How to Identify and Treat Winter Forage Injuries

By Jodi Letham

Every year, winter damage occurs somewhere in western New York. The ability to evaluate and manage winter damaged stands may help to extend stand life and boost yield. Let’s examine briefly how to identify and treat winter damaged alfalfa.

Diagnosing Winter Injury

Slow Green Up
One of the most evident effects of winter injury is that stands are slow to green up. If other fields in the area are starting to grow and yours are still brown, it’s time to check those stands for injury.

Asymmetrical Growth
Buds for spring growth are formed during the previous fall. If parts of an alfalfa root are killed and others are not, only the living portion of the crown will give rise to new shoots resulting in a crown with shoots on only one side or asymmetrical growth.

Uneven Growth
During winter, some buds on a plant crown may be killed and others may not. The uninjured buds will start to grow early while the injured buds must be replaced by new buds formed in the spring. This results in shoots of different height on the same plant, with the shoots from buds formed in the spring being several inches shorter than the shoots arising from fall buds.

Root Problems
Perhaps the best way to diagnose winter injury is by digging up plants and examining roots. Healthy roots should be firm and white in color with little evidence of root rot. Winter injured roots have a gray, water-soaked appearance and/or brown discoloration due to root rot. If the root is soft and water can be easily squeezed from the root, it is most likely winter killed. If the root is still firm but showing signs of rot it may still produce, depending on the extent of injury. Typically, if over 50% of the root is damaged, the plant will most likely die that year. If less than 50% is injured the plant will likely survive for one or maybe two years depending on management and subsequent winter.

Managing Winter Injured Stands
Winter injured stands require different management than healthy stands if they are to stay in production for one or more seasons. If winter injury is evident consider the following:

• Determine yield potential
• Potential yield of an alfalfa stand may be estimated by determining the number of stems in a square foot area. Once stem numbers are determined use the following formula to calculate yield potential of that stand:
  \[
  \text{Yield (tons/acre)} = (\text{Stems/ ft}^2 \times 0.1) + 0.38
  \]

• Remember that formula predicts potential yield and that several other factors such as soil factors, nutrient deficiency, insects, disease, etc. can affect the actual yield.

Yield Potential

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<tr>
<th>Density (Stems/ ft(^2))</th>
<th>Action</th>
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<tr>
<td>Over 55</td>
<td>Stem Density Not Limiting Yet</td>
</tr>
<tr>
<td>40-55</td>
<td>Stem Density Limiting Yield Potential</td>
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Allow Plants to Mature Longer Before Cutting:
By allowing plants to mature to early, mid or even full bloom you are helping the plants restore needed carbohydrates for subsequent production. How long and during which cutting depends on the extent of winter injury. For severely injured stands, allow plants to go to nearly full bloom in first cut and to early flower in subsequent cuttings. This will give these stands the best chance at survival. Stands with less injury could be harvested somewhat earlier depending on the extent of injury. Stands with only mild injury could be allowed to go to 10 to 25% bloom at some time during the season. It may be best to choose second or third cutting with these stands as first cut is usually the highest quality or largest.

Increase cutting height:
Increasing cutting height is particularly important when allowing plants to flower before cutting. At this point, new shoots may be forming at the base of the plant and it is important not to remove them as it will further weaken the plant because it will then have to produce new ones.

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Fertilize: It is important to adequately fertilize winter injured stands. Soil test and apply recommended fertilizer prior to first cutting if possible.

Weed Control: Herbicide application to control weed competition will help the stand by eliminating weeds which compete for moisture, light and nutrients.

No Late Cutting: Do not cut winter stands after September 1 to allow for the buildup of food reserves prior to winter.


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How’s Your Winter Wheat Look? By Mike Stanyard

I am not used to looking out my window on February 8 with no snow on the ground and 50 degrees. This has been such a mild winter so far and I believe we have an all-time low snow accumulation at this point here in Rochester. We all know that can change as Punxsutawney Phil has already told us that we have plenty of winter left.

