

The Forage

INFORMER

THE BEST SOURCE OF INFORMATION FOR FORAGES AND CORN SILAGE

Summer 2006

Improve your Silage-making

Steve Graham, Technical representative for Chr. Hansen Biosystems, manufacturer of ENSURE and ENHANCE silage inoculants for hay and corn

We may not notice it, but each year we lose a significant amount of our corn silage in our storage structure. Actually, depending on the storage structure used, 16 to 25% of the harvested dry matter will be lost. Surprisingly, 10 to 20% will be lost while remaining in the storage structure.

The extent of dry matter lost will depend on the type of storage structure used and on the management associated with the structure. Dry matter losses will occur during harvesting and feed out, but most of the losses will occur while in storage and will be due to respiration and to poor fermentation. Respiration is difficult to avoid since the oxygen trapped in the silage must be eliminated before fermentation begins, yet losses can be minimized.

Adequate moisture

The most important rule of silage harvesting is to harvest the crop at the correct moisture for the storage structure used. The typical harvest structure will require corn silage to be harvested at 65% moisture (35% dry matter). However, horizontal bunkers and trench silos will need a slightly higher moisture content while oxygen limiting silos will require a much drier silage. Improper harvest moisture may increase respiration and storage losses due to increased oxygen trapped in the silage (if harvested too dry). It may also promote the development of

yeast and moulds that could be detrimental to cattle health as well as increasing dry matter losses.

Losses during storage

Most dry matter losses will occur during the fermentation phase of the ensiling process (in the storage structure). Fermentation takes place once the oxygen has been depleted. At this point, fermentation begins with the growth of lactic acid producing bacteria (LAB) which will convert sugars into lactic acid. This causes a drop in the pH of the silage which will inhibit the growth of other microbes. LAB are naturally found in corn silage and are divided into two groups – the homofermentative and the heterofermentative. The homofermentative LAB will produce only lactic acid, which the heterofermentative LAB will also produce acetic acid, ethanol and carbon dioxide. The greater the proportion of heterofermentative LAB in the silage, the greater the potential for dry matter loss.

Corn silage specific bacterial inoculants

A good way to reduce dry matter losses in storage is by using bacterial inoculants. These will promote proper



Starbuck high forage quality alfalfa - protect the quality you harvest by using a silage inoculant

fermentation by introducing fast growing homofermentative LAB. A study done by the W.H. Miner Agricultural Institute in New York showed that there was an 8% increase in dry matter recovery from corn silage when homofermentative bacteria were supplied (as in ENHANCE corn silage specific bacterial inoculant). The study showed that there was only a 5% dry matter loss during the respiration and storage phase compared to 13% dry matter loss for the control which received no bacterial inoculants. Several other University studies showed similar results.

ENHANCE is a corn silage specific bacterial inoculant containing LAB that will rapidly produce high enough levels of desirable lactic acid so as to ensure the lowest possible dry matter losses, excellent silage preservation and highest quality silage.

Average Dry Matter Losses from different Storage Structures

	Trench Stack	Horizontal Bunker	Concrete Tower	O2 Limiting Tower	Silage Bag
% Dry Matter for ideal silage	33-28	33-28	32-37	40-50	32-37
Dry Matter Loss	% Dry Matter				
Source					
Harvesting	2	2	2	3	4
Respiration	4	4	4	6	2
Storage	15	12 (10-15)	9 (8-9)	5	7 (5-9)
Feedout	4	4	2	2	4
TOTAL	25	22	17	16	17

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The Value of Certified Seed

Jay Hackney

Product & Research Development Manager, PICKSEED CANADA INC.

Most Ontario farmers believe that the quality of Certified seed makes it worth buying. They recognize the blue Certified tag and they appreciate the value they are getting in the seed bag. But according to a survey commissioned by the Canadian Plant Technology Agency, there are still some who don't see the value of Certified relative to common seed.

About 15 years ago Mr. Harvey Wright (OMAF & University of Guelph), now retired, would spend serious time with growers explaining the benefits of the Blue tag – Certified Seed. I'm thinking of an article by Mr. Wright where he was answering the question "Is it worthwhile purchasing and planting a named variety of forage or will my results be just as good with non-variety seed (common seed)?" Harvey Wright was a well-respected forage specialist. He could have been talking about corn, soybean, wheat, canola, timothy, etc. because the issues are the same in all crops. The points he raised then are still valid now.

Certified seed is all about putting improved varieties into the hands of farmers. Whether it's corn, alfalfa, soybean or cereals, Plant Breeders in the public and the private sectors are making genetic improvements and bringing out new varieties or hybrids constantly. The new biotechnologies (Liberty Link®, YieldGard® and Roundup Ready®) are all delivered through Certified seed as well. Once the new variety is ready to be advanced to commercial reality, it is put in the hands of expert seed growers for multiplication.

