SCNY Dairy & Field Crops Digest

Cornell University
Cooperative Extension
South Central New York Dairy & Field Crops Team

WINTER CROP MEETING 2016

CCE Cortland
New Telephone #
607.391.2660

WCM 2016 features two very experienced farmers who have practiced no-till farming for more than 20 years each. Farmers Jim Harbach and John Kemmeren will share their evolution and experience with adoption of no-till. They will explain why they are committed to no till and how they make it work. Both farms grow competitively yielding crops with some corn fields topping 200 bushels per acre. Advantages that they report include; an end to picking stones, fuel savings, little to no runoff moving soil downstream, incredible earthworm populations which consume crop stubble, and savings in agronomic inputs from enhanced soil nutrient cycling.

Jim is a partner in Schrack Farms Resources LP. Schrack farms dairy is located in the mountain region of central PA with an elevation from 1200-1500 ft. On a homestead tract of land dating back ten generations to 1773, they currently milk 1000 cows and operate a methane digester. Farmed acres have expanded to 2200 acres, many of which have been no -tilled for forty years, with the addition of cover crops in the last five years. Jim is active on many boards, including the Clinton County Conservation District, Clinton Co. Ag Preservation, Sugar Valley Watershed Association, Farm Bureau, State dairy committee, State Nutrient Management Advisory Committee, PA No-Till Alliance, board member of local First Citizens Bank, and many other church related activities. Sugar Valley is the home of Fishing Creek, a high quality cold water fishery, a tributary of the Chesapeake Bay.


Schrack Farms Dairy


Jim Harbauch

Faced with farming Highly Erodible hill ground and a desire to improve their soils, productivity and way of life, this past year marked the 40'th year no-tilling on the farm of John and Dianne Kemmeren. They have achieved tremendous crop yields due in part to healthy, high organic matter soils and so have been able to cut fertilizer inputs by 75%.

John will explain the challenges they face and the ways they handle manure from their 200 head Dairy Farm, along with their three year hay, corn crop rotation and using covercrops to keep the soils covered 365 days a year. They have successfully renovated pastures, interseed hay ground and planned and set up numerous food plots for deer and other wildlife.


John Kemmerman

Continued on Page 2

January 2016

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We are pleased to provide you with this information as part of the Cooperative Extension Dairy and Field Crops Program serving Broome, Cortland, Chemung, Tioga and Tompkins Counties. **Anytime we may be of assistance to you, please do not hesitate to call or visit our office.** Visit our website: http://scnydfc.cce.cornell.edu and like us on Facebook: https://www.facebook.com/SCNYDairyandFieldCropsTeam.

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Building Strong and Vibrant New York Communities

"Diversity and Inclusion are a part of Cornell University's heritage.
We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities."

Continued from front page

Winter Crop Meeting 2016
Harvesting Sunlight - Reaping the Benefits of No-Till Farming
January 29, 2016
Trade Show-9:00am ~ Program-10:00am - 3:30pm
Ramada Inn, 2310 N. Triphammer Rd., Ithaca, NY

2016 Winter Crop Meeting Topics:

- Harvesting Sunlight & Feeding No-Till Soils
- Straight Talk, Crooked Rows & 40 Years of No-Till
- No-Till Using Winter Rye as a Protective Soil Mulch
- Panel Presentation on No-Till Practices & Technology
- Illinois Report on Mixing Herbicide's Mode of Action for herbicide Resistance Management
- The Potential of Low Lignin Alfalfa

Cost: $25 Prior to Event, $30 at the Door

Registration: To register, call Jen Atkinson at 607.391.2660 Ext. 403 or email jma358@cornell.edu or register online at http://scnydfc.cce.cornell.edu/event.php.

For Questions: Call Janice Degni at 607.391.2660 Ext. 414 or email jgd3@cornell.edu

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CCA & DEC Recertification Credits Available

ANNIE'S PROJECT
EMPOWERING WOMEN IN AGRICULTURE

A 5 week workshop series for farm women
Jan 26, Feb 9 & 23, Mar 8 & 22 with snow date Mar 15 ~ 10:30 am-2:30 pm
Choose your Location: CCE Broome or Cayuga Counties, LaFayette Christian & Missionary Alliance Church, Lafayette; & Dryden Fire Hall
Cost for all Session: $100 - Includes: 15 hours of instruction, meals and course materials.

Managing for Today and Tomorrow:
Succession, Business, Estate and Retirement Planning for Farm Women

January 26
Business Planning: Financial Documents
—Joan Petzen, Area Ext. Farm Business Management Specialist, NWNY Dairy, Livestock & Field Crops Team
Prioritizing and Decision Making using Farm Financial Records
—Edie McMahon, bookkeeper, EZ Acres

February 9
Farm Succession Planning: Setting the Stage
•Defining your Vision for the Business
•Setting Goals for Business and Family
—Dan Galusha and Anna Supp, Farm Credit Financial Consultants
Estate Planning 101: Legal documents needed to protect your property and possessions
♦Manage estate tax,
♦Considerations of Heirs and their inheritance
—Steve Walker, Attorney, Scolaro, Fetter, Grizanti, McGough and King, PC.

February 23
Retirement Planning. What are your Income & Lifestyle Expectations?
In order to help build the best personal retirement strategy, there are some key considerations. Things like your estimated retirement income, potential expenses, life expectancy and the state of your healthcare. Only by assessing these factors can you accurately gauge what you will need to ensure a retirement lifestyle you desire.
♦Tools will be shared to help you begin the process of ensuring the retirement lifestyle you want.

Asset Preservation
Insurance including medicare, long-term care and life
—Mark Modzeleski, Voss Group: Business, Estate & Financial Services

March 8
Putting together the Framework for Farm Succession:
♦Moving Management & Ownership to the Next Generation
♦Legal structures and financial strategies: Gifting, Trusts, LLC's, Profit shares . . .
—Dan Galusha, Farm Credit Financial Consultants
Communication & Conflict Resolution within the Farm Family
♦Messages sent & received, Strategies for Conflict Management . . .
—Erica Leubner, MSW, Personal Consultant, Farm Net

March 15 - Snow Date

March 22
Putting the Succession Plan into Action: Moving Management & Ownership to the Next Generation
—Dan Galusha, Anna Supp, Steve Walker, Erica Leubner and Extension Site Facilitators

Annie's Project is a program designed to empower farmwomen to become better business partners through networks and by managing and organizing critical information.

