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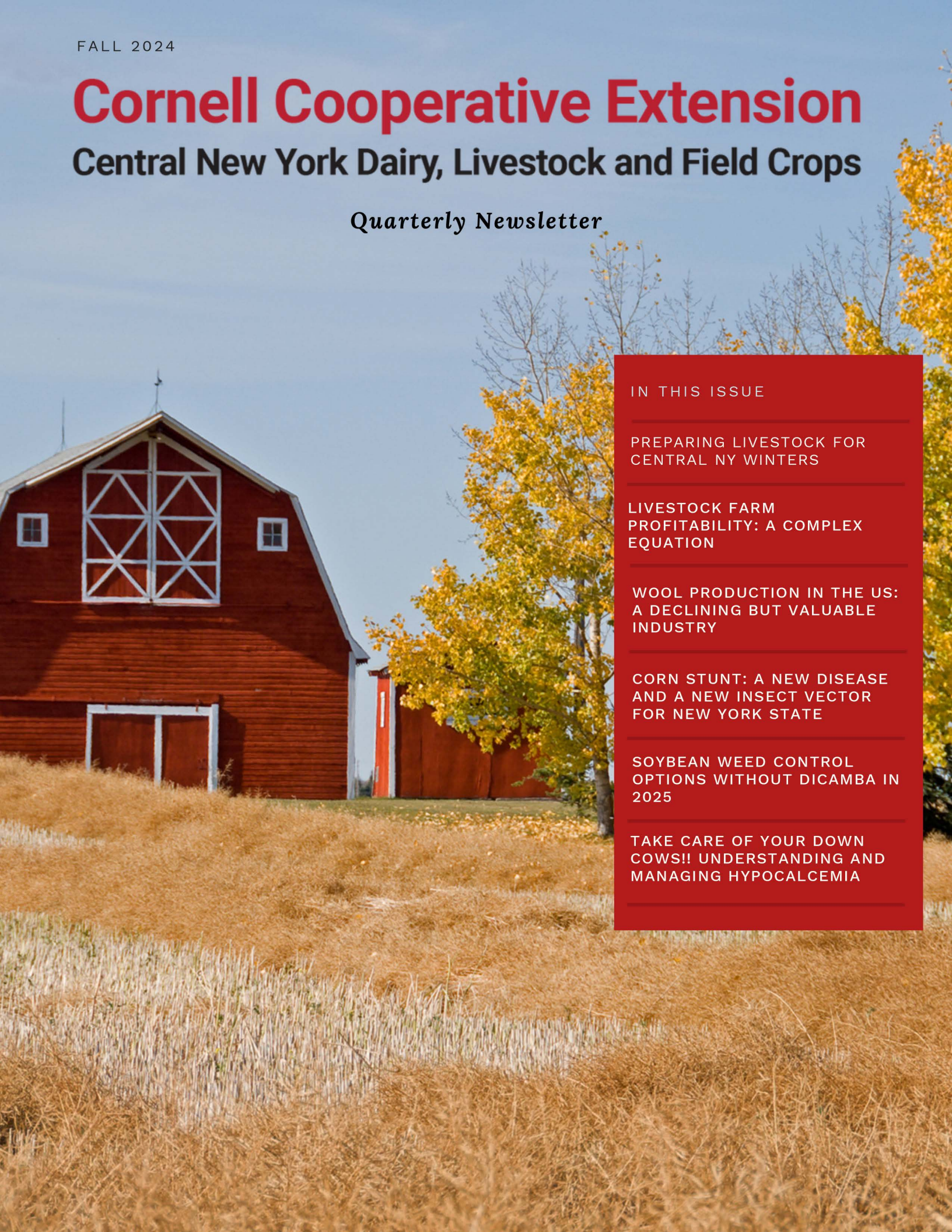
Central New York Dairy, Livestock and Field Crops

Quarterly Newsletter



IN THIS ISSUE

Preparing Livestock for Central NY Winters

by Ashley McFarland, Central New York Dairy, Livestock and Field Crops Team

Central New York's harsh winters pose significant challenges for livestock. Proper preparation is essential to ensure the health and well-being of your animals.

Shelter and Bedding

* Adequate shelter: Ensure barns and sheds are windproof and well-insulated. (Proper ventilation is crucial to prevent moisture buildup but avoid drafts.)
* Sufficient bedding: Deep bedding of dry straw or hay provides insulation and warmth. (Regular checks and additions are necessary to maintain dryness.)

