Our Mission

“The North Country Regional Ag Team aims to improve the productivity and viability of agricultural industries, people and communities in Jefferson, Lewis, St. Lawrence, Franklin, Clinton, and Essex Counties by promoting productive, safe, economically and environmentally sustainable management practices, and by providing assistance to industry, government, and other agencies in evaluating the impact of public policies affecting the industry.”
Field Crops and Soils

Herbicide Resistance Management: Get to Herbicide Sites of Action

By Mike Hunter

November 2018 - According to the International Survey of Herbicide Resistant Weeds, there are 496 unique cases (site of action x species) of herbicide resistant weeds globally. This organization also has reported that weeds have evolved resistance to 23 of the 26 known herbicide “sites of action” (SOA).

Herbicide resistance management strategies must be included in all weed control recommendations. Herbicide resistant weeds are not new for growers in New York State. In fact, we have four officially confirmed herbicide resistant weeds which include common lambsquarter, smooth pigweed, common groundsel, and common ragweed; all of these cases are resistant to triazine herbicides. Common ragweed was the last herbicide resistant weed case reported back in 1993.

This list will soon grow to include at least two, if not, three new herbicide resistant weed cases in NYS. Added to the list will be horseweed (marestail) and tall waterhemp. Many growers in Central and Western New York are now dealing with herbicide resistant marestail and a much smaller number of growers are now finding resistant populations of tall waterhemp in their fields. The third suspected herbicide resistant case is the recent discovery of palmer amaranth on a NY farm in October. This is the first report of this weed growing in NYS. For those unfamiliar with palmer amaranth, the Weed Science Society of America ranks it as the most troublesome or difficult to control weed in the United States.

Remembering back to pesticide applicator training classes, you may remember the phrase “mode of action” when herbicides were discussed. The mode of action can be used to describe the process of how the herbicide controls the targeted weed. When we talk about herbicide resistance management we need to think about site of action (SOA). The SOA is the location in the plant where the herbicide acts or has its effect on the plant. The SOA is sometimes referred to as the “mechanism of action”.

When selecting herbicides to include in the tank mix we must now pay close attention to not only the mode of action, but also the SOA. Resistance management strategies include using herbicides with different SOAs. It is challenging enough to come up with an effective herbicide weed control program and now we are being asked to include herbicide SOA in the decision making process. Fortunately, there has been a numbering system developed to make this an easier task. There are now herbicide group numbers assigned to each different SOA. The group numbers are found on the first page of almost all herbicide labels that we currently use in field crop production. Multiple numbers in the box indicate the herbicide or herbicide premix has more than one SOA (see example below).

Example of Roundup PowerMax label (Group 9)

<table>
<thead>
<tr>
<th>GROUP</th>
<th>HERBICIDE</th>
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<td>9</td>
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Example of Flexstar GT (Group 9 + 14), a Flexstar (fomesafen) + Glyphosate premix

<table>
<thead>
<tr>
<th>GROUP</th>
<th>HERBICIDE</th>
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<td>9 + 14</td>
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When we use herbicides with the same SOA over and over again, it fosters the development of herbicide resistant weed populations. To prevent or delay the development of herbicide resistant weeds, we must include herbicides with different SOAs in the tank mix. In order for this resistance management strategy to work you must have at least two different SOAs that are effective on the targeted weed.

Below are some scenarios that demonstrate how we can best use the herbicide group numbering system when making herbicide application recommendations.

Let’s examine a no-till soybean burndown program for control of multiple-resistant marestail [glyphosate and ALS resistant (or Group 9 and 2)] using a tank mix of glyphosate (group 9) + Valor XLT [a premix of Classic (group 2) + Valor (group 14)] + 2,4-D LVE (group 4). This herbicide program contains herbicides with 4 different SOAs, a group 9, 14, 2, and 4. The marestail in our example is resistant to both group 9 and 2 so these products will do nothing to control the marestail; however, the Valor (group 14) component in Valor XLT and 2,4-D LVE (group 4) will provide two different effective SOAs on our targeted weed, multiple-resistant marestail.

