Timely Decisions for Hedging vs. Tree Thinning

Michael Smith

Regents Professor Emeritus, Oklahoma State University

Co-owner Cedar Creek Pecan Farms, LLC

Hedging Machines

Hedging - West

- Proven management method
  - Abundant sun light
  - Controlled water availability
  - Higher salts tends to reduce growth
- Mainly Western and Wichita
- Start hedging before crowding
  - Minimal tree training 1st 2 or 3 years and then **none** – hedging reduces breakage
  - Initial hedging cuts at 2 or 3 years old are minimal
- Hedging plans vary by site and manager
  - Hedge 1 row/year on 4 year rotation
  - Hedge every other row annually – both sides
  - Hedge every row annually on 1 side only
  - *Tree height equal or less than between row spacing – flat or roof top cut*
  - *Width example: 30 ft between rows trees cut to 6' or 7' from trunk, 25 ft tall*
  - *Most hedging is while dormant*
  - *Clippings are shredded and incorporated or used on orchard roads to reduce dust*
- Eventually trees must be thinned and then hedging continues

West Hedged Trees

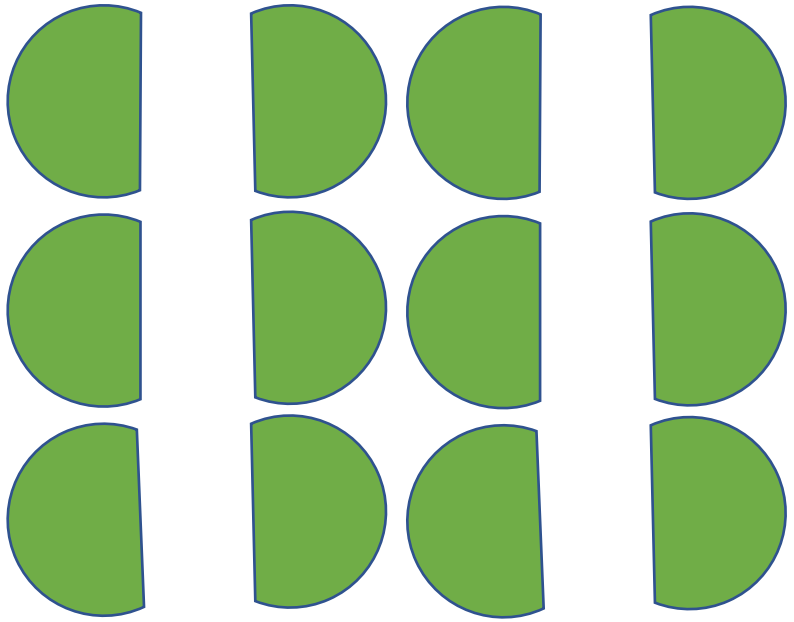
West

West – Shredding Prunings

Georgia Hedging

- Limited experience
  - Mature trees - reduce tree height
  - **Ground sprayer looses effectiveness above 40 to 50 ft**
  - Lower sunlight intensity and many cloudy days compared to west
  - Most irrigated
- Hedging schemes are developing
  - Hedge facing sides of rows on alternate years
  - Lower tree heights with roof top cut to 40 to 50 ft
  - Experimentation with dormant hedging followed by June hedging

- Facing sides



Georgia – Darrell Sparks Comments

- **Hedging crowded trees indicates past due thinning or orchard renewal**

- Use cultivars with upright growth habit
- New plantings spaced 40’x20’ to 25’x25’
- Some tree shaping initially – begin clipping the 2nd year
- Hedge by 4th or 5th year around pollination – **NO** dormant hedging
- **Do not delay tree thinning!**

Georgia – Bill Goff Comments

- Hedging to control crowding and crop load
  - Dormant hedging and May/June hedging when needed
    - Using May/June hedging to control crop load
  - Starting to shred prunings and sweep into weed-free strip

- Hedging older trees
    - Spacings from 30’x30’ to 30’x60’
    - Facing sides 1 side and ½ top of the tree only; repeated on other side next year
    - Both sides and top alternate years
    - Side cuts from trunk from 6’ to 8’
    - Height always equal or less than between row spacing; maximum height 40’
  - Objective was to prevent crowding

