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Title 15 Animal Waste Ordinance Revision -Open House September 26, 2019

The Columbia County Land & Water Conservation Department will be hosting and open house on September 26th, 2019 to give citizens an opportunity to discuss, review and provide input on a proposed revision and update to Columbia County Ordinance Title 15 Animal Waste Management Ordinance. The ordinance as a whole, has not been update since 1998, except one minor revision in 2018. This proposed ordinance revision would update our current ordinance to align itself with the most current statewide Agricultural Performance Standards and Agricultural Waste Management Standards.

The open house will be held from 1:00PM to 3:00PM, with a presentation starting at 2:00PM. The open house will be held at the Columbia County Administration Building located at 112 E. Edgewater Street in Portage. We will be using conference rooms 113 & 114, they are located on the first floor near the main entrance. I would encourage you to take time to stop by and discuss the content of the proposed revisions and ask questions. Our timeline for completing this update will be December 2019, so now is a great time to get engaged on the topic. If you have questions, please feel free to call Kurt R. Calkins, Director of LWCD at 608 742 9670. Hope to see many of you stop in.

Palmer Amaranth's Secrets Reveal Troubling Potential

Aggressive weed is resistant to multiple classes of herbicides, including glyphosate

Corn, soybean, and cotton farmers shudder at the thought of Palmer amaranth invading their fields. The aggressive cousin of waterhemp – itself a formidable adversary – grows extremely rapidly, produces hundreds of thousands of seeds per plant, and is resistant to multiple classes of herbicides, including glyphosate.

Palmer's resistance to PPO-inhibiting herbicides, a group of chemicals that disrupt chlorophyll synthesis, is especially problematic with glyphosate out of the picture. Farmers had been turning to PPO-inhibitors as an effective alternative, until resistance was discovered in waterhemp in 2001 and in Palmer in 2011.

Pat Tranel from the University of Illinois has been working to understand the mechanisms of resistance to PPO-inhibitors for years, and was the first to discover key mutations in both weed species. Now, in two new studies, he goes farther to explain Palmer's evil genius.

"We knew Palmer had the same molecular mechanism as waterhemp to resist PPO-inhibitors, a genetic mutation known as the gly-210 deletion, and at least one more. Now we know that it evolved the gly-210 deletion independently, rather than picking it up through hybridization with waterhemp," says Tranel, associate head and professor of molecular weed science in the Department of Crop Sciences at U of I.

This is important in two ways. It's good news that scientists aren't finding evidence of hybridization between the two superweeds, at least not so far. But the fact that Palmer evolved the same mutation independently, and at least one more to boot, shows just how wily the weed is.

Tranel and his team determined the evolutionary origins of the gly-210 mutation by looking at the genetics of resistant plants of both species that were growing together in a Kentucky field. Being in close proximity for several years should have provided opportunity for hybridization, if it was going to happen.

“We know from lab experiments that they are capable of hybridizing, so the fact that it’s not happening in the field is a good thing. The more they can and do hybridize, the more concerns we’d have,” Tranel says.

Only about a third of the Palmer plants in the Kentucky field had the gly-210 deletion. The rest were using a different mutation – an arginine substitution – to ward off PPO-inhibitor damage.

“The finding that this population of Palmer has two different mutations is a concern because if you look forward in the future, Palmer is well positioned to deal with future PPO chemistries. It can use whichever is more effective against a new PPO.

“It’s also well positioned to combine the two mutations to create a double mutant, with both mutations on the same copy of the chromosome. Chemistry designed to kill plants with the gly-210 deletion won’t be able to kill double mutants,” Tranel says. “In my opinion, it’s just a matter of time until we see double mutants in the field.”

Tranel’s second new study explains why Palmer amaranth took a decade longer than waterhemp to develop the gly-210 deletion, and reveals another diabolical truth about the species: Palmer amaranth appears to be naturally tolerant to post-emergence PPO-inhibitor application.

It has long been recognized that the timing of post-emergence PPO application is especially critical for Palmer amaranth, relative to waterhemp. If Palmer plants aren’t sprayed before they reach about 4 inches, it’s all over.

