

# AG FOCUS



## Farm Safety for Grain by Mike Stanyard

In the past month I have seen plenty of bunk silo safety articles which are a great reminder of how important it is to stay alert and watch out for everyone working around us. Now that most of our corn silage is put under cover, I thought we should switch gears and talk some about safety issues around the grain bins as corn and soybean harvest begins. Below are some great suggestions from a farm safety website, <http://farmsafety.mo.gov/safety-topics/grain/>.

**Never Enter Flowing Grain Bin.** Suffocation is one of the most common causes of death involving grain bins. This occurs when someone enters a bin with flowing grain and is pulled under and covered with grain. Many farmers underestimate the massive force behind flowing grain. Standing on moving grain can be deadly; the grain works like quicksand to create suction that can bury a person in mere seconds. Do not enter bins while grain is loaded or unloaded; wait until the dust clears so you can clearly see your footing before entering. For more safety details see the OSHA fact sheet, Worker Entry into Grain Storage Bins, <https://www.osha.gov/Publications/grainstorageFACTSHEET.pdf>.

**Shut off and Secure Power Sources.** Be sure to turn off and lock out all power equipment associated with the grain, including the augers used to help move grain, when not in operation. Be especially aware of automatic unloading equipment, and keep children away from operating grain augers at all times.

**Avoid Carbon Dioxide.** Grain fermentation produces carbon dioxide, a colorless, odorless gas. Grain bins often have an oxygen-deficient atmosphere. Working in a grain bin where carbon dioxide is present can be very harmful to your health. Once inhaled, the carbon dioxide can get in your bloodstream and slow down your breathing, which can cause drowsiness, headaches and even death by suffocation. To reduce the

hazard, open all manholes and doors to force air through the bin before working inside.

**Wear Dust Mask.** Even a small amount of spoiled grain can produce millions of tiny mold spores which easily become airborne when disturbed. Airborne mold spores can be inhaled into the lungs through the nose and mouth, causing reactions so severe that sometimes hospitalization is necessary. Farmers working without respiratory protection inside a bin or other grain storage facility where moldy grain is present are especially vulnerable to mold and dust reactions. Always wear a respirator capable of filtering fine dust particles. Avoid unnecessary exposure to mold because your tolerance may be reduced with each repeated exposure. Be sure to wear a mask that fits securely around the mouth and nose to protect you from grain dust and fungus in moldy grain.

**Use Equipment Guards and Shields.** Equipment guards and shields create fewer opportunities for farmers and workers to become entangled in moving equipment parts. Removing equipment guards and not replacing them is a common cause of injury in farmers. When

*(Continued on page 3)*



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## Farm Safety for Grain

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repairing machinery, be sure to replace all guards and shields when finished to reduce injury during loading/unloading processes. It is extremely important to make sure there is a guard on a PTO-driven grain auger. Some PTO shafts can rotate at 540 revolutions per minute, which can cause severe injury and even death. The power shaft that moves power to the top of the auger can cause the same injuries as a rotating PTO shaft. Always replace damaged or missing PTO and power shaft shields before operation. Intake screens on augers help prevent your hands and feet from getting caught between the auger screw and tube during operation. Today, most new augers are sold with intake screens in place. If you have an older machine that does not have an intake screen, add one, and be sure to replace missing or damaged screens. Many grain augers operate on a belt or chain drive system. These belts and chains have two, or sometimes three, pinch points. A pinch point is where a belt or chain wraps onto a pulley or sprocket. If a finger or

clothing item gets caught in a pinch point or the auger, it may result in severe injury, sometimes requiring amputation. Most of these systems do not come with shields but can be easily fabricated for use.

**Install Safety Equipment** Grain augers become increasingly dangerous with each hour of use. It is important to continuously review the operator's manual and examine all equipment parts to make sure the auger is in safe operating condition. Before working in bins, be sure to have all equipment in place in case of emergency. This includes full-body harnesses and life lines for easier worker rescue in case of a grain avalanche. This also includes installing rest platforms every 30 feet on vertical ladders on the outside of bins to reduce the risk of falls while climbing the bins. Strategically placing safety decals around the grain bins should alert workers to the possible dangers of flowing grain, crusted-over grain, and carbon dioxide.

## Upcoming Webinars

**October 12, 2020 - Noon (CST)**

**"Mastitis Management Through Milk Cultures"**

Mike Zurakowski, DVM Cornell University

<https://hoards.com/flex-309-Webinars.html>

**October 28, 2020 - 10:30AM - 1:30PM (ET)**

**"Tools to Reduce Mastitis on Your Farm"**

Greg Strait & Amber Yutzy, Penn State Extension

<https://extension.psu.edu/tools-to-reduce-mastitis-on-your-farm-webinar>

**November 9, 2020 - Noon (CST)**

**"A Feed and Forage Outlook"**

Mike Hutjens, University of Illinois and Mike Rankin, managing editor of Hay & Forage Grower Magazine

<https://hoards.com/flex-309-Webinars.html>

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# Pricing Corn Silage - Fall 2020

by John Hanchar

## Summary

- Analysis suggests corn silage price depends on corn silage quantities, alfalfa hay price, the price received by farmers for milk, and corn grain price.
- Analysis for NY suggests that estimated corn silage price is most sensitive to corn silage quantities, alfalfa hay price and corn grain price.
- Price estimates combined with understanding of relevant supply and demand factors from an individual farm business owner's perspective can aid decision making regarding corn silage price. Given recently available alfalfa hay and corn grain prices (May through July, 2020, and September 9, 2020, respectively), price analysis for NY suggests an estimated corn silage price of about \$49 per ton. The Fall 2019 estimate was about \$45 per ton.