Here is another example using glyphosate resistant (GR) tall waterhemp in Roundup Ready soybeans. A Flexstar GT [a premix of Flexstar (group 14) + glyphosate (group 9)] application applied post-emergence to soybeans for the control of emerged GR tall waterhemp will provide control. It will provide control of GR resistant waterhemp because the Flexstar (group 14) in the Flexstar GT is providing the control. However, from a resistance management strategy this may not be the best program because the only effective SOA in this program is from the Flexstar component. This will put greater selection pressure on our population of tall waterhemp and it could eventually become resistant to the Group 14 herbicides. To improve this program you could elect to apply a soil applied herbicide pre-emergence such as Dual II Magnum, Outlook, or Warrant (all group 15 herbicides) followed by a post-emergent application of Flexstar GT. This will provide two different SOAs (Group 15 and 14) that are effective on our targeted weed, GR tall waterhemp.

Utilizing effective herbicide resistant management strategies goes beyond just using herbicides with different effective sites of action. This is just one part of the resistance management puzzle that we need to piece together so that we can delay the development of resistant weeds from showing up on our farms. If you have any questions about the status of herbicide resistant weeds or would like more information about effective herbicide resistant weed management strategies contact Mike Hunter at 315-788-8450 or meh27@cornell.edu.

Farmers here in NNY and elsewhere in the Northeast have been dealing with some pretty noisy weather patterns over the past handful of growing seasons. 2016 was a drought for most farms in NYS, while 2017 brought way too much rain and disrupted most cropping operations all season. 2018 was a little of both – cold and wet early, then we enjoyed a nice dry planting season, the summer was far too dry for some and just a bit dry for others, then our fall has been wet again. Precipitation is not the only shifting weather feature. Temperatures are generally warming from season to season. Forecasters tell us that these will be our trends in the future – generally warmer temperatures and more dramatic swings in precipitation.

To help farms consider these weather trends when planning crops, the Cornell Smart Farming (CSF) program has developed almost a couple dozen different decision support tools for the Northeast US. Find them at: http://climatesmartfarming.org/tools/.

Each tool is designed to help improve farm productivity and resiliency in the face of a changing climate. These tools are all based on location-specific climate data, weather forecasts, and future outlooks. Each CSF tool permits selection and saving of multiple locations, at the field level, in order to use the best local and relevant grid data for each calculation.

The CSF Growing Degree Day Calculator is the tool I want to highlight here. It’s undergone some pretty helpful changes recently and is now designed to help you look at the season length, and associated risks, needed for your chosen crop varieties. Let’s look at an example. Direct your browser to http://climatesmartfarming.org/tools/.

Select the CSF Growing Degree Day Calculator and play along.
Hugh deMaan farms near Constable, NY, and usually plants a 95-day silage corn hybrid with appropriate disease resistance and nutritional characteristics for his herd. Given the warming seasons, could he get away with a 105-day variety? From the seed company literature, it looks like the 95-day hybrid needs about 2050 GDD\(_{86/50}\) to reach harvest at silage moisture, near early dent stage. The 105-day hybrid needs about 2150.

Using the CSF GDD Calculator, first select a field near Constable by clicking the ‘Edit’ button under the Current Location and zooming in on the correct field. The map may be changed to a satellite image by clicking the ‘Map’ button in the upper right hand corner of the map and selecting ‘Satellite.’ Then ‘Select and save’ your field location choice once you’ve marked it so you can use it again sometime. The map goes away and you come back to the GDD graph, which now shows your selected location across the top. The 86/50 GDD calculation method is most appropriate for corn, so make sure that is selected as the GDD Base (°F).

Hugh imagines a perfect planting season where he can plant this field on May 15, so select that planting date using the calendar button under ‘Planting Date.’ Oh, but when you look at May 15, on the bottom leftmost part of the graph, you notice that, over the past 15 years, there’s been a frost after May 15 a few times. Hmmm, maybe May 25 is a more ideal planting date; Hugh is not a risk taker. Change the planting date to May 25th. There has only been 1 frost in the last 15 years on or after May 25th at that location.

