Plant Disease and Insect Advisory

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Pecan Nut Casebearer Treatment Time

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Early indications from captures of pecan nut casebearer (PNC) moths throughout the state suggest that first generation larvae could be present and damaging pecans as early as late May in southern Oklahoma. On May 13, moth populations (approximately 30 in 10 traps) were captured in Burneyville, Oklahoma. In addition, moth captures were also recorded in orchards between Ringling and Marlow, Oklahoma (approximately 40 in 3 traps) and just north of Tishimingo, Oklahoma (3 in 4 traps). Based on these early captures in these locations oviposition (egg laying) should begin the week of May 19. Moth flights around Stillwater, and Cleveland, Oklahoma, as of May 16, were not recorded. Early this coming week (19-23 May) that scenario will change quickly. We could be experiencing first entry of pecans by larvae as early as 12-16 days after first capture of adult males in pheromone traps. Based on moth captures occurring on May 12 in Burneyville, first nut entry could occur sometime the week of 26 May in southern Oklahoma and the first full week of June in northern areas.

Typically, male PNC emerge about three days before females, females then require about three days for mating before they begin laying eggs and eggs may require from 3-5 days before hatch. After egg hatch, larvae will feed on buds for about two days before attempting to enter nuts and finally population buildup requires about two to four days. Once cluster infestations exceed 1-2%, treatment should take place immediately. While checking clusters, if 1-2 eggs or damage are found before reaching 310 clusters checked, then scouting can be stopped and treatment made. Since eggs are difficult to see, we urge growers to at least be in their orchards regularly (every 2 days) during the next week or so to detect signs of damage. Damaged nuts are easier to discover than eggs and if you see the first damaged nuts then the decision to treat can be made immediately. Some areas of the state have a tremendous crop and there may be a temptation to

let the casebearer do some selective thinning so you don't have to later, especially with large seeded cultivars. Please, avoid this temptation, since it puts the casebearer in control and not the grower. Subsequent generations can build rapidly under these conditions and a 10% loss can quickly escalate into a 50% or greater loss.

Treatment choices can include any of the chemicals from the following table, but consideration should be given to using something gentle to preserve beneficial organisms. Early use of synthetic pyrethroids, carbamates and organophosphates for this insect pest are not recommended. These latter materials are cleared for use in pecan and are presented here for information and consideration on other pests. In addition to the considerations mentioned here, if livestock are utilizing the orchard floor, growers should pay careful attention to grazing restrictions associated with some of these chemicals. Whenever using insect growth regulators, it is strongly suggested to use a spreader/sticker to increase residual capacity of these materials. Do not use these materials around any bodies of water as they may cause adverse effects on aquatic organisms. Likewise, do not use spinosad products around bees, as this material is highly toxic to honey bees.

Table 1. List of common insecticides that can be used for controlling pecan nut casebearer and other pests in pecan.

Common Name	**Chemical Name**	**Chemical Class**
Lorsban 4E *	Chlorpyrifos	Organophosphate
Malathion	Malathion	Organophosphate
Imidan	Phosmet	Organophosphate
Cypermethrin *	Ammo	Synthetic Pyrethroid
Esfenvalerate *	Asana	Synthetic Pyrethroid
Zeta-cypermethrin *	Mustang-Max	Synthetic Pyrethroid
Gamma-cyhalothrin *	Proaxis	Synthetic Pyrethroid
Lambda-cyhalothrin *	Warrior	Synthetic Pyrethroid
Spinosad	SpinTor or Entrust	Fermentation By- Product
Tebufenozide	Confirm	Insect growth regulator
Methoxyfenozide	Intrepid	Insect growth regulator
Difulbenzuron	Dimilin	Chitin-synthesis inhibitor
Bacillus thuringiensis	Javelin, Dipel, many other names	Bacterial insecticide

* Restricted use Chemical, for purchase and use by certified applicators only.

Wheat Disease Update

Bob Hunger, Extension Wheat Pathologist

With 90°+ F days coming, wheat is quickly maturing, so there is not much new information to report regarding wheat diseases in Oklahoma. The one important new item is that **wheat stem rust** has been found in plots near Marshall, OK (approximately 40 miles west of Stillwater) and at Stillwater. This was found at both locations on McNair 701, which is a variety that is highly susceptible to stem rust. Stem rust has not been found on any other lines or varieties at these locations.

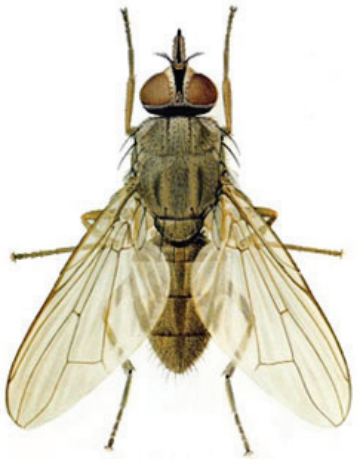
Wheat stem rust occurs in Oklahoma only occasionally because our wheat generally matures sufficiently early so that it avoids infection. Stem rust was observed in from Texas earlier this year, so inoculum of this rust must have blown into Oklahoma and infected the McNair 701. Generally stem rust is much more of a potential problem in the states north of Oklahoma because the wheat matures much later, or in Texas, where stem rust can overwinter.

Additional samples also have come into the Diagnostic Lab from which the root rot pathogen *Fusarium* (**dryland root rot**) was isolated. Primarily these have been from southwestern and western Oklahoma.

Finally, samples testing positive for one or more of **wheat streak mosaic virus, high plains virus, and/or barley yellow dwarf** have been received from the Oklahoma panhandle.

