Champing at the bit to get into the field

Welcome to the spring 2011 issue of The ROSE Review! We bring real-time news and research results from our USDA Organic Research and Education Initiative (OREI) project, *Improving Weed and Insect Management in Organic Reduced-tillage Systems*. The purpose of our newsletter is to connect project collaborators and stakeholders so that we can share information and learn from each other. In this issue, we report on our Reduced-tillage Organic Systems Experiment (ROSE) in Pennsylvania, Maryland, and Delaware. We are testing strategies to overcome weed and insect challenges associated with organic rotational no-till corn and soybean production. In addition to project updates, look for information on organic production, crop insurance, weather, and marketing.

Organic soybean seedlings emerging through a rolled cereal rye cover crop (*left*) and corn seedlings emerging through a rolled hairy vetch cover crop (*right*).
**ROSE Update from Penn State.** After a long winter, we can’t wait to start rolling. Both the ‘Aroostook’ rye (seeded at 168 lbs/a) and the hairy vetch- triticale mixture (‘Groff Early Cover’ vetch, ‘Trical 815’ triticale; seeded in a 50/50 mixture at 60 lbs/a) were well established before winter set in and are looking great right now. The ‘USG 3770’ soft-red wheat planted in October (220 lbs/a) does not look quite as good, but is growing well and looking better every week.

Half of the wheat was tine-weeded with a Kovar tine-weeder in November 2010, and this treatment will continue over the course of the experiment to test tine-weeding effects on weed abundance and wheat performance. Wheat populations were quantified in December 2010 and were slightly lower (by about 7%) in tine-weeded plots. We’ll have to wait until this summer to see if this small difference leads to reduced yields in tine-weeded plots.

We established 144 microplots, measuring 5m², where approximately 7,500 seeds of three summer annual weed species (pigweed, giant foxtail and ragweed) were evenly spread. You can see flags surrounding the microplots that were established in the rye cover crop that will be rolled during no-till soybean planting (photo below). We will track weed populations over time in these microplots by counting weed seeds in soil samples collected every spring. As this article is being written we are in the process of collecting our first set of soil samples from microplots for seed bank counting.

We’re well into our insect monitoring and cover crop assessments. Keep an eye out for results from our first year in the fall issue of the ROSE review.

_By Mark Dempsey, Penn State_

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**Diagram of Weed Management Treatments in the ROSE.**

In addition to using cover crops to provide mulch that will suppress weeds, we are using expressive weed management to reduce the weed seed bank (blue) and supplemental weed management to control weeds that break through the mulch (green). This multi-tactic approach targets several different stages of a weed’s lifecycle. By the end of the rotation we will be able to determine which management practices had the greatest impact on weed populations and if there was synergism between tactics.

_By Matt Ryan, Penn State_
Robert Foscue owns and operates Abundant Life Farms in Johnston County, NC, where 35 of his 305 acres are farmed organically, and the rest are farmed conventionally. He acquired the farm in 2006, which had been in fallow for three years, and was quickly certified organic. On his organically managed land, Robert is developing a reduced-tillage, three year rotation consisting of corn, soybean, wheat, and cover crops such as oats, and white and crimson clover. The cover crops help to improve soil health and fertility, and to reduce fertilizer inputs, cultivation for weed control, and also reduce soil erosion on his sloped land. Cultivation is, however, his main form of weed control, and he uses a tine weeder, inter-row cultivator and a high-residue cultivator. Robert sells his grain directly to a dairy farmer, or to a mill in North Carolina.

Kenny and Ben Haines, a father and son team, run Looking Back Farm in Chowan County, NC. They farm 320 acres of organic land, where they rotate corn, wheat, soybeans, and an additional crop such as melons, and sunflowers. They use cover crops to improve soil health and fertility, and also to help manage weeds. The majority of their fertility comes from poultry litter and mushroom compost, which is applied strategically to avoid phosphorus buildup and maintain near-neutral pH levels without liming. Cultivation is their main form of weed control, but is used in combination with cover crops and relatively high planting rates to help shade out weeds. Kenny and Ben sell most of their grain to mills in North Carolina, but also to Organic Unlimited in Pennsylvania.