Georgia Hedging – Bill Goff Comments

									Hedging, s=side, t=top							
Main		**2021**		**Pounds/acre**				**4-yr. avg.**	**2018**		**2019**		**2020**		**2021**	
Cultivar	**Planted**	**Age**	**Spacing**	**2018**	**2019**	**2020**	**2021**	**lbs/acre**	**Jan**	**Jun**	**Jan**	**Jun**	**Jan**	**Jun**	**Jan**	**Jun**
Creek	2005	17	23x47	2336	1681	2527	1763	2077	s	t	s		s	sstt		tt
Creek	2008,14	14,8	25x25	1441	1115	1536	1292	1346	s	t	s		st	sstt		tt
Pawnee	2004	18	35x35	2788	983	2177	1575	1881	s	t			s	tt		s
Pawnee	1994	28	50x50	2214	637	1493	884	1307	s	t			ss	tt		t
Pawnee	2008	14	25x50	1576	645	1148	1312	1170	s					tt		t
Pawnee	99-01	21-23		1805	624	1113	729	1068	s	t			s	tt		t
Desirable	2001	21	25x50	968	1295	1545	640	1112	s		s	t		ss		t
Elliott	2001	21	50x50	1390	1059	1424	644	1129	s		s	t		ss		t
Creek,Paw	2016	6	25x25	0	81	244	575	225								ss