## Determining Corn Silage Price

A farm business owner can examine how much corn silage he/she would be willing to supply to a market at a given price. Analysis of the farm business' cost structure for corn silage production combined with consideration of other factors help to define the supply relationship. A seller can develop a target based upon the above, but actual market conditions provide no guarantee that a buyer will purchase quantities desired at a price that achieves the producer's target.

Some farm business owners might approach the problem of determining corn silage price from a value in production, or input demand perspective. Amounts of corn grain and corn stover in a ton of corn silage, relevant prices, and corn silage's place in the milk production process are key factors. A buyer can develop a price target based upon the above, but actual market conditions provide no guarantee that a producer will sell the quantity desired at a price that matches the buyer's willingness to pay target.

Although factors in price determination, the two approaches described above in isolation, don't completely determine price and quantity. Supply and demand relationships work simultaneously in markets to determine price and quantity. Empirical price analysis brings supply and demand relationships together to determine price.



Photo: R.J. Anderson / Cornell Cooperative Extension

## Corn Silage Price Analysis

Empirical price analysis suggests that corn silage price is a function of corn silage quantities, alfalfa hay price, the price received by farmers for milk sold, and corn grain price. The ordinary least squares regression model here expresses corn silage price as a linear function of the above variables. The statistical analysis used here is fairly basic. However, readers of the original August 2012 [Ag Focus](#) article describing this work, and readers of annual update articles note that the analysis and estimates help farm business owners price corn silage.

## Corn Silage Price Estimates – Fall 2020

The ordinary least squares regression model reported in August 2012, updated here to reflect additional data available and changes in other underlying factors, produced corn silage price estimates for NY. Below, estimated corn silage price is a function of alfalfa hay price and corn grain price with other factors (corn silage production and milk price) fixed at expected levels. Expected corn silage quantity is set at 8,365 tons, the average for the period 2007 through 2017.

- estimated corn silage price (\$/ton) =  $-3.1431 + (0.1845 \times \text{price of alfalfa hay (\$/ton)}) + (3.5138 \times \text{price of corn for grain (\$/bushell)})$

Suppose

- NY alfalfa hay price is \$210 per ton, the three month

*(Continued on page 6)*



## Pricing Corn Silage—Fall 2020

(Continued from page 5)

average of the period May, June, July 2020. (USDA/NASS. Agricultural Prices. Washington, DC: National Agricultural Statistics Service. July 31 and August 28, 2020 releases), and

- corn grain price is \$3.91 per bushel (Western NY Energy. "Corn Bids." September 9, 2020. Approximate value based upon reported bids for fall 2020.)

Using the estimating equation and the above prices for alfalfa hay and corn grain as expected prices, estimated corn silage price is about \$49 per ton. Compare this to last fall's estimate of about \$45 per ton. Buyers and sellers use an estimate as a base, typically, adjusting for quality and/or costs for harvest, hauling and storage based upon the situation, for example, when pricing standing corn for silage.

Corn silage price estimates combined with understanding of relevant supply and demand factors from the individual farm business owner's perspective, including local conditions, for example, growing conditions, can aid decision making regarding corn silage price.

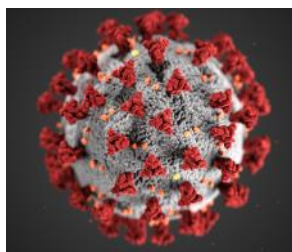


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# COVID-19 Update by Libby Eiholzer



While it may seem that the Coronavirus pandemic is winding down, now is not the time to get complacent! With students going back to school in many areas, we're entering a new season with many unknowns. In addition, flu season

is here, another viral disease with similar symptoms to COVID-19.

Although at the beginning of the pandemic most positive cases were based in major cities, it's now widespread in rural areas as well. As of September 14th, 98% of rural counties in the US have reported positive COVID-19 cases and 73% have reported at least one related death. The Rural Policy Research Institute at the University of Iowa posts [weekly updates](#) on these numbers.

The Western and Central regions of New York currently have the highest percentage of positive COVID-19 tests. (As of 9/14/20, visit the [Percentage Positive Results by Region Dashboard](#) for the most recent results).