By Chris Reberg-Horton, NC State

Some farmers have experimented with different implements for managing cover crops. One approach has been to use mowers; however, this has several disadvantages including reduced weed suppression relative to rolling. Others farmers have used implements that were originally designed for different purposes, such as corn stalk choppers or cultimulchers. The photos to the left is Steve Groff, no-till farmer in PA, as he stands next to his stalk chopper and a rear-mounted roller-crimper resting in a thick stand of hairy vetch and cereal rye. On the right, Bryon McMurry, innovative farmer from North Carolina, is seen rolling cereal rye in late may using a two-roller cultimulcher. Photos courtesy of Bill Curran (left) and Chris Reberg-Horton (right).

By Matt Ryan, Penn State
**Organic Short-Season Corn Variety Trial.**

We tested 10 short-season corn varieties at two sites at Penn State’s Russell E. Larson Research and Education Center in Rock Springs, PA. One site was on certified organic land. At this site manure was applied (22-24 ton/a) and the soil was moldboard plowed in late April. Soil was disked in early May, harrowed in late May and again in early June, and corn planted on June 2nd. At the non-organic site the preceding crop was corn, fertilizer and insecticide were applied in mid May, and corn was no-till planted on May 21st. Corn was planted at 33,000 seeds/a at both sites.

Weed management at the organic site consisted of several tine weeding and inter-row cultivations, as well as hand weeding. At the non-organic site weeds were managed with herbicides. Corn was harvested from the middle two rows of each 4-row plot on November 12th at the organic site and October 22nd at the conventional site. Reported yields were adjusted to 15.5% moisture.

Corn yield was higher at the organic site (169 bu/a) than at the non-organic site (143 bu/a). The difference in yield between the two sites was likely due to the planting date. In the non-organic site, corn was planted earlier and may have experienced greater water stress during critical growth stages.

We hypothesized that corn yield would increase with relative maturity rating. This was not the case as **yield was not influenced by relative maturity.** This was unexpected and challenges the notion that varieties with longer relative maturity ratings out-yield shorter season varieties. Average corn grain moisture at harvest ranged from 16.1-22.1% across varieties and sites. Average grain moisture was higher at the organic site (18.7%) than at the conventional site (17.5%).

While grain moisture was not correlated with relative maturity rating at either site, we did observe that the three varieties with the earliest relative maturity ratings (‘Viking O89N-80N’; Masters Choice OG-463’; and ‘Blue River 19K19’) consistently had the lowest grain moistures at harvest. This suggests that earlier-maturing varieties may be advantageous when growers are trying to minimize expenses associated with corn grain drying.

*By Mark Dempsey, Penn State*

Pennsylvania On-Farm Research and Cooperators. On-farm research is an important component of this project. In PA, two farmers have agreed to serve on the project advisory board and to host on-farm strip-plot comparisons of practices being investigated in the ROSE at experiment stations in PA, MD, and DE. Elvin and Charlotte Ranck and family own and operate Charvin Farm located near Mifflintown, Juniata County. Kirby Reichert is the owner/operator of Sunshine Farms, a cash grain and hay operation headquartered near Grantville, Dauphin County (photo right by Dave Wilson).

Charvin Farm includes nearly 950 acres of certified organic crop and pastureland. Approximately 180 acres is owned and the balance is leased from approximately a dozen nearby farms. The Ranck family includes eleven children and all have a role on the farm. They milk 175 cows and raise 150 heifers. The farm is large enough to sell grain and hay in excess of that needed for their dairy animals.

Sunshine Farms consists of 750 total acres of grains and forages. Nearly 250 acres are certified organic, and the remaining 500 acres are managed conventionally. Most of Kirby’s land is leased, from 28 different landlords, within an area that measures 10 miles in the longest dimension. Kirby’s first organic acres were certified in 1998. While he would like to have more organic acres, grain storage is limiting, and investing in more storage when most acres are leased is often not justified.

