Frost Seeding Time is Here!

By: Nancy Glazier

Though there is snow on the ground, the sunshine today (2/12) makes me think spring is right around the corner. Early spring is a great time for frost seeding and March is usually a great time to add some legumes into your pastures, hayfields or winter small grains. It is a way to improve pastures without losing a production year. Added legumes will boost production and fill in thin patches or bare spots; they will provide needed nitrogen to the grasses already growing, and provide protein for the livestock. Little or no tillage is involved which reduces the potential for soil erosion. Hopefully, you did your homework last fall by checking the forage quantity, types and groundcover. If not, take a walk after the snow melts, you may need some light dragging or disking to open up the vegetation a bit.

For frost seeding to be successful seed-to-soil contact is critical. What works with this technique is the freeze-thaw process in late winter/early spring. This action tends to work better on heavier soils as sandy soils are less likely to crack or form the ‘honeycombs.’ As the days get above freezing and nights below freezing, this action works the seeds down into the soil in preparation for germination. Spreading seed on frozen ground reduces the potential to rut up the pasture or field. This can be done best early morning or possibly late in the day.

This is the classic “honeycomb” heaving from frost.

Photo Source: Nancy Glazier

Continued on page 3
Mission Statement
The NWNY Dairy, Livestock & Field Crops team will provide lifelong education to the people of the agricultural community to assist them in achieving their goals. Through education programs & opportunities, the NWNY Team seeks to build producers’ capacities to:

- Enhance the profitability of their business
- Practice environmental stewardship
- Enhance employee & family well-being in a safe work environment
- Provide safe, healthful agricultural products
- Provide leadership for enhancing relationships between agricultural sector, neighbors & the general public.
Legumes work best for frost seeding due to the shape of their seeds and will germinate under cool conditions. Success will vary farm to farm, but clovers will establish better, specifically red clovers. They are more tolerant of low pH and low fertility, but are shorter-lived in pastures. A way to overcome that would be to routinely frost seed half your pastures every year, alternating. It can be an inexpensive improvement.

Suggested rates are below. The price of seed is relatively low, so don’t skimp and use inoculated seed.

Lbs/Ac
Red Clover - 6 to 10
Ladino Clover - 2 to 4
Birdsfoot Trefoil - 5 to 8

Equipment for frost seeding can be as small or as big as needed. The size of the pasture or field will dictate what is needed, unless you have time and the desire to walk a large field with a small cyclone spreader. A broadcaster can be mounted on the back of an ATV or small tractor. Fertilization will help seedlings get established as well as existing grasses, but wait until late summer if a soil test report shows phosphorous or potassium is needed.

Sometimes overgrazing or continuously grazing will leave bare or thin spots, or kill the existing legumes. Frost seedings can be done to improve the stand, but this will only be a short term fix. Rotational grazing is the best way to improve a stand for the long term. Frost seeding will return legumes to the pastures; dividing the pasture into at least four paddocks will provide forages time to rest and regrow through the growing season. Grazing needs to be carefully managed early season to prevent damage to the tender seedlings, yet allow light to reach them.

Who can predict what this spring will be like? Dry spring conditions will discourage seed germination. Unfortunately, there is no way to control this. With the seed in place, there is a chance that it will germinate and grow when sufficient moisture is there.
Cornell CALS PRO-DAIRY
Herd Manager Training

Who should attend?
The Herd Manager Training is an educational program for farmers, employees and agri-service people who work directly with dairy cows. It will cover transition cow health monitoring, facilities and environmental impacts of transition cow management, antibiotic stewardship, ethical cull cow handling and decision making, body condition scoring as a monitoring tool and components of an effective local vet relationship.

Program details:
The Herd Manager Training is a two day program held one week apart from each other. The program will be held on farm with a combination of presentations, demonstrations, farm walkthroughs and discussion.

This program is eligible for FSA Borrower Credits.
Registration is $75.00, and includes program, materials and lunch.

