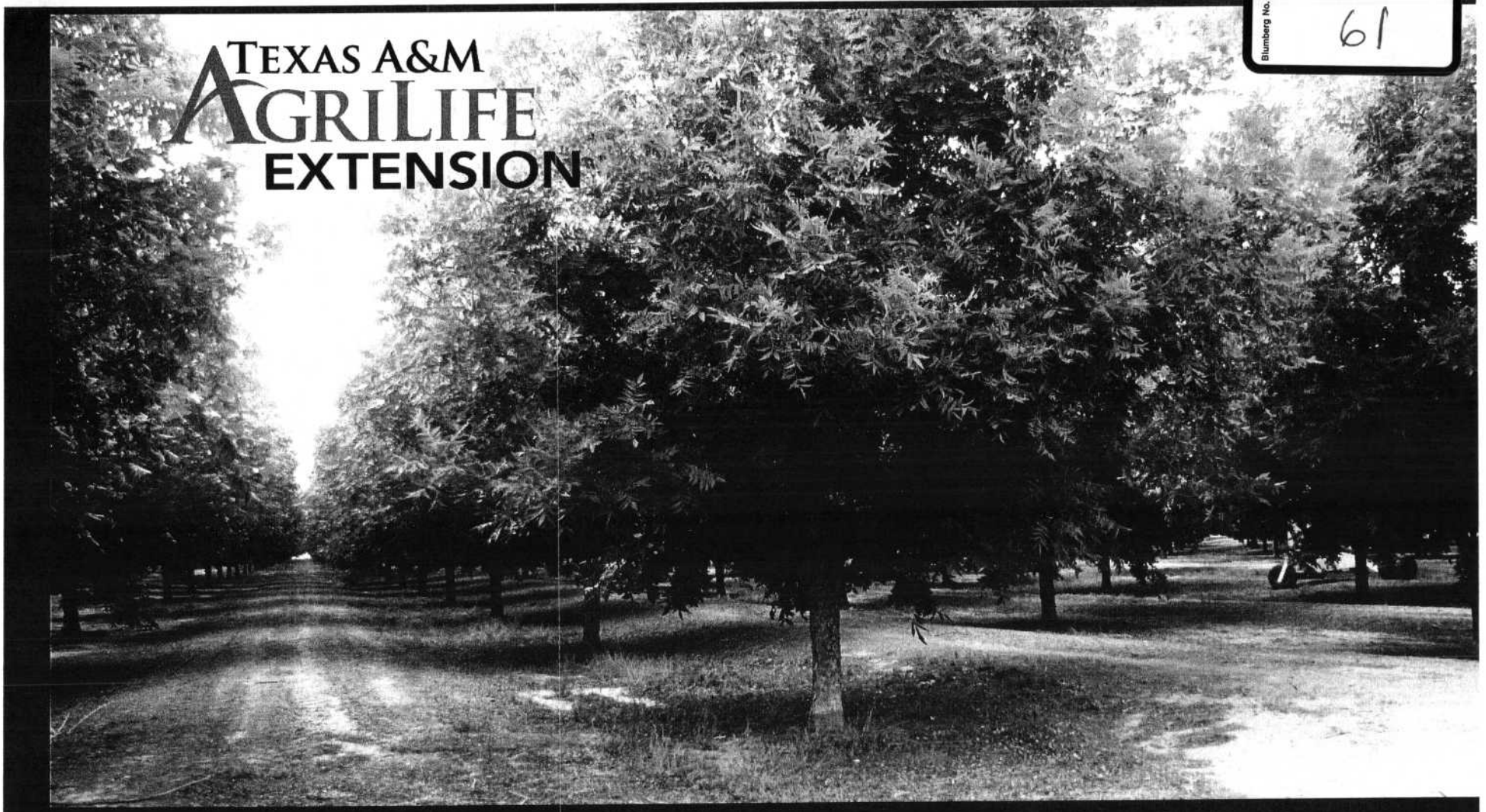
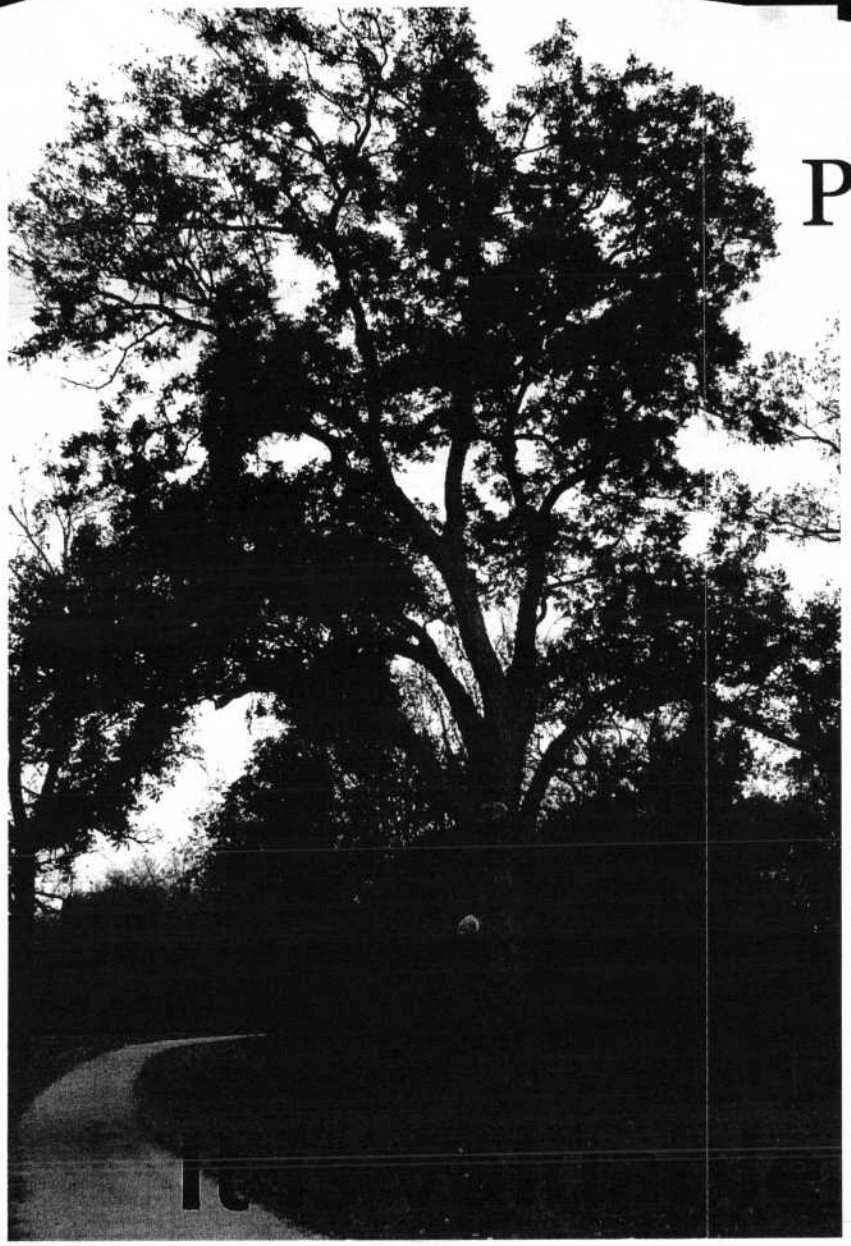


