WESTERN PECAN CONFERENCE

Arizona Pecan Update

March 4, 2018

Fort McDowell Farm

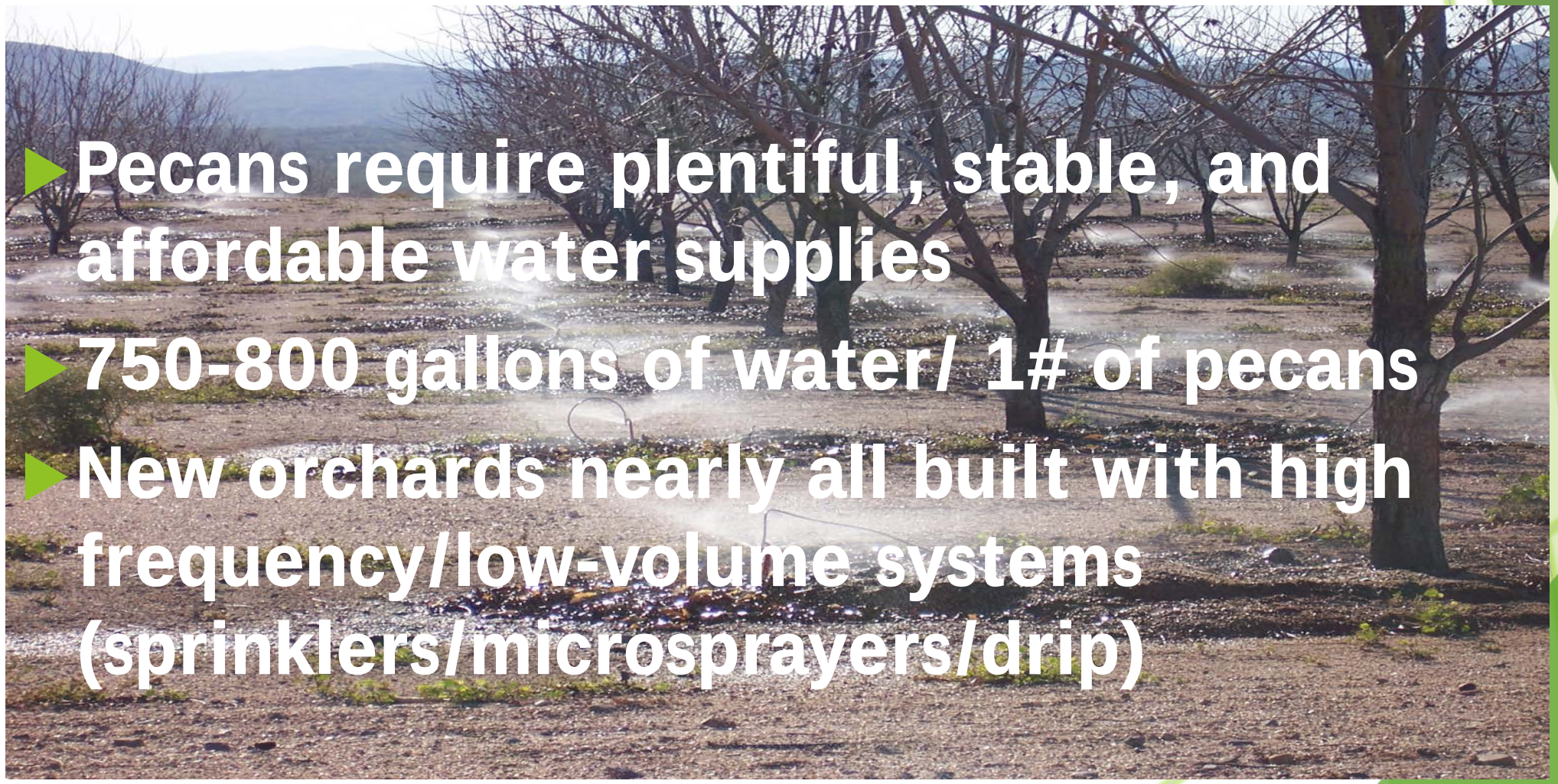
Arizona Pecan History

- First trees planted by early pioneers in late 1800's, some still living as shade trees
- 1927 - Camp Verde planting – 90 years old
- 1965 - Green Valley planting
- 1969 - Yuma planting
- 1980s-90's Cochise Co. / Picacho planting
- 1990's - Red Rock plantings
- 1990s - Fort McDowell/ Ak Chin plantings

