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Progress Report

HORTICULTURAL CROPS

Cucumber mechanization continued at a slow pace, with a few new harvesters of the onceover and the multiple-pick type brought into the state for the 1974 season. Mechanical difficulties plagued the self-propelled version of the multiple-pick harvester which was introduced this year. Performance was good but reliability was poor. Design improvements were made and incorporated by the manufacturer to remedy the situation. Onceover harvester performance once again proved to be highly dependent on the crop produced: if the field is clean and a good crop of cukes is on the vines, the machine will take them off and put them in bulk containers in an acceptable fashion. Profitable yield, harvest scheduling, and general management difficulties continue to be the major problems with the onceover harvesting approach.

Considerable attention was given to assembling and evaluating new bed-shaping and cultivation equipment for cucumbers, with the objectives of reducing costs and power requirements while increasing the speed of those operations. The new devices, which are made up primarily of standard tillage tools, not power driven, proved equally as effective as the power driven rotary tiller currently being used for bed preparation and cultivation, and achieved the objectives set forth above.

The proper application of nematocides to cucumbers was stressed at several cucumber meetings, with the result that the major pickle companies' field coordinators have begun to make the application properly with suitable equipment, and will urge the practice on their growers.

Production of processing tomatoes incorporating mechanical harvesting, was initiated in North Carolina in 1974, with 100 acres being grown by two farmers in Robeson County. Most of the acreage was transplanted, but 15 acres or more

were direct-seeded in the field. A Horticultural Specialist and a Biological and Agricultural Engineering Specialist cooperated in assisting the growers with all phases of production planning and implementation. Bedding and seeding equipment was provided for establishing the crop, and use of an air-blast sprayer was arranged for disease and insect control on one of the farms. Experience and knowledge gained from this effort will be available for the benefit of extension workers and other growers who elect to produce processing tomatoes.

Additional tests to determine the efficacy of different types of sprayers for disease and insect control on vegetable crops, particularly tomatoes and cucumbers, were conducted during the 1974 season. It is anticipated that these tests will provide a sound basis for recommendations on types of sprayers best suited for these and similar crops, as well as proper operational techniques. A pocket-size sprayer calibration guide was prepared and distributed.

In cooperation with a forestry extension specialist and a private grower, a piece of equipment was designed and assembled to prepare land for planting Fraser fir Christmas trees in the North Carolina mountains. The machine tills a strip approximately 20 inches wide and 4-6 inches deep, applies and incorporates fertilizer into this strip, and may be equipped with a seeding device to plant a cover crop such as rye in the tilled strip. The area between the tilled strips (rows of trees) is left in sod to control erosion. A test planting was established on the grower's farm in 1974, with tillage, types and rates of fertilizer, incorporated and not incorporated, as the variables evaluated. In addition to the test approximately 15-20,000 trees were set out by the grower in land prepared with the machine. The machine was displayed and discussed on the program of the Christmas Tree Growers Association.

Safety in agricultural operations was given considerable attention in 1974. An Extension Safety Coordinating Committee was formed, with BAE Specialist as Chairman of the OSHA Subcommittee. The take over of the OSHA administration

by the North Carolina Department of Labor, OSHA Division, brought about the need for education work relative to OSHA in agriculture, in which Extension cooperated with NCDL. New agricultural standards on Roll Over Protective Structures for tractors and Agricultural Machine Guarding were proposed by the Federal OSHA Standards Office, and Extension efforts were brought to bear on modifying certain provisions of these standards before they were implemented, and informing agricultural interests of the proposed standards and their implications. General safety educational efforts continued at an accelerated pace.