

DIAGNOSING POD ABORTION IN CANOLA

FLOWERING AND POD DEVELOPMENT

- Canola will typically flower over 14-21 days beginning with the lowest buds on the main stem of the plant. Branches will begin flowering 2-3 days later.
- Fertilization of the pistil in the flower occurs within 24 hours from time of pollen release. 70-80% seed pods produced are from self-pollinated flowers.
- Abortion of flowers and pods in canola is normal. Typically only 40-55% of flowers will develop into seed producing pods.

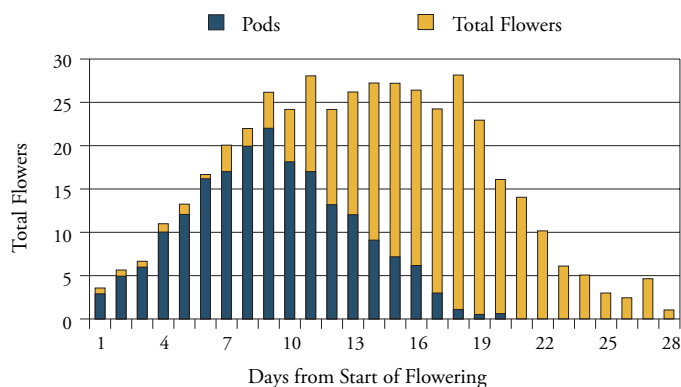
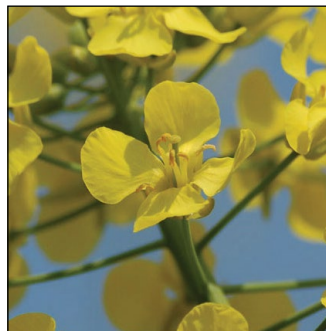


Figure 1. Total flowers produced and productive pods formed in canola plants. (Courtesy of the Canola Council of Canada)

- Additional abortion of pods can occur in canola as a result of stress conditions. Knowing the cause of excessive pod abortion and subsequent yield loss can help growers prevent loss in future years.
- Factors that can result in pod abortion in canola include:
 - » Environmental stress on the plant
 - » Stress related to pesticide application
 - » Stress related to fertility deficiency
 - » Physical damage to the flowers

ENVIRONMENTAL STRESS

- Heat and drought stress are two of the most common environmental causes of stress. The stress causes a hormone reaction that can result in flower/pod loss and can inhibit proper fertilization.
- Inhibition of fertilization due to stress can be a result of:
 - » Sterile flowers, identified as the pistil (female part) being taller in the flower than the stamens (male parts)
 - » Flowers not opening
 - » Reduced pollen production



Fertile flower



Sterile flower (pistil taller than stamens)

- Heat stress can occur both at flowering as well as at pod filling. Early flower is the most sensitive stage.
- Heat stress is most often observed when daytime temperatures exceed 25°C during flowering. Impact of heat stress on yield can be increased when drought conditions occur at the same time.
- Too much moisture, resulting in waterlogged soils for more than two days at flower, can also reduce the number of pods.
- Drought stress can cause reduced flower development and a compacted raceme.



Expected pod production



Pod abortion following 2 days of heat stress

PESTICIDE APPLICATION STRESS

- Application of herbicides beyond the recommended staging can result in injury visible as aborted or abnormal flowers. When additional stress is placed on the plant its ability to recover may be reduced.



Expected flower color

Pale color of flowers due to late glyphosate application



Cabbage seedpod weevils



*Diamondback moth larvae**

FERTILITY STRESS

- Sulphur deficiency is the most likely deficiency to result in pod abortion or loss of flowers. Sulphur deficiency symptoms can result when the soil has sufficient sulphur but the plant is unable to extract the sulphate due to dry soil conditions.
- Boron deficiency is very uncommon in Western Canada, but symptoms will look very similar to sulphur deficiency.

PHYSICAL DAMAGE

- Flowers can be damaged or lost as a result of heavy rain/irrigation or as a result of insect feeding.
- Thrips can feed on flowers and buds. Resulting pods appear curled and drop prematurely.
- Diamondback larvae, lygus, and cabbage seedpod weevils can all feed on flowers and pods resulting in reduced pod formation or yield loss.
- Lost flowers can result in blanks areas on the stem, however later flowers may develop and result in productive pods.



*Pod with thrip damage**

** Photos courtesy of Canola Council of Canada*

The foregoing is provided for informational use only. Please contact your Pioneer sales professional for information and suggestions specific to your operation. Product performance is variable and depends on many factors such as moisture and heat stress, soil type, management practices and environmental stress as well as disease and pest pressures. Individual results may vary.

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