Managing Unharvested Crops in the Spring

This fact sheet will help you determine how best to manage unharvested or overwintered crops in the spring. The goal is to capture the highest value from your unharvested crops, while managing business risks and minimizing the impacts on the subsequent crop.

Check first with your insurance provider!

Before you take action with an unharvested crop, contact your crop insurance provider to:

- Determine what they need to assess loss and make a claim.
- Ensure your plans are not contrary to your insurance policies' recommendations or restrictions.

The insurance company may require that the unharvested crop be combined for you to receive an insurance payout.

Managing unharvested crops

When considering how best to manage overwintered crops, you must consider and balance several factors:

1. Value of the crop

Determine if the unharvested crop (seed or straw) has a marketable value as grain or feed. You should contact your local elevator or buying agent to determine if there is interest in the crop and what the potential sale value might be.

Those who decide to harvest the crop are often pleasantly surprised at what they get even though yield and grade can be reduced. In some cases, the crop may not be as tough as last fall. Take a representative sample to determine quality.

When considering how best to manage overwintered crops you must consider and balance several factors to decide which management option is best for your field, situation and operation.

Molds or mildews can be a downgrading factor, reducing market options and crop value. For instance, sooty molds caused by naturally-occurring fungi will become more prevalent on dead plant material of any kind, like unharvested crops. The growth of most fungi only occurs when temperatures are above freezing and lots of moisture is available, so this is not an issue during the cold winter months.

Some fungi may produce mycotoxins (poisonous compounds). As a result, it is wise to get

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overwintered or moldy crops tested for mycotoxin levels before feeding them to animals.

Freezing, rodent excreta and sprouting damage are also very common in overwintered crops. This will downgrade the crop, reduce the value, and potentially change the market for the crop.

If rodent or wildlife damage has destroyed or shelled the grain, or if the crop is too flattened to be picked up with a combine, then harvesting may not be an option.

2. Cost or impact on the subsequent crop

The unharvested crop will likely delay normal seeding operations. It may be wise to be ready to seed an early-maturing crop, or a silage crop, to ensure that late-seeded fields have a chance to reach maturity. Changing the seeding date can impact the rotation, as well as potential revenue and cropping costs.

The amount of time you have to manage the unharvested crop and plant the next crop will be influenced by spring moisture conditions and growing season requirements.

Concerns arise about unharvested crops and their potential impact on disease the following year. However, fungal growth is a natural occurrence on crop residue every year and is not a cause for great alarm. While in some cases the fungi may be plant pathogens, they will not cause any elevated risk of disease when good crop rotation and disease management principles are followed.

It may be possible to seed into an unswathed crop. Although some equipment can seed through standing crop residue, the amount of crop residue will affect crop establishment and equipment performance. Too much crop residue will result in hair pinning, poor seed-to-soil contact and emergence issues. This approach may work if the area of unharvested crop is small. However as the number of acres increases, it will become more difficult.

Seeding directly into an unharvested crop will result in volunteer plants and weeds from the last year's crop, so crop selection will be key in managing volunteers plants.

3. Associated costs

Costs associated with removing the unharvested crops can be significant depending on which management option is chosen. These costs can include:

- Operating costs
- Time
- Extra wear and tear
- Property or equipment damage (e.g., having a rock go through the combine).

One risk associated with burning crop residue is the fire getting out of control and damaging infrastructure belonging to you or others. This can be very costly. Burning crop residue can also negatively affect soil organic matter levels and soil health, and in turn impact crop productivity for years.

You must determine if the value from the crop or the potential loss from the next crop is high enough to offset the costs associated with removing the overwintered crop.

Crop management options

To decide which management option is most suitable, consider:

- Crop condition (i.e., amount of material)
- Spring and fall soil conditions
- If the crop is still standing or swathed

These factors will impact the rate of drying and spring field access as heavy swaths will slow soil drying and delay entry to the field.

The solution must leave the field surface in good condition for subsequent equipment operations and for crop establishment.

There are several different management options that can include harvesting, baling, grazing, mowing, chopping, residue stacking, tillage and harrowing. Each option has varied costs and their own pros and cons (see Table 1).

Table 1. Pros and cons of mechanical methods used to manage unharvested crops in the spring