I have had a couple questions about winter wheat since it is now very visible out there. We had a good fall for planting wheat compared to the previous fall. Weather was warm and predominantly dry. USDA, National Ag Statistical Service recently put out their Winter Wheat Seeding Report and estimate 170 thousand acres of winter wheat were planted in New York this fall. This is up 21% percent from 2022 and 10% from 2021. This may be a record, but I could not confirm it. It doesn’t surprise me with the low acres last year and the current price of wheat.

The USDA NASS NY Field Office puts out a weekly crop report and the percent wheat planted and percent emergence is recorded for the season. In the percent Wheat Planted chart, we were right on pace with last year and the 5-year average. It stayed on track until the third week of October. The warmer drier planting conditions into late October and November resulted in more acres planted later and we ended up with 98% planted. Much better than the 89% from last year. I would like to see more of those acres planted in early October!

However, the percent Wheat Emerged chart shows that the wheat jumped out the ground and emerged faster this fall. This year’s wheat stayed ahead of the averages and by November 27, 95% of the crop had emerged. This is important because fall tillers yield more than those established in the spring. So how was the wheat crop looking moving into the winter? On November 27, the NASS NY Field Office rated the condition of the wheat crop as 33% Excellent, 26% Good, 33% Fair and 8% Poor.

A covering of snow is usually good for our wheat and serves as a blanket from the cold windy days of winter. I would be concerned if we had long extended periods of sub-freezing temperatures, but we have not had that so far. I am seeing some browned tips but that is to be expected this time of year and is probably just wind burn. These leaves will have nothing to do with determining yield long term. I’m more concerned if we get wet saturated soils and then get some low temperatures with no snow. Winter kill could be an issue and so we will have to make stand assessments if we find ourselves in that situation.

Before you know it, that early shot of nitrogen will be going out there or maybe already applied as you read this. Early March is a great time to assess your tiller counts and check out your overwintering weed populations. Spring green-up will be here before you know it!

### Wheat Planted

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Percent wheat planted by date comparisons. Data from USDA NASS NY Field Office.

### Wheat Emerged

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Percent wheat emerged by date comparisons. Data from USDA NASS NY Field Office.
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In January I had a once in a lifetime work experience. I spent a half day with Dr. Temple Grandin, Marty Broccoli, Frank Broccoli, and Chrissy Claudio with the NY Beef Council. We visited the Gold Medal Packing plant in Rome, NY which was recently purchased and will be run by Open Range Beef. My colleague Marty Broccoli with CCE Oneida mentioned the visit and Chrissy and I invited ourselves. The plant has been primarily a bob (newborn) veal processor and is now expanding to include processing of other species. They are having problems when they slaughter goats. Temple was in town for the NY Beef Producers winter meeting, so it worked out for her to visit the plant and give her advice.

Dr. Grandin had worked quite a bit in the mid-80s with the Broccoli family setting up the kill line at Utica Veal plant in Marcy, NY. Highlighted in a publication from the Animal Welfare Institute, she and University of Connecticut researchers are credited with designing the first humane slaughter system, the double-rail restrainer system, for kosher calves and lambs installed at the plant in 1986. The system was paid for by a grant from the Council of Livestock Protection. What was not noted and according to Temple, the council was primarily funded by the Humane Society of the United States (HSUS). John Hoyt, the president of HSUS at the time, was integral in Utica Veal procuring the grant. He was on-site to advise with setting up the system. The day after the system was paid for the council disbanded. She had made sure to get included in John’s obituary in the NY Times his work with humane care and handling of livestock. A quote from Grandin in the obituary, “That system is in use in half the slaughterhouses in the country, and it probably would not have existed if not for John Hoyt.”

Some of the same people are now involved with managing the Gold Medal plant which has new owners, including Frank Broccoli. Marty provides consulting on plants through a contract with NY Ag & Markets for part of his CCE time. Marc Broccoli and Nick Tarpoff, plant management and key employees joined the walk-through. The plant was having problems with goat restraint. Temple provided advice and sketched out how to revise their system – first with cardboard to test it, then more permanently if the revisions worked.