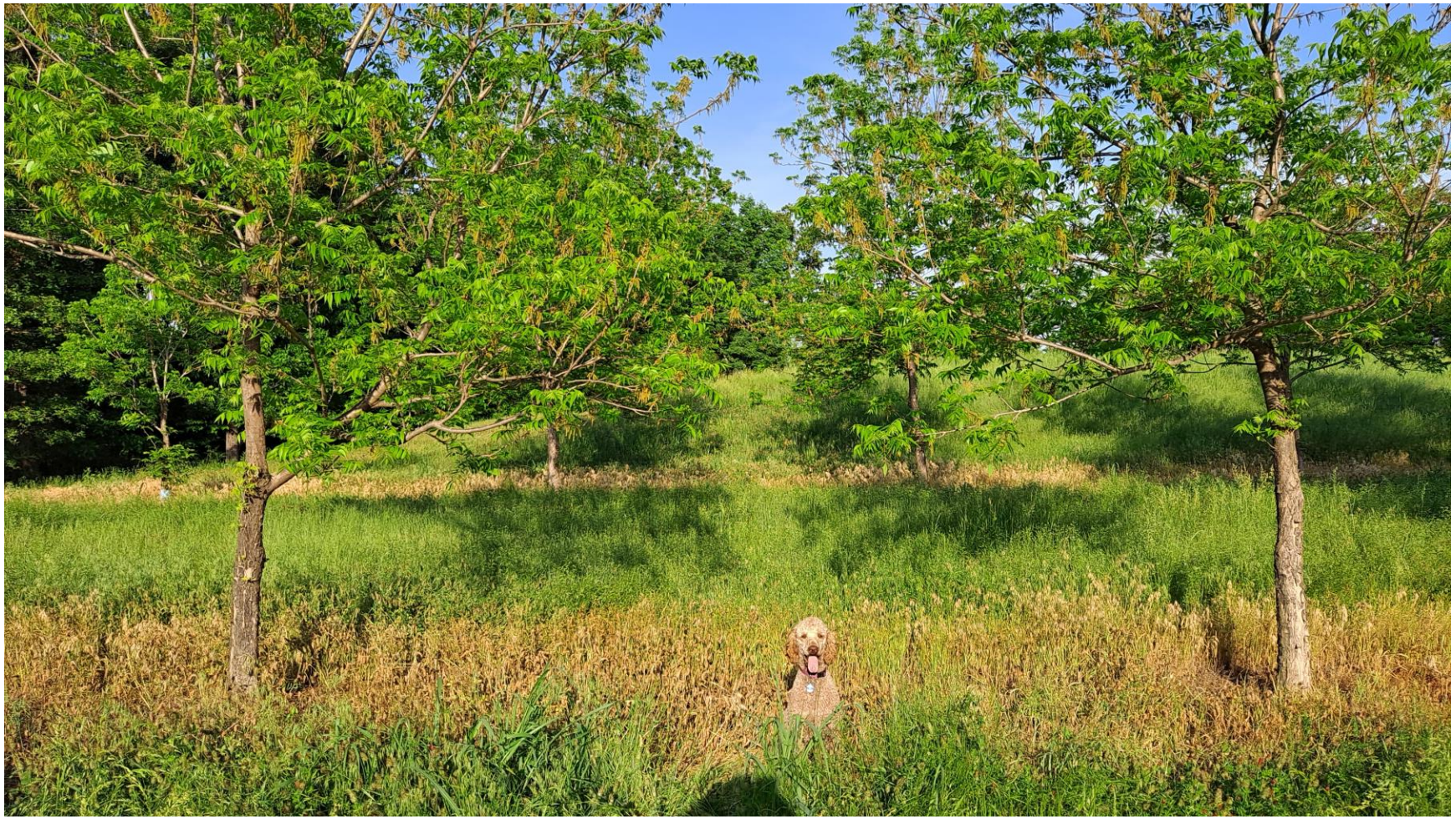
Georgia Hedging Summary – Lenny Wells

- **Most controlled studies have shown no increase in yield from hedging**
  - Variety Specific – Where increases were observed there was high light intensity and trees that fruited on the inside of the canopy
- All studies show hedging helps to even out alternate bearing
- All recent studies show increased nut quality
- In SE hedging enhances spray coverage – max 40’ height
  - But pest pressure likely increased
- Increased nut size and quality likely a result of increased water efficiency of hedged trees
- Reduction in wind damage

Oklahoma Hedging Limitations

- **Need ready access to hedger**
- Unproven management method
  - Regrowth has been vigorous and rapid
  - Longer foliage disease susceptibility
  - Eventually will require tree thinning
- Little experience with adapting hedging schemes to orchard vigor and cultivar response – hedging near pollination may be the answer
- Most likely success with be starting hedging before crowding
- Greatest success will be starting a new planting and train to hedging by small cuts at a young age to form a hedge-like structure
- More disease pressure than west – less than east; however, east uses up to 16 fungicide applications to control disease.
  - East on 7 to 10 day schedule if disease likely
  - Oklahoma 14 day if disease likely – greater tree density requires more timely fungicide applications

Oklahoma 20’x40’ Spacing; 6 years old



When to Thin

- Pecan canopy coverage reaches 60%
- Loss of interior limbs!
- Reduced production of exterior lower limbs
  - Greater nut drop compared to sun exposed limbs – time to thin
  - Few female flowers compared to sun exposed areas – waited too long
- Delayed thinning reduces bearing surface causing long-term yield reductions – hedging will not correct the problem
- Thinning when an on-year is expected allows trees to carry more good quality nuts and improves chances for a good return crop

