NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, NORTH CAROLINA COUNTIES AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS STATE OF NORTH CAROLINA

EXTENSION SERVICE COUNTY AGENT WORK

NORTH CAROLINA VEGETABLE GROWER

DEPARTMENTS OF Horticulture, Entomology, Agronomy, Agric. Engineering, Plant Pathology and Agr. Economics; N. C. State College

JANUARY, 1957

First Vegetable Judging Team

THIS YEAR North Carolina State College sent its first intercollegiate judging team to compete for National honors at the annual meeting of the National Vegetable Growers Association of America in Grand Rapids, Michigan.

Members of the team were Roderick H. Morris from Maxton, Lee W. Cash from Shelby and Don E. Hudson from Zircon, N. C. The North Carolina team captured third place in the nation; being nosed out by first place Connecticut and second place University of Massachusetts.

Participation in the contest included identifying vegetable varieties, diseases, insects, and nutritional deficiencies. The team also identified vegetable plants and weeds, and they judged and graded the various types of vegetables.

The trip was sponsored jointly by the **North Carolina Seedsmen's Association** and the **North Carolina Farmers Cooperative Exchange.**

Additional honors were won by R. H. Morris who placed third in the nation in individual scoring.

Next year's Vegetable Growers Convention will be held in New Orleans, Louisiana.

D. L. Harward of Wake County purchased a mechanical turnip salad harvester as well as a radish digger and topper this year. Another case of cutting labor costs.

Tomato Prospects For 1957

A. A. Banadyga

MOST TOMATO growers made money on their 1956 crop, especially on the early and late crops. Prices for early tomatoes were good because of cold weather damage to our competing areas in the south and southwest. Because of the generally good prices received for the 2,800 acres grown for fresh market in 1956 there may be an increase in the 1957 acreage. This increase would be justified if it is concentrated on the early and late (fall) crops.

Prices for early tomatoes are always good in local markets and generally good for Eastern North Carolina on the larger markets. There are several steps necessary for high yields of early tomatoes; namely:

Plant an early variety.

Valiant has given good results consistently. It will set fruit well in cool weather, matures about 10–14 days earlier than Rutgers or Homestead, and produces good looking fruits that are readily accepted at the market. Valiant is not resistant to any disease, but this factor has not been of sufficient importance to offset the earliness. Fireball is a new, early variety that might be planted in small amounts on a trial basis.

Grow your own plants.

The use of glass substitute in hotbed or coldframe sash makes it much easier for growers to make their own sash and grow their own good plants of the variety they want, disease free, and available at the time they want them. Transplanting to veneer, paper, clay or composition bands or pots is becoming more and more profitable and popular. These containers usually cost less than one cent per plant and are well worth using since one tomato per plant, one week earlier than usual, would more than pay for them.

(Cont. on page 3 Col. 1)

Little Veggie

A codfish lays a million eggs
The helpful hens lays one.
But the codfish does not cackle
To inform you what she's done.

And so we scorn the codfish, while
The helpful hen we prize.
Which indicates to thoughtful minds
It pays to advertise.

Mechanical Lettuce Harvester Cuts Labor Costs

J. C. Ferguson

M. S. Emmert of Wilmington could apply the old proverb, "necessity is the mother of invention".

After harvesting and selling his 1955 crop of lettuce, Emmert realized that something must be done to reduce harvesting costs. Labor costs had cut heavily into his returns. A mechanical device seemed to be the answer.

Emmert and his County Agent, Durwood Baggett, visited N. C. State College in December, 1955. He discussed his problem with Agricultural Engineers and the Director of Agricultural Research.

It was decided that the idea of a mechanical lettuce harvester had merit and offered potential benefit to other growers.

The lettuce harvesting device was set up as an Agricultural Engineering project for 1956, and plans were drawn up by J. C. Ferguson, Extension Agricultural Engineer. The experimental harvester was built in the Agricultural Engineering Research Shop early in 1956 under the supervision of Ralph Green, Shop Superintendent.

How the machine works

The original idea, of course, was to reduce handling of lettuce and do a complete job of harvesting, trimming and packing in the field. This was accomplished successfully with a relatively simple trail type conveyor device hitched to the rear of a large farm trailer. The trailer, in turn, being pulled through the field by a wide axle farm tractor. Emmert's lettuce was planted in six foot beds with four rows per bed, so the harvester was designed with a wheel tread of six feet. Two horizontal conveyors, each seven feet in length, placed 20 inches above ground level, extending laterally with an overall span of 15 feet, conered three 6 foot beds of lettuce at a swath, or a total of 12 rows.