Nutrition

* High-quality feed: Provide a balanced diet with plenty of energy-rich feeds like hay, grain, and silage. Consider supplements for protein and minerals.
* Access to water: Prevent water from freezing by using heated waterers or breaking ice regularly.
* Monitor weight: Regular weight checks can help identify animals at risk of losing condition during winter.

Health Care

* Vaccinations: Ensure animals are up-to-date on vaccinations to protect against common winter illnesses.
* Foot care: Proper hoof care is essential to prevent frostbite and lameness.
* Parasite control: Continue deworming and parasite prevention programs as needed.
* Observe closely: Monitor animals daily for signs of illness or distress.

Additional Considerations

* Windbreaks: Plant trees or shrubs to provide natural windbreaks for outdoor animals.
* Frostbite prevention: Protect extremities like ears, tails, and feet from frostbite with lanolin or other protective products.
* Emergency planning: Have a plan in place for power outages or severe weather conditions.

By implementing these measures, you can significantly enhance your livestock's chances of surviving the harsh Central New York winter. Remember, early preparation is key to a successful winter season for your animals.

Livestock Farm Profitability: A Complex Equation

By Ashley McFarland, Central New York Dairy, Livestock and Field Crops Team

Livestock farming, a cornerstone of agricultural economies, presents a complex interplay of factors influencing profitability. While the allure of open pastures and animal husbandry is undeniable, the path to financial success is often fraught with challenges. This paper delves into the key determinants of livestock farm profitability, highlighting both opportunities and obstacles.

Factors Affecting Livestock Farm Profitability

Several key factors converge to shape the profitability of a livestock farm:

- *Commodity Prices*: Fluctuations in market prices for livestock and their products exert a significant impact on farm income. Factors such as global demand, supply chain disruptions, and trade policies can dramatically affect profitability.
- *Production Costs*: Expenses related to feed, labor, veterinary care, equipment, and utilities constitute a substantial portion of farm expenditures. Efficient resource management is crucial to maintaining profitability.
- *Animal Health and Productivity*: Disease outbreaks, reproductive efficiency, and animal growth rates directly influence income. Preventive healthcare, genetic selection, and optimal nutrition are essential for maximizing returns.
- Market Access and Supply Chain: The ability to reach target markets efficiently and at competitive prices is critical. Factors such as proximity to processing facilities, transportation costs, and consumer preferences impact profitability.
- Risk Management: Livestock farming is inherently risky due to factors such as weather, disease, and market volatility. Implementing risk management strategies, including insurance, hedging, and diversification, can mitigate financial losses.
- Government Policies: Subsidies, regulations, and trade policies can significantly impact farm profitability. Understanding and adapting to the evolving regulatory landscape is essential.
- Farm Management Practices: Effective decision-making, financial management, and adoption of technology can enhance farm efficiency and profitability.

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Strategies for Enhancing Livestock Farm Profitability

To navigate the complexities of livestock farming and improve profitability, farmers can consider the following strategies:

- *Diversification*: Expanding the range of livestock species or products can help spread risk and stabilize income.
- *Value-Added Products*: Processing livestock products on the farm can increase returns by capturing additional value.
- *Market Analysis*: Understanding consumer preferences and market trends can help farmers produce products that meet demand.
- *Cost Control*: Implementing cost-saving measures, such as improving feed efficiency and reducing labor costs, can enhance profitability.
- *Risk Management*: Employing risk management tools, such as crop insurance and futures markets, can protect against financial losses.
- *Technology Adoption*: Leveraging technology for precision agriculture, animal monitoring, and data analysis can improve efficiency and decision-making.
- *Collaboration*: Participating in producer cooperatives or industry associations can provide access to resources, markets, and bargaining power.

Challenges and Opportunities

While livestock farming offers potential rewards, it also presents significant challenges. Factors such as climate change, labor shortages, and increasing input costs pose threats to profitability. However, opportunities also exist, such as growing consumer demand for sustainably produced products and advancements in agricultural technology.

In conclusion, livestock farm profitability is a dynamic and multifaceted issue. By carefully considering the factors influencing profitability and implementing appropriate strategies, farmers can enhance their chances of success in this challenging but rewarding industry.

Wool Production in the US: A Declining but Valuable Industry

By Ashley McFarland, Central New York Dairy, Livestock and Field Crops Team

The United States, once a prominent wool producer, has seen a significant decline in its wool output over the past decades. According to the American Sheep Industry Association (ASI), wool production in 2021 was 22.451 million pounds, a 3% decrease from the previous year [1]. This downward trend is attributed to a reduction in the number of sheep shorn and lower wool yield per head. While the overall production is low compared to global leaders like Australia and New Zealand, the value of US wool persists.