“If you wait too long, you miss ’em. And too long can be a matter of a single day because Palmer grows so fast. It can go from a 4-inch plant where you could control it to a 6-inch plant literally in a day,” Tranel says.

For Tranel, the pattern suggests a natural tolerance to post-emergence PPO-inhibitors. Tolerance describes the ability of a species to handle a substance, in this case PPO herbicides. Resistance, on the other hand, happens at the population level; localized populations of the species evolve mutations in response to repeated exposure to the substance. For example, corn is tolerant to atrazine. It can handle being sprayed and doesn’t need to evolve a mutation to handle it in a particular population.

The idea is that Palmer amaranth has a natural tolerance to PPO inhibitors and didn’t need to develop resistance. That’s why it took longer to evolve the gly-210 mutation. But, until now, no one had specifically studied Palmer’s tolerance to the chemistry before.

Tranel confirmed it by growing Palmer and waterhemp plants with and without the gly-210 mutation side-by-side and applying different formulations of pre-emergence and post-emergence PPO-inhibitors. The post-emergence applications were done early (smaller than 4 inches) or late (taller than 4 inches).

“We found that ‘sensitive’ Palmer plants without the mutation survived just as well as resistant waterhemp when sprayed post-emergence,” Tranel says.

On the other hand, the research team found that pre-emergence formulations effectively controlled both species.

“The difference in tolerance between Palmer and waterhemp goes away at the pre-emergence stage,” Tranel says. “Ultimately, that’s the take-home message here. If you’re dealing with these weeds, especially Palmer amaranth, and you want to incorporate a PPO-inhibitor as an alternative effective mode of action, you’ll have much better luck if you use it in a pre-emergence application.”

South Korea Now ASF-Positive

South Korea has now joined eight other Asian countries in becoming positive for African swine fever (ASF). This comes after pigs were found positive for ASF near the nation's border with North Korea, which has been positive for the virus since May.

Kim Hyun-soo, South Korea's agricultural minister, said the country's first case of the highly contagious disease was confirmed on Sept. 17 based on tests conducted on five pigs that died earlier this week on a farm in the city of Paju (see red dot on map). Another case is suspected in the nearby town of Yeoncheon.

The government has strengthened efforts to disinfect farms and transport vehicles and ordered a 48-hour standstill on all pig farms, slaughterhouses and feed mills across the country to prevent the spread of the disease. South Korea and has ordered about 6,000 farms that produce more than 11 million pigs.

South Korea does not import any pork products or live pigs from China due to that country's animal disease status. It mainly imports from the United States and Germany, and pork imports account for about a third of the country's total pork supplies.

Last Call to Participate in USDA FAD Exercise

Time is running out to participate in USDA's 14-state, full-function exercise on foreign animal disease (FAD) that will be conducted the week of Sept. 23. The exercise will focus on a fictional outbreak of African swine fever and the subsequent response by federal and state authorities along with the rest of the pork industry.

"Everything in this type of exercise is done for a reason," said Dave Pyburn, DVM, senior vice president of the National Pork Board's science and technology department. "We're trying to create a realistic scenario of a confirmed foreign animal disease in this country to see how each stakeholder reacts and to find the gaps that need more work. It's about finding ways to better protect our nation's swine herd."

To find out if your state is participating in this exercise, contact your state pork association office. If you are interested in participating, contact your state veterinarian's office by this Friday, Sept. 20.

New Tool Improves Beekeepers' Overwintering Odds and Bottom Line

By Kim Kaplan
September 18, 2019

TUCSON, ARIZONA, September 18, 2019—A new tool from the Agricultural Research Service (ARS) can predict the odds that honey bee colonies overwintered in cold storage will be large enough to rent for almond pollination in February. Identifying which colonies will not be worth spending dollars to overwinter can improve beekeepers' bottom line.

Beekeepers have been losing an average of 30 percent of overwintered colonies for nearly 15 years. It is expensive to overwinter colonies in areas where winter temperatures stay above freezing. So a less expensive practice of overwintering bee colonies in cold storage is becoming popular.

