

JUST PICKED

VOLUME 5, ISSUE 1 WINTER 2009

ADVANCED GROWER RETREAT—MARCH 5&6 EAST LANSING, MICHIGAN

Due to the popularity of the first, the Network is hosting its 2nd Advanced Grower Retreat just before and in the same building as the Organic Conference of the Michigan Organic Food and Farming Alliance. The Retreat will start at 1:30 PM on Thursday, March 5 and end Friday at 5 PM. The site will be the Kellogg Center on the campus of Michigan State University. The Organic Conference starts at 7 PM Friday and runs all day on Saturday. For purposes of group dynamics, the Retreat is limited to 30 growers.

The Retreat will be a grower-to-grower discussion time. Growers are encouraged to bring their production, marketing, and expense data to refer to

during discussions. The discussions will be on what you want to talk about, but will focus on three major areas: common production issues, value-added products, and markets and pricing. The Advisory Board of the Organic Tree Fruit Association that is forming will also provide an update on their progress and invite input. For the markets and pricing discussion Tom Rosenfeld will report on year one and discuss plans for year two of the new grower price sharing system that was initiated at the last Retreat.

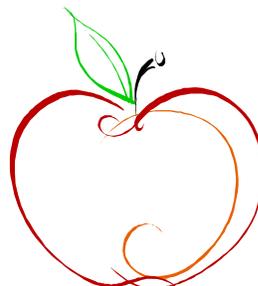
He will review how it went, how many participated, and the types of data shared. What growers got out of it will be discussed as well as how it can be improved.

Tim Young, President and Chef of the Food for Thought company (www.foodforthought.net) is invited as a resource person to help with our discussions on organic value-added products. How to get established, what customers are looking for, common problems and unexpected costs in getting certain products started will all be part of the discussions. More input is needed from growers on the specific production challenges they want to discuss at the Retreat. Please contact Deirdre if you haven't already with your suggestions.

Register early since the Retreat size is limited.

(Continued on page 6)

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Happy New Year & Welcome to our Winter 2009 issue of 'Just Picked'

This newsletter brings information on our 2nd Advanced Grower Retreat as well as registration information. The Retreat will be in Michigan on March 5 and 6 and in collaboration with Michigan's Organic Conference on March 6 and 7, where Michael Phillips will be speaking.

Also in this issue: The formation of the Organic Tree Fruit Association continues. Harriet Behar wants tree fruit growers to pay attention to NOSB's desire to remove antibiotics from the materials allowed in organic production. Dan Kelly shares his orchard adventures and value-added products with us. Eric Mader further educates us on the risks and dangers of organic orchard pesticides to pollinators. Those interested in heritage apple varieties should consider a workshop on them in March in Wisconsin. Another update on Jim

Koan and MSU's project to integrate organic pork and apple production is inside. Lisa DiPietro reports on the Organic Apple Grower Hour. Michigan is providing webinars for all growers this winter on selected topics.

All of our newsletters are available free of charge on our website. Please provide ideas or articles for future editions and feedback on this and any issue.

Watch for details on the Retreat as well as announcements for two field days on our list-serve and website. Our hosts will be Paul Rasch of central Iowa and Jim Koan of Michigan with the largest certified organic orchard in the Midwest. I look forward to hearing from you.
-- Deirdre

Integrating Organic Pork and Apple Production Another Project Update

--Deirdre Birmingham

This newsletter has been tracking Jim Koan and Michigan State University's project to integrate organic pork and apple production on Jim's farm. It is an exciting project that has garnered national and international attention. And it was spawned by the creativity of a grower: Jim Koan of Al-Mar Orchard and maker of JK's Scrumpy.

The following update will be brief as it builds on project updates in the following issues: Fall, Spring, and Winter 2008, Fall and Summer of 2007, all of which are found on our website.

While the plum curculio data had been analyzed in time for our September 2008 issue, the codling moth and weed data were still under analysis as was data on the pigs themselves. Updates on those aspects follow as well as plans for 2009.

Codling Moth. Matt Grieshop, who works on organic pest management at MSU, is in charge of this aspect. Matt's research looks at the differences in codling moth populations and damage between plots the pigs grazed and plots in which they did not graze.

Matt reported: "We found a three-fold reduction in the number of fruit damaged by codling moth in a pre-harvest sample (about 7.5% damage in ungrazed vs. 2.5% damage in grazed). Data from banding the trees to capture migrating late larvae did not reveal any difference in the number of larvae captured in grazed or ungrazed plots. This may have been due to a late spring frost, which drastically reduced fruit set on some trees (overall fruit set was at about 30% of normal).

It is important to note that the orchard was under a normal codling moth management program (Mating Disruption plus OMRI approved insecticides), so hogs were likely *contributing* to codling moth management; they were not the sole source. Next year we will begin grazing the hogs in a high-density planting of larger size, which will hopefully allow us to see differences in adult codling moth flight.

Weeds. Matt again is leading the work on this and reports as follows. "Hogs did not appear to change the species of weeds present in the grazed orchards, but had a marked impact on weed cover and biomass. In grazed plots there was between 17% and 34% more bare ground throughout the 2008 growing season. Weed biomass at the end of the season was reduced by approximately 70%. An orchard row that was missing trees was typically less disturbed than a row with trees. Hogs seemed to prefer to root in some areas more than others leading to patches of standing weeds under some of the trees. In the upcoming field season hog behavior will be observed to determine why they seem to prefer some areas over others."
So even pigs can be picky!

The Pigs. As for how those picky pigs fared, Dale Rozeboom reports on their health, reproduction, and parasite levels monitored from April through mid-September of 2008. He also studied the microorganisms in their contributions to the orchard floor.