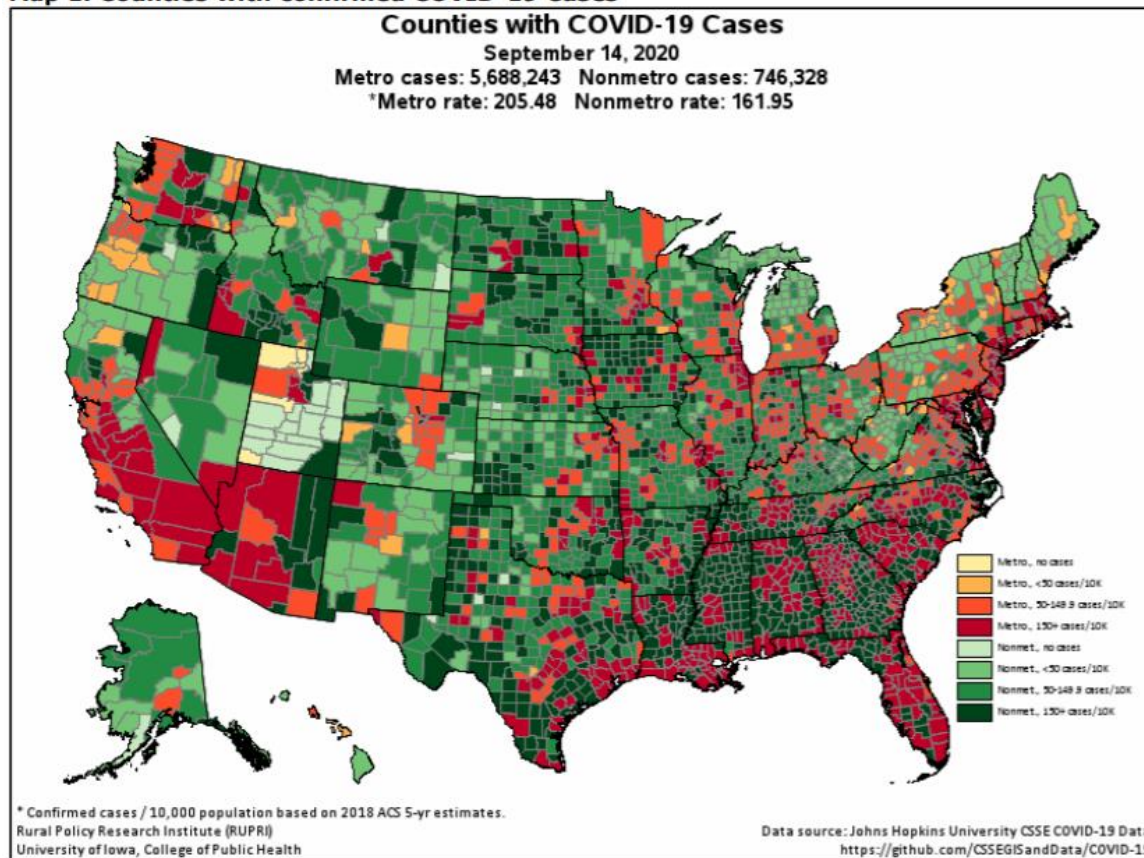
There have been numerous reports of COVID-19 cases amongst agricultural workers across the US, from Arizona to Washington, and all kinds of farming operations, according to the [National Center for Farmworker Health, Inc.](#)

Here are a few things that you can do to keep your farm staff safe:

1. Stay vigilant. Continue best-practices such as limiting visitors to the farm and emphasizing cleaning and hygiene practices.
2. Review policies related to sick days with employees. When and who they should call if they are too sick to work, what they should do if they think they have COVID-19, and what [state](#) and [federal benefits](#) they may be entitled to if they do.
3. Share the updated "Reliable Resources for Farmworkers about COVID-19" with your employees in [English](#) or [Spanish](#).

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**Map 1. Counties with confirmed COVID-19 Cases**



This graphic from the Rural Policy Research Institute shows just how widespread COVID-19 cases are.

Check out their website for current statistics and an [animated map](#) showing the spread of COVID-19 cases across the US.

Note:

Metro counties are shown in colors from yellow to red.

Rural counties are shown in green.



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## COVID-19 Update

(Continued from page 7)

4. If you haven't already, complete a [NY Forward Business Safety Plan](#) for your farm. This is required by law, and is a helpful exercise to reduce risk on your farm.
5. Consider conducting COVID-19 testing on your farm. A [new initiative through Ag & Markets](#) is offering free testing in Clinton, Genesee, Orleans, Ulster and Wayne counties. This is open to dairy as well as produce farms.

Resources linked within this article include:

University of Iowa weekly updates: <https://rupri.public-health.uiowa.edu/publications/policybriefs/2020/COVID%20History/>

Percentage Positive Results by Region Dashboard: <https://forward.ny.gov/percentage-positive-results-region-dashboard>

National Center for Farmworker Health Inc.'s Report: <http://www.ncfh.org/msaws-and-covid-19.html>

NYS COVID-19 Paid Sick Leave Information:

<https://paidfamilyleave.ny.gov/system/files/documents/2020/03/covid-19-sick-leave-employees.pdf>

Federal Paid Leave Information:

[https://www.dol.gov/sites/dolgov/files/WHD/posters/FFCRA\\_Poster\\_WH1422\\_Non-Federal.pdf](https://www.dol.gov/sites/dolgov/files/WHD/posters/FFCRA_Poster_WH1422_Non-Federal.pdf)

"Reliable Resources for Farmworkers about COVID-19"

English:

<https://cornell.app.box.com/s/uw6p86mnnt18je8tlbod7vvp2aykk574>

Spanish:

<https://cornell.app.box.com/s/d8to8i76kk2b2x51gwvvvy5nm7glk51>

NY Forward Business Safety Plan Support for Farms:

<https://agworkforce.cals.cornell.edu/ny-forward-business-safety-plan/>

Ag & Markets COVID-19 Testing for Ag Workers:

<https://agriculture.ny.gov/coronavirus>



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# Fall Tillage Management by Jodi Putman

As fall harvest continues, many tillage practices will take place this month across western New York. Fall tillage is often needed to manage crop residue, smooth out the ruts in the field, dry out the soil, in addition to incorporating lime, fertilizer, and manure. A number of best management practices can be used to significantly reduce the risk of soil erosion.

## Why Plant a Cover Crop?

Growers utilize cover crops as a management practice to

- Protect the soil from rain and runoff
- Suppress weeds
- Suppress soil diseases and pests
- Improve soil aggregate stability
- Reduce surface crusting
- Add active organic matter to soil
- Break hardpans
- Fix nitrogen
- Scavenge for soil nitrogen

Winter cereals such as rye, wheat, barley, and triticale, are the most widely used cover crops in corn and soybean crop rotations. They are typically planted in late summer through late fall and produce a small to moderate amount of root and above ground biomass before going dormant in the winter. Vigorous growth will resume in early spring, and large amounts of biomass will be produced by mid to late spring.

