OKLAHOMA PECAN GROWERS ASSOCIATION

Volume L, No. 3 *Michael Smith, Editor* *July, August, September 2009*

In This Issue

Pecan Show Top Winners

The 2008 State Pecan Show was recently exhibited at the 79th annual OPGA meeting in Oklahoma City. The top three winners in each class received ribbons while plaques were awarded at the banquet to the overall top winners.

Best of Show entry was a Pawnee grown by Michael Mayer of Muskogee. The Pawnee weighed in at 37.1 nuts/lb and 58.2 % Kernel. Mike also won the Largest Pecan award with a Mohawk measuring 33.7 nuts per pound.

The Highest percent kernel entered in the show was a Gratex grown by Dick Hoffman of Stillwater. His pecan measured 62.3 % kernel.

Champion Seedling was presented to Bernard Flaming of Kay County. His seedling weighed in at 75.2 nuts per pound and 56.6 percent kernel.

OPGA Honorees for the 2009 Meeting

The Grower of the Year award was presented to Robert Schoenecke of Meeker, OK. He was recognized for his years of support to the OPGA and his hard work as a pecan grower.

Eric Stafne was the recipient of this year's Herman Hinrichs award. This honor is given to an individual who has made many contributions to the pecan industry.

OPGA Pecan Food Show Grand Champions

Grand Champions were presented with the Mount Silver Awards. The Adult Grand Champions received a silver serving piece and the Junior Grand Champions were awarded with silver pecan jewelry. The champion entries were auctioned to the highest bidder during the banquet to benefit pecan research.

Adult Division –

Pecan Pies – Janice Grundmann
Pecan Bread & Rolls – Marcy Luter
Pecan Candy – Diana Grundmann
Pecan Cakes – Michelle TallChief
Pecan Cookies – Mary Newkirk
Pecan Meats – Matt Sandmann
Pecan Specialty Food – Marcy Luter

Junior Division –

Pecan Pies – Weston Sandmann
Pecan Candy – Will Sandmann
Pecan Cookies – Weston Sandmann
Pecan Meats – Will Sandmann

2009 Spring Freeze Damage

Michael W. Smith and Becky S. Cheary
OSU Horticulture and Landscape Architecture

Pistillate flowers of pecan are born terminally on current season's shoots that arise from a terminal mixed bud (bud contains both vegetative and reproductive parts) or lateral compound buds (a bud that houses multiple buds) on 1-year-old branches. Male flowers (catkins) are produced from compound buds on 1-year-old branches. Terminal mixed buds are found on shoots that were vegetative the previous growing season. The mixed bud frequently aborts leaving a lateral compound bud as the most distal bud. Branches that bore fruit the previous season typically retain the fruit rachis at the terminal end with a lateral compound bud as the most distal bud. The number of buds at a node varies among cultivars, but a typical arrangement is primary, secondary and tertiary buds. The primary compound bud is composed of a central mixed bud that is capable of producing a shoot, leaves and pistillate flower cluster and two pure buds (bud that contains only vegetative or reproductive tissue) located on either side of the mixed bud that produce catkins (Fig. 1). Normal growth results in most primary buds expanding, but shoots only develop from one to four distal buds with shoots aborting soon after budbreak from other primary buds leaving only the developing catkins (Fig. 2). Secondary buds develop if primary buds are killed. Both pistillate and staminate flowers are produced from secondary buds, but their pistillate flower production is about 60% to 70% less than the primary buds' production potential. In addition, Lenny Wells, horticulturist with the University of Georgia, reported a lower percentage of those flowers from secondary buds that develop to maturity.

Temperatures dropped below freezing throughout Oklahoma on 7 April 2009 (Fig. 3) resulting in varying amounts of damage to pecan. Damage was evaluated on 9 and 10 April at an orchard located near Cleveland, OK in Pawnee County. The orchard is divided into two parts separated by a stream and elevation change. The west orchard is on nearly level ground and is about 30 ft lower than the east orchard. The east orchard has a 1 to 2% slope. Trees in the west field were 15-years-old and those in the east field were 9- to 14-years-old. The rootstock in both orchards was grown from open-pollinated seed of 'Giles'. Trees received commercial pest and nutrition management. The east orchard was drip irrigated and the west orchard was not irrigated. Fruit were mechanically thinned during August in both orchards to achieve the desired crop load.

A mercury thermometer in the west orchard recorded a low temperature of -6 °C. This temperature was consistent with recorded temperatures from nearby Mesonet weather stations that recorded minimum temperatures of -6 and -7 °C with 7 to 8 hours below freezing (Fig. 3). The minimum temperature in the east orchard was not recorded, but bud injury observations indicated that its elevation relative to the west orchard resulted in a warmer minimum temperature.

Bud cold injury of various cultivars was evaluated by slicing compound buds longitudinally and then estimating death based on necrotic tissue. Specifically, the central mixed bud was evaluated and the bud deemed live even if one or both of the catkin buds were killed (Fig. 4). Subsequent observations confirmed that when the central bud was judged as live, it expanded and developed a shoot even if the catkin buds were killed. Ten 1-year-old branches

Table 1. Compound bud developmental stage on 7 April 2009 for selected pecan cultivars.

