Cornell Cooperative Extension | Northwest NY Dairy, Livestock and Field Crops Program

AG FOCUS

2018 NY CORN & SOYBEAN GROWERS ASSOCIATION YIELD CONTEST WINNERS

The annual corn and soybean yield contests are sponsored by the New York Corn & Soybean Growers Association. Congratulations to our 2018 NY Corn Champion, Henry Everman from Livingston County and our NY Soybean Champion, John Zittel from Erie County. Both have defended their titles from last year! They win all expense paid trips to the 2019 Commodity Classic in Orlando, FL in March. Listed here are state winners and West and Finger Lakes regional winners. The Central, North and East regional corn and soybean winners can be found on the NY Corn & Soybean Growers Association webpage at, https://nycornsoy.org/wp-content/uploads/2019/01/2018-Yield-Contest-Results.pdf.

There were no national winners from NY this year but the results of the National Corn Contest can be found here, http://www.ncga.com/for-farmers/national-corn-yield-contest .

Congratulations

to our 2018 NY Corn Champion,

Henry Everman

from Livingston County & our NY Soybean Champion,

John Zittel

from Erie County.

2018 NY Corn and Soybean NYS and Regional Winners
Sponsored by the NY Corn and Soybean Growers Association

Rank		Entrant Name	Town	County	Hybrid Brand	Number	Yield (bu/a)
Corn Contest NYS Winners							
1st		Henry Everman	Dansville	Livingston	DEKALB	63-60	**273.06**
2nd		Andrew McIlroy	Pavilion	Livingston	DEKALB	56-03	**261.38**
3rd		Adam Kirby	Albion	Orleans	Pioneer	P0843	**258.04**
West Regional Winners							
1st		Henry Everman	Dansville	Livingston	DEKALB	630-60	**273.06**
2nd		Andrew McIlroy	Pavilion	Livingston	DEKALB	56-03	**261.38**
3rd		Adam Kirby	Albion	Orleans	Pioneer	P0843	**258.04**
Finger Lakes Regional Winners							
1st		Pit Farms Inc.	Clyde	Wayne	DEKALB	47-48	**240.91**
2nd		Paul Campbell	Nichols	Tioga	Axis	56H56	**236.82**
3rd		Pit Farms Inc.	Clyde	Wayne	Pioneer	P9998	**219.76**
Soybean Contest NYS Winners							
1st		John Zittel	Hamburg	Erie	Hubner	21-15R2	**87.99**
2nd		Bob Thompson	Interlaken	Seneca	Pioneer	27T03R	**82.02**
3rd		Dave Fedor	Whitesboro	Oneida	Pioneer	19T01R	**81.77**
West Regional Winners							
Group	0	Tri Acres LLC	Lima	Livingston	Asgro	AG0835	**70.91**
	1	John Morgan	Linwood	Livingston	Asgro	AG17X7	**80.77**
	2	John Zittel	Hamburg	Erie	Hubner	21-15R2	**87.99**
	3	Todd Roberts	Medina	Orleans	Pioneer	31T77R	**80.09**
Finger Lakes Regional Winners							
Group	1	Pit Farms Inc.	Clyde	Wayne	Seedway	1776	**80.62**
	2	Bob Thompson	Interlaken	Seneca	Pioneer	27T03R	**82.02**
	3	Mike Reed	Savannah	Wayne	Seedway	3000XT	**73.07**

A partnership between Cornell University and the CCE Associations in these ten counties:
Genesee, Livingston, Monroe, Niagara, Ontario, Orleans, Seneca, Wayne, Wyoming & Yates

Postmaster: Send Address Changes: NWNY Team, Attn: Linda Risewick, 420 East Main St., Batavia, NY 14020
Direct all inquiries on advertising space/rates to: Linda Risewick at 585-343-3040 x138 or lr532@cornell.edu

Margaret Quaassdorff
Dairy Management
Genesee County
585.343.3040 x 133 (office)
585.405.2567 (cell)
maq27@cornell.edu

Libby Eiholzer
Bilingual Dairy Management
Ontario County
607.793.4847 (cell)
585.394.0377 (fax)
geg24@cornell.edu

Nancy Glazier
Small Farms, Livestock
Yates County
315.536.5123 (office)
585.315.7746 (cell)
nig3@cornell.edu

John Hanchar
Farm Business
Livingston County
585.991.5438 (office)
585.233.9249 (cell)
jjh6@cornell.edu

Jodi Putman
Field Crops & Soils
Livingston County
585.991.5437 (office)
585.208.8209 (cell)
jll347@cornell.edu

Ali Nafchi
Precision Ag
Genesee County
585.313.6197 (cell)
amn93@cornell.edu

Joan Sinclair Petzen
Farm Business Management
Wyoming County
585.786.2251 (office)
716.378.5267 (cell)
jsp10@cornell.edu

Mike Stanyard
Field Crops & IPM
Wayne County
315.331.8415 x 123 (office)
585.764.8452 (cell)
mjs88@cornell.edu

To simplify information, brand names of products may be used in this publication. No endorsement is intended, nor is criticism implied of similar products not named.

Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Changes occur constantly & human errors are still possible. These recommendations are not a substitute for pesticide labeling. Please read the label before applying pesticides.

By law and purpose, Cooperative Extension is dedicated to serving the people on a non-discriminatory basis.

Linda Risewick
Administrative Assistant
Genesee County
585.343.3040 x138 (office)
lr532@cornell.edu

For more information about our program, visit us at:
nwnyteam.cce.cornell.edu

like us on facebook

IS SULFUR MANAGEMENT FOR SOYBEAN PRODUCTION A CONCERN? *By Jodi Putman*

World soybean production continues to increase because of improvement in genetics, yield potential, and the expansion of cultivation area. Soybean production in the United States for 2017 reached 119,518,490 million tonnes, about seven times that in 1961, and the area harvested covered 36,228,660 million hectares, about four times that in 1961 (Figure 1) (FAOSTAT, 2017). Consequently, soybean yield has doubled during the last 60 years, indicating the acceleration of soil nutrient mining to support these higher soybean seed yields. Soybean yields in New York have averaged 45 bushels per acre since 2013, ranging from less than 40 to greater than 70 bushels for individual fields. Sulfur content averages 0.16 pounds sulfur per bushel (at 87% dry matter) so sulfur removal can range from less than 7 pounds of sulfur per acre for a 40 bushel per acre crop to just over 11 pounds of sulfur per acre for a 70 bushel yield. Total sulfur uptake is typically twice the amount of sulfur in the seed alone so a good crop of soybeans takes up about 20 pounds of sulfur per acre. While these amounts are small, compared with the amount of fertilization for general crops, the world consumption of sulfur-containing fertilizers (e.g. ammonium sulfate, potassium sulfate) has increased since the passing of the Clean Air Act in 1970 (FAOSTAT, 2002). This data indicates that attention should be given to the nutritional balance of sulfur in fields.