## Increase Surface Residue

By increasing the surface residue to 30% ground coverage from 0% will result in a **50% decrease in soil erosion**, *Figure 1*. Smaller decreases in soil erosion occur as more residue is left in the field. It is easier to manage low residue levels versus large amounts (i.e. corn stalks, straw, and other material) in the spring while greatly reducing soil loss.

## Contour Tillage

If timing is an issue and the ground must be left open over the winter without much residue or a cover crop, tilling on a contour perpendicular to the direction of runoff can reduce soil erosion. In some parts of western New York strips of crops are still planted on the hill contours to further prevent erosion losses. However, the fact of the matter is there will still be soil erosion losses during the tillage operations on the sides of hills. Adopting a reduced tillage practice on the hill-slopes will help to decrease soil losses.

## Tillage Method Options

The best tillage system depends on the soil (slope and texture), stand establishment of the crop, the fuel and labor costs of the tillage system, and other factors such as long-term sustainability (buildup of organic matter, sequestering CO<sub>2</sub>, etc.). Highly erodible soils are best adapted to no-till or a reduced tillage system that leaves more than 50% residue on the surface.

In general, soils that have drainage or cool temperature constraints are better adapted to moldboard plow or chisel tillage systems whereas droughty soils or soils that warm up quickly are better adapted to a reduced or no-till system. Also, large seed crops such as corn, soybeans, and wheat are better adapted to a no-till or reduced tillage system than small seeded crops, such as perennial forages. Soil with good structure is more resistant to erosion. This is due to root channels from previous crops, some residue on the soil surface, and high populations of earthworms etc. that create channels for increased water flow through the soil ultimately resulting in less soil erosion

To learn more about tillage systems and management techniques please visit our websites:

<https://nrcca.cals.cornell.edu/crop/CA3/CA0314.php>

<https://nwnyteam.cce.cornell.edu/topic.php?id=7#topbox>

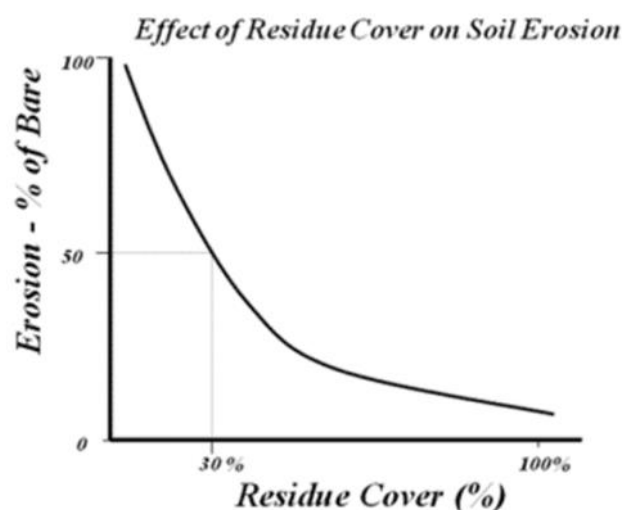


Figure 1: Effect of residue cover on soil erosion, expressed as the percent of that occurring relative to that for a bare surface. Adapted from Laflen & Colvin (1981).

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# Ask Extension: What Do I need for a Cattle Handling System?

by Nancy Glazier

Beef producers are getting ready to vaccinate calves and prepare for weaning. I recently was asked this question by a couple of producers.

Some basic principles of cattle behavior are needed prior to designing any kind of handling system. Cattle want to:

1. See you
2. Go around you
3. Stay with the herd and follow one another
4. Relieve pressure on them
5. Focus on one task at a time

The **headgate** is the most important part of the entire system. It should be sturdy, safe, and easy to operate and work smoothly and quietly. There are two basic types. One is self-catch and is the easiest to operate for one person; cattle work fast, and exit easily. However, in cow-calf operations, cows soon become timid of getting caught, requiring an operator to pull the headgate closed. Self-catch headgates are inconvenient for working cows and young calves at the same time as the smaller calves will go through the headgate without catching their head. The scissors-stanchion type has two halves that pivot at the bottom; is lower cost, simple but requires an operator. It can cause shoulder bruises and at times cattle can get through without being caught. Both types of headgates are available with either straight or curved stanchion bars. The straight-bar stanchion is extremely safe and will rarely choke an animal. The disadvantage is animals can move their heads up and down unless a nose bar is used. The curved-bar stanchion offers more control of the animal's head but is more likely to choke the animal than the straight-bar type.

The **working chute** holds the cattle in a single file ready to enter the headgate. As cattle instinctively follow each other, the chute should be long enough to hold at least three animals, preferably four to five. The biggest mistake producers make in designing a facility is not making the chute wide enough. It should be no wider than 32 inches and for most cattle 1600 lb or less, 28 inches is ideal. If the chute can be curved it will help move the cattle even easier. A chute with sloping sides will allow different sizes of cattle to be worked and still prevent turning. Solid

sides up to 48 inches can ease cattle movement. If the entire chute is solid, then the cattle cannot see you and therefore will be difficult to move forward.

The next big question: do you want a crowding pen or Bud Box?