Cornell University Cooperative Extension
USDA
FARM CREDIT EAST

For more information or to register call CCE Cortland at 607.391.2660 or register online at:
http://scnydfc.cce.cornell.edu/event.php?id=313

Retirement Saving Vehicles for Farmers and Small Business Owners

Jason Pace, SW Area Extension Specialist, Oklahoma State University

For employees of government agencies and large corporations, settings money aside in tax-deferred retirement saving accounts is an easy process. Many large employers facilitate the setting up of 401(k) or 403(b) accounts with a single form and possibly a couple of clicks on an employee web portal. Large employers often offer generous contribution matching, helping their employees make the most of pre-tax retirement savings plans. Large employers also host frequent seminars with retirement account administrators and financial advisors, giving employees a convenient venue for effecting transactions and asking questions. For farmers – mostly operating as sole proprietors and small business owners – saving for retirement is more of a do-it-yourself process.

The Concept of Tax-deferred Retirement Accounts

The federal government has passed a handful of bills over the years to provide incentives for Americans to save for retirement through favorable tax treatment. Qualified retirement plans usually allow employees to contribute to a retirement fund with pre-tax income. That is, employees may deduct contributions to plans from gross income prior to calculating taxable income. Consider the following two scenarios:

Scenario 1: Investing w/ After-Tax Income
Gross Income: $50,000
Standard Deduction & Exemption: $10,000
Taxable Income: $40,000
Average Tax Rate: 22%
Income Tax: $8,800
Net Income: $41,000
Investing: $5,500
Disposable Income: $35,700

Scenario 2: Investing w/ Pre-Tax Income
Gross Income: $50,000
Standard Deduction & Exemption: $10,000
Retirement Account Contribution: $5,500
Taxable Income: $34,500
Average Tax Rate: 22%
Income Tax: $7,590
Net Income: $42,410
Disposable Income: $36,910

The investor in Scenario 2 was able to lower her tax burden – and thus, increase the money she has to spend on household items – by $1,210 by contributing to a tax-deferred retirement account.

Generally, a retirement plan must be a qualified plan for the IRS to offer tax incentives. Qualified plans have to meet certain IRS standards. A 401(k) is a type of qualified plan offered by private corporations. A 403 ((b) is another qualified plan offered by government and non-profit agencies. 401(k) and 403(b) plans are almost identical. The most common type of qualified plan available to small business owners and sole proprietors is the *Individual Retirement Arrangement* (IRA). Other investment vehicles, such as *variable annuities,* offer some tax benefits by the way fund distributions are spread out after retirement, but they are not qualified plans, and offer no front-end tax incentive. **Therefore, it is imperative that anyone saving for retirement make the maximum contributions to their qualified retirement plan (IRA) prior to considering any other investment vehicle.** Currently, the maximum allowable contribution to an IRA is $5,500 per year, or $6,500 per year for savers age 50 or older.

Individual Retirement Arrangements

There are two types of IRA's: Traditional IRAs and Roth IRAs. The Traditional IRA (which will be simply referred to as "IRA" hereafter) is the most common type of IRA as it achieves the most front-end tax benefits. Roth IRA contributions are not made with pre-tax income, but instead realize tax benefits at withdrawal after retirement. (Back-end tax benefits).

IRAs function similarly to employer-sponsored plans, in effect. The key differences are (1) employers can make matching contributions to employer-sponsored plans, which aren't reported as wages on a W-2; and (2) IRA contributions must be entered as a deduction on the first page of the investor's 1040. The tax treatment for both employer-sponsored plans and IRAs is the same. The only difference is where the numbers show up.

Here's the catch with IRA's. Do not confuse tax-deferred with tax-free. There is no such thing as a tax-free retirement account. Taxes on income allocated to IRA's will be taxed upon withdrawal at the investor's ordinary income tax rate. So why bother if the income is going to be taxed anyway? There are several reasons. Here are a few.

1. **Time-Value of Money.** A dollar saved from taxation today will be worth much more several years down the road.
2. **Income Tax Brackets**. Investors in their working years will often be in a higher tax bracket than in retirement, since distributions from retirement funds are structured to be slow and steady. Since distributions from retirement accounts will be taxed when the distribution occurs, a lower tax rate might apply than if the funds were taxed prior to retirement.
3. **Household expenses** during an individual's or couples working years will often be higher due to caring for dependents-healthcare, insurance, education, weddings, etc. This puts disposable household income for a growing family at a premium.

IRAs have special rules regarding when distributions (withdrawals) and contributions must begin or end. If an investor withdraws money from an IRA prior to age 59 ½, he will have to pay ordinary income tax on the amount plus a 10% early withdrawal tax (penalty). There is also a law on when distributions must begin. An investor must begin making regular withdrawals by age 70 ½. The IRS uses life expectancy tables to determine what percentage of an individual's retirement fund would have to be withdrawn regularly after age 70 ½ to exhaust the funds. Any withdrawal falling short of the calculated amount after age 70 ½ is subject to a 50% penalty on the shortfall. Additionally, investors may not continue to contribute to an IRA after age 70 1/2. This is to ensure IRAs are not intentionally used as a tax-sheltered estate plan, although ownership of any type of IRA is transferable on the untimely death of the investor.

Roth IRAs

Unlike IRAs, contributions to Roth IRAs are made with after- tax income; however, with Roth IRA's, income from the distributions is not taxed. The tax incentive for a Roth IRA is on the back-end. This can be particularly advantageous because only the principal amount of each contribution is truly taxed. Earnings on the principal accumulate and are paid out tax-free. Since it is the distributions being taxed on a traditional IRA, the tax burden captures the earning in the account as well. Like IRA's, the Roth IRA stipulates a 10% penalty for withdrawals prior to age 59 ½. Unlike IRA's, Roth IRAs have no minimum withdrawal amount after age 70 ½ and no age limit for contributions. The only stipulation is that any contribution must remain in the account for at least five years before being withdrawn, or a 10% penalty will be applied, even if the investor is over age 59 ½.

