

The Salem District Ought to Produce More Cucumbers Under Glass, and It Should Have Great Fields of Cucumbers, and Pickle Factories

THE CUCUMBER UNDER GLASS, BY PROF. A. G. B. BOUQUET OF O. A. C.

The Growing of Hot House Cucumbers and the Production of the Field Varieties Are Two Distinct and Different Professions and Processes—The Varieties, Too, Are Different.

(Circular 106 of the Oregon Agricultural college, under date of April, 1918, by Professor A. G. B. Bouquet, professor of vegetable gardening, on "The Cucumber Under Glass," is as follows:)

Cucumbers grown under glass require usually 65 to 75 days of growth from seed time to the harvesting of the first cucumber, but this time will vary according to the time of the year and the temperature of the greenhouse.

Greenhouses in which to grow cucumbers should be wide and high at the eaves for the most economical handling of the crop, although in some narrow lower houses the "A" training may be used and some good cukes produced.

Starting the Plants.—There are two ways of growing cucumber plants. First, by sowing in a plant box and then shifting the seedlings to three or four inch pots (some growers use even five-inch); secondly, the seed may be sown directly in the above sized pots and the plants thinned to one or two plants, depending on the size of the pot. Boxes suitable for starting plants are about 3 inches deep, 16 inches wide, and 24 inches long. These should be filled with nicely pulverized soil. A soft black soil sifted, containing a quantity of sand to keep it loose, is best. This should be smoothed off after it is pushed down in the corners and along the edges to settle and pressed smoothly and gently with a mason's trowel or small board after the seed is planted. Water lightly with fine spray from sprinkling can, using tepid water. Boxes should be set perfectly level so that seed will sprout evenly.

The seeds will require very little water to keep them moist until they sprout, and as soon as the plants are an inch or so high, or are beginning to show their true leaf, they should be carefully picked out of their bed and transplanted to pots, placing them a little deeper but high enough so that the dirt will not be washing onto the crown in watering. Most growers use inch pots, some with the soil about half an inch from the top of the pot. The seedlings can be potted ten days from the day the seed is planted, and the plants then remain in the pots two and a-half to three weeks. Then they are carried to the house, knocked out of the pots and planted in the long beds. Where two plants are grown to a pot, no less than five inches should be used.

CUKES FOR THE CITY HOME GARDEN FOR AVERAGE FAMILY

One or Two Hills, in a Small Space, Will, with Proper Attention, Give Plenty for the Average Home in the City.

(Former's Bulletin 1044, of the United States Department of Agriculture, on "The City Home Garden," under the heading of cucumbers, has the following:)

One or two hills will produce enough for the average family. Each hill should be given about 50 square feet of space, or seven feet in each direction. The hills should be made several days before planting, with a shovelful of manure mixed thoroughly with the soil of each hill. About a dozen seeds should be scattered in each hill and covered to a depth of about an inch. Later, the plants should be thinned to three to five in a hill.

Cucumbers are very tender and

should be O. K. If the leaves are yellowish or stunted and slow to grow, the addition of nitrate of soda in small doses will help to right them again. Plants should not be allowed to get too large before being set in the permanent beds or benches. The temperature in which the seed should be germinated and the plants grown will be from 70 to 75 degrees in the day time and no lower than 60 or 65 degrees at night.

Soil.—It is much more economical to handle cucumbers on solid ground beds raised about 12 or 14 inches above the level of the walks than to handle these in raised benches. Cucumber soil should be rich, and a soil composed of one-third rotted soil, one-third compost and one-third rotted horse or cow manure. The soil should be deep and well pulverized, and previous to setting the plants should be raked off smoothly, removing all coarse material.

