V I R G I N I A

COUNTY AGRICULTURAL AGENT AT LARGE ANNUAL REPORT 1944

Index

VPM-6

ANNUAL REPORT OF EXTENSION WORK

AT

VIRGINIA TRUCK EXPERIMENT STATION

FROM

DECEMBER 1, 1943

TO

NOVEMBER 30, 1944

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BY

E. W. RIDGWAY, COUNTY AGENT-AT-LARGE

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SUMMARY OF WORK

DECEMBER 1, 1943 to NOVEMBER 30, 1944

Extension work at Virginia Truck Experiment Station during the past year has been largely devoted to (1) personal visits to vegetables growers in the Norfolk area, (2) test demonstrations on growers farms, (3) fertilizer and lime recommendations based on soil tests made by the Soils Department of the Virginia Truck Experiment Station, (4) Victory Garden promotion and advice, and (5) a weekly newspaper article on vegetable production.

A large proportion of the time spent in the field by the County Agent-at-large has been in the company of one or more of the specialists of the research staff of the Virginia Truck Experiment Station. This close cooperation has been most valuable in getting prompt solutions of the farmer's problems, and in keeping the specialists posted on seasonal developments in their particular fields. When the County Agent-at-large was not accompanied by specialists, he regularly conferred with them in regard to conditions in the field upon returning to the Station.

The past year has been a hard one, with repeated crop failures, for some of the vegetable growers in south-eastern Virginia, but in other parts of the region yields have been good and returns quite satisfactory. Irrigation has paid big premiums to those farmers who had facilities for it. The lower part of Princess Anne County probably suffered more than any other area because, first, the early summer drought was most severe there, seriously reducing the yield of white potatoes and delaying the planting of sweet potatoes, and then, the hurricane on September 14th was more severe there, wiping out most of the snap beans which had escaped the ravages of the corn ear worm. Local labor has been increasingly short and undependable, but the use of imported Bahamian farm hands and prisoners of war has been of great assistance in over-coming this handicap. However, acreage of truck crops will probably be further reduced in this region in 1945 because of the uncertainties ahead.

As in 1943, a weekly article has been scheduled by the County Agent-at-large for the newspaper "Norfolk Virginian Pilot" under the heading "Experiment Station News." Seasonal problems and new recommendations as well as reports of progress on experiments under way were presented to growers and gardeners through this medium. Of the 38 articles published, 30 were

written by 8 specialists on the staff of the Virginia Truck Experiment Station, and 8 were written by the County Agent-at-large. (See Appendix) Copies of these articles were sent to Assistant Director, L. B. Dietrick and to the 7 county agents in this region, and copies of articles on insects and diseases were sent to the Extension Pathologist. Where the article was of particular local interest it was often used by the county agents in their local papers. At least one article has been condensed and reprinted in the Extension Division News.

Seven radio talks have been prepared and delivered over WTAR Norfolk in the past year by the County Agent-at-large. Four of these were in July and August as part of a weekly program sponsored by the Norfolk Federation of Garden Clubs and were particularly aimed at encouraging the planting of the fall vegetable garden. A copy of one of these is included in the Appendix. Radio programs were addressed to the Victory Gardener rather than the commercial vegetable grower. They included timely information on culture, varieties, soils, and fertilizers, and insect and disease control and stressed the many reasons for planting a vegetable garden.

For the past three years the Victory Garden campaign has received a considerable portion of the time of the County Agent-at-large. Hundreds of inquiries come over the phone to the Virginia Truck Experiment Station from gardeners seeking help and the County Agent-at-large has answered a good share of these in addition to speaking to garden clubs, and speaking over the radio in the interest of the Victory Garden. Many requests also come for identification of an insect or plant disease in a garden and the County Agent-at-large is called upon to answer many of these. Enthusiasm for the Victory Garden has declined in 1944 both because of the very unfavorable weather and because the press of other work has been greater that the shortage of food. However, it is believed that the home garden is an essential part of a sound, long time farm program and efforts will be continued to improve the home gardens in this part of the state.

The monthly reports indicate that approximately 25% of the County Agent-at-large's time was devoted to the research work of the Virginia Truck Experiment Station, and the remaining 75% of his time to extension work proper. This is an arbitrary division as there is no clear line between the two, and commonly both extension and research are served on the same trip and on the same farm visit. It is felt that this tie-up between the two services is a very valuable one and that an actual division would reduce the service rendered to both. Because of this duality this report covers all of the work done during the past 12 months, although some of it might otherwise be omitted from an account of extension work.

