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## Fall Rest Period for Alfalfa

Posted on August 30, 2023 by [Christine O'Reilly, OMAFRA Forage & Grazing Specialist](#)

### Key Points

- Alfalfa needs about 6 weeks in the fall to store energy that will fuel spring regrowth.
- A killing frost for alfalfa is  $-4^{\circ}\text{C}$  for at least 4 hours.
- Other stressors – stand age, cutting frequency, disease and insect pressure, soil fertility – also affect winterkill risk.
- Stands that are mostly alfalfa are not at risk of smothering if left uncut.

## When is the fall rest period?

The fall rest period (sometimes called “critical fall harvest period”) for alfalfa is 450 growing degree days, base  $5^{\circ}\text{C}$  – or approximately 6-weeks – before the average date of the first killing frost ( $-4^{\circ}\text{C}$  for several hours), when alfalfa stops growing. Not cutting during this period allows alfalfa plants to grow and build up sufficient root reserves to survive the winter and grow more aggressively in the spring. When cut early in the period, the alfalfa will use the existing root reserves for regrowth, “emptying the tank.” Later in the period, the alfalfa uses photosynthesis to produce carbohydrates and stores them as root reserves, “refilling the tank.” Cutting in the middle of the fall rest period (3rd or 4th week), when root reserves will be depleted and there may not be time to replenish them, is usually higher risk than cutting at either the beginning or the end of the rest period.

The fall rest period begins around August 15th in Northern Ontario, August 30th in Eastern and Central Ontario, and September 4th in Southwestern Ontario (Figure 1). However, it is difficult to predict when that killing frost will occur. The actual date seldom occurs on the average date, so the beginning of the fall rest period is a guideline only.

Even when winterkill does not occur, the extra yield harvested during the fall rest period is typically offset by reduced vigour and lower 1st-cut yields the following spring. It can sometimes be difficult to observe, but can still be significant. Research shows that the yield sacrificed by not harvesting during the fall rest period is usually regained in first-cut yield the following year. The decision to cut in the fall should always be weighed against the immediate need for forage. If you do decide to cut, consider leaving some check strips that you can use for comparison next year.



Figure 1. Average start date for the fall rest period for alfalfa across Ontario

## Identifying Risk Factors for Winterkill

Fields with older stands, a history of winterkill, low potassium soil tests, low pH, poor drainage, or insect and disease pressure are at increased risk of winterkill and are poor candidates for fall harvesting. Fall harvest of new seedlings is generally not recommended. Aggressive cutting schedules with cutting intervals of less than 30 days between cuts increases the risk of winterkill, while intervals over 40 days (allowing flowering) reduce the risk. Frequently, first cut yields are poor in fields where a cut was taken the preceding fall.

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Some areas of the province, such as the Ottawa Valley, have a higher historical risk of winterkill. In situations where forage inventories are adequate, increasing the risk of winterkill by fall cutting is far less acceptable.

If fall harvest must be done, risk of winterkill can be reduced (but not eliminated) by cutting towards the end of alfalfa growth, close to a killing frost. Little root reserves will be depleted by regrowth, but lack of stubble to hold snow to insulate the alfalfa crowns against damage during cold weather may be a problem. Increasing cutting height to 15 cm (6 in.) of stubble will help. Try to limit late cuttings to fields that are otherwise lower risk — well-drained, good fertility, healthy crowns and roots, etc. A killing frost occurs when temperatures reach about -4°C for several hours. After a killing frost, alfalfa feed value will quickly decline, as leaf loss occurs and rain leaches nutrients quickly.

Insufficient top growth and snow-holding capacity can contribute to alfalfa frost heaving. If winter ice sheeting occurs, stubble will protrude through, allowing air to get under the ice. Cut alfalfa initiates regrowth from crown buds and axillary buds, not the cut end of the stem, so cutting higher does not reduce usage of root reserves. However, cutting higher does allow for holding more snow as insulation.

## Smothering

There is always the concern of smothering in heavy forage stands that are left unharvested. Heavy stands of grasses or red clover can sometimes smother over the winter because the top growth forms a dense mat. In contrast, alfalfa loses most of its leaves as soon as there is a hard frost, and the remaining stems remain upright and seldom pose any risk of smothering. While smothering may be a risk in mixed stands, it is not a risk in straight alfalfa.

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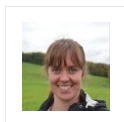
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Areas of Focus: - Production and storage strategies to improve the productivity and profitability of forages - Benefits of forages and grazing within cropping systems - Forage production and grazing systems in northern Ontario

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