Topics:
- Transition Cow Health Management
- Transition Cow Facilities
- Health Management Practices
- Facilities Assessment and Discussion
- Antibiotic Stewardship
- Cull Cow Management
- How to Use Your Local Veterinarian
- BCS During the Transition Period
- Antibiotic Stewardship and Cull Cow Practices

Instructors:
- Robert A. Lynch, DVM
  Dairy Herd Health and Management Specialist, Cornell PRO-DAIRY
- Jerry Bertoldo, DVM
  Cornell Cooperative Extension, Dairy Management Specialist
- Lindsay Ferito, MS
  Cornell Cooperative Extension, Dairy Management Specialist
- Kimberly Morrill, PhD
  Cornell Cooperative Extension, Dairy Management Specialist
- Betsy Hicks, MS
  Cornell Cooperative Extension, SCNY Dairy & Field Crops Team, Dairy Specialist

Locations:
Northern New York – Two Locations:
March 13 & 20 – Farm Credit Burville, 25417 NY-12, Watertown, & local farm.
Registration: Tatum Langworthy, tim92@cornell.edu, 315-788-8450

Central New York
First Day: March 15 – Venture Farms, LLC, 8978 State Route 80, Tully
Second Day: March 22 – Magro’s, 5758 Telephone Rd, Cincinnatus and Riversides Dairy, Cincinnatus
Registration: Stephanie Vitarelli, sav66@cornell.edu, 607.391.2662
Questions: Betsy Hicks, 607.391.2873

Information and Registration:

AG FOCUS MARCH 2018 NWNYTEAM.CCE.CORNELL.EDU
Changes to the Margin Protection Program (MPP) for Dairy Producers, MPP Dairy Decisions for 2018, and Cash Flow Budgeting

By: John Hanchar


Summary
- Implementation of MPP Dairy for 2018 will change due to the recently passed, as of this writing, Bipartisan Budget Act of 2018.
- Due to some key changes, producers will likely want to use the opportunity to revisit their 2018 enrollment decision.
- For some producers who choose to make MPP decisions based upon expected cash needs for a future period, cash flow budgeting can be a valuable approach.

Highlights – Changes to the MPP Dairy Program
- The just passed, as of this writing, Bipartisan Budget Act of 2018 significantly changes 2018 implementation of the MPP Dairy Program – check the MPP Dairy website for updates and more, including the MPP Dairy decision tool <https://www.fsa.usda.gov/programs-and-services/Dairy-MPP/index>.
- 2018 program sign up to be reopened – new legislation instructs USDA to reopen the 2018 sign up process, allowing dairy farmers, including those who signed up and those who did not, to make election choices again.
- The new MPP Dairy converts to a monthly payment – payment will be made in any month that the Actual Dairy Producer Margin falls below the producer’s coverage level, and on 1/12 of the production enrolled.
- Reductions in Tier 1 premiums are substantial, and the maximum Tier 1 amount increases to 5 million pounds.

Some producers will choose to approach selection based upon expected need, asking the question, “Which coverage level and percentage makes the most sense given expected cash needs for the future period?” For these producers, budgeting to determine expected future needs from a cash flow perspective will be valuable.

The Cash Flow Budget
A cash flow budget for projecting the business’ ability to meet cash obligations in a timely manner for a future period summarizes the expected cash inflows (cash farm receipts, money borrowed, capital sales, non farm income) and outflows (cash farm expenses, principal payments, capital purchases, withdrawals for family living and other personal withdrawals). For MPP purposes, the projection would help the producer establish the lack of need or need, often projected as an excess or deficit, respectively, of cash for purposes of selecting MPP coverage level and percentage.
Characteristics of effective cash flow budgeting include the following.

- LaDue, Schuelke and Mensah-Dartey offer some basic rules to follow to ensure useful projections (LaDue, Eddy L., Jacob Schuelke and Virgil Mensah-Dartey. 2000. CASHPRO: A Computer Spreadsheet for Projecting Annual Cash Flows and Pro Forma Income Statements.)

1. Project cash flows from accrual (or accrual adjusted) receipt and expense values.
2. Exclude unusual occurrences from the base year data used for projections.
3. For each receipt and expense item, ask, “Do I expect the value to change? If yes, then by how much and why?”
4. Be sure to adjust for inflation.
5. Livestock farms that grow forages or concentrates should carefully assess their forage and/or concentrate balance whenever significant changes are expected in the size or composition of the animal herd or cropping program.

- Sensitivity analysis and critical review of the projections enhance the usefulness and validity of projections.

The CASHPRO electronic spreadsheet with instructions is available at <https://dyson.cornell.edu/outreach/farm-management-decision-aids.html>. Monthly, whole farm, cash flow budgeting is also an option. Again, see <https://dyson.cornell.edu/outreach/farm-management-decision-aids.html> for a monthly cash flow budgeting tool.