Conveyor belts were made from a special vegetable acid resistant belting material, so arranged to deliver the head lettuce to a centrally located inclined flight elevator. From the inclined elevator, lettuce was delivered into a shallow receiving box at the rear of the trailer. The receiving box was placed at a convenient packing height to accommodate three packers. The conveyor belts and elevator moving at a speed of 80 feet per minute was driven by a 1½ h.p. air cooled engine.

The operating crew consisted of eleven people working as follows: six cutters, two to each bed, walking and cutting lettuce to the rear of the conveyor; three packers trimmed and packed the lettuce from the receiving box on the rear of the trailer; one person assembled the knocked-down crates, closed and stacked the packed lettuce to the edge of the trailer deck; another person operated the tractor. To remove the crated lettuce from the harvesting unit, another tractor and trailer was driven along side the harvesting trailer periodically from which crates were transferred in the field without interference to the harvesting operation.

Less cost per crates

Emmert found that with this harvesting device in good yielding lettuce, he could cut and pack 100 crates per hour with ease. At this rate, harvesting costs ran approximately 7¢ per crate. Previous costs by conventional hand methods, according to Emmert, had run as high as 20¢ per crate.

After harvesting approximately 7,000 crates of lettuce on Emmert's farm, a lettuce grower in Washington County requested the use of the harvester, where part of a late crop was also harvested successfully.

From the 1956 field test, several desirable modifications were indicated in the design of the machine which will be made before another season.

May be used for other crops

While time did not permit the trial of the device on other horticultural crops this season, it is believed adaptable to crops such as cabbage, peppers, tomatoes, squash, cantaloupes, and possibly others, if planted in an adaptable row arrangement. Similar devices have been used in Florida, California, and other large acreage, commercial, vegetable producing areas; but in most instances machines are large, self-propelled, expensive units, not generally adaptable to the use of the small grower. The cost of the unit previously described was approximately $400.00 and could be manufactured for somewhat less

Reduced costs and a more efficient operation resulted by using this lettuce harvester.

even in limited volume.

Vegetable growers in North Carolina have thus far had to harvest entirely by hand methods in competition with more efficient practices in other areas. It is of course hoped that other North Carolina vegetable growers may eventually be able to utilize similar equipment to increase net income.

Tomato Prospects for 1957
(Cont. from page 1)

Proper fertilization.

Tomatoes are heavy feeders; with some of the 20–ton per acre producers in other states applying a total of one ton of fertilizer per acre. Our general recommendation is 900 – 1200 pounds of a 5–10–10 fertilizer. However, a soil test will tell you exactly what and how much you will need. Apply half of the fertilizer in the row in two bands or either mix it well with the soil. Some growers without banding equipment, have broadcast this amount, disked it in before planting, and obtained good results. The remaining half of the recommended fertilizer may be applied as either one or two later side dressings. Side dress with 15 pounds of N when first blooms appear and then again 30 days later.

Use a starter solution when transplanting.

Liquids or water soluble starter solutions are available, however, dissolving one pound of 5–10–10 in each 10 gallons of setting water will do just as well.

Protect early plants.

Sand, wind and cold weather damage reduce early yields. Protection by windbreaks or hotcaps reduces or eliminates this.

Keep weeds down by shallow cultivation.

Where earliness is not a factor the varieties Homestead–2, Big Boy and Rutgers may be used. Homestead–2 is a good yielder, highly resistant to fusarium wilt. Big Boy is a true hybrid, heavy yielder but not resistant to wilt. In Western North Carolina a few growers have had good results with Manalucie as a late variety.

Pruning and staking

Western North Carolina has several advantages; namely: less fruit rot especially during wet weather, slightly earlier ripening, easier harvesting and easier dusting and spraying to control insects and diseases. A disadvantage is the cost of staking and pruning but on small to medium acreage it usually more than pays for itself.

Most growers allow tomatoes for local market to get too ripe before harvesting and thus lose the sale of these over–ripe fruits. Careful and frequent harvesting followed by grading as to color and size are necessary to receive favorable prices.

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About one–fourth of our total population is already up against an actual shortage of water, or poor quality water, or both. By 1975 our needs for water will be nearly double what they are now. It is estimated that the industrial demand will use up 80 percent of the rivers.

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The per capita consumption of cabbage and tomatoes in the United States is only exceeded by potatoes. The per capita consumption of lettuce and celery has doubled since 1920.

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Fresh cabbage juice may soon be sold at every corner grocery or drug store in the country. A clinical study was undertaken by Dr. Garnett Cheny, Stanford University School of Medicine, San Francisco, California, to evaluate the effectiveness of concentrated cabbage juice in the treatment of peptic ulcers. Patients at San Quentin Prison with diagnosed ulcers were treated in an experiment with concentrated cabbage juice. For a period of 21 days the patients were given concentrated cabbage juice with their meals after which they were thoroughly examined. The results of the experiment indicated concentrated cabbage juice to be effective in healing peptic ulcers. It might not be too long before a concentrated cabbage juice plant is located in one of the cabbage growing areas of North Carolina. Who knows? A lot of people in this "modern age" have ulcers.