The USA, Brazil, Argentina, China and India are the world's major soybean producers, together accounting for more than 90% of the world soybean cultivation area and production. Due to the increasing awareness that soybean provides important nutrients for human and animal diet, cultivation of soybean has expanded to many other countries, which were not soybean producers previously. Sulfur deficiency of crops has been reported in 60% of the total-producing countries (Blair, 1979; Tisdale et al., 1986; Jansson, 1995; Beaton and White, 1997). Latent sulfur-deficient areas are expected to be observed at more sites, since sulfur deficiency became widespread along with the expansion of cultivation areas with low fertility, reduced use of sulfur-containing fertilizers, intensive agriculture, increased yield, reduced atmospheric inputs, soil degradation caused by erosion or leaching, or decreased use of compost (Craswell and Karjalainen, 1990; ceccittum 1996; Knights et al., 2000). Field sulfur management for soybean production is, therefore, a worldwide concern. http://nmsp.cals.cornell.edu/publications/factsheets/factsheet101.pdf

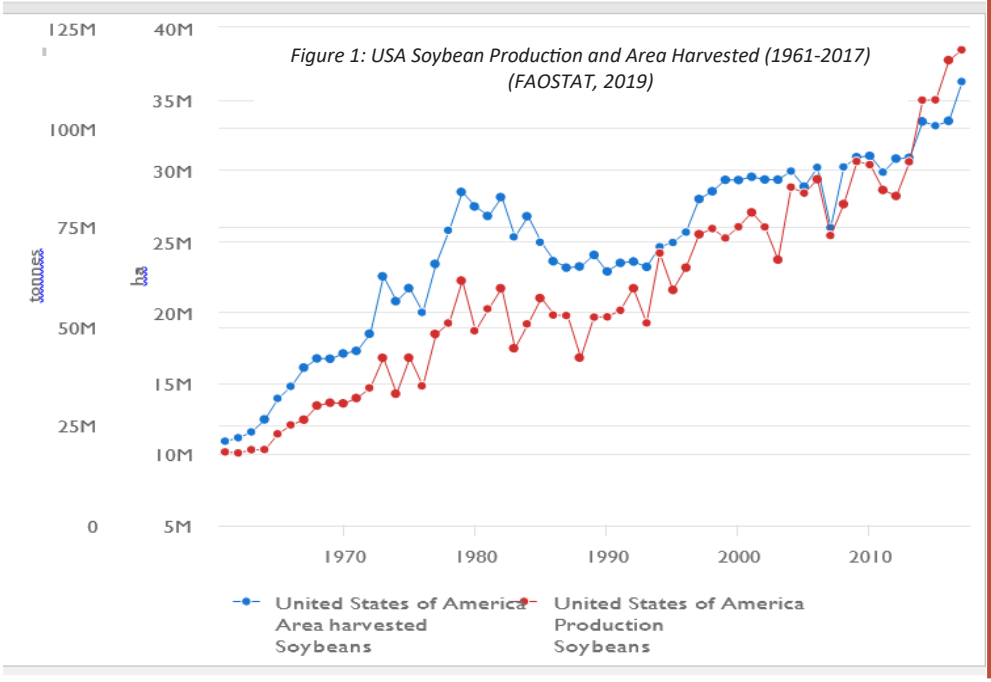


Figure 1: USA Soybean Production and Area Harvested (1961-2017) (FAOSTAT, 2019)

FOCUS POINTS...

...inside this issue

DEALING WITH WACKY WEATHER *by Nancy Glazier*

One frequent topic of discussion is the weather, and the past nine months have provided lots of discussion: cool-wet, hot-dry, and warm-wet, cool-wet, and more cool-wet. A beef producer told me he could not get his steers loaded on the hired trailer to haul them to the processor. He lost his slot at the facility and had to purchase hay to feed with no timeframe to process them. As I write this on January 11, there are still soybeans and corn waiting to be harvested, hay bales and baleage that did not get off fields, and many acres of hay not even harvested. What is a farmer to do?

Brett Chedzoy, Cornell Cooperative Extension educator in Schuyler County, offered to convey some pointers of what he will do differently this coming year. His side business is Angus Glen Farms, LLC, grazing about 110 cow calf pairs on their 450-acre operation on the top of the hills outside Watkins Glen. They try to fill their stored feed needs by making dry hay on a few weekdays, evenings and weekends, when help is available. Brett's calving season is May-June to take advantage of grass availability. He usually vaccinates the calves late fall with weaning in January then backgrounds them until May. He normally grazes the herd into December, but with 15 inches of snow in mid-November, he started feeding hay a month early. He had his son moving bales today, as the ground had frozen enough to do so. Sound like a familiar scenario?

When the weather turned rainy Brett should have made a better attempt to get second cutting hay off in August as opposed to September. By waiting, he was getting into less daylight and lower temperatures, with less potential for hay to dry. He also lost the opportunity for grazing some of the rented hay ground's regrowth. He also has ruts to repair this spring, which will take more than just filling in the ruts. A good resource is Tom Kilcer's November newsletter, found here: http://advancedagsys.com/november-2018-rutted-fields/

There are now seven or eight paddocks in need of renovation this spring from moving the cattle during the fall. On his to-do list is to think about a sacrifice area. This way only one area would need renovation. This will take some thought to figure out from the feeding and handling perspective. In years past Brett had reserved his woods as a "living barn" in extreme weather. He needs to consider woodlot management and compaction there. He utilizes silvopasture in the summer and did not want to destroy the vegetation there. As his herd grows, he is looking at other options, hoping to get the calves out of the constant rain. He would like to build a shed or lean-to for youngstock. He recently priced a barn to house the cows and discovered it would need to be 30,000 sq. ft. Out of the question.

He did get his outdoor handling system under cover with a 30x70 ft. barn. He used to vaccinate calves late fall when help was available, but now can focus on the recommendations of his herd veterinarian to vaccinate calves early fall. After a neighbor had a major herd health crisis, first with scours in calves, then pneumonia, Brett called his vet. The neighbor had the majority of the herd (250 head) treated with Draxxin based on temp checks. Blood samples were sent to Cornell and everything came back negative, except for coronavirus – which might explain the unusually high temps. After working with their respective veterinarians, Brett and the neighbor have since revised their vaccination protocols. Brett's vet recommended vaccinations in early fall to get the calves treated prior to six months of age. At this age they are no longer getting much passive immunity from the dam, and in his case, before nasty late fall weather sets in.

These are just a few things Brett plans on changing and will use over the next couple months to plan other improvements. What he really wanted to convey is the need for adaptive management. Farmers need to be prepared for changing conditions and strategies, whatever the farm. And the beef producer mentioned in the first paragraph built a handling system to alleviate this fall's problems. What's on your to-do list? What changes are you planning?

IMPROVING NITROGEN TRANSFER EFFICIENCY IS A WIN-WIN FOR DAIRIES *by Margaret Quaassdorff*

Different strategies to improve nitrogen (N) utilization by the cow were discussed recently during the 2018 Feed Dealers Seminar, given by Dr. Kristan Reed, Assistant Professor of Dairy Cattle Nutrition at Cornell University.