To learn more about developing cash flow projections, visit the team’s website at <nwnyteam.cce.cornell.edu> and type “cash flow budgeting” in the “search our entire site” window and, or contact John Hanchar, or Joan Petzen.
Applied in-furrow, MycoApply® EndoPrime™ uses four unique species of mycorrhizal fungi to help improve nutrient efficiency, drought tolerance and yield potential. Keep your advantage – nurture your soil today to help ensure future harvests will be just as bountiful.

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NAFTA has resulted not only in increased trade, but also in personal connections between American and Mexican dairy farmers.

Last month, I discussed how the American and Mexican dairy industries are exchanging more than just money and dairy products. Some Mexican natives who travel north to work on our farms have their own farms in Mexico. I followed the story of one farmer named José, who spent ten years working on NY dairy farms while sending money home to improve his own herd.

In a recent conversation, José modestly told me that he now owns 70 dairy animals, adding “It’s nothing in comparison with what you have in New York.” He explained that while his pasture can only support 35 cows, he owns many in partnership with others. When his herd begins to swell, he gifts a pregnant heifer to a neighbor who owns land but no cattle. Half of the cow’s offspring go to José, the other half to the neighbor.

As for Nestlé? (The European company owns two processing plants in Veracruz and has invested millions of dollars to increase Mexico’s dairy production, primarily by working with small-scale farmers in Southern Mexico). I expected to hear great things about their work in José’s rural Veracruzan village, but alas. “The cheesemakers pay more,” José informed me. “Nestlé is a good company, but their price is too low.”

José arrived in the US with dairy knowledge; but ten years on NY dairy farms opened his eyes to new ways of managing cows. Working with large herds, he gained experience with difficult calvings and became an expert at curing sick calves; skills that will serve him well in Veracruz.

In a manner so telling of his humble, hardworking nature, Santiago told me that from what he earned while working in the U.S., he built a comfortable home and bought a car. He invested in his herd and said that he and his wife don’t lack for food.

By comparison, poverty is all around him. He talks to his son daily, always emphasizing how lucky he is. “In Mexico the situation is tough. Many suffer. I remind him that for a day’s work here you earn 150 pesos.” That’s US$7.50.

While Nestlé hasn’t been the saving grace for dairy producers in that area of Mexico, it did bring them technical support and the opportunity to finance a cooperative bulk tank. Small-scale farmers like José who work on our dairies are importing knowledge into Mexico that will help propel the industry forward.

Just as the US depends on Mexico as an important trade partner, Mexico depends on US remittances, which reached an **US$26.97 billion** in 2016. But our dairy industries are linked by more than money; they’re linked by the real men and women who milk cows on both sides of our shared border.

Sources:
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www.reisdorfbros.com
PathStone Corporation is currently accepting applications for their 2018 On-Farm Housing Grant

This program is a matching grant of up to $2000 to repair and upgrade existing farm labor housing. Examples of eligible repairs include, but are not limited to: bathrooms, plumbing, laundry facilities, recreation rooms, upgrading kitchens and appliances, heating, floors, walls, windows, ceilings, doors and other major structural components. Special consideration will be given to projects that positively impact the quality of life for farmworkers during off work hours. Farm Owners must agree to provide $1 for every $1 provided by PathStone Corporation. This grant is available in Monroe, Wayne, Ontario, Orleans and Genesee counties. If interested, or if you have questions, please contact Susan Lerch at 585-546-3700 x3020 for an application. The application deadline is currently March 15, 2018 and the work will need to be completed by June 7, 2018. Please help us spread the word as we want to assist as many farms as possible!
Ten key herd management opportunities on dairy farms

By: Jerry Bertoldo

Article edited and shortened from the original written by Tom Overton, Jason Karszes, Robert Lynch, Julio Giordano, and Mike Van Amburgh, Department of Animal Science and PRO-DAIRY, Cornell University

For the original full length version visit the NWNY website

Tighter and likely negative margins on dairy farms now and for the next period of time make it even more critical for dairy producers to focus their management skills on making sure that their herd management is “being all that it can be.”

