

Abiotic Problems

Chemical, Moisture, Temperature



FIGURE 1



FIGURE 2



FIGURE 3

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PHOTOGRAPHS: Courtesy of H.F. Schwartz and R.M. Harveson [12/09]

COMMON HOSTS: All Legume Crops

SYMPTOMS (ON COMMON BEAN):

FIGURE 1 • Chemicals such as herbicides are necessary for conventional legume production but can cause damage to plants before and after emergence resulting in reduced roots, stunted plants, foliar spotting and distortion (Fig. 1—phenoxy drift), and even plant death.

FIGURE 2 • Plants may be subjected to high- or low-moisture stresses that can influence plant processes and development, as well as predispose them to biotic problems including root rots. Problems can include flooding, salinity, nutrient leaching (Fig. 2), drought and plant wilting.

FIGURE 3 • Temperature extremes (too low or too high) can affect plant development by delaying emergence, prolong exposure to damaging level of chemicals prior to emergence, aggravate soil-borne damage by fungi and insects, as well as cause mid-season scalding of foliage and pods (Fig. 3), abort flowers and young pods due to high temperatures, or discolor pods and seed due to frost damage prior to maturity.

FACTORS FAVORING:

- Irregular planting dates (e.g., too early or too late for the average crop growing period in a legume region)
- Compacted soil due to previous equipment traffic
- Chemical drift, improper application rates of chemicals or improper rotation of sensitive crops between growing seasons
- Exposure to extended periods of extreme temperatures with daily highs less than 16°C [60°F] or greater than 35°C [95°F] during critical stages of plant development

ADDITIONAL DIAGNOSTICS AVAILABLE AT:

<http://legume.ipmpipe.org>

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

<http://www.npdn.org/DesktopDefault.aspx>