dollars per bushel, and often as high as five. These prices however may only be expected when it is very scarce. The quality of the stock has as much to do with the price as scarcity on the market and for this reason the object should be to produce nice tender beans. To do this sufficiency of moisture should always be present, and the plant should never be stunted in its growth. Where irrigation is not used, a rich damp soil should be selected. Low hammock land, full of humus is excellent for beans, and they require very little fertilizer on this kind of soil. The plant is very tender, and a temperature of 32 generally proves fatal. They will stand considerably more cold when a week or two old, than they will later. It being a quick crop (generally 60 to 70 days from planting to picking) it can be planted profitably between other crops requiring a longer time to mature, and can be picked over several times and pulled out of the way of the following crop. The writer has followed this plan for years and has found it profitable.

VARIETIES.

The bush varieties are practically the only ones planted

for shipping. These are usually ready to ship in 60 to 70 days after planting. The wax podded, and green, are both planted but the wax are unsalable in the South. Some Northern markets prefer them, Chicago and Boston particularly. Where they are in demand they usually sell for about as much as the green beans. The wax perhaps produce thirty per cent. more per acre than the green, and costs less for picking, as the pods are longer. Of the green podded varieties Red Valentine, Black Valentine, Extra Early Refuge, are the best varieties. Of the wax podded varieties, Curries Rust Proof wax, Davis and Wardells are the leading varieties. The former being preferred in many localities on account of its immunity from rust or speck. All of the wax podded varieties are more subject to diseases than the green. If the price is high, it will pay the grower, after the beans have been picked to have them spread out in a cool place and assorted before packing, throwing out all that are too old, or too young, or ill shaped, or broken. Then fill the hamper, packing down well several times with the hands. Then heap them up before fastening on the top. If the weather is cool and no danger of heating, it would be found profitable to lay the outer beans straight at right angles with the cracks, as they show off well and bring a better price. The bushel hamper is the package generally used for beans. Where the ground is given up entirely to this crop they should be sown in drills three feet apart without water and two and one-half with water; three pecks to one acre is required for seeding. Two or three plowings will suffice, but care should be taken not to plow while the plants are wet with dew or rain. The same precaution

should be used in picking, as touching or handling the vines when wet will cause rust.

POLE VARIETIES.

Kentucky wonder and Homestead are the best pole varieties, and these must be staked. These varieties are, however, only grown for home use, being considerably later and more expensive than the bush varieties. They will be found profitable for home gardens, and sometimes for a local market, as the continue in bearing longer than the bush varieties.

RADISHES.

This vegetable is grown to some extent in the South, but not generally, owing to the fact that it is a crop which is produced in a very short time and under low temperature, so is grown extensively in the North in hot houses. As a crop for shipment it can hardly be recommended to the market gardener, still it is grown in some localities for shipment. A rich, sandy loam is preferred for it, and the seed should be planted in drills six to eight inches apart. This crop matures in three to four weeks after seed are planted. The soil should be well supplied with moisture and fertilizer in order to produce crisp roots.

VARIETIES.

The following varieties are recommended: Long Scarlet, French Breakfast, Short Top and Chartier. For a local market this vegetable may be grown on a limited scale with profit, but could not be recommended for Northern shipment.

CARROTS.

This is a vegetable that is easily grown and flourishes at a low temperature. It will survive 24 degrees, and is immune to root knot, and is easily grown, but there is a limited demand for it and it can hardly be recommended for a shipping crop. The seed should be sown thinly in rows 16 inches apart and cultivated about the same as radishes or beets. A rich soil and plenty moisture is essential to a good quality.



THE DANVERS CARROT.

BEETS.

This crop is grown largely in the South for shipment and usually shows good profit. It is easily grown and hardy, surviving a temperature of 25, and is marketable in 90 days from planting.

SOIL.

Low land is unsuitable for beets, but abundant moisture and quick growth are required to produce tender roots. Irrigation is strongly advised for this crop, and several applications of nitrate of soda in addition to 1,500 pounds of complete fertilizer per acre. The soda should be sown broadcast over the field after the dew has dried off. It does not require a cultivation afterwards. Two applications of 150 pounds per acre should be made; one when the beets are six inches high, and the other when they begin to form roots. This crop is much effected by root knot and should not be planted on land infected with this insect. Prepare the land thoroughly by deep breaking with shovel and harrow, getting out all trash possible with harrow and horse-rake. Lay off rows 18 to 20 inches and plant with horse drill, aiming to get about one plant to each inch. If not planted too thickly, no thinning or hoeing will be necessary. Care should be taken that the ground is sufficiently moist, or the seed will not germinate. If there is any doubt about the ground being moist enough to germinate the dry seed, they should be soaked for 24 hours before planting. Make the water as hot as

can be borne by the hand and pour in the seed, using enough water to cover the seed. Then cover the vessel with an old sack and let seed stand for 24 hours. Before planting, pour off water, use enough dry sand to make them easily handled. Firming the soil is very important in securing a good stand of beets. All well regulated planters are supposed to have a wheel for packing the soil after the dropping of the seed. The fertilizer should be applied broadcast and harrowed in before planting. As soon as the beets are a few inches high, they should be cultivated with a wheel hoe using the cultivator. Subsequent cultivations should be made with the sweep attached to wheel hoe.

VARIETIES.

Eclipse, Early Blood turnip, and Egyptian, are good varieties. Personally I prefer the first.

PACKING.

When the roots are two to three inches in diameter, they should be pulled out, removing the outer leaves. Then tie in bunches containing five beets each, and pack in barrels or barrel crate, marking the number of bunches to each crate. They usually sell from four to six cents per bunch in the Northern market. If shipments are made to the Southern markets half of the tops should be cut off and the beets allowed to grow about four inches in diameter. The Northern markets use the tops as a salad, but few Southern markets care for more than the roots. Cut worms are very fond of this crop, and it is generally necessary after the crop has been removed to poison the worms before another crop is planted.



EARLY SCARLET TURNIP BEETS.

ONIONS.

This crop is an exception in that it does not require rotation as most crops do. Onions may be successfully grown on the same land for a number of years and the soil never seems to become tired. It is a hardy vegetable and will survive a temperature of 24 degrees, consequently may be classed as a winter crop in the lower South. This crop thrives the best on the damp sandy loam, rich in humus, but with irrigation it may be grown successfully on the highest land. This is a somewhat expensive crop to grow, and it should be planted only on soil that is rich, and the ground should be thoroughly prepared and all trash gotten out before the seed are planted. It is a good plan to prepare the ground several weeks ahead of planting or setting, in order to allow all seeds of grass or weeds to come up. The ground should be gone over with a harrow just in advance of planting, in order to destroy this young crop of weeds or grass.

VARIETIES.

The Bermuda is the onion best adapted to the Gulf States, and being of a mild flavor is preferred to other varieties. Of this variety there are the white and bright red, but the white is preferable. The Creole is another variety which does well in the Gulf States, and is grown to a considerable extent. Further north Red Weatherfield and Yellow Danvers are recommended. Where the thermometer does not go below 24, the seed beds may

be grown in the open. Select a piece of land that has no seeds of weeds or grass. Prepare well by raking out all grass and fertilize broadcast. Sow the seed thinly with drill in rows eight inches apart. The seed should be one-half inch deep, should be packed, and kept watered until they germinate. The seed beds should be cultivated until plants are as large as a lead pencil. Sow broadcast, over the ground to be planted, 1,500 pounds of good fertilizer, and harrow in. Then make a marker with teeth eighteen inches apart, and mark off the rows. Several rows can be marked off at once. Draw the plants from the seed beds and lay them in piles with roots even. Take a sharp knife and cut off roots one-half inch in length and cut away about one-half of the tops. The plants are now ready for setting. If no irrigation is used, set for two days after a good rain, but if irrigation is used, the plants can be set and watered afterward. The transplanter should provide himself with a round stick six inches long and five-eighths inches in diameter, slightly rounded at one end. Take a small bunch of plants in the left hand and punch holes four inches apart. Insert your plant with the left hand and press the dirt firmly to it with the peg. With a little practice one can get along rapidly with this method. With sufficient moisture the plants will live easily, and replanting will seldom have to be resorted to. After a stand has been secured the ground should be cultivated shallow with a wheel hoe and all vegetation kept down. One hoeing may be necessary and a small onion hoe made for the purpose should be used. Cultivation should continue until the top falls over, which indicates that the bulb has matured. Then the crop may be gath-



GOOD ONIONS—A STEADY STAPLE CROP.

ered and marketed. However it will be found profitable to market a portion of the crop when the bulb is about half grown. Cut away the roots and about half the tops and packing in half-barrel crates. It is better to bunch them in this style using about five to the bunch. If the local demand is good, the ripe onions can be kept for several months by burying them in sand or putting away in hay as recommended for saving seed potatoes. This crop should turn out 400 to 800 bushels per acre, and usually is profitable.

CANTALOUPE.

This has now become one of the most extensively grown of the garden crops, and the demand for good stock is almost unlimited. This crop is now grown extensively in the South, but it never brings such prices as the product of the arid regions of the Southwest. A dry climate and atmosphere is essential to the production of a first-class cantaloupe. Excessive moisture at, or near the time of maturing, destroys the flavor, and makes the melon insipid. Still this crop usually pays well in the lower South, as there is very little competition with the early Southern product.

SOIL.

An ordinary fertile soil will produce good cantaloupes, but the ground should be high land. This crop should never be grown where the root knot is present. The Rocky Ford is the variety now planted almost exclusively for the market. It is not necessary to prepare the ground so thoroughly for this crop. Break deep and harrow off, and lay off rows six feet apart, check six feet. Scatter a half-pound of fertilizer at each check, and mix well with fork before planting. Plant four or five seeds in each check, as soon as danger of frost is over and ground is warm. When the plants are up, thin to two in a hill. Make a second application of fertilizer, broadcast, as soon as the vines are a foot long. It will be found profitable

to use covers to protect this crop in case of cold nights or light frost.

SHIPPING.

When the crop is ready to ship, they should be picked when fully matured and packed in standard crates, forty-five to the crate, as this is the size that brings the best price. Other sizes should be shipped as culls, by express, to near markets. This crop must be loaded in refrigerator cars as it will not carry in ventilators.

CAULIFLOWER.

This crop is grown to a considerable extent in the South, and usually pays. Where the temperature does not go below twenty-five it may be planted in October for February shipment, and the plants may be grown without protection. In colder localities the plants must be protected against cold, and planted later. The great drawback to the crop is the price of the seed. The method of cultivation is quite similar to that of cabbage.

SOIL.

A very rich soil is required for this crop, and abundance of moisture must be had. Irrigation is especially recommended. The cost of the seed necessarily makes the crop an expensive one. The seed bed should be thoroughly prepared, and sown thinly in drills eight to ten inches apart. If sown thinly, transplanting will be found unnecessary. The process of fertilizing and setting in the field advised for cabbage will apply to this crop. The cultivation is also the same as for cabbage.

VARIETIES.

The following varieties are recommended for Southern planting:

When the heads begin to appear, the outer head leaves should be drawn over the heads and tied with strings, or pinned with wooden tooth picks, to protect them from sun and rain. This process is necessary to produce a beautiful

white head. When the heads are fully grown, they should be cut when thoroughly dry, retaining a few of the outer head leaves. Then take these to the packing house and assort them carefully, and wrap in vegetable paper. The half-barrel crate will be found a good package for this vegetable.



LARGE SNOWBALL CAULIFLOWER.

OKRA.

This plant is especially adapted to the South and produces all summer, if kept in a good growing condition. The demand both North and South is quite limited, but it usually commands a good price. New York and Philadelphia are the best markets. It is a very easy crop to grow and has few insect enemies, but it is very tender and will not succeed after the ground gets cold and the nights chilly. It is strictly a warm weather plant and for this reason should not be planted until the ground is warm.

SOIL.

For early crop a sandy loam is preferred, and while it does not thrive on low land an abundance of moisture is required in order to produce tender pods. Plant in rows four to five feet apart and thin two feet in drills, leaving two stalks to a hill. The cultivation is the same as for cotton or corn.

VARIETIES.

For Northern shipment a short thick green pod is wanted three to four inches long. The stem should be cut about one inch to prevent wilting. French Market is decidedly the best variety for shipping. Perkins long pod is also good. The six basket tomato carrier is the package to be preferred in shipping this vegetable. As this plant bears all summer a portion of the patch may be reserved for home market and the product sold all summer.

TURNIPS.

This crop is not grown much for shipment, but it is a valuable one for the local market. It is easily grown and very hardy; produces heavily and is a money-maker for the local market. Like beets, if tender roots are wanted, quick growth must be had, and the crop must not be allowed to be checked in its growth. Irrigation is essential to the production of first-class turnips.

VARIETIES.

The Purple Top Globe is the best all-round turnip. It is large, handsome, and very tender. Prepare land thoroughly as for beets, and sow thinly in rows 20 inches apart and leave about one plant to two inches at first pulling. Take out every other plant, so as to give the one left more room to grow. Sometime when the Northern cabbage crop is short it will pay to ship this crop to Southern markets in January and February. It is very hardy and may be grown in the lower South any time during the winter.

RUTA BAGA.

This plant differs very little from the turnip, except that it requires a little longer time in growth and is sweeter and keeps better. The same planting and cultivation given to turnips will apply to this vegetable.

PUMPKINS.

While this crop is not grown for shipment, it will be found profitable to grow a few for home use and local markets. It is easily produced, and may be grown on almost any except wet land. Plant 9 by 9 any time after danger of frost is over and cultivate same as for watermelons. This product may be kept for a long time by storing in a cool place.

SALSIFY.

This crop is grown to some extent for shipping. It is called oyster plant and resembles the oyster somewhat in flavor. It is hardy and survives a temperature of 22 and in the lower South may be planted any time after October the first. Prepare land thoroughly as for beets, and sow in rows 18 inches apart and thin to four inches. It requires a rich soil and plenty of moisture to produce tender roots. The culture is the same as for beets. When ready for shipment the roots should be tied in bunches about 8 to the bunch.

PARSLEY.

This plant is not grown for shipment, but is used almost exclusively for garnishing. It is easily grown as it withstands very cold weather. It may be relied on for winter use when other garnishing plants may have been destroyed by cold. Sow in rich soil and provide abundant moisture, thinning plants 2 by 1. In the lower South sowings may be made October 1. For garnishing Moss Curled is a good variety.

LETTUCE.

This vegetable is now grown extensively for Northern markets, some points in Florida growing several hundred carloads annually. The Florida crop is marketed principally in the winter months, and the States farther north have it to come in as the Florida crop is over. The heading varieties are grown principally, although some leaf lettuce is grown. Big Boston, a very large, compactly heading variety is the favorite. California Cream Butter is also planted to some extent, and is very popular in some sections. Both are good, but owing to the fine size, Big Boston is generally preferred.

This vegetable will survive a temperature of twenty degrees, under normal conditions, if plants are not headed, but after the heads are formed a temperature of twenty-five degrees will practically ruin it.

SOIL.

If irrigation is not used, a damp soil must be had. A dark loam well drained, is especially adapted to lettuce growing. The crop is cut in about ninety days from time of planting. It is easily grown but requires high fertilization, if the best results are to be obtained.

SEED BED.

Select a piece of ground convenient to water, harrow and rake off clean. Sow seed broadcast, thickly enough



BLACK SEEDED LETTUCE ON LEFT. BIG BOSTON ON RIGHT.

to get one plant to the square inch, or a trifle thicker will do. Brush the ground over lightly with a board, and run a roller over to make the soil firm. Water once daily for four days. After the seed have germinated, they may be watered once every three days, and less frequently as the plants grow older.

SETTING.