Contributions Limits

As previously mentioned, the maximum allowable contribution to an IRA is $5,500 per year, or $6,500 per year for savers age 50 and older. There are a few important qualifiers about this statement. An individual in a Traditional IRA can contribute more, but only $5,500 to $6,500 of the contribution is tax deductible. Additionally, limits on tax deductions are phased out for high income earners subject to

an IRS schedule that changes frequently. In a Roth IRA, it's the contribution itself that is limited, rather than just the tax deduction. Likewise. The contribution limit in a Roth IRA can be phased out for high income earners. Due to these differences, individuals sometimes recharacterize a Roth IRA into a traditional IRA or vice-vera. Recharacterization involves completing a specific tax form and does not constitute a rollover.

Spousal IRAs

An investor may set up an IRA for a non-working spouse or a working spouse who is not eligible for an employer- sponsored retirement plan. Effectively, the deduction/ contribution limits for a married couple are twice that of an individual, unless one spouse is eligible to participate in an employer-sponsored retirement plan. An investor may set up an IRA even if he/she participates in an employer- sponsored retirement plan, but contributions to the IRA in this instance would not be tax deductible. This is something to be cognizant of for a self-employed producer with a spouse employed by a large corporation such as a school district.

Simplified Employee Pensions (SEP IRAs)

A principal farm operator with employees might want to set up a retirement fund as an employee incentive. This can be accomplished with a SEP plan. SEP plans are like 401(k) plans for small businesses. The per-person contribution/deduction limits are usually the same. The advantage to the employer is that any SEP contribution made on behalf of an employee is deductible as a business expense. The age restrictions with a SEP plans are the same as Traditional IRAs.

SEP plans are a newer, more streamlined version of Keogh (HR-10) Plans, Keogh Plans used to provide small business owners a means of implementing defined benefit or defined contribution plan for its employees similar to what large corporations were offering. Keogh Plans have other more complex requirements such as minimum employee-employer contribution ratios. They also often required the services of an actuary to implement. Old Keogh plans are still in existence, but SEP plans are not the small business retirement plan of choice due to their simplicity and flexibility.

One other type of plan available to owners of businesses with fewer than 100 employees is the SIMPLE plan. SIMPLE plans have similar features to SEP and Keogh plans, but have additional features such as the allowance of "catch up" contributions for employees over the age of 50.

Exceptions to the Minimum Age Rule

Certain circumstances allow an investor to withdraw funds from an IRA without the 10% penalty prior to age 59 ½. They are as follows:

- Death
- Disability
- First time homebuyers for purchase of principal residence
- Education expenses for the account holder, spouse, child or grandchild
- Medical Expenses for unemployed individuals
- Medical Expenses in excess of a certain percentage of adjusted gross income (AGI)

If the owner of an IRA dies, the IRA is transferable according to state laws regarding wills and interstate succession. Special rules govern the distribution and contribution of IRAS to successors. In the event of any of the above reasons for premature withdrawal, it is only the 10% penalty that is waived. All distributions are still subject to ordinary income tax, whatever the reason.

IRA Rollovers

Any of the qualified tax-deferred retirement accounts mentioned in this article can be "rolled over" into another. Employee-sponsored retirement accounts can be rolled over into an IRA in the event of termination of employment; or into employer sponsored accounts of another company. IRAs can be rolled over from one management firm to another if the customer is displeased with the service or performance of the current management firm.

Investments and IRAs

In addition to enrolling in an IRA, assets within the IRA must be invested in order to grow and take advantage of the effects of compounding. Most employer-sponsored plans are professionally managed. A self-employed individual opening an IRA will have more investment decisions to make, although financial advising firms that deal in IRAs usually provide investment guidance. Cash in an IRA may be invested in stocks, bonds, index funds and mutual funds, among other things. High-risk investment strategies such as short sales and writing uncovered options are not permitted. Term life insurance policies may not be purchased with IRA funds. Collectibles such as art, and rare coins are not permitted. It is very important to remember that investments made within an IRA have the same risk of principal as any other investment. An IRA does not guarantee an investor against loss. As such, investors with IRAs need to understand their own risk aversion and investment objectives, which can change overtime. For example, an investor closer to retirement would be more concerned with the safety of principal than growth, so an adjustment to investing strategy would warrant a change. ✪

What does a cow's behavior tell you about her health?

Katy Proudfoot and Julie Huzzey, The Progressive Dairyman (2/24/14)

As most producers are aware, sick cows behave differently than healthy cows. However, recent research now shows that certain behaviors may also help us identify cows that will become sick in the future.

This topic has been a focus of researchers working at the University of British Columbia's Animal Welfare Program, focused primarily on early behavioral indicators of metritis and lameness.

