

Differential Tolerance to Curly Top in Some Snap Bean Varieties and its Relation to the Halo Blight Problem

Matt J. Silbernagel

The Columbia Basin of eastern Washington, with approximately 500,000 acres of irrigated land, less than 8" of annual precipitation, and an average frost-free growing season of approximately 5 months (May 10 - October 10), is an ideal dry bean production area.

The area would also be suitable for snap bean seed production except for the susceptibility of most processing varieties to the curly top virus disease.

This paper reports on the susceptibility and tolerance of 55 varieties to curly top, including most of the bush snap bean varieties used in the canning, freezing and home garden trades. These observations were made in experimental plots at Prosser, Washington, in August, 1964. The variation in susceptibility was striking; all plantings of such highly susceptible varieties as Bountiful, Tendercrop and GV-50 were virtually eliminated by mid-August.

The varieties were grouped in three classes, listed below.

Very Susceptible: ^{a/} Abunda, Bush Blue Lake, Bountiful, Brittle Wax, Cherokee Wax, Contender, White Seeded Contender, Corneli 14, Extender, Harvester, Kentucky Wonder Bush, Kinghorn Wax, Resistant Black Valentine, Romano, Spartan Arrow, Sprite, Executive, White Seeded Tendercrop, Tendercrop, GV-50, Tenderette, White Seeded Tendergreen, Topcrop, Topmost, Vip, Wadex, Harter, Tenderbest.

Moderately Susceptible: Higrade, Improved Higrade, Improved Supergreen, Kentucky Wonder, Landreth Stringless Green Pod, Pearlgreen, Pencil Pod Black Wax, Round Pod Kidney Wax, Slenderwhite, Improved Tendergreen, Tenderwhite, OSU 2051^{b/}.

Tolerant: Earligreen, Earliwax, Improved Golden Wax, Improved Topnotch, Kentucky Wonder Wax, McCaslan, Milligreen, Mountaineer, Nugreen, Puregold, Slendergreen, Slimgreen, Tendergreen, Verigreen, OSU 949^{b/}.

^{a/} Very susceptible, 51-100% infected and unproductive; moderately susceptible, 25-50%; tolerant, 1-25%.

^{b/} Oregon State University, Bush Blue Lake type.

In addition to the above varieties which differ in degrees of susceptibility, there are some curly top immune varieties such as the newly released University of Idaho variety, Idelight; and the unnamed USDA D-11. Both of these are dark-seeded bush type snap beans which could, of course, be produced safely in curly top danger areas. D-11 has not been released officially; however, it was increased by seedsmen in 1964 and may be named before the 1965 season.

In summary, the Columbia Basin has a hot, dry, long growing season; the annual incidence of curly top is often low enough to successfully produce susceptible crops; and in addition to the dark-seeded immune varieties, several high quality white seeded snap bean varieties are available which are definitely tolerant to curly top. These facts suggest the possibility of allowing seedsmen to divide their seed production risks between the Columbia Basin of central Washington, and southern Idaho, keeping in mind the following points: 1) use tolerant or resistant varieties, 2) avoid proximity to sagelands, weedy pastures or irrigation wasteways which harbor overwintering leafhopper populations, 3) plant in warm soil during the last two weeks of May, 4) use furrow or rill irrigation method and avoid fields that have to be sprinkle irrigated.

Mancha Gris, New Disease of Beans in Brazil

Clibas Vieira, Henry Shands and Geraldo M. Chaves

At the end of 1962, a new foliar disease of field bean was observed for the first time in Brazil at Vicosá, Minas Gerais. Called "mancha gris", the disease was first encountered in Colombia by Skiles and Cardona-Alvarez (Phytopathology 49: 133-135, 1959) and is caused by the fungus Cercospora vanderysti P. Henn. (In the B. I. C. Reporter 7, p. 25, it was erroneously reported as Cladosporium sp.).

On the upper leaf surface, the lesions caused by C. vanderysti are light yellow, irregularly shaped and 2-5 mm in diameter; in an advanced stage, the lesions unite to cover areas 10-20 mm in diameter. On the undersurface opposite the upper surface lesions, there occurs a dense, grey growth of conidiophores and conidia.

Large seeded varieties such as Manteigão-Fôsko-11, Manteigão-Vinho, Manteigão-Lustroso, Red Kidney, White Kidney and others are particularly susceptible. Resistant varieties, predominantly black bean types in our collection, are numerous. Included in this group is Rico-23, the variety recommended for the black bean areas of Minas Gerais.