

Approved March 19, 1991
Date

MINUTES OF THE HOUSE COMMITTEE ON AGRICULTURE

The meeting was called to order by Representative Lee Hamm
Chairperson

9:25 a.m./~~p.m.~~ on Thursday, March 14, 1991 in room 423-S of the Capitol

All members were present except: Representative Garner, excused
Representative Reinhardt, excused
Representative Freeman, excused

Committee staff present: Raney Gilliland, Legislative Research
Lynne Holt, Legislative Research
Jill Wolters, Revisor of Statutes Office
Pat Brunton, Committee Secretary

Conferees appearing before the committee: William Reid, Kansas State University, Pecan
Experiment Station, Chetopa, Kansas

Chairman Hamm asked the committee to consider a Resolution proclaiming March 20, 1991, as "Agriculture Day" and March 17-23, 1991 as "Agriculture Week". (Attachment 1).

Representative Mollenkamp made a motion to introduce the Resolution. Representative Correll seconded the motion. Motion passed.

William Reid, Kansas State University, Pecan Experiment Station, gave a slide presentation on the pecan industry of Kansas. He also presented the committee with facts and figures of the Kansas pecan industry. (Attachment 2).

A discussion period followed Mr. Reid's presentation.

The meeting adjourned at 9:50 a.m. The next meeting of the House Agriculture Committee will be Tuesday, March 19, 1991 at 9:00 a.m., room 423-S, State Capitol.

HOUSE RESOLUTION NO. _____
 By Committee on Agriculture

A RESOLUTION proclaiming March 20, 1991, as "Agriculture Day" and March 17-23, 1991 as "Agriculture Week".

WHEREAS, Agriculture is the oldest, largest and most respected industry in the United States; and

WHEREAS, Agriculture was and still is the foundation of the economic structure of the United States; and

WHEREAS, The American farmer, including the Kansas farmer of today, produces enough food to feed 114 people at a price that is a lower percentage of income than the price paid by the American people a generation ago; and

WHEREAS, The Kansas farmer produced 472,000,000 bushels of wheat in 1990, which is 17% of the entire United States wheat crop; and

WHEREAS, The production of wheat in Kansas has made the state number three in flour milling capacity in 1989, number one in flour milled and number one in the amount of wheat and wheat products exported from any state; and

WHEREAS, In 1989, Kansas ranked number one in the country in beef packing and number three in the country in the number of cattle on feed; and

WHEREAS, In 1989, Kansas ranked number four among the states in total agricultural exports amounting to \$2.8 billion; and

WHEREAS, Kansas ranked number one in the country in grain sorghum production during 1990 with 184,800,000 bushels; and

WHEREAS, Kansas produced field crops, livestock and poultry having a value of more than \$5 billion in 1989; and

WHEREAS, The United States and the State of Kansas owe a great debt to the thousands of industrious individuals who have given their heart and spirit to the production of food so

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millions of people could live healthier and happier lives; and

WHEREAS, Agriculture is the very heart of the national economy, our number one inflation fighter, the most efficient food and fiber system providing the world's most varied and highest quality food supply for only 14.7% of each American's income; and

WHEREAS, Agriculture serves all Americans by providing the basic necessities of life, and the performance of the agricultural economy is vital to maintaining our national economy, the standard of living of our people and our presence in world trade markets; and

WHEREAS, The American farmer and the Kansas farmer have been and will continue to be the great providers for the people of the United States and of the world: Now, therefore,

Be it resolved by the House of Representatives of the State of Kansas: That we proclaim March 20, 1991, as "Agriculture Day" and March 17-23, 1991, as "Agriculture Week".

The Kansas Pecan Industry

Facts and Figures

Acreage: 8500 Acres

Average production : 3.5 million pounds

Value to KS Agriculture : \$3,500,000

1. Ninety-five percent of Kansas pecans are produced in groves of native trees. Orchards of improved pecan cultivars make up only five percent of the industry.
2. The pecan industry is located primarily in southeast Kansas with additional acres in east central and south central Kansas. Counties with significant pecan acreages include: Cherokee, Cowley, Labette, Linn, Miami, Montgomery, Neosho, Sedgwick, Sumner, and Wilson.
3. Pecans grow best in the deep alluvial soils found along major rivers and streams. Pecan sites are often subjected to seasonal flooding but the trees and a permanent ground cover offer good protection from soil erosion.
4. Native pecan groves produce three crops; Pecans, cattle pasture and lumber. Growers earn as much as \$500.00 per acre from a native pecan groves.
5. Kansas pecans are known within the industry to be among the highest quality pecans produced in the United States. Kansas pecans are high in unsaturated oil and have a bright straw-colored kernel. Kansas nuts are sent to shellers all over the country and are used in bakery goods and pecan candies.