Despite the decline, US wool commands a premium in the market due to its exceptional quality. American wool is renowned for its fine fiber, crimp, and strength, making it highly sought after by luxury textile manufacturers. The ASI actively promotes American wool domestically and internationally, emphasizing its superior characteristics and sustainability benefits [2].

Wool production in the US contributes to rural economies, providing livelihoods for sheep farmers and related industries. Sheep play a crucial role in maintaining healthy grasslands and preventing erosion, contributing to environmental sustainability.

The wool industry is also experiencing a resurgence in popularity, with growing consumer interest in natural fibers and sustainable fashion. This renewed demand presents opportunities for US wool producers to expand their market share and capture a greater portion of the value chain.

To revitalize the US wool industry, efforts are focused on increasing sheep numbers, improving wool quality, and developing innovative wool products. Additionally, supporting research and development in wool processing and textile technologies is essential to enhance the competitiveness of American wool in the global market.

While the challenges are significant, the potential for the US wool industry to regain its former prominence is evident. By leveraging the unique qualities of American wool, investing in research and development, and promoting sustainable practices, the industry can contribute to both economic growth and environmental stewardship.

Citations used for the article:

[1] American Sheep Industry Association. (May 2022). Wool Production Trends. Retrieved from https://www.sheepusa.org/magazines/may-2022
[2] American Wool. https://www.americanwool.org/

Corn Stunt: A New Disease and a New Insect Vector for New York State

By Gary C. Bergstrom, Cornell University

The presence of the corn stunt spiroplasma was confirmed in corn fields in four non-contiguous New York Counties (Erie, Jefferson, Monroe, and Yates) in October 2024. The causal agent of corn stunt, *Spiroplasma kunkelii*, belongs to a specialized class of bacteria known as mollicutes which also includes phytoplasmas. Spiroplasma cells lack walls, and they have a short, spiral shape. They live an obligate lifestyle, i.e., they survive and reproduce only in living leafhopper hosts and in the phloem sieve elements of specific plant hosts. The pathogen that causes corn stunt is transmitted by the corn leafhopper, *Dalbulus maidis*, also not documented previously in New York (Figure 1). That status changed this October as individuals of *D. maidis* were caught on a yellow sticky trap in Jefferson County. One captured leafhopper was confirmed by molecular tests to be infected by *S. kunkelii*. This is the first documentation of the corn leafhopper and of *S. kunkelii* in both corn leaves and corn leafhoppers in New York.

Figure 1.
Corn leafhopper, Dalbulus maidis, the insect vector of corn stunt spiroplasma, is characterized by two prominent dark dots between its eyes and a deeply imbedded V-pattern on its upper thorax. Photo courtesy of Dr. Ashleigh Faris, Oklahoma State University.

How is the spiroplasma transmitted and spread?

The corn leafhopper, *D. maidis*, can acquire spiroplasma through its probing mouthparts in less than an hour of feeding in phloem tissues of infected corn plants, but it can take up to two weeks of spiroplasma replication in the leafhopper's body before the insect can then transmit the spiroplasma into the phloem of healthy corn plants. Symptoms don't generally appear until about a month after plants have been infected. The most severe symptoms are the result of infection at early corn growth stages (from VE to V8). An infected leafhopper can transmit spiroplasma to many nearby plants and can also be blown by air currents and deposited into distant corn fields.

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Where did the leafhopper and spiroplasma in New York come from?

Corn stunt is a disease complex first described nearly 80 years ago in the Rio Grande Valley of Texas. *Spiroplasma kunkelii* is the principal pathogen causing corn stunt. However, other pathogens, either alone or in combination, also can cause corn stunt; these pathogens include the maize bushy stunt phytoplasma, the maize rayado fino virus, and the maize striate mosaic virus. Leaf samples from New York have been archived for later testing for these additional pathogens. Over past decades, there have been observations of corn stunt symptoms in several southern and eastern states but epidemics of corn stunt with well documented isolation of S. *kunkelii* have been primarily in Texas, Florida, and California. In recent years, corn stunt has occurred as a yield-reducing disease primarily in Mexico, Central and South America, particularly in Argentina and Brazil. The principal vector, the corn leafhopper, can be transported long distances by air currents and carries the pathogen within it. While there is no direct proof, it is very likely that long-distance atmospheric transport of the corn leafhopper into the Midwest and Northeast in 2024 was aided by storm systems that moved north from southern states.