Acres Stable until 2005

- 14,000-17,000 acres from 1990-2005
- Acreage conversions in Cochise County began to transition cotton/alfalfa/wheat acres to pecans/pistachio orchards
- Large agricultural operations arrived seeking favorable water/land/ less regulations
- Southeast Arizona is a desirable pecan area: free (so far) from serious insect/disease issues/greatest limitation is water availability

Water vs. Pecans



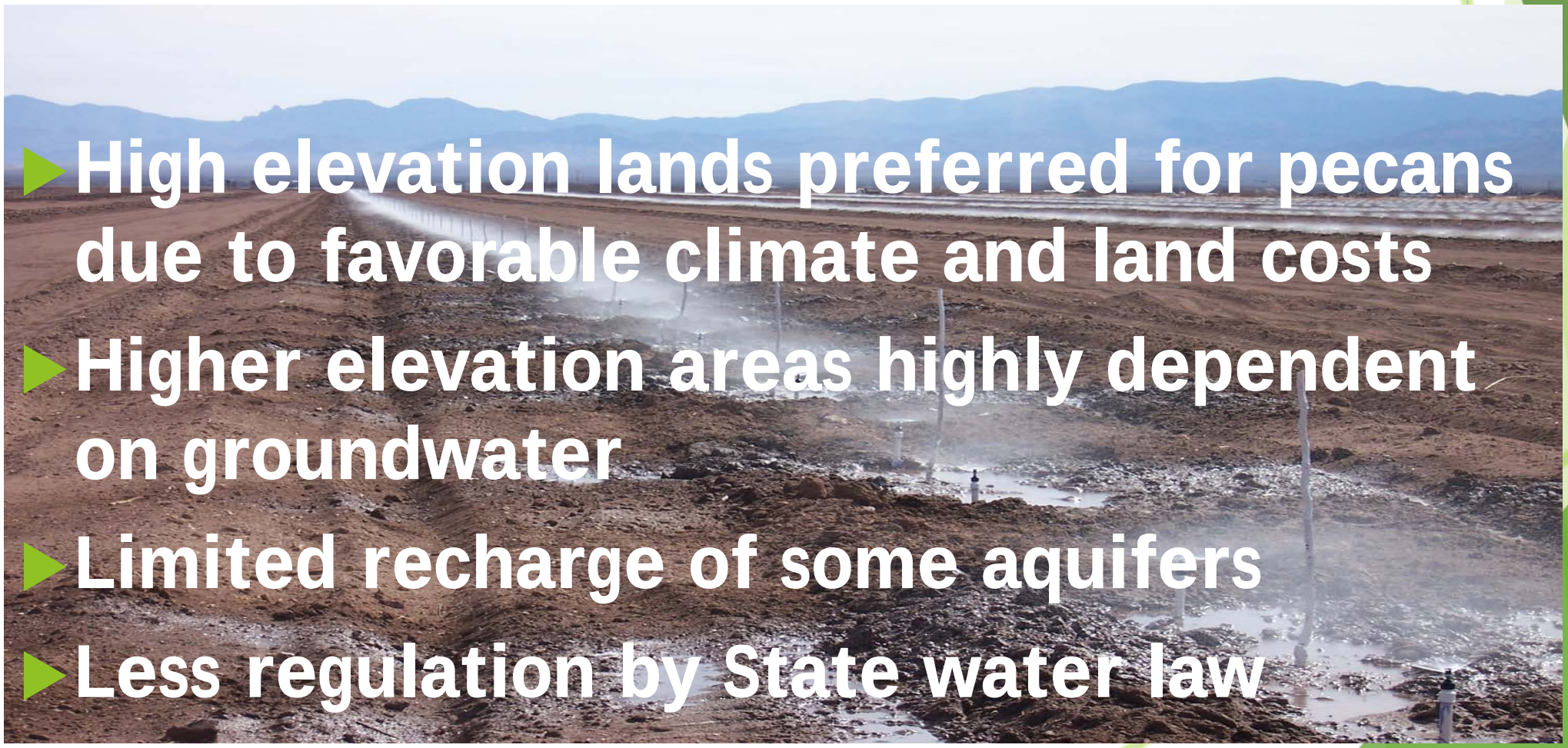
- Pecans require plentiful, stable, and affordable water supplies
- 750-800 gallons of water/ 1# of pecans
- New orchards nearly all built with high frequency/low-volume systems (sprinklers/microsprayers/drip)