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Profits from Native Pecans¹

WILLIAM REID² and BRENDA OLCOTT-REID³

Pecans are widely recognized as an important cash crop in southern states, where pecan orchards have been extensively planted. Few realize that 45% of the pecans produced in the U.S. are harvested from native pecan stands (Shafer 1985). Even at current production levels, native pecan stands are underutilized and can offer much more than their prized nuts. These bottomland trees protect the soil from erosion and offer a fine-quality lumber.

Unfortunately, much river bottom timber containing pecan has been bulldozed out and planted to corn, wheat, and soybeans. These annual crops are frequently lost to seasonal floods, but federal disaster payments help offset the loss. Managing the native timber for nut and lumber production seems like too much of a long-term investment for many farmers.

Those who have made the commitment to native pecan tree management have learned that the wise use of an existing resource has led to greater net returns per acre. Realizing a profit from native pecans requires investments in tree thinning and grove clean-up, fertilizers, pest controls, and time. In the meantime, income can be generated from the sale of removed trees. The steps necessary to convert a native stand of pecan bottomland to a nut producing pecan grove are outlined below.

Grove Clean-up. Native pecans are primarily found growing along creek and river bottoms where they compete with oak, ash, elm, and other species for light and space. The ground is usually covered with thick underbrush. This competition for moisture, light, and nutrients results in low nut yield. Nut production can be doubled or tripled in three years by removing all trees other than pecan and clearing the underbrush (Taylor 1983). Trees removed in this initial clean-up operation can be sold for sawlogs or firewood (Figure 1). Following understory removal, establishing a permanent ground cover of legumes and/or grasses will facilitate pecan harvest and offers the opportunity for cattle grazing and/or hay production (Figure 2).

Thinning. Most native pecan areas will still be too crowded even after all other timber is removed. Pecan trees in an unthinned stand typically develop the shape of an inverted pyramid due to competition for light. Since pecans bear nuts only at the tips of new growth, only the very tops of these trees are productive.

Removing excess trees allows light to penetrate into the grove and stimulates remaining trees to develop lower branches. Nut production increases as tree canopies become larger and well rounded. Trees should be thinned gradually, over several years, until neighboring

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FIGURE 1. Clearing and thinning a native pecan stand near Chetopa, Kansas.



FIGURE 2. Established ground cover in the recently cleared native pecan grove shown in Figure 1. Tree canopies are "bushing out."

trees' branches are 10 feet apart. This spacing enables each tree to receive enough sunlight to produce a good crop, while avoiding sun scald and wind breakage that could result from removing too many trees at one time.

the pecan weevil. The weevil emerges from the soil in August to lay its eggs in the nut. With careful monitoring, all of these insect pests can be controlled with 4 to 5 applications of insecticides per year.

Squirrel nests in a pecan grove should be destroyed, and the squirrels themselves can be trapped or hunted. In some areas, it may be profitable to lease pecan groves to hunters on a daily basis, well before pecan harvest begins. (Check with local game officials for regulations.)

Nut Harvest. Harvest begins after the first killing frost. Growers try to harvest as many of the nuts as possible before Christmas to take advantage of high seasonal prices. A mechanical tree shaker (Figure 4) jars nuts from the tree. After shaking, small growers can hand-harvest or let customers pick their own. Large growers use a mechanical harvester with rubber fingers to scoop the nuts off the ground.

Native pecans are always in demand because of their sweet taste and high oil content. Nuts can be sold to pecan shellers or directly to the public.

Nut Production Profits. Improved native pecans can bear as high as 1,000 lbs./acre of nuts per year, if given a complete management program. Proper tree spacing, fertilization, and pest control are necessary for top yields. Table 3 shows the costs and returns of managing a native pecan grove in Texas (Shreve and McEachern 1985). With income from timber sales, as estimated in Table 2, added to nut production income, managing native pecan is likely to be the most profitable agricultural use for many bottomland sites.

