

Evaluating the CombCut as a Tool to Manage Late-Season Weeds in Soybeans

A cutting implement like the CombCut or a swather may be used to cut above the soybean crop canopy multiple times during the growing season or when volunteer canola is at >75% flower to reduce weed seed production while maintaining soybean yield.



MANAGING LATE-SEASON WEED escapes like volunteer canola and other herbicide-resistant weeds is important to reduce dockage and weed seed return, which can pose a challenge for future crops both as volunteer weeds and as hosts of soil-borne canola diseases. Mechanical weed control tools play an important role in integrated weed management strategies and may be effective at managing late-season weeds before they set seed.

The CombCut is one such tool that is typically used to cut rigid-stemmed weeds below the crop canopy while flexible leaves of a crop like cereals pass through unharmed. As soybeans are less flexible, this research proposed to evaluate the utility of the CombCut to remove the seed-producing parts of weed escapes by cutting near the top of the soybean crop.

Two experiments were established in Carman in 2019 to investigate the optimal timing, frequency and height of cutting when using the CombCut in soybeans to manage volunteer canola. Glyphosate-tolerant soybeans were seeded with glyphosate-tolerant canola at a rate of 40 plants/m² to simulate the presence of volunteer canola in a soybean crop.

The first experiment evaluated frequency of cutting using the CombCut, comparing 1) a no cut control, 2) one pass when weeds grew above the canopy on July 8, 3) two passes, including one on July 8 and again on July 15 when weeds regrew and 4) three passes on July 8, 15

and 24. Three passes of the CombCut over the soybean canopy in July reduced canola seed return, significantly reduced canola seed as dockage in the harvested sample and did not negatively impact soybean yield (Figure 1). One- and two pass-treatments were no different from the control.

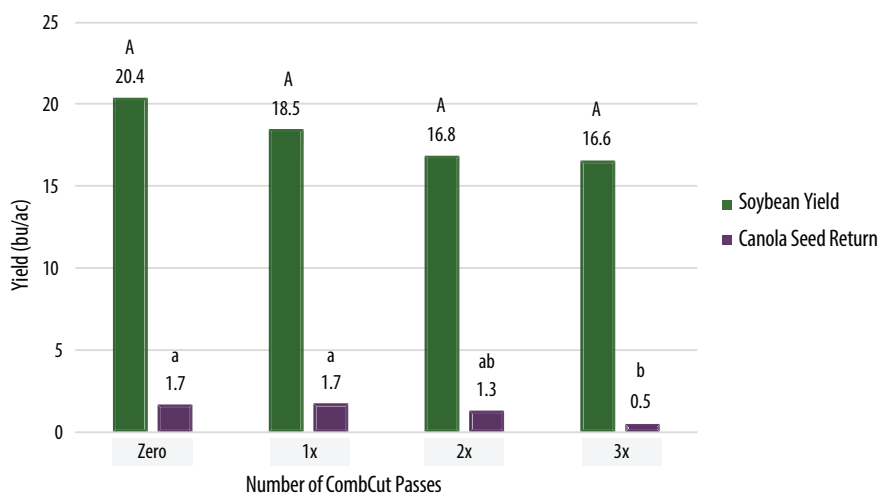
The second experiment evaluated cutting timings based on the amount of canola flowering (25%, 50%, 75% and greater than 75%) and cutting height (5-10 cm above the soybean canopy and 10-15 cm within the canopy).

Cutting when the canola was >75% flower resulted in the lowest canola seed return (29 lbs/ac), but this was not significantly different than the other timings (39-57 lbs/ac). Cutting at 25% canola flower resulted in the greatest amount of canola seed return (57 lbs/ac) since the canola regrew and set seed.

The cutting height of the CombCut, either above or within the soybean crop canopy, had a significant effect on canola seed return and soybean yield. Placing the CombCut 10-15 cm within the soybean crop canopy reduced volunteer canola seed production compared to cutting above the canopy, but it also reduced soybean yield due to cutting damage to the crop.

Using the CombCut above the crop canopy had no negative effects on soybean yield. Multiple passes were necessary to manage volunteer canola and worked best if timed when canola was at >75% flower. In cases where volunteer canola pressure is high or where patches of herbicide-resistant weeds exist, cutting just above the soybean crop canopy with a CombCut or swather may be an effective strategy to reduce weed seed production. ▀

Figure 1. The effect of CombCut cutting frequency on soybean yield and volunteer canola seed return yield.



Different letters above bars within each crop indicate significant differences ($p < 0.05$) between treatments.

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