One goal of our project is to reduce the number of tillage passes associated with primary and secondary tillage. On-farm projects for both PA farms include comparisons of traditional tillage systems with either a no-till or reduced till system. The reduced or no-till treatment will rely heavily on fall-planted cover crops to provide a thick mulch to reduce weeds. For 2011, both farms will investigate the effectiveness of rolling/crimping cereal rye ahead of no-till soybean. If rye biomass at early anthesis is sufficient, the soybeans will be no-till drilled into the rolled rye. If the rye is less than adequate, the rye cover will also be rolled/crimped, but the soybean will be no-till planted into 30-inch rows with the intention of using a high-residue cultivator to manage escaped weeds. Cover crop biomass, weed biomass, and crop yields will be measured at appropriate times during the growing season.

By Ron Hoover, Penn State
Clair Keene spent most of her time this winter working on her thesis proposal and is happy to have the first draft done. Most of Clair’s field work this summer will involve collecting data on weed suppression in the ROSE. To assess how well cover crops suppress weeds, the amount of ground they cover in early spring will be measured along with their biomass at planting time. Last fall, seeds from three weed species (common ragweed, giant foxtail, and smooth pigweed) were sown into plots to create an artificial weed seed bank. This will allow us to measure weed populations dynamics over the 3-year crop rotation, and to determine the effects of cultivation, tine weeding, and false seedbedding. In addition to population dynamics, Clair will also determine the effect of planting date on weed-crop competition and yield. It will be interesting to see how well the ROSE weed control tactics work in PA, MD, and DE where each site has its own unique set of weeds. Clair had an outstanding first committee meeting in early April. As we gear up for field work, Clair continues to attend classes and look for other exciting research questions to work on within the ROSE.

Tom Huff’s first year as a graduate student is proving to be both educational and rewarding. Maintaining a full class load, being a teaching assistant’s apprentice, working in Mary Barbercheck’s lab, and working on his own Ph.D. research has kept him quite busy this semester, but he has learned a great deal and feels like he is gaining the understanding of what it means to be a full-time entomologist. Work on his Ph.D. research this semester included developing his proposal, with the working title, “Effects of organic farming systems on insect pest and predator diversity.” He plans to investigate how the organic farming systems used in the ROSE will affect the abundance, diversity, and community composition of above-ground insects and related organisms. Tom is looking forward to the upcoming field season so he can generate data to start writing chapters for his doctoral dissertation.

Lauren Young is from Jarrettsville, MD. She completed her B.S. in Environmental Studies at Bucknell and her M.S. in Biological Sciences at University of Nebraska- Lincoln. Lauren began her technician position at USDA- BARC in Beltsville, MD during late March 2011. She has conducted field research in ecosystems ranging from the Florida Everglades to wheat fields in Kansas. During her teenage years, she and her friends raised money so the state of Maryland could complete the purchase of a tract of land that includes the second highest free-falling waterfall in the state. She looks forward to taking a few swims in the falls this summer. In her spare time, Lauren enjoys reading, hiking, watching soccer, cooking, and writing her dissertation.
**Project Advisory Board Meeting Highlights.**

On March 7, 2011, USDA project investigators Steven Mirsky and Don Weber hosted our annual project advisory board meeting at the Beltsville Agricultural Research Center (BARC) in Beltsville, MD (photo right). The Reduced-tillage Organic Systems Experiment (ROSE) project researchers from the BARC, Penn State University, and University of Delaware spent the day discussing project progress with advisors consisting of experienced organic farmers from PA and MD, extension educators from Penn State, and representatives from the seed industry.

After brief introductions, weed ecology post-doctoral researcher and project coordinator Matt Ryan reviewed some of the organic research in PA that led to the current project. He discussed the three-year corn, soybean, wheat rotation and different pest management strategies that are being tested such as avoidance (planting dates), expressive (false seedbed), suppressive (cover crop mat), and supplemental (high-residue cultivation) weed management.