Spacing and Training.—The distance between the rows and the plants in the row will depend upon the method of training of which there are two kinds: the "upright" or "erect" method and the "inverted V" or "A" method. Both of these are used commercially. In houses that are built low on the sides upright training cannot be used. Thus the "A" trellis will be necessary in such houses. Growers who train on the "A" trellis space the rows six to eight feet apart and the plants a foot to 18 inches apart in the rows. Those who train upright set the rows from three to three and a half feet apart and the plants two feet apart in the rows.

Varieties.—The White Spine or Davis Perfect are the two leading varieties of forcing cucumbers. One of the most important characters of the variety is that it is productive and meets the market demands as to size and color. Selected seed of a good strain will give, with proper feeding, a nice lot of cukes that are of a desirable color and length.

Watering.—As soon as the plants are set they should be given a liberal supply of water. The root system of the plants is confined to a small area at this time and it is necessary that water be available where the roots can get at it. Cucumbers will make use of large amounts of water, particularly during the fruiting period and will suffer for lack of sufficient water at any time.

Cucumber foliage seems to thrive best when it is given an occasional shower bath. It is best to make such applications early in the day and on bright days so that the foliage will go into the night dry. If the red spiders make their appearance, water thrown with force against the under sides of the leaves

will usually vanquish the intruder.

Feeding.—Cucumbers are rank feeders, and on that account must be well supplied with available plant food. As a rule the application of manure to the surface of the soil of the cukes are planted in the form of a mulch will help the growth of the plants very materially and will help to decrease the number of small or ill-shaped cukes. The mulch is especially valuable in preventing the soil from drying out quickly, as well as supplying a constant amount of available nitrogen. With an abundance of plant food and water in the soil the watering properly done and the ventilators used judiciously, little trouble should result from cucumber diseases.

Pruning.—It has been found that it pays to prune cukes systematically and severely. The usual plan is to allow only one vine to develop on each root. As soon as a lateral on the main vine is sufficiently developed to show the location of the first fruit, it is cut off just beyond this fruit. This first joint invariably bears a cucumber, but if not, the lateral is allowed to grow several joints which will produce no pickles. The second and third laterals are treated in the same way as they develop and this process is continued for the full length of the vine. There are usually a few fruits on the main vine. The labor of pruning is offset largely by the less amount of tying necessary to keep the pruned vines in position as compared with that on unpruned vines. The dense growth of unpruned vines makes gathering the fruits more difficult than when the vines are carefully pruned and more open.

Pollination.—Cucumber blossoms can be pollinated to the greatest amount of satisfaction and economy by placing a hive of bees in the house. The bees are usually put in the house when the vines are beginning to show their first female and male blossoms. The bees should be fed with sugar and water frequently, for the pollen from the cukes flowers will not be sufficient food.

Shading the Houses.—In the hot summer months, the greenhouses may get entirely too hot in the day time, and a cheap and quick way to shade where one has quite an area to cover is to take air-slaked lime which has just been slaked dry by sprinkling lightly with water occasionally, and spraying it on with a spray pump. Skim milk thickened with whitening also makes a good shading material to put on with a brush.

If fresh, new lime is used, it will be next to impossible to get it off at all when not needed. But lime just air-slaked will stick a good while and will rub off easily.

Diseases and Insects.—Growers should be on the lookout for leaf

diseases. Proper management is an important factor in controlling these troubles. Lack of ventilation and over watering favor their spread.

Powdery mildew attacks the leaves and is noted by the spots which are of a brownish color and appear on the lower side of the leaves. They soon show on the upper side, taking on a yellowish cast. If the growth of the disease is not checked it will soon cause the entire plant to become sickly and eventually die.

Downy mildew is caused by a parasitic fungus and is spread by spores. Anthracnose causes round dead spots from one-fourth inch to half an inch in diameter on the leaves, and somewhat discolored and shrunk areas on the stems. The disease is also caused by a fungus and is successfully controlled by Bordeaux mixture.

Spraying with Bordeaux is to be advised if any of these diseases appear. The weaker forms should be used and it is important that the leaves be coated on the lower side as well as the upper side and applications made weekly.

