

Whitefly-Transmitted Viruses



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4

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PHOTOGRAPHS: Courtesy of F.J. Morales (CIAT—APS Bean Compendium), S.K. Mohan (Univ. of Idaho), J.K. Brown and H.F. Schwartz [09/2011]

COMMON HOSTS: Legumes such as *Phaseolus vulgaris* may be susceptible to one or more of these *Begomoviruses* transmitted in a persistent manner by whitefly biotypes (*Bemisia tabaci*: sweet potato sibling species group). These viral diseases occur in tropical to semi-tropical legume regions around the world including Latin America and Africa.

FIGURE 1 • *Bean calico mosaic virus* (BCaMV); a member of the Squash leaf curl virus clade. Symptoms resemble those of BGMV and BGMVY but differ by developing bright green and yellow mottling, and white sectoring in certain cultivars. Flowers may abort or produce empty and deformed pods. BCaMV occurs in western Mexico.

FIGURE 2 • *Bean dwarf mosaic virus* (BDMV). Symptoms include irregular yellow and green mottling, internode shortening, leaf malformation, flower abortion, and pod distortion. Chlorotic lesions on leaves may develop into yellow patches. BDMV is native to Colombia.

FIGURE 3 • *Bean golden mosaic virus* (BGMV). Symptoms include a mild to intense yellowing, systemic mosaic, flower abortion, and distorted pods with few seeds. BGMV is native to Puerto Rico, Dominican Republic, Central America, and the Caribbean.

FIGURE 4 • *Bean golden yellow mosaic virus* (BGMVY). Symptoms include dwarfing, mosaic, and chlorosis, and flower abortion. BGMVY is native to Brazil.

FACTORS FAVORING:

- Whitefly vector presence, especially in intensive and continuous mixed cropping systems (e.g., cotton, soybean, tobacco, tomato, potato, eggplant) and infected weeds (e.g., malvaceous, solanaceous, papilionaceous and other species) that favor whitefly vector reproduction
- Intensive insecticide use may promote insecticide-resistant populations of the whitefly vector and pest
- Susceptible varieties
- Infection at V1–V4 results in enhanced symptom severity, reduced pod set, poor seed fill, and yield loss

ADDITIONAL DIAGNOSTICS AVAILABLE AT:

<http://legume.ipmpipe.org>

<http://wiki.bugwood.org/PIPE:Legume>

<http://www.apsnet.org/> —Compendium of Bean Diseases, 2nd Ed.