Monte Nesbitt
Extension Horticulture
College Station, Texas

Pecan Production Overview



Pecan is native to Texas

'LA BAHIA', Washington
on the Brazos State Park

Photo: Grauke

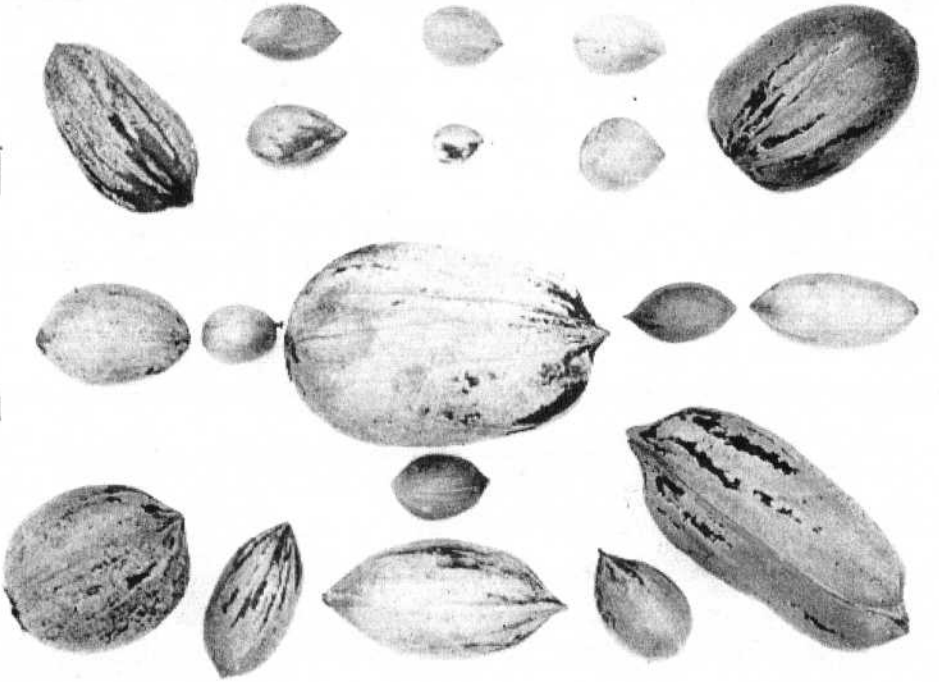
2012 USDA Census Texas
Acreage: 87,581

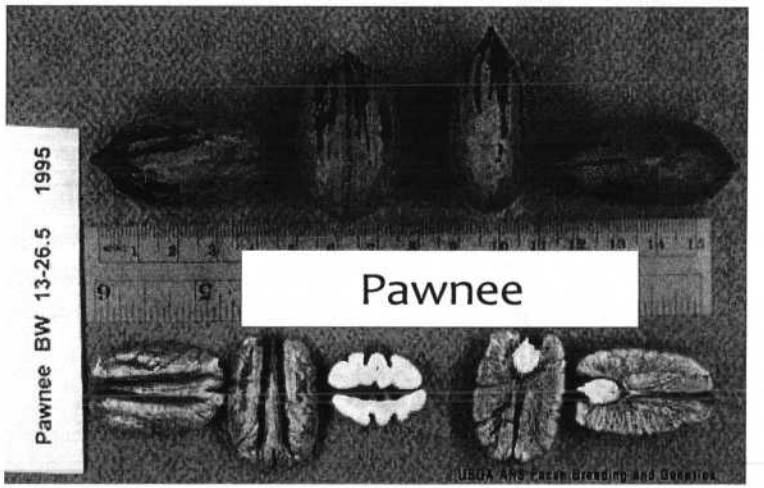
historically and to the Texas economy

TEXAS A&M AGRILIFE EXTENSION

Terminology

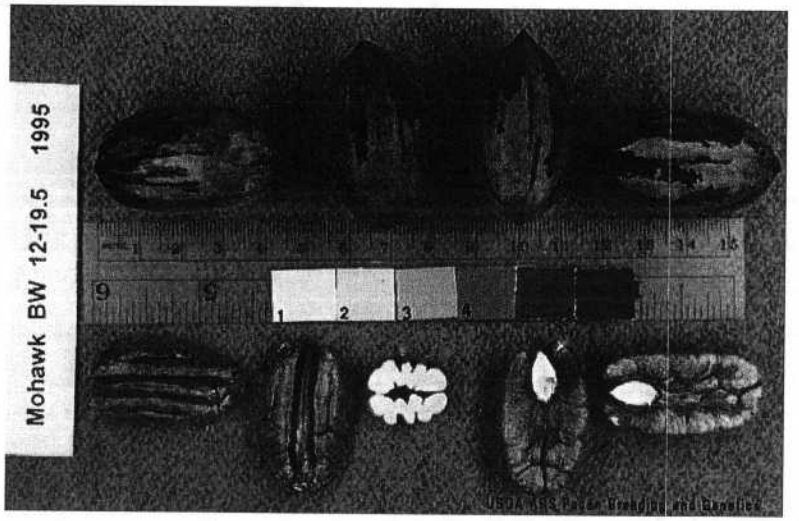
- Native: tree developing from seed without the influence of man.
- Seedling: tree originating by chance or intentional planting of a nut.
  - Un-named and not propagated by grafting.
- Improved Variety or Cultivar: tree selected, named & propagated by grafting/budding for improved traits.
- Controlled Cross: Cultivar developed in a breeding program by intended application of pollen to a flower.
  - Both parents are known





TEXAS A&M AGRILIFE EXTENSION

Pawnee: Improved Cultivar (& Controlled Cross) Released by USDA Pecan Breeding



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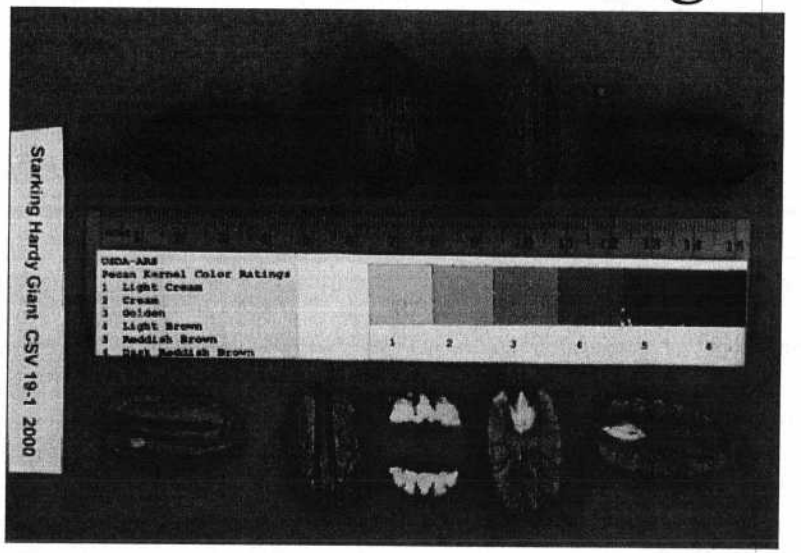
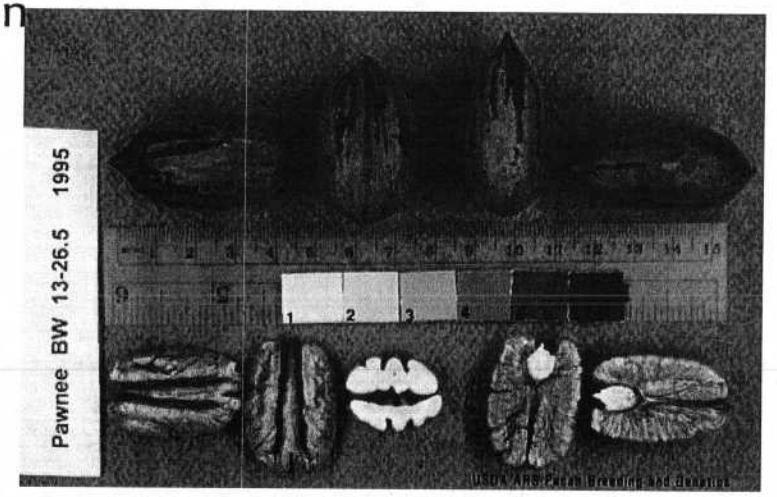


