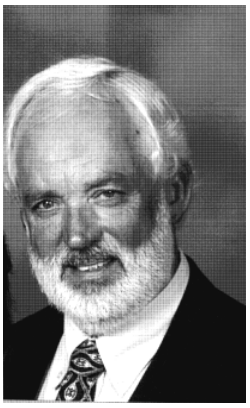
Spring 2007

THINK GREEN! Newsletter

Ontario Forage Council

John Adema elected President of Ontario Forage Council

The acceptance of this position will be an honour and a humbling experience considering the competent people who have served in the past. The Ontario Forage Council has provided leadership in the development and use of forages for maintaining agriculture in Ontario. To ensure the councils viability, the planned examination of its successes and consideration of anticipated challenges, having regard to the environment and increased land use regulations, will require the engagement of all the participants to develop a vision for the future. May we have enjoyment with the challenge.



John Adema was elected as the President of the Ontario Forage Council at the Annual Meeting held on March 7, 2007 at Gencor, Guelph. John is the representative for the Ontario Cattlemen's Association to the OFC. He brings strong leadership ability, experience, a love of learning and a willingness to "take advantage of opportunities" to the position. He is currently the Chair of the Research committee of OCA and is the Advisory Council member for Halton-Peel.

John has always been fascinated by cattle and in the mid 1990's he purchased a farm, Anawim Farm, and established his 50 cow-calf beef operation. He makes use of BIO evaluation services and has tested bulls in the Bull Evaluation Stations. Intensive Grazing Management is used for the cattle. Forages are the main crop on the operation with silage corn, mixed grain for feed and straw and some soybeans.

The farm name Anawim, meaning "humble" in Yiddish, probably best describes John. He is a very capable man who brings strong leadership to the OFC in a very humble manner. We look forward to the coming years under John's leadership.

Energy and persistence conquer all things.
Benjamin Franklin

We would like to thank Bill Brown for his direction as President of the Ontario Forage Council for the past two years. Bill's dedication to the organization has been a key part of the expansion of membership and activities that have happened during this time. His willingness to be a part of all activities from planning meetings, chairing conferences right to the transportation and set up of displays have provided the support that the organization needed. We will continue to value Bill's input and direction in the coming years.

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Forages as Bio-Energy Crops?

Today most people automatically think of grain corn as the bio-energy crop, but forages may some day play a bigger role in the bio-energy production. Many in the bio-energy industry are looking at C4 perennial grasses such as switchgrass, and miscanthus, but research is underway to look at cool season grasses such as reed canary grass and alfalfa as they are more widely adapted and may yield more energy on a greater part of Ontario's forage land. Forage energy crops typically have lower input requirements, require less management than annual grain crops and achieve higher biomass yields than crop residue. Harvest management of forages for energy differs from feed crops in that high carbon, low protein is desirable. This means that forage crops for energy are harvested only once per year after the crop have reached full maturity. Harvesting of crops like switchgrass and miscanthus the following spring, reduces the ash content by allowing the nitrogen and potassium mineral concentrations to leach out of the crop. Spring harvesting has the added environmental benefit of recycling these crop nutrients and providing wildlife habitat over the winter months, however yield losses are typically 25 to 30%, but range between 15- 50% depending on the crop and harvest management. Future improvements in harvest techniques could possibly reduce the over winter yield losses.

Switchgrass (*Panicum virgatum*), is a perennial C4 grass whose native habitat stretches from Mexico, through the U.S. mid-west up to southern Saskatchewan and all areas to the east. Varieties of this grass can reach heights of up to 4m. Switchgrass is propagated by seed and is considered to be a non-invasive species. Stand establishment takes 2 years, with a harvestable lifetime of 10 years or more. A hardy plant, switchgrass is both drought and flood tolerant, and performs well on marginal soils. Multiyear studies from St Bernard QC, demonstrated yields of 9 to 10 tonne/hectare (t/ha) for two switchgrass varieties (Pathfinder and Cave in Rock), with only 50 kg/ha of actual nitrogen applied each year.