Click the ‘enable targets’ clickbox and slide the slider to 2050 GDD. You’ll notice a vertical green line appears on the graph, indicating that 2050 GDD\(_{86/50}\) was reached in 2018 around September 1st (green curve). First frosts for the past 15 years are well past this date, mostly beginning about Oct 1. Before he feels too confident, Hugh notices that the 2018 GDD accumulation is pretty far above the 15-year average. Hover your mouse over the graph and move it to the right while you watch the numbers change inside the box in the upper left hand corner of the graph. The 15-year average (blue line) reaches 2050 GDD\(_{86/50}\) on about September 30th, just before all the first frosts start to creep in. The box reports that on September 30th, the GDD 86/50 totals range from less than 1800 to just over 2300 in the entire 30-year data set. Hovering the mouse again, you can see that to accumulate 2150 GDD\(_{86/50}\) for the 105-day hybrid, it’d need to develop until about October 16th, on average, well into the range of first frosts. Hugh decides to stick with his 95-day hybrid so that he has a little bit of flexibility in a wet spring if the seasonal temperatures are more typical.

The Growing Degree Day Calculator is a useful tool to get a visual understanding of season length, frost risks, and temperature variability in your specific area. The tool uses grid data, so lack of weather stations is not an impediment. Play around with it to see if your habitual choices of varieties and maturities are the best for your area.

References and Further Reading:
Climate Smart Farming Tools, Cornell Institute for Climate Smart Solutions, Cornell University, Ithaca, NY USA.
http://climatesmartfarming.org/tools/
Dairy

Key Points to Remember when Composting Livestock

By Lindsay Ferlito

With rendering companies either not picking up or charging a high fee to do so, more farms have been considering on-farm composting to dispose of livestock carcasses. The benefit of composting is that almost anybody can do it as long as you have the proper site, a tractor, organic material, and you follow some relatively straightforward steps. Although there is still a cost associated with on-farm composting (time/labor, tractor and fuel, and organic matter), it is currently still one of the cheapest options available to most farms.

In mid-October, Franklin County Soil and Water organized a training session run by Jean Bonhotal (Director of Cornell Waste Management Institute) at a local farm to demonstrate how to compost livestock. Jean covered the basics from site setup, which organic materials to use, and location on the farm, and then the farm showed their setup and a carcass was buried to be composted. This article will cover some of the guidelines found on the Cornell Waste Management Institute site and what Jean discussed during the program.

1. Select a site. Ideally the site is near the back of the farm, far from the roadside and the view of the public. The site should have good drainage and be at least 200 feet from wells and waterways. If composting is done properly, there should be no smell and no animals will be attracted. If it doesn’t go quite to plan, and animals get into the carcass, you may have to move the location of the next site since some animals will learn that location is the source of food. By moving the location for a while, and ensuring composting is done properly, this will deter wildlife in the future.

2. Prepare a base. The carcass should be placed on a good base that is at least 24 inches high, and extends at least 24 inches beyond the animal. The base should be made up of large (4-6 inches) organic material. Wood chips work the best. Check with your local town (especially after a big storm) and see if they have any chips they are looking to get rid of.

3. Place animal and lance rumen. Once the base is ready, place the animal in the center of it (making sure there is still about 2 feet of base around the edges of the animal). Lance the rumen to prevent bloating and bursting (release of gases) after you’ve buried the animal.

4. Cover the animal. Only place 1 adult cow in each pile. If you have calves, you can layer them by placing the first calf down, and covering with about 2 feet of organic material, then adding the other calf and covering. The animals should be covered with 2 feet of organic material, and this can include feed refusals, old straw or sawdust bedding, or wood chips. Jean said try not to compost only 1 calf at a time since it won’t generate as much heat and it’s harder to compost. If you do only have 1 calf, add some manure around the calf to add organic matter to break down, which should help get it up to temperature and compost properly.

5. Let it sit for 4-6 months. Once buried, leave the pile for at least 4-6 months before touching it, and then check to see if the carcass is fully composted. The pile does not need to be turned (flipped/rotated). Turning after 3 months will speed the composting process, but odor does become an issue (so don’t turn if you have neighbors nearby).
6. **Reuse the material.** After the carcass is degraded, you can reuse the organic material in your next compost pile, or remove the remaining bones before spreading it on a field.

For more information, posters, and fact sheets on livestock composting, visit the Cornell Waste Management Institute website (http://cwmi.css.cornell.edu/mortality.htm).