A happy Berkshire hog finishing a dessert of apple pomace!

Swine health and reproduction

Three sows, one boar, and their offspring were monitored daily by Jim's crew, bi-weekly by a student research assistant, and monthly by Dale for any symptoms of health problems. None were noted. The young pigs were weighed to follow their rate of gain. Fresh fecal samples were collected to monitor internal parasite infection. Overall, the swine are in good health and have not needed any medical interventions.



Everyone likes JK's Scrumpy!

Microorganisms tracked

Escherchia coli and *Salmonella spp.* in the pigs were monitored biweekly from manure collected in the orchard. The same were also monitored in the manure of reindeer and turkeys at Jim's farm. The reindeer are housed in a lot next to that of the pigs. The turkeys roam and are free to go in and out of the pens of all animals. Aged manure was collected from the orchard floor on three occasions: 5 to 6 weeks, 9 to 10 weeks, and 18 to 19 weeks after flash-grazing the pigs in late June-July. The persistence of these microbes in the pig manure was measured. Not surprisingly they found that non-pathogenic *E. coli* and two other species survived in the majority of samples. Less than 10% of the samples tested positive for pathogenic *E. coli*. The researchers are developing risk assessment and mitigation plans for 2009 to determine whether these low levels of pathogenic *E. coli* pose any contamination concerns. All hog fecal samples collected from April to September of 2008 tested negative for salmonella.

Reproduction and Health of Swine

While the sows could produce more litters, their mating was timed to produce only two litters. Those litters were timed for the planned dates for flash grazing and for the size of pigs needed for most efficient grazing. While they wanted all three sows to give birth at the same time, one sow was about six weeks behind the others, which posed some management challenges.

The growth rate of offspring improved in 2008 from the project's first year. Second litters of all sows achieved a harvest weight of 230 pounds in nine months of age; two months ahead of the first litters. The second litters had better nutrition from more ground corn and wheat milling by-product (each 33% of the supplemental diet when not grazing), and liquid whey.

As in 2007 both adults and offspring are infected with a common parasite in swine that did not affect their health. In 2007 it was the adults who were infected to a minor degree with three other parasites, but this year both adults and young pigs were infected again at minor levels. These parasites were also found in the manure of rein-

deer housed adjacent to the swine. Overall, the swine seem to be slowly gaining more internal parasites, something that will be monitored if they get more funding. The adults of these parasites, however, have not been found at slaughter.

2009. Plans for 2009 involve moving the project to a 16-acre high density orchard on Jim's farm. This will allow them to expand plot size enough to properly measure scab and codling moth. David Epstein, who leads the project team, continues to compete for funding.

Unfortunately there are some who let fear overrule the need for science to investigate the potential risks to human health from the managed grazing of pigs in orchards at selected times. In my view, this fear seems to compete with this team's need for research funding to find science-based answers to these questions. With additional funding, the project can proceed to address risk in a scientific way. If human health could be harmed, we need to know that, not speculate on it or just fear it. We also need to investigate the reproductive health, parasites, welfare, growth, and meat quality of the pigs while investigating their role in orchard pest management. Growers need more options for building the health of their land and providing consumers with safe and nutritious foods while being profitable. And that is what I find this project to be exploring. Stay tuned!

OTFA MILESTONE REACHED

Another milestone was reached in the formation of the Organic Tree Fruit Association.

At the 2008 Advanced Grower Retreat last February, growers participating decided to form a membership-based association. They each plunked down \$10 or more and the Network's Advisory Council was charged as the advisory board to guide the formation of the new organization. This past November the Advisors sent a ballot to each of those growers at the Retreat supporting the new organization asking them to vote yea or nay on formally establishing the Organic Tree Fruit Association. The vote was a unanimous yes and all agreed to a membership fee of \$50 or less. The Board is working on its formation and will keep you informed.

Should you have questions or comments, you are encouraged to contact them.

- Harry Hoch, Chair, La Crescent, MN; hoch1@acegroup.cc 507-643-6329
- Jim Koan, Flushing, MI; almarapple@aol.com 810-659-6568
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Protecting Bees From Organic Pesticides

By Eric Mader

National Pollinator Outreach Coordinator
The Xerces Society for Invertebrate Conservation

Pesticides remain a significant threat to bees in farm settings, even in organic operations where the assumption is often made that approved products are somehow *softer* on beneficial insects, wildlife, and the environment.

In fact, organic operations in some cases may be even harsher on beneficial insects like bees. For example, conventional apple growers in much of the eastern U.S. achieve control of plum curculio and codling moth using only one or two applications of the rapidly degradable organophosphate phosmet (Imidan), while in the past organic growers might have used 6 or 7 applications of rotenone and pyrethrin to achieve the same level of control.

This does not discredit the value of organic agriculture, and the immense environmental and consumer benefits it can offer. Rather this issue provides us with an opportunity to more closely examine our organic pest control options, and to think critically about how to employ them for the greatest effect while conserving the health of our pollinators.

From a *bee protection* standpoint, organic pesticides fall into three general categories: those that are harmless to bees under all conditions, those that are relatively safe when applied appropriately or at the right time, and those that are extremely dangerous to bees under most conditions.

The Pollinator-Safe Options

Pesticides in this category are generally harmless to bees, and are safe to apply even when bees are actively foraging in the landscape. They include:

Bacillus thuringiensis – This bacterial protein punctures the stomach wall of select pest insects, and is a tool of many organic production systems. While it is very safe to bees, some Bt products can kill non-target butterfly caterpillars, an issue to keep in mind if that is a concern for your area. (You may wish to avoid over-spraying natural areas, for example.) It breaks down quickly in sunlight. Bt comes in a number of variants targeting specific groups of insects. A common brand is Dipel.