Canadian Pedigreed seed production is managed by the Canadian Seed Growers' Association, an organization of farmers specialized in seed production. These seed growers have the responsibility to produce

high quality seed that is genetically pure, and meets the CSGA standards for seed purity and germination.

The only way to purchase a variety is when you buy Certified seed, and when you do that, you are buying definite characteristics of disease resistance, crop quality, and yield potential. You can find both registration and post-registration performance data on a named variety. To quote Harvey Wright "If the variety performs very well on your farm, you can purchase exactly the same characteristics and adaptability another year by simply buying the same variety. If you purchase common seed, you know nothing about the characteristics you might expect. And if the seed produces a crop that performs well, you have no way of purchasing seed next year that will give you the same performance". A variety is sold by variety name, and only varieties registered by the Canadian Food Inspection Agency can be sold by variety name.

When you buy Certified, you buy a performance 'guarantee' because you are buying a specific variety. You also are paying for the expertise and skill of the seed grower who produced the seed crop to high standards of purity. That grower manages a complex rotation scheme to ensure no contamination from previous crops. He walks his fields, inspecting the crop and removing off-type plants. His combine is carefully cleaned prior to harvest. Included in the cost of seed is inspection by an experienced field inspector working for the Canadian Food Inspection Agency who verifies genetic purity and makes sure that the required field isolation is provided, that the crop rotation scheme is appropriate to eliminate

the possibility of contamination, and that weed control is effective. The raw seed is then cleaned, treated, bagged and stored by the seed company. You are paying for real value – performance and reliability with Certified.

Common seed

While Certified seed has verifiable performance and reliability, common seed does not. You pay less for it because you are getting less. You don't know what genetic background you are buying and you don't know if what you are buying is adapted to your conditions, has the disease resistance you want or the quality characteristics you need. Not only that, but there has been no field inspection during seed production. You only know that it meets the lower purity and germination standards allowed compared to Certified. Brands are not varieties, they are common seed too.

Value and Affordability

The reality is that you lose more in production, quality or performance than you save by buying common. Let me use an example from forage production, cited by Harvey Wright where he takes the example of a good forage grower with a yield of 5 Tons per acre (11.1 tonnes per hectare) on 25 acres. Let's take an example of a yield advantage of 10%. (The top twenty alfalfa varieties in Ontario average 7% better yield than the reference variety Saranac in second production year and 12% better yield in third and fourth production years). A 10% yield advantage means this grower is producing an extra 500 bales of hay from that field. Could you afford not to buy Certified?

Alfalfa Winter Survival Problems & Solutions

Parts of Eastern Canada experienced very difficult winter conditions this past winter, leaving some alfalfa fields looking bare. It's important to recognize what we can and what we cannot do about preventing this type of extensive winter kill.

In many cases it was ice sheeting that was killing fields, and there is nothing we can do about this from a management or choice

of variety point of view. Yes, it is possible to improve surface drainage of fields, and many farmers who also grow soybeans, for instance, have done some field levelling so as to ensure a field with improved surface drainage. But there are no varieties of alfalfa that will survive long term ice sheeting.

There are several ways we can have a positive influence on overwintering alfalfa. I

use the word influence because there are no guarantees in this business, as every grower of alfalfa knows, and especially those of you growing in the Eastern part of Ontario and into western Québec. I'd like to talk about four key points:

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“Forage Quick Cuts”

Wheel Traffic & Alfalfa

It turns out that the issue with wheel traffic is that varieties perform essentially the same. They will all get damaged by wheel traffic to some extent, but you can minimize the damage.

The damage is caused more by contact of machinery with the newly regrowing stems than it is due to soil compaction per se. Dan Undersander (University of Wisconsin) says that yield will decline 3% for each day you delay wheel traffic. Make sure that traffic occurs as soon after a cut as possible. Keep the traffic to specific lanes as much as possible (don't drive all over the field), and don't use dual wheels.

Manure & Alfalfa

If you are thinking of spreading manure on alfalfa, make sure to do it soon after you take a cut. Alfalfa in a pure stand, but especially in a grass mix, is a good user of manure. Yes, alfalfa does fix atmospheric nitrogen and does not need any additional N from fertilizer to give you top yields. But it will use available soil N from manure and make up any deficit it required by fixing its remaining needs. Alfalfa is not as efficient a user of N as are the grasses, but like soybean it will use soil available N. Just keep in mind the comments about wheel traffic, and don't delay your manure application.

Potato Leafhopper & Alfalfa – TrailBlazer 4.0



The #1 insect pest of alfalfa in Eastern Canada is the potato leafhopper (PLH). PICKSEED is releasing a variety called

TrailBlazer 4.0 (it's currently in the process of being registered) which is rated 'HR' or highly resistant to PLH. We tend to think that PLH is most serious West of the 400 highway and South of the 401 in Ontario and also a major problem in the Niagara region. The extent of the problem varies in other regions, and is hard to estimate but PLH damage is often misdiagnosed as Boron deficiency or drought. A variety like TrailBlazer 4.0 will be a high yielder even without PLH pressure, but in the presence of average levels of PLH can really outperform the non-resistant varieties.