A crowding or funnel pen with a swinging gate is one option to crowd cattle into the working chute. A circular or angular pen helps to get the cattle facing the right way and entering the pen in single file. Solid sides and crowd gates help to avoid the cattle being distracted. It also makes the cattle use the chute as the only way out. For most beef operations in NY the crowding pen should be designed to hold fewer than 10 cows (120 ft<sup>2</sup> - 150 ft<sup>2</sup>).

A Bud Box system was developed by Bud Williams back in the '70's and continues to gain in popularity. I recently saw a wooden one built out in a pasture that looked fairly simple and easy to use. This system uses the principle that cattle want to return to where they came from. Cattle will enter, the gate is closed. They need adequate space to enter and not be crowded. After several seconds they turn and try to exit; the gate is closed so the only way to go is down the chute or alley. Location of handler is critical.

Whatever system you decide to utilize, make sure there

*(Continued on page 11)*



We had a temporary system with a Bud Box set up at a Beef Quality Assurance training last fall.  
Photo: N. Glazier / CCE NWNY Team



## Ask Extension: What Do I need for a Cattle Handling System?

(Continued from page 10)


are non-slip surfaces, no loud or banging gates or chains. Cows have long memories, especially with bad experiences. I have seen many systems over the years that are wood construction all the way to the newest and automated. Talk to some others with systems to see what they like and don't like. There are some excellent handling and demonstration videos on the National BQA YouTube channel, <https://www.youtube.com/user/NationalBQA>. Some additional resources listing working facility dimensions are posted to our website at: <https://nwnyteam.cce.cornell.edu/submission.php?id=1162&crumb=livestock|10>, or I can send them to you.

References: Minimum Components Needed for a Beef Cattle Working Facility, Mike Baker, Cornell University; Designing a "Bud Box", Ron Gill, Ph.D. and Rick Machen, Ph.D., Texas A&M

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# Find Out Your Calves' Risk for Bovine Respiratory Disease on Your Farm

by Margaret Quaassdorff

The seasons are changing and testing the immune systems of our calves. Bovine respiratory disease (BRD), including pneumonia and shipping fever, is a common health issue of preweaned dairy calves, and has been reported to be the cause of 22.5% of deaths (USDA, 2010) during this life stage. Not only is it a calf health and welfare concern, it also has lasting economic effects on the dairy in the areas of reduced productivity and treatment costs (Dubrovsky et al., 2020). In my personal opinion and experience, it is also stressful and not much fun for your employees to take care of calves with pneumonia. Given these reasons, and a treatment cost estimated at \$42/case (Dubrovsky et al., 2020), it makes much more sense to try to prevent BRD. BRD is a complex disease, and stress in any form allows for pathogens that may not otherwise have been harmful, to overwhelm the calf's system. Therefore relying only on vaccination and treatment drugs to control BRD has not been successful in decreasing industry morbidity and mortality over time (USDA, 1994, 2012).

A new approach out of research from UC-Davis (Maier et al., 2020) uses a comprehensive on-farm risk assessment to identify and mitigate farm-specific factors that may lead to BRD in calves. The risk assessment tool has three components: (1) a risk assessment questionnaire to be filled out by the farm, made up of risk factor questions

and their associated risk scores; (2) BRD control and prevention herd management plan, which can be used to plan and track the interventions identified by the questionnaire; and (3) the California BRD scoring system to compare BRD prevalence before and after interventions.

The California BRD Scoring System for preweaned dairy calves (Love et al., 2014), which uses a points system to reach a total score that is  $\geq 5$ , may indicate that the calf is positive for BRD is slightly different than the Wisconsin Calf Respiratory Scoring Chart developed by the UW-Madison School of Veterinary Medicine. Compare the [California BRD Scoring System](#) and the [Wisconsin Calf Respiratory Scoring Chart](#), also available in a [UC app](#) and [UW app](#) form.













Follow the link for the complete [Bovine Respiratory Disease Risk Assessment Tool for Preweaned Dairy Calves](#). Keep in mind that some of the parameters apply only to California dairy systems (dust control and lagoon water flushes), but the overall idea of completing a risk-assessment specific to your farm for the control and prevention of BRD is the main goal. If you would like assistance in completing a BRD risk assessment on your farm, please contact NWN Regional Dairy Management Specialist, Margaret Quaassdorff at [maq27@cornell.edu](mailto:maq27@cornell.edu) or 585-405-2567.

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## Bovine respiratory disease scoring system for pre-weaned dairy calves<sup>1,2,3</sup>

| Clinical sign          | Score if normal   | Score if abnormal (any severity) <sup>4</sup>   |  |  |  |
|------------------------|---|---|--|--|--|
| Eye discharge          | 0  | 2  | Or  | Or  |  |
| Nasal discharge        | 0  | 4  | Or  | Or  |  |
| Ear droop or Head tilt | 0  | 5  | Or  | Or  |  |
| Cough                  | 0 No cough  | 2   | Spontaneous cough  |  |  |
| Breathing              | 0 Normal  | 2   | Rapid or difficult breathing   |  |  |
| Temperature            | 0 < 102.5° F  | 2   | ≥ 102.5° F   |  |  |

Add scores for all clinical signs, if total score is ≥ 5, calf may be positive for bovine respiratory disease<sup>5</sup>