Miscanthus is another tall (>2.5m), perennial grass that has been studied in Europe as a potential new bioenergy crop. The most common cultivar studied is the sterile hybrid, *Miscanthus x giganteus* that originated in Japan. The cost of stand establishment is high with this crop, as it is most commonly grown from rhizome pieces typically planted with a potato planter. Irrigation, weed suppression, and a long growing season in the first year are critical to obtaining a successful establishment. Stand establishment takes 2 years. One major disadvantage of current Miscanthus cultivars is their lack of frost tolerance, with European studies showing that *M x giganteus* rhizomes are killed by soil temperatures below -3.5°C. The sensitivity of Miscanthus to frost requires that a winter cover crop or thick layer of straw be used in the establishment year. Miscanthus test plots in Europe have produced yields up to 25 t/ha in the fall, but the crop is usually harvested in the spring after nutrient recycling and drying has occurred. During the first year, 60 kg/ha of N are needed, but research from Europe has shown no significant yield response of Miscanthus to nitrogen fertilizer from the second or third year on. The development of new agronomic techniques and the identification of new genotypes with improved characteristics are areas of active research in both Europe and the U.S.

There are various technologies that can be used to generate bioenergy from agricultural crops and crop residues. These technologies are evolving rapidly with improvements in energy conversion efficiencies and costs. Some of the most common technologies are Combustion, Anaerobic digestion, Gasification, Pyrolysis and Cellulose to ethanol technology.

As with any new endeavour, there are practical considerations that impact the economic feasibility of growing energy crops. Cost of production values range greatly depending on the type of energy crop grown. Growing an energy crop may require investments in new planting, harvesting and/or processing equipment, as well as in construction of storage facilities. Other considerations are the costs associated with maintaining soil fertility and pest management. First and foremost, is there, and will there continue to be, a market for your crop? What are the costs associated with marketing the crop? Does the crop need to be harvested within a short time frame and stored on farm, or does delivery occur directly after harvest? These questions need to be considered before deciding whether to grow these types of crops.

Scott Banks
Emerging Crop Specialist, OMAFRA

Ontario Forage Expo 2007 will be hosted by the East Central Soil and Crop Improvement Association Region and the Ontario Forage Council in the Peterborough area mid July. **Watch out for more details!**

"Dry cow" Hay to Fight Milk Fever

Keeping old hay fields for feeding dry cows is a good idea, but we will need to do more if we want to address milk fever problems. There is always the possibility of adding anionic salts to the dry cow ration. But what if we were to produce hay for dry cows instead?

What is milk fever?

First, a reminder of what milk fever is. This disease occurs in early lactation when the demand for calcium for milk production is so high that cows cannot absorb enough calcium from the feed that they ingest. Calcium levels in the blood therefore become too low, causing hypocalcemia that sometimes requires intravenous treatment with high doses of calcium. Once we have to take such measures, the damage is unfortunately already done and milk production is affected. In order for such problems to be prevented, cows must be prepared during the last three to four weeks before calving.

Reducing risks of milk fever

Preparing cows for calving means enabling the cows to mobilize calcium from their bones during early lactation when the demand for calcium is high. Cows can be prepared by reducing the levels of cations—especially potassium (K) and sodium (Na)—and increasing the levels of anions—especially chlorine (Cl) and sulphur (S)—in the dry cow ration. The result is a change in the dietary cation-anion difference, or **DCAD**. The goal is a ration with a negative DCAD (-50 milliequivalents per kilogram of dry matter, or mEq/kg DM).

Reducing the DCAD of a ration can involve adding anionic salts to the ration or providing feeds, like hay, that already have a low DCAD. We could therefore aim to produce hay specifically for dry cows, meaning hay for which the DCAD would be close to zero or even negative. This type of forage can be achieved as follows.

Which species is the best?