PLH are blown in by winds in the summer, usually arriving in early June and causing problems with second and subsequent cuts. They don't survive our winters so first cut is not affected. When you walk your field looking at second cut, you'll see the leafhoppers jumping sideways – they're emerald green, about 3mm (1/8") long, are wedge-shaped and fly about 3-4 feet. If you suspect a problem, call you PICKSEED agent and he can scout with a sweep net and tell you how bad your problem is.

Alfalfa Weevil



Weevil damage is quite distinct – skeletonization of the leaves. These insects do overwinter and so first cut can be affected. Adults are about 8mm long with a dark stripe down their back. Larvae (shown in photograph), which are responsible for eating the interveinal leaf tissue, are grey when younger, then green with a black head and a white stripe down their back and about 5mm long as adults. If there is 40% leaf tip feeding, with two or three active weevils per stem, and there are more than 7-10 days to the preferred harvest date, consider applying an insecticide.

You can control the pest by cutting early,

when you see significant damage, and this is probably what most growers will choose to do. Usually weevil damage occurs very close to bud stage, which is when you should be harvesting for optimum forage quality anyhow. However, the weevils may arrive early if the weather favours them and so insecticides are available if required. Consult with your seed sales person or see your provincial Crop Protection Guide for recommended products and rates.

If there was a problem at first cut, it is possible that sufficient larvae will persist to cause difficulties with the second cut. The larvae will feed on the regrowth and in this case the threshold level is 2 larvae per plant. Above this level you should consider an insecticide.

Potassium and Winter Survival

PICKSEED sales and agronomy staff attended an interesting presentation given by Agri-Food Labs of Guelph, Ontario. Their General Manager and agronomist, Dale Cowan, reminded the assembled crowd how potassium fertilizer was essential for alfalfa winter survival. They sample alfalfa fields in a grid pattern, taking samples to estimate yield. Those samples are evaluated for forage quality, and the soil that grew the sample is also tested for potassium level. It comes as no surprise that Dale sees a strong relation between soil K content and forage yield. Fields that test less than 60 ppm K show a big drop in forage yield – while the grasses survive, the alfalfa doesn't, and the yield shows it. Forage quality suffers too, as the proportion of alfalfa declines.

To ensure optimum alfalfa production, you should soil test to ensure that pH is correct (at least 6.8 is ideal) and K sufficient.

You won't get a response to applied potassium if your soil tests over 150 ppm of K. Under 60 ppm and the survival problems are serious.

Alfalfa Winter Survival

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- Choose a variety with good persistence, use good cutting management in the fall and ensure adequate K fertility.

Varieties like Starbuck and PICKSEED 2065MF have an excellent record of persistence and winter survival over a broad range of environments – there is a lot of good trial data with head-to-head comparisons to support this.

When it comes to fall cutting management Ontario recommends not cutting in the 6-week critical fall rest period (p 37 in OMAFRA Publication 296). Gilles Bélanger of Agriculture and Agri-Food Canada Research Station in Ste-Foy, Québec takes a slightly different approach. His research suggests that you need about 500 degree-days (base of 5°C) between your final cut of the season and the previous cut

(equivalent to about 50 days).

There are a couple of other measures that can be helpful.

- Choosing the right field is important – use the field that is best drained and has good natural surface drainage. This can reduce the damage caused by ice sheeting by allowing surface water to drain off the field.
- Make sure that fertility is adequate – alfalfa survival is decreased when K is lacking.
- Anything that will ensure a vigorous strong crop is an advantage – keep pH at 6.8 or higher, ensure weed control, limit wheel traffic, etc.

The alfalfa crop is probably worth more to you per acre than most other crops, you should manage it accordingly.

About

THE FORAGE INFORMER

The Forage Informer is an information publication produced and distributed by PICKSEED Canada Inc. It is available in English and French versions. Call us and we will send you a copy of the Forage Informer in the language of your choice. If you wish to subscribe contact Sylvia Taylor at 1-800-661-GROW (4769) or send your name and address to: Sylvia Taylor, PICKSEED CANADA INC., 1 Greenfield Road, Lindsay, ON K9V 4S3, Email: staylor@pickseed.com

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Join

THE PICKSEED TEAM

Have you considered a career in selling seed? Why not join the PICKSEED team. PICKSEED has some key areas where we are looking for sales agents in Eastern Canada.

Our current sales agents have a broad range of background and experience and their talent, knowledge and emphasis on customer service combined with the quality and performance of our forage, hybrid corn and turfgrass varieties together makes an excellent recipe for success.

If you are interested, call PICKSEED's provincial Sales Manager for more details. Paul Wight 519-717-2226 (Ontario & Atlantic provinces) or Victor Lefebvre 450-799-4586 (Québec).

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