_North Country Regional Ag Team_
Dairy Day

Dates and Locations:
January 15, 2019
Elks Club
Lowville, NY
10am-3pm

January 16, 2019
Ramada Inn
Watertown, NY
10am-3pm

Agenda:
10:00: Welcome
10:10: Kelsey O’Shea (North Country Regional Ag Team) – What are my options?
10:40: Mike Baker (Beef Cattle Extension Specialist, Cornell University) – Dairy Beef
11:20: Questions for Mike and Kelsey
11:30: Research updates from North Country Regional Ag Team
Noon: LUNCH
12:45: Keynote – Andrew Novakovic (Professor of Agriculture Economics, Cornell University): Updates on the NY and US Dairy Industry
1:45: Questions
2:00: Jean Bouhotal (Cornell Waste Management Institute): Composting/waste management

Cost: $20 per person. Lunch is included.
Please call and register with Tatum Langworthy at 315-788-8450 or tlm92@cornell.edu
or online at https://reg.cce.cornell.edu/dairyday2019_10512

Cornell Cooperative Extension
North Country Regional Ag Team

Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EO, Protected Veterans, and Individuals with Disabilities and provides equal program and employment opportunities.
Are you looking to advertise your business? See the contract below to advertise in the North Country Ag Advisor.

North Country Regional Ag Team
Newsletter Advertising Contract

Advertiser: _____________________________________________________________
Contact Name: ___________________________________________________________
Billing Address: __________________________________________________________

Phone: ___________________ Email: ___________________________________________
Start Date: ________________ End Date: ________________

Size of Advertisement:
1/2 Page (5” x 7”)
1/4 Page (3.5” x 5”)
Business Card (2.5” x 3.5”)

Monthly Rate:
1/2 Page = $110.00
1/4 Page = $75.00
Business Card = $36.00

Schedule:
( ) Yearly
( ) Monthly—until further notice
Other: __________________________

Yearly Rates (Billed in Advance):
1/2 Page = $1,188.00
1/4 Page = $810.00
Business Card = $389.00

Ads preferred in jpg format

Advertising in Jefferson, Lewis, Franklin, St. Lawrence, Clinton and Essex Counties Ag Newsletter

Return form and payment to: CCE of Jefferson County, 203 North Hamilton Street, Watertown, NY 13601

Amount Paid: $_______________________ Amount to be Billed: $_______________________
Signature: __________________________ Date: __________________________

If you have any questions, please feel free to contact Tatum Langworthy, CCE-Jefferson County at 315-788-8450 or by email tlm92@cornell.edu
Given the current climate of prices in various agricultural industries, it is important to consider how money borrowed will affect your future profitability. In a previous article we talked about the different kinds of loans that lenders offer, how they are scheduled, and when it is appropriate to use them. Here we will look at what happens when operating expenses are paid by borrowed funds.

If a farm business borrows $5,000 a month to keep all billing accounts current, this would be $60,000 over the course of the year. This would also indicate (because they are borrowing to pay bills) that they cannot afford any additional debt service (increase in monthly payments). A business could handle borrowing this money in one of two ways:

- **Short Term Revolving Loan** - a loan that becomes re-available as the principal is paid down with each payment. When the principal balance on these loans increases, the payments should increase as well. Depending on what your terms are (most are scheduled with monthly payments over 3 or 5 years), you will be using funds to pay current operating expenses that you then will not effectively pay off for three to five years. While this happens on farm businesses, and can certainly be recovered from, it is important to consider what you will have to forgo in the future. The opportunity cost is most often seen when repairs or new equipment purchases need to be made and instead of having the capacity (both on the line of credit and monthly payments capacity of additional debt to purchase upgrades) the farm is still paying for old operating expenses. In the case of the $60,000, the monthly payments over three years at 4.5% interest would be $1,785. It could be considered that a farm family could have $60,000 in family living expenses, in which case, the owner of that business is essentially borrowing to pay their salary. Farm businesses should consider whether or not this additional borrowing is a limited time circumstance, or if it is part of an ongoing pattern.