Our farmer-advisors compared and contrasted their crop rotations and management plans to those implemented in the ROSE. Aaron Cooper, from MD, uses Austrian peas for N fertility rather than hairy vetch because he is concerned about hairy vetch showing up as a weed in his wheat. Kirby Reichert, from PA, inter-seeds red clover with his spelt. Michael Ranck, from PA, considered that in some ways, their rotation is similar to the ROSE rotation but it depends on the location. Fields that are farther away from the barn are used for hay and, like Aaron, the Ranck’s do not grow a lot of hairy vetch but rather use crimson clover as a nitrogen source.

Ron Hoover discussed the plans for on-farm research in 2011. Both Kirby and Michael seeded rye in the fall as a cover crop and will compare reduced tillage to conventionally tilled soybeans. Aaron is growing a half-acre of cereal rye and a half-acre of hairy vetch and is planning to roll the cover crops prior to planting soybeans in the rye and corn in the vetch. During the on-farm research updates, there were questions on when the ideal time is to go out and assess your cover crop in order to determine if the stand is thick enough to create a mat that will suppress weeds. One of the goals of our project is to create a tool based on cover crop phenology to aid in decisions about whether one should proceed with rolling and no-till planting, or if it would be better to plow and use cultivation to manage weeds.

The final activity of the day was a field tour, led by Steven Mirsky. The group visited a hairy vetch variety trial, a cover crop density trial, and checked out some farm equipment. A poultry litter injector will be used at the MD site, but is currently being built and was not available for viewing.

At our next advisory board meeting, we will compare results from soil tested at different laboratories that focus on different aspects. For example we will compare the Cornell Soil Heath test to the standard Penn State Agriculture Analytical Lab test. All tests will be done on soils collected from our advisors’ farms. We’re also going to conduct a weed seed germination assay on the soils to determine the community composition and density of the weeds present on their farms. Soils will be collected from fields from each of the 6 farms in September, in plenty of time to receive the soil and test it before we meet again.

*By Christina Mullen, Penn State*
Crop Insurance Options for Organic Farmers. Multi-peril crop insurance is a valuable risk management tool that allows farmers to insure against losses due to adverse weather conditions, price fluctuations, and unavoidable pests and diseases. It shifts unavoidable production risks to an insurance company for the payment of a fixed amount of premium per acre. Over $322 million has been paid for crop losses in Pennsylvania since 1981 ($252 million in the past ten years).

Participation in the crop insurance program in Pennsylvania has increased dramatically since the 1990’s, with a large increase in acreage and coverage, providing protection from losses due to weather extremes and market variability. Over 1.1 million acres are covered by crop insurance with insurance protection of almost $400 million. A minimum level of crop insurance, called CAT insurance, is available to all farmers regardless of size at no premium cost. Higher levels of crop insurance (buy-up protection) are also federally subsidized, with farmers nationwide paying only 33 to 62% of the actual cost of the insurance (depending on the level of coverage selected). Because of the high levels of subsidy, the amount paid to PA farmers for crop losses has exceeded the amount they paid in premiums in 19 out of the past 20 years. During that time period, PA farmers with crop insurance have received an average of $2.73 for crop losses for every $1 they have paid in premiums.

Crop insurance coverage is available for certified organic acreage, transitional acreage, and buffer zones. When reporting acreage, you must have written certification for your organic and transitional acreage and records from a certifying agency of the location of your organic production. Organic price elections or insurance dollar amounts of coverage are set by USDA-Risk Management Agency every crop year. For 2011, organic prices for crop insurance have been set at $10.75/bu for corn, $24.20/bu for soybean, and $87/ton for processing tomatoes. Organic corn and soybeans can be protected with either of the two revenue plans or the yield coverage plan. Crop insurance is also available for many organically grown crops at non-organic prices without a premium surcharge. Premiums may be adjusted to recognize additional risk associated with covering organic crop acreage.