		Percentage by bud development stage		
Cultivar	No. buds observed	Outer bud scale intact	Outer bud scale split	Outer bud scale shed
		East field		
Pawnee	400	23	22	55
Kanza	300	82	8	10
Giles	200	81	12	7
Maramec	50	64	16	20
Nacono	300	57	19	24
Oconee	300	38	23	39
OK642	200	42	12	46
Caddo	300	7	17	76
		West field		
Pawnee	500	24	33	43
Kanza	500	70	18	12
Giles	250	56	18	26
OK642	100	40	27	33
Barton	100	44	22	34
Mohawk	50	16	8	76
Mount	150	35	25	40

Table 2. Primary compound bud survival of selected pecan cultivars following a freezing event during budbreak on 7 April 2009.

	East field		West field	
Cultivar	No. buds observed	Live buds (%)	No. buds observed	Live buds (%)
Pawnee	400	89	500	35
Kanza	300	96	500	87
Giles	200	99	250	95
Maramec	50	82	---	---
Nacono	300	87	---	---
Oconee	300	89	---	---
OK642	200	98	100	16
Caddo	300	85	---	---
Barton	--	---	100	56
Mohawk	--	---	50	40
Mount	--	---	150	100

per tree were collected at random from the lower canopy and categorized as either fruiting (fruit rachis present) or vegetative during the previous growing season. It was not possible to determine if fruit had persisted to maturity, was dislodged during mechanical thinning or destroyed from other causes. The developmental stage of the distal five primary buds was recorded and then evaluated as dead or alive. Bud developmental stages were outer bud scale intact, outer bud scale split, and outer bud scale shed. The next stage of budbreak is inner bud scales split, and no buds were judged at that stage or beyond. One to ten trees of each cultivar, depending upon availability, were evaluated in each field.

Bud development at the time of the freeze was greatest on 'Caddo' and 'Mohawk' followed by 'Pawnee' (Table 1). Buds on 'Giles' and 'Kanza' were the least advanced. Cold damage was more severe in the west than the east field on the same cultivar where the temperature was probably colder due to a lower elevation (Table 2). Damage was similar on 'Pawnee', 'Maramec', 'Nacono', 'Oconee', and 'Caddo' in the east field, ranging from 82% to 89% bud survival. 'Kanza', 'Giles' and 'OK642', an advanced selection from Oklahoma, had little bud damage in the east field. In the west field, cold temperature inflicted the greatest bud loss on 'OK642', 'Pawnee', 'Mohawk' and 'Barton'. Primary bud loss was minimal on 'Kanza', 'Giles', and 'Mount'.

Among cultivars, bud survival was influenced by the developmental stage and cultivar. For instance, a direct comparison of 'Pawnee' and 'Kanza' in the west field at the same developmental stages showed that 'Kanza' always had greater bud survival than 'Pawnee' (Table 3). Similarly, 'Mount' and 'Giles' had greater bud survival than 'Pawnee' when compared at the same developmental stage (data not shown). These results demonstrate that greater resistance to spring frost damage can be achieved by selecting cultivars that initiate growth later in the spring thus avoiding potential damage and by selecting cultivars that have greater cold hardiness as they initiate growth. Incorporation of these attributes as a selection criterion in breeding programs should markedly reduce the likelihood of crop loss. 'Kanza', 'Giles' and 'Mount' clearly displayed resistance to freeze damage as they initiated growth. 'Giles' was the most effective at avoiding freeze damage followed by 'Kanza'. Budbreak of 'Mount' was advanced relative to the other two cultivars, but displayed superior resistance to freeze injury. Each of these selections is from a northern origin ('Mount' from Oklahoma; 'Giles' from Kansas) or has a parent of northern origin ('Major' from Kentucky is a parent of 'Kanza'). This suggests that the genetic basis for avoidance and resistance is prevalent in the northern pecan range.

Previous season's vegetative shoots of 'Oconee' had greater bud survival than fruit bearing shoots (Table 4). Otherwise, previous season's shoot type did not influence bud survival in the east field where temperatures were milder than in the west field. In the west field, previous season's vegetative shoots had greater bud survival than fruit bearing shoots on 'Pawnee', 'Barton', and 'Mohawk'. The greater survival of buds on previous season's vegetative shoots may be related to delayed budbreak relative to the shoots that bore fruit (Table 5).

These results demonstrate that pecan cultivars with late budbreak and/or freeze tolerance are desirable to avoid potential crop loss in areas where spring frost is prevalent. In this "test spring" three cultivars were judged superior to the others for escaping damage: 'Giles', 'Kanza' and 'Mount'.

Table 3. Compound bud survival at various developmental stages following a freezing event on 7 April 2009 for two pecan cultivars. Data are pooled over bud position on the branch and branch type.

Compound bud development stage	Cultivar	No. buds observed	Live buds (%)
Outer bud scale intact	Pawnee	119	45
	Kanza	350	92
Outer bud scale split	Pawnee	166	34
	Kanza	88	78
Outer bud scale shed	Pawnee	215	31
	Kanza	62	76

Table 4. The influence of previous year's shoot type on compound bud survival following a freezing event during budbreak on 7 April 2009 for selected pecan cultivars.