- **Long Term Non-Revolving Loan** - a loan that has a finite amount disbursed at the beginning of the loan and with principal funds that do not become re-available. Typically a non-revolving loan that is secured by a mortgage on real estate has terms that are 30 years or less (scheduled over 15, 20, or 25 years). If a farm is in an equity position where they can use real estate value to secure a long term loan, they could schedule the additional funds borrowed in the example ($60,000) over 15 or 20 years. In some cases, farm businesses will take portions of or entire short term loans and “term them out”, or take a finite amount that can be secured by real estate and stretch out the repayment terms. This can lower monthly payments considerably going forward and provide reprieve or flexibility in future years to allow for capital purchases or repairs. However, it will also limit future ability to borrow additional funds for real estate or if another period of losses occurs.

Either one of these options, or a combination of both, can work for farms. It is important to consider your options and evaluate your specific situation with whomever you feel comfortable. When reviewing these options, be sure to evaluate what the opportunity cost is. What will your business have to give up in the future because of these additional borrowed funds? Will these additional funds limit or eliminate your ability to be profitable and competitive in the future? During times of financial stress it is difficult to focus on the more distant future, but the choices made today will shape your tomorrow. Should you want to review your farm businesses financial position or evaluate financial plans, your NCRAT Farm Business Management Specialist can assist. Kelsey O'Shea can be reached at 315-955-2795 or kio3@cornell.edu.
Starting a Value-Added Business
6:00 pm – 8:30 pm Thursday, December 6, 2018
203 N Hamilton St. Watertown, NY 13601
Free Admission!

Maria “Flip” Filippi from the CCE St. Lawrence Harvest Kitchen will review current food safety requirements and resources to help you successfully and safely start your own food business.

To register, please contact Cathy Moore at 315-788-8450 ext. 236, email cmm17@cornell.edu, or register online: https://reg.cce.cornell.edu/StartAValueAdded_222

SAVE THE DATE - Crop Congress
A Collaboration between Cornell Cooperative Extension and The W.H. Miner Institute

Wednesday, January 30, 2019 @ W.H. Miner Institute
Chazy, NY

Thursday, January 31, 2019 @ Ramada Inn
Watertown, NY

NYS DEC and CCA Credits Pending
More information to follow. If any questions, please contact Billy Gilmour, 315-654-3113 or Jamie Hunter, 315-786-1560.

“The North Country Regional Ag Team is a Cornell Cooperative Extension partnership between Cornell University and the CCE Associations in Jefferson, Lewis, St. Lawrence, Franklin, Clinton, and Essex counties.”
Farm Finance 101
By Kelsey O’Shea

Ever wish you paid more attention in that accounting class? Maybe you’re a bit rusty on financial ratios, or looking to learn something new. Each month I will go over an accounting or finance topic as it relates to your farm business, so stay tuned. This month we are taking a quick break from finance to talk about labor.

LOOKING FOR LABOR? LET US HELP YOU FIND IT!

Labor is quickly becoming one of the most pertinent issues on dairy and other farms in the Northeast. The North Country Regional Ag Team has developed an online tool to advertise positions on various operations. This tool is regularly shared with agricultural universities across the Northeast. The Farm Business Management Specialist assists farmers with writing job postings and provides access to the online platform where students can browse and apply for jobs directly online. The applications are sent directly to the farm with pertinent information that the farmer can then follow up on. The goal is to provide a real time link between North Country Farms and the next generation of farmers/managers.

Remember that students are looking for opportunities ASAP. Contact Kelsey O’Shea at kio3@cornell.edu or 315-955-2795 to develop a job posting and get it listed online today. Please note as well that CCE is exclusively providing assistance and a platform to post jobs; they are in no way guaranteeing performance, or participating in the selection of or management of the prospective student and/or employee.

Check out the Job and Internship Opportunities link on the NCRAT website at:
https://ncrat.cce.cornell.edu/job_opportunities.php
Beef Producers Workshop
"Bull Selection by the Numbers"

Friday, December 7, 2018
7:00 pm - 9:00 pm
Extension Learning Farm, Canton
FREE EVENT

Mike Baker, PAS, PhD, Beef Cattle Specialist from Cornell University will talk about bull selection by the numbers. This will be a workshop approach using farm case studies to determine which bulls best meet your farm’s breeding, production and profit objectives. Learn to make sense of those letters and numbers under the nice pictures in the bull catalogs.