Another option for organic producers is adjusted gross revenue insurance (AGR or AGR-Lite) which insures the revenue of your entire farm (not individual crops) by guaranteeing a percentage of your average gross farm revenue. AGR insurance provides protection for farms with multiple crops, especially for growers with specialty markets or crops that do not have standard crop insurance coverage. AGR insurance uses information from the past 5 years of your Schedule F tax forms to calculate the policy revenue guarantee. Depending on the number of commodities grown, you have the choice of 3 coverage levels (65, 75, and 80%) and two payment rates (75 and 90%). This type of coverage is of particular value to growers who sell in specialty markets and receive premium prices for their products.

Although AGR plans are good options for many high-value crop producers, it may not cover your losses if you are purchasing crops from other farmers for resale. This is a potential problem in direct marketing situations if you make up a shortfall in production by purchasing crops from other sources. Because AGR and AGR-Lite are revenue policies (not profitability policies) you would not have the basis for a claim if your revenues are at or above the coverage level you selected.

For more information on crop insurance and how it can protect the cash flow on your farm, visit the Penn State Crop Insurance Education web site (http://cropins.aers.psu.edu) or contact a crop insurance agent.

By Jayson Harper, Penn State
Organic Grower Network Focuses on Organic Grain Marketing. In late January, the Central Susquehanna Valley Organic Crop Growers Network held an organic grain marketing workshop, hosted by Columbia Co. Cooperative Extension Educator Dave Hartman, at the Columbia Co. Ag Center in Bloomsburg, PA. On the program were representatives from Kreamer Feeds, Inc., Pennsylvania Certified Organic (PCO), and CROPP/Organic Valley.

Steve Smelter, Organic Sales and Nutritionist representing Nature’s Best Organic Feeds made a presentation on Kreamer Feed’s organic feed production and marketing program. Nature’s Best Organic Feed is made and distributed by Kreamer Feed, Inc. in a mill used exclusively for certified organic feed manufacturing (www.organicfeeds.com). Kreamer Feed purchases organic ingredients, including corn and other feed grains, through grain contracting for current and future supplies. According to Steve, the demand for organic grains for feed is currently very strong, after a “down” year in 2009 due to the recession, when many retailers were offering “natural” rather than certified organic meat, eggs and dairy products to their consumers. But, according to Steve, “from an organic viewpoint, the recession is over...consumer demand for organics is there.” Kreamer Feed began offering organic feeds in 1998, and sales have doubled nearly every year since then. The implementation of the national organic standards created greater demand because of the need to use organic feeds in organic animal production. Kreamer’s organic grain usage from 2006 (audited) to 2010 (estimated) increased 320% for corn, 513% for soymeal, 234% for roasted soybeans, 300% for wheat, and 201% for barley.

Smelter explained that Kreamer Feed has focused on the development of an organic feed quality policy and a company quality culture. To help educate their customers about grain quality, Kreamer recently put together information on grain quality standards for their customers, which includes tests for mycotoxins, Salmonella and GMO contamination. If a GMO test result is positive, the whole load may be rejected. Currently there is no USDA standard for GMO contamination of organic feed grains. The main sources of contamination are drift from neighbors, and conventional grain residues in combines and trucks from split operations. According to Steve Smelter, Kreamer GMO tests every grain load for protection against fraud. Pennsylvania Certified Organic (PCO) provides guidelines for reducing GMO contamination from pollen on their website at http://www.paorganic.org/organic_resources.htm.

Several members of the Central Susquehanna Valley Organic Crop Growers Network are members of CROPP (Cooperative Regions of Organic Producer Pools), which markets products under the Organic Valley Family of Farms label. CROPP Cooperative uses the term "pool" to describe a group of farmers growing a certain product in a geographic region, and grower pool is a marketing model based on stable pricing and transparency. CROPP manages two marketing programs, a feed program and a grower pool based in rolling 3 year contracts.