This new tool calculates the probability of a managed honey bee colony surviving the winter based on two measurements: the size of colony and the percent varroa mite infestation in September, according to ARS entomologist Gloria DeGrandi-Hoffman, who headed the team. DeGrandi-Hoffman is research leader of the ARS Carl Hayden Bee Research Center in Tucson, Arizona.

By consulting the probability table for the likelihood of a colony having a minimum of six frames of bees—the number required for a colony to be able to fulfill a pollination contract for almond growers come February--beekeepers can decide in September if it is economically worthwhile to overwinter the colony in cold storage.

"The size of a colony in late summer or early fall can be deceiving with respect to its chances of making it through the winter. Even large colonies with more than 12 frames of bees (about 30,000 bees) have less than a 0.5 probability (50 percent chance) of being suitable for almond pollination if they have 5 or more mites per 100 bees in September," DeGrandi-Hoffman said.

Even with this cost-cutting help, the research team found that revenue from pollination contracts by itself is not likely to provide a sustainable income to a beekeeper anymore. They followed 190 honey bee colonies and recorded all costs.

Considerable resources were expended to feed colonies and on varroa mite and pathogen control. Costs were about $200 per colony.

Almond pollination contracts paid an average of $190 per colony in 2019.

One way for beekeepers to remain economically viable as a business, is to produce a honey crop from their bees. This is most often facilitated by moving colonies to the Northern Great Plains where bees can forage for nectar and pollen from a wide variety flowering plants.

"The situation has changed a lot. It is more expensive to manage honey bees with costs to feed colonies when flowers are not available and to control varroa mites. And it is more difficult to find places for honey bee colonies that provide the diverse nutrition they need," said DeGrandi-Hoffman. "Pollination revenue alone is just not adequate for beekeepers to stay in business. But we need beekeepers because managed bees are a lynchpin in agricultural production today."

Successfully using cold storage will help beekeepers' bottom line, but we are really just learning what the best management practices should be with cold storage," she added.

This work was published in the *Journal of Economic Entomology*.
The Agricultural Research Service is the U.S. Department of Agriculture's chief scientific in-house research agency. Daily, ARS focuses on solutions to agricultural problems affecting America. Each dollar invested in agricultural research results in $20 of economic impact.

Dairy Situation and Outlook, September 18, 2019

By Bob Cropp, Professor Emeritus
University of Wisconsin-Madison

Lower cheese production, tighter cheese stocks, modest growth in cheese sales plus slightly higher cheese exports all contributed to higher cheese prices and improved Class III prices. Compared to a year ago, July cheddar cheese production was 5.5% lower with total cheese production just 0.5% higher. July 31st American cheese stocks were 5.8% lower with total cheese stocks 3.5% lower. Cheese exports in July were 1% higher with

year-to-date exports 3% higher. Cheese prices showed continued improvement August through September. On the CME cheddar barrels were $1.6975 per pound the end of July and 40-pound blocks were $1.82. Cheddar barrels improved to $1.94 per pound on September 16 only to dropped way back to $1.7850 on September 18. The 40-pound block price improved to $2.375 per pound on September 16 only to drop back to $2.1175 on September 18. A 40-pound block price at $2.00 per pound has not been seen since November of 2014. In 2014 cheese prices topped out in September with 40-pound blocks at $2.45 per pound and barrels at $2.43 resulting in a record high Class III price of $24.60 for September. Dry whey has also showed some strength since the end of July when it was $0.34 per pound to now $0.3975.

The Class III price was a low of $13.89 in February, improved to $17.60 in August and will be near $18.25 for September compared to $16.09 a year ago. Cheese and dry whey prices could still increase some as we approach the holiday season resulting in an October Class III price near $19 with November and December staying in the $18's.

Higher butter production, building stocks and lower exports has lowered butter prices. Compared to July a year ago, butter production was 6% higher and July 31st stocks were 3.6% higher. July butterfat exports were 68% lower with year-to-date exports 40% lower. On the CME, butter was $2.345 per pound the end of July but dropped to $2.11 on September 18. Nonfat dry milk was $1.035 per pound the end of July and improved $1.0750. As a result the Class IV price which was $16.74 in August will be near $16.30 for September compared to $14.81 a year ago. Butter prices also could still recover some as we approach the strong sales period during the holidays and nonfat dry milk prices should hold close to the current level resulting in a Class IV price $16.60 to $16.75 October through December.