What are the symptoms of corn stunt?

Corn stunt symptoms present similarly to other stresses in corn, including drought, soil compaction, and phosphorous deficiency. Leaf blades and sheathes can show white or yellow stripes (loss of chlorophyl) or red or purple streaks (anthocyanin pigments) and plants may show premature senescence (but without stalk rot) (Figure 2). Corn stunt varies from several common stressors in that plants can show significant stunting and ear abnormalities such as poorly filled ears, no ears or multiple ears at the same node. Symptoms may appear in patches within a field or across larger portions of a field.

Figure 2.
Corn plants testing positive for corn stunt spiroplasma showed stunting, leaf reddening, and abnormal ears in (A) Erie County and (B) Jefferson County, New York near the end of the 2024 growing season.

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How was corn stunt detected in New York?

From conference calls with my field crop pathology counterparts in southern and corn belt states this summer, I became aware that, in association with stunted and discolored corn plants, corn stunt and corn leafhopper were being observed further north of their usual ranges in 2024. Yet, I thought that New York was at a sufficiently northern latitude to avoid these problems. I credit a very observant agronomy specialist, Rafaela Aguiar with Kreher Family Farms, for noticing unusual symptoms in field corn in Erie County in late summer. Rafaela, a native of Brazil and with previous agronomic experience in South America, thought the symptoms resembled corn stunt which she had seen in South America. Though I was skeptical, it turned out that Rafaela was correct. We initially collected samples of symptomatic plants (Figure 2A) from three Erie County fields and sent them to the Diagnostic Lab at Oklahoma State University. Two of the three fields came back as strongly positive for the corn stunt spiroplasma. In a race against corn harvest and frost, samples were then collected from corn in other counties where similar symptoms had been reported. Samples from Jefferson, Monroe, and Yates Counties were also positive (Figure 2B). I suggest that, given more time for scouting in October, corn stunt may have been diagnosed in many more corn fields in New York this year.

What does this mean for future corn production in New York?

Documentation of the pathogen and its insect vector in New York in 2024 demonstrated that corn stunt could occur in New York in future growing seasons. And if spiroplasma-infected corn leafhoppers arrive at earlier corn growth stages, significant yield losses could result. Then again, the atmospheric pathways that carried corn leafhoppers to New York in 2024 might not be repeated for several years. Many presume that the corn leafhopper will not overwinter as far north as New York, but, with climate change, that may be proven incorrect. There is much that we don't know. Cornell University, Cornell Cooperative Extension, and the New York State Integrated Pest Management Program have committed to participate in a Corn Stunt Working Group of plant pathologists and entomologists in states affected by corn stunt and corn leafhopper. One aim of the group is to deploy a common protocol to monitor the corn leafhopper during the 2025 growing season. Also, the Cornell Plant Disease Diagnostic Clinic is gearing up to offer a molecular test for corn stunt spiroplasma in 2025.

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How will the corn stunt disease complex be managed?

Awareness and accurate diagnosis of corn stunt and regional monitoring for corn leafhopper are necessary first steps in managing this complex. Based on limited observations in 2024, it appears that corn stunt could cause significant yield reductions under New York corn growing conditions. Plant breeding is the long-term solution to prevent corn yield losses. Hybrids with moderate resistance to the spiroplasma and / or the leafhopper have been deployed in Latin American countries to manage the corn stunt complex. International companies that sell seed in the U.S. as well as Latin America are aware of which germplasms are most promising for incorporation into hybrids for northern temperate areas such as ours. I do not expect much choice of resistance in northern hybrids in 2025. Management of corn leafhopper populations with insecticides at corn vegetative stages to reduce corn stunt deserves further investigation. My principal advice to New York growers in 2025 is to plant corn at the earliest recommended date to avoid arrival of leafhoppers at the most vulnerable plant stages for infection by spiroplasma.

Acknowledgements:
I gratefully acknowledge agronomist Rafaela Aguiar of Kreher Family Farms for her keen observation of corn stunt symptoms and her continuing cooperation. Colleagues Michael Stanyard (Cornell Cooperative Extension Northwest New York Dairy, Livestock, and Field Crops Program) and Michael Hunter (New York State Integrated Pest Management Program) were instrumental in collecting corn leaf samples and leafhoppers from additional sites in New York. Identification of corn leafhopper and corn stunt spiroplasma would not have been possible without the expert help of colleagues at Oklahoma State University including professors Maira Duffeck and Ashleigh Faris, and diagnostician Jennifer Olson.

