

and stand establishment were relatively similar in all species. However, as the season proceeds interactions with high temperatures aggravate salt problems. Salt toxicity symptoms appear within two weeks in Ph. vulgaris cultivars. Even though some chlorosis and marginal necrosis appear on the oldest leaves, both tepary and Hopi lima beans manage to tolerate salinity. All Ph. vulgaris cultivars exhibited 100 percent mortality. However, both tepary and Hopi lima beans produced harvestable yields.

The presence of genes for salt tolerance in tepary and Hopi lima beans may provide an avenue for the development of salt tolerant Phaseolus vulgaris cultivars via interspecific hybridization. Studies are underway to correlate salt tolerance in controlled environments with field studies.

NEW BACTERIAL SPECIES PATHOGENIC FOR BEANS

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A new pseudomonad was isolated from Great Northern dry beans in Nebraska. Biochemical, morphological, cultural and pathogenicity of this pseudomonad were made with other plant parasitic pseudomonads as well as saprophytic pseudomonad, which appeared closely related morphologically and culturally. The new pseudomonad has a guanine plus cytosine content of 59.9 ± 1.65 mols%. The G+C% of the DNA of the new species falls within the limits reported previously for phytopathogenic pseudomonads. This bacterium induces bean leaf symptoms that are similar to those incited by xanthomonads but dissimilar to those elicited by pseudomonads. Limited host range studies were conducted and infection was incited on Phaseolus coccineus, P. acutifolius Nebr. #10 and Glycine max. Effect of temperature and leaf age on infection were dissimilar from common/halo blight. Occurrence of the new species will complicate control by breeding since the tepary bean, for example, is susceptible.

POPULATION TRENDS OF EPIPHYTIC CORYNEBACTERIUM FLACCUMFACIENS VAR. AURANTIACUM ON LEAVES OF PHASEOLUS GENOTYPES

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Preliminary studies were made on the population trends of epiphytic Corynebacterium flaccumfaciens var. aurantiacum (Cfa) on leaves of four Phaseolus genotypes (resistant, susceptible, and two of intermediate reactions). The original reactions were based on stem injections or leaf watersoak methods of inoculation. Insofar as epiphytic populations were concerned a positive relationship existed between the epiphytic streptomycin-resistant strain of the

orange wilt bacterium and the previously reported reactions of the four genotypes. PI165078 had the least number of epiphytic bacterial cells/per sq. cm. of leaf surface 1, 3, and 7 days after inoculation; GN UI 59, the most susceptible genotype, had the greatest number of epiphytic bacterial cells. Each sampling date consisted of 12 leaflets per genotype. The experiment will be repeated to ascertain the reproducibility of the initial tests.

Release of Great Northern HARRIS
Tolerant to Common Blight

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Great Northern HARRIS was derived from bulking seed derived from 100 early maturing plants in the GN Valley variety (tolerant to common blight). GN Valley contained plants of varying dates of flowering and maturity. The homozygous and heterogenous genetic structure of this variety was synthesized purposely in order to increase its yield stability by spreading flowering over a longer time. Recent data from trials supports this hypothesis (D. Nuland, unpublished). GN HARRIS is earlier (91 days) and more uniform in maturity than GN Valley (99 days) but retains the same degree of blight tolerance and high yielding ability. The mean % yield increase of GN HARRIS over the standard GN UI 59 was 17% (1979), 4% (1978) and 11% (1976). GN HARRIS is resistant to the type strain and NY-15 strain of BCMV and to the pea strain of BYMV. Foundation seed as well as samples for trial are distributed by the Nebraska Foundation Seed Division, University of Nebraska, Lincoln, NE 68583.

Development of Phaseolus vulgaris with Resistance
and/or Avoidance to White Mold Disease (Sclerotinia sclerotiorum)

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A major objective of our bean breeding program has been to develop Great Northern and Pinto dry beans with resistance and/or avoidance to Sclerotinia sclerotiorum. We have previously reported on a high degree of resistance in selections made in Black Turtle Soup and Aurora. The Aurora avoidance reaction is due to a porous plant canopy under close within the row plant spacing in western Nebraska field plots (Ann. Rept. Bean Improv. Coop. 19:21-23). Since that time we have evaluated a collection of South