Controlled pollination cross made in 1963

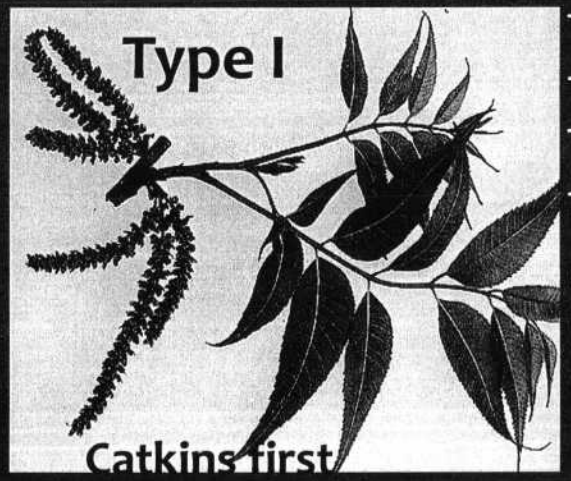
=

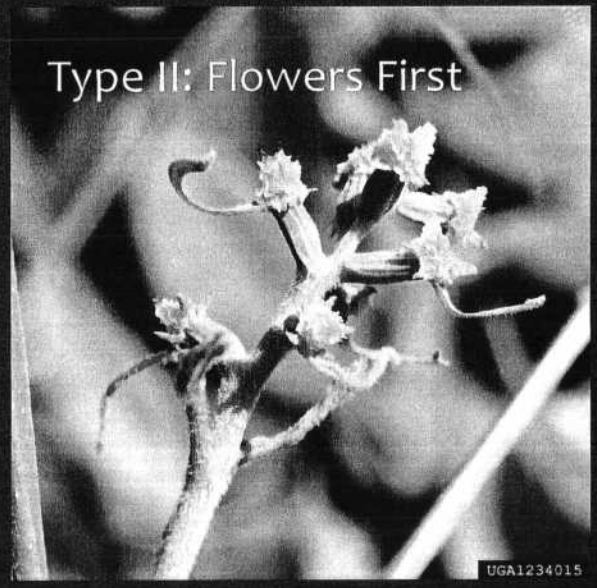


Released in 1984

TEXAS A&M AGRILIFE EXTENSION

Pecan Pollination





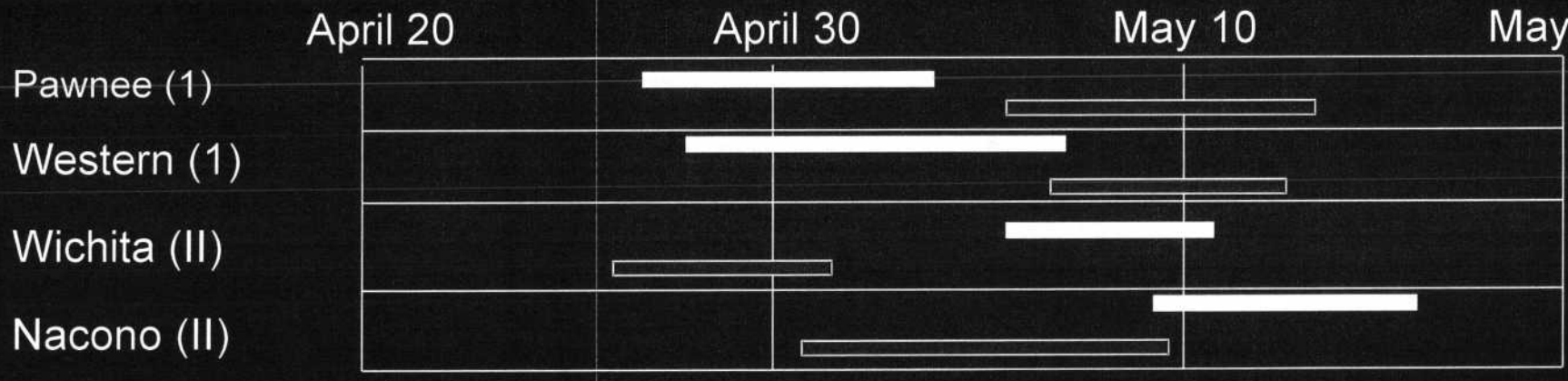
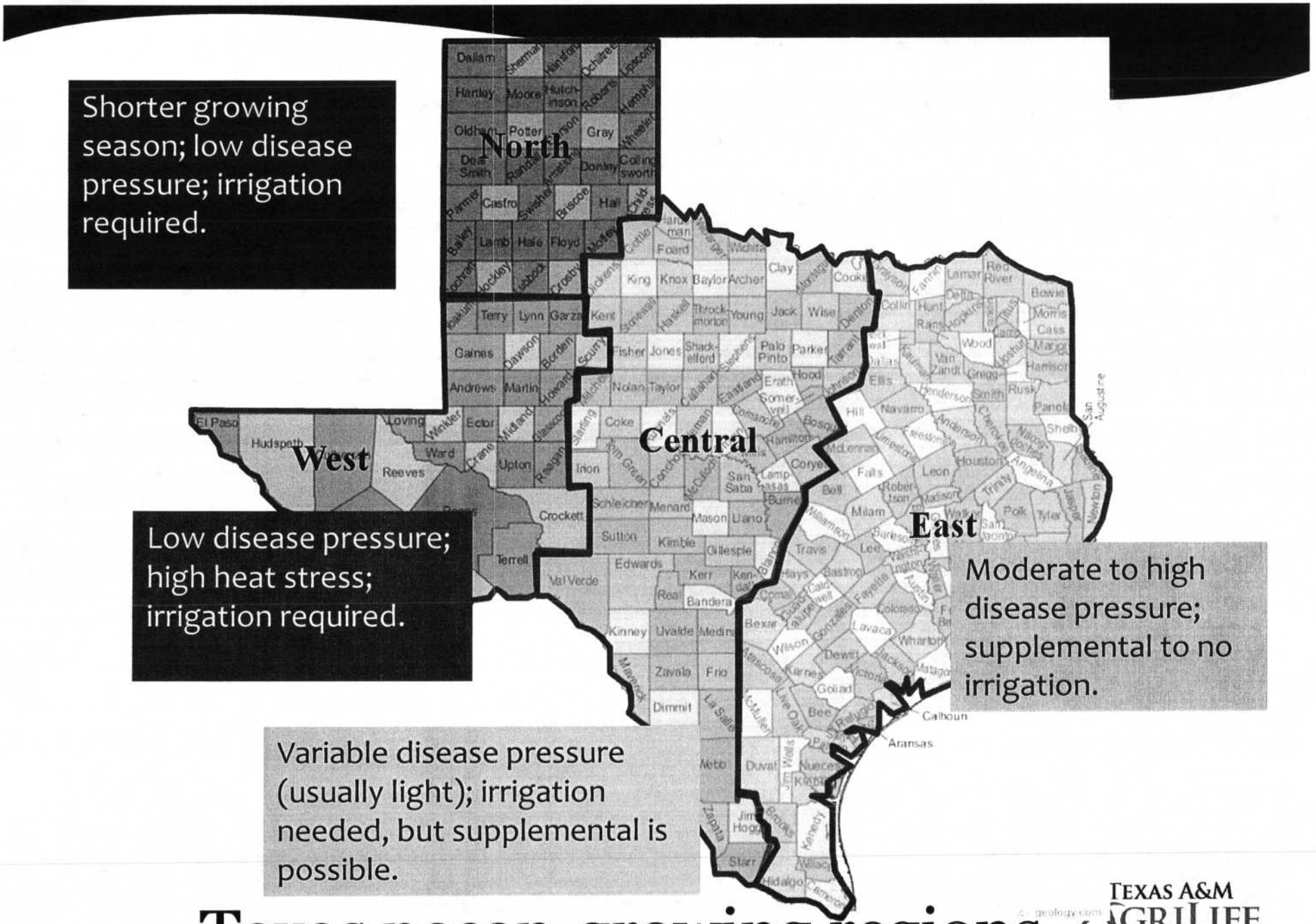


Chart: Tommy Thompson

Brownwood, Tx

Receptivity=Red
Pollen Shed=Yellow

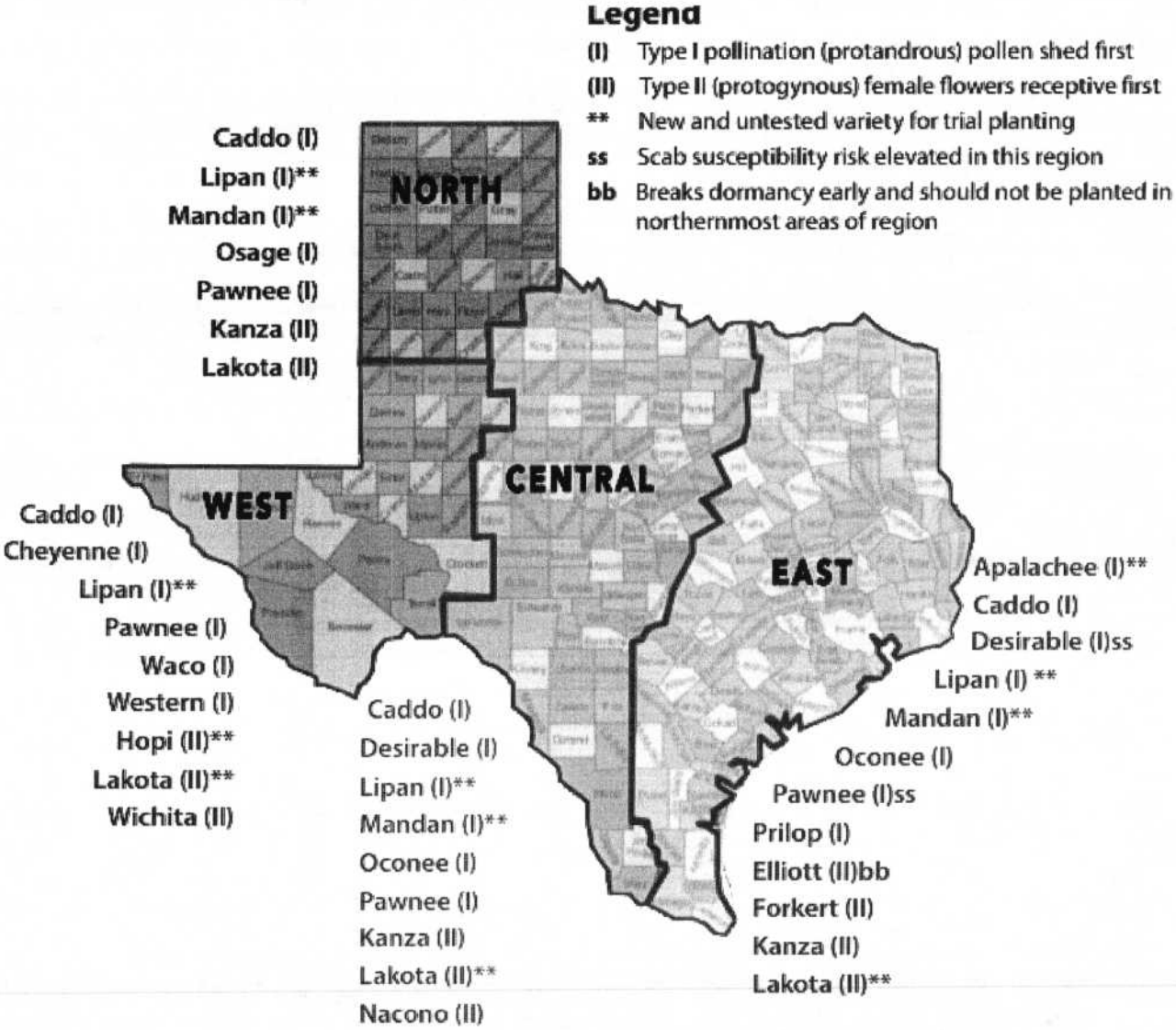
Plant both Type 1 and Type 2 cultivars in any planting.