1. Maximize milk component production

Top-end herds in the monthly Dairy Profit Monitor benchmarking program www.dairyprofit.cornell.edu are producing a combined total of 6.5 lbs/day per cow or more of fat and true protein, with a solid goal across herds of greater than 6.0 lbs/day per cow. In general, herd-level milk fat percentage below 3.5% and true protein percentage under 3.0% in Holstein herds suggest opportunities for improvement. Low milk fat suggests passage from the rumen of unique unsaturated fatty acids that directly inhibit milk fat synthesis and that there is opportunity either in ration formulation or in ration implementation. In the case of milk protein, levels below 3.0% suggest that rumen fermentation and microbial protein synthesis is not being maximized, or there are opportunities to improve amino acid balance by use of blended proteins or protected amino acids.

2. Relentlessly seek marginal milk opportunities

Generally, the highest profit margin production is that from marginal (incremental) increases in milk production. This can be accomplished by herd-level management strategies such as changing milking frequency (e.g., 2X to 3X or 4X/2X milking), shortening dry period length on higher producing cows down to 40 days dry, capturing feed efficiency through use of compounds such as Rumensin, or improving cow comfort. A study was completed several years ago to evaluate production responses to 4X milking during the first three to four weeks post-calving followed by 2X milking thereafter. All farms had positive production responses for cows milked 4X/2X and the average response was approximately 3.5 lbs of component-corrected milk yield across the first 7 monthly test days. What if you could make the same milk with better components, similar or lower inputs, a better milk check on fewer cows and make your co-op happy at the same time? The overall increase in labor/milking capacity for a 2X herd to actualize 4X/2X is only about 7% compared to 30% for whole-herd 3X.

3. Don’t lose fresh cows

The best dairies that we encounter maintain fresh cow loss in the first 60 days in milk at or below 5% of calvings, without keeping low producing fresh cows simply to keep this number lower. In a recent dataset of 72 herds in New York and Vermont, about 25% of the herds had 9 to 13% of fresh cows and 6% of first calf heifers leaving in the first 60 DIM. The highest 25% of herds had between 7 and 11% of first calf heifers leaving in the first 60 DIM! This represents a large economic loss to these dairies.

Frequently, these losses are contributed to by overcrowding either before or after calving, frequent group changes before or after calving, or competition issues between springing heifers and older cows. Cows in herds with less than 28 inches of bunk space prefresh in another study had 40% greater risk of leaving the herd in the first 30 DIM.

4. Identify and potentially cull low value and low profit cows

Identify those low producing cows who are not generating enough revenue to cover variable feed and labor expenses and use routines such as COWVAL in DairyComp 305 (either on-farm or can be run by DairyOne technician at monthly herd visit) to identify those lower value cows in the herd for either removal, dry off, or replacement. In overstocked pens, removal of low profit cows may result in little to no change in overall milk yield because of better overall performance of the remaining cows.

5. Ensure that all management protocols are working and being followed

Protocol drift in many areas of dairy herd management (an incomplete list includes milking routines, calving and colostrum management, reproductive program implementation, and feeding management) is common. This can easily lead to
drag in milk yield, higher SCC, poorer conception rate, increased morbidity and mortality in calves, lower feed efficiency and poorer rumen health among other issues. Are you losing out on milk quality premiums because of milking routine/facility issues or a few high SCC cows that are elevating the entire tank?

6. Don’t incur heifer rearing costs longer than necessary
Despite years of research and herd experience that suggests that herds can grow heifers well and calve them at 21 to 22 months of age, many herds still average 24 to 26 months of age or higher at first calving. This can incur substantial additional cost both in terms of feed requirements and facility/labor to support additional heifer inventory. An Excel spreadsheet calculator for evaluation of the heifer enterprise is available at the PRO-DAIRY website located at [http://prodairy.cals.cornell.edu/business-management/resources](http://prodairy.cals.cornell.edu/business-management/resources). The quality of heifers also counts! Failure to do results in lower mature equivalent milk and higher cull rates in the first lactation.

7. Get the most out of your reproduction program
Many dairies are consistently achieving pregnancy rates of 26% or higher. Comparing this to what used to be considered a good goal of 20% a few years ago, there is significant revenue to be gained. Even at current milk prices, a 500 cow dairy stands to gain $42,000/yr if they can improve from 20% to 26%.

