

Maturing Pods and Flowers on Same Canola Plants

by Blaine Calkins and Ray Gauthier

Canola is known to be a plastic plant. It will adapt to its growing environment according to moisture, heat, area, nutrients, soil structure, day light, etc. Late flowering of the canola plant may be caused by dry conditions followed by a large amount of moisture in a highly fertile soil. The plant may be arriving to maturity at the beginning of August in dry conditions, receive a large amount of moisture and then start growing again. This results in uneven maturity of the plant as the plant itself will have mature pods and flowers on the same plant. The entire field likely will also show many late flowering entire plants as well (likely on knolls or lower areas) depending on the weather and soil, resulting in uneven maturity across the field. The decision to swath the crop should be made based on the maturity of the majority of the crop and risk of frost.



Figure 1. Canola field (top) and plant (bottom) showing uneven maturity as a result of environmental conditions.



Figure 2. Non-hybrid off-type on left, hybrid plant on right.

Non-hybrid Off-types

Non-hybrid off-types in canola usually become visible as the canola nears physiological maturity. The off-type is usually found in amounts less than 3 to 5% of the plants. The off-types typically do not make it to maturity as they lack heterosis (hybrid vigor) and other hybrid plants out-compete or crowd them out in the stand. The non-hybrid off-types are usually a sterile plant or female plant that received pollen from another non-target canola source during production. These usually amount to less than five percent of the hybrid crop. The Canadian Seed Growers Association has a standard of 80% hybridity for the crop to be considered a hybrid. All hybrid canola products will have a small percentage of the plants that are not hybrid (sterile) resulting from the female parent that received pollen from another source (off-type).

Non-hybrid off-types can appear at higher frequency if canola rotation is very tight and the previous canola crop was a hybrid canola with similar herbicide system. Typically, the volunteer plants resulting from a previous hybrid canola crop would have 25% of the plants to be male sterile. Many of these sterile plants would survive herbicide application in the following hybrid canola crop and would appear as if they were non-hybrid off-types in the new hybrid crop.

Quality Control

Pioneer Hi-Bred performs quality control screening at various stages of parental and hybrid production to ensure that these amount to very small percentage of the overall product. In certain environments, these plants will be more visible but

will not affect yield unless they are more than 10% of the total number of plants in the field.

Why can it be noticeable near harvest?

When a canola plant sets enough seeds and pods, it immediately stops producing more flowers and diverts all dry matter into developing seeds within the pods. Male sterile non-hybrid plants have to rely on other surrounding plants to get pollen and set seed. If conditions are such that pollen does not effectively move from the surrounding plant, the non-hybrid plant will continue to flower until more pollen is available. When all other surrounding plants stop flowering, the non-hybrid plant starves for pollen and keeps growing its main shoot, producing more flowers. Conditions during flowering will determine the extent that these male sterile plants are visible at the end of flowering. If the conditions during flowering have included frequent precipitation, the pollen does not move as well and there will be greater chance of the male sterile plants continuing to flower. This is the main reason they are visible at physiological maturity.