DCAD values vary among species. In 2002 and 2003, grass plots in three regions of Quebec (Montreal, Quebec City and Lac Saint-Jean) were studied. Samples of smooth bromegrass, meadow bromegrass, orchardgrass, tall fescue and timothy forages were harvested in first and second cuts. In those samples, the cations and anions in the DCAD equation $[(Na^+ + K^+) - (Cl^- + S^{-2})]$ were measured.

We are seeking to produce forages with the lowest possible DCAD. Timothy is the best species for producing hay for dry cows, while orchardgrass is the worst. The two bromegrass species and tall fescue have intermediate values. The DCAD practically doubles from timothy hay (384 mEq/kg DM and 332 mEq/kg DM) to orchardgrass hay (656 mEq/kg DM and 633 mEq/kg DM). For "dry cow" hay, there is no question: timothy is the right choice!

Why timothy?

As shown in the above equation, the DCAD involves four elements (Na, K, Cl and S). However, the two elements with the most impact are K, a cation that increases the DCAD, and Cl, an anion that reduces it. Given that the K content is six to eight times higher than that of Cl, variations in the K content will have a significant impact on the DCAD. Timothy has much lower K contents (2.4% and 2.3%) than orchardgrass (3.8% and 3.6%) which largely explains the significant differences between the DCAD values for timothy and orchardgrass. The other species have intermediate K concentrations and DCAD values that fall between the timothy and orchardgrass values. In terms of Cl, timothy is the only species whose Cl content is lower than the others', but that difference alone is not enough to significantly affect the DCAD.

We can now understand why old hay fields are good for dry cows. Old hay fields are often filled with timothy, either because a mixture of timothy and alfalfa or red clover was sown and the alfalfa or red clover has since disappeared, or because the field is so old that, even though a mixture of several species was sown, only timothy and weeds remain. Timothy is very hardy and, as long as it receives a bit of nitrogen (manure or fertilizer) each year, it survives well.

Which cut?

The effect of the cut is insignificant compared to the effect of the species. The variation in DCAD values between the first and second cuts is much less significant than the differences among the species. Although the second cut may perhaps be a bit more valuable for producing a hay for dry cows, when we consider the low yield of timothy during the summer versus the yield of the spring cut (1.8 tonnes DM per hectare versus 4.4 tonnes DM per hectare in our experiments), the first cut of timothy remains a very valuable choice compared to all the other forages that can be produced on farms.

Which cultivar?

For timothy, we assessed four cultivars with different maturities: two early cultivars, one mid-season cultivar, and one late cultivar. The DCAD values vary very little, from 349 mEq/kg DM to 367 mEq/kg DM, so we might as well say that there is no difference between cultivars (Table 2).

What else?

Although timothy is the most valuable species for producing hay for dry cows, its average DCAD is still 350 mEq/kg DM, and that means that we are still far from the value that we want. We can reduce the DCAD of forages by producing them

Early Spring Turnout—Good Or Bad?

Are we discussing the pro's and con's for the livestock or the pasture?

If we're inquiring on behalf of the livestock's health and gains, the answer could be Bad if bloat became an issue. If there is a sudden change in feed and/or it's quality with little control, there's a higher risk of Bad. If there is a controlled and gradual transition to pastures, especially early before the pasture plants explode into the high nutritional value they offer, then this is more Good! However, if we look at the benefits or problems with early turnout with regards to a pasture, is early turnout good or bad?

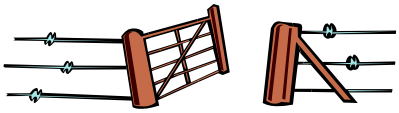
If pasture plants get eaten off extremely short and then trampled down in soft muddy soils over and over again, this would be Bad. On the other hand, if pasture plants are just nipped and then given immediate rest and recovery, this can actually kick start the root reserves to be released and get the plant regrowing quicker – this is Good. The Good and the Bad is obvious in both cases (for the livestock and the pasture).

