Inheritance of the Reaction to *Xanthomonas campestris* pv. *phaseoli* and Days to Flowering in Common Beans

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The inheritance of days to first flower and the reaction to common blight were studied in field grown F_2 generations derived from crosses involving the dry bean cultivars/line, 'Constanza' (Dominican Republic) x 'G.N. Tara,' (Nebr.) and 'Iguacu' (Brazil) x PI 207262 (Colombia). Populations of the crosses were planted at one and two field locations, respectively. A good fit to a 1:3 ratio of early to late flowering plants was observed in the first cross. It is hypothesized that a single major gene controlled time of flowering, with late flowering being dominant in this cross. Two different patterns of inheritance for time of flowering were observed in the cross 'Iguacu' x PI 207262 depending on the season and location. At Scottsbluff, NE (1983) and at Lincoln, NE (1984) a segregation ratio of 3:1 early to late flowering plants was observed suggesting that a single major gene primarily controlled time of flowering with lateness now being recessive. The same F_2 population planted at Lincoln in 1983, exhibited a continuous distribution for days to first flower indicating that time of flowering was quantitatively inherited. Since photoperiod is the same at both locations and temperature varied between the seasons it is hypothesized that the genotypic response was different in the 2 different seasons in this cross.

Plants of the parents and F_2 generations were inoculated using the *X.c. pv. p.* isolates, EK-11 (Nebr.), DR-12 and Santiago-3 (DR). The reaction to the pathogen was quantitatively inherited. High to moderate partial dominance for susceptibility was observed. Low narrow sense heritability (NSH) values (10%) were obtained. NSH was calculated by regressing F_3 progeny means on individual F_2 plants.

A significant association was observed between the reaction to *X.c.p.* and days to first flower in the F_2 plants of the cross 'Constanza' x 'G.N. Tara.' Recombinants of early or late flowering with resistance to common blight were observed. No significant association was observed for these traits in the F_2 generation of the cross 'Iguacu' x PI 207262 at either location or year.