



Wild oat panicle clipping could become a weed management tool

CATEGORY [weeds](#) | July 30, 2020

Based on wild oat seed viability, early clipping of wild oat panicles before seeds are viable, in short-statured crops, may become a valuable tool for integrated wild oat management.

Wild oat is one of the most problematic weed species in western Canada due to widespread populations, herbicide resistance, and seed dormancy. Additional ways to prevent wild oat from entering the seedbank are required. Wild oat panicles emerge above many crop canopies and could potentially be mechanically cut (clipped) to prevent the seeds from entering the seedbank. However, the viability of wild oat seed at the time of panicle extension above crop canopies is not known.

The objective of this study was to determine the viability of wild oat seed at successive time intervals after elongation above a wheat (AC Harvest) or lentil (CDC Dazil) crop canopy. Experiments were conducted in 2015 and 2016 at Lacombe, Alberta and Saskatoon, Saskatchewan. At both locations, crops were seeded in mid-May in conservation tillage plot areas where wild oat seed was broadcast on the soil surface at 20 plants/m² (200 seeds/m²).

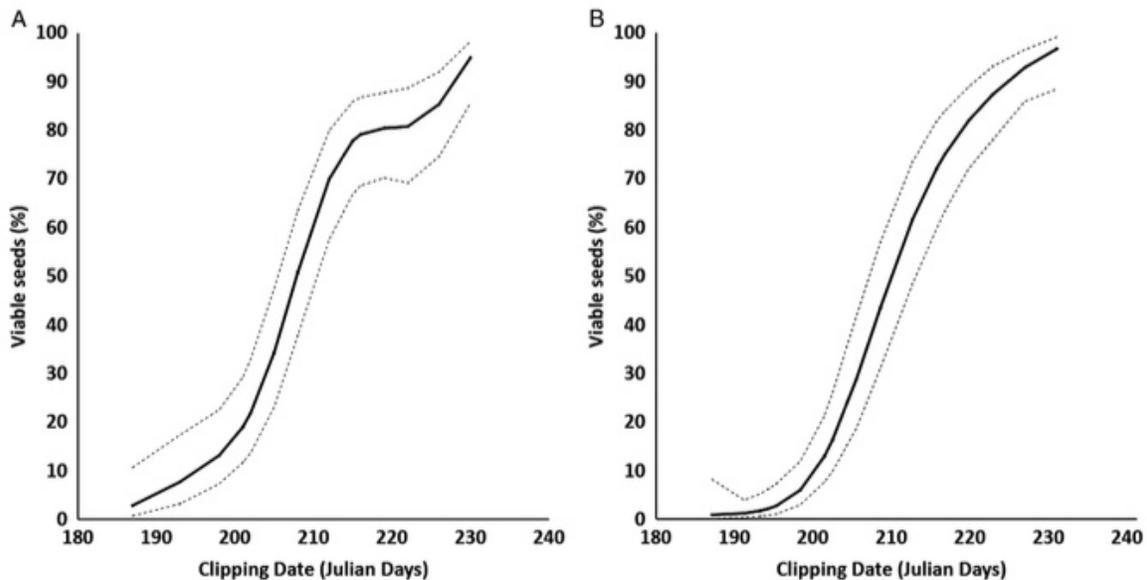
Up to six weekly clipping times were conducted. The first clipping occurred when several wild oat panicles were visible above the crop canopies, while the last clipping occurred when seed shed began. A no-clipping treatment (untreated check) and a treatment combining the first and last clipping times were also included. Over the study, different environmental conditions between locations and years led to differ maturation rates for the crops and wild oat. As a result, the number of weekly clipping timings based on wild oat stage ranged from three to six. Clipping in this study was completed with hand shears to ensure all panicles could be collected.

Clipping in lentil was initiated between July 5 to 14 (Julian dates of 187 and 195). Clipping in wheat began between July 5 to 21 (Julian dates 187 and 202). The latest clipping date in both crops was August 14, 2016 (Julian date 230). Generally, wild oat panicles were visible above the lentil crop canopy earlier than in the wheat due to the lower height of lentil.

Early clipping reduced wild oat seed viability

When the earliest clipping occurred on around July 5, between 0% and 10% of the wild oat seeds were viable. By the last clipping treatment (approximately 6 to 7 week after elongation), 95% of the wild oat seeds were viable, and could add to the overwintering seedbank.

Wild oat seed viability for clipping dates average across site-years.



A: Wheat; B: Lentil

Seed moisture and awn angle were not good predictors of wild oat viability. As a result these factors were unlikely to provide effective tools to estimate appropriate timing for implementation of wild oat clipping as a management technique.

Better potential in short crops

At the initial clipping timing, average wild oat canopy height was just above the wheat canopy with some panicles above the crop and some below. The lowest wild oat seeds were not available for clipping until August 12 to 13 (Julian date 225) when approximately 80% of seeds would have been viable.

In lentil, the entire wild oat panicle was above the crop canopy for the entire clipping period.

Several equipment manufacturers have begun selling weed-clipping machines, and some farmers have modified swathers to be used for weed clipping. Further research into long-term effects of clipping on wild oat populations may prove the benefits of this integrated weed management strategy.

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Tidemann BD, Harker KN, Johnson EN, Willenborg CJ, Shirtliffe SJ (2020) Time of wild oat (*Avena fatua*) panicle clipping influences seed viability. *Weed Sci.* 68: 260–267.

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