According to Swink et al. (2011) in a published article concerning soil and water nitrogen balances, improvements in herd nutrition through precision feeding have the potential to reduce the N balance on a per acre basis up to 28% without compromising milk production in the state of NY. Herd nutrition focused on production and milk N efficiency could lead to large positive impacts on water quality, air, and soil health. It is great to think that increasing the efficiency of N usage by the cow can not only have positive effects on the environment, but can also make improvements to your pocketbook. So what practical strategies can producers explore to improve milk nitrogen efficiency on their own farms? According to the New York Precision Feed Management Working Group, "Precision Feed Management is the continual process of providing adequate, but not excess, nutrients to the animal and deriving a majority of nutrients from homegrown feeds through the integration of feeding and forage management for the purpose of maintaining environmental and economic sustainability." Seems like a mouthful, but look to the highlighted areas on the chart on this page for some benchmarks on N related items.

These are good guidelines. However, due to limited research in late lactation cows, they are most applicable to Holstein cows in early to mid-lactation. Pressure on the dairy industry to reduce its environmental impact (Steinfeld et al., 2006) has fueled interest in feeding low-CP diets. Overfeeding dietary CP contributes to low N use efficiency, could have undesirable effects on water and air quality, and increases feed costs that negatively affect farm profit margins. During her presentation at the Feed Dealers Seminar, Dr. Reed presented some research findings from my own master's thesis that show that late lactation cows (200+ DIM) can maintain production performance on diets as low as 14.4%. In some of Dr. Reed's further evaluations of milk urea nitrogen (MUN) as an indicator of N efficiency, she and colleagues found that as lactation progresses, MUN under-predicts urinary urea nitrogen (UUN) and over-predicts milk nitrogen efficiency (MNE) when cows are fed diets above 14.5% CP, meaning that the relationship of MUN with UUN and MNE changes in late lactation. This may possibly be due to pregnancy and the nutrient requirement demand by the developing fetus and supporting tissues, but further research is needed to further define factors influencing MUN and UUN in late lactation. With the knowledge that there could possibly be a few diet tweaks that could positively affect the perception of the dairy industry and increase your bottom line, have a discussion with your nutritionist on the best plan of attack when it comes to strategies for reducing excessive N (protein) in the diet, and reach out to Extension for further information and management ideas.

Precision Feed Management Benchmarks	
Category	Benchmark
Ration Phosphorus (% of required)	< 110
Ration Crude Protein (%)	**< 16.5**
MUN (mg/dl)	**8 – 12**
Forage-NDF (% of BW)	< 0.9
Forage DM (% of Ration DM)	≥ 60
Farm produced feeds (% of Ration DM)	≥ 60
Cows dead or culled @ <60 DIM (% of herd)	< 8

Upcoming Webinars

February 11, 2019

"Heat Stress Affects Dry Cows and Calves"
Geoff Dahl, University of Florida

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

February 27, 2019 12:30 p.m. to 1:00 p.m.

Wednesday Webinars (in Spanish)

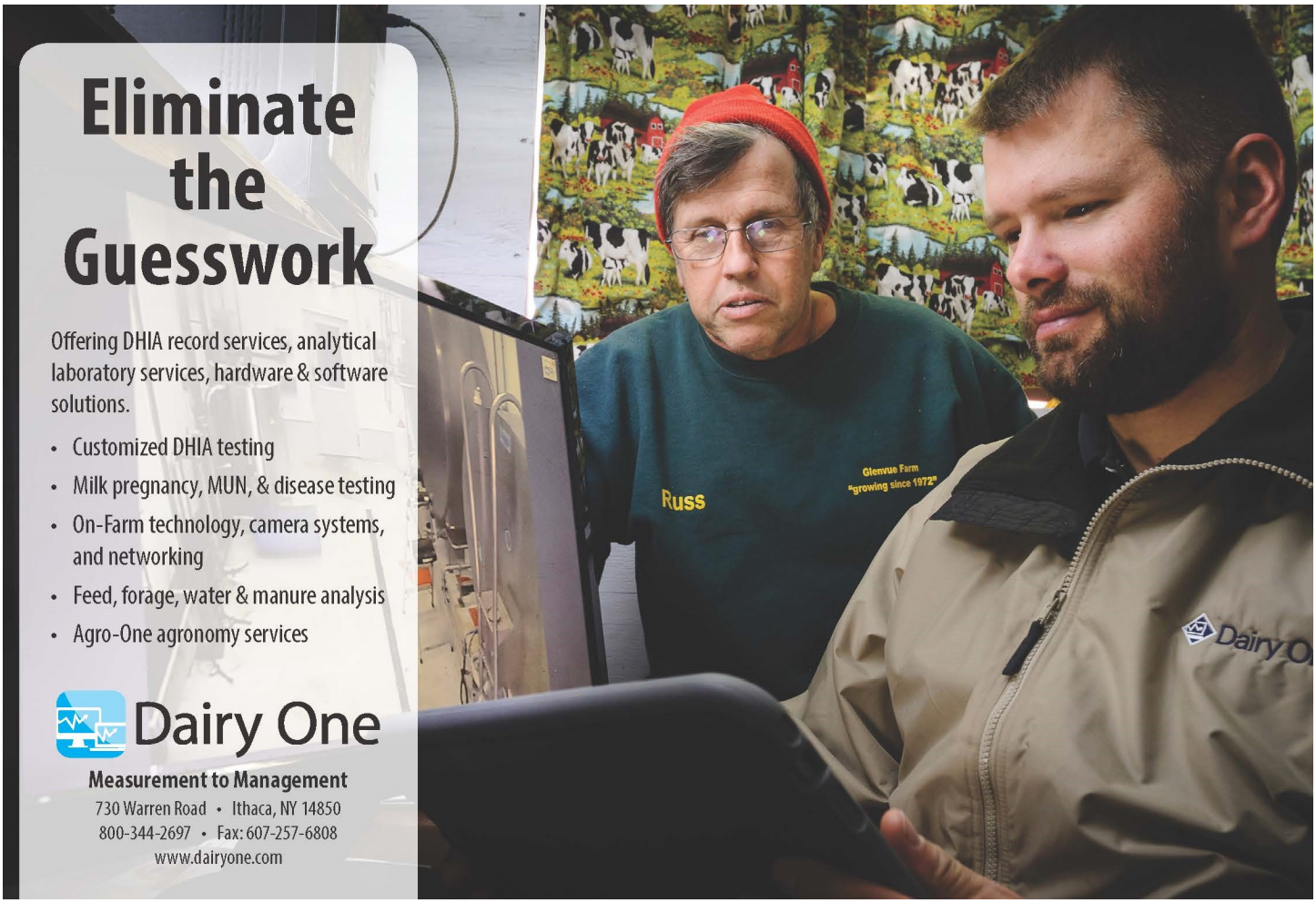
Proper Semen Handling— Javier Cheang,
Regional Consultant, Genex

https://prodairy.cals.cornell.edu/webinars/spanish-webinars/

February 12, 2019 - 8:30 a.m. to 10:00 a.m.