Arizona Water Supplies

- ***River Diversions*** – Primarily @ Low Elevation Lands

- SALT/VERDE RIVERS – flow through Phoenix
- GILA RIVER – Flows through Pinal/Maricopa Counties
- Colorado River – Pumped 400 miles uphill to Maricopa/Pinal/Santa Cruz Counties

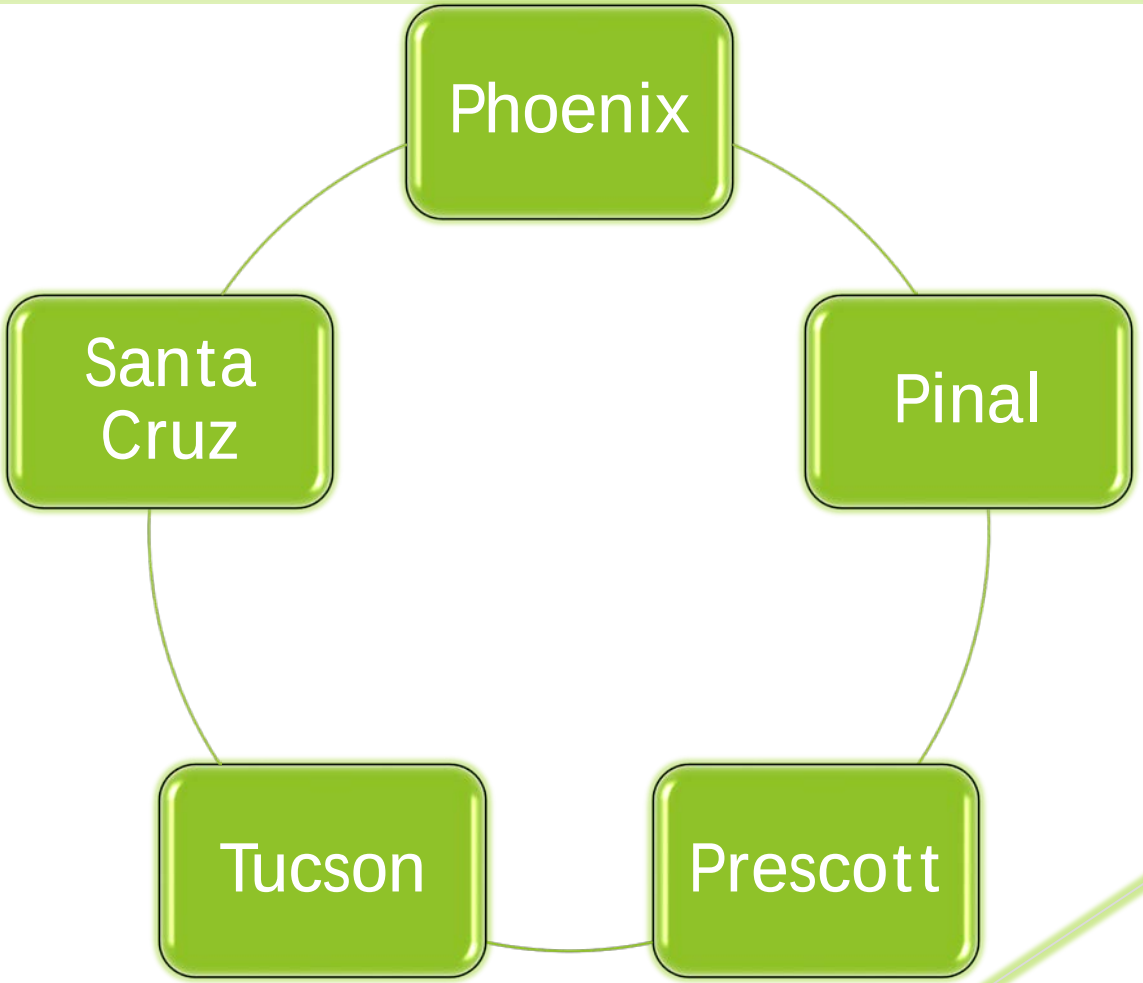
GROUNDWATER PUMPING



- High elevation lands preferred for pecans due to favorable climate and land costs
- Higher elevation areas highly dependent on groundwater
- Limited recharge of some aquifers
- Less regulation by State water law

1984 Arizona Groundwater Law

- Established 5 AMA's (Active Management Areas)



Water Duties Established

- Based on historic use of land (1976-80)
- Water Right Certificates by Property
- Target Efficiencies Established
- “Safe-Yield” by 2025 required
- Planned Depletion in some areas
- Moratorium on new irrigated acres

Microsprayer System 28 gal/hr.

SPRINKLER IRRIGATION SYSTEMS

Sprinkler:Microsprayer Irrigation

- PRECISION MOISTURE CONTROL
- HIGH UNIFORMITY OF APPLICATION
- HIGH ENERGY REQUIREMENT TO PRESSURIZE SYSTEM
- POSSIBLE PECAN QUALITY ENHANCEMENT
- SUBSTANTIAL INITIAL CAPITAL COST
- REQUIRE CLEAN WATER