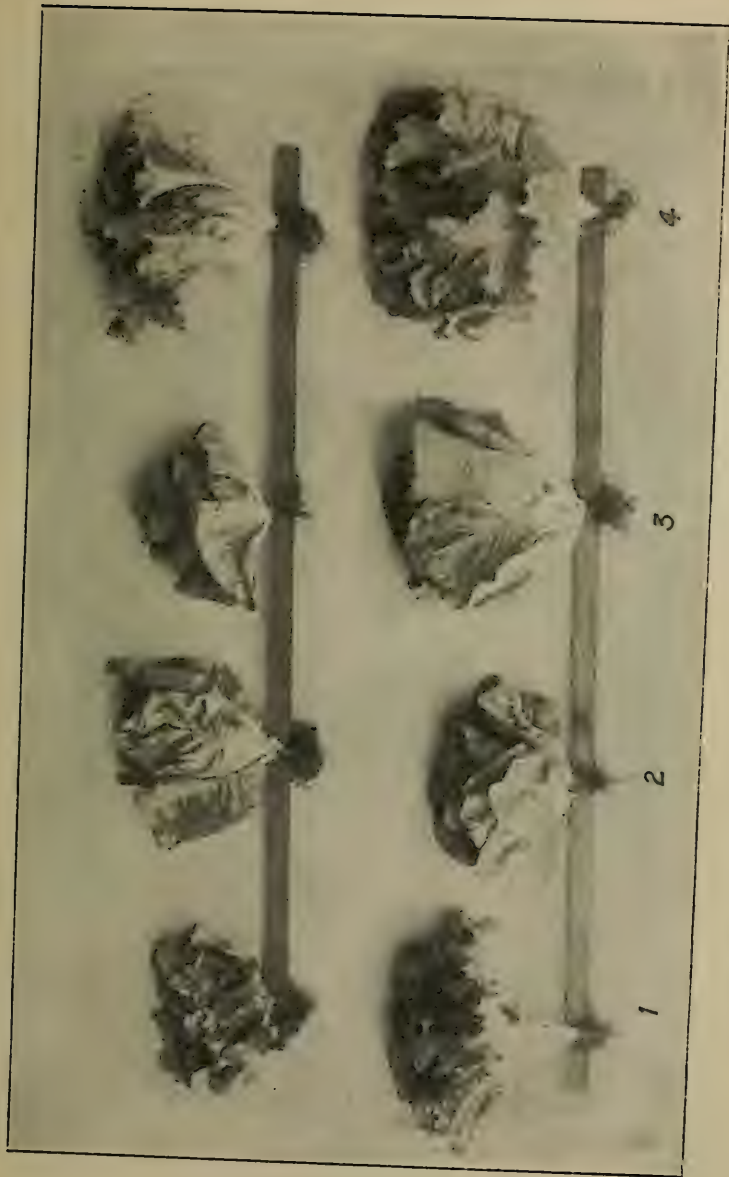
The plants live easily and may be set as other plants are but the roots should not go lower than two inches from the surface. Eighteen inches is a good distance to set them.

CULTIVATION.

Several plowings with hand plow will suffice to make the crop.

PACKING.

After the heads are fully formed, cut the plants near the ground, leaving all decayed or yellow leaves attached to the root. Pull off any that may by chance be left with the head, then pull the outer leaves over the head and pack first layer with the butts down and the next layer with the butts up. Continue to pack in this manner, bringing the heads together. Finish up with the butts against the top of the hamper. Half barrel hampers should be used for this vegetable. It should be gathered while dry and shipped by express, or in refrigerator cars. If the weather is warm, refrigeration only should be used. Four or five hundred hampers of lettuce are frequently gathered from one acre but the price is very fluctuating, varying with the supply.



TOP ROW—BLACK SEEDED SIMPSON—BIG BOSTON—BOSTON MARKET AND GRAND RAPIDS.
LOWER ROW—HANSON—GOLDEN QUEEN—SALAMANDER—WHITE SEEDED BUTTER.

CELERY.

The writer can remember not many years ago when celery was used to a very limited extent—principally as a seasoning for soups. Our largest cities would take only a car or two per week then; now New York alone will take one hundred cars weekly. This illustrates to what a remarkable extent a taste may be acquired for some vegetables. There is a single station in Florida that now ships annually over five hundred cars of celery and this year's output of the southern part of the State will be approximately two thousand cars. The writer remembers when, less than fifteen years ago, it was not known that celery could be grown in Florida. Mr. Neylans, of Tampa, was the first grower to make a success of it. Since his experiment, it has been demonstrated that it can be grown on almost any class of soil, provided that abundance of water is supplied. It is useless to undertake to grow this crop without irrigation. As before stated it can be grown on almost any kind of soil, but prefers a dark, heavy soil, moist but well drained. Abundance of moisture is indispensable for this crop. Low lands with tile twenty-one feet apart and sub-irrigation is the system usually employed. However surface irrigation is being employed with much success. On low land the tile acts as drainage in wet weather and supplies the water when needed, by allowing it to percolate the soil. Artesian wells are being used generally to supply the water.

VARIETIES.

Golden Self Bleaching is practically the only variety planted in the South.

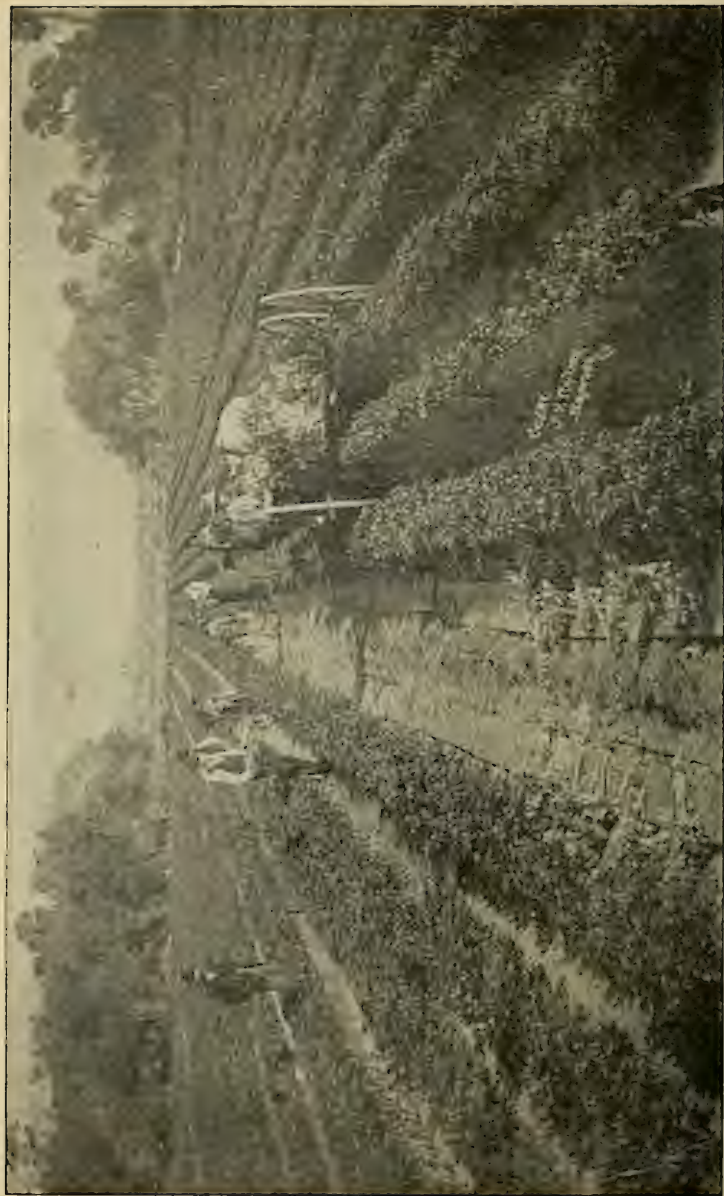
SEED BEDS.

The seeds of celery are very small and the plants are very delicate until some size has been attained, so great



GROWING YOUNG CELERY PLANTS.

care should be used in growing the plants. They are very slow to germinate and must be planted on the surface with no covering in order to get the seed to germinate. To prepare the seed bed, rake off all trash, mark off rows four inches apart, but not over one-fourth of an inch deep. Sow the seed in these rows and cover the bed with gunny sacks, laying them down on the ground. Water the beds

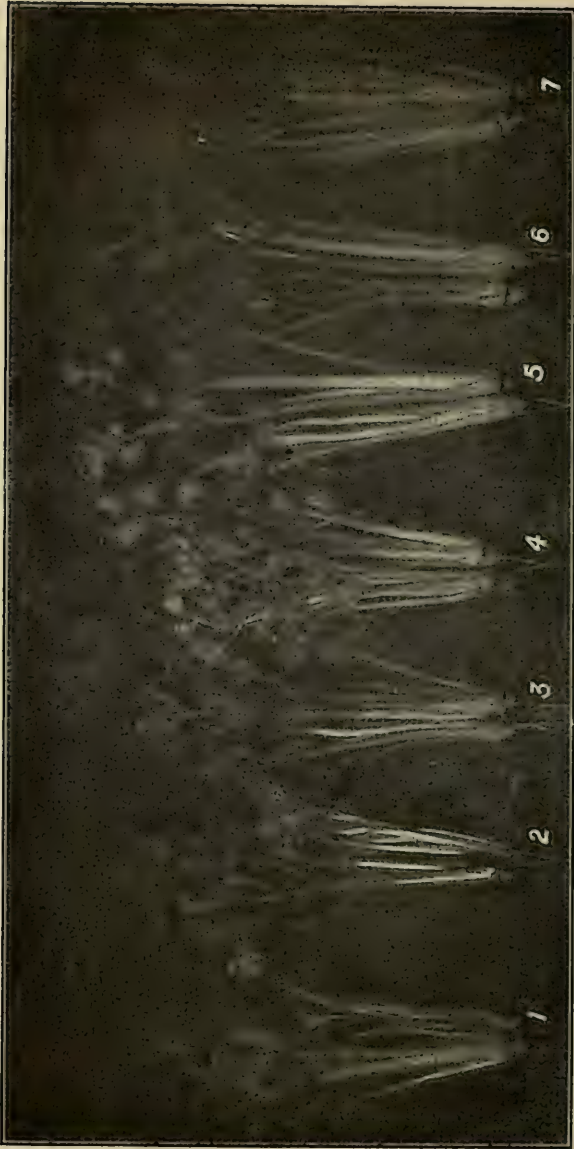


FLORIDA CELERY READY FOR THE HARVEST.

twice a day until the seeds have germinated, which will require ten days, or more. As soon as the seed germinate remove the sacks and cover the beds with laths, so as to make a half shade. The plants are slow growers, and considerable time is required for them to get large enough to transplant. As soon as they are about three inches high, they should be pricked out and transplanted in beds about three by four inches, and if the weather is warm they should be shaded for several days after transplanting. Care should be used in transplanting to the bed and field to see that the roots are not set more than one inch deep, as they are surface feeders and will not do well if set too deep. Two weeks after the plants are transplanted, they are ready for the field.

PREPARATION OF GROUND.

Before setting a field in celery, about ten to fifteen two-horse loads of stable manure per acre should be scattered broadcast over the ground and turned under shallow with a turning plow. Take a bull tongue and break the ground to a depth of eight inches and harrow down well. Lay off straight rows, with a scooter, thirty inches apart and sow two thousand pounds per acre of good vegetable fertilizer, and cover with two furrows. This should be done ten days before setting. Just before setting, stir the fertilizer well with a fine tooth harrow. When ready to set, stretch a garden line over the furrow containing the fertilizer, and take a roller eight inches long and about six inches in diameter, with strips one-half by one-half nailed every four inches. Run this roller over the garden line and you have the impression of both the line and the strips.



CELERY VARIETIES—WHITE PLUME, DWARF LARGE RIBBED, LARGE RIBBED RED, GOLDEN SELF BLANCHING, GIANT
WHITE SOLID, GIANT PASCHAL, BOSTON MARKET.

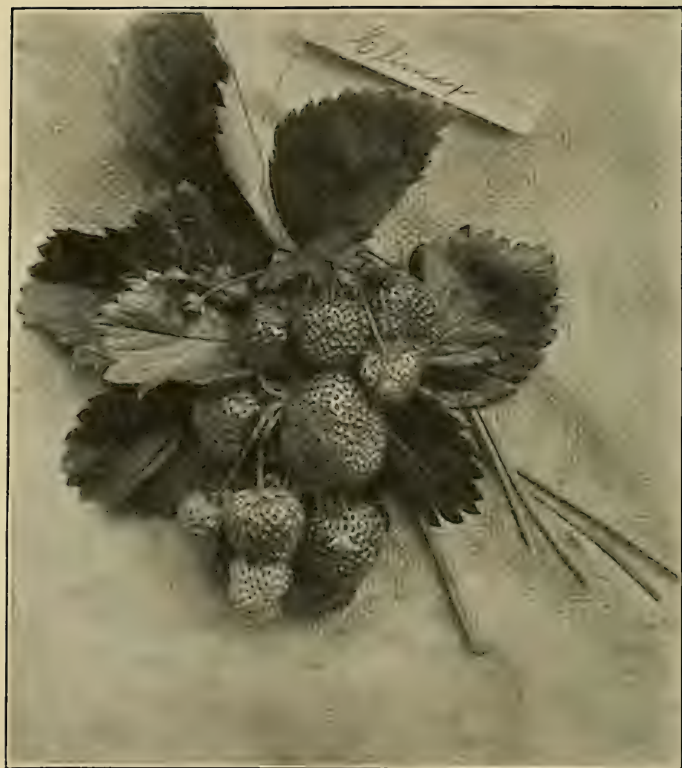
This shows where the plants are to be set and gives a perfectly straight row and uniform distance for setting. The plants may then be set, the dirt may be pressed to the roots and the water turned on.

CULTIVATION.

Frequent, shallow cultivation with a fine tooth harrow should be made. When the plants have been set thirty days, a second application of two thousand pounds per acre of good vegetable fertilizer should be scattered broadcast and stirred in with a cultivator. Three weeks later an application of three hundred pounds of nitrate of soda per acre should be used, and repeated every ten days until celery is ready for bleaching. Celery is an expensive crop and one can not neglect it. Quick and steady growth insures a product that is tender and crisp. These qualities are essential to good prices. An acre of good celery should yield eight hundred to one thousand crates and it usually nets about a dollar per crate—sometimes more. These prices justify one in going to the expense. The plant is hardy and will stand a temperature of twenty-two without injury if it is in a normal condition.

BLEACHING.

Boards twelve to fourteen inches wide are used in bleaching. One is placed on each side and brought up against the plant at the top. Second grade cypress is usually used for this purpose. One to two weeks are required to bleach it, and when this is done the plants are cut and packed in standard crates and loaded in refrigerator cars. This vegetable does not carry well in warm weather and refrigeration is necessary.



THE CLIMAX—A GOOD EARLY BERRY.

STRAWBERRIES.

As my experience and observation with this fruit has been confined principally to Florida, and not feeling that I am well informed on its growth and culture in other States, what I have to say will apply to Florida only. However it is the writer's opinion that the growth and culture of the strawberry should be about the same in the lower portion of the Gulf States as it is in Florida, as the climate is nearly the same. At any rate the instructions here given for its culture in Florida should be tested in the other sections referred to.

VARIETIES.

The question of varieties is an all-important one with strawberries much more so than with other garden plants. Some varieties which succeed admirably in Florida do not succeed elsewhere and vice versa. The Klondyke however seems to be the general favorite everywhere. This berry is undoubtedly the best ever tested in Florida, but has the disadvantage of being perhaps thirty days later than some other varieties. Lady Thompson is another well tried variety but several weeks later than some. It is large, handsome, very prolific and a fairly good shipper, but not so good a shipper as Klondyke. Excelsior is the general favorite among the early varieties, frequently yielding berries for Thanksgiving. It is fair in quality and moderate size, and extremely early and prolific. It bears unusually well in cold weather, but is much inclined

to rust—this disease causing the later shipments to be small and insipid. Red Bird is another berry which is about as early as Excelsior but is not self-pollinating. It is necessary to plant every third row in some pollinating variety, the Excelsior being the variety usually used for pollinating, as it is necessary to have two varieties bloom at the same time. Red Bird is a conical shaped berry and is large, early and handsome and a hardier berry than Excelsior, but the general complaint comes from all quarters that it does not fruit well in cold weather and for this reason alone nine-tenths of the growers are abandoning it. I would suggest however that such an early and valuable variety should not be given up without testing it further. It strikes me that the reason of its unfruitfulness during cold weather lies in the fact that the berries being covered with straw prevents fructification. This difficulty might be avoided by covering with cloth, placing a pollinating variety in each third or fourth hill, all in the same row. The covering will be referred to later. The three varieties referred to are practically the only ones grown in Florida, many others having been tried but found wanting.

SOIL.

Strawberries must have a congenial soil to which they are adapted. They require a dark, damp soil, with a moderate supply of vegetable matter, but not too much. Low hammocks after having been cultivated for two years are the best for berries. New lands will not do as the berry plants run too much to vine. Dark pine lands with plenty of moisture also do well, but are not so good as the ham-



BRANDYWINE STRAWBERRY.



A CHERRY IN THE BERRY PATCH.

mocks. Plenty of moisture is the first consideration. On this class of soils they succeed well without irrigation, but if dry lands are used irrigation must be resorted to. Light sandy soils whether hammock or pine rarely do well with strawberries.

PREPARATION OF LAND.

The land should be sown in cow peas not later than June fifteenth, and they should be mown about August 20. Let the peas lay on the ground ten days after mowing. Cut them up well with disc harrow and then turn under shallow with turning plow. Let the ground lay in this shape until September 15th, then take the disc harrow and throw into straight beds three feet apart, open a furrow on top of bed with bull tongue, and sow one thousand pounds per acre of good vegetable fertilizer, covering with double shovel. Let it stand thus until about October 1st, which is the proper time to set plants. If one has favorable weather the plants may be set a week sooner. Before setting run through the fertilizer with fine-tooth cultivator, and your land is ready to receive the plants. Care should be taken that no green vegetation of any consequence should be turned under at this season. A large growth of green matter turned under at this time of year will surely result in failure, producing acid in the soil. It has been found beneficial in many cases to use lime broadcast at the time of bedding, and I would recommend its trial at least.

SETTING PLANTS.