The next question is how do we control the situation to get a Good outcome instead of a Bad outcome? There are many challenges we have little control over. But if we focus our efforts on challenges we can manage, we gain more control. If we can manage when and how long we graze, we gain control. With this control, we limit the bad outcomes of livestock grazing too much of a new feed and for too long by limiting the amount of the new forage and length of time the livestock graze reducing the risk of bloat. At the same time, we can limit the amount of damage that livestock add to vulnerable wet early spring pastures (which is Bad) and gain more Good by still allowing the pasture plants to be pruned by livestock thus kick starting the root reserves into providing faster regrowth.

So now, with knowing what to control over just a couple of the variables that could present Good or Bad results, we can influence more good and less bad by just controlling when livestock start grazing and how long they graze. We know WHAT we need to control, now we need to know HOW we can control these results. If we could adjust the system we could have more control and flexibility in more situations we didn't control before.

With good power fence systems, you have the quality of performance and flexibility to ensure good stock control and provide a more economical and ease of controlling where and how long the livestock graze a particular area. There are advantages in getting an early start to grazing each year.

Do you have a system to take advantage of grazing earlier to condition livestock to new feeding programs, increasing better livestock performance and pasture health? If you can increase the Good and decrease the Bad, you probably have a good Power Fence System and have heard about Pasture Walks. Speed up your success in getting more from your pastures and more good information from a Pasture Walk near you. Maybe you'll see more good in grazing early!



David Picken

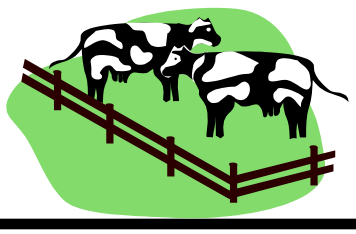
Stafix Power Fence Consultant

"Dry cow" Hay to Fight Milk Fever **continued from page 2**

in low-K soil. Since the DCAD is closely linked to the K content of the plants, and since the K content is in part related to the K level in the soil, forages produced in low-K soils generally have lower DCAD values. The results of ongoing experiments confirm that timothy produced in low K soil has a lower DCAD value.

What should we do with what we know today?

It seems clear that, for the production of hay for dry cows, timothy is the way to go. The cultivar matters little, however, and although second-cut hay could provide a slight advantage, timothy hay from both the first and second cuts will do the job. Producing timothy hay in a field with lower K levels in the soil will make it possible to obtain forage with a lower DCAD. Chlorine fertilization could also be considered, but the costs will need to be carefully assessed before this avenue is pursued.



Hélène Brassard is an agronomist with Agrinova, **Guy Allard** and **Doris Pellerin** are professors at Université Laval and **Gilles Bélanger** and **Gaëtan Tremblay** are research scientists with Agriculture and Agri-Food Canada.

This project was funded by *Action concertée FQRNT-Novalait-MAPAQ* in conjunction with Agriculture and Agri-Food Canada. This article was first published (in French) in "Le producteur de lait québécois", November 2005.

Re-establishing Forages in Winter Feeding and Yard Areas

This fall and winter has been one of the wettest in recent years. The mud created by the excess rain has made finding the driest location available to feed and yard the cows a challenge.
The best scenario for wet weather and muddy conditions is to minimize the area that cattle have access to and then deal with a small problem area. If livestock have access to a large area they will do a moderate amount of damage to the whole area, any damaged areas will be slow to recover in the spring. One severely damaged area can be renovated in the spring while the undamaged pastures will have normal growth in the spring.

The challenge of the mud leads to the challenge of what to do with these areas this coming spring. Each situation will be unique, due to the soil type, drainage, species of pasture forages, depth of the mud and size of area. The damage will vary with each situation, the first level of damage will be to the pasture plants, the second to soil structure. Some of these areas will recover with a little assistance while others will take major renovation.

These areas will have a high level of fertility from the manure, any bedding used and feed wastage. Assess each situation carefully and if the damage is light to moderate then seeding, either frost seeding or drilling should make the area productive for the coming grazing season.

Those areas that are not too severely damaged may respond to broadcast seeding clovers and grasses in the early spring. 4-5 pounds of red clover or 2-3 pounds of white clover should supply sufficient seed to give a good stand. Keep livestock off the area until there is a good ground cover re-established.