All of this work has been done under the immediate direction of Dr. H. H. Zimmerley, Director of the Virginia Truck Experiment Station, until recently, and under the general supervision of Mr. L. B. Dietrick, Assistant Director of the Extension Service, in charge of Vegetable Extension work, and of Mr. W. H. Daughtrey, District Extension Agent for Southeastern Virginia. The County Agricultural Agents, particularly in Accomac, Elizabeth City, Nansemond, Norfolk, Northampton, and Princess Anne counties, have also contributed to the success of this work by their generous cooperation. It is believed that a firm foundation has been laid for an effective coordination of the agencies involved, and the County Agent-at-large looks forward to another year of increased service with their continued guidance and help.

The death of Dr. Zimmerley on October 15 was a blow to all agricultural work in southeastern Virginia. He encouraged and helped those under his supervision with his outstanding scientific knowledge, his practical ability, and his deep enthusiasm. It is because of his influence that the present cordial and cooperative relations exist between the Extension Service and the Virginia Truck Experiment Station. The present County Agent-at-large owes his introduction to the Extension Service to Dr. Zimmerley and wants to pay a personal tribute to him for his guidance, support, and friendship.

DISEASE CONTROL

Seed Treatment

The County Agent-at-large assisted in test demonstrations of the affect of seed treatment on seedling stand on 6 farms in 3 counties. Crops included in these tests were peas, edible soy beans, spinach, corn, cucumber, tomatoes, beets, carrots, and lettuce. This work was in cooperation with a national project and the results will be published in the near future.

Sweet Potato Soil Rot

Soil Rot, a severe form of pox, is increasing in severity on sweet potatoes in Princess Anne County. It is caused by an actinomycete which has been controlled in other states by lowering the pH of the soil with sulfur. The occurrence of this disease has been studied and farmers acquainted with its nature. Some farmers have reported considerable control with rotation. In order to test the effect of sulfur a plot 240' x 72' was secured in a badly infected field immediately after the potatoes were dug. Sulfur was broadcast on this plot at

rates of 750 and 1000 pounds per acre with appropriate untreated areas as checks. This area will be replanted to sweet potatoes in 1945. This project is being carried on in cooperation with the Plant Pathology Department.

Fusarium Wilt of Tomatoes

Fusarium wilt has been increasingly severe in tomato plantings both on the Eastern Shore and in the Norfolk area. Even such resistant varieties as Marglobe and Rutgers have been seriously affected. In the spring of 1944 Dr. G. K. Parris obtained seed of 16 unnamed resistant seedlings from Missouri and started the plants in the greenhouse. These were distributed by the writer to 4 tomato growers in as many counties and planted in their tomato fields. Counts made near the end of the season in one field showed that a materially lower per cent of the Missouri selections were infected with fusarium wilt than supposedly resistant Pritchard plants in adjoining rows. No yield records were attempted as the type was not fixed, but seed was saved from the plants that produced the most desirable fruit. All were rather late in season and the fruit tended to be small under drought conditions, but it is believed that these selections show real promise for fusarium infected soil.

Soil Sterilization

Two demonstrations were held in Norfolk County of a new machine designed by a commercial concern for the field application of soil fumigants. The temperature was too low at this time to obtain any clear results but the possibility of field treatment was demonstrated to the growers. Test demonstrations of chloropicrin and certain new materials for the control of nematodes and weeds were also conducted by Dr. G. K. Parris on these same farms.

Strawberry Crimp

During the summer of 1944 the bud nematode or crimp of strawberries was found to be doing extensive damage on one farm in Princess Anne County. This was written up in the Virginian Pilot under the Experiment Station News and because of the seriousness of this pest a survey was made with the help of Dr. G. K. Parris to determine how widely it was distributed. Strawberry fields on fifteen farms in Princess Anne and Norfolk counties were examined. On six of these in Princess Anne County crimp was found, although damage was not heavy except on the farm where it was first reported. All growers were warned to take great care in selecting and rogueing their plant beds, as this, with rotation, is the only practical control measure.

White Potato Seed Source

Copies of the 1944 report on the white potato seed source tests conducted at Onley were distributed to all inquirers and to the dealers in seed potatoes in the Norfolk area. These reports keep before those who select the seed to be brought into this region the importance of obtaining certified seed from dependable growers. They also provide an opportunity to check on the comparative performance of some of the stocks of seed which they handle.

INSECT CONTROL

Corn Ear Worm

The corn ear worm was unusually serious during 1944 on early tomatoes and fall snap beans in Princess Anne County, although relatively little damage was done by this insect in other counties in this region. Farmers were advised in person and through a newspaper article as to recommended control measures. It is believed that a major reason for less damage in other counties was that growers dusted at the proper time instead of waiting for the outbreak to develop.