Special Needs Cows.
John Tyson and Dan McFarland (Penn State)

https://extension.psu.edu/technology-tuesdays



MANAGING AGRICULTURAL RISKS: CROP INSURANCE BASICS

by John Hanchar

Summary

- Farm business owners face a variety of risks: production, marketing or price, financial, legal, and human resources.
- Insurance is an important agricultural risk management strategy.
- The Federal government has partnered with private companies to offer crop insurance to US farmers.

Agricultural Risks

This section draws from -- USDA. Introduction to Risk Management – Understanding Agricultural Risks: Production; Marketing; Financial; Legal; Human Resources, https://nydairyadmin.cce.cornell.edu/uploads/doc_107.pdf

Risk is variability in outcomes. Risk is present when outcomes are not known with certainty. Often, farmers can expect outcomes to occur over some range. Production, market (price), financial, legal, and human resources are five sources of agricultural risks.

Risk management strategies can be grouped as follows: *retain, shift, reduce, self insure, avoid.*

- *Retain* – no protection from downside risk, as in holding an unpriced good.
- *Shift* -- a contractual agreement where someone else takes on some of the chance of a negative outcome in exchange for a premium, for example, crop insurance. The more risk you shift, the greater the cost.
- *Reduce* – examples include keeping fences in good repair to keep livestock off the highway, a marketing plan that locks in some level of guaranteed return, best management crop protection practices.
- *Self insure* – emergency reserves funded from previous returns.
- *Avoid* – not selecting a particular enterprise.

To manage agricultural risks, with an emphasis on managing financial risks faced by farmers, the Federal government has partnered with private companies to offer crop insurance to US farmers. Crop insurance is the primary safety-net for US agricultural producers.

The remainder of this article is from Crop Insurance 101 content: agriskmanagement.cornell.edu. Visit this site to learn more about ag risk management.

What is crop insurance?

- Crop insurance helps producers **manage risk**.
- You pay an annual **premium** (the cost is shared with the Federal government) to buy an insurance policy.
- Crop insurance is purchased from private agents.
- If your yields or revenues fall below a certain level due to a "covered cause", you receive an **indemnity** payment.

How does crop insurance work?

It is similar to other types of insurance, such as car insurance.

- You pay a premium to buy a policy.
- If something bad happens, then you file a claim.
- Indemnity payment helps make you whole.

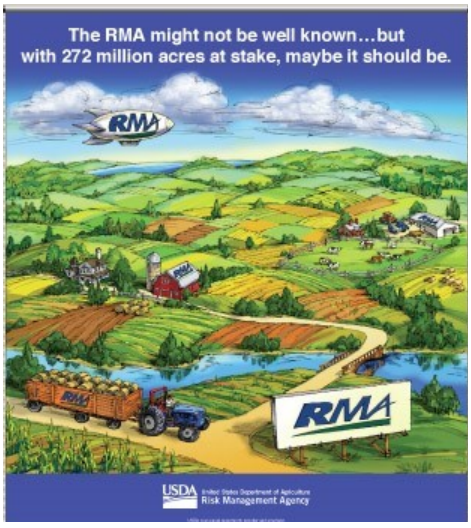
What types of crop insurance are available?

- Most commonly, farmers buy crop insurance for one single crop at a time. These policies are called single crop "multi-peril" crop insurance (MPCI) and are available as either yield or revenue insurance.
- Whole Farm Revenue Protection allows farmers to insure an amount of their operation's revenue. The Federal government shares a large amount of the premium cost for more diversified operations (two or more commodities).
- Index-based insurance products, such as Pasture Rangeland Forage (PRF) and Apiculture (API), base indemnity payments on a rainfall index for a geographic area where the farmer's operation is located. The fact that indemnities are triggered by an area index means that there is no need for loss-adjustment on an individual farm.

Closing Thoughts

Work with a crop insurance agent to learn about crop insurance products available for your farm, and to make decisions regarding products and coverage. To find an agent, ask a neighbor for a recommendation, or use the Agent Locator tool at https://www.rma.usda.gov/Information-Tools/Agent-Locator-Page

To view USDA/Risk Management Agency information about products, including key dates, deadlines visit : https://webapp.rma.usda.gov/apps/actuarialinformationbrowser2019/CropCriteria.aspx



Cornell Cooperative Extension

Northwest NY Dairy, Livestock and Field Crops Program

2019 SOYBEAN & SMALL GRAIN CONGRESSES

February 6, 2019
Quality Inn & Suites
8250 Park Rd
Batavia NY

February 7, 2019
Quality Inn (former Holiday Inn)
2468 NYS Route 414
Waterloo NY

- MICHIGAN SMART SOYBEAN ON-FARM RESEARCH RESULTS *Mike Staton,* Soybean Specialist, Michigan State University
- DISEASE MANAGEMENT ISSUES IN WHEAT AND SOYBEANS *Gary Bergstrom,* Plant Pathologist, Cornell University
- WEED SEED MANAGEMENT FOR FIELDS AND COMBINES *Bryan Brown,* NYS IPM Program
- MANAGING MARESTAIL &THOSE NASTY PIGWEEDS *Mark Loux,* Weed Scientist, Ohio State University
- SULFUR FERTILITY IN SOYBEAN PRODUCTION *Jodi Putman,* Field Crops Specialist, CCE
- SMALL GRAINS UPDATES: WHEAT, OATS, HYBRID RYE AND MALTING BARLEY, *Mike Stanyard,* Field Crops Specialist, CCE

$35 - Enrolled in NWNY Team program (paid $65, receive Ag Focus)

$50 - Not Enrolled

$30 - each additional person from same farm

Questions? Call 585-343-3040, ext. 138

SOIL ELECTRICAL CONDUCTIVITY (EC) MAPPING FOR BETTER DECISION-MAKING

by Ali Nafchi

In precision agriculture, determining the soil variation within a field is very important for making best decisions. Soil electrical conductivity (EC) measurement, as one of the precision agriculture decision-making tools, can help growers to decide for their nutrient management, seeding rate, seeding depth, and irrigation scheduling. Soil EC is one of the simplest, least expensive soil measurements that reveals information about soil texture, cation exchange capacity (CEC), drainage conditions, organic matter level, and salinity. For example, 50+ soil samples per acre and lab analyzing could be very expensive, whereas, EC mapping would be a nominal cost.

Electrical Conductivity in Soil

Soil electrical conductivity (EC) is the ability of a soil to transmit an electrical current. Soil EC unit is milliSiemens per meter (mS/m). Sometimes EC is given in deciSiemens per meter (dS/m), which is equal to the reading in mS/m divided by 100.

Measuring the Soil EC

There are two types of commercially available electrical conductivity mapping systems in the field: contact and non-contact system. To distinguish the EC measured by the Veris unit from the soil science definition of EC (based upon conductance of a saturated soil paste extract), we will call the Veris EC measurement apparent EC (EC_a).