		Live buds (%)		
Cultivar	No buds observed	Fruiting shoot	No buds observed	Vegetative shoot
		East field		
Pawnee	275	89	125	90
Kanza	250	96	50	100
Giles	145	98	55	100
Nacono	235	85	65	92
Oconee	235	86	65	100
OK642	140	98	60	98
Caddo	255	83	45	91
		West field		
Pawnee	405	30	95	56
Kanza	425	88	75	86
Giles	200	94	50	98
OK642	40	12	60	18
Barton	80	45	20	100
Mohawk	35	28	15	67
Mount	105	100	45	100

Fig. 1. Longitudinal section of compound pecan bud that is composed of a central mixed bud and catkin buds on either side of the mixed bud.

Table 5. The influence of previous year's shoot type on compound bud development on 7April 2009 for selected pecan cultivars.

Cultivar	Previous year's shoot type	No. buds observed	Percentage by bud development stage		
			Outer bud scale intact	Outer bud scale split	Outer bud scale shed
			East field		
Pawnee	Vegetative	275	20	23	57
	Fruiting	125	30	21	49
Kanza	Vegetative	50	82	12	6
	Fruiting	250	82	7	11
Giles	Vegetative	55	98	2	0
	Fruiting	145	74	17	9
Nacono	Vegetative	65	71	14	15
	Fruiting	235	54	20	26
Oconee	Vegetative	65	54	29	17
	Fruiting	235	33	21	46
OK642	Vegetative	60	47	15	38
	Fruiting	140	40	11	49
Caddo	Vegetative	45	9	31	60
	Fruiting	255	6	14	80
			West field		
Pawnee	Vegetative	95	54	36	10
	Fruiting	405	17	33	50
Kanza	Vegetative	75	88	8	4
	Fruiting	425	67	19	14
Giles	Vegetative	50	80	8	12
	Fruiting	200	50	21	29
OK642	Vegetative	60	37	30	33
	Fruiting	40	45	23	32
Barton	Vegetative	20	65	15	20
	Fruiting	80	39	24	37
Mohawk	Vegetative	15	53	13	34
	Fruiting	35	0	2	33
Mount	Vegetative	45	69	4	27
	Fruiting	105	20	33	47

Fig. 2. Current season shoots with catkins at their base developing at the distal end of a 1-year-old pecan branch and catkins developing from primary buds along the remainder of the 1-year-old branch. Shoots in the mid and basal locations of the branch aborted leaving the developing catkins.

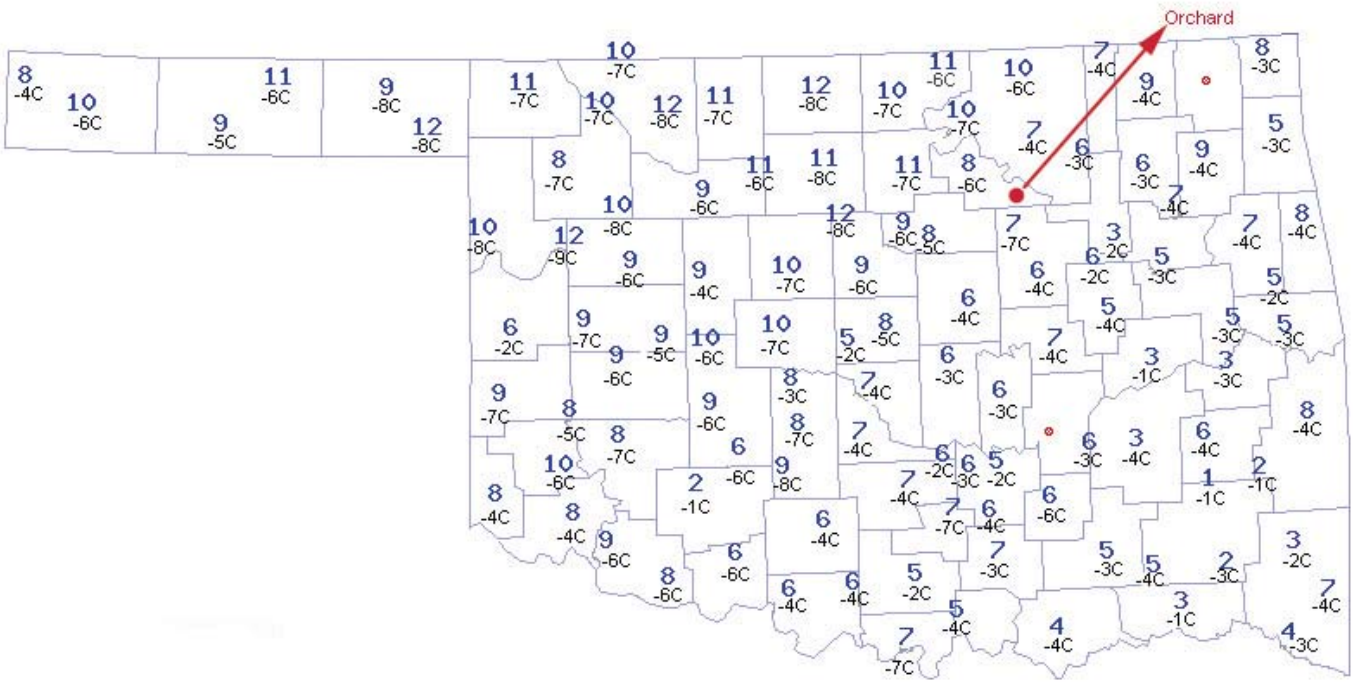

Fig. 3. Hours below freezing (upper number) and minimum temperature (lower number) during 7 April 2009 in Oklahoma. The test orchard location is indicated on the figure.