The CROPP Cooperative Grower Pool is a new model for the marketing of organic feed crops to stabilize pay price and provide steady increases in the face of wildly fluctuating conventional markets. Co-op member growers may enroll as many acres as they like and have a guaranteed price via a 3-year rolling contract, and have priority access to all future sales to CROPP Cooperative for as long as they remain members. CROPP membership is depend-

(Continued on page 10)
The grain pools are meant to act as a “shock absorber” for the market – to provide a fair range of prices for grain producers who sell and for livestock producers who buy the grain. Prices that CROPP pays for feed grains are based on a percentage of base price of organic milk. Therefore, if the price of organic milk increases or decreases, the prices for organic feed grains also change. Currently, grain prices are based on percentage of base milk prices at 24.18% for barley, 28.29% for corn, 16.12% for oats, 41.74% for peas, and 63.38% for soybeans. At the time of the workshop, CROPP needed more growers in Pennsylvania, Indiana, and Ohio.

By Mary Barbercheck, Penn State

Climate Corner. The National Oceanic and Atmospheric Administration (NOAA) with The National Weather Service Climate Prediction Center offer 3 month outlooks for the entire US. Based on their predictions, the Northeast will experience relatively normal temperatures in June, July, and August (upper left). However, as you can see in the lower left, the Northeast may be in store for a wet summer. For more information about long-term climate predictions and drought forecasts check out NOAA at http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.php.

By Matt Ryan, Penn State
Using oats as a companion crop with legume cover crops. Use oats, late summer/early fall seeded with a legume or legume/grass mix. The oats establish quickly providing early soil cover protecting against soil erosion and help with weed control. The oats grow vigorously and compete with summer and winter annual weeds that germinate from August to October. Winter-annual legumes are typically slower to establish, but will germinate and emerge underneath the oats.

Seeding rate depends on both location and seeding date. Oats can be planted as a nurse crop in combination with hairy vetch, crimson clover, winter peas or other winter-annual legumes or perennial legumes. The oats will establish quickly in the fall and then winter kill in Zone 6 – 7 and colder. Oats grow well in the cool wet weather and produce prodigious biomass and are competitive with weeds. Oats are good nitrogen scavengers and will take up end of season nitrogen. Dead oat stubble can help to catch snow and hold it to somewhat insulate the overwintering legume (a.k.a. the igloo-effect).

Oats seeded too heavy or too early will compete aggressively with small-seeded legumes and can smother the establishing legume cover crop. Seed oats at the lower end of the range for early planting dates and in southern locations; use higher rates for later planting dates (mid to late September) or in northern locations (see table below).

Differences in elevation in regions will also have impact on temperatures. Seeding rates in regions of high elevation need to be adjusted for the impact of elevation on growing temperature.

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<th>Oat Variety</th>
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<th>Southeastern PA &amp; South</th>
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<tr>
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<td>Jerry (grain)</td>
<td>30-45 lbs/acre</td>
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By Dave Wilson, King’s Agriseeds Inc.

Photo below right: Ron Hoover (left) and Dave Wilson (right) at a field day at Penn State’s Russell Larson Research & Education Center in Rock Springs.

Oats protect hairy vetch in late October (photo above left by Sjoerd Duiker). There is an excellent slide show illustrating how oats can be used as a companion crop with hairy vetch at http://extension.psu.edu/cmeg/cover-crop/hv-oats. Here you will see photographs of plots in York and Lancaster counties in PA. You can see hairy vetch planted with oats in the fall approximately 50 days after planting. The oats look lush and vigorous, whereas you can barely see the vetch. However, in the photos taken in March and April, you can see how the residue from the winterkilled oats is protecting the soil and the overwintering hairy vetch cover crop.

By Matt Ryan, Penn State
Finding the “O-word” in Washington DC. March 16, 2010 is a day to remember in the history of organic agriculture as it marked the start of the first USDA conference dedicated to organic agriculture. The Organic Farming Systems Research Conference: Exploring Agronomic, Economic, Ecological, and Social Dimensions was held in at George Washington University and was sponsored by USDA National Institute for Food and Agriculture (NIFA). One of the goals of the conference was to bring together research experts and industry representatives from across the country to review the science on organic agriculture and develop a research agenda for the future. The organizers really hit their mark, as the conference was packed with fascinating material ranging from hard data from prominent researchers to real-life experiences from outstanding organic farmers.

