Capital Area Ag Report
March 2015

“After last winter, I am glad to have the mud.”
— a comment from one local farmer

Announcements

March 19, 2015 Pesticide Recertification Day from 7:30am-4:00pm at The Century House, 997 New Loudon Road, (Route 9), Latham, NY 12110. Half day registration cost $85 and full day registration is $100, lunch is included with both. Registration required. For more information contact Chuck Schmitt at cds34@cornell.edu and 518-765-3513.

Learn the latest on pesticide use, safety, and pest management for the upcoming season. This program features up to 6 NYSDEC recertification credits and 6 CNLP credits pending approval. The morning session will offer core credits and afternoon sessions offer category specific credits for 3a, 1a,7a and private categories as well. The afternoon Crops Session will cover using genetically modified crops.

Saturday March 28th, from 9am to 5pm - Northeast Contract Grazing Summit “Real opportunities and perspectives from real grazing practitioners and customers”.
Held at the Weaver Family Farm, 4933 Peterboro Road Morrisville, NY 13408. A homemade lunch made by the Peterboro Amish Community Church will be available on-site for a donation in support of the community’s school. Pre-registration admission is $70 per person or $120 for two from the same farm. Space is limited so get signed up early.
For information, lodging choices and to register, please call Troy Bishopp at the Madison Co SWCD at (315) 824-9849 Ext. 110 Troy-Bishopp@verizon.net or send in your registra-

March 25, 2015, 10 AM – 3 PM, Soil Health and Nutrient Dense Farming — at the CCE Meeting Hall, 479 Rte 66, Hudson. Nutrient Density Farming is a holistic approach to maximizing soil health and the quality of crops, achieved by an optimized balance of nutrients in the soil. The Cornell Soil Health Assessment tool is a new test developed to research and attend to the balance of soils’ physical, chemical, and biological contents, determining and influencing overall soil health. Discussion to be led by Crystal Stewart of the CCE’s Eastern New York Commercial Horticulture Program, Dan Kittredge of the Real Food Campaign and the Nutrient Density Supply Company, and Aaron Gabriel, of CCE’s Capital Area Ag and Horticulture program. Light lunch will be provided for registrants. $25 per person, or $30 per farm. Please register by 3/23/15. To register, or for more information, please call 518-828-3346, or 518-622-9820.

FYI

Check out the Ag Exchange (http://agexchange.cce.cornell.edu), we have a new category for “Organic Materials”. Listed now are several items that would make good livestock bedding.

Presentations and handouts of the First Annual Hudson Valley Value-Added Grains School are posted at http://ulster.cce.cornell.edu/agriculture/crop-production/field-crop-production-small-grains-and-hay/annual-hudson-valley-value-added-grains-school

Paul and Maria Morra Scholarship is to honor the lives of Paul and Maria Morra (trust beneficiaries) and their commitment to preserving the natural resources of our region. Scholarships are for students pursuing further academic work beyond high school in the field of horticulture, agriculture, forestry or natural resources. Complete application packet must be received by April 15, 2015. Contact Chuck Brooks, CCE Columbia-Greene, 518-828-3346 or cb657@cornell.edu.


New beehive design makes harvest a breeze - Frames with open cells allow honey to flow through a pipe during harvest. Visit https://www.youtube.com/watch?v=WbMV9qYIXqM for an amazing video about Cedar and Stuart Anderson’s amazing advance in beekeeping. (THE COOLEST THING IN BEE KEEPING, EVER!!)

Penn State has released the *Penn State Organic Crop Production Guide*, a 243-page field-crop guide tailored to the mid-Atlantic and Northeast regions. The guide provides science-based information on organic practices and ecological processes, and it features case studies from farmers and firsthand producer experience. It also includes Penn State research results.

Protecting Livestock from Predators (lions) at [http://onpasture.com/2015/03/02/protecting-livestock-from-predators/](http://onpasture.com/2015/03/02/protecting-livestock-from-predators/) is a 7 1/2 minute video worth watching.