<sup>1</sup> Love WJ, Lehenbauer TW, Kass PH, Van Eenennaam AL, Aly SS. (2014) Development of a novel clinical scoring system for on-farm diagnosis of bovine respiratory disease in pre-weaned dairy calves. *PeerJ* 2:e2038. <https://doi.org/10.7554/peerj.2038>  
<sup>2</sup> Aly SS, Love WJ, Williams DR, Lehenbauer TW, Van Eenennaam AL, Drake G, Kass PH, Farver TB. (2014) Agreement between bovine respiratory disease scoring systems for pre-weaned dairy calves. *Animal Health Research Reviews* 15: 2. Pages 140-150. <http://journals.anhres.org/ahres/article/15/2/140>  
<sup>3</sup> Love WJ, Lehenbauer TW, Van Eenennaam AL, Drake GM, Kass PH, Farver TB, Aly SS. Sensitivity and specificity of on-farm scoring systems and nasal culture to detect bovine respiratory disease complex in preweaned dairy calves. *J Vet Diagn Invest*. 2014 Mar;26(2):116-26. <http://dx.doi.org/10.1016/j.jvdi.2013.05.007>  
<sup>4</sup> Any abnormality including, but not limited to, the examples shown in the above pictures.

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California Bovine Respiratory Disease scoring system for preweaned dairy calves from the Bovine Respiratory Disease Risk Assessment Tool for Preweaned Dairy Calves, available at: <https://escholarship.org/uc/item/1jb2f7rm>





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## Cornell Cooperative Extension



**SAVE THE DATE!**

### **Online Feeder School**

**Nov 3<sup>rd</sup> and 5<sup>th</sup> (English)**

**Nov 10<sup>th</sup> and 12<sup>th</sup> (Spanish)**

**1:00pm to 2:30pm**

Registration Opens Early October. For more information, visit: <https://nwnyteam.cce.cornell.edu/events.php>

The Online Feeder School is a 2-part educational program for farmers, employees, and agri-service professionals who work as or with the feeder – the person responsible for mixing TMR, maintaining bunk silos, and communicating with other farm staff. It will cover monitoring dry matter, feed bunk management, bunk face management, and troubleshooting mixer wagons. CCE Regional Dairy Specialists from around NYS have collaborated to develop this program.

There will be two separate sessions: one 2-part session in English, and one 2-part session in Spanish. Each day of Feeder School is a 1.5 hour program held from 1:00 pm to 2:30 pm. The program will be held online only, with a combination of video demonstrations, presentations, and discussion. The English session will take place on November 3<sup>rd</sup> and 5<sup>th</sup>, 2020. The Spanish session will take place on November 10<sup>th</sup> and 12<sup>th</sup>, 2020.

# Site-Specific Management Using EC Mapping by Ali Nafchi

Agricultural production system is a consequence of a complex interaction of soil, water, agro-chemicals (including fertilizers), and seeds. Managing the inputs is essential and precision agriculture merges new technologies to help crop management to match the applications with crop requirements, on-the-go. The goal is to increase profitability of crop production, improving product quality and protect the environment. Site-specific information helps to make better management decisions. Site-Specific Management will minimize the effect of production practices on the environment while optimizing farm profit. This technology matches field variability with an appropriate variable-rate input application, differentially applying chemical to match the needs of individual management zones within a field. Clear soil information and crop response relationships can be one way to implement the site-specific management to address the tremendous field-to-field or even within field variabilities.

For example, Clemson University in cooperation with the University of Arkansas has developed a site-specific nematicide application system to reduce the chemical use while increasing yields by applying nematicides only where damaging levels of nematodes occur using Electrical Conductivity data. The question is, can we use such technology for other pest infestations, and how? For example, with soil variabilities in a field, if the herbicide rate defined properly, with variable rate technologies (VRT), the ideal rate will provide adequate weed control while maintaining efficient use of herbicide. However, the appropriate rates for VRT herbicide applicators, still

need to be carefully adjusted considering the huge field variability. Similarly, using the variable rate seeding technology (VRS) can match seeding rates to areas with homogenous performance (management zones). The research has shown that VRS can improve maize crop gross margin and minimizing nutrient loss in crop production.

## Reference and links for more information:

[Applications of apparent soil electrical conductivity in precision agriculture](#)

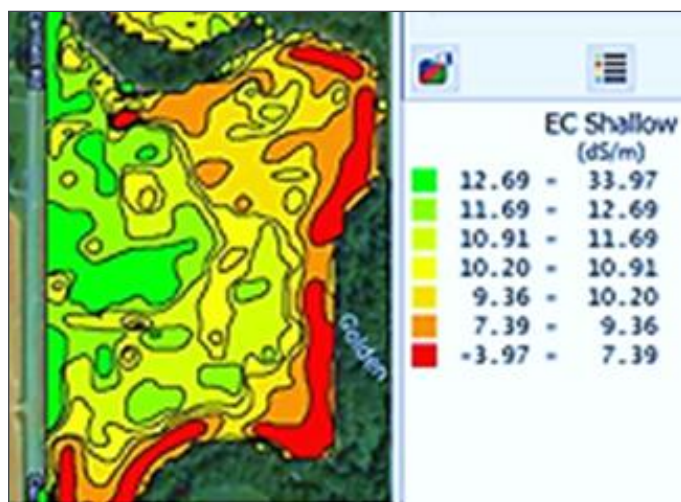
[Spring wheat yield response to variable seeding rates](#)

[Site-Specific Technology Aids Nematode Control](#)

[Nitrogen requirements in corn production](#)

[Site Specific Nematode Management](#)

For print copies of these resources, contact Ali Nafchi at 585-313-6197.



**Figure 1.** Shallow EC data gathered from a farm located in Niagara County. Red areas represent lower values, up to green areas representing higher soil EC values.