Diamond Back Moth

The diamond back moth has intermittently been a serious pest on kale, collards, and related crops for a number of years. However, outbreaks have not recently been of such a nature as to provide a good test of insecticides for its control. In 1944 a heavy infestation developed in Princess Anne County and the County Agent-at-large cooperated with Dr. H. G. Walker in putting on 5 separate tests. Each of these tests included from 5 to 11 treatments. Included in the treatments were DDT in the dust and in the new aersol form. These new treatments proved very effective and far superior to standard methods. Work will be continued with them and they will be recommended to the farmers as soon as materials and equipment are available.

European Corn Borer

The County Agent-at-large assisted Dr. H. G. Walker in making 2 European Corn borer surveys in this region. One was made to determine the extent to which the parasitic fly Lydella grisescens R.D. has established itself in Norfolk, Princess Anne, Northampton, and Accomac counties. Up to 35% of the borers were found to be parasitized and it is believed that this parasite has been of considerable value in holding the corn borer in check. The second survey was to determine the number of borers present in 1944 in Princess Anne and Norfolk counties. Probably, because of the extreme drought the number was lower than in 1943 at least in a number of areas, but as high as 72 borers were found in a single corn stalk in the potato growing area of Princess Anne County. The first generation seems to build up in white potatoes and the second generation then attacks the corn. And, on at least one farm in Northampton County where infested corn was not plowed under until after the corn borer moths emerged in May, very serious damage was done to early potatoes in adjoining fields. The potato vines were killed at least 2 weeks before their time and practically no #1 tubers were dug in the field which was most heavily damaged. Here, 20 to 25 borers were found in a potato plant. Farmers throughout the region were informed of this damage so that all infested corn would be plowed down in the future.

Pickle Worm

Infestations of the pickle or melon worm have ruined late plantings of cantaloupes and squash in this part of the state practically every year. In 1944 the County Agent-at-large assisted Dr. H. G. Walker in putting on a test demonstration of 10 treatments for the control of the pickle worm on cantaloupes in Princess Anne County. Of the treatments

tried, cryolite and DDT gave commercially satisfactory control when applied at 7 day intervals. On the basis of these results one farmer in the same county used cryolite and a neutral copper on a fall planting of squash and secured excellent control as compared to an untreated field, but the entire crop was soon after destroyed by the hurricane.

SOILS AND FERTILIZERS

White Potato Fertilizer

There is perennially much discussion as to the right fertilizer for white potatoes in this area, and, while recommendations have been toward higher phosphate content, many growers still use the more expensive high nitrogen mixtures. In order to test the recommendations and spread the information more widely the Soils Department of the Virginia Truck Experiment Station with the County Agent-at-large cooperating set up over 40 test demonstrations on as many farms in 5 counties comparing 5-10-5 with 6-8-6 fertilizer. Records were obtained from 32 of these demonstrations. Because of the drought yields were low and the differences in yield were probably not so marked as would have been obtained in a normal season, however, the average yield of these 32 demonstrations was 62 bags of #1 potatoes with 6-8-6 and 63 bags from 5-10-5. There was , of course, considerable variation according to the character and fertility of the soil, but on the whole the fact was clearly demonstrated that the less expensive 5-10-5 was at least as good on most soils as the 6-8-6 which has often been preferred in the past. These results have been given to each demonstrator, to the respective county agents, and to the fertilizer manufacturers and were also published in the newspaper.

Boron Deficiency

Considerable publicity has recently been given to boron deficiency throughout the Country and growers have been inquiring about using boron on a number of crops. In 1939 and 1940 the Soils Department of the Virginia Truck Experiment Station made a number of tests throughout this region but found little response to boron. Because of continued interest 6 boron test demonstrations were conducted by the Soils Department in cooperation with the County Agent-at-large. Two in Northampton County and 2 in Princess Anne County on sweet potatoes indicated that on these soils boron had a harmful effect if any and that therefore boron should not be added to sweet potato fertilizers in this area except possibly under unusual conditions. Four additional test demonstrations were located in Princess Anne County on a farm which had in the past shown injury on radish which closely resembled that caused by boron deficiency. These tests were on radish, spinach, carrots, and turnips and included a minor element mineral mixture called Esminel as well as borax. Only the radishs showed any

sign of lack of boron and no clear results were obtained in this case probably because of the late planting and the drought. Growers have repeatedly been cautioned not to use boron indiscriminately.

Azalea Fertilizers

At the request of a leading azalea grower and in cooperation with the Soils Department of the Virginia Truck Experiment Station, a test was set up in Elizabeth City County to determine the effect of 13 different fertilizer treatments on Coral Belle azaleas. Early and late planted and shaded and unshaded plots were included in each of the 13 treatments making a total of 52 treatments. This study will be continued for at least another year but from preliminary observations it would seem that nitrogen is the most important element in the fertilization of azaleas, that early planting produces larger plants and that shading is very desirable where late planting is necessary.