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**Aaron’s Comments**

**Salesman Characteristic That Raise Red Flags**

Aaron Gabriel

A recent conversation prompts me to share what raises a red flag for me talking with salesman:

- **The ingredients of the product are not given and how it works is not explained.** I just went through one website for a company and nowhere did it have a list of ingredients for their product. I had to email the company and get a label. The salesman told me the ingredients were “proprietary”. To sell fertilizer and lime in NY, you have to have a analysis label.

- **The company philosophy focuses on one principle and gives little or no attention to the rest of the farming system.** Managing a biological system is more than just one nutrient, or seed or tillage. If you bring your car to the mechanic and s/he says, “all a car really needs is good tires”, you would realize you are not getting the whole story.

- **In order to make a sales pitch, they have to speak poorly of other products, people, or institutions (like Universities).** If your product cannot stand on its own merits, it cannot stand. If somehow, the research of one company defies years of research from dozens of other universities and research programs, you to wonder how that could be. A close analysis of the competing research is needed before accepting it.
Low Lignin Alfalfa
Aaron Gabriel

Low lignin alfalfa varieties are making their way to the market. Here are a couple summary points and a link to a research article from Wisconsin:

- Low lignin varieties from Alforex (Hi-Gest) and Dupont/Pioneer were developed by traditional plant breeding techniques.
- Low lignin varieties from Monsanto (HarvXtra) was developed through genetic engineering, which suppressed a gene for making lignin.
- Suppressing one gene reduced acid detergent lignin 12 percentage points, and suppressing a different gene suppressed acid detergent lignin 3.5 percentage points. NDF digestibilities also increases in each line.
- In this one study, the low-lignin varieties reached the same NDF level 8 to 12 days after the isoline varieties (same variety but with the normal gene).
- Allowing low-lignin varieties to grow longer cutting them 3 times per year, gave 20—30% greater yield (with less work) and the same forage quality as harvesting a conventional variety 4 times per year.

RoundUp Ready Alfalfa
Aaron Gabriel

RoundUp Ready alfalfa is now on the market. Here are some summary points from the Penn State Factsheet **RoundUp Ready Alfalfa Management** at: [http://extension.psu.edu/pests/weeds/control/guidelines-for-weed-management-in-roundup-ready-alfalfa](http://extension.psu.edu/pests/weeds/control/guidelines-for-weed-management-in-roundup-ready-alfalfa)

- There is $2.50/lb technology fee.
- 2% - 8% of the seed does not carry the glyphosate resistance gene, therefore when the seedlings have 3 to 5 leaflets (4—6 weeks old) you should apply RoundUp to remove these seedlings and control weeds.
- The seedlings are not set back by glyphosate, while a 20% (0.2 t/a) yield reduction can occur by using raptor or Pursuit (conventional weed control).
- Weeds should be controlled early, in the first 60 days to get a yield boost of alfalfa the first year.
- The seedling year alfalfa population will increase by using RoundUp only when the weed pressure is medium to high.
- Healthy alfalfa stands usually do not need weed control after the seedling year, except when winter annuals (chickweed, henbit, wild garlic) can thin stands, or you have poisonous weed problems (curly dock).
- You can reduce your seeding rate with RR alfalfa. No matter the seeding rate, the first year stand thins itself to 30—35 plants/sq.ft. That is 7.7 pounds of raw alfalfa seed (199,000 seeds/lb). With good seeding practices, you do not need a lot of alfalfa seed.
- Do not use glyphosate throughout your crop rotation. If you use RR alfalfa, do not use it again on subsequent crops of corn or soybean.
- Do not select varieties based on one trait. Consider disease resistance, winter hardiness, fall dormancy, yield, etc.
Check out the Alfalfa Variety Comparison Website:
http://www.uwex.edu/ces/ag/alfalfa/

Total Tract NDF Digestibility:
A New Approach to Evaluate Forages

This new forage analysis procedure (TTNDFD) is being incorporated into the Cornell Net Carbohydrate and Protein System. I think it is here to stay. Dr. Combs spoke at a recent meeting at the Elks. His explanation of this new procedure is at: http://www.ansci.cornell.edu/pdfs/CNC2013_Combs_manu.pdf