High temperature, accompanied by excessive moisture or draughts and sudden temperature changes should be avoided.

Harvesting, Grading, Marketing.—It is customary for most growers to pick every other day, sometimes every day. The fruits will make rapid growth in warm weather and must be carefully watched. Each cucumber should be cut and never pulled. A good method by which to tell whether the cucumber is of the proper size to cut is to encircle it in the center with the thumb and second finger. If these do not meet by about one-fourth inch to one-half inch, the cucumber is of a desirable diameter.

Cukes marked "firsts" should be fairly uniform in length, diameter and color. One or two abnormal specimens will spoil the appearance of several dozen. The "seconds" should be shorter and thicker and slightly off in color. They should never go with the "firsts" and likewise should never contain any nubbins. These should be sold cheap to a certain class of people or thrown away. It never pays to ship them. Each grade should be plainly marked so that there will be no mistake by the salesman.

The expense in growing cukes is usually greater than lettuce, due to the work of pruning and training, increased amount of heat required, and extra watering. Good plants produce on an average of three to four dozen No. 1's, but with very prolific plants this may be greatly increased. Good strains of seed and high feeding, coupled with proper pruning, will give beneficial results and reduce the number of culs to a minimum.

A BATTLE WITH BUGS AND PESTS OF HIGH AND LOW DEGREE

H. Field, Greenhouse Gardener, Says that is What One Has on His or Her Hands Who Starts Out to Produce the Best Cucumbers under Glass—There is No Truce.

H. Field. This is the name of the present manager of the Field gardens, in the eastern suburbs of Salem, on the north side of the extension of Center street, on a 35-acre tract on which the late Dexter Field, father of H. Field, commenced market gardening operations soon after he came to Oregon, in 1871.

This is Chestnut farm, from which five sons and daughters graduated from Willamette university, and are scattered in missionary and other fields around the world. One son, Ambri, is chief proof reader for the great Curtis publications, in Philadelphia, including the Saturday Evening Post and Ladies' Home Journal.

"Mr. H. Field" is the way the letters usually come. But "Mr. H. Field" is a woman. She is the farmer; more particularly, she is a hot house market gardener, raising lettuce, tomatoes and cucumbers mostly, for the Salem retail grocery store trade.

Thus, the average Salem housewife may know where her home lettuce, cucumbers and tomatoes out of season that have graced her table.

Miss Field has about a third of

an acre under glass. One of her hot houses is heated; with a hot water system.

But this article is meant to be about cucumbers, principally.

Well, Miss Field has half of one hot house in cucumbers. This hot house is 150 by 72 feet. Roughly, then, she has a patch of cucumbers 150 by 86 feet.

From this space last year she sold

over 10,000 firsts, and enough seconds to make between 12,000 and 15,000.

How much is there in it? The price this year started at \$1.20 a dozen; then 90 cents, where it has been for a month. That is the price to Mr. Field. The reader can figure the returns for himself.

In former years, the years of low

prices, the start was usually at 95 cents a dozen, then on down to about 45 cents around the Fourth of July.

Labor was much cheaper then. Miss Field uses only the Davis Perfect variety of cucumbers.

It is Hard Work.

Of course, there is money in hot house cucumbers at these prices. There would be good money, even counting the present abnormally

UNCLE SAM TELLS US SOME WAYS TO COOK CUCUMBERS

They Are Good Stewed and Served with Sauce, and They Are All Right Fried, and They Are Bully in Cucumber Saute.

(Preparation of Vegetables for the Table" is the subject of Farmers' Bulletin 256 of the United States department of agriculture, the author being Maria Parola. The following is what is said under the heading of "Cucumbers" in this bulletin:)

The cucumber is much oftener

eaten in the United States as a salad than cooked, yet it is a very palatable vegetable when stewed and served with a white sauce, or seasoned with butter, salt and pepper, and served on toast.