October first is the proper time to set plants in Florida. Where irrigation is not used it is important to set in

cloudy, cool weather if possible. We always have a cloudy, cool spell of weather lasting about a week near the Equinox. This occurs sometimes just before and sometimes just afterward. This favorable weather should be taken advantage of in setting berries. If irrigation is employed however, they may be set at any time. In case the Skinner or overhead system is used the plants should be sprayed daily for a week until they are well established. The plants are set in rows three feet apart and twelve inches in drill. Take a common garden hoe, cut the handle to two feet, and have a boy drop them the right distance apart. The setter takes the hoe in his right hand, the plant in his left. Open a hole somewhat slanting with the corner of the hoe, and place the roots of the plant in the hole, trying to spread them as much as possible. Then allow the dirt to fall back on the roots and press it firmly with the heel. Be careful to have the plant bud well above the surface.

CULTIVATION.

They should be cultivated the same as other crops, being careful that they are not worked deep after roots are well established. The beds should be maintained, and if worked down should be worked up again. The plants should have about two more applications of fertilizers of about one thousand pounds each. Make the second application about the time berries begin to form, and the third when half through picking. Use fertilizer containing two per cent. of the ammonia derived from nitrate of soda or nitrate of potash.

PICKING AND PACKING.

The berries are picked and packed in quart baskets and shipped in pony refrigerators, holding eighty quarts each. It is necessary for one to provide himself with refrigerators sufficient to handle this crop before shipping.

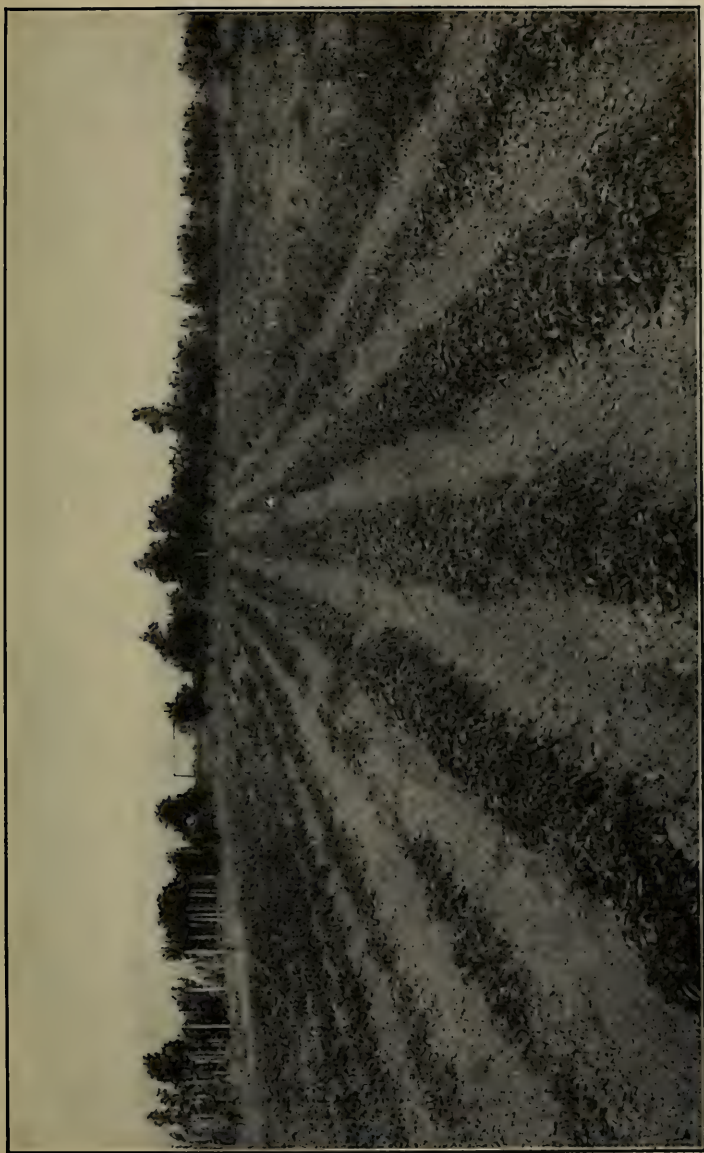
PROTECTION.

It is the universal practice for growers who move their crops early to provide pinestraw before frost sets in. This is placed between the rows of plants and when cold weather is approaching the straw is drawn over the plants and raked off, as soon as the weather justifies.

While this is the universal method of protection, I would recommend for trial two six-inch boards, cypress preferred, say eighteen or twenty feet long. Brace these together so as to have them twelve inches apart and take a medium grade of domestic, soak it in linseed oil, wring it out well, and tack this cloth over the boards. Place this cover over the row of plants, allowing it to remain night and day except when working or picking. While the expense is somewhat more than straw, I believe the additional advantages will justify the increase in cost.

GROWING PLANTS.

It has been found that home-grown plants are far superior to plants grown elsewhere, and the usual custom is to get plants from points north of Georgia and set them here in Florida in March. They should be set about two by four feet on new hammock land if possible, on which no crop of weeds or grass has matured. These must be kept cultivated, and by October the ground will be covered with vigorous plants, which are then ready for setting.



FIELD OF LADY THOMPSON'S IN SHAPE FOR A GOOD CROP.

SWEET POTATOES.

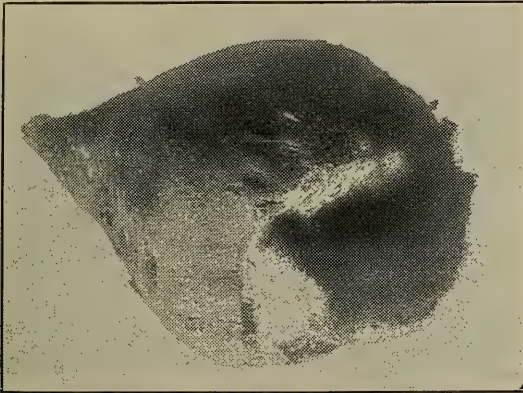
While this crop does not come specifically within the scope of the truck grower, at the same time it is a crop that is universally planted in the South, and comes in well for the truck grower after his garden crops are off. However, it may be stated here to judge that it is a crop that does not properly belong to precede vegetables. A separate plot of ground may be had for growing potatoes and they may be grown after the principal vegetable crops have been shipped.

VARIETIES.

The question of variety is one to be considered before the crop is planted, also a question of marketing and where marketed. In sweet potatoes, the Southern taste is widely different from that of the North. The South will take only the potato that is sweet and juicy, what we call the "Yam," while the North wants nothing but something dry and mealy.

Growing potatoes in the South for Northern markets has been tried only in a small way, and what the possibilities are are yet to be determined, however, my own experience and observation in that line are quite favorable, as I have successfully grown the Jersey or Nansemond in Florida, and the quality is fully up to that product grown in Virginia or Jersey. I would advise experimenting with the Jersey potato for shipment to Northern markets. If the Southern markets are the ones in which the crops

are to be marketed, then we only have to consider varieties that are adapted to the Southern tastes. The "Pumpkin Yam" or the "Yellow Yam" is by all means the only variety to be grown for Southern markets for table use. There are many other varieties of this yam, they go by different names in different localities, but one of the most popular variety now is the "Nancy Hall." This potato was originated in Florida, but now is grown all



SWEET POTATO STORE ROT CAUSED BY BRUISING.

over the South. It is one of the very best keepers of the pumpkin yam family, if not the best. It is a good producer, and in eating quality is perhaps one of the best. One of the chief objections, however, to the "Nancy Hall" is its tendency to be slow in sprouting; another objectionable quality is that it makes a slow growth of vine, as vines are largely relied upon in growing potatoes.

The "Golden Beauty" which was introduced by the writer some years ago is considered by general consent among those who have tasted it, to be the best of the pump-

kin yam varieties. In eating quality, it is unexcelled. In producing quality, it perhaps takes the lead of all. It is early, and a vigorous grower, producing great quantities of vine, it is a fair keeper, though not so good as the Nancy Hall, but is perhaps as good a keeper as any of the other Yellow Yam varieties.

“Enormous,” “Key West,” and some other varieties are great producers, but the quality is not so good as the pumpkin variety, however, they are fair in eating quality, and will produce much more than any of the pumpkin yam family.

“Enormous” is a variety introduced by the writer some years ago, and was grown along side of the Nancy Hall and exactly doubled the latter in yield, producing 536 bushels per acre on land that was lightly fertilized.

For early planting, the potatoes should be bedded on about four inches of stable manure and covered with about one inch of soil, and should be kept well watered. In the latitude of the southern part of the Gulf States, they should be bedded the 15th of January, and February 1st. As the potatoes begin to sprout through the ground, an additional inch of soil should be put on the bed. When vines are six inches high they may be drawn out and set in the field.

PLANTING.

When ready to set plants in the field, broadcast over the ground 1,000 pounds per acre of cottonseed-meal or Castorpomac, then throw up beds about four feet apart, set the plants about 18 inches, keep the ground cultivated un-

til the vines have met in the middles, using for this purpose an ordinary sweep. About the time the vines have met in the middle, throw vines back and broadcast about 1,000 pounds per acre good vegetable fertilizer running about 8 per cent. potash, throw the dirt from the middle of the row with a turning plow, and this finishes cultivation. It is presumed anyone is familiar with the method of digging.

This crop is marketed principally in the local markets where it is grown, and if shipped at all, is usually in bulk or carload lots.

WATERMELONS.

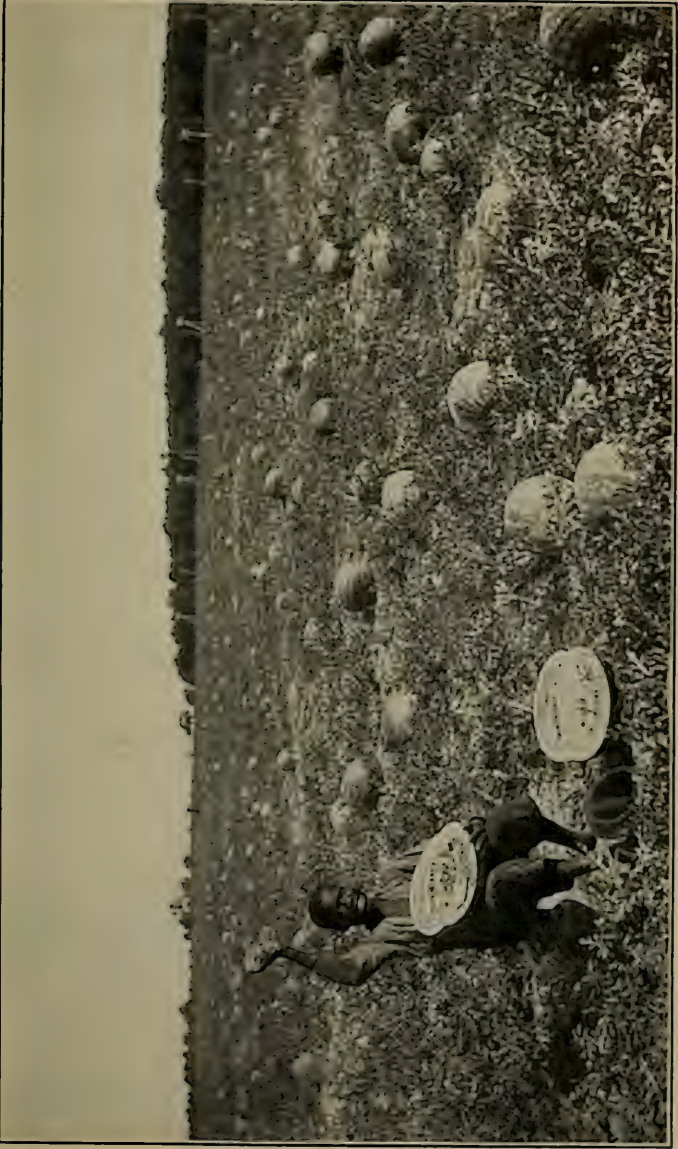
This is a crop especially adapted to sandy soils of the South. It is grown extensively for shipments to both Northern and Southern markets. As is the case with potatoes, the question of variety is one to be considered in marketing the crops, as the South prefers a long slender melon, while the North prefer the large round variety. However, there are so many improved varieties now being introduced that it would hardly be safe to say what varieties would be preferred. Rattlesnake, Florida Favorite and Kleckley's Sweet are varieties which are popular in the South. Many of these, however, have not good shipping qualities, and do not carry well for a great distance. They may be safely loaded, about one-half car of these being placed on top of other varieties which bear shipping better. For the Northern markets, the Kolb Gem, Duke Jones, and some others are popular varieties.

SEED.

By all means nothing but Southern grown seed should be used. There are reliable seed growers in the South, who grow seed on a large scale, and melon growers should get in touch with them.

PLANTING.

For the latitude at the lower portion of Gulf States, February 1st to the 15th, is the proper time to plant. For lower Florida, planting may be done as early as January



READY FOR BUSINESS.

10th. In all sections, plant covers should be provided to protect the plant against frost. The expense of covering is light, on account of the small number of hills per acre. It is by all means advisable to protect against frost or even cold nights. Tomato baskets holding about four quarts, or strawberry baskets are to be recommended for this purpose. While this does not afford so tight a covering as some other materials, it will save the crop against a heavy frost, and may be, allowed to remain over the plants four or five days, as they admit sufficient light and air to prevent endangering results.

As before stated, sandy soil is preferred for melons. New land is well adapted to this crop, also old fields that have laid out for a number of years. Low land in no case should be planted in melons.

Lay off rows eight feet apart and check the same distance. Before planting, open the furrow one way and put about two shovels of stable manure per hill, scattering it to a length of three feet and cover with two furrows, use in addition about one-half pound commercial fertilizer per hill. As soon as the ground is sufficiently warm to germinate the seed, they should be planted, four or five seed to the hill at the intersection of row and check. Plant the seed shallow, and firm the soil well with the foot. The seed should be examined every few days, and if inclined to rot, should be replanted along side of first planting. Presuming that covers should be provided for frost protection, it will be unnecessary to make further planting after the seed are up.

Cultivating should be done as for other crops, and when vines are a foot long, the second application of 1,000

pounds per acre of fertilizer should be made on each side of the melons, plowing in with cultivation.

Cultivation should be continued until vines have met in rows, and the vines should never be moved or turned in any case.

SHIPPING.

When the first melons are ready to ship, car should be provided and the floor covered with sawdust to a depth of six inches before melons are loaded, if sawdust can not be had, pine straw is a good substitute, using it to a depth of about twelve inches, and on each side of the car, as the melons are loaded. About 1,200 melons averaging twenty pounds is a car, and they should never be loaded much above a minimum car if the smaller melons are shipped. They should be shipped to themselves as grading is fully important in handling melons as it is with other crops.

COWPEAS.

This is strictly a Southern crop, as the seasons North are most too short and the nights too cool for this plant to grow to perfection. It is one of the great forage field crops of the South, and as a soil renovator, ranks with clover. It is also an important hay crop in the South, and the hay, if properly cured is unsurpassed in protein content. It belongs to the Legume family and gathers its supply of nitrogen from the atmosphere, hence its great value as a soil renovator. It is grown among corn. It may be sown broadcast at the last plowing of the corn or may be planted between the hills of corn, but the former method is probably the better. If planted by this method however, it is not convenient to use the crop for hay, but the peas may be utilized for stock feed or seed purposes and the vines turned under for fertilizer.

After crops of vegetables are off, if it is desired to grow peas, they may be sown broadcast at the rate of one bushel per acre, and subsequently mowed for hay if they are to be used for that purpose. The roots of this crop contain a large per cent. of nitrogen and even after the crop is cut for hay, the soil is much improved by having the roots in the ground.

VARIETIES.

There are many varieties of cow peas, some which bear quite early and make a small bush, others which bear later and make much vine. The quantity of vines produced per acre should be the prime consideration, whether the crop is to be used for hay or for soil renovation. How-

ever, if the pods are to be utilized for stock feed, it is desirable to use the variety which produces a large amount of peas as well as vines. The varieties suited to this purpose are Unknown (Wonderful) and Black, and will perhaps produce the largest amount of pods. If the crop is grown exclusively for hay or soil renovation, the quantity of vine of course is a prime consideration. For this purpose the Clay and Iron peas are to be recommended. The Iron pea is perhaps the hardiest of all and has the advantage of most other varieties, in that it has a longer growing season, and grows until killed by frost no matter when planted. It also has a further advantage of other varieties, in that it is more resistant to blight and root knot. This disease is particularly destructive to many crops, especially on sandy soil in warm latitudes. The iron pea is not fully immune, but in the presence of root knot will grow and thrive where other varieties fail to grow.

CURING FOR HAY.

