

Seedling Establishment



FIGURE 1

FIGURE 2



FIGURE 3



FIGURE 4



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PHOTOGRAPHS: Courtesy of B.A. Nault, A.G. Taylor, G.S. Abawi and J.R. Kikkert (Cornell University). [08/2011]

COMMON HOSTS: Common Bean, Lima Bean, Cowpea, Soybean, Pea, Lentil, Chickpea, and other legumes.

PROBLEMS DURING SEEDLING ESTABLISHMENT:

FIGURE 1 • Seedcorn maggot (*Delia platura*) larvae feed on and burrow into the seed. Seed fails to germinate. Feeding on cotyledons and first leaves causes misshapen plants. Favored by cold, wet weather where germination is delayed.

FIGURE 2 • Soil crusting inhibits seedling emergence. Damaged cotyledons and shoots can result.

FIGURE 3 • Seed decay, pre- and post-emergence damping off, and seedling diseases caused primarily by *Rhizoctonia* and *Pythium* species; and poor quality seeds or seeds infected with other seed-borne pathogens as well as those damaged by insects such as bruchids.

FIGURE 4 • Herbicide carryover or current year applications can injure crops. Peas turned white from over application of clomazone.

NOTE: Additional seedling information available on Legume ipmPIPE Diagnostic Pocket Series Cards "Root Rots" and "Legume Insect Pests."

FACTORS FAVORING SEEDLING ESTABLISHMENT:

- High quality seed lots with high percent germination
- Germination tests for carry-over seed
- Insecticide/fungicide treated seed
- Good crop rotations to minimize soil pathogens
- Well drained soil; pH 6.0–7.0
- Proper soil temperatures (>60°F or 16°C). Most beans are warm season crops and do not tolerate cold soil or frost.
- Adequate soil moisture at planting
- Observe recommended herbicide plant-back intervals
- Avoid soils with high salinity
- Good weed management; weeds compete with seedlings

ADDITIONAL DIAGNOSTICS AVAILABLE AT:

<http://legume.ipmpipe.org>

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

<http://www.apsnet.org/> —Compendium of Bean Diseases, 2nd Ed.; Compendium of Chickpea and Lentil Diseases and Pests; Compendium of Pea Diseases and Pests, 2nd Ed.