

### Lima Bean Variety Releases - Nemagreen

R. E. Wester

Nemagreen, a new nematode-resistant green-seeded lima bean of the Thorogreen type was released to the seed trade in the spring of 1956 and is being offered in 1958 for the first time to canners and freezers by several seed firms. Seed producers have approximately 50,000 pounds of Nemagreen which was produced by them in 1957, part of which is available for sale to the public for 1958 planting.

Nemagreen was developed by R. E. Wester of the Horticultural Crops Research Branch of the Agricultural Research Service in cooperation with H. B. Cordner of the Oklahoma Agricultural Experiment Station and P. H. Massey, Jr. of the Virginia Agricultural Experiment Station. The parents of Nemagreen are Oklahoma 27, a nematode-resistant, white-seeded variety; and Early Thorogreen backcrossed to Early Thorogreen. On nematode-infested soil in the greenhouse and in the field, Nemagreen has always shown satisfactory resistance while the commercial varieties in the same tests were either killed or their yields were seriously reduced. Nemagreen is not expected or intended to replace other green-seeded varieties of baby lima beans except under conditions where nematodes are a problem. In a number of locations on soils free of nematodes, Nemagreen is equal to the commercial, green-seeded varieties that are susceptible to nematode injury.

### Lima Bean Variety Releases - Thaxter

R. E. Wester

Thaxter bush lima bean (U. S. 255), resistant to downy mildew disease, was officially released to seedsmen on January 21, 1958, by the United States Department of Agriculture, Agricultural Research Service, Crops Research Division, Beltsville, Maryland.

The parentage of Thaxter is Early Thorogreen and a colored-seeded downy mildew-resistant, pole lima bean from Nagpur, India (P. I. No. 164155). It is highly resistant to downy mildew.

Thaxter, except for its downy mildew resistance and more vigorous plants, is practically indistinguishable from Clark's Bush or Thorogreen in pod size, pod shape, seed size, seed shape, and maturity. Under most conditions it reaches the picking stage about 70 days after planting.

The variety has been under test for the past few years in several sections of the country as a processing type. Its performance records show that it is widely adapted and a dependable cropper. Thaxter has yielded as well as the baby green-seeded commercial varieties under downy-mildew-free conditions, but when the disease is present it has yielded as much as 1000 pounds more of shelled beans than the

susceptible varieties. Canning and freezing tests have shown that from the standpoint of color, texture, flavor, and tenderness it is very satisfactory and comparable with present small green-seeded varieties.

#### Downy Mildew-Resistant Fordhook Limas

R. E. Wester

Three green-seeded downy mildew Fordhooks (156, 1556, and 1656) will be tested extensively in the downy mildew areas this year. During the past season (1957) which was unusually hot and dry, they showed less heat resistance than Fordhook 242, but they will set a good crop of pods during the cool weather of late summer and mature their crop of pods during the downy mildew season. These lines resulted from five backcrosses to Fordhook 242.

Approximately 40 F<sub>2</sub> downy mildew-resistant Fordhooks from six backcrosses to Fordhook 242 are now growing in the greenhouse. There are white and green-seeded types in these families.

Although it has been more difficult to develop a high yielding heat-resistant downy mildew-resistant Fordhook than the bay types, definite progress is being made.

#### Preserving the Downy Mildew Organism (*Phytophthora phaseoli*)

R. E. Wester

In the past it has been very difficult to maintain the downy mildew organism in pure culture on various kinds of media. This problem has been taken care of by the following simple freezing method. Inoculate lima bean seedlings with downy mildew, place in a humidity chamber with temperatures ranging between 65° and 75° F. Within 5 days, the seedlings are thoroughly covered with Sporulating mycelium of the downy mildew organism. Infected seedlings are then cut into short pieces, placed in a 2-1/2 oz. screw-top bottle and placed in a refrigerator at -10° C. When required for use, these infected seedlings are placed in a small flask of water and shaken thoroughly. This shakes the conidiophores loose from the mycelium into the water. These conidiophores suspended in water are placed in an atomizer and are then ready for inoculating purposes.