FLOOD SYSTEMS

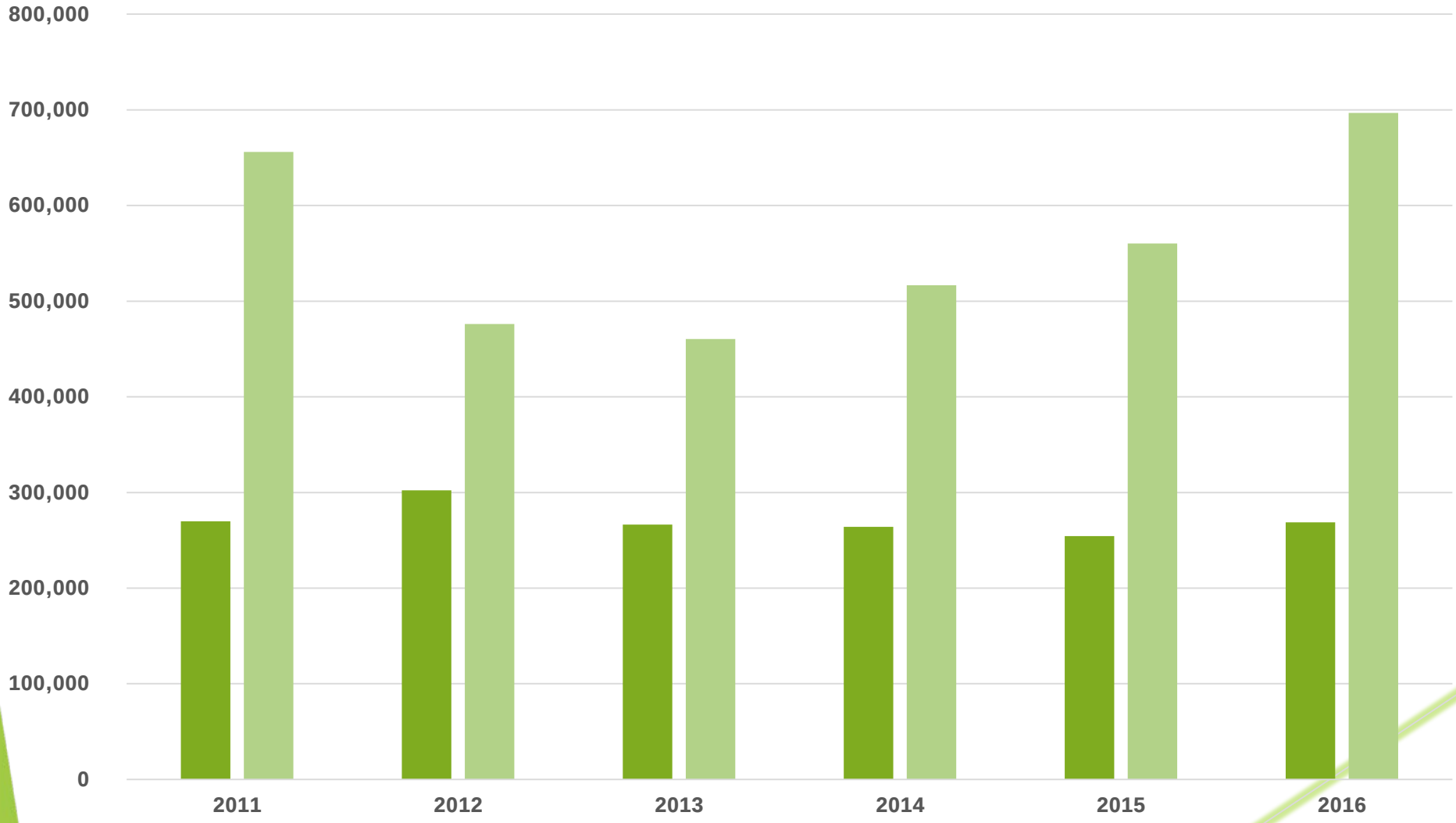
ALL SYSTEMS CAN BE WATER-EFFICIENT BUT IRRIGATION REQUIREMENT OF PECAN TREES IS SAME FOR ALL SYSTEMS

- PROPER DESIGN IS CRITICAL
- HIGH LEVEL OF ATTENTION TO SYSTEM MANAGEMENT DETERMINES SUCCESS
- TRACKING OF PERFORMANCE OF SYSTEM
- PROPER MAINTENANCE OF SYSTEMS