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Soybean Weed Control Options Without Dicamba in 2025

By Eric Prostko, University of Georgia

Preface from Erik Smith: *With the loss of dicamba and as more and more NY acres are at risk of infestation by herbicide-resistant weeds, the use of preemergent herbicides in weed control programs is more important than ever. While this article gives a great rundown of options, I want to point out that a few are not labeled for use in NY: those with sulfentrazone (Authority products) and pyroxasulfone (Fierce, Anthm, Zidua.)*

How can soybean growers manage weeds in the absence of dicamba in 2025?

Earlier this year, a federal district court vacated the Engenia, Tavium and Xtendimax labels. As it stands right now, growers will not be able to legally use any of these products for soybean weed control in 2025. It is anybody's guess what will happen with these dicamba registrations in 2025.

So, how can soybean growers manage weeds in the absence of dicamba in 2025?

Before I go any further, soybean growers must be conscious of the various weed resistances that they may have on their farms. This will determine what herbicides can be successfully used in a soybean weed control program without dicamba.

For example, PPO-resistance will negate products such as Valor (flumioxazin), Reflex (fomesafen), Cobra (lactofen), and Ultra Blazer (acifluorfen). ALS-resistance will limit the use of herbicides such as Classic (chlorimuron), FirstRate (chloransulam), Pursuit (imazethapyr), and Python (flumetsulam). I am including common names of herbicides in this article because there are also many generic formulations available.

Regardless of herbicide system, all soybean growers will benefit from starting clean -- using deep tillage, cover crops, herbicides -- planting in narrower rows (< 30"), and being timelier with postemergence (applications (weeds ≤ 3").

I am a huge fan of narrow rows since they usually result in less late-season weed densities and higher yields. UGA research over the years has shown that soybean yields can be improved an average of 13% in narrower rows.

Photo by Eric Prostko

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The key to a successful weed management program is a strong preemergence program. Soybean growers have many powerful PRE herbicides including:

- Authority MTZ (sulfentrazone + metribuzin)
- Authority XL (sulfentrazone + chlorimuron)
- Boundary (metribuzin + S-metolachlor)
- Canopy (metribuzin + chlorimuron)
- Envive (flumioxazin + chlorimuron + thifensulfuron)
- Fierce (flumioxazin + pyroxasulfone)
- Fierce MTZ (flumioxazin + metribuzin + pyroxasulfone)
- Surveil (flumioxazin + chloransulam)
- Tendovo (metribuzin + S-metolachlor + chloransulam)
- Tricor (metribuzin), Trivence (flumioxazin + metribuzin + chlorimuron)
- Valor

By the way, it's no coincidence that I mentioned metribuzin 7 times.

Where resistance is not an issue, the Group 15 herbicides are still very functional residual herbicides [Anthem Maxx (pyroxasulfone + fluthiacet), Dual Magnum (S-metolachlor), Outlook (dimethenamid-p), Warrant (acetochlor), and Zidua (pyroxasulfone)].

The yellow herbicides [Prowl (pendimethalin), Sonalan (ethalfluralin), and Treflan (trifluralin)] are also still on the soybean weed control table.

As for POST weed control in absentia of dicamba, I suspect that there will be significant increases in the use of Liberty (glufosinate) products and Enlist One (2,4-D choline).

Got sicklepod and morningglory? Don't forget about Classic and FirstRate.

A friendly reminder that it would not be a great idea for PPO-resistance management to use a Valor-type herbicide PRE followed by a POST application of Cobra, Reflex or Ultra Blazer.

I would also like to remind growers that not too many moons ago, weed control in conventional soybeans was not impossible. See figure 1.

For sure, it is not a good thing when growers lose herbicide labels. Effective weed management is all about options. Fortunately, soybean farmers have options other than dicamba. Now is the time to develop your game plan.

As always, good weed hunting!

Take Care of Your Down Cows!! Understanding and Managing Hypocalcemia

By Daniela Conzalez, CNYDLFC Dairy Management Specialist

It can be normal for a cow to experience hypocalcemia. During the transition period, the calcium requirement can increase 3 times more!! The cow does not only need calcium for daily maintenance (mainly muscle function) but also for the bones of the fetus, and as if it were not enough, milk and colostrum production.