Fig. 4. Compound pecan bud composed of two dead catkin buds and a live central mixed bud. This bud was judged as live since it would be capable of producing a shoot with a pistillate flower cluster.

Problem Solving –Where Do You Start? Excerpt from the Managing for Success in Oklahoma Agriculture Workshop

"If you see every problem as a nail, you will always use a hammer." The problems that agriculture producers face are not always simple and easily solved. Frequently a farm manager must think outside the box in order to come up with the solution to a particular problem or set of problems. Managers needs to be aware of items that are within their control or within the business and items that cannot be controlled and thus must be managed around which are those outside of the business. Management requires the ability to address a wide variety of issues that impact the business.

What can we do differently that keep these problems from recurring and have a positive effect on the business? First the problem must be identified. The most common ways that producers, managers, and/or pecan growers handle problems is AVOID THEM. Simply refusing to recognize that a problem exists. The only thing wrong with that is they really do exist!

How do you identify the problem? Admit you have one, then look at what is happening and determine the cause. To do that you must look to see if the problem is from an internal or external factor. The external factors you have no control over, you just have control of your

reaction to them.

An internal problem can be dealt with and often is correctable or solvable. As a manager you must look for the cause and then, '**don't just treat the symptom, treat the cause'.** To do this you must have information and the ability to determine what management tool or tools to use. Also keep in mind that the best decisions will reflect your goals and objectives for the business as well as your personal goals and values. As Stephen Covey teaches, **Be Proactive**; respond according to your values, accept responsibility for your own behavior and focus on your circle of influence (those things you can affect directly).

Stay tuned for 'the rest of the story' on problem solving or for even greater insight consider having a Managing for Success Workshop scheduled in your area! Contact Eric Stafne at 405-744-5409 or J C. Hobbs at 405-744- 6186.

Water Permit Basics
Charles Rohla, Noble Foundation

I just returned from a meeting in Oklahoma City at which water issues was the central theme. There were several farmers/ranchers in attendance that did not realize that they should have a water permit for their wells or for the streams/rivers from which irrigation was being used.

So the question is, do you need a permit to use water from your property? According to Oklahoma law, if you intend to use water for any purpose other than domestic use you must have a permit. Domestic use is defined as, "use of water for household purposes, for farm and domestic animals up to the normal grazing capacity of the land, and for the irrigation of land not exceeding a total of three acres in area for the growing of gardens, orchards, and lawns. Domestic use also includes water used for agricultural purposes by natural individuals, use for fire protection, and use by non-household entities for drinking water, restrooms, and watering of lawns, provided such uses don't exceed five acre-feet per year."

So, just who does own the water? In Oklahoma, surface water (streams, creeks, rivers and ponds) is property of the state. The use of this water requires a water permit. With a permit water can be used for irrigation purposes on a use-it or lose-it rule. In Oklahoma you have 7 years to set your baseline usage. A baseline is the highest level of water usage in one year during a preset period. If you are using less water than you were permitted, then the remainder of the water can be reallocated to another permit of the state's choice.

Groundwater on the other hand, is owned by the property owner. In Oklahoma, property owners are allowed domestic use of the water without a water permit. Domestic use is defined as "water used for household purposes, watering for domestic animals and gardens/orchards of no more than 3 acres in size." You are allowed to use up to 5 acre-feet (1,629,240 gallons) per year. If you are irrigating anything larger than 3 acres, or using more than 5 acre-feet of water, then you are required to file for a water permit. With the permit you can be permitted to pump up to 2 acre-feet of water per acre of land that you own or lease, unless you are in a sensitive aquifer (Arbuckle-Simpson) area.

Several people are utilizing ponds or lakes for irrigation. Surface water is considered publicly owned, and if you own the land upon which the pond or lake is located you have access to the water and are entitled to use it for domestic use. However, if you use the water for irrigation purposes you are required to obtain a permit. If you are planning to build a pond to irrigate out of, check with the Oklahoma Water Resource Board for regulations.

So, if you are irrigating without a water permit, or are thinking about drilling a well or using a stream/river to irrigate, it would be in your best interest to inquire about the need for a water permit application. This will ensure that if the state ever begins a strict regulation policy, the amount of water that you use will be on record. According to the rules of Oklahoma, the permits are on a first-come first-served base.

For more information or applications go to http://www.owrb.ok.gov/

Allelopathy and Pecans
Eric T. Stafne
OSU Horticulture & Landscape Architecture

Pecans, like other members of the Juglandaceae family, contain a compound called juglones. In the plant, the chemical is called hydrojuglone (Dana and Lerner, 2001). This occurs in leaves, stems, fruit hulls, inner bark, and roots. But once hydrojuglone is exposed to the air or to the soil it becomes oxidized into juglone. Hydrojuglone is non-toxic, but juglone is a toxic allelochemical. So, what is allelopathy? Allelopathy is simply a chemical interaction between plants. A further refinement of the definition is that allelopathy is a mechanism of plant interference in the rooting zone though secondary chemicals produced by plants (Weston and Duke, 2003). The mechanism of juglone allelopathy is complicated and still not well under-

Table 1. Selected plants reported to be sensitive to juglone (Appleton and Berrier, 2000).