Neem – An oil derived from the seed of neem trees (*Azadirachta indica*), this pesticide contains the active ingredient azadirachtin, which disrupts the hormonal system of immature insects, inhibiting feeding, reproduction, and maturation. Neem is generally believed to be safe on bees (at least mature adults), and is even being examined as a miticide for honey bees. It is a slow acting pesticide that breaks down quickly in rain and sunlight. Well known brands include Agroneem, Trilogy, Aza-Direct, Bioneem, and Neemix.

Surround-WP – While not a pesticide, most organic fruit growers are familiar with this wettable kaolin clay particle barrier that is sprayed directly onto fruit to prevent feeding damage and ovipositing by in-

sect pests. Insects are irritated by the clay particles and eventually leave. While Surround-WP is expensive, and may require re-applications after rain events, it is effective against certain insects, and very safe for bees.

Viruses – Viruses as biocontrol such as the Codling Moth Granulosis Virus (CMGV) tend to be highly host specific and generally safe for bees. The window of efficacy for these products is often very short, and growers report highly variable results.

Insect repellents – These include products containing citronella, wintergreen, clove, thyme, cedar, certain neem formulations, and hot pepper oil. While insect repellents are less commonly used than insecticides, they are generally not thought to be dangerous to bees. That said, growers may wish to exercise caution by not applying these directly to bees or blooming crops. Some brand names include Cedar Zone and Ecotrol.

Garlic extract – With common brands like Envirepel, Phyta-Oil Garlic, Cropguard, and Garlix, these extracts contain oil derived from *Allium sativum*, which is applied as a spray. Garlic is intended to function as a systemic repellent with uptake by leaf stomates. It may require regular re-applications, but it is safe to bees. Some reports suggest, however, that application prior to bloom can mask flower aromas resulting in disruption of pollination.

Moderate Risk Chemicals

Moderate risk pesticides include products that can be harmful when directly applied to bees, or on blooming plants where bees are foraging. Mitigation strategies to prevent killing bees include not spraying crops that are in bloom, spraying at night when bees are not present, and preventing drift onto adjacent natural areas or flowering cover crops.

Insecticidal soap – These pesticides, which are common in many organic farming systems, contain sodium or potassium salts combined with fatty acids. Insecticidal soaps penetrate the exoskeleton of insects causing the cells to collapse. Under most conditions, there is little residual toxicity, so insecticidal soaps are safe as long as bees do not come into direct contact with them. M-Pede is one common brand.

Horticultural oil – These highly refined petroleum, soybean, fish, jojoba, and cottonseed oils are sprayed onto tree trunks and crop foliage where they cover pest insects, killing them by suffocation. Different products are available for different times of the year, and as with soaps, they are safe on bees as long as there is no direct contact upon or immediately after application. Common brands include Sunspray, Omni Supreme, and Organocide.

Citrus peel extract – Products like Orange Guard and Sharpshooter

are broad-spectrum contact nerve poisons. They are likely toxic to bees, and their use on blooming plants should be avoided.

Diatomaceous earth – A sedimentary powder made up of fossilized diatoms, diatomaceous earth absorbs lipids away from the integument (outer skin) of insects causing dehydration and ultimately death. It is occasionally used as a barrier around crops and can be harmful to bees when they come into direct contact with it (i.e., becoming trapped in their pollen-collecting hairs). Some trade names include DiaFil and Diatect.

High Risk Pesticides

As with moderate risk pesticides, the following high-risk products should not be applied in the presence of bees, or near blooming crops and adjacent natural areas. If possible, their use in general should be minimized, as they often have longer residual toxicity or greater potential for non-target effects in the surrounding ecosystem.

Beauveria bassiana – This entomopathogenic fungus causes white muscardine disease in a broad range of insects including tarnished plant bugs, beetles, aphids, thrips, and various caterpillars. As spores germinate on the surface of insects, they penetrate the cuticle and grow inside, killing the host. Because of the wide range of hosts it attacks, the potential for spores to move in the environment, and variable longevity, this type of pesticide can potentially harm resident pollinator populations. Brand names include Mycotrol-O.

Pyrethrin – A fast-acting natural insecticide derived from *Chrysanthemum cinerariifolium*, pyrethrin is a broad-spectrum poison that is very dangerous to bees. In particular, powder-based formulations can become trapped in a bee's pollen-collecting hairs and brought back to the nest where the chemical could be fed to offspring. It should not be applied to (or adjacent to) blooming crops. Some trade names include Pyrenon and Pyganic.

Sabadilla – This botanical pesticide derived from the seeds of the sabadilla lily contains the active ingredient veratrine. As with pyrethrin, sabadilla in powder form can become trapped in the pollen collecting hairs of bees and brought back to the nest where it kills developing larvae. Products include Veratran-D.

Spinosad – Products like Entrust contain a nerve and stomach poison derived from the bacterium *Saccharopolyspora spinosa*. Spinosad is intended for the control of various caterpillars, beetles, thrips, and leafminers. It is highly toxic to bees and should not be used on or near blooming crops.

Rotenone – One formerly common organic insecticide, rotenone, is derived from the roots of a tropical legume. It is a very broad-spectrum chemical, disrupting cellular processes by inhibiting oxygen uptake. Rotenone is extremely lethal to bees (as well as fish), and should never be applied to, or near, blooming crops.