A. A. Banadyga

According to County Agent R. C. Vick, Mr. W. H. Bradshaw of Clay County did an excellent job of producing peppers for processing last year. It was his first year as a producer and he sold over ten tons per acre. How did he do it? He selected moist, loamy soil, took a soil sample and followed directions for fertilizing. He kept the field clean of weeds throughout the entire summer and harvested thoroughly and regularly.

Hugh Hampton, Route 1, Boone, N. C. produced over 700 bushels of the new Boone variety of Irish potatoes per acre this year in one of his fields, according to County Agent L. E. Tuckwiller. The Boone is a new high yielding, white, shallow–eyed, smooth potato, and is resistant to late blight. Hampton followed recommended practices to get this high yield. Boone is recommended for Western North Carolina growing conditions.

H. P. Cannon and Son Inc. had two mechanical snap bean harvesters operating out of their Dunn, N. C. plant this year. More North Carolina vegetable growers should seriously consider labor saving equipment.

Reed Devany, Plymouth, N. C. made a good hydro–cooler himself out of cement blocks and sheet metal. Reed said it worked as good as a "ready made", and cost less than 25 per cent as much. He used it to cool his lettuce and sweet corn. Devany also converted a high clearance sprayer into a lettuce and sweet corn harvester. Reed has a good eye for cutting corners and costs.

Seed dealers who this spring stocked the Valeant tomato variety in Rockingham County, according to Assistant County Agent H. J. Hux, sold out to farmers planning an early crop of tomatoes. More seed dealers should stock this good, early variety for home and market growers.

Prevent Bacterial Spot on Pepper

N. N. Winstead and J. C. Wells

BACTERIAL spot caused severe damage on sweet pepper on many farms in North Carolina in 1956. Yet with the use of a few easy and relatively inexpensive practices this loss could have been almost completely avoided. This disease is particularly damaging on the leaves and fruits, and can also attack stems.

What It Looks Like

On young leaves, the spots are small yellowish–green and slightly raised on the underside of the leaf. On older leaves the spots first are dark and water–soaked. Older spots have dead, straw–colored centers with dark margins and diseased leaves turn yellow and drop. On fruits the spots are at first small and blisterlike. As they increase in size these spots turn brown and the fruit appears cracked, roughened and warty. These pod lesions reduce the market value and offer an excellent avenue for entrance of many decay–causing bacteria and fungi.

Control

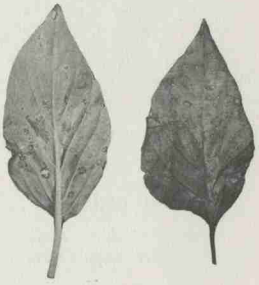
The bacteria can be carried in the seed of pepper or tomato and can survive on decaying plants of these 2 crops in the soil for at least one year. The best way to prevent losses in the field is to control the disease in the seed bed, in the field. Pepper seed can be disinfested with bichloride of mercury. For treatment dissolve one 8–grain tablet per quart of water, soak seed in the solution for 5 minutes, rinse throughly, and dry. Mecuric–cloride–treated seed can frequently be purchased. Dry seed treatment materials do not completely destroy this bacterium from the seed. However, treatment with Arasan or Thiram 50 according to manufacturer's directions, prevents decay of seed and pre–emergence damping–off.

Treatment of the seed bed with methyl bromide at a rate of 2 pounds per 100 square feet, not only will eradicate this bacterium but also kills nematodes, most weed seeds, the damping–off fungi and most other soilborne disease organisms which cause pepper diseases. For more detailed information on methods of application and use of this material, write for, or obtain from your County Agent: North Carolina State College Plant Pathology Information Note No. 37; North Carolina Extension Folder No. 101; and North Carolina Agricultural Experiment Station Bulletin 399.

Helps

To further insure against losses from bacterial spot, pepper seedlings should not be transplanted to fields where peppers or tomatoes were planted the preceding year.

When a general infection with bacterial spot occurs in the field early in the season it is advisable to spray or dust with a copper fungicide. Bordeaux mixture 6–6–100, fixed copper sprays (1 1/2 pounds metallic copper to 100 gallons of water) or fixed copper dusts (containing 5% actual copper) may be used. Copper fungicides need to be applied at 7 to 10 day intervals and are somewhat injurious to peppers and may cause some reduction in yield when several applications are made. Hence, the best method of control is to avoid the bacterial spot disease.



Pepper leaves showing bacterial spot symptoms. On fruits the spots are at first small and blisterlike.

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