Much of the systems in place now for humane handling and slaughter at USDA plants came from the Federal Humane Slaughter Law. It was first proposed in 1955 and finally passed in 1958. It was not implemented until 1978, due to efforts to weaken and undermine the intent.

The law covered the slaughter side of the industry. What about before animals arrive at the plant? That falls on farmers and truckers with all the pieces in between. Programs such as the FARM (Farmers Assuring Responsible Management) program, provide guidelines on proper care and handling of animals, in this instance, bob calves. I work closely with the Beef Quality Assurance program that promotes research-based practices to ensure a safe and wholesome product. The Gold Medal plant was running bob veal line while we were visiting though discussion was primarily on goats. There was room for improvement. Some essential care and practices are not completed on all dairies. Protocol drift occurs. As a reminder, all calves – heifer and bull calves – require colostrum. They all need proper navel care, otherwise, navel ill occurs and potentially joint problems. Proper care should not need to be a law. From Dr. Grandin’s article, Making Slaughterhouses More Humane for Cattle, Pigs, and Sheep, “Newborn calves should not be brought to a slaughter plant until they are old enough to walk and move easily.”

The meat industry continues to make improvements. Gold Medal plant understood the importance of safe, low stress handling for their slaughter animals. If you have questions on any on-farm animal practices or care, contact Margaret, Kaitlyn, or me. If you would like to talk to me about my visit, give me a call. Our contact information is inside the front cover.
True story: in my dazed stupor after 36 hours of labor with my son, I asked the confused pediatrician if I needed to get a certain quantity of colostrum into my newborn quickly. His reaction brought me back to reality. People are not cows. I guess I’ve spent way too much time discussing the importance of the three Q’s!

If you haven’t heard of the “Three Q’s”, it’s a nice way to remember the important steps to colostrum management:

**Quickly**- antibodies in colostrum are larger than other molecules that we absorb through our intestinal tract. Calves are born with larger “pores” in their intestine to absorb these antibodies; however, these pores begin to close soon after birth and absorption of antibodies is severely limited after 24hrs of age.

**Quantity**- Calves should receive approximately 10% of their body weight in colostrum quickly after birth. So, if you have a 95lb Holstein, 10% is 4.5 quarts, or just over a gallon of colostrum. The goal is really to give every calf at least 200g of IgG, with a quart usually containing about 50g.

**Quality**- Since not every quart of colostrum contains 50g IgG, we should think about quality. The lower the IgG concentration, say a Brix of 18%, the more quantity it will take to deliver the needed IgG to that calf. Quality is not just about antibodies though. Cleanliness is a big part of quality. Did you know that bacteria in colostrum will bind to the antibodies, making them wider, and this prevents the antibodies from being absorbed. Also, unbound bacteria can be absorbed through the “pores” and cause significant illness.

I’ll provide a rundown of the “Three Q’s” in this month’s Dairy Culture Coach, en Español.

I know that many of you are aware of the above information and where the rubber hits the road is in execution. Two things that I see commonly as pinch points to excellent colostrum management are poor cleanliness and insufficient quantity available. If your farm has employees, do they understand why it is important to scrub out colostrum collection buckets? If an employee doesn’t understand why they are doing a task, this encourages them to take short cuts for perceived efficiency. As you know, treating sick calves is not efficient and an ounce of prevention is worth a pound of cure.

To address the second pinch point, let’s think of practical ways to increase colostrum yield.

1. **Use colostrum from 1st calf heifers**: historically it was thought that heifer colostrum was poor quality. Research has proven this untrue, including in a recent survey of 19 dairies in NY that found 76% of 1st calf heifers had a Brix score of >22% (Westhoff, 2023).