Broadcasting Fertilizer

At the request of Mr. L. C. Beamer and the American Potash Institute, 3 test demonstrations of broadcasting fertilizer for sweet potatoes were set up, 2 in Princess Anne County and 1 in Northampton. These compared broadcasting all or portions of the fertilizer and disking it in, with applying the fertilizer as a sidedressing after the plants were established. A total of 1000 pounds of 3-9-12 fertilizer was applied whatever method was used. The results were not consistently significant in any of the 3 demonstrations or in the 3 put together. The only conclusion could be that the method of application of the fertilizer did not have much effect on the yield this year when the stand of plants was not affected by sidedressing. However, broadcasting of the fertilizer before planting is being recommended because there is no danger of reducing the stand of plants, and because it can be done when work is less pressing. The Soils Department cooperated in the conduct of these demonstrations.

Potash for Sweet Potatoes

The Soils Department of the Virginia Truck Experiment Station put on 6 test demonstrations in 1944 to show the effect of plowing under muriate of potash on sweet potatoes. The County Agent-at-large cooperated on 3 of these. The results from the 4 demonstrations harvested gave an average increase of 36.8 bushels in total yield from the application of 120 pounds of K_2O. On one farm in which the soil was originally very low in potash the increase was 60.9 bushels. When the K_2O was increased to 240 pounds there was an additional small increase but the conclusion was that the increased yield did not justify the increased expenditure for fertilizer. These results will be published in the newspaper and the information passed on to all interested growers.

Sources of Nitrogen

As reported in 1943 a number of test demonstrations were set up in the fall of that year to compare the effects of 3 different sources of nitrogen on spinach. These were conducted by the Soils Department of the Virginia Truck Experiment Station with the writer cooperating. Three additional demonstrations were set up in the spring of 1944. Of the 9 demonstrations from which records were obtained there was no significant difference in the yield obtained when equal amounts of nitrogen was applied whether the form was nitrate of soda, ammonium nitrate, or Cal-nitro. However, in the spring, nitrate of soda produced a definitely inferior yellow green-colored spinach, as compared to either of the other materials. Because ammonium nitrate is a more economical source of nitrogen and because it is concentrated its use has been recommended for spinach and other crops.

Spinach Topdresser

In February 1944 the question arose as to what topdresser should be used for spinach during the coming season. To ascertain the opinions of the growers the 30 leading spinach producers were questioned as to their preferences. Some were strong for the 10-6-4 which had been used in previous seasons, but when they learned that nearly 60% of the growers wanted the 7-7-7 analysis which the Virginia Truck Experiment Station recommended they accepted the decision without protest.

Sodium and Potash for Spinach and Kale

Six tests to determine whether sodium could be substituted in part for potash on spinach and kale were set up in the fall of 1943 by the Soils Department with the writer cooperating. The results on kale were inconclusive, but those on spinach indicated that sodium was of no benefit and under some conditions it seemed harmful. The omission of potash significantly reduced the yield of spinach.

Manganese Deficiency

On two areas which had been overlimed, test demonstrations were set up to determine the best method of correcting the resulting manganese deficiency of spinach. Unfortunately no yield records were obtained from either demonstration, but the results were very clear, even to the passing observer. Manganese sulfate at both 50 and 100 pounds per acre gave the quickest recovery. When the spinach was wintered-over sulfate of ammonia produced equally good color and growth. The acidifying effect of sulfur alone was too slow to have any effect in the fall, but it produced slight improvement in the spring. The effect of nitrate of soda was always to accentuate the manganese deficiency. From these results manganese sulfate at 50 to 100 pounds per acre plus an acid-forming topdresser are recommended for severe manganese deficiency, or, for cases where immediate results are desired. If the deficiency is mild acid-forming fertilizer alone may be sufficient to correct it.

Plant Tests

The Indiana test kit has regularly been carried on extension trips and repeatedly used to make plant tests when questions of nutrition arose. This is particularly valuable because the tests can be made in a few minutes while the farmer is watching and the farmer can then draw his own conclusions from the results observed.

Soil Tests

The making out of fertilizer and lime recommendations on the basis of soil tests made by the Soils Department of the Virginia Truck Experiment Station has continued to be a major part of the work of the County Agent-at-large. Fortunately, personnel has been available so that it has not been necessary for the County Agent-at-large to make these soils tests himself. A total of 2524 soil samples were tested during the 12 months period and the recommendations based on them have been telephoned or mailed to the grower. This number is a slight reduction from the previous year. It is believed that this is a result of the increased pressure of work on the farmer both from shortage of labor and from extremes of weather, of the reduced acreage planted to spinach and other truck crops, and to a slackening of the interest in home gardens. The number of soil samples could undoubtedly have been increased if an effort had been made in that direction, but the pressure of other work and shortage of staff made that seem unwise. The fact that the Park Department of the City of Norfolk is now providing a soil testing service for Victory Gardeners is undoubtedly also reducing the requests for this service from the Virginia Truck Experiment Station.