Arizona Pecan Acreage

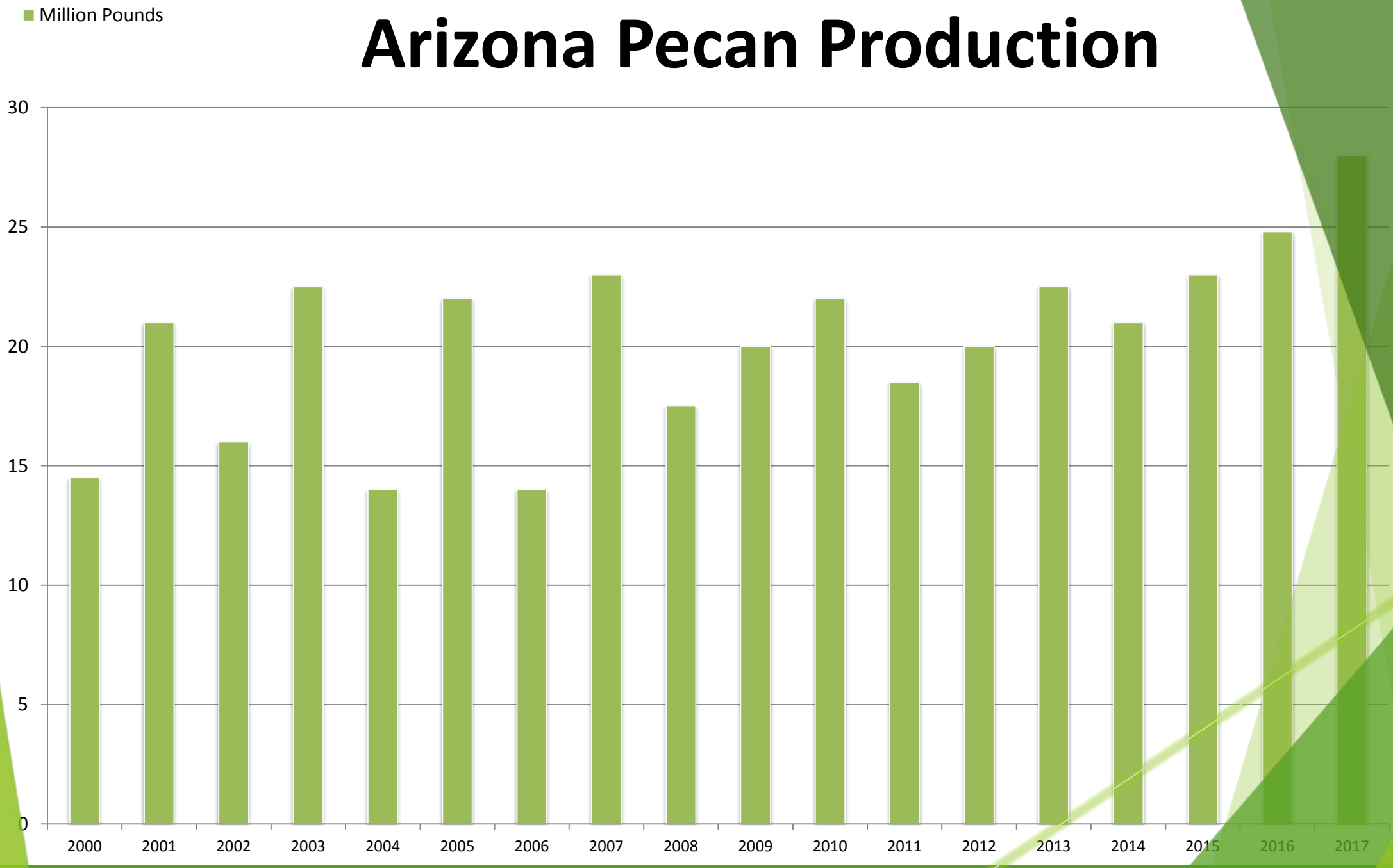
- Acreage steady at around 14,000 up to 2005
- **Dr. Jim Walworth's 2016 acreage survey**:
- Old Trees (Older than 7 yrs.) 13,491 acres
- Young Trees (Less than 7 yrs.) 6612 acres
- Next 5 Yrs. Anticipated Plantings: 6396 acres
- Acreage Estimate: 26,499 acres