2. **Use transition milk**: If you are not feeding transition milk, you are wasting a valuable resource that will boost calf systemic and local immunity. Only 25% of total IgG is in the first milking while the other 75% is excreted in transition milk over the next few days. If you’re short on colostrum, feeding transition milk may be a higher quality (and cheaper) alternative to colostrum replacer. This obviously requires a change in management to collect and store transition milk, but you can expect to spend less time and money on calf treatments. See this field study published in The Manager for more information.

3. **Stop selling colostrum**: Making $65/cwt of colostrum may seem like a great deal. However, if you are having pre-weaning calf health issues, you may be spending more on treatment costs, lost ADG and labor than you are making. Calf scours is estimated to cost over $50 per case. You can give 12 calves a gallon of colostrum from the one cwt you sold. If that prevents two cases of scours, you’ve already saved money (and a headache). Just something to think about.

4. **Consider ways to increase colostrum yield**: This one is the hardest to control, but maybe you can identify some small changes from the factors associated with colostrum yield in Figure 1 (Westhoff, 2023). You can read more about this study in this article from Farm Progress.

Remember, per the FARM program, colostrum is required to be given to all dairy calves, including bull calves that will immediately be transported off farm. Many dairies have improved bull calf protocols, however, as Nancy said in her article on bob veal, “some essential care and practices are not completed on all dairies.” Even though bob veal calves are not a primary income source for dairies, they could become a serious liability if not handled with the utmost care.
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Clear Source
How to Spot When It’s Too Hot  By Margaret Quaassdorff

I know it’s only March, but I thought it was fitting to try to think about something warmer. A recent study out of Wisconsin [https://doi.org/10.3168/jds.2022-22237](https://doi.org/10.3168/jds.2022-22237) about heat stress in hutch-housed calves gave me the perfect excuse.

About 63% of all calves in the United States live in hutches, with 38% of those being outdoors and 25% of those indoors. Much of the research that looks at heat stress in dairy calves has been done in the Southeastern and Southwestern United States. The type of chronic heat and sometimes humidity in those regions differs from that in the Northeast and Upper Midwest. Where we live, calves are under seasonal heat stress (usually from the middle of June to the end of August). This means that their bodies will be acutely challenged, and must adapt to hot conditions in a short amount of time. Imagine being born at the end of May, and having to go through weaning (which is already a stressful event) in the heat of the summer. Calves housed outside in hutches can have exaggerated consequences of heat stress due to solar radiation and lack of options for heat loss.

There are a few behaviors to watch for that calves start to exhibit when they are becoming stressed. During heat stress, dairy calves experience an increase in a physiological thermoregulatory response, which we recognize as a higher respiratory rate, or panting in extreme cases. As they try to expel heat from their bodies, they may also not finish their meals, or have the ability to grow as efficiently or as much as they could have if they were not heat stressed.

Similarly to popular hutch-housing systems, calves in the research experiment were housed in sand-bedded polyethylene calf hutches with rear hutch ventilation, and had an enclosed wire pen attached to the hutch. No other heat stress abatement was provided. Over the summer months in Wisconsin, researchers measured respiration rate, rectal temperature, and skin temperature along with recording environmental conditions.

They found that skin temperature measured with a heat gun, as well as respiratory rate could be used as animal-based indicators of heat stress. It is important to note that rectal temperature is a better reflection of true body temperature versus a temperature taken on the surface of the body, but monitoring skin temperature or respiratory rate is quicker and less invasive than taking a rectal temperature. Dry bulb temperature which is most correlated with ambient air temperature, was the optimal environmental thermal indicator. This makes it easy for us as managers to know when to start with heat abatement strategies as the following was found.

Calves increased their respiratory rate and rectal temperature at around 21°C (about 70 degrees Fahrenheit,) indicating they were suffering from heat stress.

