Arkansas Crop Protection Association

Arkansas Crop Protection Association Newsletter

2016

Volume 40 Number 4

Arkansas Crop Protection Association Research Conference, A Learning Experience

The ACPA Annual Research Conference was held November 29-30 in Fayetteville at Hilton Garden Inn. A total of 31 presentations were made at the meeting. Dr. Gus Lorenz spoke on the role of neonicotinoids on honey bees in Arkansas, a diverse and different topic for many in attendance. The conference had a very refreshing environment with diverse student presentations on upcoming research in many areas.

The student winners this year included the following individuals: First place in MS were Travis Jones and Mason Young; Second Place MS winners Nick Steppig and M. Fogleman; Third place MS winners Teal Penka and Zach Lancaster. In the PhD competition the winners were First place, Chris Meyer; Second place, Ryan Miller; and Third place, Aaron Cato. Travis Jones spoke on "Response of Non-Xtend Soybean to Low Rates of Dicamba and Glyphosate Applied During Reproductive Development". Mason Young, another MS winner, spoke on "Benzobicyclon: A New Opportunity for Control of Weedy Rice". The PhD winner was Chris Meyer and he addressed "What Antagonistic Tank Tank-Mixtures in Enlist and Roundup Ready Xtend Technologies Mean for Growers".

The student competition was coordinated by Dr. Mohammad Bararpour. Our thanks to him for the outstanding job he always does in coordinating the student contest.

Chris Young winner PhD Student Competition, Dr. Bararpour presents award.

Travis Jones winner MS Student Competition, Dr. Bararpour presents award.

Mason Young winner MS Student Competition, Dr. Bararpour presents award.

Arkansas State Plant Board Considers Adopting New Regulations on Auxin Herbicide Technology

Arkansas State Plant Board regulation changes for Dicamba (Monsanto Enlist and Xtend technology) and 2,4,D choline (Dow Enlist Duo technology) were made at a recent PB meeting. The new regulations prohibit the application of dimethylamine salt and acid formulations of dicamba except pastures that are 1 mile in all directions from susceptible crops.

From April 15 through September 15 of each year, products labeled for agricultural use that contain diglycolamine salt and sodium salt of dicamba may not be applied.

For the first year of registration and the following year, BASF's product identified as Eugenia Herbicide may be used on Roundup Ready Xtend cotton and soybeans with the following conditions: during applications of Eugenia, a 100 ft. buffer zone in every direction except ¼ mile downwind from the field of application to susceptible crops must be maintained and wind speed during the application may not exceed 10 MPH. These are primary restrictions; however, the regulations have tank mix restrictions and, if label is more restrictive than regulations, then label must be complied with.

In addition, applications made with classifications in the ASPB regulations by commercial, non-commercial and private applicators must first complete new technology certification training. The training will be offered by the University of Arkansas Cooperative Extension Service.

Inside this issue:

2017 Soil Fertility Clinic, Cooper Auditorium, Arkansas State University, Jonesboro, February 15, 2017

Point of Interest for the Arkansas Crop Management Conference January 17-19, 2017

- Wyndham Hotel Reservations at 501-371-9000
- Register online for Arkansas Crop Management Conference at http://acpanews.com/
- Opening Session at ACMC will have a review on regulations for new auxin herbicides.
- Pam Knox from University of Georgia will speak on "Climate outlook for Southern Row Crop Production" ACMC.
- Bobby Skeen, LA Cotton and Grain Board and Andrew Grobmyer, AR Ag Council will speak at opening session ACMC

It's More Important than Ever to Fight those Mites!

By: Jon Zawislak, University of Arkansas Division of Agriculture

Since their arrival here in the U.S. in the mid-1980's, the varroa mite has been responsible for many of our beekeeping woes. Along with the tracheal mites that arrived around the same time, varroa were largely responsible for the demise of feral bee colonies. They also began to vector viruses and diseases between bees and between colonies.

Colonies severely infested with mites may be significantly weaker. On an individual level, the bee is parasitized by several mites during the pupal stage, a very susceptible point in its life cycle. During these 12 days under the cap, a bee uses nutrients it has consumed as a larva to completely reorganize its body structure to grow wings, eyes, antennae, legs, and other important parts and systems. A varroa mite and her offspring repeatedly feed at an open wound site on the developing bee, slowly removing a significant amount of protein and nutrients from the bee's blood. At the same time, the mite may be infecting the bee with one or more viruses, which are picked up by her young mites, and may then spread to every other bee they ever feed upon. Some viruses are known to incubate and multiply inside of mites, helping them to spread faster throughout the colony.