CULTURAL PRACTICES

Fall White Potatoes

The outstanding results obtained by some growers with Sebago potatoes as a fall crop in 1943 resulted in a demand for more seed of this variety than was available in Norfolk in 1944. No seed was distributed by the County Agent-at-large this year except one bushel each of Sebago and Sequoia to Mr. W. H. Grizzard, County Agent in Isle of Wight County. In all publicity and discussion the importance of planting whole tubers instead of cut seed was stressed. As areas planted with cut seed were generally a failure in 1944, small seed is already being purchased for planting whole in 1945, and little cut seed of the Sebago variety will probably be planted in the future.

The seed of nearly all of the Sebago potatoes grown in this region came from stock obtained by the Virginia Truck Experiment Station about 8 years ago. A survey in October revealed the fact that nearly all of this stock is very heavily infected with leaf roll, and that in some fields there is some varietal mixture. Because of this fact growers have been urged to obtained certified northern grown seed for planting in 1945.

Visitors to the Station grounds have been shown the plantings, which are made every year, of new named and unnamed varieties of white potatoes. Some of the best of these potatoes were on exhibit in November 1944 when the sweet potato varieties were on exhibit. Certain unnamed varieties are more productive than Sebago but none have yet been found to excel it when all its good qualities are considered.

Kale Selections

The selection of Blue Curled Scotch kale which was distributed to 21 growers in 1943 for comparison with commercial strains proved to be later seeding, and of better type wherever observations were made. A number of these growers saved seed from this improved selection. Although this strain of Blue Curled Scotch was a definite improvement, Dr. H. H. Zimmerley continued his selection work and there are now a dozen or so distinct strains on trial which are the product of his work. Seed of two of these was distributed again to 21 growers in 1944, but 6 did not get a stand because of unseasonable weather or other conditions. From the remaining plantings it is already evident that the strain now called 44 is a darker, more attractive green than that distributed in 1943, and at least equal to it in plant type. Further observations as to cold resistance and time of seeding are needed, but it is hoped that the final selection may be made in the near future and the strain named and introduced.

Tomato Varieties

Field plantings of the Bounty tomato were made by a number of growers in Princess Anne and Norfolk Counties in 1944 with very satisfactory results, particularly where this variety was irrigated and heavily fertilized. Plants were also supplied to 2 growers in Northampton County and the indications are that plantings will materially increase in the entire region in 1945. As Bounty produces more early tomatoes per acre than any other variety tried in this area it seems that it should be more widely planted and demonstrations will be continued. Visitors to the Virginia Truck Experiment Station planting of the new Stemless Pennred tomato were impressed with the new "stemless" character. Seed was saved from this planting and are available in small quantities for those interested in trying this variety.

Onion Varieties

During the past two winters Mr. M. M. Parker, Horticulturist at the Virginia Truck Experiment Station, has been trying out new methods of onion growing for the Norfolk area. In March 1944 the County Agent-at-large distributed to 7 growers in 3 counties plants of the Babosa variety as being the most promising of the several varieties tried, for fall seeding. The seed had been sown in September and the plants had wintered over outdoors. Where small plants were transplanted excellent, large sized onions were secured, but larger plants tended to go to seed. Had seed of this variety

been available in 1944 considerable plantings would have been made. Growers and seedsmen have been watching with interest the onion plantings at the Virginia Truck Experiment Station this fall. These include the San Joaquin, a new variety of the Babosa type which is said not to go to seed as Babosa sometimes does. The Babosa at the Virginia Truck Experiment Station in 1944 produced up to 700 bushels per acre of mild onions 3 to 4 inches in diameter such as command a premium on the market. It is hoped that fall seeded onions will prove a profitable new crop for Virginia

Strawberry Varieties

In order to test them under varying conditions plants of 8 unnamed or new varieties of strawberries were placed with four growers in 2 counties for test demonstrations. One of these plantings was lost, but the other three should bear good crops in 1945. From their performance at the Virginia Truck Experiment Station it it doubted that any of these varieties will replace the Blakemore as a commercial berry, but it was thought that they were worth trying in the hope that they might show superior qualities under other conditions.