Non-Pesticide Options

Any discussion of pesticides, even in organic production systems should include a reminder of the various non-insecticidal alternatives. Some common opportunities to control pests include crop sanitation

to remove and dispose residue that might harbor pest populations, the use of sticky traps or adhesive barriers (keep in mind, however, that blue and yellow sticky cards may also attract and kill bees), mating disruption through the use of pheromones and pheromone traps to capture specific pests, and physical barriers like fruit bags.

For more information on pollinator conservation including basic bee biology, habitat enhancement tips, and financial opportunities available to landowners through the new Farm Bill, please visit the Xerces Society website at www.xerces.org.

The Xerces Society is an international nonprofit organization that protects wildlife through the conservation of invertebrates and their habitat. Our Pollinator Conservation Program works to support the sustainability and profitability of farms while protecting pollinator insects. To join the Society, make a contribution, or read about our work, please visit www.xerces.org.

Great Lakes Heirloom Fruit Conservation and Heritage Orchard Restoration Workshops

Friday, March 20th from 9 am to 4 pm at the University of Wisconsin-Madison Arboretum

When the snow lies thick and blankets Wisconsin in white, it is time for farmers and orchardists to begin planning for the next colorful, diverse and delicious autumn harvest. Apples and other fruit trees remind us of the tastes of harvest time, and a diverse orchard reflects all the brilliant colors, flavors, and smells of the region. At one time, Wisconsin orchard growers were raising hundreds of apple varieties, with names like Wolf River, Black Twig and Prairie Spy. This number has dwindled to fewer than 20 commonly available varieties, greatly diminishing genetic diversity and cultural memories. Fortunately, a core of dedicated orchard-keepers in Wisconsin are keeping the broader diversity of fruits alive, and many more orchardists are willing to add varieties to their own plantings.

The Renewing America's Food Traditions (RAFT) Alliance invites you to a workshop on *Heirloom Fruit Conservation and Heritage Orchard Restoration in the Great Lakes Region*, to be held on Friday, March 20th from 9 am to 4 pm in Madison, WI. This workshop will include instruction in orchard production and restoration techniques, taught by nationally recognized fruit advocates and writers Gary Nabhan, Ben Watson, Dan Bussey and Kanin Routson, along with renowned apple conservationists from around the country. In the afternoon, Edgerton orchardist Dan Bussey will lead a tour of his own heritage orchard and a few others in the Madison-area. This workshop is for experienced and beginning orchard growers

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Tetracycline to expire in October 2012 - NOSB meeting report Nov 2008

-by Harriet Behar,
MOSES Organic Specialist

Tree fruit growers should be aware that during the NOSB discussion to extend the allowance for fireblight control to include tetracycline hydrochloride in addition tetracycline chloride, it was decided that all types of tetracycline would be allowed (tetracycline hydrochloride still cannot be used until the National List is officially changed). But instead of these two tetracyclines going through the regular sunset process, which would be 5 years after they are placed on the National List, all tetracyclines now have an expiration date of October 21, 2012.

The NOSB stated very strongly that they do not wish

to have tetracycline or streptomycin remain on the National List and this change from sunset to expiration on tetracycline puts this opinion into action, since expiration removes a product automatically (unless the NOSB takes special action to extend an expiration date) while in the sunset process it must be reviewed and voted for removal. Streptomycin is still in the sunset process for October, 2012.

If tree fruit growers wish have continued use of streptomycin after October 2012, as currently allowed, they need to make a good case as soon as possible. The NOSB would want documentation detailing a wide variety of natural methods and inputs have been tried with no effec-

tiveness, backed up by research and data. They would need to know the importance of this input, and why it is necessary in organic agriculture. The NOSB will listen, but have shown they are not friendly to keeping antibiotics, for any use, on the National List of approved substances.

It would be educational for tree fruit producers and the NOSB, to have a dialogue about streptomycin. The next NOSB meeting will be in early May 2009, location not yet announced. Public comment can be given in writing or in-person, with the in-person comment usually stimulating interaction between the commenter and the NOSB, which would be beneficial to both parties.

"IF TREE FRUIT GROWERS WISH TO HAVE CONTINUED USE OF STREPTOMYCIN AFTER OCTOBER 2012, THEY NEED TO MAKE A GOOD CASE AS SOON AS POSSIBLE."



ADVANCED GROWER RETREAT—MARCH 5&6

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Advance registration is due by February 20 so that food can be ordered. The registration fee of \$50 per person covers Thursday dinner, a continental breakfast and lunch on Friday as well as refreshments throughout the day. Use the registration form in this issue or on our website.

The Kellogg Center is reserving hotel rooms for us until February 3. All rooms are \$85 plus tax regardless of occupancy. Each room has one king or two double beds. Call 517-432-4000 ext 5121 and say that you are with the MOFFA Organic Conference.

I encourage you to stay for the MOFFA Organic Conference. Visit www.moffa.org for information and to register. Michael Phillips will be a keynote speaker and workshop leader

at the Conference. Michael will also participate Friday in our Grower Retreat and will be coming straight from a similar grower gathering held in Massachusetts. Call 248-262-6826 or email moffaorganic@gmail.com for more information.

We thank George Bird of the MOFFA board and Michigan State University faculty for making it possible for us to collaborate with and benefit from the MOFFA Conference and the Kellogg Center facilities. The Kellogg Center is hosting MSU's Agriculture and Natural Resources week that starts March 7.

We again appreciate the support of the USDA Risk Management Agency for another Grower Retreat.

MICHIGAN APPLE WEBINARS

While this program is not directed at organic apple producers, the speakers have all been involved in Michigan State University's organic apple orchard project. Growers outside of Michigan are welcome to participate.

The Michigan Apple Association is bringing growers up-to-date information in this new time saving, no travel method of webinars.