Texas pecan-growing regions

TEXAS A&M AGRILIFE EXTENSION

Recommended Improved Cultivars



http://aggie-horticulture.tamu.edu/fruit-nut/files/2015/04/pecans_improved_2015.pdf

TEXAS A&M AGRILIFE EXTENSION

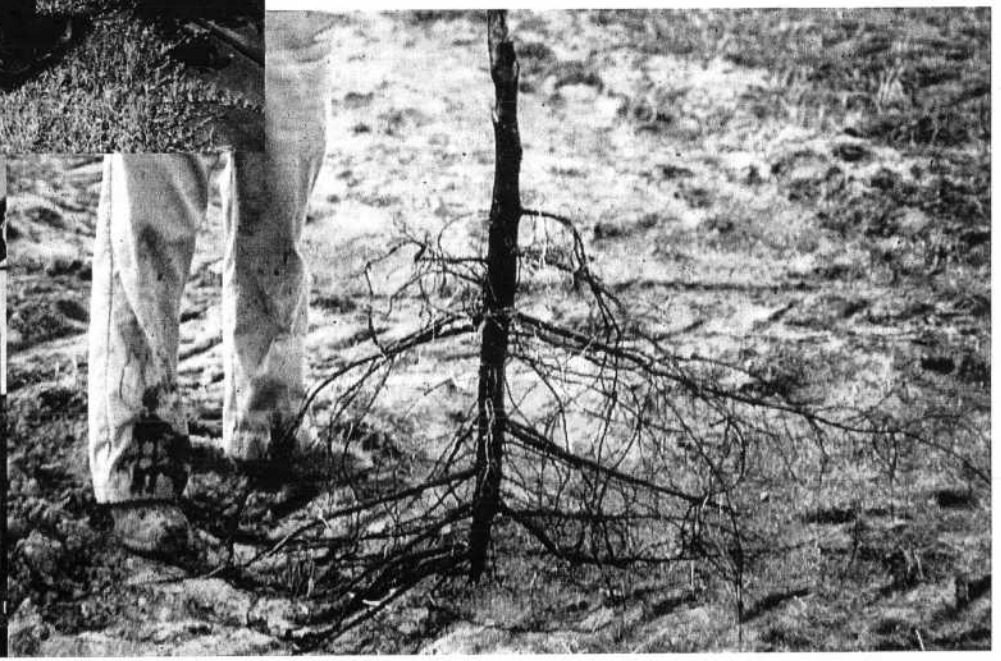
Grafted Trees

Container-Grown

- Long Planting Window
- Higher Cost
- Good Survival

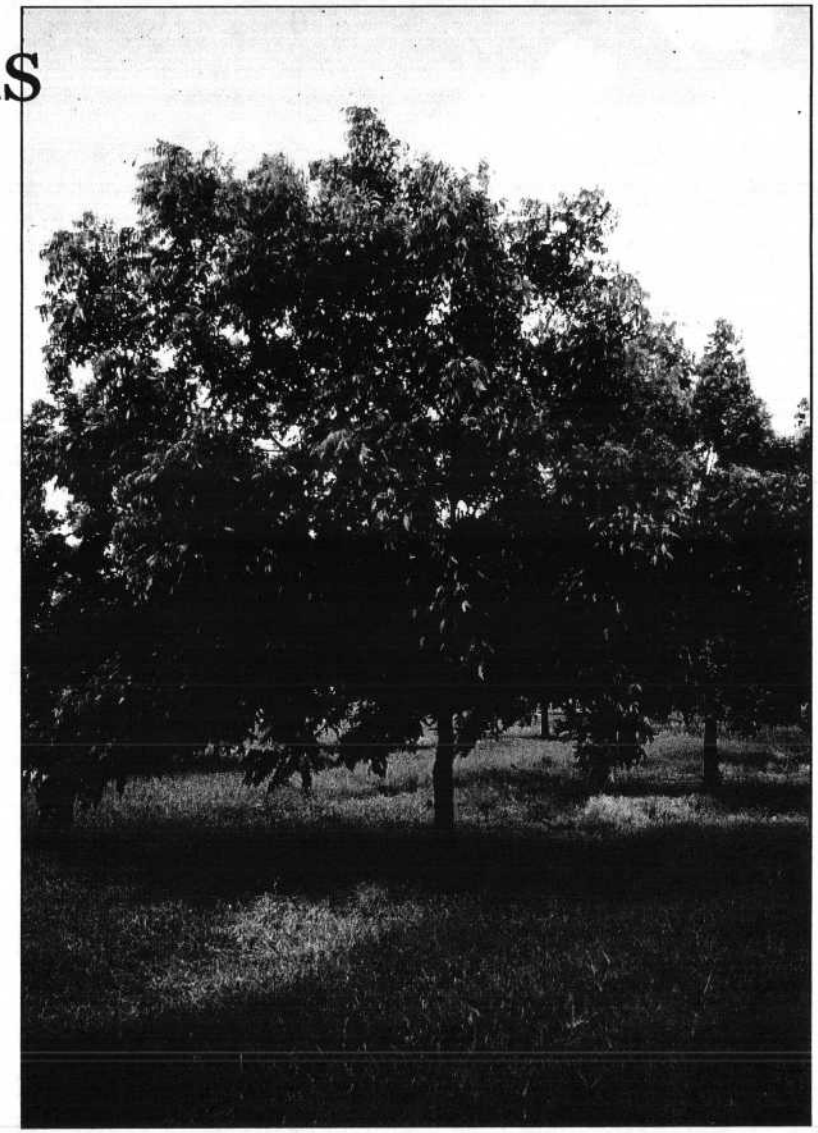
Bare Root

- Short Planting Window
  - Winter
- Lower Cost
- Good Survival



TREE SPACING
For Commercial Orchards

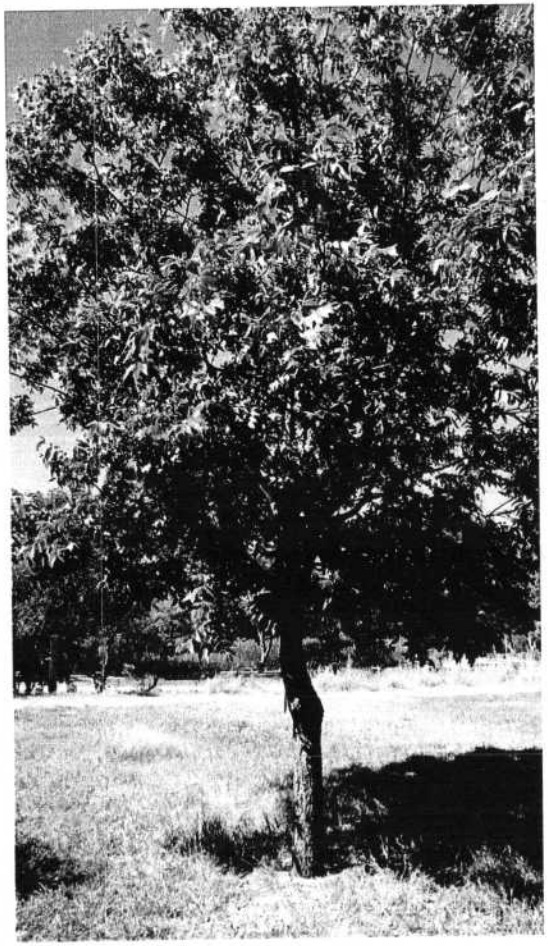
Spacing ~~High~~ Density	Trees/ Acre	First Thinning	Trees/ Acre
20 x 40	54.5	40 X 40	27
30 X 30	48	42.4 X 42.4	24
33 X 33	40	33 X 66	20
35 X 35	35	50 X 50	17
40 x 40	27	56.5 X 56.5	13.6
50 x 50	17	70 x 70	9