Sweet Potato Varieties

The varieties of sweet potatoes grown in this region for several years have been largely limited to the Porto Rico and Maryland Golden and growers have been fairly well satisfied with these varieties. However, the Virginia Truck Experiment Station has been cooperating for a number of years with a national breeding program particularly aimed at securing more desirable resistant varieties. When the more than 50 varieties included in this program were being dug at the Onley Branch Station in September a farmers meeting was called and over 50 growers inspected the varieties and indicated which varieties they were most interested in. Then after these varieties were cured and while they were being cooked and rated as to eating quality they were exhibited again at the Station at Diamond Springs. Some of the new varieties received much favorable comment and appear very promising. These meetings, combined with demonstrations planned for 1945 should make for ready acceptance when the best varieties are named and introduced.

Sawdust for Organic Matter

Sawdust is found in large piles throughout most of eastern Virginia, but although small quantities have been used by farmers in various ways it is generally considered harmful to the land. To determine the possibility of using sawdust as a source of organic matter and to study the effects of organic matter low in fertilizer value the Soils Department of the Virginia Truck Experiment Station has instituted an extensive program using sawdust in different ways on a number of crops. The County Agent-at-large assisted in preparing this program and in conducting one test demonstration on white potatoes in Northampton County. In this case 1/2" or 10 tons of sawdust per acre applied after the potatoes were up gave an increase of 22 bags of #1 potatoes per acre. As a result of this

first year of the work it is being recommended that farmers try 1/2" to 1" applications of sawdust on small areas, articularly for white and sweet potatoes and tomatoes. Supplemental nitrogen should be added to replace such nitrogen as may be taken up by bacteria working on the sawdust.

Weed Control

Truck farmers who include alfalfa in their rotation experiance considerable trouble with chickweed smothering the alfalfa in the spring. One truck grower in October applied cyanamid at the rate of 1000 pounds per acre on small areas of his alfalfa in an attempt to kill the chickweed. As another weed killer based on the varying tolerance of plants for boron the County Agent-at-large in cooperation with Mr. W. G. Welte of the soils Department applied varying amounts of boron on the same field. Results to date indicate that both boron and cyanamid injured the alfalfa, but that the recovery from the cyanamid injury was more rapid. Where borax was applied at the rate of 75 to 100 pounds per acre relatively little of the chickweed was killed, but a high percentage of kill was obtained where borax was applied at the rate of 150 pounds per acre and where the cyanamid was used.

Irrigation

As has been noted previously the droughts of 1943 and 1944 have made irrigation very profitable for truck growers equipped to take advantage of it. Believing that irrigation is a sound investment, the County Agent-at-large has distributed bulletins and information in regard to it and assisted 4 growers in Princess Anne, Norfolk and Nansemond counties to get started with irrigation during 1944. Portable galvanized pipe with 6" or 8" mains and 4" laterals is the type of irrigation that is preferred. The major limitation to a rapid expansion of irrigation in this part of Virginia is lack of an adequate, dependable supply of fresh water.

Respectively submitted,

H. W. Ridgway

Newspaper article published in Norfolk Virginian-Pilot on 10/18/44

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STRAWBERRY CRIMP

By
H. W. Ridgway, County Agent-at-large
Virginia Truck Experiment Station, Norfolk, Va.

Last May a prominent strawberry grower reported a condition in his beds which killed or seriously stunted considerable areas in his strawberry fields. At that time no distinctive symptoms were discernable in the dead or infected plants, but when these fields were examined again on August 31 crimp was found in every field. As this is a serious disease, transmitted primarily by transplanting infested plants, all plant beds should be examined now and all plants which are not vigorous dug out and carried from the field. This is particularly important as the symptoms of crimp will disappear as the weather becomes cooler and will not reappear until next summer.

Some growers will remember crimp as being serious on nearly all farms back in 1933. At that time it was brought into this area on plants from further south, where the disease is quite common and is known by several names including "dwarf" and "French bud." A survey during the past month has located crimp on six farms in the Norfolk area, but the infestation was severe on only the one farm mentioned.

A Florida bulletin well describes the disease as follows:

"Crimp is fundamentally a bud disease, affecting the young leaves as they develop. Affected plants, with but one bud to the crown, have a flat, spread out, spider-like appearance, due to a few normal leaves having developed before the disease appeared. The development of subsequent leaves is materially reduced. These leaves are deformed and range in size from mere rudiments to almost normal. The leaflets are crimped or crinkled, cupped, and narrow, with a reddish cast to the serrations, main veins, and petioles. In some cases the petioles are less hairy than normal, in fact, almost smooth. The older diseased leaves have a darker green color than normal, and both old and young leaves are more brittle."

"The disease may kill the main bud, with the subsequent death of the plant unless lateral buds chance to develop. The latter, in most cases, produce small, normal-shaped leaves on long, spindly petioles. Plants with multi-bud crowns may have both diseased and healthy buds, and also produce both healthy and diseased runner plants. The usual thing, however, is for all the runner plants of a diseased mother plant to show the disease."