What are webinars?

Webinars are a live PowerPoint presentations broadcast over the Internet to registered attendees. Participants have the opportunity to call-in questions for the speaker and to provide input or personal experiences related to the topic.

Three webinars will be broadcast on the following Thursdays from 1:00- 2:00 PM with the following topics and speakers:

January 15 – Dr. Mark Whalon, MSU entomologist, will present: "A "Greener" Congress and a "Green" Public = Changes in Michigan Apple Production." This webinar will

feature a "how to" on measuring ecosystem services in orchards, the future of reduced risk compounds and information regarding "softer" biopesticides being tested for common apple insects. Sponsored by Bayer Crop Science.

February 12 — MSU's premiere pruning expert, Dr. Ron Perry, professor of horticulture, will give a refresher course on winter pruning of apple trees. Orchard owners and employees alike will benefit from learning what cuts will lead to best fruit production. Sponsorship available.

March 5 — Dr. Larry Gut, MSU entomologist, will present "Looking Ahead: Managing Apple Pests without OP's." Gut has multiple topics planned that will improve the bottom line of any orchard. Sponsored by DuPont.

Cost of each webinar is \$30 (\$20 for MAA members). To learn more, contact Cindy Reising, MAA education director, at (800) 456-2753 or reising5@comcast.net . We can accept registrations by phone or fax with complete credit card information. On-line registration is at www.MichiganAppleAssociation.com.

ORGANIC APPLE GROWER HOUR UPDATE

-by Lisa DiPietro

Center for Integrated Agricultural Systems/UW-Madison

Thanks to everyone who completed evaluations for our pilot season of the Organic Apple Grower Hour. As promised in the Fall issue of *Just Picked*, here are the highlights of your evaluation results.

Growers found the calls very useful. To the question, "On a scale from 1 to 5 (with 5 being most useful), how would you rate the usefulness of the calls?" the average rating was 4.5.

We asked growers if the calls

inspired them to try new practices. They did. Some of the practices tried included:

- Reducing sulfur sprays for scab
- Spraying Surround, molasses, and horsetail tea
- Thinning with lime-sulfur
- Making and using compost
- Improved sampling and monitoring of insect pests
- Improved timing on codling moth and apple maggot traps.
- Improved timing for picking up drops to sup-

press apple maggot fly.

- Improved timing on Surround sprays

We also found that the conference calls helped to strengthen links among growers. As one grower put it, the regulars on the call "got to know each other a bit."

The future of the Organic Apple Grower Hour
In November, we applied to the Organic Farming Research Foundation for two more years of funding for the Organic Apple Grower Hour. We will know by the first of April whether we will have funds to offer free weekly conference calls with Michael

Phillips in 2009 and 2010.

In the meantime, you have some options for listening to the conference call recordings from 2008.

To access the 2008 call archive over the phone: Dial: 641-715-3800, then enter this access code: 95226. Follow the directions in the greeting to listen to any calls from the 2008 season. Before you listen, you can learn what topics were covered on each call by either going to this webpage of the Network: www.mosesorganic.org/treefruit/growerhour.html or by going to the Apple Talk

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Dan Kelly, Blue Heron Orchard, Canton, Missouri

By Dierdre Birmingham

Just like the popularity of field days, growers enjoy reading about other growers in our Network and their orchard operations. Our organization has a diversity of people and operations. We'll explore in this issue Blue Heron Orchard in the northeastern corner of Missouri, owned and operated by Dan Kelly, an active grower in our Network since its start in 2004.

Dan had both volunteered and had later been employed by his soil and water conservation district. During his tenure there he discovered an abandoned orchard of about 100 apple trees. He negotiated with the owner to prune and mow the orchard, allowing what she wanted for household consumption and he could market the rest. But Dan found that "after one year of working someone else's orchard, "I wanted my own!" Thus was the beginning of his orchard adventure.

Blue Heron Orchard and Products. Dan purchased 26-acres the next year on a bluff about a mile from the Mississippi River. He took a five-acre field out of a CRP contract (and paid for it), and then planted the orchard in 1990. He has five acres in apples in a long rectangular shaped orchard on a south-facing slope of five to seven per cent. His soil type is a wind-blown loess deposited as glaciers receded. The farm is in the middle of zone 5.

He planted on the contour using rootstocks of MM-106, EMLA-106 and EMLA 7-cw, M-7A, M7-cw and MM 111 with some spur-type apples on seedling rootstock averaging about 100 trees per acre. He has 11 varieties of apples, selected for conditions in northeastern Missouri, that ripen starting in mid-August and continue through the end the October. They are, in order of ripening, Pristine, Gala, Freedom, Empire, Cortland, Jonathon, Jonafree, Golden Delicious, Red Delicious, Winesap, and Blushing Golden. His orchard management has been certified organic since 2001.

His operation includes a state-inspected and certified organic, food processing kitchen. His product line includes apple-based vinegars (including a delicious habanero vinegar), apple butter, applesauce, sweet cider, and "Pomona's Ambrosia", which is pure apple syrup. More on those later.

Building Soil Health. While it would be easy to launch into Dan's innovations for insect pest control, Dan will appreciate that we first look at his priority: building soil health. "I let disease and insect matters take a back seat to building soil health," he said. Yet his soil health efforts do integrate with his disease and insect control measures. He minimizes mowing to two times per year. The first time is after primary scab season, since the tall grasses can help slow the movement of scab-causing ascospores from the leaf litter into the tree

canopy and to reduce the competition between grasses and trees while recycling nutrients from the vegetation back to the soil. The minimal



Dan minimizes mowing to two times per year.

mowing of the aisles allows flowering varieties, such as Queen Anne's lace, to provide nectar for parasitic wasps, syrphid flies, and other beneficial insects. Also red clover in the orchard is allowed to go to seed before mowing helping to 'grow' nitrogen, a free input.