8. Optimize neonatal management
Opportunities exist on many dairies to decrease stillborn (DOA) rates and decrease morbidity and mortality in calves through the milk-fed phase and weaning. Our best dairies consistently maintain dead-on-arrival (DOA) rates in female calves at around 4 to 5% of calvings. Intensively managing the calving process for a “just-in-time” move from a close-up group to a calving area usually decreases DOA rates and can decrease overall fresh cow problems. In our recent study, the best 25% of dairies averaged less than 2% death and cull rate in the first 3 months of life. Excellent colostrum management ([4 quarts of quality colostrum [\(> 45\) to 50 mg/ml of IgG; < 100,000 CFU/ml of bacteria] within 4 hours of birth for Holsteins) is critical. Calves should be fed to double their birth weight by 56 days of life. This plane of nutrition both enhances the efficiency of lean gain and provides nutrients to allow the immune system to function, thereby decreasing veterinary and medicine costs for the calf program.

9. Strategically identify ration opportunities
Opportunities exist both in terms of using accurate forage analyses to enable tighter ration formulation and more sophisticated forage analyses (e.g., fiber digestibilities) integrated with nutritional models to optimize use of homegrown forage within dairy rations. If forage is of high quality and inventory is adequate, is it being utilized to its potential? Likewise, if high quality forage is not available, are there other ration adjustments that can be made to optimize milk yield? Recent work has suggested that there are opportunities to strategically decrease protein feeding levels and maintain high milk and milk component yield. Research consistently indicates that there is no productive or reproductive reason to exceed approximately 0.40% phosphorus for fresh cows, and 0.35% phosphorus for cows at other stages of lactation. Although it is tempting to remove nutrients or feed additives from the ration to lower cost, be careful that you are not hurting subsequent returns by doing so.

10. Maximize your feeding management program
The feeding management program can result in hidden losses in feeding programs. Opportunities range from decreasing shrink at the silo by better face management in bunks and bags to accurate and frequent (at least weekly) assessment of silage dry matters to ensure more consistent delivery of diets to cows. This is another area in which protocol drift both within a feeder and across multiple feeders is common, which can change particle size and consistency of diets, which contributes to inconsistent intakes and lower efficiency of use of rations.
2018 National Wheat Yield Contest

I had heard about this contest last year but never looked into it until recently when a couple of articles had surfaced. I finally read the rules and gave a review of the contest at the Soybean and Small Grains Congresses last month. I have since had some interest from producers and so I thought I would promote it some more.

The National Wheat Yield Contest is sponsored by National Wheat Foundation. The contest began in 2016. Last year there were 287 entries from 27 different states. There were no entries from New York. All the rules, regulations, and last year’s winners can be found at https://yieldcontest.wheatfoundation.org/.

To enter you must be a National Wheat Grower member. You can fill out the entry form online. If you have ever entered the National Corn Growers contest, they have followed the exact same format. It costs $100 to enter if received by April 1, $125 if received by May 1. This entry fee allows you to submit as many samples as you want. There are four categories: Spring Dryland, Winter Dryland, Spring Irrigated and Winter Irrigated.

- Rules (bullet points)
- Must be certified seed
- Entry field must be at least five continuous acres
- The harvest entry must be at least 1.5 acres
- Must have a designated supervisor
- Must be weighed on a certified scale, no weigh wagons
- Reweight required if over 150 bu/acre
- Quality sample required

National and State winners are established based on the percentage your final yield is above the 5-year Olympic average for your county. For example, if your county average is 50 bushel and your contest yield is 100 bushel, than you are 100% above your county average. I looked up what the 5-year Olympic average (2012 – 2016) for wheat is for our ten counties. The Olympic average means you throw out the highest and lowest of the five years. I have not been able to find any yields for 2017 yet.

There are no cash awards. National winners receive trophies at the commodity classic each winter. State winners receive plaques or certificates. Based on what I see, it would be hard for NY growers to place on the national level. The winner from Colorado last year was 311% over the county average!!! However, I think we can have a really competitive NY contest. Please let me know if you have entered so I can keep track of everyone. Good Luck!

<table>
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<th>5-yr</th>
<th>Wheat Yield</th>
<th>Avg.</th>
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NY Farm Net is offering a free stress management webinar for agri-service & farmers at 1 p.m., March 29th.