Throughout the conference it was clear that the USDA has come a long way since Mark Lipson and the Organic Farming Research Foundation published their report “Searching for the O-Word” in 1997. At that time, less than one-tenth of one percent of USDA’s research was focused on organic agriculture and the report concluded that the national agriculture research system “failed to recognize this potential, let alone explore it seriously or help to improve the performance of organic farming systems”.

Powerhouse researcher John Reganold from Washington State University gave the opening presentation on comparing the environmental impacts and food quality of organic vs. conventional crops. He compared organic and conventional strawberries grown in California and found that organic farms produced higher quality fruit than their conventional counterparts. This was just one of the many presentations reporting benefits of organic farming. Michel Cavigelli discussed the Farming Systems Project in Beltsville MD and showed that net greenhouse gas emissions were lower in organic compared to conventional cropping systems. Kathleen Delate from Iowa State University talked about their Long-Term Agroecological Research project and how they found organic systems to be more profitable than conventional systems. Decreased environmental impact and enhanced profitability of organic cropping systems was a consistent message coming from researchers.

At the end of the first day we heard from a panel of organic farmers that included Eric Nordell from Trout Run, PA, Jim Goodman from Wonewok, WI, Greg Reynolds from Delano, MN, and Richard Parrot from Berger, ID. They talked about their operations and shared their experiences with researchers. These farmers really balanced the conference and provided some grounding that can be lacking when bureaucrats and academics get together.

Presentations over the three-day conference were diverse and ranged from organic cotton production in Texas to the artisan wheat in Maine. Perhaps the most inspiring presentation was by Heather Darby, researcher and farmer from Vermont, who talked about how organic revitalized rural areas where conventional diary farms have been disappearing from the landscape. Her first-hand experience growing up on a farm in Vermont and seeing the role that organic dairy has played in the rural economy was particularly moving.

You can view many of the presentations from the conference at eOrganic on-line at: http://www.extension.org/pages/33545/usda-organic-farming-systems-conference-webinars

Research articles that were discussed are also available for free. John Reganold’s comparison of organic and conventional strawberries: http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0012346

Michel Cavigelli’s long-term farming systems project in Beltsville, MD: http://drr.nal.usda.gov/bitstream/10113/18545/1/IND44069188.pdf


By Matt Ryan, Penn State
PA Cover Crop Network. 9 single cover crop species and 8 mixtures were planted on 2 dates at 11 sites in PA. The result—an amazing collection of practical information, regional insights, and spectacular photographs. Thanks to all of the folks who helped pull this off, especially Ron Hoover, Sjoerd Duiker, and Charlie White. Visit the Cover Crop Network website at http://pacovercrop.ning.com/.

By Matt Ryan, Penn State

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By Glenna Malcolm, Penn State

PSU Symposium. On February 25th faculty, cooperative extension, post-doc researchers, and graduate students came together at Penn State to facilitate knowledge exchange and foster collaboration between different groups working on sustainable cropping systems. Post-doctoral researchers, Matt Ryan, Glenna Malcolm, and Meagan Schipanski, organized the 1st annual Sustainable Cropping Systems Triad Symposium. At the ½ day symposium, Matt, Glenna, and Meagan presented overviews of the three sustainable cropping systems projects to the 40+ people in attendance. After that, as part of a poster gallery walk, 9 graduate students shared their exciting research plans and findings with the group. Within the three cropping systems experiments, the graduate students are researching a broad range of topics, including the ecology of slugs, the relationship between crop diversity and insect diversity, mycorrhizal fungi populations, and microbial communities, nutrient management, and energy use of cropping systems! In the final part of the symposium, we had an interactive discussion on ‘outreach activities and decision-support tools’ and ‘cross-project data collection.’ Read more at: http://extension.psu.edu/susag/triad-symposium

By Glenna Malcolm, Penn State