He sends in soil samples every two years for analyses, particularly the lower slope of his orchard that was more eroded when under previous management. He sends in leaf tissue samples for analysis about every three years. He prefers the Midwest Laboratories in Nebraska for both types of analyses. He liked the complete major and micro nutrient soil analysis as well as the leaf analysis that they offered. "As I looked through their catalogue they seemed to have the most complete testing service experience. And for a few dollars more, I get their recommendations. Not that I apply the optimal recommendations. Budget determines what inputs are used." The soil tests helped him realize that his soil pH was gradually rising, hitting 7.1 recently. This rise in pH is from the mistake of applying dolomitic lime early in his orchard career. That has also resulted in excess Mg in the soil, which impedes K uptake. He has added 400 lb/ac of CaSO₄ (gypsum) to allow the sulfur to displace the magnesium allowing the plant to uptake the potassium instead. A publication he relies on to balance his soil is "CASI Soil Analysis Training" by Carroll Montgomery. It is a 50-page condensed version of a 350-page textbook from a soils course he took. "Working towards a balanced soil, for me is where I want to invest," he added.

His On-Farm Research. Dan is an innovator, as evidenced by some of his contributions to the list-serv and the newsletter. Most recently he received funding from the Sustainable Agriculture Research and Education (SARE) program for a project titled "Site-Specific Apple Insect Control Through a Web-Based Application." His aim is to give orchard operations of any size a simplified tool that uses existing integrated pest management (IPM) information to accurately control the most economically threatening apple pests. You can read more about this project in the Spring 2007 and Summer 2008 issues of Just Picked (on our website). His website for this pro-

ject should be working by March 1, 2009 at <http://ssaim@galatea.org/> .

Our "Research" webpage also includes a project he undertook to help control plum curculio. Dan said, "When reading about orchard management, I realized that the 'Achilles heel' of organic orcharding would be the dreaded plum curculio." Through the soil and water conservation district, he had become familiar with the numerous benefits of warm season (prairie) grasses, such as their drought hardiness, food and cover for wildlife, and erosion control. "I was fascinated with this plant community," he said. "Through studying the life-cycle and habitat of the plum curculio in The Orchard Almanac by Steve Page and Joseph Smillie, I wondered if surrounding the orchard with prairie grasses might help to manage PC." Possibly the large volume of biomass from the warm-season prairie grasses might provide an alternative site for over-wintering curculios. Prairie burns would be tied with PC emergence. Dan recruited an entomologist friend to help him find out. A grant proposal, also to SARE, was submitted in 1995; it was awarded. While the results are available not only on the "Research" page of our website and on SARE's searchable project database at www.sare.org/ncr, a bit of insight is below.

The first stage of Dan's project was to clear honey locust and wild plum thickets from the east and southeast orchard border. This brushy habitat around the orchard was providing prime over-wintering sites for adult plum curculio migrating out of the orchard in late summer. These borders were replanted with warm season grasses of big bluestem, indian grass, side oats grama, and little bluestem, as well as forbs. He timed PC emergence with a degree-day model to determine when to burn the grasses.

He now has about 3.4 ac of prairie surrounding his orchard on three sides. He burns it every three years to keep the saplings down, and, of course, to help with PC control. The prairie continues to creep in size with the periodic burning and natural seed dispersal. The prairie is a nice buffer between the woodlands and the orchard. The woodlands are a source of not only PC, but also leafrollers.

More on Insect Pest Control. The prairie is just one tool he uses in controlling PC. He tried the kaolin-clay based product, Surround-WP, the first year it was available as part of a demonstration project with Southwest Missouri State University. Given the price of the product, not having a sufficient spray system at the time, and not having a washer to remove the remaining clay particles, he has not tried it again. He uses diatomaceous earth (DE) and Neemix as a repellent for PC at petal fall. The only times he uses DE are two times after petal fall as DE can be hard on all insects, which includes the beneficial ones and pollinators. This is the only time he uses Neemix as it is not cheap. He uses a rebuilt Ag Tech 2002 airblast sprayer pulled by a Massey-Ferguson 135 tractor.

He controls codling moth by using a degree-day model, field monitors for recording temperatures and counting degree-days, and

pheromone traps. Last year's total lack of insects in the orchard alleviated the need to control codling moth. However, in 2009 he plans to use Entrust for the first two generations and will then switch to a *Bacillus thuringiensis* (Bt) insecticide to control the last generation, if there is evidence of need based on pheromone trap catches.

For apple maggot (AM) control he uses baited yellow sticky traps from IPM in Vestaburg, Michigan. The traps are placed in the trees around the perimeter of the orchard at 900 DD /50° base. The traps are checked daily for pre-oviposition adults. The sticky traps are scrapped if too much debris is accumulated and after two weeks the tanglefoot paste is scraped off, more is applied, and the sticky tanglefoot dusted with ammonium dust to attract AM. If there are any captures, he dribbles GF 120, a spinosad insecticide with a sugar attractant into the trees. The adult flies feed on this sugary cocktail and "get controlled."

Disease Management. His first spray is copper (Top Cop by Stoller) at greentip for both fireblight and early scab control. Fireblight is not of much concern as he has had only a few strikes over the years. For continued scab control he uses liquid sulfur (THAT by Stoller). He watches the weather patterns to anticipate moisture and thus his sulfur applications. His only major scab problem is with Galas on MM-106 rootstock. These are big trees that produce heavily and need more pruning to reduce their canopy.