*Pizza provided by Select Sire Power!*

Register at:
stlawrence.cce.cornell.edu
or call 315-379-9192 ext. 227 or 237

If you have any special needs please contact the office at 315-379-9192. Cornell Cooperative Extension provides equal programming and employment opportunities.
The Feed Dealer Seminars are specifically targeted for nutritionists, veterinarians, crop and management consultants, extension educators, and dairy producers with specific interest in nutrition-oriented topics. They are designed to blend the latest concepts in feeding and other management aspects of dairies with field level application. They have been conducted annually as a road show with multiple sites in New York for many years with an additional Vermont location held during the past several years in collaboration with the Northeast Agribusiness and Feed Alliance.

**Locations:** Held at 6 sites in New York and 1 in Vermont (see dates and locations below)

**Speakers:**
- Dr. Tom Overton, PhD, Professor of Dairy Management and Director of the PRO-DAIRY program, Cornell University
- Dr. Kristan Reed, PhD, Assistant Professor of Dairy Cattle Nutrition and Northeast Agribusiness and Feed Alliance Partners Sesquicentennial Faculty Fellow

**Topics:**
- Maximizing milk fat on the dairy
- RuMUNations on nitrogen efficiency (aka strategies for assessing and improving nitrogen efficiency through the entire lactation)

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<tr>
<th>Date</th>
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<th>Location</th>
<th>Contacts</th>
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<tbody>
<tr>
<td>Dec 10 (Mon)</td>
<td>6 PM to 9 PM</td>
<td>Chamber of Commerce, 37 Church St., Cortland, NY</td>
<td>Betsy Hicks or Stephanie Vitarelli (607) 391-2662</td>
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<tr>
<td>Dec 11 (Tues)</td>
<td>8 AM to 11 AM</td>
<td>Quality Inn (formerly Holiday Inn), Oneonta, NY</td>
<td>Paul Cerosaletti or April Lucas – (607) 865-7090</td>
</tr>
<tr>
<td>Dec 11 (Tues)</td>
<td>1 PM to 4 PM</td>
<td>Cornell Cooperative Extension Office, Ballston Spa, NY</td>
<td>Dave Balbian – (518) 312-3592</td>
</tr>
<tr>
<td>Dec 12 (Wed)</td>
<td>10:30 AM to 2:30 PM</td>
<td>Langevin House Vermont Technical College, Randolph, VT</td>
<td>Sue VanAmburgh – (518) 783-1322</td>
</tr>
<tr>
<td>Dec 12 (Wed)</td>
<td>6:30 PM to 9 PM</td>
<td>Miner Institute, Chazy, NY</td>
<td>Wanda Emerich – (518) 846-7121 ext 117</td>
</tr>
<tr>
<td>Dec 13 (Thurs)</td>
<td>12 PM to 3 PM</td>
<td>Ramada Inn, Watertown, NY</td>
<td>Tatum Langworthy – (315) 788-8450</td>
</tr>
<tr>
<td>Dec 14 (Fri)</td>
<td>11 AM to 2 PM</td>
<td>Cornell Cooperative Extension, Batavia, NY</td>
<td>Linda Risewick – (585) 343-3040 ext. 138</td>
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(518)561-7000
randy@northeminsuring.com
## What's Happening in the Ag Community

<table>
<thead>
<tr>
<th>Event</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>Starting a Value-Added Business</strong>, see page 11 for more information.</td>
<td></td>
</tr>
<tr>
<td><strong>Dairy Transitions Program</strong>, 12pm-3:30pm, December 6 in Lowville and December 7 in Watertown, NY.</td>
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<tr>
<td><strong>Beef Producers Workshop “Bull Selection by the Numbers”</strong>, see page 13 for more information.</td>
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<tr>
<td><strong>2018 Academy of Dairy Executives</strong>, December 12-13, Lake Placid, NY.</td>
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</tr>
<tr>
<td><strong>2018 Feed Dealer Seminars</strong>, see page 14 for more information.</td>
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<tr>
<td><strong>Dairy Day 2019</strong>, see page 8 for more information.</td>
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<tr>
<td><strong>Crop Congress</strong>, January 30, 2019, at the Miner Institute, and January 31, 2019, at the Ramada Inn, Watertown, NY.</td>
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