Apple	Azalea	White Birch	Blackberry
Blueberry	Chrysanthemum	Autumn Crocus	Forget-me-not
Grape	Lily-of-the-valley	Linden	Mountain laurel
Peony	Pine	Potato	Rhododendron
Thyme	Tomato		

Table 2. Selected plants reported to be tolerant to juglone (Appleton and Berrier, 2000).

Tall Fescue	Kentucky bluegrass	White ash	Barberry
Boxelder	Catalpa	Crabapple	Elderberry
Forsythia	Hawthorn	Honeylocust	Hydrangea
Lilac	Pawpaw	Eastern redbud	Sassafrass
Sumac	Witchhazel	Daffodil	Daylily
Fern	Hollyhock	Hosta	Liriope
Phlox	Black raspberry	St. John's wort	Sunflower
Tulip	Wisteria		

stood. Some plants are highly sensitive to juglone and others are not. In fact, one study found that juglones actually increased the growth of muskmelon. However, in reviewing some of the available literature, there are discrepancies as to which plants are sensitive and which plants are not. I've included tables that include some of the sensitive and tolerant plants.

The most recognizable example of an allelopathic plant that releases juglones is Black Walnut. The hydrojuglone is released from the plant into the soil whereby other plants absorb the juglone through their root system. For black walnut, the area of greatest juglone concentration is immediately underneath the canopy. This is not surprising because that is where leaves and hulls drop, but also where the greatest concentration of roots is found.

Are pecans as allelopathic as black walnuts? Not much research has been done in this area, although pecan and other hickory species are reported to produce smaller quantities of juglone when compared to black walnut. Therefore, the allelopathic impact may not be as great, but I am ready to test that with a study or two. At the Cimarron Valley Research Station at Perkins we have pecans and black walnuts. I also have blackberries and grapes in pots. My idea is to do a preliminary study to see if there is any effect on growth by putting pecan (native and improved) and black walnut on the soil surface and letting any juglone leach into the potting medium. I believe this could have implications for growers who may be interested in intercropping or other agroforestry practices.

Literature cited

Appleton, B. and R. Berrier. 2000. The walnut tree: Allelopathic effects and tolerant plants. Virginia Coop. Ext. Pub. 430-021.

Dana, M.N. and B.R. Lerner. 2001. Black walnut toxicity. Purdue Univ. Coop. Ext. Serv. HO-193-W.

Weston, L.A. and S.O. Duke. 2003. Weed and crop allelopathy. Critical Rev. Plant Sci. 22:367-389.

AGRICULTURAL HANDLER EXPOSURE TASK FORCE

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To: Oklahoma Pecan Growers

From: Agricultural Handler Exposure Task Force (AHETF)

Date: June 12, 2009

Subject: Important Airblast Applicator Exposure Study

Sometime in the next couple of weeks, you might receive a phone call from a professional calling service representing the Agricultural Handler Exposure Task Force (AHETF). AHETF is seeking assistance from Oklahoma pecan growers.

The AHETF is a consortium of agricultural pesticide manufacturers. AHETF was formed to generate exposure data to measure how much pesticide residue gets on the skin of agricultural workers who mix, load, and/or apply pesticides, and how much pesticide is in the air they breathe as they do their work. The data are required by Environmental Protection Agency (EPA) to support exposure assessments for present and future pesticide products, for a wide range of use scenarios, including applications made with airblast sprayers.

The Task Force needs to collect airblast exposure data from several types of crops and from several regions of the country. In 2006 EPA imposed new regulations governing ethical conduct of studies with human subjects. These new regulations have led to dramatic changes in the way agricultural growers and workers are recruited to participate in the research. We now use the following procedures:

1. Assemble a list of all crop growers in the areas of the country where the studies will be conducted.
2. Hire a professional calling company that will call most of the growers on the list and ask a few questions to determine if they meet the eligibility standards for participating in the planned exposure study.
3. Growers who meet the initial eligibility standards will receive a follow up call from a Task Force representative who will explain this study and ask if they are willing to cooperate by allowing the Task Force to monitor their exposure for one day as they make normal applications.
4. The Study Director will then call those growers who indicated a willingness to cooperate to work out final details.

These studies are designed to monitor growers for one day as they make their normal applications. The disruption to normal activities will be kept to a minimum. These studies are endorsed by the Oklahoma Pecan Growers Association. For additional information, you may contact the OPGA president, Bob Knight, at (918) 321-6011, the AHETF Field Studies chair, Dave Barnekow at (317) 908-0328, or me at (660) 395-9590. You can also access our web site at www.exposuretf.com for more details about the AHETF.

Sincerely,

Dave Johnson
AHETF Manager

Horticulture Pecan Research Endowment
Michael Smith, OSU Horticulture & Landscape Architecture

As of this writing contributions total $49,950, and the Oklahoma Pecan Growers' Association has pledged $20,000. In addition, Carole and Max Matheson's former employer will match their contribution adding to the total above. There have been contributions from Oklahoma, Kansas and Texas producers, and one company. This is your opportunity to make a difference in the future of Oklahoma pecans and O.S.U. research and education. Creation of an Endowed Professorship will ensure that pecan research at O.S.U. continues indefinitely. Checks should be made out to the **O.S.U. Foundation** and mailed to **Michael Smith, Department of Horticulture and Landscape Architecture, 360 Agricultural Hall, Oklahoma State University, Stillwater, OK 74078.** Contributions to the Endowment are tax deductable.