Contact Type EC_a Sensor

These types of sensors use coulters as the contact electrodes to contact with soil. In this system, one or more pairs of coulters are mounted on a toolbar to contact with soil and send electrical current into soil (transmitting electrodes) while the other coulters (receiving electrodes) read the voltage drop. Soil EC_a data is stored in a data logger with the related location data stamp using global positioning system (GPS). For example, Veris 3100 shown in Fig. 1 provides shallow and deep EC readings from soil (1 foot and 3 feet). Smaller model (Veris iScan) can be mounted to a planter or tillage equipment. The distance between measurement passes ranges from 20 to 60 feet, depending on the desired sampling density or the amount of soil variability within the field.

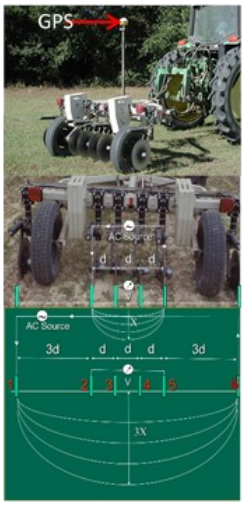


Figure 1. Veris 3100, the contact type EC sensor. The coulters # "2 and 5" act as transmitting electrodes and others as receiving electrodes. (Veris Technologies, Salina, Kansas)

Non-contact EC_a Sensor

The non-contact EC_a sensors use the electromagnetic induction principle instead of direct contact into soil, measuring the voltage drop between a source and a sensor electrode. The disadvantage is that metals would cause interference on the performance. EM38 (Geonics Limited), DUALEM, and GEM-2 (Geophex) are popular models of non-contact sensors.

Correlation of Soil EC and Crop Yield

Soil electrical conductivity (EC_a) has shown a good correlation with soil properties that affect crop productivity and yield. After precision farmers create yield maps and conduct a preliminary evaluation of the yield response, they will identify the manageable causes of crop yield response. Differences in soil properties are some of the most obvious reasons for yield variability. Soil EC_a has the potential to estimate variations in some soil physical properties in a field. Yield maps are frequently correlated to soil EC_a, as shown in Figure 2. In many situations, these similarities are explained through differences in soil. The water-holding capacity of the soil is a major factor affecting yield, and the yield map will likely show a strong correlation to the soil EC. In general, soil EC_a maps may indicate areas where further exploration is needed. Most often, soil EC_a maps give valuable information about soil differences and similarities, which makes it possible to divide the field into smaller management zones. Zones that have consistent EC_a readings are areas that have similar soil properties and can be grouped together for soil sampling and management.

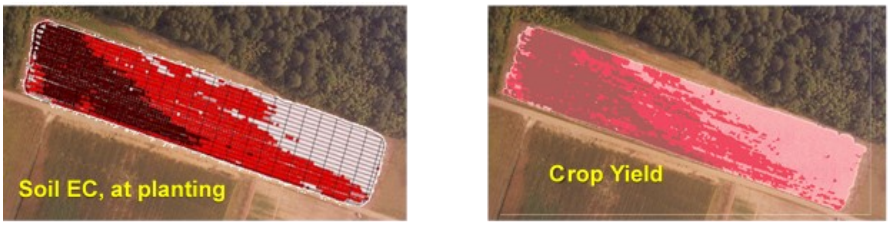


Figure 2. Estimated variations in some soil physical properties in a field are frequently correlated with yield maps.

(Continued on page 11)

(Continued from page 10)

Factors affecting EC_a Measurement

Based on EC data, sandy soils have a low, silts have a medium, and clays have a higher electrical conductivity. Since there is a strong correlation between soil EC_a and yield data, often EC_a maps can help explain yield maps and yield variation. Some important factors affecting EC_a measurement are:

- **Soil Texture**: Soils with higher clay content have higher electrical conductivity than the sandy soils because clay has a large surface area, relatively more charge capacity, greater ability to accommodate electrolytes, and retain more moisture.
- **Moisture Content**: Will affect electrolyte concentration within the soil profile and also have impact on soil solution connectivity. Dry areas in the soil profile act as insulating regions. The overall EC values will increase with increased soil moisture, but the relative values remain consistent.
- **Organic Matter**: Similarly, soils with higher organic matter have higher electrical conductivity due to higher water holding capacity and better connectivity among the soil particles.
- **Cation Exchange Capacity (CEC)**: Mineral soil containing high levels of organic matter (humus) and/or 2:1 clay minerals such as montmorillonite, illite, or vermiculite have a much higher ability to retain positively charged ions (such as Ca, Mg, K, Na, NH4, or H) than soil lacking these constituents. The presence of these ions in the moisture filled soil pores will enhance soil EC in the same way that salinity does.

EC_a data are often validated by soil sampling and yield data to determine an accurate variable rate of crop inputs. Some other factors affecting EC measurement are: bulk density, temperature and salinity.

Application of Soil Electrical Conductivity Maps

- Identifying management zones
- Yield map analysis
- Weed management (less herbicide in sandy soils)
- Tillage decisions
- Plot work
- Nematode management

References and useful websites:

Adamchuk, V.I., and P.J. Jasa. On-the-go Vehicle-Based Soil Sensor. University of Nebraska, Cooperative Extension, EC-02-178.
Robert Grisso et al., Precision Farming Tools; Soil Electrical Conductivity. Virginia Tech University, Cooperative Extension, publication 442-508.
Veris Technologies: www.veristech.com
Dualem Products: www.dualem.com
Geonics Limited: www.geonics.com
Geophex: www.geophex.com

Dairy Managers Training

2-day class, March 7 & March 14, 2019

Communicating with People & Animals, Cattle Handling, Facilities, Heifers & More

Week 1: Communication with People, *Erica Leubner, NYFarmNet*

Communication with Animals and Cattle Handling, *Curt Pate*

Meet at CCE Wyoming County
36 Center St Suite B,
Warsaw, NY 14569
Visiting Emerling Farm after lunch
2904 NY-246, Perry, NY 14530

Week 2 : Facility Management for Profitability, Heifer Management & Facilities, *Steve Chuta, Zoetis*

Partial Budgets

Farm Walkthrough of Heifer Facilities

Meet at CCE Ontario County
480 North Main Street
Canandaigua, NY 14424
Visiting Bonna Terra Farm after lunch
8800 NY-5, Bloomfield, NY 14469

Cost: $50 per person, covers lunch, training and materials for both days.

Registration via email/phone (for payment by cash or check) by March 1:
Libby Eiholzer, geg24@cornell.edu, 607-793-4847
Margaret Quaassdorff, maq27@cornell.edu, 585-405-2567
Registration open online (for payment by credit card) only February 15- March 1:
https://nwnyteam.cce.cornell.edu/event.php?id=823

Questions? Contact: Libby Eiholzer or Margaret Quaassdorff

Cornell Cooperative Extension

Northwest NY Dairy, Livestock and Field Crops Program

Cornell Cooperative Extension

Northwest NY Dairy, Livestock and Field Crops Program

2019 FORAGE CONGRESS - FEBRUARY 27, 2019

LIVINGSTON COUNTY AUDITORIUM
** NEW LOCATION **
1 MURRAY HILL DRIVE, MT. MORRIS NY
10:00 A.M. - 3:30 P.M.