When parasitized bees emerge, they release more virus-carrying mites into the colony. These bees have lower body weights, shortened lives, and impaired immune systems that make them more susceptible to other pathogens, such as Nosema and bacterial or fungal infections. Other metabolic processes, such as royal jelly synthesis or pheromone production, may be impaired in these weakened bees. On a larger scale, colonies that are heavily infested with virus-loaded varroa mites have lower overwintering success, and may be more likely to experience queen failure.

A growing consensus among researchers suggests that the treatment threshold for varroa mite infestations needs to be around 3%, or three mites per 100 bees. In the past, this threshold has ranged from 5-8% infestation, based on time of year and hive location. But after nearly 30 years of moving mite-infested bees around the country for pollination, and shipping them in packages through the mail, varroa mites have become seasoned travelers, and the viruses they carry have become universally distributed. As infested colonies begin to weaken, varroa mites swarm onto robbing bees and hitchhike to new, strong colonies, then taking their toll on the new bees. This is most likely how varroa found their way into all the wild bee colonies years ago.

Beekeepers can now use standard tools and methods to evaluate their colonies' mite levels. Consistently sampling the mites on 300 bees (about 1/2 cup) from your brood combs every couple of months will give you a valuable insight into the health of your hives. Sampling with a jar of powdered sugar is gentle on the bees, and will allow you to shake off about 80% of the mites in your sample. Washing your bees with alcohol is, of course, fatal to the bees, but is a more reliable way to count mites. Popular writer Randy Oliver has numerous good articles on his website that outline in detail how to make and use various varroa monitoring tools. (scientificbeekeeping.com)

If you know your colonies have too many mites, you owe it to your bees to help them out. In short, if you have bees, you have varroa. And if you have varroa, your bees have viruses. The best way to control most of the viruses is to provide control for mites. Do your bees a favor and treat them right by treating for mites. For a comprehensive list of varroa mite treatments available, updated every year, ask for a copy of the publication MP-144 at your local county Extension office, or go online to: https://www.uaex.edu/publications/pdf/mp144/c-beehive-management.pdf.

Adult varroa mite that attack honey bee colonies.

Honey bee adult with varroa mite parasites.

Evaluate hives regularly to detect varroa mites.

Arkansas Crop Management Conference, January 17-19, 2017

"Register online at http://acpanews.com/ and make your room reservations at the hotel."

The Arkansas Crop Management Conference is scheduled for January 17-19, 2017, at the Wyndham Riverfront, North Little Rock, AR. The conference for 2017 will have around 20 educational credits available this year and will end at noon Thursday. The topics of interest this year that will be addressed at the conference include proposed new regulations on auxin technologies, resistant pigweed management, update on changing Washington issues, drones in agriculture, peanut production, climate outlook for Southern crop production and water management and several topics on nutrient management.

The Wyndham offers a room rate of $104.00 single or double occupancy and $10.00 each additional person. These rates include breakfast. Rates quoted are exclusive of tax and are not commissionable. Guests may call the hotel toll free number 1-866-657-4458 or the hotel directly at (501) 371-9000 to make reservations. Please mention Arkansas Crop Management when calling to make reservations in order to receive the special rate. Members calling after the cut-off date may not be able to receive the negotiated rate. Cancellation of an individual guest room reservation needs to be made 24 hours prior to arrival to avoid no-show charges. Register online at: http://acpanews.com/

Potential Exposure of Honey Bees to Insecticides in Rice

By: Dr. G.M. Lorenz & Dr. J.T. Hardke, University of Arkansas Division of Agriculture

Recently, neonicotinoid insecticides used in agronomic crops have been scrutinized for their perceived impact on honey bee population decline in the U.S. In Arkansas, insecticides are essential to limit yield losses from insects in rice. Most notably, the neonicotinoid seed treatments CruiserMaxx Rice and NipsIt INSIDE are important for rice water weevil and grape colaspis control. To date, all of the research focusing on the fate of neonicotinoid insecticides has been done in other southern crops such as corn, soybean, and cotton. No research has been conducted in rice to this point. As environmental groups continue to challenge the use of neonicotinoids in agriculture and pressure the U.S. Environmental Protection Agency to ban their use, it will become more important to generate information to refute their claims

The experiment was conducted at the Rice Research and Extension Center to measure levels of neonicotinoid insecticides in rice plants at flowering. The treatments included seed treatments (CruiserMaxx Rice and NipsIt INSIDE) at their labeled rates, foliar sprays with neonicotinoids (Endigo ZCX and Belay) at their highest labeled rates, and an untreated control.