Farms have done way better at managing this transition period disease. However, a lot of research is still being done because, unfortunately, there is not a protocol that "fits all".

How are cows able to adapt to this extraordinary demand?

Usually, even for cows producing 45 lbs, their metabolism can adapt through the parathyroid gland. As soon as low blood levels are sensed, this gland secretes a hormone (parathyroid hormone PTH) that will have an effect on the kidneys to retain calcium and the intestine to absorb calcium. Another key mechanism is through the mammary gland itself. The mammary gland secretes PTH-related protein hormone that can reabsorb calcium from the bones. A cow can lose 9% - 13% of its whole bone mass during the fresh period!

The situation becomes complex when we talk about subclinical hypocalcemia. A silent disease that can affect from 45% to 60% of lactating cows, and therefore, repercussions on production are costly. Hypocalcemia can have a cascade effect since it will affect every type of muscle, for example, the uterus, therefore having a risk of metritis. It can also affect rumen motility, which, with the decreased dry matter intake, can lead to ketosis or displaced abomasum.

So, what has new research shown about subclinical hypocalcemia?

The research from Dr. Jessica McArt from Cornell University and her lab has helped us understand the dynamics around calcium by identifying four different types.

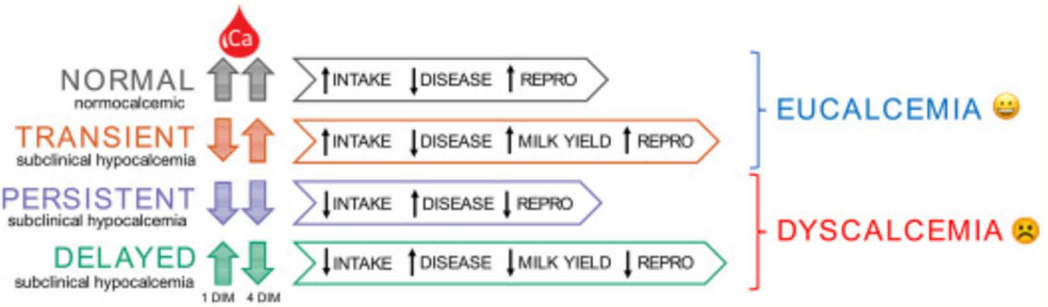

Image 1. Normocalcemic, transient, persistent and delayed subclinical hypocalcemia. *Figure created by C.R. Seely with input from the authors. "McArt JAA, Oetzel GR. Considerations in the Diagnosis and Treatment of Early Lactation Calcium Disturbances. Vet Clin North Am Food Anim Pract. 2023 Jul;39(2):241-259. doi: 10.1016/j.cvfa.2023.02.009. Epub 2023 Apr 7. PMID: 37032301."*

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To a certain degree, some hypocalcemia might be beneficial. Cows with transient subclinical hypocalcemia produce more milk and have better reproduction. Normal and transient cows were able to adapt to Ca requirements and activate their PTH mechanism.

On the other side, as you see in the image, cows that have low levels of calcium at 4 days in milk are unable to recover, making them more prone to other diseases such as metritis, ketosis, or displaced abomasum, among others. It has also been shown that cows with hypocalcemia are less likely to get pregnant quickly.

What should we do?

Much work must be done to understand the dynamics of calcium and how and why cows have different responses. However, here are some of the key points:

- Administration of IV calcium is ONLY recommended when the cow is in the 2nd phase of clinical hypocalcemia. Therefore, she is not able to stand up. Giving these cows an oral bolus after 12 hours can be recommended to avoid a rapid decline of calcium in blood. Always discuss protocols with your veterinarian.
- Taking blood samples. It is recommended to take a blood sample from an animal with clinical hypocalcemia before we give the IV treatment. This will help in case the animal doesn't respond to treatment.
- Take a blood sample on day 4. Instead of taking blood samples on day 1 or hours after calving, taking them on day 4 will help us set apart two types of cows: the cows that recover and are able to have normal calcium levels or the cows that may need supplementation.
- Supplementation to cows that had a high yield production on the past lactation, had dystocia calving, or are lame, benefit from an oral bolus of ca.
- Blanket treatment with oral boluses is not recommended, since it may not be beneficial to all cows.
- **The key has been and is still prevention through diet in the pre-fresh period.** Some management strategies are DCAD diets, low potassium, and calcium binders during the pre-fresh period diet. Talk to your nutritionist to find out the benefits and perks of each.

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