Methods	Pros	Cons
Combine	• Collects seed and spreads residue • Can manage a standing or swathed crop • Can be the best way to get maximum value from unharvested crop • Less volunteer plants in subsequent crop	• Risk of compaction and rutting • Has difficulty managing high moisture crop • May have difficulty picking up flattened crop • High operating and repair costs • Wear and tear, especially when running combine headers low to the ground • Also lost time that could be spent seeding this years' crops
Baling and Bale Silage	• Can manage all types of residue • Residue can be collected, removed, used or dealt with later • Can manage high moisture material • Moderate operating and repair costs • Less volunteer plants in subsequent crop	• Spoilage is a risk if baled at higher moisture • Silage bales require extra management and monitoring before and after baling • Bale silaging adds cost • Bale wrappers may not be readily available
Grazing	• Low cost; livestock are generally available • Animals do the harvesting • Possible revenue from feeding • Adding value back to the soil with manure	• Applicability depends on crop type • Need to have fencing and water source • Animals need to be managed • Animals can cause compaction in wet soils • Risks to animal health due to ingesting contaminated or fungus-infected feed, potential deficiencies in magnesium and calcium, or grain overload, bloat or acidosis
Mowing	• Smaller horsepower tractors can be used • Can cut most residue types • Lower operating and repair costs	• Not effective in high moisture residue • Will not distribute residue widely; multiple passes may be required • Less effective in swathed crop • Volunteer plants in subsequent crop
Forage Chopper for Residue Spreading	• Most types of crop can be managed • Can manage a high moisture residue if just spreading • If residue is collected, it can be removed from field and dealt with later • Chopping results in higher palatability and, if supplement is added, can be a high value product • Chops and spreads material over the field • Can reduce volunteers in subsequent crop	• High cost if collected product has no use and can be more difficult to dispose of later • Equipment may not be readily available • High operating and repair costs • Moderately heavy equipment; risk of compaction or rutting • If spread in the field, issue with volunteer plants in subsequent crop

Methods	Pros	Cons
Residue Stacking	• Most types of residue can be managed • Residue stacks can be used as livestock feed and strategically placed in the field • Residue can be removed and dealt with later • Can reduce volunteer plants in subsequent crop	• Residue will spoil if stacked at higher moisture • Could result in higher costs; depends on type of equipment and availability • Can be labour intensive • Equipment may not be readily available
Conventional Tillage (disc & cultivator)	• Disc can break up and incorporate crop residue • Disc can handle more residue than a cultivator • Moderate operating and repair costs	• Soil conditions must be dry • May require multiple passes • Tillage impacts soil structure • Not always effective in heavy ground cover, or unharvested swaths • Not allowed if field is part of carbon offset market • Volunteer plants in subsequent crop • Cultivators incorporate minimal material compared to disc
Vertical Tillage	• Can break up and incorporate some residue • Can spread crop material • Low to moderate operating and repair costs • Vertical tillage tools operate best at high speed meaning quick area coverage	• May require multiple passes • Not effective for swathed crops • Has limitations in heavy residue situations • Requires higher horsepower than conventional tillage equipment • Not allowed if field is part of the carbon offset market • Volunteer plants in subsequent crop
Harrowing	• Spreads residue • Can operate at high speed; quick coverage • Can be operated at lower horsepower than tillage • Low operating and repair costs	• Limited effectiveness; residue needs to be dry for harrows to be effective • Doesn't work well in high residue situations • May require multiple passes • Volunteer plants in subsequent crop

Burning: what to consider

In cases where mechanical methods to remove the crop are not possible or are insufficient to handle the residue, burning could be used as a last resort to remove crop residue prior to seeding.

Check with your county or municipal district. Most will require a permit before burning your crop. Smoke from burning can have air quality and visibility impacts that can be far-reaching, depending on weather conditions.

If you are in the Forest Protection Area of Alberta, you need to get a **fire permit** from the Government of Alberta.

There may also be fire bans or restrictions in place, especially early in the spring. Please check Albertafirebans.ca for any restrictions and remember to contact your crop insurance agency.

Can burning prevent diseases and mycotoxins from spreading?

Burning may get rid of crop residue but will have little-to-no effect on crop diseases. As a result, burning crop residue is not recommended to prevent diseases or destroy mycotoxins.

Impacts of burning on soil health

Burning an unharvested crop will not provide any value to you from the crop, and may negatively impact the soil. Burning reduces soil organic matter, carbon and nitrogen. It can have negative effects on soil erosion and permeability. It disrupts the balance of microorganisms in the soil, reducing the biological activity and overall soil health.

Check **Albertafirebans.ca** for any fire bans or restrictions before burning.

Crop burning tips:

- **Check to ensure that your area is not under a fire ban, restriction or advisory by visiting Albertafirebans.ca.**
- Consider first baling the unharvested crop and removing the bales from the field. Burning bales in a smaller, controlled area is easier to monitor and manage than burning swaths in a field. This option will also help preserve the ground cover, residue and organic matter in the field.
- **Get a fire permit.** Follow the directions on the permit, or proceed as directed by the municipality.
- Make sure you have sufficient property insurance in case the fire gets out of control and spreads to neighbouring properties.
- Have an emergency plan, as well as fire fighting (e.g., water truck) and tillage equipment on hand.
- Till the outside rounds of the field to create a fire break.
- Burn small areas at a time.
- Monitor the burn. Don't leave the field while it's burning and monitor after the burn for hot spots or for fire to reignite.
- Set up road signs to warn vehicles of smoke.

For more information:

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