Forage Sorghum: Our Local Experience
Aaron Gabriel

Seed companies are hard at work to adapt crops to new regions and specific uses. This is true for sorghum and its many variations. First, I will review the types of sorghum, and then discuss production practices and relay the experience some local farmers and researchers have had with one-cut sorghum. What are the types of sorghum (and sudangrass):

- Grain sorghum (milo) – not typically grown in our region. A short, 3 ft – 4 ft plant with round 3/16 inch diameter seeds at the top of the plant in a tassel (panicle). Typically planted in 30 inch rows.
- Forage sorghum (one-cut) – a tall leafy type usually 7 ft or taller. Small oval seeds (~3/16 inches long) also develop in the tassel at the top of the plant. Regrows poorly after harvesting – one-cut type. **The forage is low in starch, but very high in sugar.**
- Sudangrass – a leafy, fine-stemmed grass about 3 ft tall, that readily regrows after being cut. Suited for dry hay, pasture, and silage.
- Sorghum-Sudan – a cross of forage sorghum and sudangrass, a leafy type that regrows readily from nodes at the bottom of the stem if mowed at 4 inches or higher. Mow when 3 ft to 4 ft tall, and wilted before making balage or silage.

**Variations bred into forage sorghum, sorghum-sudan, and sudangrass:**

- Brown mid-rib (BMR) gene - reduces the lignin content which makes it more digestible and more susceptible to lodging. The BMR 6 gene reduces lignin content the most (BMR12 and BMR16 are other genes). Bred into all three forage sorghum types. (There was lodging last year of one tall BMR variety.)
- Brachytic Dwarf Varieties – these varieties are short but have very thick stems. They have the same number of nodes (and therefore leaves) as the tall varieties, but the internode length is short. As Tom Kilcer likes to describe them, they are like a football line-backer (brachytic dwarf) compared to the basketball center (conventional tall varieties). This past year a dwarf and tall variety yield the same on a local farm. Dwarf varieties lodge less.
- Dry Stalk – is a characteristic that makes the stalk have less moisture so that it is more suitable for ensiling. This trait is in sorghum-sudan types at this time.
- Light Sensitive types do not flower until the night time is long, typically in September. So the plant will be all fodder, with not nutrients from the stalk being translocated to the seeds, which can get hard and indigestible. Useful in one-cut sorghum types.
- Male Sterile trait prevents pollination and no seeds develop, since sorghum is mostly self-pollinated. Again, this is an advantage for forage types since all the energy stays in the stalk and leaves. Useful in one-cut sorghum types.

There are some good reasons why farmers are trying forage sorghum as a feed. It can have a useful place in a rotation and a feeding program. The cost of production is less than corn. Seed costs are much less than corn and you plant only about 6 - 12 lbs of seed per acre. When the seed is treated with “Concepr” seed safener, you can use atrazine and metolachlor as a pre-plant or pre-emergent herbicide. Weed control is important. It needs to be planted at ¾ to 1 inch deep, so it will emerge quickly and compete with weeds. It is fertilized almost like corn, but trials at the Valatie Research Farm done by Tom Kilcer, show that less nitrogen may be needed. Trials are ongoing.

Sorghum has no diseases or insect issues, yet. In fact, it produces a chemical that is toxic to corn rootworm. It can break that pest cycle. Since it is planted later than corn, it can be double cropped with a winter grain. Or in daily spread systems, you can leave a field for May manure spreading, then plant it to sorghum.

When the weather is dry, sorghum grows better than corn and you can still get a respectable yield. But, it does need heat. It must be planted into warm soil (62°F), that will stay warm through emergence. In our area farmers have been getting 16 to 20 tons per acre. They are still trying to determine the best plant populations (85K to 135K per acre) and row spacing (7, 15, or 30-inch). Planting and harvesting machinery will dictate the row spacing to use. Since seed size varies, you must determine the seeds/lb for each lot and adjust the planter to drop the proper number of seed. Sorghum plates need to replace the corn plates in corn planters.

