

Planting date is approximately June 1. Anyone wishing to enter material, please let me know by May 1, if possible. Please package the seed, treated and ready for planting in 15-foot rows.

Curly Top Resistance in Demand in Australia

M. J. Silbernagel
USDA, ARS, Irrigated Agriculture Research and Extension Center
Prosser, Washington

In the fall of 1966, we sent several of our curly top-resistant bush snap bean breeding lines to Australia at the request of Australian plant pathologist, Miss Barbara Ballantyne. The reason for Miss Ballantyne's interest in curly top-resistant varieties stems from the similarity between our curly top virus disease to which we have developed resistant varieties, and an Australian disease named 'Summer Death', which, according to Miss Ballantyne, is apparently a virus-induced disease transmitted by a leafhopper vector similar to the sugar beet leafhopper which transmits the curly top virus disease to beans. Varietal disease resistance trials under Miss Ballantyne's direction at several locations in Australia where Summer Death has been quite severe, have established that our curly top-resistant varieties are also resistant to Summer Death. Having experienced severe economic losses with their Summer Death-susceptible processing varieties, such as the Tendercrop types, the Australian processors are quite enthused about one of our curly top-resistant, white-seeded, green-podded, Tendercrop types (USDA 7C-34) that has looked extremely well in their disease resistance and varietal evaluation demonstrations in Australia. We hope to have this curly top-resistant variety ready for release by the end of the 1969 crop season. (See stocks available section of this BIC Report.)

Bacteriophages for Xanthomonas phaseoli

Anne Vidaver and M. L. Schuster
University of Nebraska, Lincoln, Nebraska

Bacterial viruses (bacteriophages) for Xanthomonas phaseoli have been characterized with respect to a number of properties considered important for (1) their differentiation, (2) resistance to environmental conditions, and (3) feasibility as biological control agents. For example, 9 of 10 phages reproduce more rapidly than the host bacterium; all X. phaseoli strains tested so far are susceptible to one or more of the 10 phages, and susceptibility to phages occurs at all temperatures at which the host is able to grow.

Bacteriocins have been discovered for a number of bean bacteria, but work is still in preliminary stages.

Survival studies of several bean bacterial pathogens in Nebraska were continued under greenhouse and field conditions.

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USDA Limas G 1 and G 2 Continue to Perform Satisfactorily

R. E. Wester
Crops Research Division, ARS, U.S.D.A.
Beltsville, Maryland

The G 1 and G 2 baby limas resistant to A and B strains of downy mildew (Phytophthora phaseoli) continued to look promising in all eastern and California trials in 1968. Since both appear very promising as processing types, extensive processing trials will be conducted in 1969 before naming and releasing the better line to the trade in the fall of 1969. Both lines have consistently outyielded Early Thorogreen and Thaxter by 30 to 40 percent when downy mildew was absent. In the presence of the disease, they outyielded these susceptible varieties by 50 to 100%, depending on the severity of the disease. In 1968 seedsmen in California produced from 40,000 to 45,000 pounds of each line.

A New Virus Disease of Lima Beans (Phaseolus lunatus)

W. J. Zaunmeyer and R. W. Goth
Crops Research Division, ARS, U.S.D.A.
Beltsville, Maryland

In last year's BIC Report a preliminary study was reported on a new virus disease of lima beans which was found in the Bridgeton, New Jersey, area. Further work has shown that under greenhouse conditions the virus produced leaf and stem necrosis, terminal killing and death of Thaxter, Sieva, and Jackson Wonder. Infected seedlings of Tendercrop snap bean were severely stunted, leaves mottled and malformed, and terminal growing points frequently killed. Stringless Green Refugee, Topcrop, Pinto, and other bean varieties were killed. Local lesions were produced on inoculated leaves of dry beans. Of 40 inoculated snap and dry bean varieties, none were resistant. Of 13 lima bean varieties inoculated, 3 were resistant. The following were also susceptible: broad bean, moth bean, mung bean, rice bean, tepary bean, and urd bean; chickpea, Chenopodium amaranti-color, alsike clover, crimson clover, red clover, sub clover, white clover, white sweet clover, cowpea, crotalaria, cucumber, Lathyrus pea, lentil, and peanut. Not infected were snapdragon, jimsonweed, globe amaranth, petunia, and tobacco. The virus was inactivated at 55 C for 10 minutes, at 1:30,000 dilution, and still infectious after aging at 20 C for 120 hours. It is a flexuous rod with a mean particle length of 431 mu, similar to that of strains of white clover mosaic virus.