The pared and quartered cucumber should be cooked until tender in boiling salted water, which will require about 15 minutes, and then served as directed. Cucumbers may also be cut in slices lengthwise

and fried like summer squash or egg plant.

Stewed Cucumbers.—Cut in quarters or in thick slices, for fifteen minutes in a saucepan with a little water and a minced shallot or a small minced onion. Pour off the water; stir in a little flour, butter, and salt; heat for two or three minutes, and then serve.

Cucumber Saute.—Boil pared and quartered cucumbers for three minutes only. Then drain the pieces and season with salt and pepper. Roll in flour and cook in a saucepan with butter for 20 minutes. This dish may be varied by adding minced parsley, chives, and chervil about five minutes before the cooking is finished.

CUCUMBERS AS A CASH CROP, AS TOLD BY MICHIGAN GROWER

Fit the Ground Thoroughly; Use Ample Fertilizer; Plant Intensively Rather Than Extensively; Pick Clean—The Picking is the Biggest Problem in these Times of High Labor Costs.

(Under date of April, 1913, the Michigan Agricultural College Experiment Station published Circular No. 19, under the direction of H. J. Sustace, horticulturist, on "Cucumbers as a Cash Crop." The circular was written by Walter Postiff, a graduate of 1909 of that institution, and for a number of years before and since that time an actual producer of cucumbers commercially. Following is the circular mentioned:)

To produce cucumbers profitably demands a location near a good sized town or a salting station and where enough help to do the picking can be secured. The crop will do well on a variety of soils. If planted on soil that is inclined to be light and also deficient in humus, the yield may be shortened unless rain is plentiful during July, August and September. If planted on heavy clay, the plants may suffer in a wet year from the soil becoming hard and packed, caused by tramping while picking the cucumbers. A clay loam that is well supplied with humus or decayed vegetable matter is very satisfactory. If it is the drained, so much the better for at picking time one must get on the ground to pick no matter how wet the soil may be.

A clover sod plowed early, worked down and harrowed occasionally until planting time makes a good seed bed. Timothy sod handled in the same way is also suitable if it is not too badly infested with cut worms. In fact, any soil intended for cucumbers should be plowed early and kept well worked till planting time. Such a method of handling pays for several reasons:

First.—It helps rid the soil of weeds. When soil is plowed, rolled and worked down reasonably fine, millions of weed seeds will germinate in a few days which can be destroyed by harrowing on a bright day. A second harrowing a week later will destroy a second lot of seedlings. A third and fourth harrowing will destroy a third and fourth lot of seedlings and the fourth lot will just about rid the top soil of weed seeds. The cheapest, quickest and best way to prepare a crop is to harrow the soil before the seed for that crop is planted.

Second.—Keeping the soil well worked conserves moisture and enables the seed to germinate no matter how dry the weather may be at planting time. Soil that has not been plowed or worked until it is needed for planting is quite likely to be dry and full of clods. By the time these clods have been worked down sufficiently fine, the top soil has lost much of its moisture. Such soil might do as a seed bed for corn or for any crop with large seeds which may be planted quite deeply, but it will not be satisfactory for cucumber seeds which should not be planted over an inch deep. Soil which has been plowed early and harrowed occasionally will be moist an inch below the surface, even during a very dry time. Seed planted in such a soil will germinate readily and produce an even stand of vines which is worth a good deal to any grower.

Third.—Early plowing and frequent harrowing will put the soil in such a physical condition that it will not pack and bake after every rain. It will become loose, mellow and friable; rain falling upon it will drain away, leaving it in practically the same condition as it was before the rain.

high costs of glass and other building materials, and labor; the latter not only scarce but hard to get—especially the kind that has the knowledge and the patience combined necessary to make a success of cucumbers under glass.

For it takes hard and constant work; and Miss Field earns all she gets, even at the very high prices compared with former years.

