

of application. If the grower anticipates the control of weeds with 2,4-D sprays he should plant varieties other than Minerva. Those weeds which are susceptible to 2,4-D spray such as mustard and marsh elder were almost completely removed by the treatment used in these fields. The alkanolamine salt of 2,4-D when applied at the rate of 1/3 pt. per acre is not detrimental to the value of the flax crop. If weeds are present which can be eliminated by spraying, one may well benefit by increased yields due to weed removal.

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Field No. 1 C. A. Klosterman, Mooreton, Richland Co., North Dakota; Field No. 2 Edd. Goerger, Barney, Richland Co., North Dakota; Field No. 3 Sam Bacock, Glyndon, Clay Co., Minnesota; Field No. 4 North Dakota Agr. Exp. Sta., Fargo, North Dakota.

### CHOCKECHERRY DISEASE IN NORTH DAKOTA

By

J. H. Schultz, Principal Horticulturist

The chokecherry bushes that were planted on the Horticultural plots at the Station at Fargo 15 and more years ago as windbreaks and for observations on inheritance of yellow fruit color have reached the end of their usefulness. Some of these chokecherry bushes have been drying out for at least the past five years. The cause of death was not recognized until mid-summer of 1948.

Inspections made during the 1948 season have revealed that practically 100 per cent of the chokecherry bushes on the Horticultural plots and some bushes on the NDAC campus are seriously infected with one or more virus diseases. The principal disease is that referred to as "red-leaf chokecherry virus" or as "X-Disease of Stone Fruits". This is apparently the first report of the occurrence of this disease in North Dakota. Observations made this summer indicate that the disease is also present in wild native chokecherries in Richland and several other counties. It has also been observed on chokecherries in several shelterbelt plantings in various parts of the state.

This virus disease complex is not new. It is recognized as a major problem in Eastern and Western peach-growing sections and control measures have been developed in those areas. It is a serious hazard in North Dakota in two respects: first, the disease causes death of chokecherry bushes in about five years after a bush becomes infected; and, second, the disease seems to be transmissible from chokecherries to many of the plum and cherry varieties grown in North Dakota orchards (and vice versa). The disease apparently has moved faster and more destructively in chokecherries than in other stone fruits grown on the Horticultural plots. Under our conditions the chokecherries may be serving as a medium for spreading the disease in our cultivated stone fruits.

As nearly as can be determined, infection of chokecherries in the Horticultural plots first occurred about ten years ago. It appears likely that the disease was brought here in a group of plum varieties planted adjacent

- (1) R. S. Dunham, Paper No. 614 Misc. Jour. Series Minn. Agr. Exp. Sta.; Proc. Fourth Annual Meeting of the North Central Weed Control Conference, p. 35.
- (2) T. K. Tandon, Paper No. 615 Misc. Jour. Series, Minn. Agr. Exp. Sta.; Proc. *ibid* p. 36.

to a windbreak row of seedling chokecherries. Since then all the chokecherries in this 300-foot row have become infected and about one-third of them have died.

Another center of infection appeared in a partially isolated seedling row of chokecherries adjacent to a new plum and cherry variety orchard set out in 1940. The first chokecherries to die in this row (and presumably the first to become infected) were adjacent to the north end of the new variety orchard. From this apparent center of infection, the disease had progressively spread about 200 feet east and 200 feet west to the ends of the chokecherry row by 1948. Virus infection is now general in the stone fruit variety orchard set out in 1940.

### Control of Chokecherry Virus Disease

The Red Leaf Chokecherry virus disease should not become serious in North Dakota if the disease is recognized and suitable control measures are followed. As with any virus disease in plants, control is based on prevention. It is particularly important that infected trees be eradicated from the vicinity of nurseries which propagate or grow any stone fruits. Infected trees should likewise be eradicated from shelterbelts and the vicinity of home orchards. At present there is no indication that this disease can be transmitted through the seed. To prevent further spread of disease, almost all chokecherry bushes were removed by bulldozer in October, 1948. Seeds from bushes showing various stages of disease were collected for further tests on seed transmission of the disease.

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## SWEET CORN VARIETIES AND HYBRIDS

by

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The open pollinated varieties of sweet corn are gradually being replaced by improved sweet corn hybrids. Although the best open pollinated varieties are better than many hybrids, they are generally inferior to the better hybrids in the various maturity seasons.

At present there is a wide range of choice among sweet corn hybrids from extra early to late maturity. This has led to the system of planting a number of hybrids of different maturities at one time and harvesting the crop over a period of about one month or longer if desired. The better hybrids, when compared to open pollinated varieties of the same maturity season, generally yield better; are more uniform in plant and ear characteristics; have a shorter range of maturity from first to last picking; and are more resistant to smut. Varieties of poor as well as excellent quality exist in both open pollinated and hybrid sorts.

Hybrid and open pollinated sweet corn varieties and strains totaling 29 in 1947 and 44 in 1948 were tested at Fargo. Plantings

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