The CruiserMaxx Rice and NipsIt INSIDE treatments were applied to the seed and planted at a rate of 70 lbs/A. The Endigo ZCX and Belay treatments were sprayed at the time of permanent flood establishment to simulate an application for rice water weevil. Samples of pollen and flag leaves for analysis were collected at flowering. Grain was collected in 2016 at harvest. A total of 5 grams of pollen was collected from each plot. For the panicle samples, a subsection of panicle was removed from 5 plants in each plot. The flag leaf was also removed from 5 plants. All plant materials were stored in the freezer until they were shipped. All samples were analyzed for presence of thiamethoxam, clothianidin, and their metabolites at the USDA National Science Laboratories in Gastonia, NC.

Low levels of thiamethoxam were found in the flag leaf and pollen in 2015 and only in the flag leaf in 2016, while insecticide seed treatments and foliar applications of clothianidin were not detected (Table 1.). This would indicate that at these low levels that there is very little risk of exposure and/or toxicity to honey bees. The survey of rice fields made during the bloom stage indicated that flowering rice fields are not attractive to bees. Only one honey bee was found in 57 observations.

In previous studies we have demonstrated that insecticide seed treatments not only provide protection of the rice plant from insects and reduce stress, but increase yields and profitability and are vital for rice production in Arkansas and the Mid-south. Although neonicotinoid insecticide seed treatments have been under fire recently for impact on honey bees, these and other studies continue to show it is largely unfounded and focus should be placed on the real issues impacting pollinators. A similar study was conducted in Mississippi and we plan to present this data at every opportunity.

"Evaluation of neonicotinoid insecticides on rice seed and foliar treatments revealed only thiomethoxam in very low levels in pollen".

Table 1. Levels of neonicotinoid insecticides (ppb) in the flag leaf, florets, and grain, 2015-16.

Neonicotinoid Residues in Rice in Arkansas

ppb

Treatment	2015		2016		
	Pollen	Flag Leaf	Pollen	Flag Leaf	Grain
UTC	0 b	0 b	0 a	0 b	0 a
Cruiser Maxx Rice 7 oz/cwt thiamethoxam .375 mg ai/seed	2.23 a	7.93 a	0 a	7.65 a	0 a
Nipsit Inside 1.92 oz/cwt clothianidan .375 mg ai/seed	0 b	0 b	0 a	0 b	0 a
Belay Post-flood 4.5 oz/acre clothianidan	0 b	0 b	0 a	0 b	0 a
Belay Pre-flood 4.5 oz/acre clothianidan	0 b	0 b	0 a	0 b	0 a

We're on the web:
acpanews.com

Provisia Rice: A New Option for Control of Red Rice and Grass Weeds

By: John Schultz, BASF

BASF has been working on a new non-GMO herbicide tolerant rice called Provisia rice. Provisia rice is tolerant to the active ingredient quizalifop, which will be marketed as Provisia herbicide. With grassy weeds becoming larger issues in Arkansas rice fields, this technology is going to allow us to control the tough-to-control weeds we are seeing more of every year such as red rice, barnyardgrass, and spragletop. Provisia rice is going to be a great rotational partner for Clearfield rice and helping to extend the lives of both technologies by relying on separate modes of action. An ideal rotation would be year 1 – Provisia rice, year 2 – Clearfield rice, year 3 – soybeans. This rotation will allow growers to reap the benefits of multiple years of rice while rotating a year of soybeans to help with resistance management issues.

The Provisia trait and the Clearfield trait are NOT stacked in any of these rice technologies. Provisia herbicide will kill Clearfield rice. Clearpath, Newpath, and Beyond will kill Provisia rice. Provisia herbicide will not have any year-to-year rotational issues with non-Provisia rice. However, Newpath and Clearpath used in the Clearfield system have a great residual length. The 18 month plantback to rice following applications of Clearpath and Newpath are based on the stewardship practices in place for Clearfield rice. In areas where we have zero grade continuous Clearfield rice, the transition to Provisia rice is not simply one year of applying non-Clearfield herbicides. If you are in a continuous Clearfield situation and desire to plant Provisia rice, you should get in touch with one of the University of Arkansas extension weed scientists or a BASF Representative to develop a plan for your farm.

Provisia rice is expected to be available for purchase in 2018. This article is intended for educational purposes only. Provisia herbicide is not registered or approved for sale at the time this article was written.

Provisia™
Rice System

John Schultz, ACPA Board Member, BASF