Providing supplemental shade over the hutch can reduce air temperature and inhibit solar radiation, both inside and outside the hutch. Other options to reduce heat stress in dairy calves are installing reflective hutch covers, positioning the hutch so that the door faces North. Sand bedding, and even wood shavings tend to allow more heat to escape the body versus straw, which is insulating. For better ventilation, open the vents, and prop up the back of the hutch with a cement block or firewood to allow more air flow. And as always, but especially in the hot months, make sure fresh water is available at all times. For older heifers that drink more water, consider larger horse-watering buckets to reduce the number of times you need to refill.

Helping calves to cool down in the summer increases their welfare and prevents growth losses associated with heat stress in hutches.
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Summary

• Sound financial planning and control are keys to successfully managing a farm business.
• The next months present good opportunities to evaluate financial management practices.
• The NWNY Dairy, Livestock, and Field Crops Program has the capacity to work with a variety of producers as they seek to improve their business' financial management practices.

Background

For the December 2022’s Ag Focus article on the topic of farm business summary and analysis, I began the “Background” section with the sentence, “Winter months present farm business owners with opportunities to undertake planning efforts for the purpose of improving results.” Analysis is always valuable, but some weeks, months during the year are much less feasible for summary and analysis given other demands on farm business owners’ time. A Cornell University Cooperative Extension Dairy Farm Business Summary & Analysis (DFBS) Program cooperator recently commented, “I appreciate, acknowledge the value to our business of the DFBS, but I am also reminded each year of the time and effort involved.”

Annual farm business summary and analysis season is underway. Recent weather might suggest otherwise, but the calendar indicates that adequate time exists over the next months to evaluate your farm business’ results for 2022.

Characteristics of Effective Farm Financial Management

Research suggests that financial management practices, including annual farm business summary and analysis, better position a business for success. Effective farm financial management emphasizes sound financial planning and control.

Financial planning is using financial information to answer the following questions.

1. “Where is the business now?” Include, “How is the farm
business positioned to handle financial adversity, risks, uncertainties?"
2. “Where do you want it to be?”
3. “How will you get the business to where you want it to be?”

Financial planning practices include

• generating financial statements (balance sheet, cash flow statement, and income statement)
• using results to identify strengths and weaknesses, including identifying strategies to mitigate financial, and others risks
• developing projections, including those associated with proposed changes to the farm business

Financial control involves measuring financial condition and performance over time to determine whether or not the business is achieving desired results. If not, then ask, “Why not?” to identify and implement needed changes.

As a farm business owner, you have financial objectives and goals. These direct your efforts. Do you measure the financial condition of your farm business using the balance sheet? Do you measure financial performance using the cash flow statement and income statement? If you don’t measure financial condition and performance, then achieving desired financial results is less likely. The statement “If you can’t, or don’t measure it, then you can’t manage it” with its emphasis on measuring outcomes underlies the value and need for sound financial management.

Cornell University’s Dairy Farm Business Summary (DFBS) Program

• Objectives of the DFBS Program include: provide producers with opportunities to analyze the business’ production and financial situation, set future goals, and make sound financial decisions; help managers to better understand the business’ ability to handle risks and uncertainties.
• The DFBS also allows producers to compare their business performance to that of other dairy producers.
• The summary and analysis for each farm includes profitability analysis, balance sheet analysis, analyses of annual cash flows and repayment ability, capital and labor efficiency, as well as analyses of the cropping and dairy aspects of the business.

The DFBS program is a preferred financial management tool for summary and analysis for dairy farm businesses of all kinds.

Financial Statements for Agriculture (FISA) Program

• FISA is a computer based spreadsheet program that can be used by all types of farm businesses to achieve an objective similar to the one above for the DFBS Program.
• In practice, FISA’s ability to provide peer to peer comparisons is limited.
• The summary and analysis for each farm includes profitability analysis, balance sheet analysis, analyses of annual cash flows and repayment ability, as well as some capital efficiency measures and analysis. The program does not summarize and analyze production aspects of the business.