The cause of crimp is a microscopic eelworm or nematode. These worms are from 1/42 to 1/26 inch long and colorless so that it is impossible to see them except under a microscope. They are found in large numbers, even up to 1500 per bud in infested plants. They live in the buds of the plants or in the soil and are spread by rains and cultivation as well as by planting diseased plants. This particular nematode attacks only the strawberry and is not the same as the more common root-knot nematode which attacks many plants.

The recommended control is the rigid inspection of the plant beds and the destruction of any questionable plants, rotation, and good drainage. A long rotation does not seem to be required as two or three years seem to be sufficient between strawberry crops. If at all possible, infested beds should be plowed up after the next picking season and new plants should be used only from fields in which no crimp has been found.

It has been observed that crimp is more serious in poorly drained areas, probably because of the spreading of the nematode by surface water, therefore, well drained land may be an important consideration. No spray or dust treatment is known which has any value in the control of crimp.

Radio Talk given over WTAR Norfolk , July 29, 1944

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FALL VICTORY GARDENS

H. W. Ridgway, County Agent-at-Large
Virginia Truck Experiment Station
Sponsored by the Norfolk Federation of Garden Clubs

I wonder how many talks over the radio, or of the common variety, you have listened to about the Victory Garden. The talks seem to me to be almost as numerous as the weeds, and some of you kind listeners must be tired of them. However, as the Federation of Garden Clubs continues to schedule Victory Garden talks, and, as the Virginia Truck Experiment Station gets many questions every day from Victory gardeners, there is reason to hope that a few of you who are real gardeners will not turn the radio off this time.

Today's is to be the first of three talks on this perennial subject. As the principles of gardening do not change any more than the weeds do, I will merely outline the parts that you must have heard many times before and hasten on to less common, and I hope, more interesting topics.

The war in Europe may be nearly over, as the optimists say and we all hope, but the end of the conflict will increase and not decrease the need for Victory Gardens. More food will be required to win the peace than to win the war because we will also have our hungry cousins in Europe to feed, at least until they can get their own crops planted and harvested. Starvation breeds disease and discontent and is a barrier to any real peace. In our own interest we must do all that is possible to prevent hunger anywhere.

This year many experienced gardeners have been discouraged by the prolonged and unprecidented drought following an unusually wet spring. Many well planned gardens were comparative failures. Where gardens with-stood the drought success was due either to a soil high in organic matter and well prepared, or, to expert watering. As you know the latter does not mean daily watering, but thorough soakings to a depth of six inches or more about once a week.

In most years a fall garden is more difficult to get up to a good stand than a spring garden. However, 1944 bids fair to be an exception, as the drought already seems to have been broken and we can surely count on better distribution of rainfall during the coming months than we had from March to the middle of July. Whatever conditions, the area to be planted to fall crops should be spaded or plowed as soon as possible and then ridged and firmed. If this is done now, the top of the ridge can be raked off after the first rain and the soil should then be in ideal condition to plant. If the seed is planted immediately after the ground is spaded the soil will usually dry out, and, unless irrigation is used a very poor stand may be obtained.

Now what crops should be planted in the fall garden in southeastern Virginia?

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First, I would list kale, carrots, beets, snap beans, turnips, cabbage and onion sets. All of these are easy to grow and they should be included in every garden. There are a number of other crops such as, Brussel sprouts, peas, broccoli and lettuce, which will be wanted by the expert gardener, who has the time to devote a little special care and is willing to run certain risks in the interest of growing delicacies. I will say a word about each of these crops and certain others, either today or in the course of the later talks.

If you do not already have a copy of the 1944 Victory Garden Information Sheet put out by the Victory Garden Committee, I would certainly recommend that you obtain one. Mr. Heutte has charge of distributing these excellent sheets and they may be obtained at his office at the Norfolk City Park or from the various seed dealers.

From the wheel on the front of this 1944 Victory Garden sheet you can determine the best time to plant each crop in your garden. For most fall crops the recommended planting dates start in late July and run up until the latter part of August. You will observe that lima beans should have been planted during the middle of July, however, it is still possible to make a planting during the coming week with prospects of getting a reasonable yield, if the Henderson Bush type is used.

It is now too late to plant cabbage seed, and plants will not be ready to transplant until the middle of August, but you will want to prepare a row for fall cabbage. Since it can be used over a much longer time than spring cabbage, I would suggest a larger planting than you made in the spring.

Snap beans are one of the most satisfactory crops forthe home garden and certainly should be included. Bountiful is the most dependable variety for this period when the temperatures are high; it will produce a good crop, when most other varieties will shed their blooms. However, it is flat podded; for round podded varieties it is safer to delay planting until the middle of August.