If properly cured, this crop makes excellent hay and as before stated stands very high in protein. If well cured hay of pea vines is fed to stock, the grain ration may be cut in half, but unless it is properly cured it is almost worthless and stock will not eat it. The writer has seen and tried a great many methods of curing pea vine hay, and for damp climates where rains are likely to come at any time, only one method can be recommended. While this incurs somewhat more expense than other methods it insures a first-class article of hay regardless of weather conditions. Build a shed 16x32 open on all sides but with

a tightly covered roof, make it nine feet to eaves, then construct racks two and one-half feet apart and use 2x2 strips placed one foot apart. Cut sufficient vines to fill this rack up, commencing in the morning after the dew has dried off. Allow the vines to lay in the sun until late in the afternoon if possible, but take them up the same day as cut. If there is a possibility of having rain early in the afternoon, they should be taken up before the rain comes. Scatter them loosely over the racks, being careful not to pack the vines, and allow an open space of at least six inches between racks for a free circulation of air. If the vines are put up without being wet with rain or dew, it matters not how much rain should come afterwards, you will have a first-class article of hay. It is advisable however to bale this hay if possible. While it incurs some expense to build this shed, by having successive sowings of peas, it may be filled a dozen times or more during the season.

Root Knot.

This crop is very susceptible to root-knot and no variety except the Iron pea should be grown on soil infested with root-knot.

IRISH POTATOES.

This is a crop which is grown extensively in almost all parts of the world; in fact, it is relied upon in a great many countries as their chief food crop. In Great Britain and Ireland, the latter more particularly, it is the main food crop. In the United States it is grown everywhere, but is used more extensively in the North than it is in the South. The crop is grown in the Northern States in late summer, and is stored away for winter use. The old crop remains on the market frequently as late as the middle of May. Sometimes the bulk of it disappears earlier but the supply of old potatoes always has a perceptible effect on prices of the new crop from the South. The size of the crop of old potatoes has very much to do in effecting the price of Southern grown stock and truckers may be guided to some extent in their calculations for planting by the government crop report on potatoes, which can be safely consulted in October 1st bulletin, or Crop Reporter. If the crop of the year preceding the one in which it is contemplated potatoes will be planted, is unusually large, or above normal, it would not be advisable to plant potatoes to any large extent. However, if there is a short crop of old potatoes, which can be ascertained from the Crop Reporter about the first of October, then it is nearly always a safe proposition to plant potatoes. However, the price of this crop rarely ever reaches a high market unless it is for the first that appear in the market, for which there is always a limit in de-

mand. Whenever the fancy trade is supplied and they get to be very plentiful in the market and the price comes down to the level of the working class, a heavy crop of potatoes coming into competition with an unusually large crop of old potatoes, necessarily brings the price very low on both.

VARIETIES.

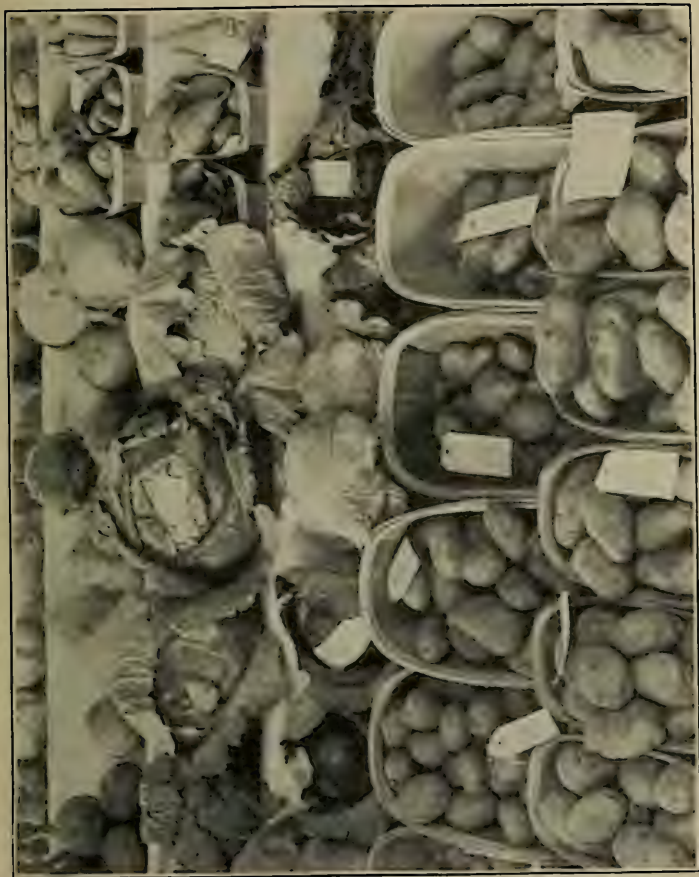
As in the case with all other plants, the question of varieties is a very important one to consider.

For Southern planting, the Rose has always had the preference. Spalding's Rose No. 4 is decidedly the most popular potato to-day in this section. Bliss' Red is an early potato, some ten days earlier than Spalding's Rose, but is very susceptible to blight, and unless seed can be obtained that is free from blight and planted on land that is practically free from blight, it is not advisable to plant this variety.

There are other early varieties that are preferred perhaps in some localities, but I think there are very few that will equal Spalding's Rose.

Planting in the latitude of South Florida should begin about January 15th. In the lower section of other Gulf States about February 1st would be full early.

Cutting the potato is a question on which there has been much diversity of opinion. The universal experience of planters, however, seems to be settled that potatoes should be planted fresh cut. Some experiments have been made drying the potato after it has been cut, and some with lining, but from my own experience and observation it is de-



A NICE DISPLAY OF FALL TRUCK.

sirable to plant the potato fresh cut, rather than a day or two after they have been cut.

No specific rule can be given for cutting potatoes. Large potatoes, however, are usually cut with one eye, and small ones contain several eyes.

SOIL.

It is important in planting this crop that the proper kind of soil should be selected. By all means a sufficient amount of moisture should be had. Potatoes are partial to damp, heavy soils, with an abundance of vegetable matter and moisture, and without irrigation this class of soil must be had. However, where irrigation is used, what we call high land, may be used successfully in planting potatoes, but never a light, sandy soil. If low land is used and is not properly dried or drained, the land should be plowed into beds before the planting is done. If the land is to be bedded, fertilizer should be sown broadcast at the rate of fifteen hundred (1,500) pounds per acre, and then plowed into beds with turning plow. Then open a light furrow on top with a scooter plow and drop the potatoes about fifteen inches apart, making the rows three (3) feet wide; then cover lightly with hoe, not over one inch deep. Where irrigation is used on higher land, the ground should be well broken and laid off in rows two and one-half ($2\frac{1}{2}$) feet apart with scooter plow; then sow in the furrow, fifteen to two thousand pounds of good commercial fertilizer. When planting is to be done run in these furrows again with eight-inch shovel plow. This throws most of the fertilizer out of the furrow, but covers it at the same time. Then drop the potato about the same

distance as recommended on low land and cover with a hoe about one (1) inch deep. Some may object to the extra expense of covering with hoe, but as this expense is very light and it insures the potatoes being planted at the proper depth, one is justifiable in going to some little extra expense.

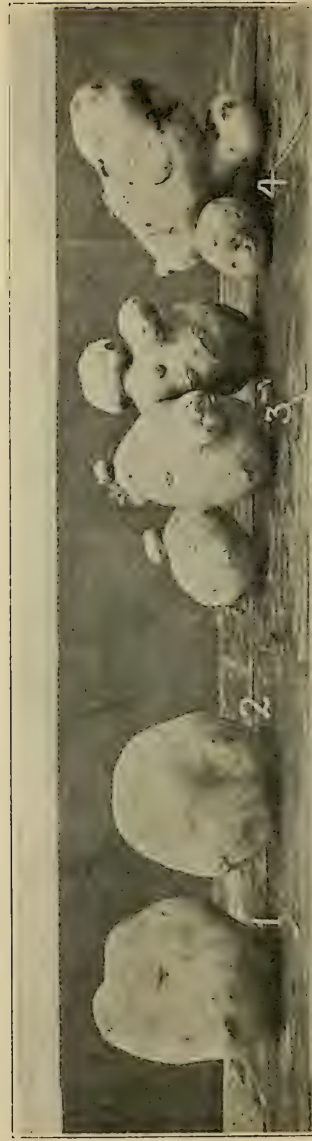
This crop requires a little more potash than most vegetables. A fertilizer running ammonia 5 per cent., phosphoric acid 6 per cent., actual potash 8 per cent., is about right. The potato is a tender plant and will not stand a lower temperature than 32. However if they are killed down when just up they will recover and make a good yield.

The great object of light covering is to insure a good stand in case of cold or wet weather, and one rarely ever fails to get good results when potatoes are planted by this method.

CULTIVATION.

Just as the potatoes begin to appear through the ground, the land should be gone over with a sweep or cultivator and the furrows filled up and the ground left in a level condition. This answers two purposes; a cultivation is made, as weeds and grass generally appear with the potatoes, and at the same time the potatoes are covered to a greater depth, which postpones the danger of being killed by frost for a week or ten days longer besides if they are hurt by frost after being covered in this manner, they will recuperate more rapidly on account of being covered to a greater depth.

After the potatoes have grown to be about eight (8) inches high, by which time another crop of weeds will



1 & 2 IRISH COBBLER

3 & 4 EARLY ROSE

have appeared, then take the sweep and raise the furrow sufficiently to cover any small grass or weeds that may appear in the row. This method of planting and cultivating does away with any necessity for hoeing, and is to be recommended on that account. However, its great advantage is in planting the potatoes at shallow depth and in the insurance of a good stand under any condition.

HARVESTING.

After the potatoes have attained their growth and the vines have become somewhat yellow, it is then time to harvest. A further test of the potatoes might also be made by digging a few potatoes, and if the skin does not slip easily, it is an indication that the potatoes are matured and ready to dig.

Where they are planted on sufficient scale to justify the expense, one is advisable in buying an improved two-horse potato digger, or it would be economical for several of the neighbors to club together and buy one of these instruments, as the work is done much more cheaply and satisfactorily.

The potatoes after having been dug are allowed to remain in the sunshine just long enough to dry off what soil clings to the potato; then they are taken up and graded and packed in a barrel made for the purpose. Those running two and one-half ($2\frac{1}{2}$) inches and upwards in diameter, which have not been cut in digging and are free from scab, are to be classed as No. 1's. The smaller potatoes, provided they are sufficiently large for table use, are to be graded to themselves and classed as No. 2's. The balance of the crop may be kept for fall planting, being stored away in some cool place and used in the fall.

COLLARDS.

While this crop is never grown for shipment, it is profitably grown in a small way for local use, and for home consumption. In the lower South where salads are scarce in summer, the collard will be found handy in the home garden. It is easily grown. It should be planted 5 by 2, and when about to go to seed, the heads should be cut out and the sprouts will be found very palatable if kept in a thrifty condition.

SPINACH.

In the North this plant is growing extensively for salad, but it is just becoming known in the South at present. It can hardly be recommended to Southern gardeners for shipment, on account of the limited demand in the South, and distance from Northern markets. Still an effort should be made to introduce it in the South, as it is a delicious salad, and very healthful on the account of the presence of iron. It is hardy, surviving a temperature of 20, and may be grown in the South as a winter crop. Plant in October and November in rows two feet apart, and thin to eight to ten inches in the drill. Rich soil is required for this crop. The curled Savoy and Round Leaf are good varieties.

HOW TO PREPARE FOR, PLANT AND CULTIVATE FALL IRISH POTATOES.

BY LORING BROWN.

The most suitable place to plant fall potatoes is after grain when it has been cut off in June. Thoroughly break the land with a two to four inch scooter, using a right-hand Johnston Wing set up high so as not to turn the stubble. The stubble should be thoroughly torn apart but not turned under. After breaking, run a harrow (either a tooth or cut-a-way) over the sod, and either use a roller or drag behind the harrow, making a good seed bed. This should be done early in June, just after the grain is taken off of the land, so as to allow the land to work back together and fill with moisture before planting. By working the stubble to the top it will answer as a mulch and preserve the moisture that has been stored in the soil during the winter, which is very important for a large yield of potatoes. Any time after the first of July is the proper time for planting in Middle Georgia. When ready for planting use a three or four-inch scooter with two Johnston Wings on the guano distributor to lay the rows off with, two one-half to three feet apart. Put in at least six hundred to one thousand pounds of 10-2-2 guano in the drill and stir it thoroughly with a two-inch scooter in the open furrow.

Cut a medium size potato into four parts and a large size one into six parts. Have at least two good eyes on each tuber which will insure a strong, stocky plant. A

small piece of the tuber will produce a straight spindling plant which will not make many potatoes. These potatoes should be cut a few at the time, just enough to plant immediately behind the freshly opened furrows. A handful of air-slack lime should be sifted over each bucket of cut tubers. This will heal the cut and keep it from bleeding and losing its strength. They should be dropped from fourteen to sixteen inches apart with the eye down, stepping lightly on each tuber to press it next to the moist dirt. This will enable the tuber to start germination at once, as it unites with the moisture. If turned with the eye up it will not germinate until a sufficient rain has packed the dirt closely around the eye. Summer or fall planted potatoes should be turned with the eye down next to the cool moist dirt, but a spring planted potato should be turned with the eye up so as to get the warmth—just opposite from the late summer and fall planted potatoes. After dropping the potatoes they should be covered up immediately with four to six inches of dirt. If the weather is very dry and hot it is a good idea to run a roller or drag over the land to hold the moisture in the soil. Examine the potatoes every few days and if you find they are germinating promptly run a weeder or harrow over them twice by the time they begin to come through the ground, and as soon as they are large enough give them a good ploughing with a Planet Junior Cultivator, using three-quarter or one-inch feet on same or a very small scooter on any ordinary Hayman Stock with Fender, and run it next to the potato, close up. Thoroughly hoe them with a potato fork immediately after this ploughing. Then take your guano distributor and put at least one thousand pounds of sixteen

per cent. acid to the acre, around each side of the row. Cover this with a scrape and scooter, or better, with a Planet Junior, using a small scooter on all feet for this purpose. With two more ploughings (either with the Planet Junior or the scrape and scooter) the potatoes will be sufficiently worked. They should be laid by almost on a level and not ridged up like spring potatoes. They will mature thoroughly in ninety days, ordinarily. Work them fast and lay by early. After the first killing frost they should be dug and not allowed to remain in the ground until after a hard freeze.

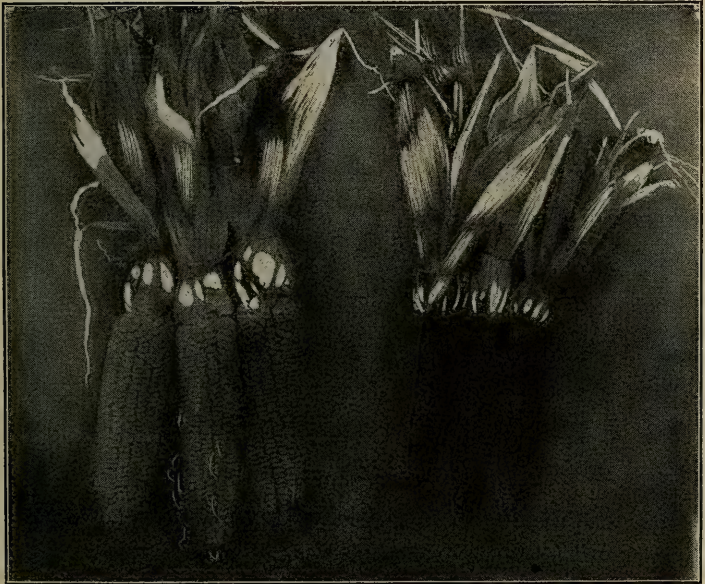
I find the best way to dig them is to get several hands with straight spading forks in the field and let them spade up all they can from early morning until noon on a pretty day. This will allow them to dry out and very few potatoes will be left in the ground. In the afternoon I start the hands to picking up the potatoes in bushel baskets. They can be put in barrels in a cellar, or it is preferred to put them on shelves one foot deep, placed one above the other and slatted so air can circulate through them, in an ordinary house, a barn or a cellar is preferred. In this way they will keep until June of the following year without sprouting very much. If exposed too much in very cold weather cover up with straw removing it in early spring to give air. In May or June, if they begin to sprout too much, it is a good idea to give them air and light, which will check the sprouting. To secure a perfect stand of potatoes and have them thrive and do well, the potatoes should be full of moisture and not shriveled up. Most people have them planted in this shriveled stage, and that is one of the main reasons why they do not get a good

stand. If the Lookout Mountain Irish potatoes which are a strictly fall potato are planted and treated strictly according to these directions there is no trouble in making from two hundred to three hundred bushels of potatoes after wheat or oat crop on good ordinary land and they will harvest in plenty time to put another grain crop on the same land. The late planting will never be bothered with potatoe bugs. You can afford to fertilize both crops extra heavy because the fertilizer that is not available for one crop is there mixed with the soil and will be utilized by the other and nothing will be lost. I have practiced this method and it has improved both crops every year for ten years. Nothing will pay better on an average farm than Appler oats and Lookout Mountain Fall Irish potatoes. You can easily get \$1.00 per bushel in the fall for all of the Appler seed oats a man can raise, and seventy-five to one hundred bushels can be expected per acre. The Irish potatoes will always sell at \$2.00 to \$2.50 per bushel per bushel by keeping them until June or July. This will enable you to have a crop to sell each six months off of the same land. I harvested two hundred and fifty bushels on one acre, which I have sold at \$2.00 and \$2.50 per bushel, and I made one hundred and four bushels of oats on the same acre, which I sold at \$1.00 per bushel, making at least \$600 altogether on one acre of good North Georgia land the past fall. Two years ago I harvested over fifteen hundred bushels of these potatoes, and the year before that I harvested about one thousand bushels. I have never yet seen the time when I could supply my demand for seed.