Forage and Pasture Resources

Get your copy of the Forage and Pasture Resources CD includes OMAFRA Factsheets + Manitoba Forage & Grassland 2004 Reference Manual
Contact Ontario Forage Council at 519-986-1484 or e-mail info@ontarioforagecouncil.com

In some cases broad casting spring cereals with the forage seed may be beneficial, the cereals will grow faster then the forages and give some ground cover and pasture by early summer.
Any frost action after the pugging and before spring will help to restore some of the soil structure. (similar to fall plowing). Soil damage in the spring can have more lasting effect on the soil and make seed bed preparation and seedling establishment difficult.
In most pasture areas there will be a considerable seed supply in the soil and these seeds will have an opportunity to grow under these conditions. In many areas with moderate damage there will still be viable roots that will be able to grow some new growth

If the damage is severe then it may be necessary to do some tillage to level the area and prepare a suitable seed bed for re-seeding. Any tillage should be done after the ground has dried. Tillage of wet soils will do further damage to soil structure and impede seedling establishment. Be particularly cautious if you are considering the use of deep tillage equipment. Forage root systems will often do an effective job of penetrating compacted soils if they are given some time. In a situation requiring tillage consider what your best option is for re-seeding. In some cases your best option may be to reseed with a perennial forage pasture mix. In other scenarios an annual crop (sorghum, cereals, turnips, or corn) for one year and then seeding back to perennial forage may be your best option. In making this decision consider whether or not you need to feed in this same area next fall or winter. If it is to be a feeding or yard site again next season then consider a cropping plan that allows you to have grass or cereal well established in the fall.

Jack Kyle
Provincial Grazier Specialist OMAFRA

2007 Ontario Pasture Award Winner

February 21, 2007 (Toronto) - The sponsors of the Ontario Pasture Award - the Ontario Cattlemen's Association (OCA), MAPLESEED and the Ontario Forage Council (OFC) - are pleased to announce that Mike Swidersky of *Mike Swidersky Farms* near Dundalk, in Dufferin County, is the winner of the 2007 Pasture Award. The award was presented today at the OCA Annual General Meeting. For his environmental and pasture improvements and management, Swidersky will receive a cash award of $750 and a bag of forage seed.

Winner of the 2007 Ontario Pasture Competition, Mike Swidersky pictured with Ray Robertson ,OFC. (right)

Swidersky custom pastures approximately 150 stockers per year, with animals weighing in at about 750 to 800 pounds around the first of May. They are then removed from the pasture in mid-October, at an average weight of approximately 1000 pounds. The pasture management philosophy used at *Mike Swidersky Farms* is based on the theory of least-cost, with highest returns for the dollars invested. Minimal equipment/machinery is required and clean water availability is a high priority, so it is offered to the animals in close proximity to the pasture being consumed.

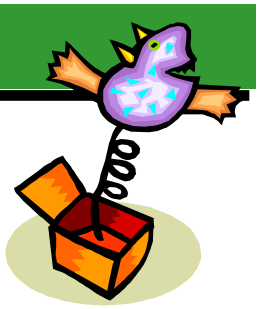
The pastures mainly consist of orchard grass and white and red clover - with some trefoil. Frost seeding is done every two to three years, as required, to maintain a productive pasture base and to maximize the pounds of beef per acre. The livestock are restricted from a woodlot on the property as well as the creek that flows through the farm. The pasture area is divided into 28 paddocks, which allows an adequate rest period for each paddock after being grazed.

"I believe the intensive rotational pasture system, combined with clean water that is closely accessible at all times, has contributed greatly to improved herd health and improved daily gain," Swidersky comments.

Steve Bent, Sales Manager with MAPLESEED, thinks *Mike Swidersky Farms* is an ideal candidate for the 2007 award, because of the innovation he has shown in his farming operation and his willingness to share ideas for the benefit to agriculture and the industry in general.