## CCE Presents

***"It's always my nutritionist's fault!!" - a FREE webinar on understanding diets & improving communication on your dairy***

**October 15, 2020 LIVE at 12:30pm and 7:00pm EST**

**\*\* Registration link to follow**





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**550 HP CAT**

2006 KENWORTH T800, Flatbed Winch Truck w/Braden 30-Ton Winch; 550 HP CAT C15; 18-Spd. Manual; 16K F/A; 46K Full Locking Rears; 28" WB; 18" Deck; Air Ride Susp.; Floe Over 5th Wheel; Will Separate Deck & Winch from Chassis; 21' Frame; 20" CT; 4.30 Ratio; 235,224 Miles; Sk. #6148 - \$45,000

**46K Rears**

2003 KENWORTH T800, 475 HP CAT C15 6N2 Turbo; 8LL Manual Trans.; Clean Daycab w/12,000# Front Axle; 46K Rears on KW 8-Bag Air Ride; 4.11 Ratio; 18" WB; Wetline; 447,898 Miles; Sk. #5925 - \$49,900

**6x6 Flatbed**

2006 PETERBILT 357 6x6, Clean Double Frame 24' Flatbed Truck CAT 350 HP; 8LL Trans.; 28" F/A; 46K Full Locking Rears; 426,692 Miles; Hendrickson Haulmax Susp.; 5.65 Ratio 28" WB; 21" CT; 31' Frame Behind Cab; Will Separate Bed from Chassis; 14,188 Miles; Sk. #5701 - \$49,900

**Heavy Spec Chassis**

2002 MACK DL713, 460 HP Mack E7; 18-Spd.; Double Frame Cab & Chassis; 20K F/A; 46K Rears; 29" WB; 24" Frame Behind Cab; 20" CT; PTO; Good Rubber; Mack Air Ride Susp.; 309,234 Miles; 17,680 Hours; Sk. #5909 - \$32,600

**46K Rears**

2003 WESTERN STAR 4900S, 500 HP Detroit Diesel; 13-Spd. Manual; Air Slide 5th Wheel; 14,600# F/A; 46,000# Rears on Hendrickson Air Ride; 22" WB; 544,913 Miles; Sk. #5962 - \$26,600

**4,400 Gal. Steel Tank**

2008 MACK GU12, Mack 465 HP; 18-Spd. Manual; Clean Tanker Truck w/4,400 Gal. Steel Tank and Pump; 23" WB; 20K F/A; 46K Locking Rears on Air Ride; Will Separate Tank from the Chassis; 21' Frame Behind Cab; 17" CT; 337,914 Miles; Sk. #5838 - \$49,900

**Heavy Spec Allison Auto.**

2004 PETERBILT 320, CAT 330 HP; Allison Auto.; Refuse Truck w/180" WB; 18K F/A; 44K Rears; Can Separate Compactor from Chassis; 17' Frame Behind Cab; 14" CT; 14,873 Engine Hours; 69,512 Miles; Sk. #6209 - \$37,900

**18K/60K Rears**

2010 PETERBILT 365, 350 HP Cummins ISM Engine; Allison Auto.; Long, Double Frame Cab & Chassis w/302" WB; 2.27" CT; 31' Frame Behind Cab; 18,000# F/A; 60,000# R/A On Hendrickson Susp.; 87,267 Miles; Sk. #5907 - \$59,900

**268 in. Frame**

2004 KENWORTH T800, CAT C15 Single Turbo 435 HP; 10-Spd. Manual; Double Frame; 46K F/A; 16K F/A; Air Lift Axle; 4.33 A/W Ratio; 28" WB; 20" CT; 26" Total Usable Frame; 241,688 Miles; Sk. #5959 - \$42,200

**Will Separate**

2011 AUTOCAR AC164 GARBAGE TRUCK; 350 HP Cummins ISL; Allison Automatic; Shur-Pak 24 Cu. Yd. Side Load Packer; Double Frame; LH & RH Drives; 20,000# F/A; 44,000# R/A; Will Separate Packer from Chassis; 22' of Frame; 70,022 Miles; Sk. #6236 - \$29,900

**20K/46K Rears**

2003 KENWORTH W900, 320 HP Cummins ISM; Allison Auto.; Clean, Low Mile Cab & Chassis w/20,000# Front Axle; (2) 11,000# Steerable Lift Axles; 44,000# Full Locking Rears on Chalmers Susp.; 5.43 Ratio; 25" WB; 21' Frame Behind Cab; 15" CT; Muffler Takes Up 12' Behind Cab; Sk. #616 - \$45,900

**23-Ton Crane**

2004 MACK GRANITE C7713, Mack 460 HP; 18-Spd. Manual; Double Frame Crane Truck w/Midco W120CT75 23-Ton; 75' Crane; CraneSmart LMI System; 20K Front Axle; 46K Full Locking Rears; 30" WB; 22" Frame Behind Cab; 21" CT; 165,000 Miles; Sk. #5828 - \$64,900

**Heavy Spec Chassis**

2004 WESTERN STAR 6900 XD, Detroit Diesel 430 HP; Allison Auto. Trans. w/PTO Pump & Tank; Triple Frame Cab & Chassis; 20K F/A; 50K Full Locking Rears; Air Ride Suspension; 26' Frame Behind Cab; 16" CT; 25" WB; 8,530 Miles; Sk. #6245 - \$64,600

**Dozens of Mack Dumps!!**

1999 MACK RD688S DUMP TRUCK; 400 HP Mack E7; Engine Brake; 8LL Trans.; Rubber Block Susp.; Tri-Axle; 19' Steel Body; 20,000# F/A; 46,000# R/A; 22.5 Times; 24" WB; Spoke Wheels; EXPORT PRICED!!!; 777,148 Miles; Sk. #5902 - \$19,600