This webinar will discuss:
* Different perspectives & types of stress
* Symptoms of stress & warning signs
* Stress management techniques
* How stress may affect farm business management decisions
* Warning signs & evaluating individual stress levels
* Where to get support

Additional resources include:
* **New York Farm Net**: Guides farms through periods of transition, opportunity or challenge by providing free, confidential, on farm consulting services. Farm Net also has a Stress on Farm Families fact sheet.
* **NYS Agricultural Mediation Program**: Provides the opportunity to communicate clearly & negotiate effectively to find fair & workable solutions to challenges faced. Decisions are made by the people directly involved, and not by mediators or outside authorities. Mediation and consultations to discuss mediation are completely confidential.

**Northeast Dairy Producers Conference**

Forward Progress Through Changing Times
Presented by Cornell CALS PRO-DAIRY and the Northeast Dairy Producers Association

**March 7 - 8, 2018**
Holiday Inn, Liverpool

Dynamic and informative general sessions are included in the agenda, and are supplemented with breakout sessions addressing current industry topics. In breakout sessions, PRO-DAIRY's Karl Czymmek will present on "Current Topics in Environmental Law" and Jason Karszes will present on "Strategies and Approaches to Rising Labor Costs." Industry sponsored pre-conference presentations have been added for even more educational offerings. Networking is the bonus benefit of attending and the schedule leaves time for attendees to make new connections. Online registration is open.
Rain Damage?

“Cogito ergo sum” – (I think therefore I am) Rene Descartes. When it comes to complaining and negativity this could read: As I think, therefore I will be. The human brain has roughly 86 billion neurons and these neurons communicate with each other through a component structure called a synapse. The synapses of adjacent neurons are separated by an empty space called the synaptic cleft. When you think a thought the synapses build a chemical bridge (neurotransmitter) across the gap. In doing so the synapses begin growing closer together and will do so each time the thought is repeated. Through repetition of thoughts, positive or negative, you’ve grown these synapses closer together. So, the next time you form a thought, good or bad, the thought that wins will be the one that has the least distance to travel and can travel the fastest. Is it any wonder that Scripture admonishes us to think on positive things? (Philippians 4:8).

Stressed

Let’s be honest. There isn’t a one of us who hasn’t vented over something at least once in our lifetime. Although “letting it all out” can feel oh-so-good in the moment it actually can be very detrimental, health wise. When you vent, your body releases the stress hormone, Cortisol. Cortisol interferes with learning and memory, suppresses immune function, decreases bone density, and increases weight, blood pressure, circulating cholesterol, and incidence of heart disease.

This supports research findings that optimists live longer than pessimists, have over a 55% lower risk of death from all causes, and a 23% lower risk of heart disease. The take home message: a positive outlook could increase the quality of your life as well as the length of it.

Ancient Cure

Oddly enough some of the best cures don’t involve any pharmaceuticals. Gratitude and charity are simple home remedies that can be administered liberally.

Expressing thanks for what you do have or what is enjoyable can have exactly the opposite effect of venting. I’m not saying you need to go full out Pollyanna (Eleanor Porter 1913), but by focusing on the good you’re building those positive neural pathways (see above). “…in everything give thanks…” (1 Thessalonians 5:18)

Random and intentional acts of charity can actually have a positive physiological effect. Research has shown that giving of one’s self actually elevates two feel good hormones: oxytocin and serotonin. Interestingly, the hormone levels are often higher in the giver than the receiver. Gives some traction to, “Tis better to give than to receive,” doesn’t it?

Oxytocin is the hugging or love hormone. It is the one that strengthens the bond between spouses or mother and child. It has also been shown to improve heart health, slow the aging process, and even reduce the effects of stress. In some cases there has been an associated boost in dopamine production giving you the “helper’s high.”

Serotonin is the feel good hormone. Elevating the levels gives you a general sense of well-being. It is frequently in short supply in those suffering from depression, SAD, or a generally negative attitude.

Find the Balance

A small amount of negativity can be healthy and life saving. However, it needs to be balanced with plenty of positive attitude. You can boost a positive attitude in yourself and/or those around you by:
- Smiling at one extra person
- Offering to eat lunch with someone new
- Saying “I love you” to someone you care about
- Volunteering in your community
- Texting someone a compliment or beautiful photo
- Mailing a thank you card to someone
- Going through your closets and cupboards and donating extra items
- When in line at the coffee shop, offer to pay for someone else’s drink

I realize this may sound kind of “touchy-feely,” but give it a try. The results just may surprise you.
NWNY Team Small Farms Specialist Nancy Glazier will lead the workshop. Participants will learn principles of grazing and pasture rotation and begin to develop your own rotational grazing system.