Give them a thorough trial and nothing will pay the

Southern farmers better or find a more ready sale. Thousands of dollars are sent out of Georgia every year for Western grown potatoes, and we should keep every cent of it here.

Belmont Farm, Smyrna, Ga.



SUGAR CORN AND EARLY BLACK GRAIN.

WINTER CABBAGE AND HOW TO GROW THEM.

BY TOM R. ZACHARY.

We promised to write an article on varieties of winter cabbage for your May 15th issue but failed to get up copy in time for publication.

First, we will tell the readers of the CULTIVATOR something about the merits and history of the North Carolina Buncombe cabbage.

In the year 1832, our grandfather, John A. Zachary, moved from Surry County, N. C., to this valley, known then and since as Cashiers Valley, cutting his way through the wilderness into the heart of the Blue Ridge Mountains. He brought with him a few spoonfuls of his favorite cabbage seed, having used them for many years previous. Since that time his variety of cabbage has been grown and kept up by the Zacharys and other people of the Blue Ridge section. For many years this variety of cabbage had no name.

As late as 1850 the mountaineers of this section hauled chestnuts, venison, hams, apples and cabbage to Augusta, Ga., a distance of 200 miles or more; (that being the nearest railroad point at that time); and exchanged their produce for such "luxuries" as Liverpool salt, brown sugar, coffee, and for bunch thread used by our mothers who wove the breeches in those days and may have worn them too, as some of them are in the habit of doing until this day in some parts of the country.

Alexander Zachary, the writer's father, in making those annual trips to market, always carried a few pounds of

our native cabbage seed with him for the purpose of exchanging for corn and fodder, and sometimes exchanging a tablespoonful of seed for 10 cents.

'Way back in the thirties, and even later, a large portion of western North Carolina was known as Buncombe county, nicknamed "the State of Buncombe." Later being reduced to different counties, the Buncombe county of to-day embraces a very small part of her original territory.

The people along the Augusta road, thinking that everybody from North Carolina came from the State of Buncombe, very naturally called the seeds purchased from wagons "Buncombe Cabbage Seed."

And now, gentle reader, you know about as well what the Buncombe cabbage is as the "wooden nutmeg men" know when they put some cabbage seed in a paper and sell them as North Carolina Buncombe cabbage seed.

The original of this strain of cabbage belongs to the Drumhead family, is of a round shape, and somewhat of an irregular header. Its good keeping qualities are kept up by careful selection of heads for seeding purposes, being grown at an altitude of nearly four thousand feet above sea level, and hybridizing with a certain old-time strain of cabbage about every ten years.

The Buncombe is used in the Cotton States for all sorts of purposes, but is mostly sown in June and July for fall and winter use. We don't recommend the Buncombe for territory north of the Mason and Dixon line, for the reason that they are peculiarly adapted only to the Southern climate; and when grown too far North, degenerate and become unreliable keepers, just as most Northern strains become poor keepers in the Southland.

The subject of sowing seeds covers so large a field that it is impossible to crowd it all into one short article. What we want to say just now is intended for the benefit of those who are contemplating sowing cabbage for the fall or winter use.

We often get letters from people asking when and how to sow a certain kind of cabbage seed. To answer such inquiry intelligently, we must know three things: 1st. In what degree of latitude seed are to be sown; 2nd. Height above sea level; 3rd. Where were the seeds grown. There is no one rule or set of rules governing the time for sowing late cabbage that will apply in common to the different sections of the South.

About the only solution of this problem is for every farmer to watch for one season the growth of his late or winter cabbage, and be governed afterwards in sowing the same kind of cabbage for the information gained through his observation.

It usually requires about six weeks after seed are sown for plants to get into condition best suited for transplanting, and from two to three months more for the maturing of the different strains of late cabbage. Latitude in which seed are grown has much to do with the time necessary for the cabbage to head. The farther North the seed are grown, the quicker maturity takes place; and like the peach, the quicker to mature the sooner they will rot.

The seeds you grow yourself from late cabbage, or those grown along the Blue Ridge in North Carolina and Georgia are the seed we recommend for late keepers for the readers of the CULTIVATOR in general. This class of cabbage may be sown as late as September along the sea coast,

while for winter transplanting, they should be sown in October or early part of November and transplanted from December to March.

The best way to sow seeds, is to burn a brush pile or a lot of trash on new ground or sow in a place where the ground is fairly good. The soil should be well pulverized. See that the plant bed is kept damp until the seed come up. From the time the seed are sown until the plants start growing the bed should be protected from the direct rays of the sun. An arbor, five or six feet above the bed, serves this purpose best. Never put stable manure in your seed bed. If your plant bed is too rich, you get fewer plants, and they are more likely to fall victim to "sore shank" and other ruinous diseases which often rob the farmer of late cabbage.

Cashiers, N. C.



ASPARAGUS IS A CROP THAT PAYS WELL
IN MOST SECTIONS.

HOW WE RAISED A CROP OF TURNIPS.

BY J. B. HUNNICUTT.

Some years ago when we were just beginning to learn to farm better we had a rather singular experience. Eleven weeks of drouth had cut off the corn crop. How we should manage to farm next year without this corn was a serious question. We decided to try an experiment. We did not believe in buying corn on credit. No man can farm successfully that way. It was too late to plant corn. We had not learned to use many of the substitutes now used for corn, so we tried turnips.

We had never seen turnips grown for this purpose. But we had five acres of very thin land, the top of the hill somewhat washed. From this we had cut a crop of grain. We took our big plows and broke this twelve to thirteen inches deep. The clay was very dry and the sub-soiling very hard to do. We then harrowed and plowed and harrowed again and again. We do not know how many times we went over; but we made the soil so fine and so deep that the plow hands took off their shoes and put them in the fence corner because they sank over the shoe tops.

HOW MANURED AND PLANTED.

We used stable and lot manures broadcast and harrowed in. Then we put fertilizers in the drills as we bedded. We harrowed the tops of these beds until it was fine. We never saw so much dust. The horses and hands were covered with it. Then we opened the small

furrow with the plow foot without any hoe on. We sowed the seed covered with a small tooth harrow and rolled with a piece of log fixed behind the harrow. Up to this time there had been no rain. Our neighbors laughed at us for sowing in so much dust; but we trusted in Providence and did the best we could. The farmer can always afford to do this.

THE RESULT.

The rain came, the turnips came up and grew off. We worked them promptly. And such turnips we have never seen grown on poor land. We fed our mules and horses on these turnips, for we found that all stock do well on rutabagas. We sold those turnips to our neighbors who had laughed at us; we fed our family from that turnip crop and we shipped carloads of them to Atlanta.

We instructed our commission merchant to sell them and invest the net proceeds in corn and ship to us. The turnips kept going and the corn kept coming. We had more than corn enough to make the next crop.

The full value of that turnip crop we have not counted up exactly. The railroads at that time got a full share for freight, about three times as much as they now charge. That turnip crop saved our farming that year from being a losing business and made it a profitable one.

So now we advise you to prepare a turnip patch and raise turnips. The yellow fleshed varieties are the best for stock. Sow anywhere from July 20th to September 1st.

Making the dust was the main point in our experiment. Turnips rejoice in a finely pulverized soil. Be sure to

use some kind of roller. A keg or barrel will do good work. Be sure to hoe them to a stand promptly. This is a very important point. Grow turnips. If you can not sell them you can feed them.

Atlanta, Ga., 1904.



OLD-TIME MARKET SCENE.

WATERMELON CULTURE.

BY W. B. RODDEBERY.

Well drained land should be selected. If early shipment is desired a hillside with southern exposure is better. I prefer land that is rather sandy, although our stiffest lands in this section produces watermelons to good advantage.

The land should be broken broadcast as deep as possible, then check with small plow ten feet each way. Open the center furrow with small two-horse middle buster or largest round shovel that one horse can pull.

Apply 500 pounds of guano per acre as per following analysis:

9 per cent. phosphoric acid.

3 per cent. nitrogen.

5 per cent. potash.

In applying this fertilizer put one-third in the center furrow mentioned above, distributing it in the furrow extending about two feet each way from the check making the guano cover a space of about four feet in this furrow. List on this with two one-horse turn-plow furrows putting one-third of the 500 pounds in each of the two list-furrows letting some of the guano scatter on top of the list. This will make the guano cover the space of about 18 inches to two feet wide and four feet long at the check. Then burst this list or bed open with a five or six-inch long shovel or any other plow that will thoroughly mix the soil with the guano that has been applied. This will leave the land on a level.

Then bed up high with two-horse turn plow two or four furrows making a good high bed, not very wide, two furrows being preferred by some, rather than four furrows on which to plant. The bed is now ready for planting.

In this section we begin planting as early as we are reasonably safe from frost, beginning about the first to the 10th of March. As there is always more or less danger of frost until after April 1st in this section. I make three plantings of seed, one every ten days beginning from the 1st of March to the 10th of March. This usually insures a stand even if we have frost as late as April 1st, as the last planting is in the ground at that time.

I plant from three to five seed at the time. The first planting is right on the check, the next planting being to one side and the third planting to the other side of the check. I use a hoe in planting, knocking the bed down well to the moist soil.

I plant very shallow, covering not over three-quarter-inch, being careful to place moist dirt on top of the seed and to press this dirt with the hoe. The mark made well with the hoe will indicate where each planting is made so that in making two or three plantings there is no danger of interfering with seed previously planted, although they may have not yet come up.

I am sure that much of the complaint that is common every year as to bad stands is due to the fact that the seed are planted too deep in the ground. We usually have some packing rains during March and the ground is cold, therefore seed can not come up unless planted shallow.

As soon as the seed are out of the ground the soil around the young plants should be stirred so as to let the sunshine

and air in. Melon plants will get the third leaf quicker if worked as soon as they come up. When a good stand is secured I put two more two-horse furrows on the bed throwing the dirt as near the top of the bed as possible not to cover up the young plants.

I next plow the melons, usually with a sweep, thus cleaning the drill and filling up the two-horse furrow that has been left open. I then bed out the middles with a two-horse plow throwing as much dirt to the melon row as possible.

I find that it is best to have the melons on a high ridge such as can be made with two-horse plow as our greatest trouble in the cultivation of melons is usually sobbing of the land and scalding of the vines by continued rains that we usually have while the melons are bearing; therefore, the bed should be well drained into deep middles. If a two-horse plow is not available I would advise plowing out the middles two times with one-horse plow throwing the dirt to the melon row both times.

As soon as the young plants begin bunching, to run, I thin to one plant in the hill and cultivate often with sweeps keeping just ahead of the vines, not disturbing the vines by turning them, except up to the time they are three feet long. I find it advisable to lay the vines lengthwise on the drill and plow up close, but after the vines get old enough to begin blooming and forming young melons they should not be turned or disturbed; by depressing the handles of the plow, the wings of the sweeps will pass under the ends of the longest vines without injury to them.

Continuing to plow with sweeps just ahead of the vines until they are lapping in the middle and then plow no



SECOND HARVEST MELONS FROM PECAN GROVE.

more. I find it profitable to pull off all young melons in excess of two or three to the vine up to the time that these two or three melons are nearly grown. In pruning of course all ill-shaped melons or lop-sided melons should be clipped off in every instance even if none are left on the vines. This applies to round melons as we have mainly lop-sided melons of this variety.

All long melons that have long necks like a gourd should be pulled off as such melons never pay to ship and I believe the industry suffers every year by the fact that some farmers will persist in loading such melons.

The yield of one good melon per vine is about an average crop and will make about one carload of melons to every two acres. Occasionally we get a yield of a car per acre which is about two melons per vine depending of course upon the size of the melons; however, it is very rare that the yield is this good.

The trade now demands cars containing about 30,000 pounds of melons and of round melons a good average size is about 30 pounds each for Kolb Gems and 35 pounds each for Triumphs or round blues.

Of the long varieties a good average size is 25 pounds for Rattle Snakes and 30 pounds for Watsons. This latter variety is a long blue melon and is at this time a most popular shipping variety, being a most excellent "cutter" as the round varieties are not such good "cutters." The term "cutter" applies to the quality of the melon for eating.

One of the most important things in shipping melons is the proper handling and loading of the melons into the

cars. The melons should be thoroughly ripe through and through, not pink, but red ready to eat.

The old idea that watermelons will ripen some after being clipped from the vines has long since been proven to be a fallacy. Melons must be good to eat when shipped if they are good to eat at destination.

The industry suffers more from shipping green melons than any other thing. If every car could be guaranteed to be perfectly ripe when shipped, I believe that the average price on our melons in Georgia would be advanced \$10.00 per car; but dealers have learned from sad experience that the risk of loss from green melons is very great, therefore, they hedge against this probable loss by shading the price from \$5.00 to \$20.00 per car.

This loss is sustained by the grower and is caused by the selfish, penny-wise, pound-foolish farmer who clips his melons too green in order to rush them on the market ahead of his neighbor, hoping thereby to secure a fancy price.

Melons should not be pitched into cars like they were baseballs but should be handled tenderly into the wagons in the fields and we should be just as careful in handling them into the car. I have seen many a melon buyer turn away in disgust from a car of melons that were being handled like pig-iron by the owner or packer because this buyer knew that if a melon is bruised as it is put into the car or the heart broken loose from the side perhaps, that this melon would be worthless at its final destination a week later.

The loss from rotten melons each year is largely caused by the rough handling of the loaders. The melons should

be packed into the car in smooth, snug layers so that they will not shift or roll about, and should be four or five layers deep, which is the usual method according to the size; if the melons are 30 pounds or larger, four layers in 36-foot cars will make a car load; if the melons are small or the cars short five layers should be put in the door-way.

All cars should be heavily bedded with straw or hay and in packing the melons a handfull of straw should be placed between each melon and the side and end of the car. This of course only applies to the outside tiers. Cars that are well ventilated should be selected, especially should cars have vents in the end at the bottom and all shippers should be careful to see that the bottom vents are open and that the doors are well ventilated.

The door-ways in the cars should be boarded up as high as the melons are packed leaving cracks between these boards so as not to interfere with the circulation of the air through the ventilator doors.

No melons should be loaded in cars that have contained bulk acid phosphate, lime or salt unless such cars are well lined with heavy furniture or carpet paper so as to prevent the melons from coming in contact with lime, salt or phosphate. Unless the precautions are adhered to the melons are apt to prove a total loss as they will rot fearfully under such conditions.

I had 38 acres in Triumph melons this year and I shipped 19 cars; about half these cars were loaded with melons that averaged 45 pounds each and the other half averaged from 30 to 35 pounds each. I could have shipped five or six more cars of melons that would have averaged 25 pounds but the market was in such shape that it would

not pay me to load these small melons, I therefore fed them to my hogs and they are worth growing for this purpose alone provided you have the hogs to feed them to.

I received from the 19 cars, \$1,960.00 f. o. b. cars at loading point.

These melons cost me approximately \$700.00 loaded on the cars. Melons can be grown in this section under present cost of labor for \$10.00 to \$12.00 per acre not including hauling and loading.

I had to haul my melons about two miles and it cost me about \$15.00 per car to clip, haul and load the melons into the car, valuing my teams at \$2.50 per day for driver and team.

Now to conclude, I think the best advice that I can give to the prospective grower of melons is to be sure to accept any reasonable offer for melons f. o. b. cars at loading point rather than to ship them on consignment.

I have been growing and shipping melons for 20 years and I have observed the experience of other people and I have seen a good deal of money made by the farmers of this section when they sell the melons and get the money before the melons leave and I have seen a great many people lose money heavily on melons by shipping them on commission.

Cairo, Ga.

COLLARDS.

BY CHARLES DECKNER.