Horn Fly Ear Tag Comparison

Justin Talley, Extension Livestock Entomologist



Tis the season for flies and all the nuisance they bring. Horn flies are unique in the livestock fly world. You might ask what in the world would make a fly unique, but the reason is their behavior. This behavior is unique because they spend the majority of their adult life on the animal whereas; other flies spend only a short period of time to visit the animal. It is this behavior that makes the use of insecticide impregnated ear tags effective. Ear tags are not systemic but rather a contact chemical that is spread across the animal's body by its behavior. For example, when a cow tosses its head to get the flies off its back the insecticide is spread onto her back.

Horn flies are attracted to larger animals and research has shown that the increased levels of testosterone in bulls attract more horns flies. When tagging animals you should always tag the cows and heifers, but tagging calves is unnecessary mainly due to some of the insecticide being transferred from the cow to the calf. Oklahoma cattlemen should try to wait until there are 200 flies per animal to implement insecticide ear tags. An easy technique for horn fly counts is to randomly select 20 animals in the pasture and use binoculars and count the number on one side. When the average number reaches 200 per animal it is time to tag or treat with other insecticide application methods such as dust bags. Basically, when there are 200 or more horn flies per cow milk production is reduced which results in reduced weaning weights. A study was conducted in Nebraska that demonstrated that weaning weights were reduced by 8% when there were 500 horn flies on the cows.

An ear tag study conducted at the Oklahoma State University – North Range unit and Durham Ranch near Stillwater demonstrated there are differences in the effectiveness of commercially available ear tags. The animals were tagged in May and monitored through August to determine efficacy of three commercially available ear tags and one experimental tag. The

three tags that were compared were Avenger® (KMG Inc.), Patriot® (KMG Inc.), and Python® (Y-Tex Inc.). These tags were specifically selected because each tag represented a different chemical class. Avenger® is a chlorinated hydrocarbon, Patriot® is an organophosphate, and Python® is a pyrethroid. Each of these products has different modes of action in how they kill the horn flies. As you would expect all tags performed well the first month of sampling, but later in the summer when horn flies can become a problem, only the Avenger® tag held the population down below 200 flies per animal. From late-July through August the untreated animals exhibited 1,000 or more horn flies. During that same time period the Patriot® tag averaged more than 400 flies per animal and the Python® tag averaged approximately 500 horn flies per animal. The animals tagged with the Avenger® tag averaged less than 100 flies per animal during that same time period.

One of the problems with using ear tags is the potential of building insecticide resistance. Historically, more resistance has been reported after using a pyrethroid tag. It is recommended that cattlemen should not use the same ear tag two years in a row but rotate with different ear tags. When rotating, a rancher should try using products that are in different chemical classes such as the following recommendation: Year 1: Avenger®, Year 2: Patriot®, Year 3: Python®. Usually all ear tag products recommend putting two tags per animal for sufficient insecticide coverage. If control fails within two months of initial tagging then all tags should be cut out and a different treatment option applied such as dust bags. Also, if control fails when using ear tags the alternative insecticide application should include a product that is in a completely different chemical class from the failed ear tag. Research has shown that using dust bags in a force-use system (placing the dust bag in a location that forces the animals to go under it i.e. near a water tank) provides up to 80% control of horn fly populations.

Below are listed products and the chemical class they belong to:

Tag Name	Chemical Class	# per animal	Comments
Avenger®	chlorinated hydrocarbon	2	Works well for pyrethroid resistant horn flies
Patriot®	organophosphate	2	Works well for pyrethroid resistant horn flies
Python®	pyrethroid plus synergist	2	Good for horn flies and has some repellent activity against mosquitoes
Python Magnum®	zeta cypermethrin	1 (larger tag)	Good horn fly control
Super Deckem®	permethrin	2	OK fly control but may not last all summer
Co Ral Plus®	organophosphate	2	Works well for pyrethroid resistant horn flies
Double Barrel VP®	Organophosphate + pyrethroid	2	Can be effective but could lead to resistance to both pyrethroids and organophosphates
GardStar Plus®	permthrin	2	If resistance is present this product will not be effective
NOTE: Any product with permthrin, zeta cypermethrin, or pyrethroid all have the same mode of action. It is recommended that any product with these should be rotated with a product that is either an organophosphate or chlorinated hydrocarbon. THERE ARE OTHER EAR TAGS AVAILABLE BUT THE EXCLUSION OF THESE DOES NOT ADVOCATE THEIR INEFFECTIVENESS RATHER THE AUTHOR'S KNOWLEDGE OF THOSE LISTED.			

Dr. Richard Grantham, Director, Plant Disease and Insect Diagnostic Laboratory

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Figure 1: Comparison of three commercially available ear tags for horn fly control Stillwater, OK

Trt	Week 1*	2*	3*	4*	5*	6*	8*	9*	10*	11*	12*	13*	14*	15*	16*
Control	265 a	266 a	289 a	322 a	437 a	447 a	787 a	860 a	898 a	1,045 a	1,100 a	1,420 a	928 a	1,635 a	765 a
Patriot	19 b	24 b	14b	12 b	9 b	5 c	19 b	37 b	79 d	129 b	420 b	525 b	370 c	253 c	390 bc
Python	17 b	1 b	9 b	9 b	1 b	7 c	13 b	76 b	180 c	72 b	425 b	429 b	775 b	665 b	460 b
YT-2508	5 b	4 b	3 b	1 b	4 b	1 c	51 b	65 b	315 b	159 b	465 b	47 c	208 d	163 c	263 cd
Avenger	19 b	2 b	3 b	3 b	8 b	47 b	17 b	50 b	60 d	64 b	54 c	58 c	97 d	151 c	129 d

* Means followed by the same letter are not significantly different. Tukey's LSD; $P<0.05$.