Dan said that he finds "deer browsing to be an advantage." Huh? I had to ask him to repeat that to be sure I heard him correctly. "Yes," he said, "the deer browse the lower branches resulting in no lower leaves for scab to attack." So deer do OK by him and his larger size trees. As you guessed he does not have deer exclusion fencing, "at least not yet," he added.

Another indirect scab control is his use of two applications of fish oil and lime sulfur (FO/LS) for thinning. This also helps control cedar apple rust. FO/LS can also help control powdery mildew, as this has been a problem in the past, especially in the Jonathans. To determine his formula and rates for FO/LS he got on the web and looked at studies done in the early 2000's. He posted a link to Prof. Jim Schuup's work on thinning on our list-serv, which is now on our webpages under RESOURCES. Thanks, Dan. In 2008, he used two applications of FO/LS: April 29, (about 80% bloom) at 1: 2.5 gallons per 100 gallons; and on May 9, (about 15 days after full bloom) at 2: 2.5 gallons per 100 gallons. While some thinning occurred, he feels he still needs more experience with thinning to be more successful. The upcoming season will tell if the 2008 thinning sessions worked for a return crop. Hand thinning, when done, is in the summer and is in association with some kind of party.

Something that did not work at all for sooty blotch and flyspeck (SBFS) control is bordeaux. This is a mixture of copper-sulfate and hydrated lime. It severely burned the leaves on his Golden Deli-

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cious and Freedom trees in particular. Due to the apple's lighter color, SBFS is more apparent in the Golden and also on the yellow background of the Freedom. Noting that the apples highest in the canopy where there is better light and air movement had less SBFS, confirmed to Dan that he needs to do more thinning cuts.

DIY Bins. Rather than buy bins Dan recently made his own bins. He designed a 15-bushel bin of native oak, modeled after pear bins, which he took to an Amish Sawmill in his area. They cut enough oak to size so Dan could make 40 bins using design templates (front, back, bottom, and side), an air staple gun, and galvanized steel strap-ping.

Labor. He hires people to harvest, paying them with the sixth bushel of apples for every six bushels they pick. They can store them on farm until they wish to use them. He also hires pickers for cash from the local community in the fall.

Insurance. Another area of innovation is the use of crop insurance. In fact Dan had a complete crop failure in 2007 due to freeze at bloom. He is now a believer in protecting oneself. For \$100 he could have had his crop insured under the USDA's Non-Insured Crop Disaster Assistance Program known as NAP. In fact, Dan qualified for the "limited resource producer" provision that waives the fee to enroll. Thus for zero dollars, he could have been insured. Not to be burned again, Dan contacted his Farm Service Agency (FSA) office and enrolled by the normal November 20, 2007, deadline for his 2008 crop. He enrolled his 2009 crop this past fall, meeting the deadline announced in our fall issue of *Just Picked*, which also has an article on Dan's use of NAP. As hail hit last May when the apples were an inch in diameter, he was glad he had NAP. He took pictures and reported the incident to the FSA within a week of its occurrence, which is important to do. He found out this winter that the FSA should have sent an insurance adjuster within two weeks of the hail storm, but failed to do so. With Dan being the only person in the county who uses the program, the local FSA office is inexperienced with it. So it pays to know how the program is supposed to operate as your local FSA office may not. Fortunately, the apples healed resulting in no significant loss, yet a higher culling rate. NAP does not pay for a decrease in quality of a crop. A letter to his customers explained the hail marks (as well as SBFS on some varieties) and they reacted favorably.

Markets. So who are Dan's customers? He has diverse markets, primarily in Columbia and St. Louis, Missouri, for both his fresh apples and value-added products. He sells to a large CSA, a buying club, St. Louis University, local grocery and health food stores, at farmers' markets, and via his website www.blueheronorchard.com. He offers a u-pick option as well.

Value-Added. I asked Dan why he makes the value-added products that he does. For value-added, organic apple cider was the beginning

point for Blue Heron Orchard. However, the game plan changed after the orchard was planted as the whole industry changed with *Escherichia coli* 0157:H7. As the FDA became deeply involved, it became harder to sell non-pasteurized sweet cider. No more wholesaling and in some states no sale at all. Fortunately in Missouri, a producer can sell directly to the end user. The government's Good Manufacturing Practices suffices for small operations.

Experiments with hard cider (and home-brewing) as a hobby lead to the purchase of 'mother of vinegar' from a local home brew store. Dan had produced enough cider to partly fill a 200-gallon milk tank purchased from Amish neighbors to produce a first batch of apple cider vinegar. "After bottling it and sampling it at a farmers' market, a French chef went 'ga-ga' and a new market for apple cider was launched," he explained.

Apple butter is a natural for an apple orchard and part of his process is to steam cut apples over apple cider before milling to remove seeds and skins. When the cider in the pan cooled, the pectins set the cider creating a jelled syrup. Michael Phillips' book *The Apple Grower* (1st edition), mentions the making of apple syrup from cider. This suggestion led to creating his "Pomona's Ambrosia"™, a pure apple syrup with no sugar added, which he says, "is an intense dessert topping experience."

Being certified organic as a food processor means he cannot use any cleaning agents but those allowed on the National List. Ecolab produces two products that he uses when pressing apples. First he sanitizes the pressing equipment with a hydrogen peroxide-based product called "Vortex." His press is a Shinko (brand) continuous press with stainless steel rollers and drum with an aluminum frame. Peroxide will not degrade the aluminum frame as harsh sanitizers, such as chlorine, might do. Prior to pressing, the apples are rinsed in another sanitizer called "Tsunami", which is approved for organic production to help control possible pathogens on apples for non-pasteurized juice.