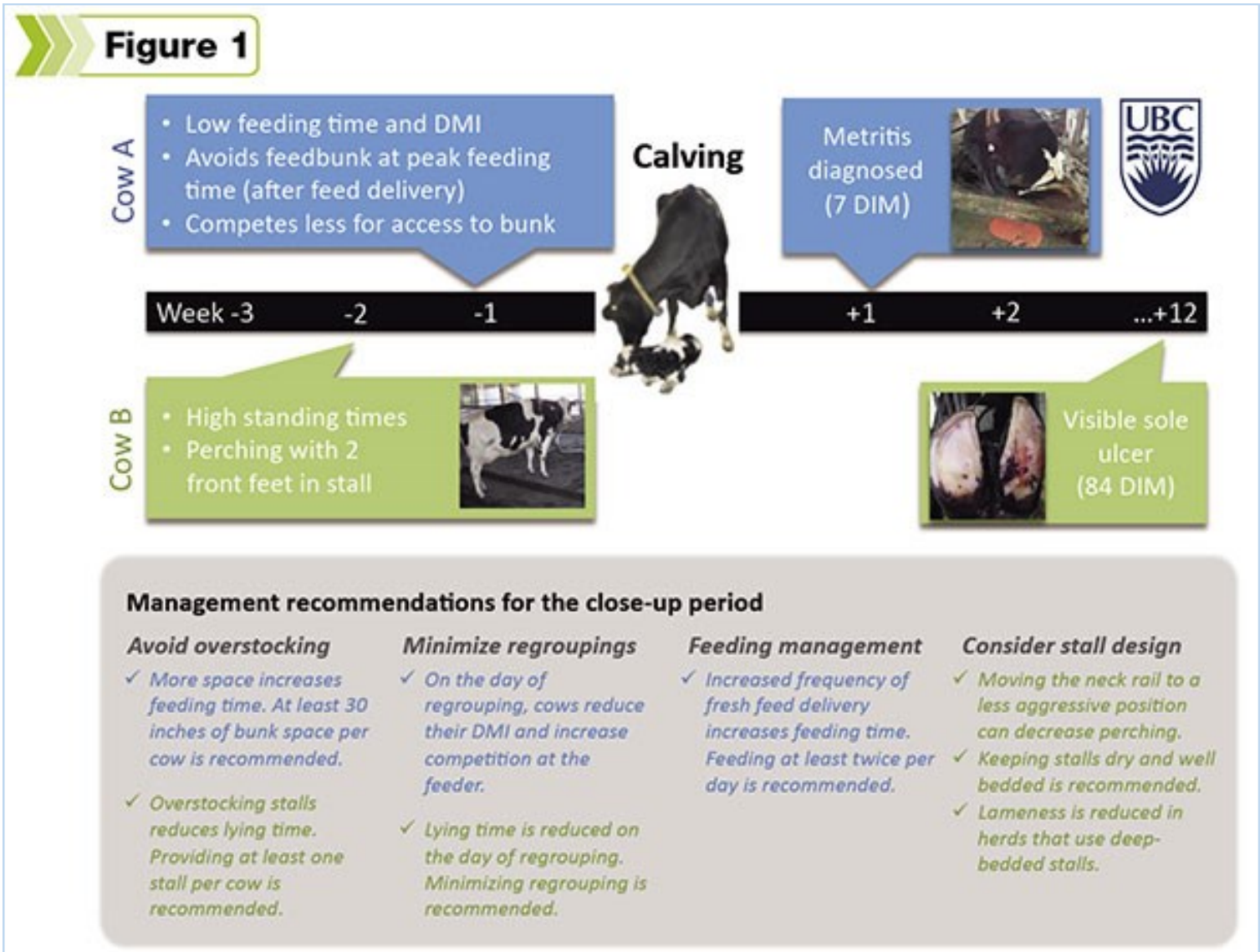
Metritis (uterine infection) is a costly disease for dairy producers. It has been associated with decreased milk yield, increased risk of culling and decreased reproductive performance. To better understand metritis, a researcher recorded behavior well in advance of calving and then compared the behavior of cows that remained healthy with those diagnosed with metritis a week after calving.

The researcher found that cows with metritis ate less than healthy cows when they were ill, but they actually began eating less up to two weeks before calving and three weeks before diagnosis (Cow A). These cows also avoided the feedbunk during peak feeding times, such as the period immediately after fresh feed delivery, and engaged in fewer competitive interactions at the feedbunk.

Lameness (abnormal gait) is also a major welfare concern for the dairy industry, and it has a clear impact on the profitability of dairy herds. To better understand lameness, a researcher measured the behavior of cows before and after calving, monitoring for sole ulcers and lesions (a main source of lameness) until 12 weeks into lactation.

Cows with ulcers and lesions around eight to 12 weeks after calving spent more time standing during the two

Figure 1



Management recommendations for the close-up period

Avoid overstocking

- ✓ *More space increases feeding time. At least 30 inches of bunk space per cow is recommended.*
- ✓ *Overstocking stalls reduces lying time. Providing at least one stall per cow is recommended.*

Minimize regroupings

- ✓ *On the day of regrouping, cows reduce their DMI and increase competition at the feeder.*
- ✓ *Lying time is reduced on the day of regrouping. Minimizing regrouping is recommended.*

Feeding management

- ✓ *Increased frequency of fresh feed delivery increases feeding time. Feeding at least twice per day is recommended.*

Consider stall design

- ✓ *Moving the neck rail to a less aggressive position can decrease perching.*
- ✓ *Keeping stalls dry and well bedded is recommended.*
- ✓ *Lameness is reduced in herds that use deep-bedded stalls.*

weeks before calving compared to healthy cows, which was up to 14 weeks before the ulcer became visible (Cow B). Most interesting was that the high standing time was explained almost entirely by an increase in âperchingâ with their two front feet in the stall.

Behavioral risk factors for lameness and metritis occurred in the close-up period, when proper care and management of cows should be a high priority. To ensure all cows are getting adequate feed intake before calving, producers can decrease competition for feed by allowing at least 30 inches of bunk space per cow.

Producers can also provide fresh feed at least twice a day, as this will ensure that all cows, particularly subordinate cows, will have equal access to the feed. Minimizing the number of times a cow is moved between groups (regrouping) during the dry period can also maximize her feed intake.

To reduce standing time, producers can make every effort to keep clean, well-bedded lying stalls. Deep-bedding is the best recommendation for reducing standing time and lameness, but adding bedding to any surface can help.

It is also important to avoid overstocking at the feedbunk and the lying stalls during the close-up period, as both can impact standing time. To reduce perching time, producers can increase the length of stalls in the close-up period to allow cows to stand with all four feet in the stall.

The length of a stall can easily be changed by moving the neck rail farther away from the curb. We recognize that this will require a concerted effort by producers to maintain stall cleanliness in the dry pen, but it is an option for those who see lameness as a main concern in their herds.

A better understanding of cow behavior can help aid in better management decisions, especially during the calving period when cows are at high risk of disease and lameness. Practical ways of monitoring the behavior of cows are becoming available through technologies such as activity monitors that record standing time.