Ray Robertson, Manager of the Ontario Forage Council, said that as producers try to cope with the challenging times, they will look to practical and sustainable management practices like these to maximize their net returns.

Ha-Ha-Ha-Happy Birthday. Climax Timothy Turns SIXTY



Climax timothy is Ontario's oldest surviving forage variety. Produced by Agriculture Canada at the Ottawa Research station it was registered in March 1947 and quickly propelled Canada into a world class producer of forage seed during the 1950's and 60's. Superior in winter hardiness with some flooding tolerance, its leafiness and yield made it a winner around the world.

Climax is still recommended in Ontario as a late variety. Most recent efforts in developing new timothy varieties have gone into earliness to more accurately match the flowering date of alfalfa, while later varieties like Climax are a better match with later maturing trefoil varieties. Newer timothy varieties also have better aftermath production. Publicly funded varieties were the norm when climax was registered; today they make up only four per cent of Ontario's recommended list.

Our Thanks to Gencor

The Ontario Forage Council would like to recognize Gencor who have supported them over the last number of years with provision of the board room for Directors and Annual meetings We thank them sincerely for their continued support of the Ontario Forage Council.

An Environmental Farm Plan (EFP) applies to pastures too. Once your plan is completed you can have access to grants for fencing, water systems and pasture management mentoring.

NATIONAL WORKSHOP ON SEED PROGRAM MODERNIZATION

MARCH 27 & 28 2007

At the invitation of the Canadian Food Inspection Agency (CFIA), Ontario Forage Council and 140 other seed industry representatives from across Canada met in Ottawa to discuss the modernization of the Canadian seed regulatory framework.

Dr. Bryan Harvey presented an interesting and educational overview of Canada's seed regulatory system and how it compares with other countries. He classified Canada's system as unique from a global perspective as most of the costs are borne by the industry rather than government. Contrary to popular belief, he also considered it very flexible compared to many. European countries, by contrast, have a highly regulated system with high costs paid by the government which tends to be very inefficient. The other extreme is the U.S system, which has very few regulations and is of low cost to the government. It was pointed out that the U.S industry does a good job of regulating themselves voluntarily.

The workshop provided an opportunity to examine the possible placement of crops within a tiered variety registration system. The preliminary results of the consultation process indicated that 63% of the respondents were supportive of a tiered system. The majority of comments from the meeting were also supportive of a flexible system. The forage crop consultation group supported that position and asked that, "alfalfa, red clover, reed canary, orchard, timothy, smooth brome and crested wheat grass" be placed in the 1st tier.

Strengthening of the CFIA's enforcement and compliance authority, and third-party monitoring under a contract registration system was also supported by a similar number of stakeholders.

The crop consultative groups were asked to list priority issues for their respective crop. The forage group listed post registration production and agronomic data availability as a priority. Organic producers had a concern regarding genetically modified forages.

The establishment of a consultative framework received strong support. A national stakeholder's forum is being suggested to deal with broad industry issues. Crop-specific consultation groups would deal with more specific practical issues. The forage working group suggested that the expert committee on forages could form the basis of that committee for forage crops, however care should be taken that all regions and segments of the industry are well represented.

In conclusion, the CFIA will be recommending to the government that they:

(a) proceed with a formal "flexible variety registration system";

(b) proceed with the establishment of crop-specific consultative committees;

(c) examine options to strengthen the consultative framework; and

(d) continue the consultative process with stakeholders in regards to funding.

The Ontario Forage Council would like to thank Barton MacLean for volunteering to attend this meeting on our behalf. Barton brings a lot of past experience and knowledge to the table from his years with DFO and OFC. Thank you for your leadership and also for this report Barton.

Alfalfa Autotoxicity

Reseeding alfalfa following alfalfa is not a recommended practice due to the effects of autotoxicity, diseases and pests, and the loss of rotational benefits. However, in situations where reseeding alfalfa after alfalfa cannot be avoided, there are autotoxicity risk factors to consider in minimizing the risks of seeding failure or significant yield reductions.