RICHARD MUCK, PH.D., *Professor Emeritus, University of Wisconsin-Madison*.

Dr. Muck received his Ph.D. from Cornell in Agricultural Waste Management to accompany his degrees in Agricultural and Environmental Engineering. During his career he worked for the Agricultural Research Service, USDA, as a research agricultural engineer. When at the U.S. Dairy Forage Research Center in Madison, WI, his research focused on silage and spanned a wide range of topics including: improving silage density, documenting losses from silos, comparing silo covers, enhancing protein preservation during the ensiling process, and the effects of silage inoculants. Residing in northwestern NY, he continues to write, speak, and consult on silage research.

MICHAEL MILLER, M.S., PAS, *Research Technician and Ph.D. graduate student at the W. H. Miner Agricultural Research Institute in Chazy, NY.*

Mike's research focuses on fiber digestibility and forage utilization for dairy cows. He is a graduate of Texas A&M University with a master's degree in Ruminant Nutrition with a focus on feed efficiency in feedlot cattle. His passion for agriculture grew from working for local hay producers and farmers when he was young. His goal is to feed cattle more efficiently and effectively as the cattle industry faces new and continual challenges.

GALIT POOLE, M.S, *Dairy Nutrition and Production Consultant, Pavilion NY*

Galit Poole is a Dairy Nutritionist & Production Consultant with Standard Dairy Consultants. She holds a master's degree in Nutrition with a special focus on dairy. Working in the industry for over 15 years, Galit has held various roles in animal industry, focusing on her expertise in ration formulation and application. She found her passion on her home farm in South Africa and has devoted her life to improving the lives of farmers and the animals they care for.

KITTY O'NEIL, *Field Crops Specialist, North Country Regional Ag Team*

Dr. Kitty O'Neil serves Northern New York agriculture as a Regional Field Crops and Soils Specialist. Focusing on providing field crop producers, consultants, and industry representatives with the knowledge and educational resources necessary to improve crop production and management practices, she helps farmers implement changes to enhance farm prosperity and resilience, while minimizing environmental impacts. Her overall goal is sustainable growth of ag industries in Northern New York.

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- PRODUCER PANEL

COMPOSTING REFRESHER 2019 *by Timothy X. Terry*

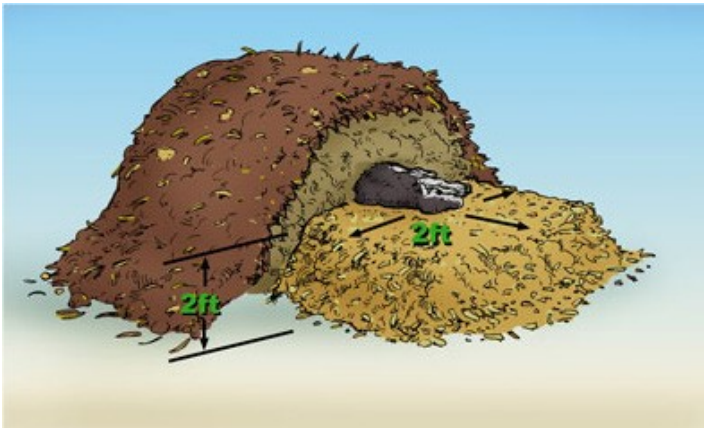
In this protracted period of low milk prices and tough economic times we continue to try to provide cost cutting ideas. With rendering services becoming cost prohibitive, extremely stringent, or even nonexistent, many have taken to on-site disposal of their mortalities. Unfortunately, this is usually done in haste and is not environmentally sound or sanitary. Burial is better, but can use up a lot of real estate in a hurry and should **never** be done where seasonal water tables are within 8' of the surface or over karst topography. What follows is an updated reprint of an article I wrote ~4 years ago and provides some guidance on the proper construction and management of a mortality composting site.

Over the past few months I have completed a number of farmstead surveys for planning purposes, and as I trudged back and forth taking survey shots, I have come across a number of mortality composting piles. The management level on these piles seems to run the full spectrum from well managed to, "I'd forgotten that was even back there", and everything in between. Since I do not want to name names, or deal with the DEC, and most just need a little tweaking of their technique, I thought a little refresher might be in order.

Site Selection –

At least I can say good site selection seems to be the rule and not the exception. Most of the composting piles I have seen are in an area that is high and dry, do not receive drainage or drain into a critical area, are out of sight, away from property lines, and are far (>200', 500' better) from wells, streams, ditches, wetlands, or any other concentrated flows or waterbodies. Most are also keeping it far away from any livestock, especially youngstock, facilities and/or residences. The off-gassing elements of a prematurely turned stage-1 pile could sicken people, pets, or livestock.

Methods –



The passively aerated static pile or windrow seems to be the method of choice, and probably for good reason -- it is the least labor and management intensive. Unfortunately, this is where things usually break down – no pun intended. It may be minimal in management, but "set it and forget it" is not necessarily the way to go, either.

In order for the system to work properly you need to start with a good foundation. Wood chips or coarse sawdust work best, but if these are in short supply, they can be mixed with some finished compost containing the bones to make it go farther. These will provide enough structure to make sure there is enough pore space to allow for passive aeration, and yet be absorbent enough to soak up any leachate. The thickness of this base layer is dependent upon the absorbency of the material and the size of the mortalities being composted, but 2' thick is usually a good rule of thumb. If liquids leach out, then increase the thickness in future piles, or look for more absorbent materials.

Place the mortality on this foundation. Medium-sized animals like calves, pigs, or sheep can be placed in a single layer spaced just a few inches apart. Larger animals like heifers and cows will need to be placed 18" – 24" apart. In either case these should not be stacked on top of one another nor placed within 2'of the edge of the pile or windrow. After placing, and before covering, the carcass should be lanced or splayed to prevent the buildup of gases. WARNING – if it has been unusually hot and the animal has been dead more than 12 hours the rumen may be under considerable pressure, so be careful not to be directly down-range from where you puncture the flesh.

Once placed and poked, cover the carcass with another 2' of carbon source – wood chips, sawdust, old silage, etc. If you have been paying attention, you have no doubt noticed that

(Continued on page 15)

(Continued from page 14)

the "2'" comes up pretty often. In fact, you could probably say it is the Rule of 2's: 2' of chips below, 2' of carbon source above, and 2' of carbon source all around. Personal experience has shown that manger sweepings work really well here especially if they are in contact with the carcass. Manger sweepings typically contain a lot of readily digestible sugars, starches, and proteins, and these are good for jump starting the bacterial processes. If odors, flies, scavengers, or vermin become a problem, increase the thickness of the capping layer.

Since we live in a climate where lack of water is not commonly an issue (see fall 2018), the cap layer should be shaped to shed water. In a drier year you can flatten, or even dish, the top of the pile or windrow to collect rainwater and allow it to soak into the pile. Lastly, mark the date of the pile or end of the windrow on the calendar, your smartphone, or place a wire marker flag with the date written on it at the base.