If lameness or metritis is a problem on your farm, there are management practices you can implement to alter her behavior which may aid in the reduction of these diseases. Clearly, the solutions will need to be tailored to each individual herd, so we encourage producers to consult their nutritionist, herd veterinarian, hoof trimmer and others involved in the day-to-day management of their operation. ◇

"Keepin' 'Em Comfy" A workshop on Cow Comfort, Dairy Handling and Public Perception

Speakers:

-Katy Proudfoot - Assistant Professor, Extension Specialist, The Ohio State University

-Lindsay Collings-Ferlito - Extension Specialist, CCE

-Beth Meyers - American Dairy Association & Dairy Council

Topics:

-Dairy Handling: Understanding cow behavior and how to use it to your farm's advantage

-Cow Comfort: Understanding bottlenecks in your operation

-Public Perception: Talking to the public about dairy farm practices

- **Date:** Monday, January 11, 2016
- **Time:** Registration 10:00am
  Program 10:30am - 2:30pm
- **Location:** Cornell University Vet School Teaching Dairy Barn, McGowan Woods Rd, Ithaca, NY 14850
- **Cost:** $25/person, $15/additional farm member

- **To Register:** Call Jen Atkinson at 607.391.2660 Ext 403 or email jma358@cornell.edu or register and pay online at http://scnydfc.cce.cornell.edu/events.php
- **Questions?** Call Betsy Hicks at 607.391.2660 Ext 415 or email bjh246@cornell.edu

2016 Milk Outlook: How Things Are Flowing

Wednesday, February 11, 2016 - 6:30pm-8:00pm
Cortland County Office Building, 2nd Floor
60 Central Ave., Cortland, NY 13045

Guest Speaker - Andy Novakovic, The E.V. Baker Professor of Agriculture Economics at Cornell University

Topics - Market Outlook, Patterns in Milk Production Growth & Trends in Dairy Food Consumption

Registration - $5/Person, Pizza & Beverages will be served

Please RSVP by February 2, 2016 by calling Jen Atkinson at 607.391.2660 Ext. 403
or email jma358@cornell.edu or register online at http://scnydfc.cce.cornell.edu/events.php

-Industry, USDA, and University analysts are busy stirring the tea leaves and trying to sort out dairy markets. Clearly US and world dairy markets have had more milk produced than markets want to absorb. Although milk production is slowing to some extent around the world, demand remains sluggish. Most analysts agree that prices for milk and major dairy commodities are not likely to decline, the big question is when will they appreciably increase. For now, the most common answer seems to be not any time real soon, probably the second half of 2016. In the meantime, New Zealand dairy farmers are selling cows to pay the bills and US cooperatives are rationing too few milk sales against too much milk production. Each passing day will bring some additional information that will give us insights about changes in production and demand, but for the foreseeable future these are likely to be small nudges that won't change the basic profit equation for dairy farm businesses. -Andy Novakovic

Program criteria for the $25 million Southern Tier Agricultural Industry Enhancement Program Released.

Governor Andrew M. Cuomo today announced the release of program criteria for the $25 million Southern Tier Agricultural Industry Enhancement Program. The eligibility requirements are now available online at **www.agriculture.ny.gov**. The program will provide crucial funding for projects designed to help farms and agribusinesses expand and grow their operations, as well as increase environmental enhancements in Allegany, **Broome**, Cattaraugus, Chautauqua, **Chemung**, Chenango, Delaware, Schuyler, Steuben, **Tompkins** and **Tioga** counties. Applications will be available beginning January 19, 2016.

Eligible projects will increase agricultural production on farms and improve profitability, as well as support farmers in better managing and enhancing environmental resources. Projects that are awarded State funding may receive up to $100,000 to help with expenses associated with construction, renovation, irrigation, drainage, environmental enhancements, fencing, trellis systems and greenhouses. Eligible applicants that demonstrate an exemplary commitment to protecting or enhancing natural resources, may also be entitled to an additional $10,000 toward their project.

The Department of Agriculture and Markets will work in coordination with the County Soil and Water Conservation Districts (SWCD) to administer the program. The SWCDs will pre-qualify projects and oversee the implementation of awards. Awards will be made on a semi-annual basis for a period of two years or until funding is depleted. Applications will be available and filed locally through each respective county SWCD. To find a list of the SWCDs, click here.

Applicants must meet the Department's definition of a farm operation and meet additional criteria as outlined in the program criteria, including participation in the New York State Agricultural Environmental Management program within the past three years, or a commitment to participate in the program prior to being awarded.

"New York's agriculture industry is an economic engine in upstate communities – driving growth and expanding opportunity," Governor Cuomo said. "I'm proud to announce $25 million in State funding for the Agriculture Industry Enhancement Program which will provide vital support to all farmers and agribusinesses in the Southern Tier and keep New York's agricultural economy growing." ✪

NYCO-2016

New York Certified Organic Celebrating 21st Year w/ 3 Winter Programs:
January 12th, February 9th & March 8th, 2016 - Programs starts at 10am
NYS Agricultural Experiment Station, Jordan Hall, 614 North St., Geneva

- **January 12, 2016 - Organic Crop Management through Good Years and Bad**
  - What to do when the cultivating window doesn't open very wide
  - Effects of long-term management on weed competition in organic soybean
  - Reducing Pasture Compaction with Daikon Radish
  - Discussion: "What do you want to make per acre on your farm?"
- **February 9, 2016 - Managing Soil Health with Crop Rotations and Forage Production**
  - Putting Soil Health Knowledge into Practice
  - Alternative Forage Rotations to Protect the Soil on Marginal Land
  - Discussion: Farmer Panel on how to decide whether to sell forages to dairy farmers or plow them in for a green manure.
- **March 8, 2016 - New Markets**
  - Developing New Markets for Organic Grain
  - What's transpiring in the World Market of Grain
  - Flax Grain - Production and Uses
  - Discussion: New or Undeserved Markets in the Northeast

There is no cost for the programs and pre-registration is not required.
Participants are asked to bring a dish to pass for potluck lunch.
For more information contact Fay Benson, CCE Cortland at 607.391.2660 Ext. 410 or email afb3@cornell.edu.