Below is a list of those contributing to the Endowment.
2008
Paul and Maxine Haydon
Bert and Elizabeth Blumer
J.D. and Dwayne Scott
G.F. Parsons
Edward L. Boyd, Jr.
John Barnes
Henry Bellmon
Alvin and Debra Stein
Michael and Carole Smith
Virginia Merritt Autry
Tim Montz
Bag-A-Nut, LLC
2009
Joe Ihle
Diane Couch
Terry D. Powell
George Carlson
Dean McCraw
Carole and Max Matheson

The following is the agreement with the O.S.U. Foundation that establishes the Horticulture Pecan Research Endowment. Thanks for your support. Together, we can reach the goal of $250,000.

Endowment Agreement Between Michael Smith
And The Oklahoma State University Foundation
For The Creation of The
Horticulture Pecan Research Endowment Fund

In order to provide a permanent source of academic enrichment at Oklahoma State University and with the understanding that endowed funds are critical to the University because they generate predictable, growing streams of income in perpetuity that create and sustain university teaching, research and service programs, MICHAEL SMITH, Stillwater, Oklahoma (hereinafter referred to as "Donor") and the OKLAHOMA STATE UNIVERSITY FOUNDATION, Stillwater, Oklahoma, a not-for-profit corporation, organized pursuant to the laws of the State of Oklahoma (hereinafter referred to as "Foundation") hereby agree to establish from gifts made by the Donor an endowed fund to be known as the HORTICULTURE PECAN RESEARCH ENDOWMENT FUND (hereinafter referred to as the "Fund"). It is the intent of the parties that this document express the Donor's preference as to the use of the Fund.

ARTICLE I

The spendable earnings of the Fund will be used to support the HORTICULTURE PECAN RESEARCH ENDOWMENT FUND as described below.

ARTICLE II

The purpose of the Fund shall be to provide support for horticulture research on pecans in the Department of Horticulture & Landscape Architecture at Oklahoma State University. If sufficient funds are obtained within four years to support a professorship or chair position, the position shall be a research/teaching split with the dominate portion of the full-time equivalent being research. The research assignment shall solely deal with pecans. In the event sufficient funding has not been achieved to support a professorship/chair position within four (4) years, then the funds will be converted to an endowment to support horticultural research on pecans. These funds will support the pecan research positions(s) in the Department of Horticulture & Landscape Architecture, or should the department or name change or the research/teaching position be relocated, the fund will continue to support horticultural research on pecans wherever such position is located.

ARTICLE III

The endowment will be fully funded at $10,000. The first award(s) will commence when the spendable earnings on hand are sufficient to support an annual stipend. The OSU Foundation Board of Trustees has established a spending policy which defines spendable earnings. (Cur-

rently this policy is based on the prior year's authorized spending amount adjusted for inflation, plus five percent (5%) of current year contributions.) The spending policy is subject to change from time to time at the discretion of the Oklahoma State University Foundation Board of Trustees and the Donor understands that this Fund would be affected by any future policy changes. The Foundation will annually review the Fund's spendable earnings and is authorized to establish an annual award amount that is within the spending policy limits in place at the time of the award. Earnings which exceed the authorized spending policy amount will be added annually to the corpus of the Fund.

ARTICLE IV

This Fund will be managed in all respects as a permanently endowed fund. To facilitate investment of the Fund, the Foundation will have the power to sell, transfer, or otherwise dispose of for value any of the assets of the Fund. The Foundation may invest and reinvest the assets of the Fund in securities, investment pools, investment trusts, and other property without restriction. Further, the Foundation will have in regard to the Fund those powers given to an institution by the Uniform Prudent Management of Institutional Funds Act, and any other power authorized in the Oklahoma Statutes not inconsistent with the provisions of this agreement. Management fees, as determined by the Foundation's Board of Trustees, will be paid to the Foundation from the fund quarterly.

ARTICLE V

The Foundation may accept future gifts or bequests from the Donor, or from others, as an addition to the Fund and subject to the terms of this Agreement. The Foundation may also accept future gifts or bequests from the Donor as entirely separate funds; provided that the acceptance of said funds will create no obligation on this Fund or its use.

ARTICLE VI

If circumstances should arise in the future that make it illegal, impossible, or impractical to use the Fund for the purpose specified above, then the President of the University may submit a request for modification of this purpose to the Board of Trustees of the Oklahoma State University Foundation. If, in the best judgment of the Trustees, such modification is deemed prudent and in keeping with the original intent of the Donor, the Trustees may authorize the use of the spendable earnings from the Fund for the modified purpose. In the event of such a modification, the name of HORTICULTURE PECAN RESEARCH will continue to be associated with the Fund.

ARTICLE VII

Should the official designation or name of any unit or official of the Oklahoma State University Foundation or Oklahoma State University mentioned herein be changed, then that unit, official, or organization most nearly performing the responsibilities of said organization will be construed to have the responsibilities as herein set out.