Stage 1, Stage 2

After capping, the pile or windrow should sit undisturbed for the next 2- 6 months depending on the largest animal in the pile. Larger animals require longer periods to completely compost. In the meantime keep an eye on the pile for odors, flies, exposed carcass parts, etc. and recap as needed.

Falling internal temperatures signal the end of Stage 1. By this time all the flesh should be gone leaving you with little more than bones, hide, and hair. To begin Stage 2, turn the pile or windrow with a bucket tractor or payloader, and recap with more carbon source (chips, sawdust, silage) to cover any exposed carcass parts.

Because this material likely contains various environmental microbes and mold spores this should be done with cabbed equipment operating from an upwind position. At the very least, the operator should be wearing a dust mask or respirator to prevent inhalation hazards.

Allow this to sit another 4 – 6 months. Internal temperatures should again reach 110° to 120°F and then cool off by the time Stage 2 finishes. At this time the material may be reused as base material for a new pile or remove the large bones and spread on crop fields. It is not recommended that this material be spread on any fields producing a crop for direct human consumption (table top, fresh market) or where pets or small children may come in direct contact with it.

The separated bones may be used as structure for the next pile, sold for processing and used as a fertilizer, or, as some have recommended, placed in hedgerows and woods to serve as a calcium and phosphorus source for various wildlife (as do deer antlers). Since they tend to be very brittle after a year of composting it is not recommended that they go directly back on the field. Normal tillage and harvesting equipment can shatter these bones leaving shards in the field to puncture tractor or truck tires, or worse, end up in the TMR and pierce the gut wall and/or major organ of the livestock.

So…

...now you know. Yesterday is past, today is a new day, and the perfect time to tweak your composting technique.

The Cornell Waste Management Institute has a free full color poster available: https://ecommons.cornell.edu/bitstream/handle/1813/45866/compostingmortalityhowto.pdf?sequence=2&isAllowed=y

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2008 MACK GRANITE GU813 WATER TANK TRUCK; 485 HP Mack MP8; 18-Spd.; Tandem Axle; 24.5 Tires (75% Rubber); 236" WB; 20,000# F/A; 46,000# Locking Rears; 4,400 Gal. Water Tank w/Pump; Can Separate Tank From Chassis; 21' Frame Behind Cab; 170" CT; 337,914 Miles; Stk. #5838 - **$53,000**

2004 MACK GRANITE CV713 RECYCLING TRUCK; 460 HP Mack AC; Engine Brake; 18-Spd.; Tri-Axle; 22.5 Tires (Good Rubber); Spoke Wheels; 262" WB; 20,000# F/A; 46,000# R/A; Double Frame Lugger Truck; 20,000# Lift Axle; Hitch; 10,393 Hours; Will Separate Body From Chassis; 19'6" Frame Behind Cab; 184" CT; 186,747 Miles; Stk. #5847 - **$45,900**

2015 MACK GRANITE GU713; 505 HP MP8; 18-Spd.; 14,600# F/A; 46,000# Locing Rears; Air Ride Susp.; 71,618 Miles; 4,200 Gallon Aluminum Tank; Stk. #5880 - **$72,500**

2004 MACK CRANITE CV713; Mack 460 HP; Engine; Brake; 18-Spd.; Tandem Axle; Alum. Wheels; 300" WB; 20,000# F/A; 46,000# R/A; Low Mile Double Frame Truck w/Webco WHL23TC75 Crane; Cranesmart LMI; Dual Controls & 5th Wheel; 165,000 Miles; Stk. #5628 - **$49,900**

2008 PETERBILT 367; Daycab; 485 HP Cummins ISX; Allison Auto. Trans.; Tandem Axle; 24.5 Tires; Alum./Steel Wheels; 202" WB; 14,600# F/A; 44,000# Full Locking Rears; Wetline; 109,212 Miles; Stk. #5843 - **$59,900**

2006 INTERNATIONAL 7600; 330 HP Cummins ISM Diesel; 10-Spd.; Color: Red/Black; 22.5 Tires; Steel Wheels; 256" WB; Double Frame Flatbed w/Moffet Forklift Carrier; Steerable Lift Axle; 22' Deck(We Will Separate The Deck); 319,213 Miles; Stk. #5731 - **$37,900**

2004 INTERNATIONAL PAYSTAR 5600; 385 HP Cummins ISM; 9LL Trans.; 172" WB; 20,000# F/A; 46,000# Full Locking Rears; 137,958 Miles; Stk. #5756 - **$32,500**

2007 MACK GRANITE CT713 CAB & CHASSIS; Mack 460 HP; Engine Brake; 18-Spd.; 24.5 Tires; 238" WB; Air Ride; 20,000# F/A; 46,000# Locking R/A; 24.5 Rubber (80%); HD Single Frame; 176" CT; 220" Frame Behind Exhaust; 238" WB; 208,736 Miles; Stk. #5881 - **$46,900**

2004 KENWORTH T800B DAYCAB; 475 HP CAT C15 Single Turbo; Engine Brake; 18-Spd.; 8-Bag Air Ride Susp. 13,200# Front Axle; 46,000# Full Locking Rear Axles; 4.11 Ratio; 24.5 Tires; 220" WB; 619,585 Miles; Stk. #5725 - **$58,900**

2002 KENWORTH T800B; 410 HP CAT C12; Engine Brake; 8LL Trans.; Tri-Axle; Color: Yellow; 4.88 Ratio; 22.5 Tires; All Steel Wheels; 280" WB; 18,000# F/A; 46,000# Full Locking Rears; w/fassi F330SE Drywall Crane; 56.6' Boom; (5) Sections; 25' Steel Flatbed; 30' Total Double Frame; 210" CA; 301,153 Miles; Stk. #5744 - **$42,900**

2002 KENWORTH T800; 335 HP C10; Auto. Trans.; Rubber Block Susp.; 262,173 Miles; Clean, Low Mile Dump Truck w/Hitch & Manual Tarp; Good Rubber; Stk. #5841 - **$39,900**

2006 INTERNATIONAL PAYSTAR 5500 VACUUM TANK TRUCK; 335 HP Cummins ISM; Automaic Trans.; Engine Brake; 20,000# F/A; 46,000# Full Locking Rears; Rear Sewer Vacuum, Rodder Truck Powered By Deutz Diesel Engine w/Auto Lube System, Wireless Remote; Dumping Tank w/Hydraulic Opening Gate; 51,153 Miles; Stk. #5858 - **$60,500**

2007 WESTERN STAR 4900SA WINCH TRUCK; Detroit 455 HP; Engine Brake; 10-Spd.; Walking Beam Susp.; 22,000# F/A; 65,000# R/A; 87,000# GVW; 12.00x24 Tires; 315" WB; Tulsa 37,500 lb. Ruffneck Winches; 19' Deck; Pockets For Gin Poles; Tail & Center Rollers; 12.00x24 Off-Road Tiores Rear; 24'4" Double Frame Behind Cab; 4-Spd. Aux. Trans.; 194,751 Miles; Stk. #5906 - **$48,500**