Bulldozer

Excavator – Track Hoe

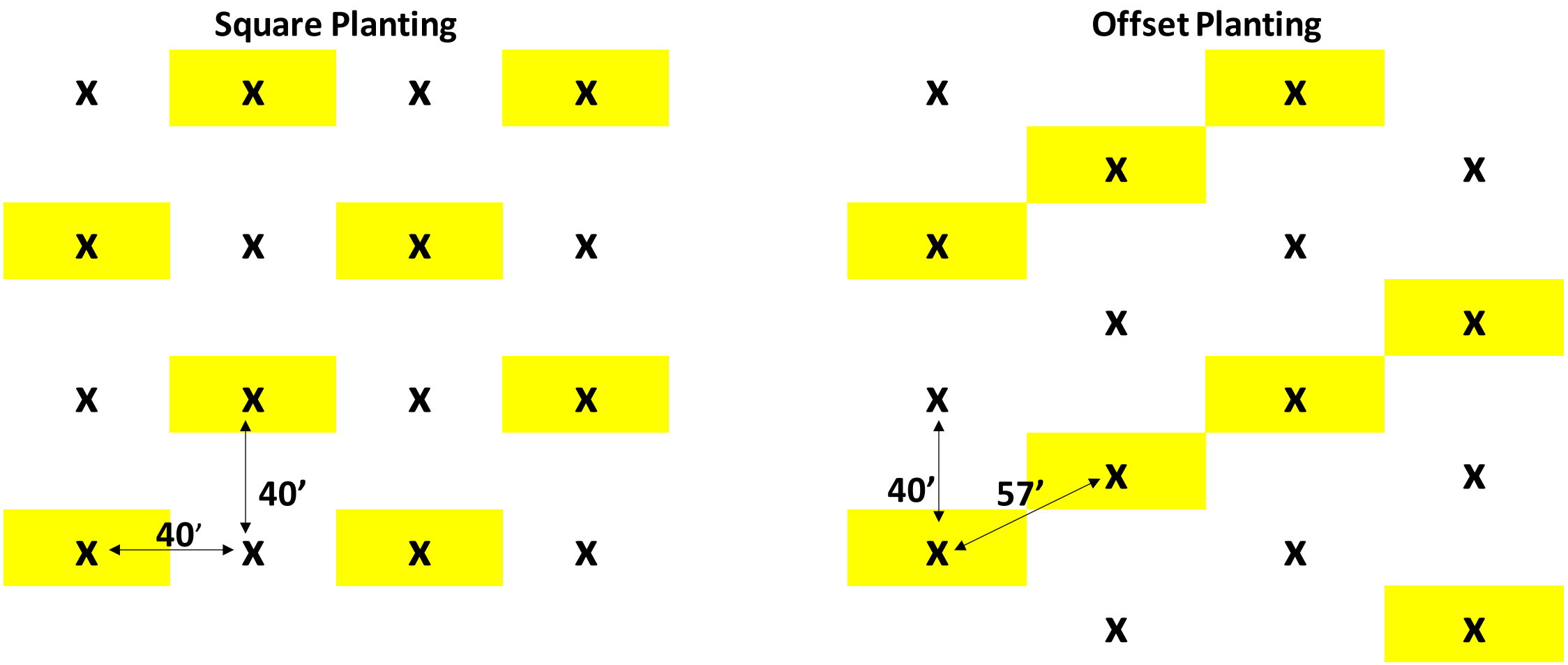
Stumpster or Chain Saw

Stump cut flush with ground

Tree Cutting Machine and Skidder

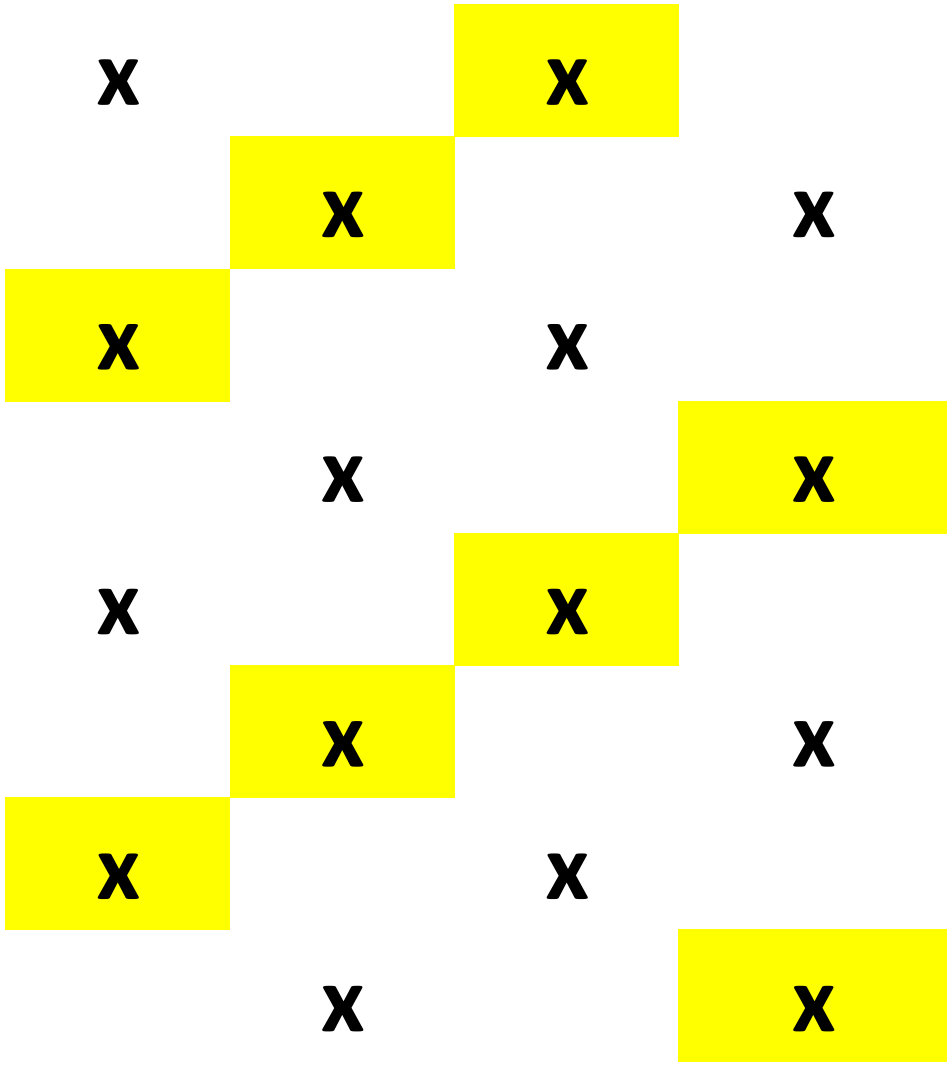
Square Plantings – row orientation east west is easier to spray with our prevailing south, southwest winds