Results of the Pecan IPM PIPE pecan nut casebearer alert system

Phil Mulder and Kelly Seuhs
OSU Entomology & Plant Pathology Department

With the first year of the pecan IPM PIPE system, I wanted to provide growers with an appreciation of how many of our various locations did related to crop load, treatment timing, pecan nut casebearer (PNC) pressure and damage and other factors. Onc area of good (but not great success) was spray timing. Many of our cooperators chose to spray early based on several factors (e.g. – amount of ground to cover, OPGA meeting, etc.). Thirteen of the sixteen locations reporting took egg and/or damage counts and many made decisions to treat or not based on those counts. Five of the sixteen locations reporting recovered eggs and/or damage that exceeded thresholds and made treatments accordingly. For growers that treated for PNC, only three made that decision based on approximate calendar date and without the aid of scouting.

This exercise certainly identified several aspects of producing pecans in the "real world" that scientists don't often face. Time constraints, acreage covered, and simply enough personnel to arrive at an accurate and economic decision may severely compromise our best intentions. The results from some nearby locations that took the time to thoroughly monitor for adults and scout for eggs and larvae may ultimately help us identify specific areas that may have saved money from not applying insecticides. As the economics of pecan production become tighter, considerations for time spent insuring a justifiable application may need to be thought out carefully. We will continue to refine this system in years to come and hope to add other aspects to it as the Pecan IPM PIPE continues to evolve. We wish to gratefully acknowledge all the time and effort spent by all cooperators in helping to make this program successful, now and into the future. (See table on next page.)

2009 PNC Monitoring Project Current Seasonal Data					
Locations	**Crop Load %**	**Chemical used and Spray dates**	**% Crop Damage by PNC**	**How Need for Treatment Determined**	**Egg or Larval Entry Scouting**
Idabel	Low, Freeze and Disease damage	Lorsban (4/1&4/15) Early insect.	Unreported	1st capture 4/12/09. Due to lack of egg and larval entry found, no PNC applications were made.	0/310 on several occasions, dates unspecified.
Valliant	Unreported	Intrepid (4/25/2009)	Unreported	No time for egg checking. Calendar Spray (10 days after 1st capture).	
Coalgate	Unreported	Intrepid (4/26/2009	Unreported	No egg scouting. Extremely wet. Sprayed when weather permitted. (10 days after 1st capture.)	
Burneyville	Light, Freeze damage	None	N/A	Due to lack of egg and larval entry found, no PNC applications were made.	6/3/2009, 6/9/2009 0/310.
Muskogee	Unreported	Intrepid 6/5/2009	Unreported	Ran out of time for egg/larval scouting. Tank mixed PNC/Scab Spray. (14 days after 1st capture)	5/30/2009-0/275 6/3/2009-0/175
Purcell	Unreported	Intrepid 6/4/2009	Unreported	We have not had time to do any cluster counts. (13 days after 1st capture.)	
Stillwater (Mex)	80%	none	15%	University Research Orchard, used for observation only.	6/5/2009-0/150 6/10/2009-2 /eggs,1entry/100
Stillwater (STD)	80%	Intrepid 6/4/2009	N/A	Calendar Spray. (11 days after 1st capture.)	6/8/2009-0/310
Perkins	80%	Intrepid 6/10/2009	10%	Based on Nut/Foliar inspection. (17 days after 1st capture)	6/8/2009-1egg/310 6/11/2009-2egg,1entry/100
Miami	75%	May 28&29 Abound w/ adjuvant 10 oz per acre. June 13 & 14 AgTin, Enable and Lorsban.		Based on Nut/Foliar inspection (20 days after first capture.)	6/5/2009-2/eggs 6/7/2009-2/eggs 6/9/2009-2/eggs
Skiatook	Light	None	N\A	Due to nut inspection no eggs or larvae were found and determined no spray was needed.	0/100+
Bixby	70%	Intrepid 6/15/2009	10%	Nut/Foliar Inspection. (18 days after 1st capture.)	6/9/2009-2eggs/50
Claremore	70%	6/8/2009 Intrepid, Scab and Zinc	N/A	Nut/Foliar Inspection No egg or larvae found, PNC included in scheduled fungicide and zinc spray. (12 days after 1st capture.)	0/125 Several occasions Dates unspecified.
Ardmore	50%	6/4/2009 Inrepid	N/A	Nut/Foliar Inspection No egg or larvae found. (Calendar, 19 days after 1st capture)	0/121 Several occasions Dates unspecified
Marlow	Light, Freeze	6/8/2009 Intrepid	N/A	Nut/Foliar Inspections No egg or larvae found. (Spray, 17 days after 1st capture)	0/150+ Several occasions Dates unspecified
Luther	50% or <	6/8/2009 Intrepid, Scab	N/A	Nut/Foliar Inspection (Seventeen days after 1st capture.)	3/150

Fall Webworms in Pecan
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First generation fall webworms have recently become noticeable in Oklahoma this year. This pest occurs every year, but heavy infestations occur irregularly and are generally restricted to yard trees or unmanaged areas. Fall webworms began hatching in June, and they will continue to visibly build their webs through mid- to late-July and even later. Based on abundance of early populations, subsequent generations may be depressed. Fall webworms overwinter as pupae and emerge as adult moths in late April through May. A female moth can lay up to 500 eggs which are deposited in masses on the underside of leaves. Larvae hatch in early June and immediately begin to form a silken tent, where they feed for about 40 to 50 days. All larvae within a single web are from the same female. The larva can vary in color, but usually have two rows of black spots down their back and are sparsely covered with long white hairs. There are two races, an orange-headed, and black-headed race that occur. While there are two generations per year, it may appear that there are more generations because the orange-headed and black-headed race occur in staggered times and one may experience more generations per year than the other. Their preferred hosts in Oklahoma are pecan and persimmon, but they can feed on nearly 90 different species of trees, including sweetgum, various fruit trees, cottonwood, hickory, and black walnut. Fall webworms don't generally cause any long-term damage to their tree host, but they can temporarily ruin the aesthetic appearance of the tree and may contribute to overall premature defoliation in combination with other pests. Anytime premature defoliation occurs before mid-October, the subsequent fruit set can be affected. Fall webworms are sometimes a choice meal for social wasps like yellow jackets or paper wasps, as well as many birds, so often, control may not be required if nature is given time to work. In fact, a homeowner may be able to assist this natural control by tearing open the silken webs, which allows fall webworm predators and/or parasitoids access to the caterpillars.