She trains her cucumbers up on frames, as high as her head; higher. The glass is high enough so that a team is used in plowing the ground in the hot houses in the fall.

And, with cucumbers, it is a matter of a night and day battle with pests, and an everlasting pruning and trimming and picking. They would all go to vines without the constant pruning. They grow very fast. They would go to seed and stop bearing, without the constant picking of the fruit. The pests would get them all, without the night and day battle with them.

So Miss Field is thinking of devoting the space she has been giving to cucumbers to tomatoes, after this year, till the help situation grows better. She was yesterday getting 18 cents a pound for her hot house tomatoes. She can raise tomatoes with a little less work—that is, tomatoes under glass, for the fancy retail trade.

Not that there is not money in cucumbers—and a larger market than can now be supplied. But one must know how to get the best cucumbers raised and on the market at the right times.

Miss Field calls herself a greenhouse gardener, rather than a market gardener.

The writer wants to say that she is not a green gardener.

But she is free to say that there are a lot of things to know that she has not yet learned, especially in the everlasting battle with bugs and pests of high and low degree.

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It will be most economical if applied in the hills.

If commercial fertilizers are to be used, the ground should be plowed early and the fertilizer drilled broadcast as early in the season as possible. When the cucumbers are to be grown for pickles, a fertilizer of the following composition is recommended:

Potash	3 to 4
Nitrogen	6 to 10
Available Phosphoric acid	8

About one-half of the nitrogen should be in the form of nitrate of soda and the remainder as readily available organic nitrogen, such as dried blood or high grade animal tankage. A fertilizer of about this formula can be readily obtained of any manufacturer. From 500 to 1000 pounds, depending upon soil conditions, should be used per acre.

In using commercial fertilizers, it should be remembered that the best results will be obtained when they are used upon soils that are in good physical condition and well supplied with organic matter.

Unless manure is to be used in the hills, a corn marker with teeth six feet apart is all that is necessary to mark the rows. Six by four feet is the ordinary distance when planting in hills is practiced and if desired to cultivate both ways, simply mark both ways and plant at the intersections of the marks. When manure is to be used in the hills, mark in the same way, but the rows six feet apart will have to be furrowed out with a walking plow. Throw a forkful of manure in the furrow at each intersection and cover with a hoe after having first packed the manure with the feet or the back of the hoe. The manure should be put in the hills as early as possible but in harrowing the soil after they are made and before planting, care should be taken not to entirely fill the furrows so as to obliterate the rows.

When a large acreage is grown, the practice is to double furrow the row, that is, plow a double furrow every six feet. In this furrow distribute the manure with a manure spreader, using the attachment to narrow up the discharge. Cover the manure by plowing a back furrow upon it. Roll

(Continued on page 4)

CULTIVATION OF CUCUMBERS, BY GIDEON STOLZ OF SALEM

The Best Success Can Be Realized in the River Bottom Lands Which Contain and Hold Moisture—Cucumbers Require More Soil Moisture than Any Other Vegetable.

One of the best authorities in this part of the world on the growing of cucumbers is Gideon Stolz, who has had long experience in handling them in all stages, from the seed to the pickle jar, though for a few years past his factory has not done anything in that line. The Statesman has succeeded in obtaining an interview with Mr. Stolz on the cultivation of cucumbers, in which he said:

"The best success in growing cucumbers can be realized on the river bottom lands, lands which contain and hold moisture and which have been in cultivation for at least two years, so as to have the tree and shrub roots destroyed. The soil must be well pulverized and in good workable condition."

"Planting should be done about May 1, in hills four feet apart, and rows eight feet apart; or better still the rows and hills to be six feet apart, and the hills to be six feet apart, so as to permit of cross cultivation. The plants should be thinned out so as to leave two in a hill and at the last hoeing they should be well thinned up. Cultivation should be thorough and the weeds should be entirely cleared out by hoeing and pulling."