Tom Kilcer has seen higher yields in 15-inch rows, but you need either a 15-inch row
corn planter or a modern grain drill with press wheels, depth control, and with gear-reduction to reduce the seeding rate. Corn planters have worked well for local farmers. In one instance, a no-till drill was used but the emergence was poor. The field was replanted with a corn planter.

Because the seed is smaller than corn, it needs very good seed/soil contact for germination. It does not grow well on heavy wet soils, in part because of poor seed/soil contact. It did grow well in our area on a Hudson silt loam, but it was following a sod and had good soil structure. Sorghum does well in coarse droughty soils. Another local farm got 20 tons/acre this past year (2014) on such a soil. No local farms have tried no-till planting sorghum, and it probably should not be done unless soil tilth and moisture are perfect.

The part of sorghum production that makes me nervous is trying to get it harvested at our typical 70% moisture or less. If you harvest it past the recommended time of the soft dough stage, the seeds get extremely hard and indigestible. Being small, a forage processor probably will not nick or crush them. Typically in our area, moistures have been very high at harvest, 75% to 85%. However, sorghum has a very high sugar content, so crops have been fermenting well, with and without inoculants. A homo-fermentive bacterial inoculant can be used, not a hetero-fermentive one – L. buchneri. Tom Kilcer explains that L. buchneri ferments silage slowly. With all that moisture, you want as fast a fermentation as possible to avoid butyric acid production.

In fact, local farms have experienced very rapid fermentations of their sorghum. This makes it a good fit for early fall feeding. Corn silage needs to ferment for three months to improve its forage quality (increase in fiber digestibility and kernel softness). So, a field or two of sorghum can be harvested and fed after a month, and during the fall, while corn “cooks” in storage until the new year.

To manage moisture it is important to pick a variety with the right maturity, manage nitrogen applications carefully, and not plant too late. Last year, one farm planted the third week of June, and the crop never dried down, even though it was in the dough stage and had a couple of frosts. Another farm last year planted the same varieties the first week of June. That sorghum dried down to 75% moisture. It was also in the dough stage but a month earlier.

Chop length is another management step that needs a closer look. Three-fourths inch chop length is the minimum recommended, but the maximum length is not really defined. The BMR varieties have weaker fiber and there is more moisture typically at harvest. Although silage leachate has not been a problem locally, it could be an issue.

High moisture can be a problem getting the feed into storage. Blowing wet sorghum (85% moisture) up a silo pipe did not work well for one farm. They mixed it with corn silage to get it up the pipe. Another farmer topped off his upright silo with BMR sudangrass and did not unload it for a while. Even when covered with plastic, there was the typical layer of rot. But since it was a BMR variety with little fiber, it turned to mush and the silo unloader could not pick it up and blow it out. Farmers have found that wet sorghum will go into a silo bag okay.

Getting wet forage out of storage was a problem with our cold winter. There was more freezing than usual – a foot or more on the outside of ag bags. The tops of silos also froze hard.

Once BMR sorghum does get fed, the animals have performed very well. One local farmer that grew sorghum for the first time, replaced all his corn silage with sorghum greenchop and the cows stayed at the same level of milk production. Another farm, that has been growing and feeding it for three years, has had excellent butter fat and protein components.
in the milk. Butterfat typically increases 0.2 to 0.5 percentage points when feeding sorghum, according to Shawn Lasher (Whitman’s Feed). Although sorghum can perform as well as corn silage in some instances, you need to rebalance rations because it is high in sugar and low in starch. This is quite different than corn silage. Sorghum (perhaps even the nonBMR types) might fit a heifer or dry cow ration very well.

Lastly, you should be mindful, but not fearful of prussic acid poisoning. Very young plants, and plants fed soon after a drought or frost can release cyanide. Chopping and fermenting allow the cyanide (gas) to dissipate. If there is concern, allow the forage to ferment for 4 weeks before feeding it.

No one is recommending that you jump into growing sorghum. It is a different crop. It could fit your rotation and feeding program. But go slow and try a couple acres to see if it works, then increase acreage gradually to the level you want.