Legume Insect Vectors of Viruses

FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 4

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COMMON HOSTS: Common Bean, Lima Bean, Cowpea, Soybean, Pea, Lentil, and Chickpea are susceptible to one or more viruses transmitted by these types of insect vectors

VECTORS AND TRANSMISSIBLE LEGUME VIRUSES:

FIGURE 1 • Various species of aphids (e.g., green peach aphid) can transmit viruses in the genera Alfamovirus, Carlavirus, Cucumovirus, Enamovirus, Luteovirus, Nanovirus, Potyvirus and Umbravirus such as: Alfalfa mosaic, Cowpea mild mottle, Bean common mosaic, Bean common mosaic necrosis, Bean leaf roll, Bean yellow mosaic, Beet western yellows, Clover yellow vein, Cucumber mosaic, Faba bean necrotic yellows, Pea enation, Pea seed-borne mosaic, Peanut mottle, Pea streak, Peanut stunt, Red clover vein mosaic, Soybean dwarf and Soybean mosaic viruses.

FIGURE 2 • Various species of leaf-feeding beetles (e.g., bean leaf beetle) can transmit viruses in the genera Bromovirus, Carmovirus, Comovirus and Sobemovirus such as: Bean mild mosaic, Southern bean mosaic, Bean pod mottle, Bean rugose mosaic, Cowpea chlorotic mottle, and Quail pea mosaic viruses; and Cowpea mild mottle virus, a possible Carlavirus.

FIGURE 3 • The whitefly (e.g., *Bemisia tabaci*) can transmit viruses in the genus Begomovirus such as: Bean calico mosaic, Bean dwarf mosaic, Bean golden mosaic, and Bean golden yellow mosaic viruses.

FIGURE 4 • Leafhoppers—top—(e.g., *Neoalituris tenellus, Circulifer* species) can transmit viruses in the genera Mastrevirus and Curtovirus such as: Bean yellow dwarf and Beet curly top; while various species of thrips—bottom—can transmit viruses in the genera Ilarvirus and Tospovirus associated with Red node and Bean necrosis mosaic viruses.

FACTORS FAVORING:

• Planting adjacent to previous crops of legumes and other hosts of legume viruses such as alfalfa, clover, and vetch
• Planting legume seed carrying a seed transmitted virus (e.g., BCMV, PSbMV, SMV)
• Poor weed management in and around legume fields
• Temperatures with daily highs less than 32°C [90°F]
• Low to moderate moisture patterns that favor insect survival and movement