2006 INTERNATIONAL 7600; 335 HP Cummins ISM; Allison Auto.; 5.55 Ratio; 22.5 Tires; 220" WB; 20,000# F/A; 46,000# R/A; Double Frame Cab & Chassis w/17' Frame Behind Cab/Muffler; 136" CT; 83,267 Miles; Stk. #5766 - **$39,900**

2005 PETERBILT 357; Quad Axle Dump Truck; 370 HP Cummins ISM; 8LL Trans.; 24.5 Tires; 18,000# F/A; 44,000# Full Locking Rears; 17' Steel Dump Body; Quad Axle w/Heavy Single Frame; (2) 11,000# Steerable Lift Axle; Will Separate Box From Chassis; 22' Chassis Behind Cab; 212" CT; 302,500 Miles; Stk. #5831 - **$48,500**

1998 OSHKOSH FF2346; L10 Cumminsl 22.5 Tires; Alum. Wheels; 214" WB; 23,000# F/A; 46,000# R/A; 6x6 Cab & Chassis (4,000 Gal. Water Tank To Be Removed); 18' Single Heavy Frame Behind Cab; 150" CT; Very Clean; 190,985 Miles; Stk. #5737 - **$23,900**

2001 PETERBILT 357 WINCH/OIL FIELD TRUCK; 475 HP CAT C15 6NZ Turbo; 8LL Trans.; Tandem Axle; Color: Red; 12.00 x 24 Tires; Spoke Wheels; 390" WB; 40,000# F/A; Double Frame; Twin Steer Rig Up Truck w/75-Ton Braden Winch; 4-Spd. Aux. Trans.; Planetary Drive Rears; 27'6" Deck w/Tail Roller & 30' Gin Poles; 52,963 Miles; Stk. #5780 - **$69,000**

2000 KENWORTH W900 DUMP TRUCK; 380 HP CAT C12; Engine Brake; 8LL Trans.; Five Axle; 24.5 Tires; 20,000# F/A; 46,000# Full Locking Rears; 282" WB; Double Frame; 20' East Alum. Body w/72" Sides; Liner & Tarp; 310" Bridge Measurement; 650,702 Miles; Stk. #5887 - **$39,900**

2009 FREIGHTLINER FLD120; Water Tank Truck; 515 HP Detroity 14L; Engine Brake; 18-Spd.; 24.5 Tires; 248" WB; 18,000# F/A; 46,000# Full Locking ears; Water Tanker w/Pumop; Jasper 4,200 Gal. Tank; Will Separate Tank From Chassis; 20' Frame Behind Cab; 168" CT; 139,985 Miles; Stk. #5837 - **$54,500**

2006 MACK VISION CX613; 460 HP Mack AC; 18-Spd.; Tandem Axle; Engine Brake; 22.5 Tires; Alum./Steel Wheels; 190" WB; 14,000# F/A; 46,000# Full Locking Rears; w/Wetline & Air Slide 5th Wheel; 547,638 Miles; Stk. #5654 - **$29,000**

2009 WESTERN STAR 4900SF TEREX BT2057 BOOM TRUCK CRANE; 525 HP Detroit Diesel; Jake Brakes; 10-Spd. Manual Trans.; Double Frame; 36" Flat Top Bunk; 21' Deck; 18,000# F/A; 46,000# Full Locking Rears; 314" WB; Hitch; Crane Can Be Separated From The Chassis; 25' Frame Behind Cab; 190" CT; 149,145 Miles; Low 7,683 Hours; 20,000 lb. Lift Capacity; Stk. #5882 - **$49,500**

2005 KENWORTH T800; 475 HP CAT C15; 8LL Trans.; Tandem Axle; 4.30 Ratio; 24.5 Tires; Alum. Wheels; 210" WB; 20,000# F/A; 46,000# Full Locking Rears; Rear Double Frame; w/Braden 75,000 lbs. Winch; Tail Roller; 15'6" Frame; 134" CT; 574,954 Miles; Stk. #5749 - **$49,750**

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- *Aaron Breimer, Veritas Farm Business Management – "What Makes Sense Doesn't Always Make Dollars"*
- *Josh Johnson, Agri Air Solutions – "Remote Sensing and How It Works"*
- *Stephen Redmond, Redmond Agronomic Services – "Does Everybody Get the Vision?"*
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or for exam related questions,
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All participants must have experience working on their own farm, or through employment on another farm. Participants must register directly with DEC to take the Exam and have any questions on exam eligibility answered by DEC representatives.

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6 **WNY Soybean Congress,** 10:00 a.m.—3:00 p.m., Quality Inn & Suites, 8250 Park Road, Batavia, see page 8. Call Linda Risewick 585-343-3040, ext. 138.

7 **Finger Lakes Soybean. Congress,** 10:00 a.m.—3:00 p.m., Quality Inn, 2468 NYS Route 414, Waterloo, see page 8. Call Linda Risewick 585-343-3040, ext. 138.

20 **Turning that Data Into Dollars - Precision Ag Workshop,** all day event, Genesee Community College, One College Rd., Batavia NY. Keynote Speaker: Bob Stewart, Stewart Farms, "Our Farm's Precision Ag Experience: What Works For Us and What Still Needs Work." See page 18.

27 **Forage Congress,** 10:00 a.m.—3:30 p.m., *New Location* Livingston County Auditorium, 1 Murray Hill Drive, Mt. Morris, see page 13. Registration materials will be mailed soon, so check your mailbox, inbox, and/or our website for details: https://nwnyteam.cce.cornell.edu/event.php?id=804.

MARCH 2019

7 **Soil Health Workshop,** 9:00 a.m.- 2:00 p.m., King's Catering, 4031 State Route 5&20, Canandaigua NY. Keynote speaker Jim Hershey, "Managing for Healthier Soils and Cleaner Water". DEC and CCA credits, $20 pre-registered, $25 walk-ins, includes lunch. For complete program and registration details, http://www.canandaigualakeassoc.org/get-involved/soil-health-workshop/, or call 585-394-5030.

7+14 **Dairy Managers Training**, 10:00 a.m. - 3:00 p.m., CCE-Wyoming Co., 36 Center St., Suite B, Warsaw NY. See page 12 for all the details and registration info., or visit our website: https://nwnyteam.cce.cornell.edu/event.php?id=823.

12 +14 15 exam **Pre-Exam Training Workshop & Test to Become a Certified Pesticide Applicator,** 12:00 p.m. - 4:30 p.m., CCE Wayne Co., 1581 Rt. 88 N., Newark NY 14513. *Pre-Registration Required by March 4, 2019, $55 for the training workshop (includes lunch).* To register for the training workshop, contact Judy Glann, 315.331.8415, ext 117 or email jmg358@cornell.edu. You must register and pay for the exam separately ($100) by contacting the Bath DEC Office 607.622.8264. See flyer on page 19 for complete details.