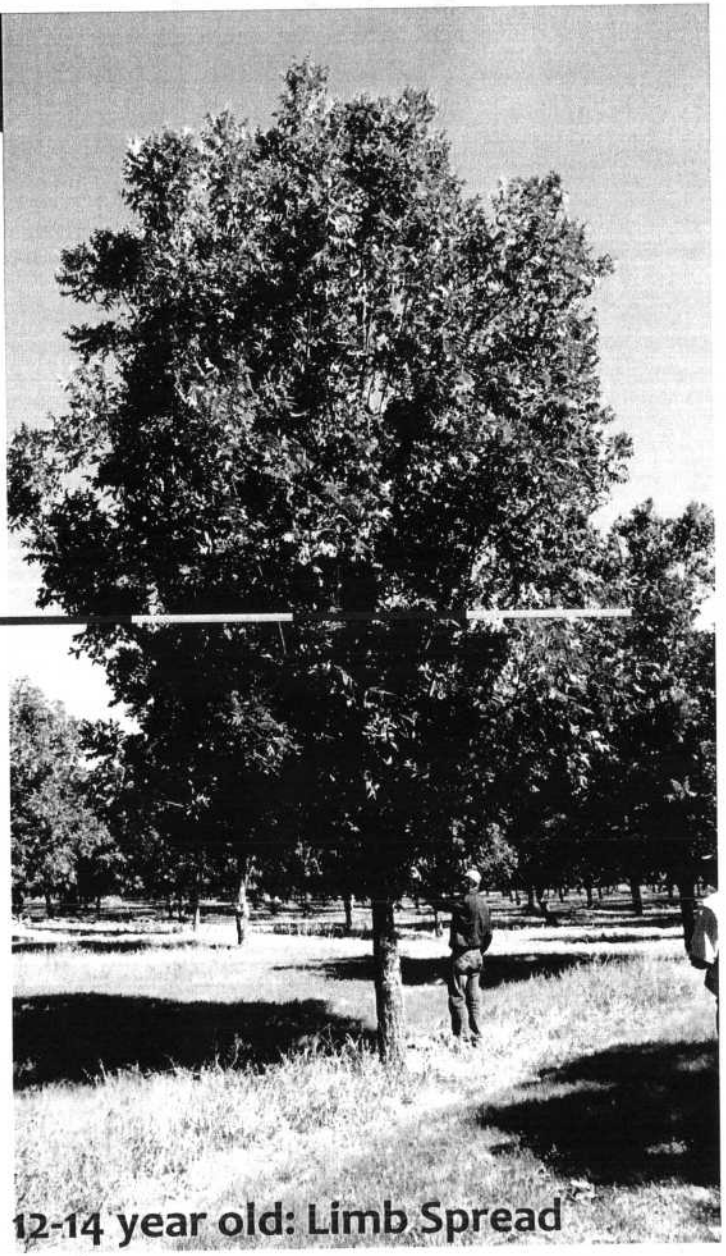
TEXAS A&M AGRILIFE EXTENSION

1-2 year old: Limb Spread
1.5 ft.

4-5 year old: Limb Spread
6-8 ft.



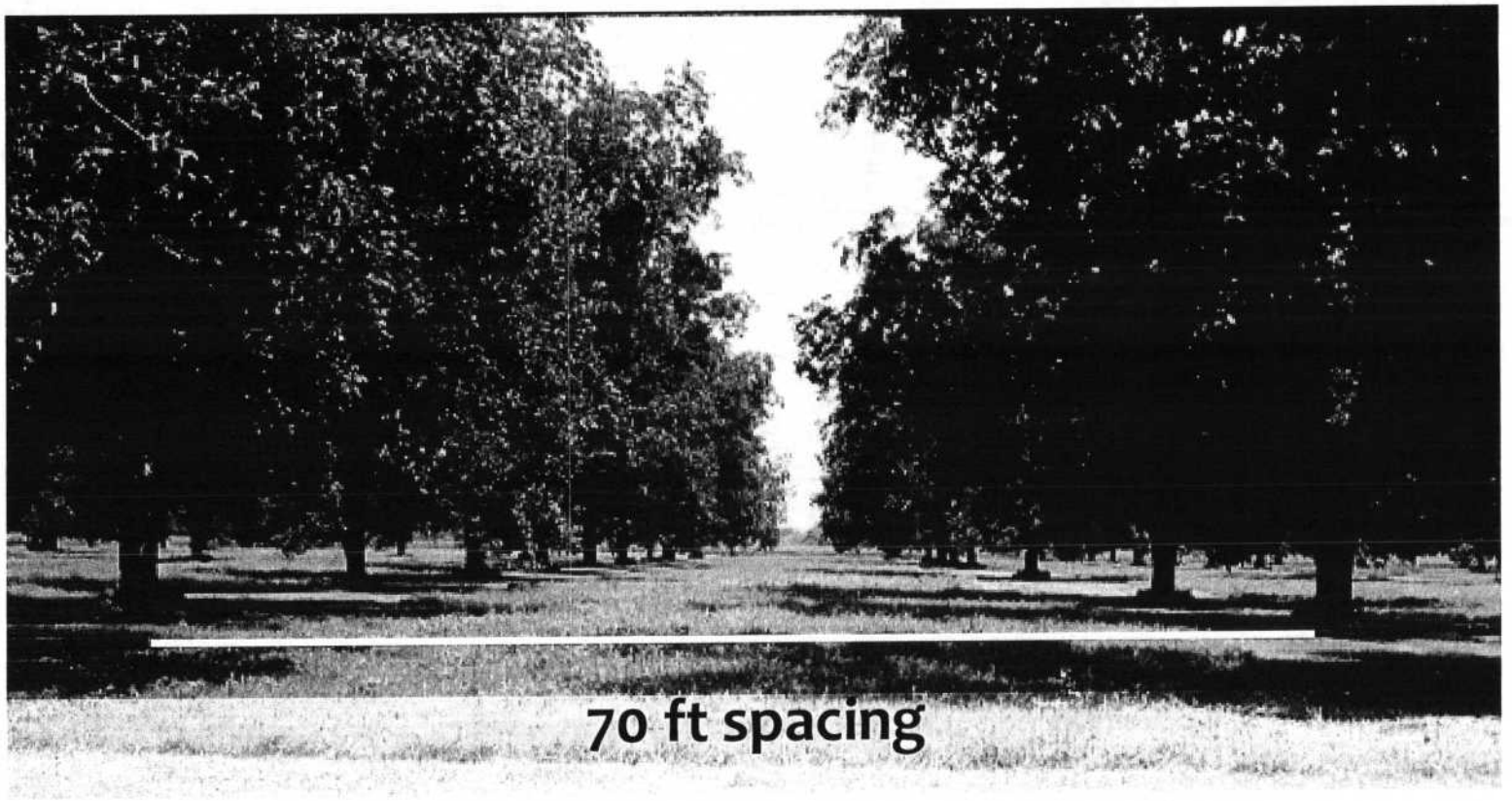
7-8 year old: Limb Spread
10-12 ft.



12-14 year old: Limb Spread
20 ft.

TEXAS A&M AGRILIFE EXTENSION

Ultimate Tree Size



40 Year Old Tree: Limb Spread Approx 54-60 feet

High Sunlight must be maintained! Tree-to-tree shading causes....

- Reduced terminal shoot growth
- Reduced nut production
- More pronounced alternate bearing
- Smaller sized nuts
- Branch dieback
- Greater pest problems

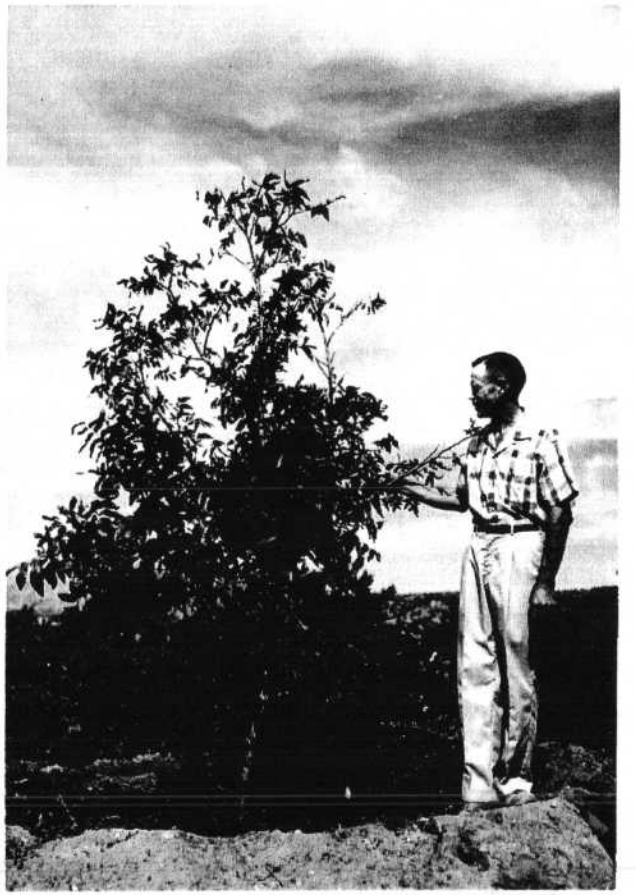
Strategies to Maintain High Sunlight

- Plant at a permanent spacing that will not crowd.
- Tree Removal: Cut down trees or move trees to another site with a tree spade
- Hedge Prune: Annual practice to cut back limbs and increase light interception.

