

This type of backcrossing program has produced for us more seed than through natural or manual selfing of the F_1 's. This is especially significant in consideration of the extremely large number of flowers produced by the vigorous and floriferous F_1 's as compared to the relatively few backcrosses which could be made because of time considerations.

Leaf Hoppers Were Bad on Beans

E. M. Meader and Lih Hung

In the cool, dry summer of 1964, unsprayed beans grown nearby pear and apple trees were infested by leaf hoppers. Curling and puckering of leaves and stunting of plants were severe in breeding lines of Phaseolus vulgaris x P. coccineus. Tendercrop and Executive had far less damage than plants of the interspecific cross. Sprite (Northrup & King Co.) proved highly resistant to leaf hoppers showing little or no injury from this insect.

Control of Halo Blight With Streptomycin

John J. Natti

Halo blight has been of increasing concern to New York snap bean growers for the last three years. Observations made in field plantings and in the greenhouse indicated that the blight originated from infected seeds produced in Idaho. Because of the presence of infected seeds in the western-grown seeds, some New York growers are seriously considering the production of their own bean seeds. Past experiences have clearly demonstrated the dangers from disease inherent in this practice. At the Geneva Station, we have told our growers that until effective control of seed-borne diseases can be obtained, the practice of growing bean seeds in New York should not be recommended.

In 1963, studies were conducted to determine the value of Streptomycin in eradicating halo blight from plants originating from infected seeds and also in protecting healthy plants from the spread of the disease. Alternate two-row plots of disease-free Red Kidney bean seeds and seeds of Kinghorn Wax beans harvested the previous season

from a field which was severely infected with halo blight were planted in an isolated location. To a portion of this planting, seven Streptomycin sprays were applied at about weekly intervals starting when the primary leaves unfurled. To another portion of this field, 12 Streptomycin sprays were applied in a similar manner. Unsprayed plots served as controls. The Streptomycin was applied at a concentration of 200 ppm and at a volume of 28 gallons per acre. Sprays were applied in the evening to permit maximum absorption of Streptomycin by the plant. Data on incidence of seed borne halo blight were taken before any secondary spread occurred. The progress of halo blight was determined by periodic counts of the number of infected plants.

Only about 0.5% of the Kinghorn Wax seed was found to be infected even though the planting from which the seeds were obtained was completely infected. No seed-borne infections were observed in the Red Kidney beans. Streptomycin did not eradicate systemic infections in plants originating from infected seeds. However, Streptomycin provided some control of the spread of the disease. At harvest time, 86% of the Red Kidney bean plants which had not been sprayed were infected. In plots receiving seven Streptomycin sprays, 73% of the plants were infected. In plots receiving 12 Streptomycin sprays, 45% of the plants were infected. Most of the spread of halo blight in the seven-spray plots occurred after the sprays were discontinued.

Seeds harvested from the sprayed plots and the untreated plots in 1963 were planted in 1964. Data were taken on the incidence of infected seeds in the various seed lots. In the seeds harvested from the untreated plots, 1,420 plants with seed-borne infection were counted among a total of 23,400 plants (Table 1). In the seven-spray Streptomycin seed lot, 156 infected plants were counted among 28,512 plants. In the 12-spray Streptomycin seed lot, 75 infected plants were found among 77,220 plants. No infected plants were found among 10,200 plants of certified Red Kidney bean used as a control to check for air-borne and soil-borne inoculum. These data show that Streptomycin is of considerable value in preventing seed-borne infections. Further studies on halo blight control with Streptomycin are planned for next year.

Table 1. Incidence of seed-borne halo blight in seed lots harvested from plants sprayed with Streptomycin.

Seed Lots	No. plants	No. of infected plants	Incidence of infected plants (percent)
No Streptomycin sprays	23,580	1,420	6.0
7 Streptomycin sprays	28,512	156	0.6
12 Streptomycin sprays	77,220	75	0.1
Certified Red Kidney	10,200	0	0.0