Many of the local farmers have planted their kale and there are prospects of a plentiful supply of this excellent vegetable throughout the winter months. However, for gardeners who want to grow their own supply of greens from October to March, I should highly recommend a seeding of Dwarf Blue Curled Scotch Kale made during the next two weeks. If this is thinned to one plant every six to fifteen inches and the leaves are broken off instead of cutting off the entire top, a single row may give you a continuous supply of greens high in vitamins throughout the fall and winter months. You will note that spinach is not included in the Victory Garden Sheet; this is because spinach grows well only under ideal conditions, where the soil is of exactly the right acidity, very fertile, and high in organic matter. If you believe that you can provide the required conditions plant Virginia Savoy during September and October. Collards may be planted along with the kale and in the same manner, to provide variety. I will plan to discuss Brussel sprouts, cauliflower and broccoli a week from today.

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You will also notice that white potatoes are not included in the wheel on the Victory Garden Sheet. This is because potatoes like an acid soil and because the limited areas available in most gardens make it wiser to concentrate on other crops, however, many gardeners do want to plant white potatoes and for them I might say that the last week of July and the first week in August is the best time to get them in the ground. It is unfortunate that seed of the Sebago, the variety which has given best results in this area, is not available this fall, but some seed of the varieties Jersey Red and Green Mountain is still obtainable, I am told, and these are excellent substitutes. The Irish Cobbler, the standard spring variety is not dependable under fall conditions. Some farmers grow a small acreage of it in the fall and then use the potatoes as seed for the spring crop. If certified northern grown seed is obtained every other year, this growing of your own spring seed may be a good practice. One of the most important points about planting fall potatoes is to see that they are planted in cool soil. If planted when the soil is hot the seed pieces very often rot and a poor stand is the result. If the furrow is opened in the evening, and watered, or if the seed is planted early in the morning, satisfactory results are obtained.

I want to mention two insects; first, the Red Spider, which has been very generally present, and also very destructive, in gardens in this region in the past two months. It is so small that most people never see this tiny mite. However, the typical minute yellowish spotting of the leaves indicates the presence of this pest, and, if a spotted leaf is examined under a magnifying glass yellowish, or reddish mites can be seen. The Red Spider is often washed from the plant by heavy rains or by sprinkling with water under pressure, but during drought periods it multiplies rapidly. The Red Spider will attack practically every crop grown in the vegetable or flower garden, but it is perhaps most serious on beans. Fortunately, control is not difficult. Dusting or spraying the effected plants with dusting sulfur will give excellent control, but as sulfur is injurious to cantaloupes, squash, and cucumbers it should not be used on these crops. If you are not sure of the identity of this insect, you can enclose a leaf of the suspected plant in a letter and send it to the Virginia Truck Experiment Station, Norfolk, Virginia and we will be glad to check on your diagnosis.

Another insect which I want to discuss is the harlequin bug. This is probably not serious at the present time, but it may be found on any old cabbage, turnip or similar plants and if not destroyed will go from them to your fall plantings. There is no very satisfactory spray or dust that will control this pest and therefore, it is particularily important to destroy it before it becomes numerous. It is a small flat bug with a bad odor, black, orange, and yellow in color and about 1/3 of an inch in length when full grown. All old plants harboring them should be pulled and immediately burned and the new plantings should be examined carefully for the harlequin bug and hand-picked so that this insect does not get a start. Watch for the eggs also; these are like small black and white barrels glued to the leaf in two parallel rows.

I have said nothing about fertilizer because this tipic was discussed so thoroughly early this spring. However, for all gardens that have not been heavily fertilized in the recent past, an application of 4 or 5 pounds per 100 sq. ft. of 5-10-5 Victory Garden fertilizer worked into the soil when the rows are made up will give good returns. If the soil has been very heavily manured, the amount of 5-10-5 may be reduced and an application of 2 pounds

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of super phosphate per 100 sq. ft. added. This will balance the nutrient elements and prevent excessive vine growth of such crops as tomatoes and beans. May I also repeat that it is not safe to lime soil without having it tested. Dozens of gardens around Norfolk are comparative failures because of over-liming, and only a test can tell you whether or not lime is needed and how much to use. Send representative samples to the Norfolk City Park or the Virginia Truck Experiment Station.

If any listener has a Victory garden problem which he would like to have discussed on these programs, I would be glad to include it. Send questions to the Virginia Truck Experiment Station in care of the Station.

For the sake of our loved ones in the armed forces, for our cousins in Europe and throughout the world as well as for our own health, our pocket-books and our tables, let us all strive for better Victory Gardens.