Tompkins County Legislature
Governor Daniel D. Tompkins Building
121 East Court Street
Ithaca, NY 14850

Office of the Mayor
City of Ithaca
108 East Green Street
Ithaca, NY 14850

Dear Colleague,

Property owners often face a challenge when trying to finance energy-related improvements with a long return on investment.

Help is on the way.

Commercial property owners in Ithaca and Tompkins County are among the first in New York State to be eligible for long-term, low-cost financing for energy related building improvements-with repayments made through the annual City or County property tax bill.

With the encouragement of the Chamber of Commerce, TCAD, and Cornell Cooperative Extension, the City and County recently granted Energize NY the authority to offer this unique "property assessed clean energy," or PACE, financing to commercial property owners anywhere within the County.

Everything is now in place for PACE financing to be extended to projects in Tompkins County as diverse as replacing windows to installing solar panels. More information on the program may be found at http://commercial.energizeny.org/.

Please join us at a January 7th kick-off event to hear about the program directly from Energize NY Finance officials and talk to them about the wide range of energy-related projects eligible for financing and the support and guidance they provide.

The January 7th event will be held from 5:30pm—7:00pm at The Space@Greenstar, 700 West Buffalo Street in Ithaca. Light refreshments will be served. Please RSVP to: EnergizeNY@tompkins-co.org.

We look forward to seeing you there. ✲

ENERGIZE NY

Manure Storage Workshop - January 12, 2016

Cuyler Fire Department - 4917 NY-13 - Cuyler - 9:15am-3:15pm

Topics:

- **Review Whey Street Dairy Concerns**
- **Storage Issues**
- **Manure Covers**
- **Satellite Storages**
- **Labor Requirements**
- **Custom Operators**
- **Managing Manure Storage**
- **Liners**
- **Environmental Issues**
  - **CAFO Permit**
  - **Winter Spreading**
  - **Tile Discharges**
- **Solid Separation**
- **Bedding**
- **Odor**
- **Safety (Gypsum)**
- **Application Systems**
- **Manure Transfer**
- **Funding Sources**
- **Optional Tour of Whey Street Dairy**

Co-Sponsored by PRO-DAIRY, SCNY Dairy & Field Crops Team and Cortland County Soil & Water Conservation District

Register: Call Jen Atkinson at 607.391.2660 Ext. 403 or email jma358@cornell.edu or register online at http://scnydfc.cce.cornell.edu/events.php.

Cost: $15

Hindsite is 20/20: What Can be Learned from 2015

Mark Licht

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As the saying goes, hindsight is 20/20; perfect vision. We often say "if we knew the weather, then we can provide the best recommendations". Usually, we do not know the weather or we do not have the appropriate tools in place, so the questions remain unanswered. Now that we know the weather, the next important question is to determine what could have been done differently in 2015. This is an important part of understanding and evaluating production and environmental performance of our crop management decisions. In this article, we leverage our knowledge of the 2015 weather and use the APSIM cropping system model as a framework to explore alternative management options to the cropping systems used in the Yield Forecast project in an effort to understand what could have helped improve corn and soybean yields more in 2015.

For the scenario analysis we used the eight cropping systems from the Yield Forecast Project (see table descriptions below for the default management practices) and the APSIM model to evaluate the impact of changing the nitrogen rate, timing of nitrogen application, seeding rate, row spacing, crop maturity, and water supply through irrigation. By running the cropping system model with adjustments to crop management it can be determined if and how much grain yield, nitrogen loss, and net return could have been improved in 2015. This scenario analysis also shows the trade-offs that exist between profitability and environmental performance and provides an opportunity to identify those practices that could provide a win-win situation by reducing nitrogen losses to the environment and increasing net profits.

In the Ames corn cropping systems (Table 1), nitrogen losses were reduced by either applying nitrogen later in season (4 to 8 weeks after planting) or reducing nitrogen applications (scenarios 3, 6, and 7). However, reduced nitrogen application rates also resulted in a detrimental impact to both yield and net profits for both early and late planting dates. Changes to seeding rate and row spacing had little effect on yield, nitrogen loss, or net return. Increasing maturity increased both yield and net profits while having minimal reductions of nitrogen loss when no additional nitrogen was applied. The response to alternative management was different between early and late planting. This reveals the complexity that exists in the soil-crop-atmosphere system and that every field by management practice should be treated as a unique system. Among the scenarios evaluated, scenarios 2, 11, and 14 resulted in win-win situations (more profits with less environmental damage) for both early and late planting corn. These scenarios shifted the nitrogen application later, shifted from 30-inch to 20-inch row spacing, or used a longer maturity corn hybrid.

Table 1. Scenario analysis of Yield Forecast Project at Ames for corn early (April 23, 2015) and late (May 21, 2015) planting cropping systems. The impact of the scenarios is expressed as a percent difference from the default management practices used in 2015: 150 lb N / acre at planting; 107-day

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CRM; 32,000 seeds/acre; 30-inch row spacing. Click table for larger view.