The Georgia or Southern collard for the past ten years has taken a prominent place with the truck farmer so that perhaps several hundred acres now are grown for the Atlanta market. While it has been a leading vegetable in the Southern home garden for a century or more yet up to ten years ago it was not offered to the trade. It is said that it originated from the regular cabbage and that collards are nothing more than degenerated cabbage, as it is evident that cabbage seed grown in the South successively will lose its heading propensity and become collards. But this may be as it will, the fact remains that the collard is sought on our Southern table during winter to take the place of cabbage and is preferred by a majority to that of cabbage and being hardier to stand winter than the latter its cultivation is more desirable. To grow collards forty years ago the family vegetable garden was the only place where it could be found and to-day hundreds of acres are annually planted for the Atlanta market. The old custom to sow the seeds in seed beds in March and transplant as soon as large enough and so "summer" the plants over has long been abandoned by our wide-awake truck farmers and now the seed is sown in July and August either in beds and transplanted or else it is drilled right on the field which had been prepared and enriched as for cabbage, and if the soil contains sufficient moisture to bring them up and give them a good start there will be no further trouble. The land selected for collards is land

that had been harvested or been in an early vegetable crop such as early corn, tomatoes, cucumbers, beans, etc. As soon as the former crop is off the field for collards should be enriched with barnyard manure or fertilizer containing high percentage of potash and nitrogen should the land require such fertilization. Where plants are set out allowance should be made for eight or ten days which the plants require to establish themselves while those sown on the field will have the advantage besides the difficulty in starting plants at this season. Whether set or sown the rows must be three feet apart and as much distance in the row as the vigor of the plants require. If sown they must be thinned which we do by chopping them out with a hoe leaving three or more plants to the hill and as soon as more room is required we thin them by hand leaving one or more plants to the hill. We haven't found any difference in the variety of the soil when fertility and preparation are the same, however we would prefer a southern exposure, being a winter crop. If you find that your collards are not growing rapidly enough, and you should desire to force them, put some nitrate of soda around them. From 100 to 150 pounds of nitrate of soda will certainly make them grow rapidly, and the more rapid the growth the more tender the collards and I think better the flavor. There are two reasons in favor of the late planting. One is, you do not breed so many worms and harlequin bugs to pray upon them, and secondly, the collards are more tender and edible.

Atlanta, Ga.

SPINACH.

BY CHARLES DECKNER.

The spinach belongs to our winter and early spring vegetables. It is a very desirable dish during the winter season when variety is greatly sought. While spinach is not a strictly Southern dish yet its use is annually increased as the taste becomes more and more cultivated. The soil for spinach should be deep and rich, made so by the application of barnyard manure. The use of commercial manure for spinach could not be recommended unless the land on which it is to grow has been well enriched the previous year with barnyard manure or as an addition to an application to barnyard manure. Spinach, especially for market, should be sown as early in fall as the weather will permit, commencing about the middle of August. Should, however, the weather be hot and dry at this season, sowing must be deferred until the weather is cool and moist. A succession of sowing until the middle of November is advisable. Spinach will not germinate in too hot weather and if it should come up the hot sun will destroy it. Thousands of pounds of spinach seed are annually lost by planting too soon. Drainage is another material point to consider. Nothing will injure spinach as much and frequently destroy it as an excess of water. Surface draining can be made to suffice on upland, but if bottom land is not sufficiently under drained so as to remove the surplus water soon after the heavy winter rains the spinach will



SHOWING TRUCK CROPS ON SAME LAND BEFORE AND AFTER
TILE DRAINAGE.

soon tell by turning yellow and dying. On upland where the seed has been sown on high beds with sufficient incline to quickly remove surface water the drainage will be sufficient.

So far for fall sowing, but it is equally important that spring sowing should be made. The demand for spring spinach is not as great as that of fall on account of other vegetables taking its place, yet for a season at least there is good demand and the sowing may be commenced from the middle of February till the middle of March. Plant and cultivate the same as for fall sowing. Manuring for spinach should be heavy as said above. We put on spinach land from 40 to 50 tons of good barnyard manure per acre. If this be reduced a sufficient amount of commercial manure should be added to make up for the reduction. This should analyze 5-8-6, that is 5 per cent. ammonia, 8 per cent. available phosphate and 6 per cent. potash. As to varieties, but little can be said as they change so frequently and succeed differently in different soils. But for early fall and late spring we prefer the "long standing" varieties, which stand more heat and dry weather while the "savoy leaf" varieties perhaps endure more cold, yet the yield is not as great as the former. As to the use of nitrate of soda around spinach, I have used it when it paid me handsomely, and then I have used it when the results were far from satisfactory. It all depends upon the condition of your soil and the time of applying. It will pay you well to put some around your spring spinach if the growth is not vigorous enough.

Atlanta, Ga.

ONIONS IN THE SOUTH.

BY H. G. HASTINGS.

The South sends several million dollars a year to the Northern States and foreign countries for onions; yet the onion as a commercial crop in the South, when properly handled, is the safest and most profitable vegetable crop that can be grown. Texas and Louisiana are the only Southern States where the onion is grown extensively as a market crop, and the Bermuda onion brings from one and a half to two million dollars cash every year into a comparatively limited territory in Texas.

The culture of onions in the South presents three distinct phases: the growth from fall-sown seed of the Bermuda varieties under irrigation as practiced in southwest Texas; fall sowing of the Bermuda varieties and the Creole in Florida and all along the Gulf Coast section of Georgia, Alabama, Mississippi, Louisiana and southeast Texas, a strip extending fifty to seventy-five miles back from the coast, the crop being grown with the natural rainfall; and last, the growth of the crop from spring planted seed in the central South.

Profitable crops of onions can be grown almost anywhere in this territory but the intending planter must remember two things in connection with this crop; first, that the onion is a heavy feeder and requires either rich or heavily fertilized land; second, the crop requires very careful cultivation from start to finish. An onion crop, to be successful, must have a much higher grade of treatment than the average negro hand gives cotton. Unless

the prospective onion grower is willing to give his crop careful attention he had better let it alone. Also, it is best for a beginner to start on a small scale, certainly not over an acre, unless you are associated with some one experienced in handling this crop, for no matter how complete directions may be given for growing onions there are often peculiar local soil conditions that must be studied and experimented with and just as valuable experience in growing and handling the crop can be obtained on a small scale as on a larger one and at a great deal less expense.

ONIONS IN TEXAS UNDER IRRIGATION.

The writer has been closely associated with the Bermuda onion industry of Texas and its start in 1892 or 1893 was a small one. Mr. T. C. Nye, of Laredo, Texas, the pioneer of the industry, in the attempt to find an onion that would grow and produce satisfactorily in Texas had never heard of the Bermuda onion until he got hold of one of our catalogues. He had tried all of the other varieties without success but sent to us for two ounces of the Bermuda seed. He was successful and the following year sent for a pound, and so on until his neighbors began to take notice and follow in his footsteps and in less than a dozen years an industry shipping some 3,000 carloads was established.

That portion of Texas is for all practical purposes arid, and all crops are grown with irrigation, the water being pumped mostly from the Rio Grande River, although some fifty miles north of Laredo artesian water is found in abundance.

The general practice in that section is to thoroughly

break the land, usually with disc plows, then harrow down and plant a summer cover crop of cow peas. These are let grow until September, an occasional irrigation being given. Some of the growers let the ground stand uncultivated during the summer months but the most successful growers generally now grow a summer cover crop of cow peas which are turned under, adding humus to the soil. Whenever obtainable stable manure is broadcasted and plowed in, the effects of a single application of manure showing for years afterward.

Seed is sown in seed beds usually from September 15th to October 1st and let grow until about the size of a slate pencil before transplanting. On seed bed basis, seed is planted at the rate of thirty to thirty-five pounds per acre, one acre of seed bed usually furnishing sufficient number of plants to set ten to twelve acres.

In the Laredo section the beds are laid out twelve to fifteen feet wide and 100 to 200 feet in length with raised borders to hold the water. The Laredo practice is to flood the beds and with their loose, quickly draining soil this is undoubtedly best but it would be fatal on heavy soils that drain slowly.

The seed is planted in dry soil followed immediately by an irrigation, a second one being given in five to seven days.

Transplanting usually begins about November 15th and is seldom completed on the larger farms until January 1st. Rows are laid off every sixteen to eighteen inches apart, an onion plant being set every five or six inches in the row. In extra rich or highly fertilized soil they can be set as close as four inches—in fact it is

best to crowd them a little for extra large onions are not desirable in market.

The young plants are dug from the seed beds and if no culls are wanted in the crop the smaller and weaker plants are discarded, the object being to get plants of even size and vigor that will make a uniform growth and size. Unless this sorting of the young plants is done a large number of the onions will be culls, unfit for market and occupying ground that could just as well make a marketable bulb.

After digging and sorting, the plants are trimmed, about one-half of both top and roots being cut off.

Lines are stretched to indicate the rows and the holes are made with dibbles, these being followed by the setter who sticks the plant in the hole and firms the earth around it. By this method from 80,000 to 100,000 plants are set per acre. The transplanting is followed by irrigation and as soon as dry enough by surface cultivation with wheel hoes. In close planting as described all labor must be hand work. No directions can be given as to how often to irrigate. It's one of those things to be done just when needed, neither before or after, and it takes experience to know when it's needed. In the cool winter months one irrigation may last three weeks, later on with warmer weather and the bulbs forming rapidly, once a week is often necessary.

Onions transplanted by December 1st in Texas usually complete the growth of top between March 1st and 10th, following which the bulbs form. This is indicated by the base of the plant beginning to swell.

It used to be the practice to draw away the soil from onions as they began to bulb. We are satisfied that this

is a mistake, especially so with flat varieties like the Bermuda. If the bulbs remain covered there is just enough pressure from a rightly irrigated soil to thicken them up in more marketable shape than if allowed to spread out on the surface. We have seen them as large as saucers and very thin. This is not desirable, the most saleable size being three to four inches in diameter.

The maturity of the crop is indicated by the dying of the top beginning at the tip. When dead about half to two-thirds of the way down the crop may be plowed up. After plowing up, the onions should be allowed to stay in the field from one to two days to cure before trimming, but in hot sections like South Texas the bulbs should be protected from sun scalding. If placed right, the dying tops will usually be sufficient protection. As soon as the tops have dried they are clipped off and the onions placed in field crates, these in turn being taken to the packing houses where they are graded and packed in the crates for shipment to market.

Bermuda onions are rather tender and the more carefully handled the better condition they will reach market in. Many a crop in Texas has been turned from profit to loss by careless and rough handling in field or packing house.

Bermuda onions should not be shipped in bags. The most satisfactory packages are the Owosso and Cummer crates which hold a little over fifty pounds, are strong and at the same time give perfect ventilation.

There are three varieties of the Bermuda onion, the Crystal Wax, which is a pure silvery white color; the White Bermuda, which is really a light yellow or straw



ONIONS ON CHAS. DECKNER'S FARM NEAR ATLANTA.

color and the Red. The Crystal Wax and the White are the varieties grown for market.

ONIONS IN FLORIDA AND THE GULF COAST SECTION.

The Bermuda varieties and the Creole onion of Louisiana are the only safe varieties for this section and all of them should be planted from September 15th to November 1st. It is generally customary in Florida and this entire section to plant seed in open ground where the crop is to be grown, thinning out to a stand. Our observation of and experience with this crop covers some twenty years and every year's observation convinces us that planting in beds and transplanting is the best and most profitable method in spite of the labor involved. The transplanting saves three weedings and the thinning out and where the plants are sorted it means a full stand of uniform sized and maturing plants, a thing utterly impossible where one sows to a stand. Another point is seed-saving. When sown in beds two and a half to three pounds of seed will usually furnish sufficient vigorous plants for an acre while four to five pounds are necessary to insure a stand with the other method.

In Florida and the coast section, what are commonly called "hammock" lands are the favorite lands for this crop. Low pine lands along the edges of lakes, creeks and rivers, lands that stay moist but not wet are admirably adapted to this crop when well fertilized. Some of the best onion crops we have ever seen were produced on what are known as the "marl prairie" lands of the lower East Coast of Florida, lands bordering the Everglades. The muck lands produce enormous crops but unless well

drained and have been under cultivation sufficient length of time to get out all the "sourness" they should not be used for commercial crops of onions. They will make big crops but the onions will be overgrown and of such irregular shape as to be unsaleable. Neither will onions grown on such land keep, but rot shortly after being harvested.

In that section the ground should be thoroughly broken up about September 1st and harrowed. All grass, roots, sticks and trash should be removed. Every ten days or so the piece of onion land should be run over with a harrow or cultivator to kill the weeds and grass that has started and not later than two weeks before transplanting from one to two tons of high grade commercial fertilizer should be applied per acre and plowed in lightly. Fertilizer formulas will be given later. The seed bed can be handled as in the Texas practice except that irrigation is not needed. On the heavier soils do not cover the seed over one-half inch; in sandy soils three-quarters to one inch of loose soil can be used in covering. Unless planted in showery weather the soil should be firmed or rolled after planting.

If you are sowing in open ground where the crop is to stand and intensive culture given, the land should be laid off in rows fourteen to sixteen inches apart, with the understanding that all cultivation is to be done with wheel hoes or cultivators. Seed should be drilled in, using four to five pounds of seed per acre. With seasonable weather the seed should germinate in five to eight days and as soon as the rows are well defined, light surface cultivation should begin and be continued frequently until the bulbs are at least half grown. The onion is largely a

surface feeder and cultivation should only be deep enough to kill young grass and weeds and prevent the formation of a crusted surface. When plants are about six inches high the thinning out process should begin—leaving, on average good quality land, one strong plant every four to five inches in the row. “Skips” or missed stand places will usually be found in the rows and these can be filled from surplus plants from other places. In very rich soil they can be left as close as three inches in the row. The greater part of the growth of this crop is in winter when the weed and grass growth is at a minimum; at the same time the few weeds that do come should be promptly removed. Keep the crop growing as steadily as possible, this being done by the frequent cultivations. An onion crop frequently checked in its growth will invariably make many “thick-necks” or “scallions” and throw up seed heads about time of maturity.

The first effort of the onion plant is to complete its growth of top. This top growth must be practically complete before the bulb begins to form. The beginning of bulbing is indicated by the swelling at the base of the plant. In Florida and along the Gulf this swelling begins between March 1st and 15th and the bulb or onion is usually matured in five to six weeks after, the maturity being indicated by the dying tops.

If you have been working under the system of “sowing to a stand” you will find it impossible to harvest the crop satisfactorily at one time. The weaker plants will hardly mature for two to four weeks after the strongest ones and if plowed up when the first half of the crop is mature there is bound to be a heavy waste. Sowing seed in beds followed by transplanting with sorted plants of uniform

size insures uniformity of maturity and size of onions. Mr. Nye, of Laredo, Texas, follows this plan of sorting the young plants to uniform size and it is a rare thing for him to have any "culls" in his crop.

With a transplanted crop the entire field should be plowed up as soon as well matured. The onions should be picked up and placed in rows in the field if weather is dry and let cure two or three days. Place so that the bulbs will not be exposed to the sun. Sun-burn or sun-scald starts rotting. If weather is showery or damp the onions should be brought under cover and spread thinly on a barn or shed floor, letting the tops remain on until well dried. When ready to pack and ship the tops should be clipped off close to the bulb, sheep shears being preferable for the work. Handle carefully so as not to bruise. If the onions are to be marketed locally and in small quantities we advise leaving the tops on the bulbs until ready to market, especially so in humid climates like Florida and the Gulf Coast. Clipped onions will often rot in four to six weeks in humid climates while we have seen Bermudas with the top or "straw" left on and spread thin keep until Christmas, the onions being harvested in April.

FERTILIZING AND FERTILIZERS.

Onions require either a naturally rich soil or heavy fertilizing to make good size. If your soil is not fertile make it so with well-rotted manure or commercial fertilizers. In many onion growing sections manure in sufficient quantity is unobtainable. If this be your case, commercial fertilizers are necessary. If your soil is sandy, or sandy loam, use fertilizer containing 6 per cent. available

phosphoric acid, 8 to 9 per cent. potash, 5 to 6 per cent. nitrogen. Use a ton of this on land that is considered fertile enough for an ordinary crop; two tons may be applied on land that has been cropped several years.

AMOUNTS OF FERTILIZERS.

<i>Element.</i>	<i>Pounds per acre</i>	<i>Pounds of different material for one acre.</i>
Nitrogen	..100-200	{ 1600 to 3000 lbs. cottonseed meal; or 700 to 1400 lbs. nitrate of soda; or 1000 to 2000 lbs. dried blood; or 1400 to 2800 lbs. guano; or 500 to 1000 lbs. sulphate of ammonia.
Potash	....180-360	{ 2200 to 4400 lbs. kainit; or 360 to 720 lbs. muriate of potash; or 350 to 700 lbs. sulphate of potash; or 700 to 1400 lbs. sulphate of potash and sulphate of magnesia.
Phos. Acid.	..120-240	{ 1200 to 2400 lbs. acid phosphate; or 1000 to 2000 lbs. dissolved bone.

If your soil is stiff, heavy or a red clay, use one containing 8 per cent. available phosphoric acid, 5 per cent. potash, and 5 per cent. nitrogen. If you want to make a full crop you should use from 1,000 to 2,000 pounds of high-grade fertilizer per acre. A word of caution, however, about commercial fertilizers. They should always be put in the ground two or three weeks before the seed is sown. As soon as these fertilizers go in the ground and come in contact with moisture a chemical change begins. While that change is taking place heat is generated which usually continues for some two weeks. If seed comes in contact with the fertilizer while this chemical change is taking place the vitality is "burned out" of the seed and it will not germinate. This is especially true here in the South where cottonseed-meal is so largely used as a source of nitrogen in the fertilizers. Thousands of pounds of seed are "burned up" in this way every year and the

planter very often can not understand why he fails to a greater or less extent in getting a stand.

ONIONS IN THE CENTRAL SOUTH.