Rectangle Plantings – orient rows north south; the wide spacing improves light interception and may increase yields

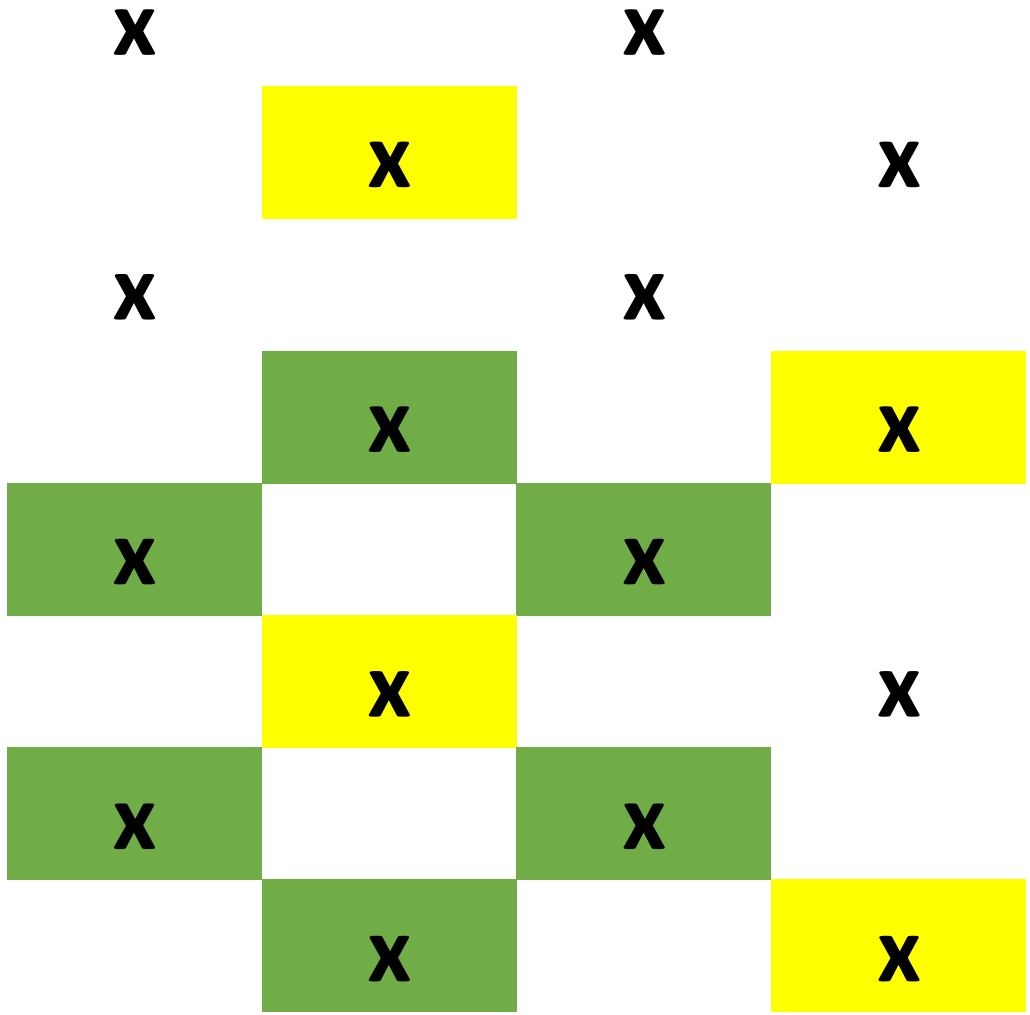


27 Trees/acre

Traditional Thinning Pattern
27 to 14 trees/acre



Modified Thinning Pattern
27 to 20 trees/acre
Removing 1 tree opens 6 trees



Renew Orchard

- Develop a plan to begin orchard renewal during the 1st or 2nd thinning
- Trees perform best if planted the same year trees are removed
- Opportunity to change cultivars if desired
- Maintain production while starting new trees

Questions or Comments