"Cucumbers require more soil moisture than any other vegetable. The plants are heavy bearers and the product contains a heavy percentage of water, hence the necessity of choosing a soil that is generously supplied with it and of conserving the supply by extended cultivation

and the removal of all useless growths that would absorb a portion of what the plants need."

"The plants begin to bear about the beginning of August and will furnish a picking for two months. They can be made a profitable crop under the conditions above outlined and by parties who can be sure of the necessary labor. They can be made to yield from \$150 to \$250 worth of cucumbers to the acre. If a sufficient acreage were planted around Salem to insure a supply for pickle making, there would be a ready market for them, but the berry and fruit industries of this section have so absorbed the available labor that for the past few years cucumbers growing on a large scale has been practically abandoned."

There is plenty of the best kind of cucumber land within a few miles of Salem, along the Willamette river bottoms, the Pudding river, and the various creeks which sub-irrigate a wide area in places on either side of their courses. It is simply a matter of getting people interested; families that have plenty of help within themselves to care for a few acres, and other parties who are situated to hire the necessary help, which is needed in quantity only during the picking season.

Some of these days there will be many acres of such land in cucumbers, land which is now to a large extent idle and which will be made very valuable as a producer of pickles.

ROOM FOR A BIG CUCUMBER INDUSTRY IN SALEM DISTRICT

The Savage Brothers Are Carrying on the Gardens that Have Been Furnishing Supplies to the Salem Market for the Past Forty-three Years.

J. W. and Ben H. Savage, who conduct the well known Savage Brothers' garden, out on the Garden road, in the northeastern suburbs of Salem, which gardens have been supplying Salem with vegetables and fruits for 43 years, have usually produced some hot house cucumbers, as their father, H. W. Savage did before them.

They have used the London Long Green and White Spine varieties, exclusively.

They usually picked every morning; and when the vines were clean of marketable fruit one day they generally got as much the next day—for cucumbers grow very fast, under the right conditions.

The Savages have had no hot-house cucumbers this season. J. W. Savage says he wishes they had, for good cucumbers began retailing this year at 30 cents each, and they are bringing 10 and 15 cents now, at retail.

But their hot house became infested with pests that ate the fibrous roots of the cucumber vines, and

they have gone after the pests with a 28 per cent solution of ammonia, diluted 5 ounces to 5 gallons of water, sprinkled and spaded under immediately.

They expect to be rid of this particular pest and back in the cucumber game again next year.

They have two hot houses, each 100 by 20 feet, and with what they can raise in the open and what they produce under glass, the Savage brothers have something to sell every day in the year.

Good Cucumber Country.

J. W. Savage says this is a good cucumber country; that there is none better, for cucumbers produced under glass or in the open; and they are two separate industries.

Glass is high now, and so are other materials and all labor. But so are the prices high, and the demand great.

Mr. Savage thinks there is room for a great cucumber industry in the Salem district, with pickle factories and large shipments to outside markets.

DATES OF SLOGANS IN DAILY STATESMAN (In Twice-a-Week Statesman Following Day)

Loganberries, Oct. 9.	Asparagus, April 22.
Prunes, Oct. 16.	Grapes, April 29.
Dairying, October 28.	Drug Garden, May 6.
Flax, October 30.	Sugar beets, May 13.
Filberts, Nov. 6.	Sorghum, May 20.
Walnuts, Nov. 13.	Cabbage, May 27.
Strawberries, Nov. 20.	Poultry and Pet Stock, June 3.
Apples, November 27.	Land, June 10.
Raspberries, December 4.	Dehydration, June 17.
Mint, December 11.	Hops, June 24.
Great Cows, December 18.	Wholesaling and Jobbing, July 1.
Blackberries, December 25.	Cucumbers, July 8.
Cherries, January 1, 1920.	Hogs, July 15.
Pears, January 8, 1920.	City Beautiful, flowers and bulbs