*Pomona's Ambrosia—
pure apple syrup*

Agriitecture. Blue Heron Orchard's unique 'agriitecture' is a straw-bale and timber frame cold storage building for apples, constructed in 2001. The building project was assisted by a grant from the Missouri's Sustainable Agriculture Demonstration Projects. That project included a straw-bale building workshop where participants helped mix and apply natural plaster of sand, lime and straw. Pictures of his structure are on his website.

He invites you to visit his website (although it needs updating.) When at our events Dan will most likely be the tallest, blond guy there. Thank him for sharing his adventures with us.

Advanced Grower Retreat - Registration Form
March 5-6, 2009 Kellogg Center East Lansing, Michigan

Your name(s):	
Farm Name:	
Street Address:	
City/Town:	State and Zip Code:
Phone:	Email:

Register early due to the limited group size and by February 20.

Registration is \$50.00 per person to cover meals. Please check box to request vegetarian meals: II

of people _____ x \$50 = _____

Make your check payable to "Midwest Organic Tree Fruit Network" and mail your registration to: Organic Tree Fruit Network

c/o Deirdre Birmingham 7258 Kelly Rd, Mineral Point, WI 53565

Your registration will be confirmed by email or phone. Questions? Contact Deirdre at deirdreb@mindspring.com or 608-967-2362.

Reminder: The Kellogg Center is reserving hotel rooms for us at \$85/night plus tax until February 3. Call 517-432-4000 ext 5121 and ask for rooms with the MOFFA Organic Conference.

WINTER 2009 CALENDAR

Advanced Organic Grower Retreat March 5-6, Kellogg Center, East Lansing, MI. See inside for more information and to register on this Network event. *Please also consider attending:*

Michigan Organic Food and Farming Association Organic Conference March 6 and 7. Kellogg Center, East Lansing, MI. moffaorganic@gmail.com 248-262-6826

Michigan Webinars Feb. 12, Mar. 5 See inside for more information.

Upper Midwest Regional Fruit and Vegetable Growers Conference and Trade Show January 22-23 St. Cloud Civic Center, St. Cloud, MN. 763-434-0400.

11th Annual Midwest Value-Added Agriculture Conference January 22-23 Mayo Civic Center, Rochester, MN 715-834-9672, www.rivercountryrcd.org

Iowa Fruit and Vegetable Growers and Marketers Conference January 29-31 West Des Moines, IA 515-281-8232 bara.lovitt@iowaagriculture.gov

Tree Fruit IPM School February 16-18 W.K. Kellogg Biological Station, Hickory Corners, MI. Erin Lizotte, 231-946-1510, taylorlo548@msu.edu

Organic University Advanced Tree Fruit Production February 26, 2009. La Crosse, WI. www.mosesorganic.org 715-772-3153

20th Organic Farming Conference February 27-28, 2009 La Crosse, WI. 715-772-3153 www.mosesorganic.org

AGR-Lite enrollment deadline for new enrollees is March 15. AGR-Lite also gives the grower full compliance with the USDA new permanent disaster program (SURE) for all crops and agricultural practices.

Heirloom Fruit Conservation and Heritage Orchard Restoration in the Great Lakes Region March 20 Madison, WI. heidi_busse@yahoo.com

OFRF Research and Education Project Grant Proposal deadline: May 15th. The Organic Farming Research Foundation has funds specifically for fruit research. Visit www.ofrf.org or call Jane at 831-426-6606.

Spring issue of *Just Picked*: Submissions due March 27.

MIDWEST ORGANIC TREE
FRUIT GROWERS NETWORK

7258 Kelly Rd.
Mineral Point, WI 53565

RETREAT INFO ON
PAGE 1.
REGISTRATION
FORM ON PAGE 11.
REGISTER BY
FEBRUARY 20TH.

ORGANIC APPLE GROWER HOUR

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blog*. From the Apple Talk main page, click on the "conference calls" link (which you'll see on the left hand side). You will then see each conference call date and topics listed.

To access the 2008 call archive on the internet: If you have high speed internet, you can download the call recordings on the Apple Talk blog*. From the blog's main page, click on the "conference calls" link (which you'll see on the left hand side). You will then see the topics for each of our conference calls. Click on

the conference call you want, then scroll down to download the audio recording.

**To log on to Apple Talk:* You need a user name and password. Contact me at ldipietro@wisc.edu or 608-265-3637 to get access. The web address for Apple Talk is: www.thinkipm.org/appletalk.



HERITAGE ORCHARD WORKSHOPS

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alike, or anyone wishing to join the growing group of people knowledgeable and dedicated to the region's unique fruits. In addition to classroom and hands-on instruction, this workshop will be a wonderful opportunity to build stronger connections with local and regional orchard growers.

Cost to attend is \$25, and includes instruction, workshop materials, hands-on demonstration, bus transportation to the orchards and lunch. *Questions and registration requests can be directed to Heidi Busse at heidi_busse@yahoo.com – due*

date is March 1, 2009. Registration is limited to 25 participants.

Co-Sponsors include Native Seeds/SEARCH, the University of Wisconsin-Madison Arboretum, the Journal of Ecological Restoration and the Center for Integrated Agricultural Systems at the University of Wisconsin-Madison.

RAFT Founding Partners: American Livestock Breeds Conservancy, Chefs Collaborative, Cultural Conservancy, Native Seeds/SEARCH, Seed Savers Exchange and Slow Food-USA. RAFT Co-Founder and Facilitator: Gary Nabhan