Alfalfa autotoxicity occurs when established alfalfa plants produce toxins that reduce the establishment and growth of new alfalfa plants. Autotoxicity can occur when:

alfalfa is reseeded into an old alfalfa field rather than being rotated, or when
alfalfa is seeded into an existing alfalfa stand to thicken it.

Germination & Root Growth

Seed germination and plant density are reduced by alfalfa autotoxicity. On plants that do survive, roots are swollen, curled, discoloured, and lack root hairs. Mature plants appear to be more “branch-rooted”, rather than “tap-rooted”. The effects on root growth can have significant impacts on long term yields.

Poor Establishment

There is some disagreement on what minimum period of time is required between killing the old stand (either by plowing or glyphosate application) and reseeding. Time is required for the toxins to degrade or move out of the root zone. Research has shown that while an interval of only 2 or 3 weeks is required to eliminate the adverse effects on germination and plants per square foot, the potential effects on root development and forage yields persist much longer.

Alfalfa Autotoxicity

Continued from page 7

Reduced Yields

The negative impacts on root growth can have significant effects on yield that persist every year for the life of the stand. On the farm, yield reductions can be more difficult to recognize than poor establishment. Research studies have shown a broad range of yield reductions, ranging from less than 10% to greater than 50%, suggesting autotoxicity is significantly influenced by the environment and management. Yield reductions across these studies averaged about 20%.

Factors Affecting Autotoxicity

Removing topgrowth before reseeding can help reduce the autotoxicity. The autotoxicity compounds are more concentrated in the leaves and stems than in the roots. The autotoxicity will increase with the density and age of the stand.

Tillage prior to reseeding accelerates the breakdown of the alfalfa residue and therefore reduces the autotoxicity more rapidly. No-till establishment requires a longer interval before successful reseeding.

Weather and soil type. Rains can move the **water-soluble** toxins from the root zone. Autotoxicity effects may be more persisent in dry weather. Longer periods before reseeding may be required on **fine textured (clay) soils**.

Winterkilled stands will have an autotoxicity effect similar to a stand killed in early spring. Delaying reseeding into May or later will reduce establishment, regardless of the autotoxicity. Ideally, these stands should be rotated out of alfalfa. A summer seeding of alfalfa following a forage cereal crop could be the next best option.

Reseeding New Seeding Failures

The toxins have not built up to harmful levels in the first year of new seedings, so seeding failures or new seeds that were winterkilled can be reseeded without an autotoxicity effect. This would include a summer seeding after an unsuccessful spring seeding, or a spring seeding after an unsuccessful summer seeding.

Thickening Old Stands Not Recommended

It is not recommended that interseeding be done to thicken an established alfalfa stand, as this is rarely successful. New alfalfa seedlings often germinate, look acceptable initially, and then die out over the summer. Research shows the area of autotoxicity influence is a 16 inch radius from established plants. This means that a field with plant density of less than 0.2 plants per square foot (almost nonexistent) would be required before interseeding could avoid autotoxicity. A stand with greater than 1.3 plants per square foot will have excessive zone overlapping and a high risk of failure. In an emergency situation, thin spots can be interseeded with red clover instead. Of course, interseeding a stand that is less than one year old is acceptable, because there is no alfalfa autotoxicity effect.

Bottom Line

For maximum yield, if the alfalfa is two or more years old, an intervening year of an alternate crop is required before reseeding to alfalfa, particularly in no-till situations. Where this is not an option, be prepared to accept some reductions in yield.

Joel Bagg
Forage Specialist, OMAFRA

Gold Level Members

Dairy Farmers of Ontario

Stafix Power Fencing

Ontario Cattlemen's Association

Ontario Harness Horse Association

Ontario Sheep Marketing Agency

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ProRich Seeds

Quality Seeds Limited

Speare Seeds

Terratec Environmental

University of Guelph

The Ontario Forage Council thanks the Ontario Ministry of Agriculture, Food & Rural Affairs for its support

Ontario