If control is needed, it can be achieved on small trees by simply removing the nest along with the caterpillars. The nests should be placed into a trash bag and removed or simply burned. A high-pressure water spray can also be used to remove the webs and knock the caterpillars down. However, they can climb back into trees and reinfest, so consider destroying the damage along with the pests. These caterpillars are susceptible to the biological insecticides *Bacillus thuringiensis* "Bt" (Javelin, Batospeine, Dipel) and spinosad (Entrust or Spintor). They are also quite susceptible to insect growth regulators (Confirm or Intrepid), which have excellent residual activity. The residual capacity of these latter two products is likely why commercial growers have almost no problem with this pest, since they generally use one of these products for pecan nut casebearer in late May or early June. Best control with these products is achieved when applied to small larvae. Other chemical products available for homeowners include Bayer Advanced Garden Power Force, Multi-Insect Killer or Ortho Bug B Gon, or BugStop Multi-Purpose Insect Control. Any spray should be applied with sufficient volume to penetrate the webbing. There are other products that are registered for control of this insect, just make sure they have fall webworm on the label. Remember to always follow all label directions before making an insecticide application.

State Pecan Show 2008

Sample #	Variety	Class	kernel_	nuts/lb	County	Last Name	First Name	Placing	
1	Stuart	22 - Stuart	51.3	51.3	Kay	Flaming	Bernard	1	
2	Small native	28 - Small Seedling	56.6	75.2	Kay	Flaming	Bernard	1	Champion Seedling
3	Maramec	12 - Maramec	57.8	40.3	Muskogee	Mayer	Michael	1	
4	Mohawk	13 - Mohawk	58.7	33.7	Muskogee	Mayer	Michael	1	Largest Pecan
5	Pawnee	14 - Pawnee	58.2	37.1	Muskogee	Mayer	Michael	1	Best of Show
6	Burkett	03 - Burkett	57.4	45.7	Alfalfa	Flaming	Royce	1	
7	Stuart	22 - Stuart	47.9	44.9	Alfalfa	Flaming	Royce	2	
8	Kanza	09 - Kanza	53.9	72.6	Lincoln	Schoenecke	Robert	2	
9	Peruque	15 - Peruque	61.2	98.9	Lincoln	Schoenecke	Robert	1	
10	Oakla	26 - Other Cultivars	53.0	101.1	Lincoln	Schoenecke	Robert		
11	Creek	26 - Other Cultivars	52.0	49.8	Lincoln	Schoenecke	Robert		
12	55-12-17	26 - Other Cultivars	55.6	70.1	Lincoln	Schoenecke	Robert		
13	64-11-17	26 - Other Cultivars	57.5	69.6	Lincoln	Schoenecke	Robert	2	
14	Peruque	15 - Peruque	60.0	91.7	Payne	Hoffman	Dick	2	
15	Maramec	12 - Maramec	57.4	41.7	Payne	Hoffman	Dick	2	
16	Stuart	22 - Stuart	45.9	49.2	Payne	Hoffman	Dick	3	
17	Barton	02 - Barton	52.9	56.4	Payne	Hoffman	Dick	1	
18	Mohawk	13 - Mohawk	58.0	36.3	Payne	Hoffman	Dick	2	
19	Pawnee	14 - Pawnee	57.9	40.5	Payne	Hoffman	Dick	2	
20	Forkert	26 - Other Cultivars	60.3	48.3	Payne	Hoffman	Dick	3	
21	Kanza	09 - Kanza	52.8	57.6	Payne	Hoffman	Dick	1	
22	Desirable	26 - Other Cultivars	54.5	36.2	Payne	Hoffman	Dick		
23	Cheyenne	04 - Cheyenne	53.2	62.1	Payne	Hoffman	Dick	1	
24	Oconee	26 - Other Cultivars	55.4	50.6	Payne	Hoffman	Dick	1	
25	Gratex	08 - Gratex	62.3	58.6	Payne	Hoffman	Dick	1	Highest % Kernel
26	Burkett	03 - Burkett	59.1	46.2	Tillman	Walker	Kaisen	2	
27	Stuart	22 - Stuart	49.2	68.7	Tillman	Walker	Kaisen		

Membership Application

We invite you to become a member of the Oklahoma Pecan Growers' Association. Membership includes the *OPGA Newsletter*, *Pecan South* and *Pecan Grower*. Make your checks payable to OPGA and mail to:

Oklahoma Pecan Growers' Association
Janice Landgraf, Treasurer
RR 1 Box 148
Madill, OK 73446
okpecan@trinex.net (580) 795-7644

Name _____

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