There is a generally mistaken idea prevalent that it is impossible to grow profitable crops of onions in the Central South or cotton belt directly from the seed, most people having the idea that it is necessary to either plant sets or else to grow the sets from seed sown in the spring then plant out the sets the following fall or spring. As good and profitable crops of onions can be grown in the Central South as any other section providing our people will give this crop the same care and fertilizing that growers in other sections do. We have become so used to a slipshod method of growing cotton and corn that we can't seem to get down to the high fertilizing and intensive methods necessary to succeed with a staple vegetable crop like onions.

So far as growing a market crop of onions is concerned forget that there is such a thing as an onion set. Sets are all right in their place—the home garden, for a few very early onions, and for the local market gardener to sell bunches, but as a foundation for a market crop of matured bulbs they are a delusion. A set very seldom makes a nice shaped marketable bulb, they are not good keepers and almost invariably show a large per cent. of “thick necks” and scallions. It also takes about ten bushels of sets to plant an acre and when sets are \$2.25 to \$2.75 per per bushel this almost prohibitive.

The Bermuda varieties can be successfully grown in the Central South from spring planted seed. Seed plant-



COUNTRY GENTLEMAN CORN.

ed in late February will mature full sized onions by July 15th. If seed is planted thickly in cold frames or protected beds in December or about January 1st the plants will usually be ready for transplanting to open ground as early as the soil can be worked in the spring.

For general market purposes however, dependence should be placed in the Prizetaker, the three Globe varieties (White, Yellow and Red) and the Australian Brown. This latter has not been as generally successful as the first named although it is the best keeper of all, having kept a full year in perfect condition.

For best results the ground used for onions should have been under clean culture the year previous. If you expect to grow onions for a crop regularly, set aside a piece of ground and keep it in onions year after year and you will get better results. If kept perfectly clean as it should be the expense of weeding and cultivation will grow less each year.

Onions ground in this section should be plowed in the fall and let stay in rough state through the winter. Freezing disintegrates the clods. If dry enough plow again thoroughly in spring, then harrow until the soil is as fine as possible. If you have your plants in seed bed do not be in too great hurry to transplant. A harrowing of your ground every week will kill out thousands of young weeds and grass plants that would make trouble later on. In the latitude of Atlanta April 1st is early enough to transplant and this can be done as described in the Texas practice. If you intend to plant seed in the open, follow the practice described for Florida and plant seed latter part of February or first half of March. This matter of date is dependent on season conditions and must

be varied to meet the conditions of each season. The onion plant is semi-hardy and will stand considerable cold. Bermuda varieties will stand about 20 degrees above zero, the others about 15 above without material injury. The tops may be knocked down or even killed but they will come out again.

The open ground planted seed must have frequent and thorough cultivation else the grass and weeds will take the crop and the onions die down in the "set" stage. If the onions are kept growing rapidly by sufficient cultivation there will be no stopping of growth in the "set" stage. The fact that onions die down so generally at that stage is from lack of sufficient cultivation, and that seems to have been the trouble in the Central South in the past. The grower has let his crop stop growing from lack of sufficient cultivation.

What has been said about sowing seed in beds, sorting the young plants to uniform size so as to give uniform onions in the crop applies to spring planting in the Central South as well as to fall planting in the other sections.

With high fertilizing and the best of cultivation, crops of from 400 to 500 bushels per acre are not uncommon, and it is a rare thing for onions to be worth less than \$1.00 per bushel in the wholesale markets of Atlanta and other Southern cities. It's not a fancy price crop but it's a staple crop at a fairly steady price. If the market is glutted at harvest it's a crop that, if it has been properly grown, can be kept for months if necessary. It's the safest vegetable crop that can be grown South, but it's not a crop to play with or that will stand slipshod, careless treatment. If the prospective planter will give it the at-

tention it deserves and must have he will find it one of the best of paying crops—otherwise he had best let onions as a crop entirely alone.

Atlanta, Ga., September, 1910.

PLANTING TABLE FOR VEGETABLES

THESE dates are for vicinity of Atlanta; for every 50 miles below this parallel move up a week in planting. Where the date for outdoor planting is given as March, plant as early in the spring as the ground can be prepared; where April is the time designated plant only after ground has become warm.

VARIETY	PLANTING DATE [OUTDOORS]	DEPTH TO SOW SHED	DISTANCE IN ROW	DI-TA-CE BE- TWEEN ROWS	AMOUNT OF SEED
Asparagus	Dec-March	4 in.	12 in.	3 ft.	1 oz. 50 ft.
Beans (string)	April-August	2 in.	Drill.	2 ft.	1 qt. 100 ft.
Beans (Lima)	April-August	2 in.	Drill.	2 1/2 ft.	1 qt. 100 hills
Beets	Feb. & July	1 in.	6 in.	2 1/2 ft.	1 oz. 50 ft.
Brussel Sprouts	March	1 1/2 in.	Drill.	2 ft.	1 oz. 2000 plants
Cabbage (early)	Feb. & March	1/2 in.	18 in.	2 ft.	1 oz. 2000 plants
Cabbage (late)	May-July	1/4 in.	Drill.	2 ft.	1 oz. 100 ft.
Carrots	March & July	1/2 in.	2 feet	3 ft.	1 oz. 2000 plants
Caniflower	April & May	1/4 in.	12 in.	3 ft.	1 oz. 2000 plants
Celery	February-July	2 in.	Drill.	3 ft.	1 qt. 100 hills
Corn	March-April	1/4 in.	2 feet	3 ft.	1 oz. 50 ft.
Cress	April	1/4 in.	3 feet	4 ft.	4 to 6 seeds in hill
Cucumber	April	1/4 in.	2 feet	3 ft.	1 oz. 1000 plants
Eggplant	September	1/4 in.	Drill.	2 1/2 ft.	10 oz. 100 ft.
Kale	March & April	1/4 in.	18 in.	2 ft.	1 oz. 2000 plants
Horse Radish	Sept. & Feb.	1/4 in.	10 in.	2 ft.	1 oz. 100 ft.
Lettuce	April	1 in.	Drill.	2 ft.	12 seeds to hill
Mustard	Sept. & Feb.	1/4 in.	12 in.	2 1/2 ft.	1 oz. 100 ft.
Okra	March	1/2 in.	Drill.	18 in.	1 qt. 50 ft.
Onion Seeds	Sept. & Feb.	1 in.	4 in.	18 in.	1 oz. 150 ft.
Parsley	March	1/2 in.	8 in.	18 in.	1 oz. 200 ft.
Parsnip	Jan. & Feb.	2 in.	6 in.	18 in.	1 oz. 200 ft.
Peas (English)	April	1/4 in.	Drill.	2 ft.	1 qt. 100 ft.
Pepper	Feb. & March	3 in.	12 in.	2 1/2 ft.	1 oz. 2000 plants
Potato (Irish)	April	3 in.	12 in.	2 1/2 ft.	1 peck 100 hills
Potato (Sweet)	Feb. & March	3 in.	18 in.	2 1/2 ft.	1 bu. 2000 slips
Pumpkin	April	1/2 in.	6 feet	6 ft.	3 seeds in hill
Radish	April & March	1/4 in.	Drill.	2 ft.	1 oz. 100 ft.
Rhubarb Roots	Dec-February	4 in.	3 feet	3 ft.	1 oz. 50 ft.
Salsify	March & April	1 in.	Drill.	2 1/2 ft.	1 oz. 100 ft.
Spinach	Sept. & Jan.	1 in.	Drill.	3 1/2 ft.	6 seed in hill
Squash	April	1 in.	3 feet	3 ft.	1 oz. 1000 plants
Turnip	July & Feb.	1/4 in.	Drill.	2 1/2 ft.	1 oz. 150 ft.

QUANTITY OF SEED REQUIRED TO SOW AN ACRE

Variety.	How Planted.	Quantity.
Asparagus	Drills	4 to 5 quarts.
Beans, Dwarf	Drills	2 bushels.
Beans, Pale	Hills	10 to 12 quarts.
Beets	Drills	5 to 6 pounds.
Cabbage	In beds to transplant	one-half pound.
Carrots	Drills	3 to 4 pounds.
Corn	Hills	8 to 10 quarts.
Corn, for silo	Drills	3 bushels.
Cucumber	Hills	2 to 3 pounds.
Cress, Water	Drills	2 to 3 pounds.
Cress, Upland	Drills	2 to 3 pounds.
Kale, German	Drills	3 to 4 pounds.
Mustard	Drills	4 to 5 pounds.
Melons, Musk	Hills	2 to 3 pounds.
Melons, Water	Hills	4 to 5 pounds.
Onions	Drills	5 to 6 pounds.
Onions, for Sets ..	Drills	30 pounds.
Onion, sets	Drills	6 to 8 bushels.
Parsnip	Drills	4 to 6 pounds.
Peas, English	Drills	2 bushels.
Potatoes, cut, tubers	Drills	10 to 12 bushels
Pumpkin	Hills	4 to 6 pounds.
Radish	Drills	8 to 10 pounds.
Sage	Drills	8 to 10 pounds.
Salsify	Drills	8 to 10 pounds.
Spinach	Drills	4 to 6 pounds.
Squash, Bush	Hills	4 to 6 pounds.
Squash, Running ..	Hills	3 to 4 pounds.
Tomato	To transplant	quarter pound.
Turnips	Drills	1 to 2 pounds.
Turnips	Broadcast	3 to 4 pounds.

PLANTING TABLE FOR FLOWERS

THIS table is for vicinity of Atlanta. For other latitudes it is well to go by time of blooming or leafing of trees. Where date of outdoor planting or setting is given as March, you can plant when the Peach is in blossom; and where April is the Month given, it is safe to plant when the trees are in full leafage.

VARIETY	INDOORS	OUTDOORS	WHEN TO SET OUT	Distance Between Plants
Ageratum.....	March	April	3 in. high...	6 inches
Alyssum.....	All winter...	.....	.....	3 or 4 inches
Asters.....	Jan. & Feb..	March-June .	After Frost.	9 inches
Balsam.....	Feb. & Mar..	April	After Frost.	9 inches
Calliopsis.....	.....	March .....	.....	6 inches
Castor-oil Bean...	.....	April .....	.....	3 feet
Candytuft.....	.....	Fall & Sprin	.....	4 inches
Carnation.....	Jan. & Feb..	March & Apr	April	6 inches
Chrysanthemum..	Feb. & Mar..	April & May	April-May ..	9 inches
Cosmos.....	.....	April .....	.....	12 inches
Dahlia.....	February ..	.....	April-May ..	3 feet
Digitalis.....	.....	March .....	.....	12 inches
Forget-me-not....	.....	March .....	.....	12 inches
Gourds.....	.....	April & May	.....	4 inches
Hollyhocks.....	Feb. & Mar..	.....	6 in. high...	2 feet
Larkspur.....	.....	March .....	.....	12 inches
Marigold.....	.....	April 1st...	.....	6 inches
Mignonette.....	Feb. & Mar..	April-May ..	April	6 inches
Morning-Glory ..	.....	May 1st .....	.....	8 inches
Nasturtiums.....	.....	April .....	.....	6-10 inches
Pansy.....	Oct. & Nov..	March	April-May ..	6 inches
Petunia.....	March	April	April	6 inches
Phlox.....	.....	Feb.-March ..	.....	6 inches
Poppy.....	.....	Feb.-March ..	.....	10 inches
Portulaca.....	.....	April 15-June	.....	4 inches
Salvia.....	.....	April	April 15 ..	18 inches
Stock.....	Feb. & Mar..	.....	April	12 inches
Sunflower.....	.....	April & May	.....	18 inches
Sweet Pea.....	.....	Jan. 15-Mar..	.....	Drill
Sweet William ..	.....	March	April	8 inches
Verbena.....	March	April	April	6 inches
Zinnias.....	.....	March .....	.....	Broadcast

MONTHLY CALENDAR OF OPERATIONS.

FOR THE MARKET GARDENER AND FARMER WHEN AND WHAT TO PLANT.

This calendar is given to aid the amateur or beginner. It should be borne in mind that these recommendations apply mainly to the latitude of Birmingham, Ala., and ought to be varied according to locality.

January—Now time to sow such seed as tomato, egg plant, cabbage, kohl rabi, cauliflower, in hot-beds or cold frames for plants; potatoes may be planted as well as extra early peas and onion sets; a good time to work and fertilize your land.

February—Plant potatoes, peas, beets, onion sets, salsify, carrots, celery, egg plant, cabbage, lettuce, tomato, radish, early corn, etc. In fact, all the hardy things should be planted. Snap beans may be planted in some localities; a good time to sow grass seed, oats, etc.

March—Most anything may now be planted, such as melons, beans, cucumbers, turnips, mustard, collards, etc. Grass seed may still be successfully planted. Bed your sweet potatoes.

April—Time to plant field corn; in fact, all kinds of field crops, such as millet, sorghum, cotton, peas, melons, squashes, pumpkins, stock beets.

May—Time to plant pole beans, limas, okra, and all other things that have been overlooked. This month should be mostly occupied in planting successions of most all vegetables.

June—Not much is planted this month except for late use. The wise gardener, however, makes a succession of plantings of most everything—cabbage, collards, beets, and ruta bagas are largely planted this month for late use.

July—If you have not sown turnips you should do so at once. Sow winter cabbage; collards, spinach, kale and other winter green crops should be planted. Fall crops of Irish potatoes should now be planted. Late crops of early corn have plenty time to make roasting ears.

August—This is the great turnip planting month, and the proper time to plant most all vegetables for fall use, such as spinach, kale, winter radishes, mustard, turnips, lettuce, snap beans, early peas, winter cabbage, etc. Potatoes for spring seed are often planted this late with success.

September—Continue to plant such things as winter radish, kale, spinach, mustard, turnips, lettuce, etc.; they are not affected by the cold nights in October, and will do well. Now getting time to sow fall grain, such as turf oats, clover, rye, barley, grass seed, etc.

October—Continued to plant spinach, winter turnips, etc., and by all means think about the subject of sowing something for winter pasture.

November—Plant onion sets, clovers, grasses and grain.

December—If you wish to be early, this month is the proper time to sow cabbage, cauliflower, tomato and egg plant for early settings.

AMZI GODDEN SEED Co.

TIME REQUIRED FOR MATURITY OF DIFFERENT GARDEN CROPS, RECKONED FROM DAY OF SOWING THE SEED.

	Days
Beans, String	45 to 65
Beans, Shell	65 to 70
Beets, Turnip	65
Beets, Long	150
Cabbage, Early	105
Cabbage, Late	150
Cauliflower	110
Corn	75
Eggplant	150 to 160
Lettuce	65
Melon, Water	120 to 140
Melon, Musk	120 to 140
Onion	135 to 150
Pepper	140 to 150
Radish	30 to 45
Squash, Summer	60 to 65
Squash, Winter	125
Tomato	150
Turnip	60 to 70

AVERAGE TIME REQUIRED FOR GARDEN SEEDS TO GER-
MINATE.