Ames – Corn	Early Planted (April 23)			Late Planted (May 21)		
Scenario Description	Yield	N Loss	Net Return	Yield	N Loss	Net Return
1 Split 150 lbs N/acre at planting and 6th leaf stage	0.4%	-17.3%	-1.8%	0.0%	-19.8%	-2.3%
2 Applied 150 lbs N/acre 4 weeks after planting	0.5%	-20.2%	0.7%	0.0%	-39.3%	0.0%
3 Applied 150 lbs N/acre 8 weeks after planting	0.8%	-69.8%	1.0%	-6.7%	-30.3%	-8.7%
4 Applied additional 50 lbs N/acre at 6th leaf stage	0.9%	39.8%	-2.4%	0.1%	48.7%	-5.9%
5 Applied 100 lbs N/acre at planting	-11.1%	-29.4%	-10.8%	-3.4%	-23.4%	-0.8%
6 Applied 100 lbs N/acre 4 weeks after planting	-10.3%	-42.5%	-9.8%	-1.4%	-56.4%	1.8%
7 Applied 100 lbs N/acre 8 weeks after planting	-8.4%	-76.4%	-7.3%	-7.2%	-66.9%	-5.7%
8 Increased seeding rate 15%	0.0%	-6.9%	-2.8%	1.2%	-4.6%	-1.4%
9 Increased seeding rate 15% and 15% more N	1.6%	7.6%	-2.4%	1.2%	15.0%	-3.0%
10 Decreased seeding rate 10%	-0.5%	4.5%	-0.4%	-1.3%	4.2%	-1.4%
11 Switched to 20-inch rows from 30-inch rows	1.1%	-5.2%	1.4%	2.9%	-6.2%	3.7%
12 20-inch rows and 10% higher seeding rate and 15% more N	3.3%	4.9%	0.7%	0.0%	24.9%	-3.5%
13 Shorter maturity (from 2500 to 2350 GDD)	-5.2%	-0.5%	-6.8%	-5.4%	12.5%	-7.1%
14 Longer maturity (from 2500 to 2800 GDD)	9.7%	-0.6%	12.6%	9.2%	-0.3%	12.1%
15 Longer maturity with 15% more N	13.5%	15.0%	16.0%	9.3%	22.1%	10.5%

In the Sutherland corn cropping systems (Table 2), the trends were the same for scenario impacts on both the early planted and late planted systems. Applying two third less nitrogen had minimal impacts on yield but reduced nitrogen losses and increased net profits. This is because at Sutherland the initial soil nitrate at planting time was exceptionally high (20 ppm NO_3-N at 1 feet). In contrast, at the Ames site, the soil nitrate at planting time was around 5 ppm NO_3-N. Reducing row spacing to 20-inches increased yields and net profits will reducing nitrogen losses. Irrigation had positive effects on yields and net profits but also increased nitrogen losses. And planting a longer maturity without additional nitrogen balanced yield and net return while not changing nitrogen losses.

Table 2. Scenario analysis of Yield Forecast Project at Sutherland for corn early (April 29, 2015) and late (May 19, 2015) planting cropping systems. The impact of the scenarios is expressed as a percent difference from the default management practices used in 2015: 200 lb N / acre on April 29, 2015; 107-day CRM; 32,000 seeds/acre; 30-inch row spacing. Click table for larger view.

Sutherland – Corn	Early Planted (April 29)			Late Planted (May 19)		
Scenario Description	Yield	N Loss	Net Return	Yield	N Loss	Net Return
1 Split 200 lbs N/acre at planting and 6th leaf stage	0.0%	-11.2%	-2.9%	0.0%	-7.2%	-2.9%
2 Applied 1/3 of nitrogen rate	-0.3%	-44.7%	11.7%	0.1%	-57.0%	12.5%
3 Increased seeding rate 15%	1.0%	-5.6%	-2.2%	1.1%	-9.3%	-2.2%
4 Decreased seeding rate 10%	-1.2%	5.0%	0.7%	-0.1%	16.5%	2.4%
5 Switched to 20-inch rows from 30-in rows	2.0%	-5.5%	2.9%	1.4%	-8.0%	2.0%
6 Switched to 20-inch rows and increased seeding rate 10%	3.0%	-8.9%	1.8%	3.1%	-3.7%	2.0%
7 1-inch irrigation at 6th leaf stage	2.6%	21.1%	1.8%	2.2%	19.8%	1.3%
8 1-inch irrigation at 14th leaf stage	1.6%	11.6%	0.5%	2.1%	23.5%	1.2%
9 1-inch irrigation at both 6th leaf stage and silking	2.6%	34.3%	1.4%	2.2%	34.1%	0.8%
10 Shorter maturity (from 2500 to 2350 GDD)	-4.5%	-1.7%	-6.4%	-6.8%	1.0%	-9.7%
11 Longer maturity (from 2500 to 2800 GDD)	2.5%	-0.7%	3.6%	1.7%	-0.1%	2.5%
12 Longer maturity and 1-inch irrigation at 6th leaf stage	5.9%	19.7%	6.6%	7.8%	26.2%	9.3%

In the Ames soybean cropping systems (Table 3), the largest benefits came from reducing the row spacing from 30-inch rows to 15-inch rows (scenarios 5 and 6) and planting a later maturity in combination of a higher seeding rate and narrower row spacing (scenario 9). However, planting a shorter maturity soybean resulted not only in reduction in yield and net return but also increased nitrogen loss, especially for the late planting date. It is worth mentioning that the combination of late planting soybean and longer maturity substantially increased the risk of fall frost and delayed harvest. In 2015 this was not a problem, but in other years this could be a problem.

Table 3. Scenario analysis of Yield Forecast Project at Ames for soybean early (May 1, 2015) and late (June 1, 2015) planting cropping systems. The impact of the scenarios is expressed as a percent difference from the default management practices used in 2015: MG 2.6; 133,000 seeds/acre; 30-inch row spacing. Click table for larger view.

Ames – Soybean	Early Planted (May 1)			Late Planted (June 1)		
Scenario Description	Yield	N Loss	Net Return	Yield	N Loss	Net Return
1 Increase seeding rate 15%	2.2%	-3.7%	0.9%	2.1%	-1.9%	0.9%
2 Increase seeding rate 30%	4.0%	-6.8%	1.4%	3.8%	-3.5%	1.3%
3 Decrease seeding rate 15%	-2.5%	3.1%	-1.2%	-2.5%	1.8%	-1.3%
4 Switched to 20-inch rows from 30-inch rows	3.1%	-5.1%	3.4%	4.0%	-2.9%	4.4%
5 Switched to 15-inch rows from 30-inch rows	6.7%	-9.5%	7.4%	5.7%	-4.3%	6.2%
6 Switched to 15-inch rows and 30% higher seeding rate	10.1%	-16.3%	8.1%	8.9%	-8.2%	6.8%
7 Shorter maturity (matured 1 week earlier)	-4.5%	0.5%	-4.9%	-3.5%	7.0%	-3.9%
8 Longer maturity (matured 3 weeks later)	2.6%	-0.7%	2.8%	2.7%	5.3%	3.0%
9 Longer maturity and 15% higher seeding rate in 15-inch rows	10.9%	-13.7%	10.5%	10.0%	-0.8%	9.5%

In the Sutherland soybean cropping systems (Table 4), results were very similar to that of the Ames soybean cropping systems. Soybean yield, net returns and nitrogen loss benefits were realized by reducing row spacing to both 15-inch and 20-inch row spacing (scenarios 4, 5 and 6) and by increasing soybean maturity in combination with increasing seeding rate and decreasing row spacing (scenario 9). Coincidentally, at Sutherland where rainfall was limited during a portion of the growing season (July), irrigation had only slight yield benefits but increased nitrogen loss (scenarios 10, 11, and 12).