Farm Business Summary and Analysis with the NWNY Dairy, Livestock, and Field Crops Program

If you are interested in improving your business’ ability to practice sound financial management, then please contact us to learn more about some of the tools available and their value and/or to discuss plans for completing a farm business summary and analysis for 2022. Owners of all types of farm businesses are encouraged to contact us. The NWNY Dairy, Livestock, and Field Crops Program has the capacity, using the above tools, to develop valuable farm business summary and analysis. The NWNY team has the capacity and desire to work with a variety of farm businesses -- dairy (small, medium, and large; conventional; organic; grazing; and others), field crop, livestock, and others.
Fertilizers and Herbicides
Getting the Most for Your Money

Date: Friday March 31, 2023

Location: 1 Murray Hill Drive, Mt. Morris
New York 14510

Cost: $70.00 per person

Agenda
8:00 - 8:50am Registration
9:00- 9:45am Jodi Letham Fertilizer Terminology
9:45-10:30am Jeff Case Dry Fertilizer & Lime
10:30- 11:15am Dale Bartholomew Liquid Fertilizer
11:15-12:00pm Dr. Quirine Ketterings Value of Manure
12:00-1:00pm LUNCH
1:00- 1:45pm Dr. Vipan Kumar Herbicide Classification
1:45-2:30pm Mike Hunter Herbicide Formulations & Adjuvants
2:30-3:15pm Dr. Vipan Kumar & Mike Hunter Management of Hard to Control Weeds
3:15-4:00pm John Hanchar Market Update & Questions
Adjourn & Collect DEC Credits

As input costs rise, it is necessary to employ the best management practices, and it can be advantageous to know what you’re getting from your purchases. Plan to attend if you want to understand the terminology, calculations, formulations, and chemistry behind your fertility and herbicide recommendations.
March 2023

**New Agricultural Supervisory Leadership Course: Employee Development & Training** - March 3 - April 13 with weekly Zooms Thursdays 3-4PM by Cornell’s Agricultural Workforce Development team. For more information, visit the Ag Workforce Development website - [https://agworkforce.cals.cornell.edu](https://agworkforce.cals.cornell.edu)

**Bovine Reproduction & Artificial Insemination Course** - March 7-8, 2023 (9:30am-3:30pm). Spring Hope Dairy, Clifton Springs. Offered in English and Spanish. Visit the NWNY Team’s website for information - [https://nwnyteam.cce.cornell.edu/events.php](https://nwnyteam.cce.cornell.edu/events.php)

**Certified Pesticide Applicator Training** – March 17, 2023. Wayne County Cornell Cooperative Extension & NYS DEC are proud to offer a Pre-Exam Training and Test to Become a Certified Pesticide Applicator. Visit the NWNY Team’s website for information - [https://nwnyteam.cce.cornell.edu/events.php](https://nwnyteam.cce.cornell.edu/events.php)


**Hands-On Calving and Dystocia Workshop** - March 22-23, 2023. Reyncrest Dairy, Corfu, NY and Keystone Mills, Romulus, NY. Offered in English and Spanish. Offered in English and Spanish. Visit the NWNY Team’s website for information - [https://nwnyteam.cce.cornell.edu/events.php](https://nwnyteam.cce.cornell.edu/events.php)

**Fundamentals of Ventilation in Barns for Small Ruminants and other Livestock** – March 22, 2023. 7-8 pm. CCE Livestock Program Work Team is hosting Tim Terry, Pro-Dairy’s Farm Strategic Planning Specialist to discuss retrofitting old barns. This meeting is free for all and will be held over Zoom. Registration is required and will provide you access to the program recording. To register, please visit: [https://bit.ly/Barn_Ventilation](https://bit.ly/Barn_Ventilation)


**Fertilizers and Herbicides** – March 31, 2023. Plan to attend if you want to understand the terminology, calculations, formulations, and chemistry behind your fertility and herbicide recommendations. Please pre-register before 3/24 [https://nwnyteam.cce.cornell.edu/events.php](https://nwnyteam.cce.cornell.edu/events.php)

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