Topics to be covered:
⇒ Species
⇒ Soil Fertility
⇒ Carrying Capacity
⇒ Paddock Layout

Cost: $20 enrolled with the NWNY Team or $25 for non-enrolled with the NWNY Team. $30 per couple or 2 from the same farm.

To register on-line: https://pub.cce.cornell.edu/event_registration/main/events_landing.cfm?event=grazing_10508

To register by phone: Brittany Griffin at 315-536-5123

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Precision farming technology is used to collect and control agronomic information to supply actual needs to parts of the field rather than the average needs to the whole field. Initial attempts to apply variable rate fertilizer were based on grower intuition, soil survey maps, soil test data from sparsely spaced grid samples, and direct observation of soil conditions while crossing variable fields. Ongoing research has revealed the importance of considering additional site characteristics that exert a major influence on crop yield. Site specific application of crop inputs is gradually accomplished by dividing whole fields into smaller, homogenous management zones.

**Variable Rate Application:**
Variable rate application of crop inputs to meet site-specific needs makes economic and environmental sense. Candidates for variable application include major plant nutrients (N, P, and K), lime, seed rate, hybrid or variety, pesticides, manure, soil amendments, water, and tillage. A clear strategy must be developed for each input to accurately guide that variable application. The goal of any variable rate input strategy is to develop an accurate “application map.”

**What are Management Zones?**
Site characteristics used when developing a variable rate input strategy. Please see Table 1.

A precision farming management zone is defined as “a sub-region of a field that expresses a functionally homogenous combination of yield-limiting factors for which a single rate of a specific crop input is appropriate.” (1.) To successfully identify a management zone a true cause and effect relationship between site characteristics and crop yield must be seen. Soil and crop characteristics, grower expertise and computer literacy, and data availability will all influence the final management zone selection.

**Practical Considerations for Defining Management Zones:**
A. Relationship with crop yield  
B. Cost of Data  
C. Data that are quantitative and repeatable

### Table 1. Types of site characteristics on which precision farming management zones can be based. (1.)

<table>
<thead>
<tr>
<th>Type of site characteristics</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative, Stable</td>
<td>Elevation/ topography, soil organic matter, pH or calcium carbonate, soil electric conductivity (E.C.), high intensity soil survey maps, surface curvature and hydrological properties</td>
</tr>
<tr>
<td>Quantitative, Dynamic</td>
<td>Yield monitor data, weed density and distribution, crop canopy appearance or temperature, soil moisture or salinity, soil or plant N status</td>
</tr>
<tr>
<td>Qualitative, Stable</td>
<td>Soil color, first order NRCS soil survey maps, immobile nutrients (e.g. P and K), soil pathogen or pest patterns, depth to subsoil, soil aeration/drainage status</td>
</tr>
<tr>
<td>Intuitive/Historical</td>
<td>Growers knowledge of field characteristics, overall yield patterns and historical practices, soil tilth and quality, past crop rotations, old field boundaries, land leveling and drainage patterns, subsoil characteristics.</td>
</tr>
</tbody>
</table>

D. Density of the Data  
E. Scale of Data
Table 2. Crop inputs that are commonly applied using variable rates and the site characteristics often used to define management zone strategies for these inputs.(1.)

<table>
<thead>
<tr>
<th>Crop Inputs</th>
<th>Management zone factors to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immobile nutrients</td>
<td>Topography/landscape, grid or target-ed soil test data, bare soil photo, soil survey maps, soil E.C. map</td>
</tr>
<tr>
<td>N and Manure</td>
<td>Soil texture, organic matter, yield zones, bare soil photo, soil nitrate-N, crop canopy reflectance</td>
</tr>
<tr>
<td>Lime</td>
<td>Soil pH, buffer pH, soil texture</td>
</tr>
<tr>
<td>Gypsum</td>
<td>Grower knowledge, yield patterns, E.C. map, soil tests for pH and sodium</td>
</tr>
<tr>
<td>Seeding rate</td>
<td>Historical yield levels, topsoil depth</td>
</tr>
<tr>
<td>Hybrid or variety</td>
<td>Topography, yield patterns, grower knowledge, aerial photos for chlorosis, bare soil photo, geo-referenced pest sample (e.g. SCN, Phytophthora root rot, corn rootworm)</td>
</tr>
<tr>
<td>Herbicides</td>
<td>Weed maps or visualization, soil organic matter, soil texture</td>
</tr>
<tr>
<td>Pesticides</td>
<td>Soil properties, geo-referenced soil samples and scouting reports</td>
</tr>
<tr>
<td>Water</td>
<td>Soil texture, topography, soil organic matter, yield zones</td>
</tr>
</tbody>
</table>