TEXAS A&M AGRILIFE EXTENSION

Mechanical Pruning : Stahmann Farms, NM

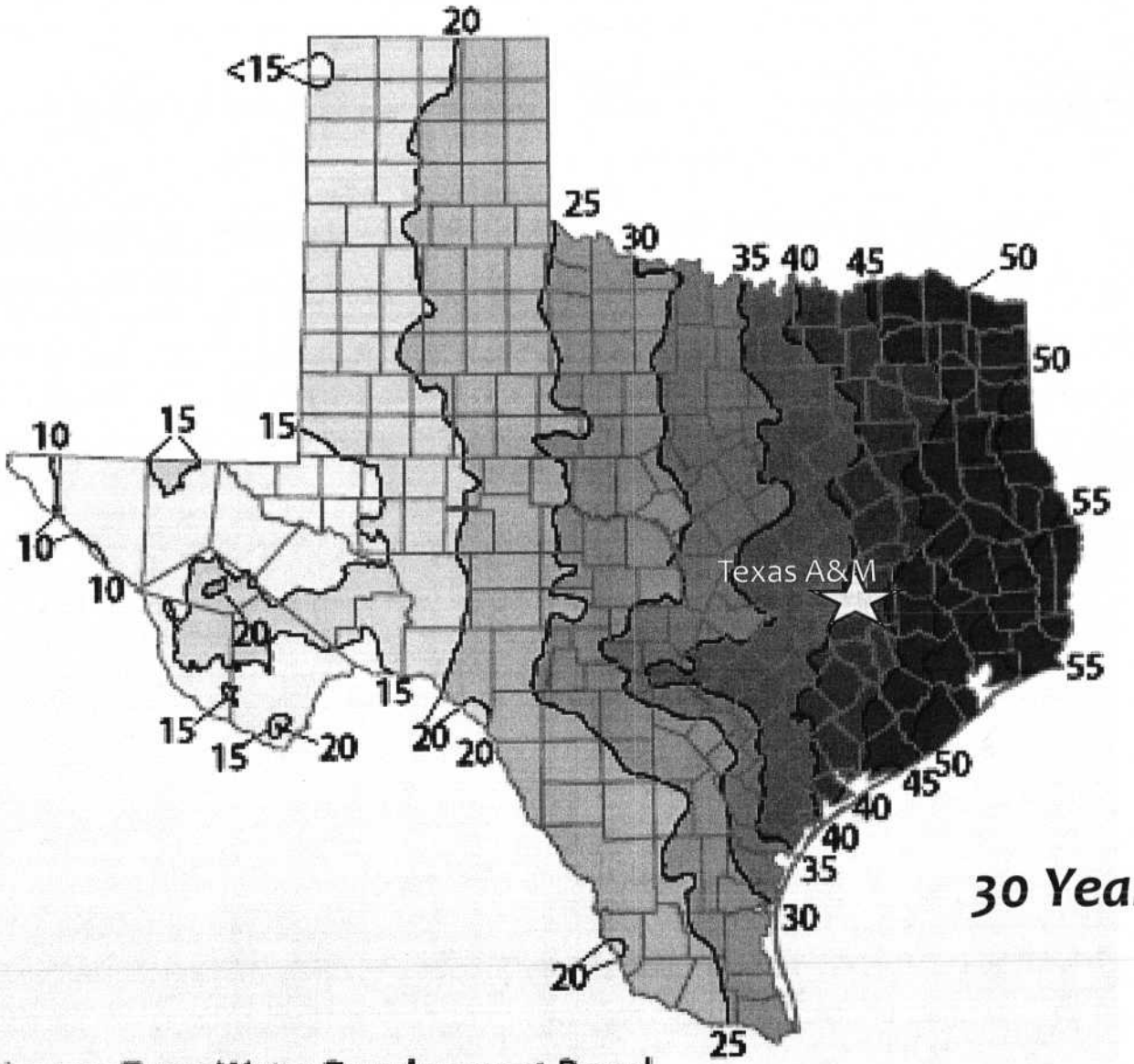
- Original plantings 30' x 60' spacing in 1930's.
- In 1956 they began thinning trees to 60' x 60'.
- This convinced them to interplant at 30' x 30' spacing and prune mechanically when the orchard crowded.
- Initially they planned on pruning on a **10-year cycle**, but by 1969 they had switched to lighter pruning on a **4-year cycle**.



P.L. Wood, 1969

Slide credit: Richard Heerema

TEXAS A&M AGRILIFE EXTENSION



Pecan trees need from 48-55 acre inches per year.

30 Year Rainfall Values (In./Yr)

Source: Texas Water Development Board.

TEXAS A&M AGRILIFE EXTENSION

Recommended Water for Pecan Production

- **March** 5”
- **April** 4”
- **May** 4”
- **June** 4”
- **July** 10”
- **August** 10”
- **Septembe** 10”
- **October** 8”

TOTAL 55”/Acre

Slide Credit: L. Stein

Provide 1-2.5" water per week, especially mid August to late September.

Fertilizer

- Annual concerns are Nitrogen & Zinc; other nutrients managed according to leaf and soil analysis.
- Standard annual orchard rates:
  - 80-200 lbs/Acre N; Texas (Stein, 2012)
    - Variety & Crop Load Dependent
- Standard application timing:
  - ~~Bubreak~~ Budbreak, May, July, August; TX (Stein, 2012)

Texas Pecan Leaf Sufficiency Levels

Element	Dry Wt. Concentration Texas
N-Nitrogen	2.5 to 4.0%
P-Phosphorus	0.15 to 0.30
K-Potassium	0.75 to 1.25
Calcium	0.70 to 3.00
Mg-Magnesium	0.30 to 0.60
Fe-Iron	50 to 300 ppm
Mn-Manganese	40 to 300
Zn-Zinc	80 to 500
B-Boron	20 to 45
Cu-Copper	10 to 30

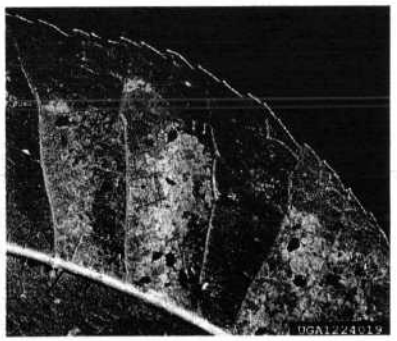
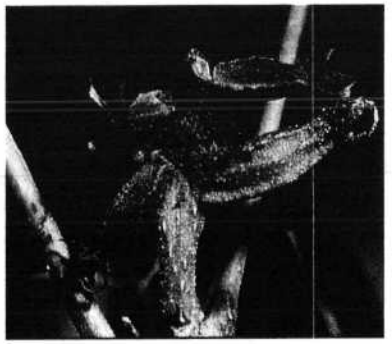
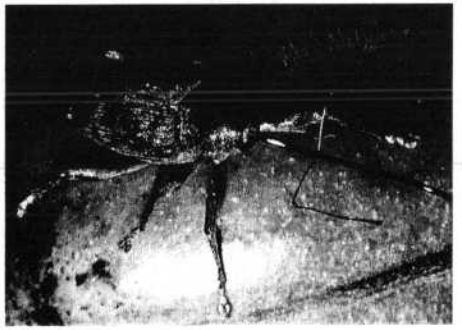
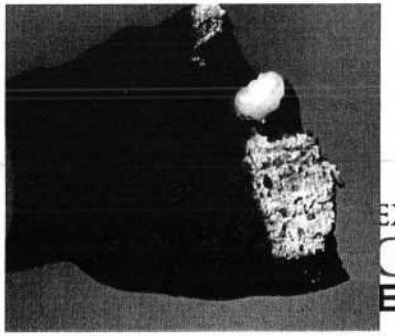
Foliar spraying is effective approach for annual Zn fertilization in calcareous soils.