	Days
Beans	5 to 10
Beet	7 to 10
Cabbage	5 to 10
Carrot	12 to 18
Cauliflower	5 to 10
Celery	10 to 20
Corn	5 to 8
Cucumber	6 to 10
Endive	5 to 10
Lettuce	6 to 8
Melon	4 to 8
Onion	7 to 10
Pea	6 to 10
Parsnip	10 to 20
Pepper	9 to 14
Pumpkin	4 to 8
Radish	3 to 6
Salsify	7 to 12
Squash	4 to 8
Tomato	6 to 12
Turnip	4 to 8

SPRAYING AND PROTECTIVE CALENDAR

PESTS Fungoids CHEWING INSECTS <i>Sucking Insects</i>	REMEDY	PROCEDURE.
CODLING MOTH DIABRATICA BUD MOTH CANKER WORM CURCULIO TENT CATERPILLAR Bitter Rot Black Rot Canker Scab <i>Scale</i> <i>Leaf Aphis</i> WOOLLY APHIS BLIGHT BORERS (Round and Flat Headed) RUST CROWN GALL Hairy ROOT	<p style="text-align: center;">APPLE.</p> 4-6-50 Bordeaux and 4½ ounces Paris Green Lime-Sulphur Wash Tob. Pyrethrum Tea Tobacco Dust Manual Manual Manual Manual	Initial spraying before buds open For codling moth spray exactly when blossoms are falling and fruit the size of a pea For subsequent sprayings follow at intervals of three weeks till fruit is nearly grown In Dec. and Feb. as above Dip terminals in bucket 1 to 5 lbs. at roots in Apr. and Aug. Amputate affected terminals Paint trunk with thick Whale Oil Soap Remove all neighboring cedar trees Reject affected stock
DIABRATICA CANKER WORM CODLING MOTH SLUG Leaf Blight Scab <i>Aphis</i> <i>Scale</i> LEAF BLISTER (Phytaps) TWIG BLIGHT (Psylla and Xylaborus) FIRE BLIGHT CROWN GALL	<p style="text-align: center;">PEAR.</p> 4-6-50 Bordeaux and 4½ ounces Paris Green Tob. Pyrethrum Tea Lime-Sulphur Wash Manual Manual Manual Manual	Spray precisely as advised for apples Dip as for louse on apple As for apples and above Burn fallen leaves Remove terminals Prune tree to spreading form; remove fruit spurs on main arms and amputate as blight shows Reject affected stock
<i>Scale</i> Leaf Curl Brown Rot Scab Mildew DIABRATICA CURCULIO <i>Aphis</i> BARK BEETLE (Scolytus) CROWN GALL BORER NEMATODES	<p style="text-align: center;">PEACH.</p> Lime-Sulphur Wash 3-9-50 Bordeaux and 3 ozs. Paris Green Tob. Pyrethrum Tea Manual Manual Manual Manual	Spray in Dec. and Feb. Spray first before buds open; next, after blooms fall and at intervals of three weeks thereafter till fruit is nearly grown. Select clear days for spraying. Foliage tender Dip, as with apples; if slight, remove terminals Destroy affected trees Reject affected stock; destroy affected trees in plat Wrap trunk with paper and mound Aug. 1.—"Worm" by hand Oct. 25 Reject affected stock

PESTS Fungoids CHEWING INSECTS <i>Sucking Insects</i>	REMEDY	PROCEDURE.
PLUM.		
<i>Scale</i> Black Knot Pockets and Bladders GONGER CURCULIO SLUG Brown Rot <i>Aphis</i> CROWN GALL BORER BARK BEETLE	Lime-Sulphur Wash (1) 3-9-50 Bordeaux and 3½ ozs. Paris Green (2) Am. Copper Carbonate Tob. Pyrethrum Tea Manual	Spray in Dec. and Feb. Spray as for peach with (1) (2) for use after fruit is grown, if necessary Use as advised for peach Treat as advised for peach
CHERRY.		
SUNSCALD Other Maladies identical with plums, except "Leafspot"—a fungus	Manual Bordeaux and Arsenite as for plums	Train tree to low head: shade S. W. side of trunk while young Same as for plum
QUINCE.		
<i>Scale</i> Leaf and fruit spot CURCULIO SLUG CROWN GALL	Lime-Sulphur Wash 4-6-50 Bordeaux and 4 ozs. Paris Green Manual	Apply in Dec. and Feb. Spray as for pear As for pear
GRAPE.		
Anthracnose Black Rot Brown Rot Mildew (Downy and Powdery) FLEA BEETLE CURCULIO DIABRATICA <i>Leaf-hopper</i> <i>Aphis</i>	(1) 4-6-50 Bordeaux with 4½ ounces Paris Green (2) Am. Copper Carbonate Whale Oil Soap-1 lb. to 10 gals. water Manual	Spray first as buds are swelling and thereafter at intervals of 3 weeks until fruit is nearly grown, except during blooming period For use after grapes begin to color, as it does not stain Spray at first appearance and 5-day intervals until destroyed. See Note 4 Remove terminals
STRAWBERRY.		
Rust Mildew SAWFLY LEAF ROLLER (and other chewing insects)	4-6-50 Bordeaux and 4½ ounces Paris Green	Spray when growth first starts in Spring and every ten days thereafter until fruit is half grown, omitting blooming period. Mow and burn plat after bearing season.
RASPBERRY.		
Leaf Spot Anthracnose SLUG SAWFLY CROWN GALL	4-6-50 Bordeaux and 4½ ounces Paris Green Manual	Spray when buds are swelling and at 2-wk. intervals subsequently. Remove canes with anthracnose Reject infected nurs. stock

PESTS Fungoids CHEWING INSECTS <i>Sucking Insects</i>	REMEDY	PROCEDURE.
Leaf Spot Anthracnose SLUG SAWFLY CROWN GALL ORANGE RUST	<p style="text-align: center;">BLACKBERRY, DEWBERRY, ETC.</p> 4-6-50 Bordeaux and 5 ozs. Paris Green Manual Manual	Proceed as with raspber- ries As with raspberries Remove affected parts and all contiguous wild black- berries
Rust	<p style="text-align: center;">ASPARAGUS.</p> (1) Copper Sulphate or Am. Copper Car- bonate (2) 4-6-50 Bordeaux	When first shoots appear drench ground with (1) either preparation After cutting season spray with (2) at monthly in- tervals to midsummer
DIABRATICA FLEA BEETLE Anthracnose Pox Rust Leaf Blight	<p style="text-align: center;">BEAN.</p> 4-6-50 Bordeaux and 5 ozs. Paris Green	Spray when plants are well up and every 2 wks. till blossoming pe- riod
Leaf Spot Scab	<p style="text-align: center;">BEE T.</p> 4-6-50 Bordeaux	On appearance of former and every 3 wks. after- wards for 5 sprayings. Rotate plat
CUT WORMS CABBAGE WORM FLEA BEETLE CABBAGE BUG HARLEQUIN BUG	<p style="text-align: center;">CABBAGE AND CAULIFLOWER.</p> (1) Paris Green or Sodium Arsenite (2) Bran Mash (1) Paris Green— $\frac{3}{4}$ oz. to gallon of water (2) Sod. Arsenite (3) Hellebore Manual Manual	Steep balls of cabbage leaves in the arsenite and distribute through plat at night. Use mash as per Note Spray on appearance with (1). In 5 days spray with (2). Every week thereafter use (3) until disappearance Hand pick Trap with rows of mus- tard around plat
Leaf Blight Rust	<p style="text-align: center;">CELERY.</p> (1) 4-6-50 Bordeaux (2) Am. Copper Car- bonate	Spray seed-bed with (1). Dip plants in (1) on setting out. Spray in 10 days with (1) and at 2-wk. intervals for 2 more sprayings. Then spray with (2) till "earthed" for bleaching

PESTS Fungoids CHEWING INSECTS Sucking Insects	REMEDY	PROCEDURE.
Downy Mildew Wilt DIABRATICA MELON WORM FLEA BEETLE Aphis SQUASH BUG PICKLE WORM	CUCURBITS. Including Cucumber, Squash, Cantaloupe, Watermelon, Pumpkin. 4-6-50 Bordeaux and 4½ ounces Paris Green Whale Oil Soap—½ lb. to gal. water Manual Manual	Spray, after plants are up, every week until blooms appear A pinch of nitrate soda to each hill pushes plants rapidly forward and strengthens their power of resistance to all pests On appearance—2 sprayings 5 days apart Hand pick when in numbers Early planting is the only safeguard of muskmelon against this pest
Leaf Spot COLO. POTATO BEETLE	EGGPLANT. 4-6-50 Bordeaux with 5 ozs. Paris Green	Spray plants continuously in cold frame; dip, on transplanting and spray at weekly intervals thereafter for 5 weeks
Thrips	ONION. Whale Oil Soap—½ lb. to gal. water	Spray on appearance of pest and weekly until extermination
Scab Blight (Early and Late) Rot COLO. POTATO BEETLE FLEA BEETLE	POTATO (IRISH). (1) Corrosive Sublimate (2 ozs. to 30 gals.) or (2) Formalin (1 pt. to 30 gals.) 4-6-50 Bordeaux and 6 to 8 ozs. Paris Green	Soak tubers in sack with (1) for 3 hrs., or with (2) for 2 hrs., before cutting and planting Commence to spray as soon as plants are well up and at weekly intervals until grown
Rots, of all kinds	SWEET POTATO. (1) Formalin (1 pt. to 30 gals.) (2) Copper Sulphate (3 lbs. to 50 gals.)	Soak tubers with (1) for 2 hrs. before bedding. Water beds with (2). Handle carefully on digging and rotate both beds and field areas

PESTS Fungoids CHEWING INSECTS <i>Sucking Insects</i>	REMEDY	PROCEDURE.
TOMATO.		
<p>CUT WORMS</p> <p>Damping—off Leaf Curl } Mildew FLEA BEETLE } TOMATO—SPHYNX and all INSECTS } conveying germs } of Bl. Rot and } Bacterial Blight }</p> <p>Florida Blight BOLL WORM</p>	<p>Paris Green or Bran Mash Manual</p> <p>4-6-50 Bordeaux and 5 ozs. Paris Green</p> <p>Manual</p> <p>Copper Carbonate</p>	<p>Apply as directed for cabbage</p> <p>Cease pruning and withhold water</p> <p>Spray and seed bed (cold frame) and after transplanting at weekly or 10-day intervals until fruit is nearly grown</p> <p>Drench ground beneath vines till disappearance</p> <p>Trap with adjacent rows of sweet corn and crush in shuck</p>
HOT-HOUSE PLANTS.		
<p>All fungoid affection and BITING INSECTS</p>	<p>Copper Carbonate and 1 pt. Sod. Arsenite</p>	<p>Spray whenever needed, or at intervals of 3 wks. for precaution</p>
<p>All <i>Plant Lice</i> (aphids) and other <i>Sucking Insects</i></p>	<p>“Nikoteen”—a patent preparation but reliable</p>	<p>Evaporate (hot iron in pan) as per directions with remedy</p>

PLANT DISEASES ARE OF TWO CLASSES :

1. Insect Pests—Preparations for whose destruction are known as “Insecticides.”

2. Fungous Affections—Preparations for whose destruction are known as “Fungicides.”

1. INSECTS.

They are of two kinds :

1. Biting Insects (or Chewing Insects), which bodily devour vegetable tissue, subsisting largely on the foliage of plants. As they take the food material into their stomachs they may be readily destroyed by violent poisons, as the arsenites. To this class belong the Colorado potato beetle, most caterpillars, and, in general, all defoliating insects.

For them *Paris Green* (Formula One) is the principal remedy, and usually a speedy one, applied in liquid form by means of a spray pump, through the nose of a watering-pot or sprinkled with a broom, in the proportion of 1 ounce to 10 gallons of water, or 5 ounces to the barrel of 50 gallons, except when used on orchard trees, and especially on peaches, whose foliage is very sensitive, when it should be reduced to 4 ounces and 3 ounces, respectively.

2. Sucking Insects—Having a tubular sucking apparatus which they insert into the soft vegetable tissue and from it extract the sap. To this class belongs all scale insects, aphids or plant lice, and the “true” bugs, such as the pumpkin or squash bug, the harlequin cabbage bug, etc.

As their sucking tubes would push harmlessly to one side the particles of poison deposited on the surface of leaf or twig these insects can not be reached through their stomachs. They must therefore, be destroyed through external applications. *Kerosene* (preferably as an emulsion—Formula 3a) is found to stop their breathing pores and instantly smother them, and in the past has been the chief weapon against sucking insects. But on account of the difficulty in economically applying it, Whale Oil Soap (Formula 4), though not so effective, is preferable whenever it can be substituted. Certain other preparations, as Pyrethrum (or Dalmatian powder—Formula 6), Tobacco Infusion (Formula 5), etc., are also more or less serviceable.

II. FUNGOUS AFFECTIONS.

Fungoid and bacterial affections are more numerous and widespread than insect pests, and usually more insidious, yet effective remedies, while many, may, for all practical purposes, be reduced to one: *Bordeaux Mixture*. This, if a fungus is capable of control, will generally prove more effective than any other fungicide. It may be superseded, when it is desirable not to stain the fruit by Ammonical Copper Carbonate (Formula 11).

FORMULAS.

I. INSECTICIDES.

1. PARIS GREEN.

(A) *Applied Dry:*

Paris Green	8 ozs.
Flour (or Lime)	15 lbs.

(B) *Sprayed:*

Paris Green	5 ozs.
Lime	6 lbs.
Water	50 gals.

(C) *With Bordeaux:*

Paris Green	5 ozs.
Bordeaux Mixture	50 gals.

2. SODIUM ARSENITE.

Salsoda (crystallized)	4 lbs.
White Arsenic	1 lb.
Water	1 gal.

Dissolve the salsoda in the water, add the white arsenic and boil till clear. Add water to replace that evaporated to make 1 gallon stock solution. Use 1 pint to 50 gallons of water or Bordeaux.

3. KEROSENE.

(A) *Emulsified*—"Cook's Formula:"

Kerosene	1 qt.
Whale Oil Soap (or other good hard soap, as Babbitt's, Ivory or Glory)	½ lb.
Rain water (or water known to be soft) ..	1 gal.

Shave soap, dissolve it in the water, heat to almost boil-

ing and then add the kerosene and churn through a cheap force pump until emulsified. Dilute with 2½ gallons of water, making 1 part kerosene to 14 parts water. This produces about a 7 per cent. mixture. Diluting with 2 gallons of water about 8 per cent. is obtained; 9 per cent. with 1½ gallons; about 11 per cent. with 1 gallon, and some 15 per cent. with 2 quarts. This is sufficiently strong for most purposes. Yet it is well to begin with the standard 7 per cent. until its effect on foliage has been personally observed.

(B) *Mechanical Mixture*—temporarily emulsified by the Kero-water Sprayers. A lever regulates the per cent. of kerosene admitted to the nozzle. As the delivery, however, is not always exact, the Emulsion is decidedly preferable. Kero-water Sprayers, indeed, if used at all, should be carefully watched.

4. WHALE OIL SOAP.

Whale Oil Soap	1 lb.
Water	6 gals.

Dissolve and spray for Aphids on foliage in summer, or concentrate to 1 lb. to 3 gals. of water for wash for the softer scales in winter.

5. TOBACCO INFUSION.

Tobacco Stems	1 lb.
Boiling Water	4 gals.

Cool and strain. For Plant Lice, Flea Beetles, etc.

6. PYRETHRUM.

(A) *Decoction*:

Pyrethrum Powder	1 oz.
Water (warm)	2 gals.

(B) *Dry Application*:—Mix 1 part (by weight) of Pyrethrum with 4 parts of Flour. Keep closed for 24 hours before dusting, that the flour may be permeated by the essential oil of the pyrethrum.

7. TOBACCO-PYRETHRUM TEA.

Tobacco Stems	½ lb.
Pyrethrum Powder	¾ oz.
Boiling Water	1 gal.

For obdurate cases of Plant Lice on young apple trees. Dip the affected terminals in the tea.

II. FUNGICIDES.

9. BORDEAUX MIXTURE.

Copper Sulphate (bluestone)	4 lbs.
Quick Lime	6 lbs.
Water	50 gals.

Dissolve the bluestone in 2 gallons of hot water; strain through the copper sieve of the sprayer or through a gunny sack into a 50-gallon barrel. Slake the lime slowly in a wooden bucket, and when ebullition is over dilute to a thick whitewash. Strain slowly into the bluestone in the barrel, stirring thoroughly. Fill the barrel with water. Always stir well before filling the sprayer. The cost of this mixture is less than one cent per gallon.

In case the mixture is not to be immediately used it is well to make a "stock solution," in separate barrels, of both bluestone and lime—one pound of each to the gallon of water. A gallon of either mixture will thus represent 1 pound of bluestone and 1 pound of lime, respectively,

and the two may be readily combined in any desired proportion.

For application to peach foliage (for brown rot, leaf curl, etc.) a 3-9-50 mixture (3 pounds of bluestone, 9 pounds lime and 50 gallons of water) must be used instead of the normal 4-6-50 formula. Peach foliage is extremely sensitive. When Paris Green is combined with the Bordeaux (4 ozs. to 50 gallons) it should not be stirred in until just before spraying.

10. COPPER SULPHATE.

Copper Sulphate (bluestone)	4 ozs.
Water	50 gals.

For the initial spraying before foliage is set or for winter use; also when ground is to be drenched—as in anticipation of the Florida blight of the tomato.

11. AMMONIACAL COPPER CARBONATE.

Copper Carbonate	6 ozs.
Aqua Ammonia (strong, 26 degs.)	2 qts.
Water	50 gals.

Make a paste of the copper carbonate with water, dilute the ammonia with 1½ gallons of water and stir in the paste until thoroughly dissolved, making 2 gallons, stock solution. Keep the stock solution in a glass vessel stopped with glass or rubber, and on using dilute each quart with 6 gallons of water.

12. FORMALDEHYDE (Formalin)—1 pint to 30 gallons of water.

For Potato Scab, and for purposes of general disinfec-

tion. The tubers should be suspended in a gunny sack and immersed in a barrel of the liquid for two hours before cutting and planting. When used for Smut in grain dilute 1 pint to 50 gallons of water.

13. CORROSIVE SUBLIMATE (Mercuric bi-chloride).

Corrosive Sublimate	2 ozs.
Water	30 gals.

For Potato Scab. Soak as directed with Formalin, but for 3 instead of 2 hours. This is a violent poison, internally, and great care should be observed in its use.

14. LIME-SULPHUR WASH.

Lime (unslaked)	21 lbs.
Sulphur (flowers of)	18 lbs.
Water	50 gals.

Make a paste of the sulphur and stir same into 15 gallons of boiling water. Add the lime and stir thoroughly while slaking. Boil violently for 35 or 40 minutes, or until the mixture is a yellowish-green color. Dilute, before the boiling closes, to 50 gallons and spray while still warm.

For winter application for San Jose Scale and also an effective fungicide for Plum Pocket, Leaf Curl, Black Knot, etc. The original Lime-Sulphur-Salt compound has now been almost entirely superseded by the foregoing, which proves equally effective and more economical.

NOTE.

"Bran Mash," for Cut Worms, is made by stirring molasses and sodium arsenite with bran and applying a teaspoonful here and there through plat at nightfall.

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