**Cheap Export \$\$\$**

2001 MACK DM688S - EXPORT PRICING SHOWN!; Double Frame Mover Truck w/2 Cu. Yd. London Mixer; 350 HP Mack E7; 8LL Trans.; 18K F/A; 46K R/A; 20K Tag Axle; 25" WB; Hendrickson Rubber Block Susp.; 332,458 Miles; Sk. #6249/6250 - \$11,600

**Heavy Spec Allison**

2006 INTERNATIONAL 660E; Cummins 425 HP Engine; Allison Auto. Trans.; Double Frame Dump Truck; 20' Steel Body w/4' Sides; 20K F/A; 46K Full Locking Rears; Hendrickson Rubber Block Susp.; Air Lift Axle; 24" WB; 313,882 Miles; Sk. #6254 - \$48,600

**Heavy Spec Chassis**

2004 KENWORTH W900, 335 HP CAT C10 Engine; 8LL Trans.; Cab & Chassis; 20K F/A; 46K Full Locking Rears; 25" WB; 21' Frame Behind Cab; 15" CT; 4.89 Ratio; Haulmax Susp.; 118,703 Miles; Sk. #6075 - \$29,900

**6x6 Chassis w/Knuckleboom**

1997 FORD L9000, Double framed 6x6 flatbed/knuckleboom truck; 330 HP Cummins M11; 18-Spd. Manual; w/Fase F270 Knuckleboom Crane; 18,740# F/A; 46K Rears; 15,200# Rear Mounted Lift Axle; 28" WB; 102" x 102" Flatbed; 24" WB; Will Separate Bed & Crane from Chassis; 29' Frame Behind Cab; 20" CT; 111,244 Miles; Sk. #6157 - \$26,900

**20K/46K Rears**

2007 PETERBILT 357, 475 HP CAT C15; 18-Spd. Manual; Clean Daycab w/Totals Winch; 20K F/A; 46K Full Locking Rears; Chalmers Susp.; 22" WB; 496,503 Miles; Sk. #6241 - \$39,900

**Clean**

2005 PETERBILT 357, 370 HP Cummins ISM; 8LL Trans.; Double Axle Cab & Chassis w/Double Frame; 18K F/A; 44K Full Locking Rears; (2) 11K Steerable Lift Axles; Air Trac Susp.; 22' Frame Behind Cab; 21" CT; 302,500 Miles; Sk. #5831 - \$41,500

**Low Mile Vac Truck!!!**

2005 MACK GRANITE C7713; Mack 350 HP; Eaton 9LL Trans.; Low Mile Vacuum Truck w/4,000 Gallon Westech Vac Tank System; 250" WB; 18K F/A; 46K Full Locking Rears on Chalmers Suspension; 15,803 Hours; 126,229 Miles; Sk. #6145 - \$38,600

**20K/46K Axles**

2005 PETERBILT 357, CAT 305 HP; Allison Auto.; Clean Cab & Chassis; 20K F/A; 46K Rears on Haulmax Susp.; 17' Frame Behind Cab; 14" CT; 21" WB; New Drive Tires; 129,217 Miles; Sk. #4894 - \$59,000

**118,730 Miles**

2004 KENWORTH W900, 335 HP CAT C10 Engine; 8LL Trans.; Cab & Chassis; 20K F/A; 46K Full Locking Rears; 25" WB; 21' Frame Behind Cab; 15" CT; 4.89 Ratio; Haulmax Susp.; 118,703 Miles; Sk. #6075 - \$29,900

**4,360 Gal. Low Mileage Tanker**

2004 WESTERN STAR 4900S 430 HP CAT C12; 18-Spd. Manual; Clean, Low Mile Tank Truck w/4,360 Gal. Steel Tank & Bowle 3' Pump; 16K F/A; 46K Full Locking Rears; 25" WB; Chalmers Suspension; 133,613 Miles; Sk. #5979 - \$38,600

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## October 2020

- 15** **"It's always my nutritionist's fault!"** - Live webinar at 12:30pm and 7:00pm. A FREE webinar on understanding diets & improving communication on your dairy. Look for the link to register at: <https://nwnyteam.cce.cornell.edu/events.php>
- 21** **Herbicide Resistant Weed Control Virtual Field Day** - 11:00am to 1:00pm. This free online event will offer 2 DEC pesticide applicator credits and CCA CEU's. Pre-registration is required for DEC credits! More information and online registration is available on the NWNy Team website: <https://nwnyteam.cce.cornell.edu/events.php>

### COVID-19 Information Websites:

Need information? View the following Cornell CALS and CCE Resource Pages that are updated regularly.

**General Questions & Links:**

<https://eden.cce.cornell.edu/>

**Food Production, Processing & Safety Questions:**

<https://instituteforfoodsafety.cornell.edu/coronavirus-covid-19/>

**Employment & Agricultural Workforce Questions:**

<http://agworkforce.cals.cornell.edu/>

**Cornell Small Farms Resiliency Resources:**

<https://smallfarms.cornell.edu/resources/farm-resilience/>

**Financial & Mental Health Resources for Farmers:**

<https://www.nyfarmnet.org/>

**Cornell Farmworker Program**

[www.farmworkers.cornell.edu](http://www.farmworkers.cornell.edu)

[www.trabajadores.cornell.edu](http://www.trabajadores.cornell.edu) (en espanol)

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