

Vegetable crop advances featured

UNIVERSITY PARK - The potential for improved vegetable crops with deep tillage is being tested at The Pennsylvania State University. Vegetables grown at tillage depths ranging from 6 to 17 inches will be compared for yields and quality during Ag Progress Days to be held August 23 to 25 at the Agricultural Research Center, nine miles west of here along Route 45.

Tillage methods being compared include a disk harrow, moldboard plow, chisel plow, and subsoiler. Crops grown under different tillage represent the various rooting habits of vegetables - potatoes, tomatoes, peppers, carrots, muskmelons, and sweet corn.

"Conventional tillage methods and heavy

machinery, coupled with soil types found in much of Pennsylvania, often lead to poor soil structure. This can result in poor root penetration which can reduce crop yields and, in some cases, quality," declared Doyle W. Grenoble, superintendent of the Horticultural Research Farm, part of the 1525 acres at Rock Springs.

Grenoble and associates are experimenting to determine whether deep tillage will enable vegetable plants to withstand dry periods better than shallow tillage. Reduced water runoff is predicted with potentially better drainage than shallow tillage.

Weed control experiments to find the most effective and least expensive methods of weeding vegetables with

chemicals will also be featured during Ag Progress Days. Experiments using herbicides on 10 vegetable crops will be demonstrated by Professor C.J. Noll, Grenoble, and Dr. R.H. Cole.

Improvements in weed kill would reduce the amount of energy and labor needed to produce a crop. This in turn would reduce the final costs to the consumer, Professor Noll said. He added that some herbicides are incorporated into the soil prior to seeding or transplanting, some are applied immediately after seeding or transplanting, and some are applied long after the crop is planted.

Effects of nitrogen, phosphorus, potassium, calcium, magnesium, and zinc on growth and yield of seven vegetable crops will be featured in another experiment. Nutrients are being applied as commercial fertilizer on soil of medium fertility.

"Through laboratory analysis of plants, we are learning what happens nutritionally in enhancing or restricting uptake of a wide range of nutrients. These trials are part of continuing research to determine the most efficient use of fertilizers in growing vegetables," declared Dr. Cyril B. Smith, in charge of research.

He indicated the practical result will be to increase efficiency in vegetable production, resulting in better value for consumers.

Elsewhere, Dr. E.L. Bergman and associates are experimenting with various soil levels of calcium, magnesium, and potassium on yields of potatoes and cabbage. Eighteen plots compare both low and high levels of calcium - and low, medium, and high levels of magnesium and potassium - for cabbage and potatoes. Four potato varieties and three cabbage varieties are grown side by side.

Dr. Bergman said there are some questions in

people's minds about liming of potatoes, or the growing of cabbage and potatoes in the same field, due to differences in nutritional requirements. The experiments should answer such questions, he pointed out, through yield, quality, and leaf analysis information - as well as by "keeping quality" in storage. Research with these plots was initiated in 1972.

In Penn State horticulture, evaluation is continuing for an experimental high sugar sweet corn hybrid developed by Dr. Douglas L. Garwood and associates. When picked, the experimental hybrid has a sugar content almost twice as high as standard sweet corn - 24.8 per cent compared to 14.4 per cent. After four days at room temperature, sugar in the experimental hybrids stands at 11.1 per cent, still almost as high as sugar in freshly picked standard sweet corn.

If tests of the experimental Penn State hybrid continue favorable, seed should be available within two years. Garwood said sweetness of the new hybrid falls somewhere between another high sugar sweet corn now on the market and standard sweet corn. In a Florida consumer study, 19 per cent said the high sugar corn now marketed was too sweet. Likewise, taste panel testers at Penn State rated the present commercial high sugar corn too sweet. Plots of the experimental sweet corn will be seen by visitors August 23 to 25.

Elsewhere during Ag Progress Days, factors involving the evolution of the cultivated potato will be described by Dr. Paul Grun, professor of cytology and cytogenetics. When fertile varieties of cultivated potatoes are crossed with wild species in breeding programs, the hybrids produced are often sterile. Dr. Grun and associates are



Use of herbicides to control weeds in vegetables will be demonstrated August 23 to 25 during Ag Progress Days at the Agricultural Research Center of Penn State. C.J. Noll, in charge of weed control experiments on vegetables, compares clean row tomatoes treated with herbicides, center, with untreated row on right grown six feet tall with red-root pigweed.

studying the inheritance of these sterilities to learn how to breed potatoes that are fully fertile.

Ag Progress Days visitors will see offspring of crosses between different potato varieties and wild potatoes.

The Penn State scientists have identified a major source of sterilities and have started to incorporate fertility factors in place of sterility factors in some cultivated potato varieties.

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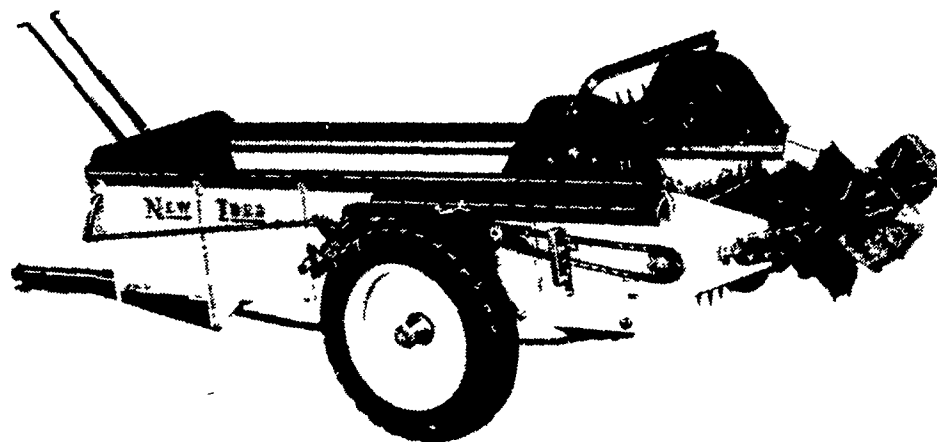
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