Evaluating a Management Zone Strategy:
Utilizing a management zone strategy maximizes economic return by optimizing rates of yield limiting inputs and controlling the adverse effects of weeds and other crop pests. Conversely, if a grower does not use an accurate means of evaluation, the value of a particular strategy may go unrecognized. There are three methods to evaluating the accuracy of a management zone strategy.

A. **Historical**- historically compare yield or income levels attained with a previous variable rate or uniform rate input strategy.

B. **Indirect**- regression analysis used to identify individual yield-limiting factors with multiple-variable regression techniques.

C. **Direct**- Side by side comparison in field using yield monitors & mapping systems to directly compare two management zone strategies.

How to Develop a Management Zone Strategy for the First Time:
Growers wishing to move from a uniform-rate to a variable-rate input strategy should do the following:

1. **Start simple**- use spatial information that is readily available with the best representation between cost and relationship to crop yield. Please see Table 1.

2. **Fine-tune management zones**- (i.e. multi-year yield maps, crop canopy reflectance or temperature, high intensity soil survey maps, grid or targeted soil sampling results, geo-referenced crop and pest scouting reports, aerial imagery, and landscape relationships).

3. **Evaluate strategy effectiveness**- On-farm testing of two management zones across multiple fields and years. Remember to maintain sound agronomic practices throughout the performance evaluation of each management zone strategy.

Regardless of what new technology becomes available in the future, any method that indirectly evaluates yield patterns will be of little value to us in defining input management zones if it cannot be correlated with factors that directly affect yield variability.

For more information please reference:
March 2018

6 Improving Agriculture Labor Management, Workshop 4 - The compliance & safety workshop. Are you managing your risks as an employer?: 4:00 - 8:00 pm, CCE-Ontario County, 480 North Main St., Canandaigua. For more information contact: Liz Higgins at 518-949-3722 or emh56@cornell.edu

7 Getting Started with Grazing, 6:30 p.m. - 8:30 p.m., CCE-Wayne Co., 1581 Route 88N, Newark. To register, contact: 315-536-5123 or https://reg.cce.cornell.edu/grazing_257

7 Soil Health & Nutrient Management Workshop, 9:00 a.m.—3:00 p.m., Jordan Hall, 630 West North Street, Geneva. $20/person with pre-registration by Feb. 23rd. $25/person walk-ins. Includes Lunch. Questions?? Contact: Ontario Co. SWCD at 585-396-1450

13 Profitable Meat Marketing, 6:00 p.m.—9:00 p.m., Jordan Hall, NYS Experiment Station, 630 West North Street, Geneva. Cost: $15/person. To register, contact: Nancy Glazier at 585-315-7746 or nig3@cornell.edu

13 NY Certified Organic Meetings, 10:00 a.m. Jordan Hall, NYS Experiment Station, 630 West North Street, Geneva. For more information, contact: Fay Benson at 607-391-2669 or afb3@cornell.edu

13 & 15 Pre-Exam Training & Test to Become A Certified Pesticide Applicator, 8:00 a.m. - 12:30 p.m., CCE - Orleans County, 12690 State Route 31, Albion. PRE-REGISTRATION is REQUIRED by: February 26. To register, contact: Kim Hazel at 585-798-4265 x26. Cost: $50

16 Herdsperson Training, El-Vi Farms, 14 Pelis Road, Newark. For registration, contact: Cathy Wallace at 585-343-3040 x138 or cfw6@cornell.edu

17 Meat & Greet Farmer and Chef Fair, 10:00 a.m. - 2:00 p.m., Hobart & William Smith Colleges, Scandling Center, 300 Pulteney Street, Geneva. To register, contact: Marie Anselm at 585-394-3977 x402

23 Herdsperson Training, Lamb Farms, 6880 Albion Road (County Rd. #9) Oakfield. For registration, contact: Cathy Wallace at 585-343-3040 x138 or cfw6@cornell.edu