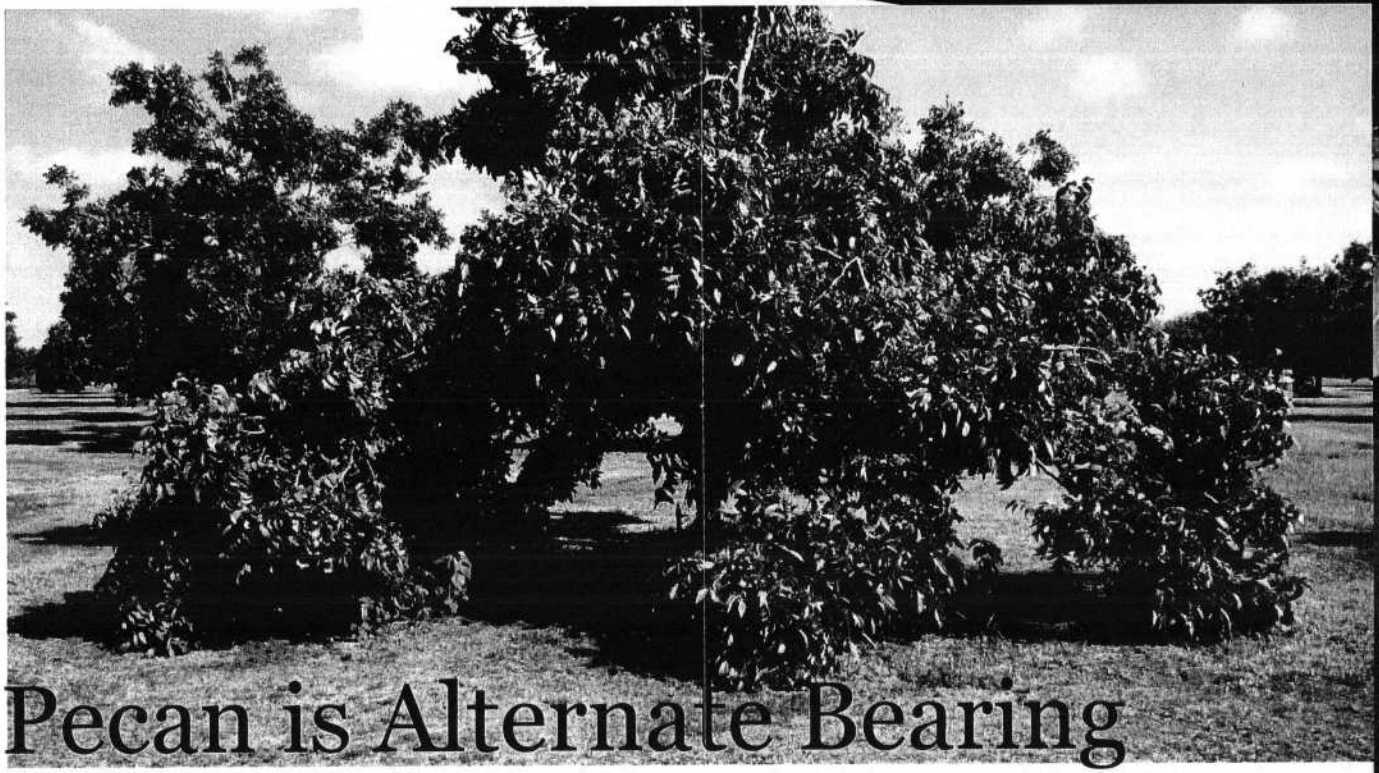
On mature, bearing trees, foliar sprays in early Spring are effective.

TEXAS A&M
FE
ION

Pest Management

	Far West-Arizona and California	El Paso and New Mexico	East of El Paso to Georgia
Aphids, Yellow and Black	Yes	Yes	Yes
Pecan Nut Casebearer	No	Yes	Yes
Pecan Weevil	No	No	Yes
Hickory Shuckworm	No	Yes-limited	Yes
Stinkbugs	Yes	Yes	Yes

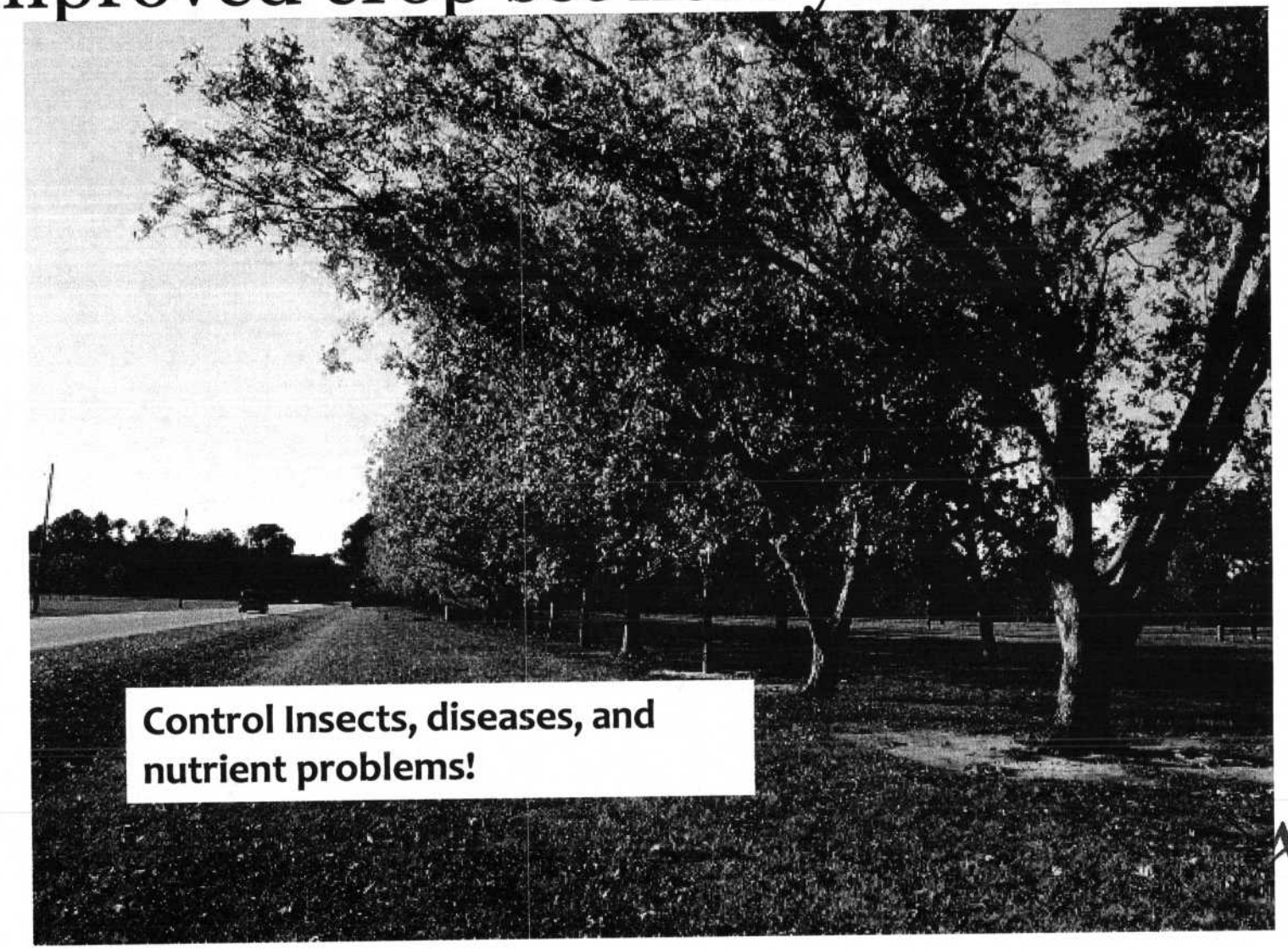
Pecan is Alternate Bearing

- Pecan trees naturally overbear.
- Heavy seed crop production reduces carbohydrate/energy reserve production and flower production is reduced.
- Hormones that signal induction of female flowers are suppressed.
- Weather and pests accentuate the cycling.