Milk prices for the remainder of this year and into next year will depend on the level of milk production, domestic sales and exports. Milk production was 0.4% and 0.2% lower than a year ago May and June respectively, but was 0.2% higher for both July and August. Milk cow numbers continue to decline with August down another 2000 head and 0.8% lower than a year ago. Milk per cow was 1.0% higher than a year ago. Compared to August a year ago milk production for the top five states that produce more than 50% of the milk was: California +1.5%, Wisconsin -0.5%, Idaho +2.9%, New York +1.1% and Texas +4.6%. Other states with relatively strong increases in milk production were Colorado 4.6%, Oregon and Idaho both with 2.6% and Michigan 1.6%. States with relatively high decreases in milk production were Virginia 11.4%, Illinois 7.9%, Arizona 6.1% and Pennsylvania 6.0%.

USDA is forecasting milk production 1.5% higher next year, the result of 0.2% more milk cows and 1.3% more milk per cow. But, milk production could be lower than this. While milk prices are now showing improvement this does not offset the financial stress and loss of equity dairy farmers have experienced from low milk prices for the past four and half years. The number of milk cows may not increase. We can expect dairy farmers to continue to exit the dairy industry and not a lot of dairy herd expansions. Also this year's crop season has been a challenge with wet and cool weather delaying planting, acres planted, crop yields and forage quality could reduce the increase in milk per cow.

Domestic sales could weaken some if the economy slows as some are predicting. Both the consumer confidence index and the restaurant performance index have fallen. The lower volume of dairy exports this year was mostly due to lower exports to China. Lower exports of whey products and lactose accounted for much of the reduced exports to China, the result of retaliatory tariffs and the African Swine Fever which drastically reduced their swine herd. But, higher exports to Mexico, Middle East/North Africa and South America, and except for July higher exports to Southeast more than offset the reduced volume of exports to China. The possible slowing of the world economy could impact exports next year. Mexico, European countries, South America, South Korea, China and others are experiencing slower economic growth. But, USDA is still forecasting

exports to be higher next year. This is very possible since world milk production is not expected to show much growth next year leaving opportunities for U.S. exports.

Current dairy futures are not overly optimistic for milk prices going into next year. Class III drops below $17 by January and doesn't reach $17 again until August and only in the low $17's for the remainder of the year. But, with a smaller increase in milk production and a level of domestic sales and exports to support milk prices I am of the opinion milk prices could do better than this with 2020 milk prices averaging one dollar or more higher than this year.

New Video: White Mold on Soybean, Symptoms and Management Options

Posted on September 20, 2019

Damon Smith, Extension Field Crops Pathologist, Department of Plant Pathology, University of Wisconsin-Madison In this video, Dr. Damon Smith with the University of Wisconsin-Madison, discusses white mold on soybean. The growth and pathogenic activity of …

Soybean Disease Considerations as the 2019 Harvest Approaches

Posted on September 18, 2019

Damon L. Smith, Associate Professor and Extension Field Crops Pathology Specialist, University of Wisconsin-Madison Shawn P. Conley, Professor and Extension Soybean and Small Grains Agronomy Specialist, University of Wisconsin-Madison As the days get shorter and …

Corn Disease and Nutritive Value Considerations for the 2019 Silage Harvest

Posted on September 17, 2019

Damon L. Smith, Associate Professor and Extension Field Crops Pathology Specialist, University of Wisconsin-Madison The 2019 silage corn harvest is finally starting to ramp up in Wisconsin. With the excitement of finally getting into the …

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The Ag Reporter "Snapshot" is presented to you each week by George Koepp, Columbia County UW-Extension Agriculture Agent. If you have any questions about these articles or need other ag-related information, please contact George at 608-742-9682 or by email george.koepp@ces.uwex.edu.