TABLE 3.—Performance of the Hugo Pape native pecan with 20 trees per acre, Seguin, Texas.

Year	Yield		Price		Costs/ acre	Profit/ acre
	lbs./tree	lbs./acre	\$/lb.	\$/acre		
1969.....	35	700	.31	217	167	50
1970.....	36	725	.39	283	176	107
1971.....	45	900	.33	297	184	113
1972.....	53	1065	.41	437	194	243
1973.....	58	1150	.38	437	204	233
1974.....	54	1075	.42	452	215	237
1975.....	54	1088	.39	424	226	198
1976.....	41	813	.78	634	238	396
1977.....	62	1247	.61	761	250	511

Literature Cited

- SHAFER, C. E. 1985. Recent trends in pecan production and prices, p. 260-288. In, G. R. McEachern (ed.), Texas Pecan Orchard Management Handbook, Texas Agr. Exten. Ser.
- SHREVE, L. W. 1985. Native pecan timber, p. 297-299. In, G. R. McEachern (ed.), Texas Pecan Orchard Management Handbook, Texas Agr. Exten. Ser.
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- TAYLOR, G. G. 1983. Claiming native pecan areas for nut production. Ann. Report NNGA 74:230-232.
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Orchard Floor Management. The ground cover established in the grove clean-up operation can be used as a profitable intercrop. Many native pecan managers graze cattle during the summer months in their groves. Although cattle grazing will reduce pecan yields through soil compaction, the combined income may be greater than income from pecans alone.

Harvesting ground-cover grasses and legumes as an early season hay crop is less damaging to the pecan crop. The ground cover can be allowed to grow in the spring and then cut for hay long before water becomes a limiting factor to pecan yield. Keep the ground cover mowed throughout the summer to conserve soil moisture for the pecans.

Pest Control. Insects and squirrels may harvest much of your nut crop if left uncontrolled. The most troublesome insect pests include: the pecan nut casebearer, pecan aphids, hickory shuckworm, and pecan weevil. The nut casebearer attacks the nuts shortly after pollination and can be controlled with one well-timed insecticide application. Pecan aphids feed on pecan foliage, weakening the trees' ability to photosynthesize and reducing prospects for next year's nut crop. Two generations of the hickory shuckworm cause problems for the pecan grower. In July, feeding by this insect causes nuts to fall off the tree. Later, after the nut shell has formed, the hickory shuckworm tunnels in the shuck causing the shuck to become firmly attached to the shell, making the nut unmarketable. The worm found in the nut at harvest is



FIGURE 4. Mechanical trunk shaker jars nuts to the ground.

Nut production from thinned native stands will increase gradually over several years (Table 1). The nuts often grow larger and the kernels plumper, since the trees have less competition for moisture.

Choosing which trees to remove and which to keep should be based on tree size, timber potential, location, nut production, and nut size. After the initial clean-up operation, observe these tree characteristics before the thinning process begins. The most important trees to keep are the small ones, less than four inches in diameter, that can be grafted to superior cultivars. Grafted trees can yield two to three times as much as most natives, and nuts are larger and thinner-shelled.

The second most desirable trees to save are those with diameters of 12 inches or less. Smaller, younger trees will develop a full canopy faster than larger trees, thus becoming productive in a shorter time period. Large trees require too much space, shade adjacent younger trees inhibiting their growth, and are more valuable as sawlogs.

Native trees will vary greatly in their nut bearing characteristics. Before removing trees, pecan growers should examine the nut production and nut quality of each tree for several years. These traits can be recorded on a metal tag attached to the tree. Remove trees that repeatedly bear few nuts or nuts so small that more than 100 are needed to weigh a pound.

Remove trees whose nuts do not mature before the average date of first fall freeze. The shucks surrounding the nut split open when the nut is mature, allowing the nut to drop from the tree. If freezing temperatures arrive before shuck split, the shuck will stick tight to the nut, making it unmarketable.

Multi-trunked, badly forked, or leaning trees are difficult to mechanically shake for nut harvest, and are commonly removed in preference to straight, single-trunked trees. Damaged and decaying trees should be among the first removed.