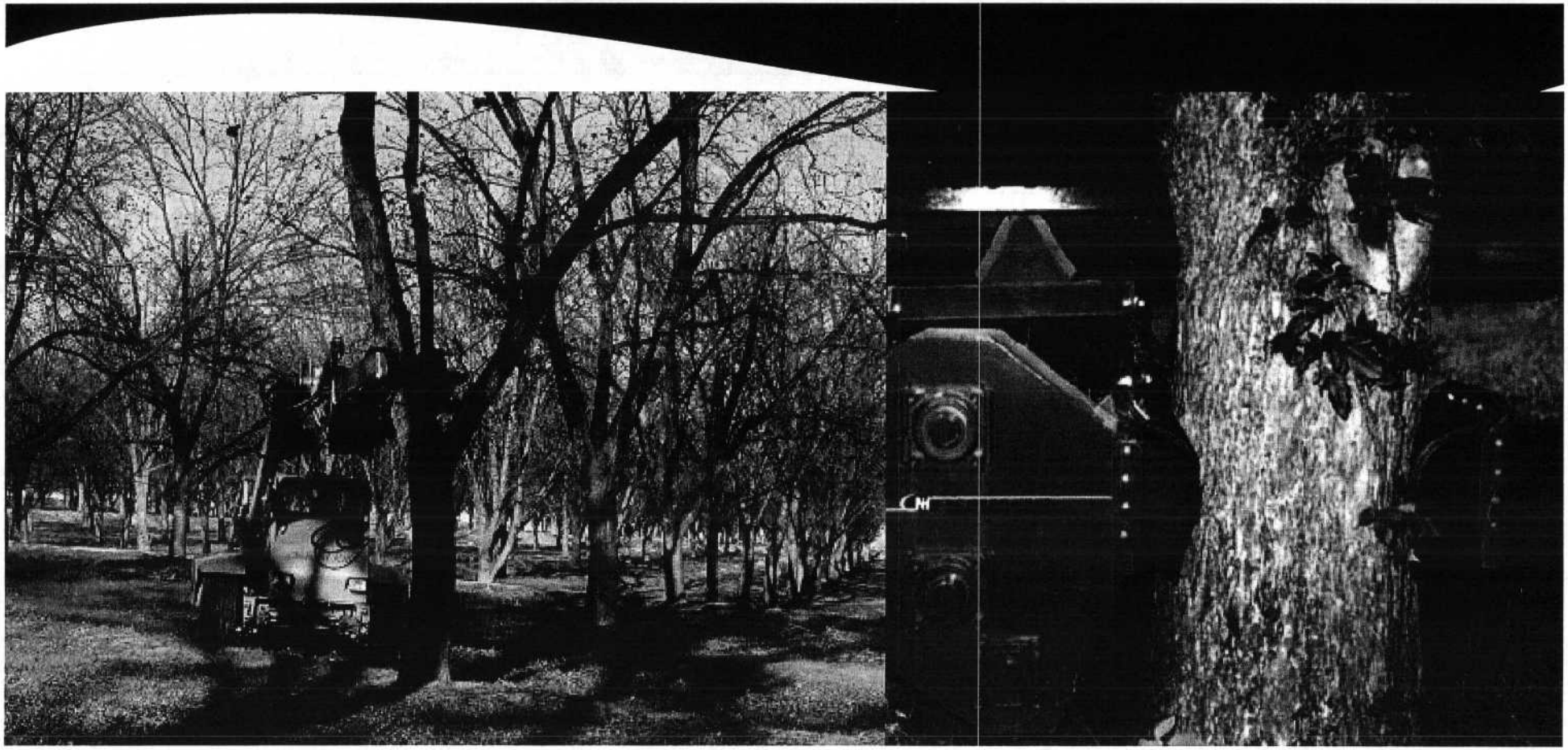
TEXAS A&M AGRILIFE EXTENSION


Shake trees in July & August to reduce crop load
Slide Credit: Stein

Maintain healthy foliage until frost for improved crop set next year.

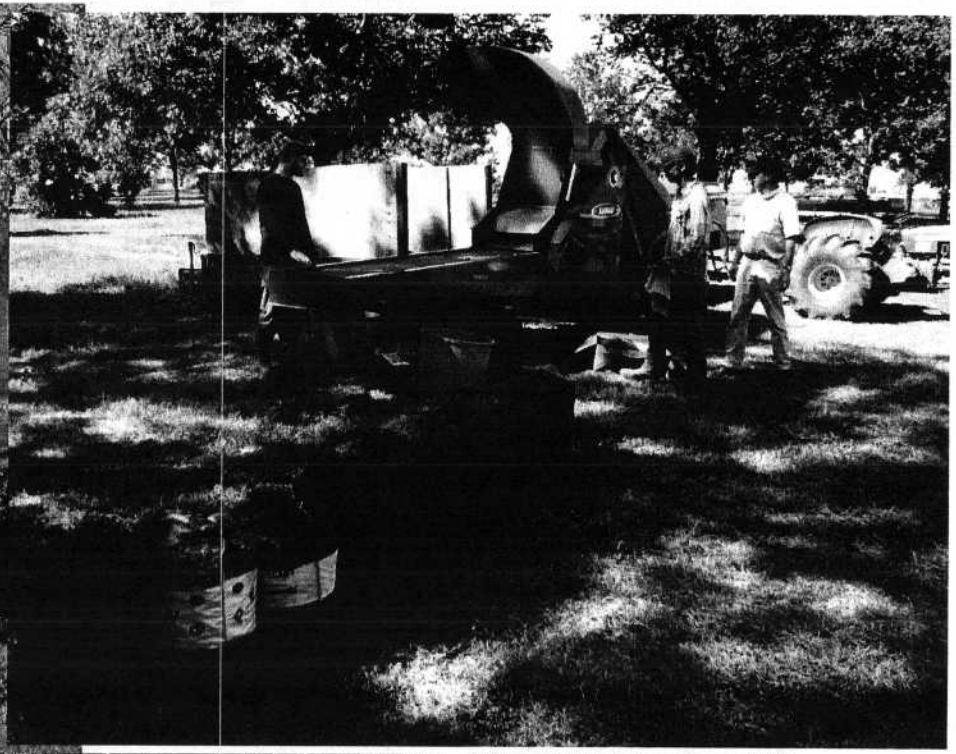


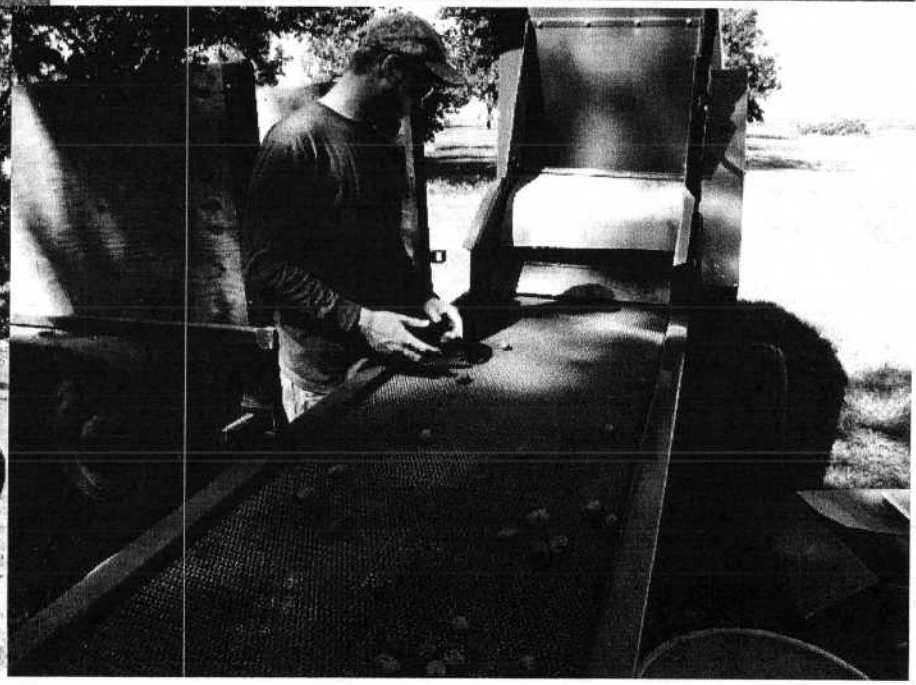
TEXAS A&M AGRILIFE EXTENSION



Pecan harvest is highly mechanized in most orchards today.

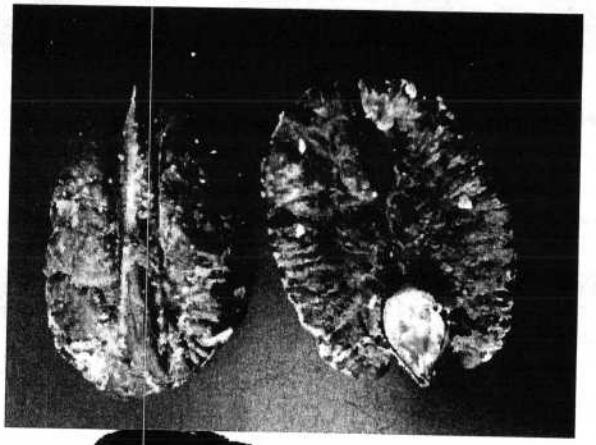
TEXAS A&M AGRILIFE EXTENSION





Drying maintains quality

- 4-4.5 % moisture content
- prevents molding and discoloration
- improves stability of the oil



95 deg. F. max temperature

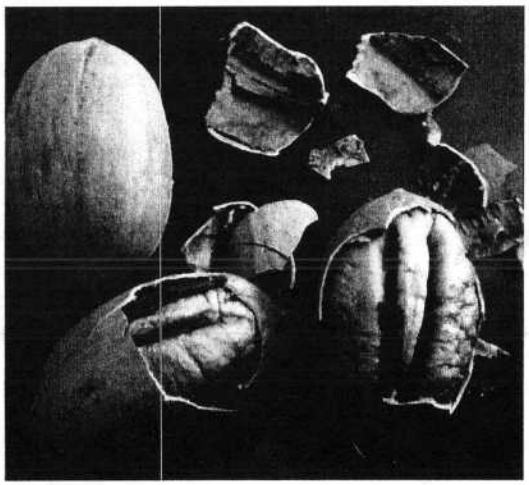
RH <60%

Long term storage

Temperature (F)	RH (%)	Days for visible mold on Stuart nuts
86	80	19
	67	96
68	80	35
	73	78
50	80	71
	72	136
32	80	208
	72	>304

Slide Credit: J. B. Storey

		Months of Storage Life	(Wagner, 1977)
Temperature		Inshell	Shelled
70		4	3
50		9	6
32		19	12
0		24	24



TEXAS A&M AGRILIFE EXTENSION