US Pecan Production vs Value



http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1377

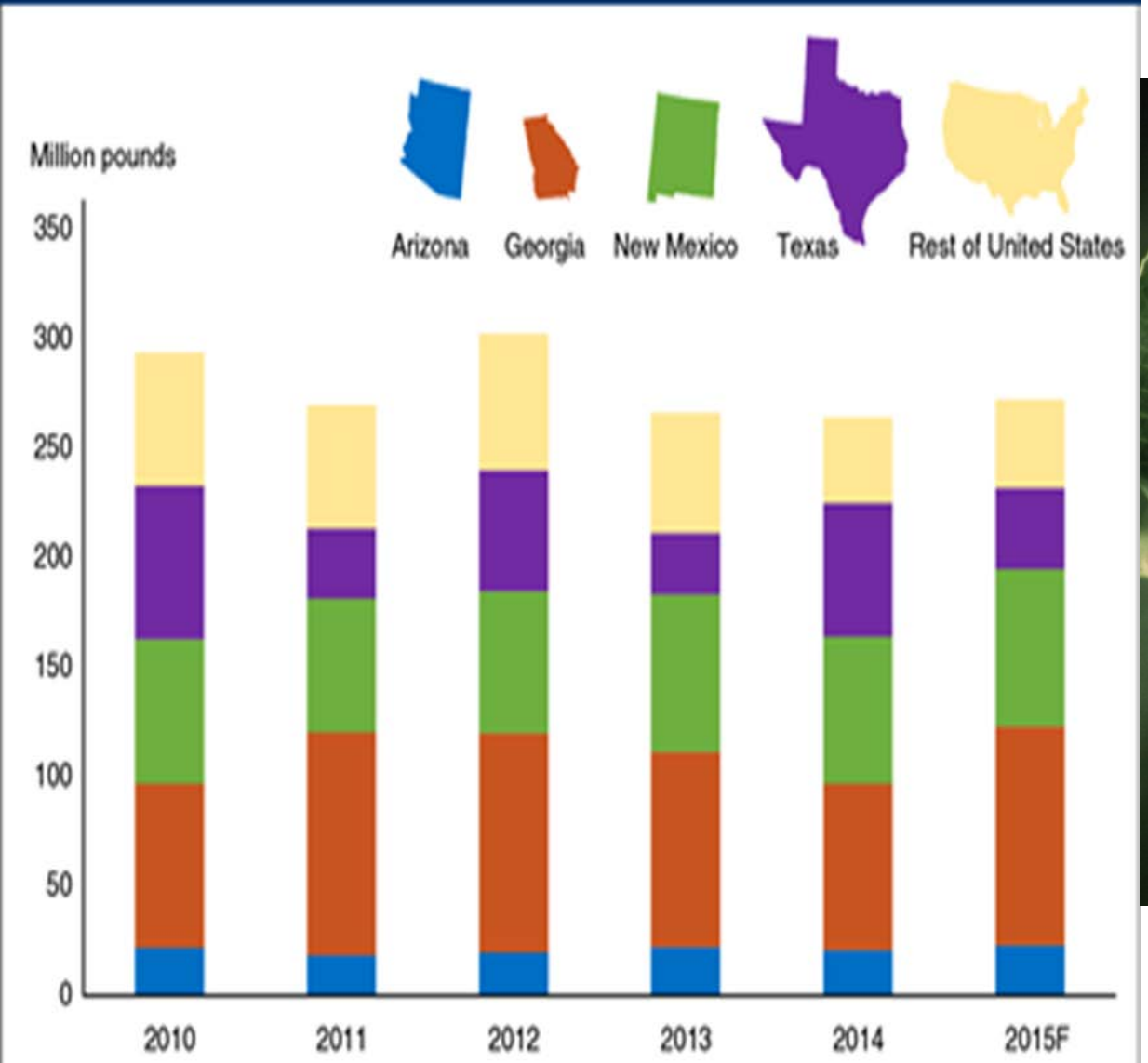
Arizona Pecan Production



Arizona is #4 in 2017 Production

- Georgia - 81,000,000 #
- New Mexico - 79,000,000 #
- Texas - 47,000,000 #
- Arizona - 28,000,000 #
- Oklahoma - 20,000,000 #

Pecan production by leading States, 2010-15[1]



[1]In-shell basis. F = Forecast.

Source: USDA, National Agricultural Statistics Service, *Fruit and Tree Nut Summary*, various issues.

BEST CROP: PECANS

“Puh-kahns”

or

"Pee-cans"