TABLE 1.—Nut yield of a native pecan grove in southeast Kansas. Grove improvement initiated in 1962. Trees received all recommended cultural practices.

Year	Average Yield lbs./acre	Year	Average Yield lbs./acre
1965	154	1974	412
1966	276	1975	576
1967	400	1976	530
1968	180	1977	956
1969	336	1981	1110
1970	620	1982	454
1971	618	1983	820
1972	358	1984	1132
1973	968		

Marketing Removed Trees. The removal of excess trees in a pecan grove has usually been accomplished by bulldozing, girdling, burning, and frilling. These practices cost several hundred dollars per acre and waste a valuable resource—the wood. In recent years, though, demand

has increased for pecan timber. Only black walnut and black cherry command higher prices than pecan on the timber market. Pecan veneer and lumber are used in decorative paneling, fine furniture, flooring, pallets, and implement handles. Culled trees and tops may be sold as fuel wood, since pecan makes a good fireplace wood and an excellent barbecue wood.

The amounts of salable pecan wood produced by thinning a native pecan stand in Texas were estimated by Shreve (1985) (Table 2). If veneer stumpage is worth \$.50 per board foot, sawlog stumpage \$.10 per board foot, and fuel wood \$5.00 per cord, the sales from thinning a pecan grove would total \$734.00 per acre. The total timber value of the remaining trees would be \$682.00 per acre. These are conservative estimates; prices vary with locality, and some much higher have been reported.

TABLE 2.—Estimated amounts of salable pecan wood in one acre.

	Sawlogs		Veneer		Firewood cords
	No. trees	Board-ft. volume	No. trees	Board-ft. volume	
Removed in thinning	9	1451	3	1098	8
Remaining in grove	10	2677	4	769	6

The ideal timber tree is tall and straight with a small crown. Fortunately, this is just opposite of what is desirable for a nut-producing tree. Mark each tree to be removed at two places—breast height and ground level—so the mark will still be on the stump when the tree is removed and you can check to make sure unmarked trees were not cut.

The written timber sales contract should specify when trees will be harvested (so as not to interfere with nut harvest or other orchard operations), and when the lumber company must be out of the grove. The contract should also specify that payment to the owner will be made before trees are cut, and that the owner reserves the right to check the progress of the sawing operation. The timber buyer should be held responsible for any damage to unmarked trees, fences, gates, and other property.

Other aspects of the thinning operation can be incorporated into the tree-cutting operation. The written agreement with the timber company can specify that it remove brush. It should also specify exactly how you want the trees cut; if they are cut at ground level, you will not have to remove stumps.

It is best to have more than one buyer look at the timber. Also be sure to estimate the volume of the marked trees yourself, so you know how much the trees are worth. Your state or extension forester can help you make volume estimates. Take sealed bids and retain the right to reject all bids.

Maintenance Thinning. After the initial thinning, more trees will need to be removed as the stand grows. Remaining trees with multiple

trunks should gradually be pruned to a single trunk to make tree shaking easier. Prune off branches with narrow, weak crotch angles. Such limbs are prone to snapping off in high winds or under heavy crop loads. Cut back major limbs over several years rather than shocking trees by making major cuts all in one year.

Grafting Trees. Most native pecan stands will contain several trees that can be easily topworked to improved pecan cultivars (Figure 3). Over 1000 pecan cultivars have been named (Thompson and Young 1985), but growers usually choose from about a dozen cultivars well adapted to their growing conditions. Your state extension service can recommend pecan cultivars suited to your area, provide information on sources of grafting wood, and demonstrate grafting techniques. With



FIGURE 3. The bark inlay graft can be used to topwork native pecans to improved cultivars.

proper cultivar selection, grafted trees should produce large quantities of high quality nuts which command higher prices and will increase profits.

Fertilization. Native pecans are usually found growing in rich, deep, flood plain soils. These soils provide all the essential nutrients the tree needs for maximum nut production except for nitrogen. Native pecans should be fertilized with 100 lbs. of nitrogen per acre per year. Broadcast the fertilizer under the trees in early spring before trees break bud.

Pecans are susceptible to zinc deficiency where soils are low in this nutrient. Zinc deficient trees will have rosetted terminals and small misshapen leaves. The deficiency is corrected by applying four foliar applications of a zinc fertilizer at two-week intervals starting at leaf burst.

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