Table 4. Scenario analysis of Yield Forecast Project at Sutherland for soybean early (April 30, 2015) and late (June 1, 2015) planting cropping systems. The impact of the scenarios is expressed as a percent difference from the default management practices used in 2015: MG 2.2; 133,000 seeds/acre; 30-inch row spacing. Click table for larger view.

Sutherland – Soybean	Early Planted (April 30)			Late Planted (June 1)		
Scenario Description	Yield	N Loss	Net Return	Yield	N Loss	Net Return
1 Increase seeding rate 15%	2.5%	-2.9%	1.3%	2.3%	-10.7%	0.3%
2 Increase seeding rate 30%	4.5%	-4.8%	2.1%	4.1%	-19.7%	0.0%
3 Decrease seeding rate 15%	-2.9%	4.3%	-1.7%	-2.5%	13.0%	-0.5%
4 Switched to 20-inch rows from 30-inch rows	10.0%	-9.3%	11.0%	11.1%	-44.4%	12.9%
5 Switched to 15-inch rows from 30-inch rows	14.3%	-11.4%	15.7%	14.1%	-56.0%	16.4%
6 Switched to 15-inch rows and 30% higher seeding rate	16.8%	-11.9%	15.5%	15.4%	-64.1%	13.1%
7 Shorter maturity (matured 1 week earlier)	-2.3%	4.3%	-2.5%	-0.2%	-0.5%	-0.2%
8 Longer maturity (matured 3 weeks later)	1.6%	2.9%	1.7%	-0.7%	0.8%	-0.8%
9 Longer maturity and 15% higher seeding rate in 15-inch rows	16.2%	-9.8%	16.3%	14.5%	-59.5%	14.3%
10 Single 1-inch irrigation on June 25	0.5%	22.2%	-1.2%	0.0%	30.3%	-1.9%
11 Single 1-inch irrigation on July 20	0.7%	15.2%	-1.0%	0.1%	46.4%	-1.8%
12 Single 1-inch irrigation on August 10	0.0%	5.8%	-1.7%	0.0%	25.3%	-2.0%

In summary, combined net benefits for yield, nitrogen loss, and net return in the corn cropping systems were realized from adjusting either the timing or rate of nitrogen application and by planting a slightly longer corn maturity. In the soybean cropping systems, the largest combined benefits resulted from narrower row spacing and fuller season soybean varieties.

This type of analysis offers unique opportunities to understand how the system responds to "what-if" management questions and provides the means to evaluate concurrently production and environmental performance of cropping systems. However, it should be noted that this analysis is specific for weather and management practices used in 2015. Future management decisions should be made using pre-season decision support tools that include weather components that can factor in additional variability to ensure robust decision can be made. ➢

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CALENDAR OF EVENTS

Jan 11	**Keepin' 'Em Comfy: A Workshop on Cow Comfort, Dairy Handling & Public Perception** Cornell University Vet School Teaching Dairy, Ithaca, NY. See page 7 for more details and registration information.		10:00am-3:00pm
Jan 12	**Considering the Angles for Manure Storage**, Cuyler Fire Dept., 4917 NY-13, Cuyler Features Workshop & Farm Site Tour - See page 10 for more details and registration information.		9:15am-3:15pm
Jan 12 **Feb 9 & Mar 8**	**NY Certified Organic (NYCO)**, Geneva Exp. Station, Jordan Hall, Geneva, NY Topics-Organic Crop Management, Managing Soil Health and Changing Markets-see page 9 for more information.		10:00am-2:00pm
Jan 26, **Feb 9 & 23** **Mar 8 & 22**	**Annie's Project: Managing for Today and Tomorrow**. Dryden Firehall or CCE Broome Cost $100 for 5 weeks-see page 3 for more details and registration information.		10:30am-2:30pm
Jan 29	**Winter Crop Meeting** Registration prior to event $25 or at the door $30. DEC credits available. To Register, please call Jen Atkinson at 607.391.2660 Ext. 403 or email jma358@cornell.edu or register online at http://scnydfc.cce.cornell.edu/events.php	Ramada Ithaca Hotel & Conference Center, Ithaca, NY	9:00am-3:00pm
Feb 17	**Crop Meeting with Page Seeds** Current Crop Production Topics. Registration at http://scnydfdc.cce.cornell.edu/events.php	CCE Broome County, DEC Credits in Application	10:00am-2:30pm
Feb 10	**2016 Milk Outlook** See page 8 for more details and registration information.	Cortland County Office Building, Auditorium	6:30pm-8:00pm
Mar 1	**Building Soil Health** SAVE THE DATE, Program Available Soon. Registration at http://scnydfdc.cce.cornell.edu/events.php	American Legion, Horseheads, NY DEC Credits	Time TBA
Mar 1	**Winter Dairy Management**, Topics: Transition Cows - Nutrition, Animal Behavior Considerations, Cow Side Decision Making Cost $25, To Register please call Jen Atkinson at 607.391.2660 Ext. 403 or email jma358@cornell.edu or register online at http://scnydfdc.cce.cornell.edu/events.php	CE Broome County, Binghamton, NY	10:00am-3:00pm
Mar TBA	**Feeder School: Hands-on Training for Feeders on Dairy Farms** Cost $25, For more information call Betsy Hicks at 607.391.2660 Ext. 415 or email bjh246@cornell.edu	Location TBA	10:30am-2:30pm

Happy Holidays