

## Management tools for spring volunteer weeds from an overwintered crop

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With many unharvested acres across Western Canada in 2019, this spring will see a wide range of challenges. One common challenge may be management of high volunteer weed pressure. Unharvested or spring harvested crops can increase the amount of shelling out, and in turn, volunteers.

If you are considering seeding directly into an unharvested crop, high volunteer pressure is likely. An important point to consider is the potential impact volunteers can have on the grain quality of this season's crops, especially if volunteers go to seed. It's important to note that any management decisions around unharvested crop should first be discussed with your crop insurance provider.

Farmers should also consider increased disease risk that comes with crop residue left on the soil surface, especially if the unharvested crop and the crop being seeded host the same diseases. Unharvested crops have larger pieces of plant residue that take longer to break down and therefore have reduced amounts of disease breakdown, which can potentially increase disease presence. It should be noted that this can be an issue even when an overwintered crop is not present. Although field options and rotations may be limited when harvesting crop in the spring, it is best to avoid sequential seeding of the same crop two years in a row, especially when heavy residue from the previous season is present and that residue was known to high heavy disease presence from the previous season.

If you expect to be dealing with increased volunteer pressure, here are some tactics to help mitigate the impact on this season's crop.

**Crop rotation.** A diversified crop rotation is an effective strategy to help manage many issues, including disease, insects and volunteers. Planting a competitive rotational crop will ensure that you have diverse herbicide modes of action that can be utilized. This goes hand in hand with consideration of herbicide tolerance systems. For example, if the previous year's crop was Round-Up Ready canola, it's not a good idea to plant Round-Up Ready soybean unless it also has the dicamba trait.

**Delayed seeding into spring harvested crops.** This allows volunteers to germinate prior to seeding and be controlled with a spring burn-off herbicide pass. Keep in mind that multiple modes of action are recommended, and if a herbicide has soil residual activity, it will need to come in contact with the soil to be effective. There are some herbicides that can get 'tied up' in crop residue on the soil surface, reducing the efficacy of control. Delayed seeding will allow for summer annual weeds such as kochia, lamb's quarters and wild oats to emerge, which can then be controlled with tillage or herbicides and can give the crop an early head start. On the downside, winter annual, biennial and perennial weeds may become large and

hard to control in a delayed seeding situation. Examples include dandelion, narrow-leaf hawk's beard, flixweed, stinkweed, cleavers and Canada thistle. To investigate pre-seed and pre-emergence control options, consult your province's crop protection guide.

AB: <https://www.alberta.ca/crop-protection-manual.aspx>

SK: <https://www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/crops-and-irrigation/crop-guides-and-publications/guide-to-crop-protection>

MB: <https://www.gov.mb.ca/agriculture/crops/guides-and-publications/#qfcp>

Keep in mind that this management strategy could lead to maturity issues later in the season. Delaying seeding to wait for volunteer germination will impact the available season length. If taking this management approach, consider shorter season crops or shorter season varieties to ensure your crop can reach maturity in the current growing season.

**Harrow to promote volunteer seed germination.** Weeds such as redroot pigweed and volunteer canola may be encouraged to germinate with early season light tillage. This is sometimes referred to as a "Stale Seedbed" – where early pre-plant tillage stimulates germination of weeds which are then controlled with herbicides or a second tillage operation immediately before seeding. This technique is most effective when the major weed species being controlled has a single large flush early in the season

**Get out and scout early.** Weed staging is always a primary concern. Some crops are more sensitive to certain herbicides, so checking product labels and manufacturer's recommendations is important. Volunteers that emerge prior to the seeded crop will have a more significant effect on yield than those that emerge after the seeded crop. A one-pass system to control all weeds in a field may not be feasible, given the number of weeds that may germinate in flushes. A more likely scenario is that both a pre-seed and in-crop, or multiple in-crop applications, may be necessary for effective control.

**Ensure proper water volumes to allow for adequate coverage.** A contact herbicide requires thorough coverage to be effective, so cutting water volumes to save time will also result in less effective weed control. In situations where volunteers are very dense, adequate water volume to penetrate the canopy and contact every volunteer is very important to optimize control.

Other options include seeding with the intention of silaging, as well as forage chopping combined with removal of residue. These options may be more desirable in cases where volunteers will cause substantial issues such as barley for malt, and for producers that have a mixed operation. Intuitively, any management strategy that removes the crop/residue and prevents further seed set will aid in reducing volunteer pressure.

In summary, successful control of volunteers this spring will depend on early scouting, planning and timely decision making.

Seeding into overwintered/unharvested crop				
Crop being seeded	Wheat	Barley	Canola	Field Peas
Wheat	Cannot control volunteers Volunteers may impact field maturity and evenness which may cause greater FHB, disease and grain quality challenges	Minimal control options in-crop Barley more competitive than wheat; will likely have high volunteer grain contamination	Likely plenty of shattering and volunteers If harvesting last season's crop in the spring, consider allowing volunteers to germinate, followed by burn-off and seeding Pre-seed and pre-emerge options available	Many in crop control options Hairpinning pea residue may be a concern depending on conditions and seeding system; could lead to stand quality issues and opportunities for weed growth
Barley	Minimal control options for volunteer wheat in barley Silage opportunity	Cannot control volunteers Volunteers may impact maturity and evenness which may cause greater FHB, disease and grain quality challenges Avoid this situation if aiming for malt (quality degradation is likely)	Likely plenty of shattering If harvesting last season's crop in the spring, consider allowing volunteers to germinate, followed by burn-off and seeding Pre-seed and pre-emerge options available	Many in crop controls options Hair-pinning pea residue may be a concern depending on conditions and seeding system; could lead to stand quality issues and opportunities for weed growth
Canola	Round Up (RR) or Liberty Link (LL) systems will control volunteers easily	Round Up (RR) or Liberty Link (LL) systems will control volunteers easily	Higher risk of Clubroot, Blackleg issues Increased risk of root rot and root maggot	Round Up (RR) or Liberty Link (LL) systems will control pea volunteers easily in-crop
Field Peas	Grass herbicide for in-crop control Pre-emerge and pre-seed option available	Grass herbicide for in-crop control Pre-emerge and pre-seed option available	High risk of canola volunteers Can be managed with pre-seed, pre-emerge, and in crop herbicides	Concern with volunteers if growing greens on yellows or vice-versa Increased risk of Ascochyta on residue as well as Aphanomyces and other rots

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