

CULTIVAR OPTIONS FOR GEORGIA ORCHARDS



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THE UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURAL &
ENVIRONMENTAL SCIENCES

THERE IS NO PERFECT VARIETY

Look at strengths vs. weaknesses.

Trade-offs will need to be made.

- Scab resistance vs. nut quality
- Early production vs. stable production
- Proven performance vs. new varieties
- Scab resistance vs. aphid susceptibility



Scab Resistance

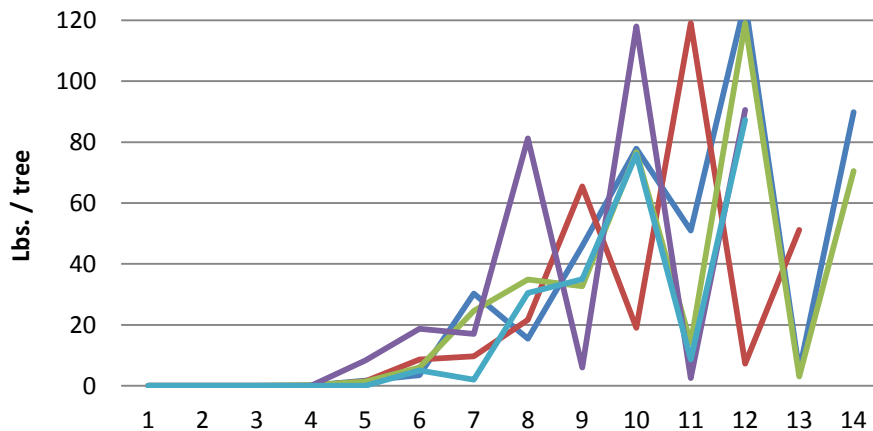
- A primary factor in cultivar choice.
- The resistance of a pecan cultivar will be influenced by the races present where it is grown.
- There tends to more scab pressure as you go south and east.
- Do not plant a susceptible cultivar if you can not spray.



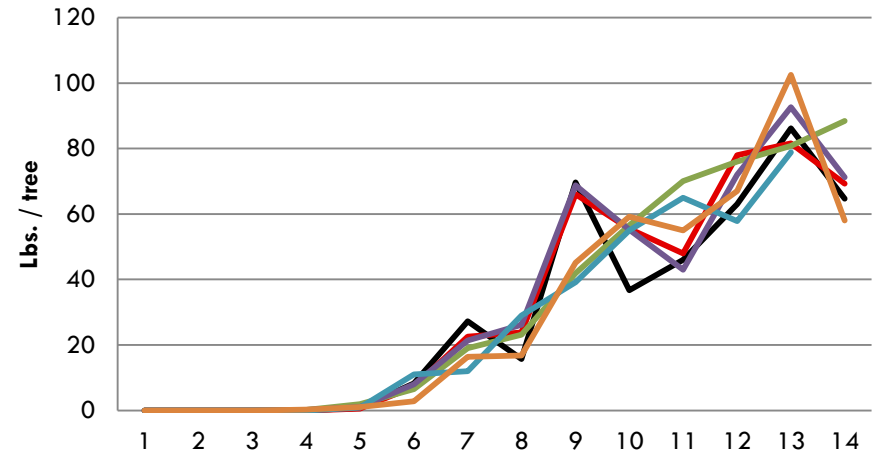
Alternate Bearing

- Mature trees tend to bear alternately.
- Generally, precocious cultivars bear alternately more as mature trees.
- Will you summer shake to reduce your crop?

Excel - Av. 26 lbs.



Zinner - Avg. 31 lbs.



Harvest Date

- Early nuts often have a price advantage.
- Will you be able to harvest the nuts before the crows?
- Will the trees be in a large solid block?
- Will the equipment be ready on time?
- What is the harvest date of your other cultivars?



What not to base your selection on.

“That’s all the nursery had left.”

- Talk to the nursery at least a year in advance, trees are in short supply.
- Some cultivars will not be widely available.



Its better to wait a year and get all your tree rows and irrigation ready than to plant a year earlier and live with a sub-optimal cultivar for decades!



Cultivars with Excellent Scab Resistance.

Recommended

Caddo

Desirable

Elliott

Forkert

Kanza

Oconee

Pawnee

Sumner

Zinner

Recommend Conditionally

Cape Fear

Creek

Kiowa

McMillan

Recommended for Trial

Amling

Byrd

Excel

Lakota

Morrill

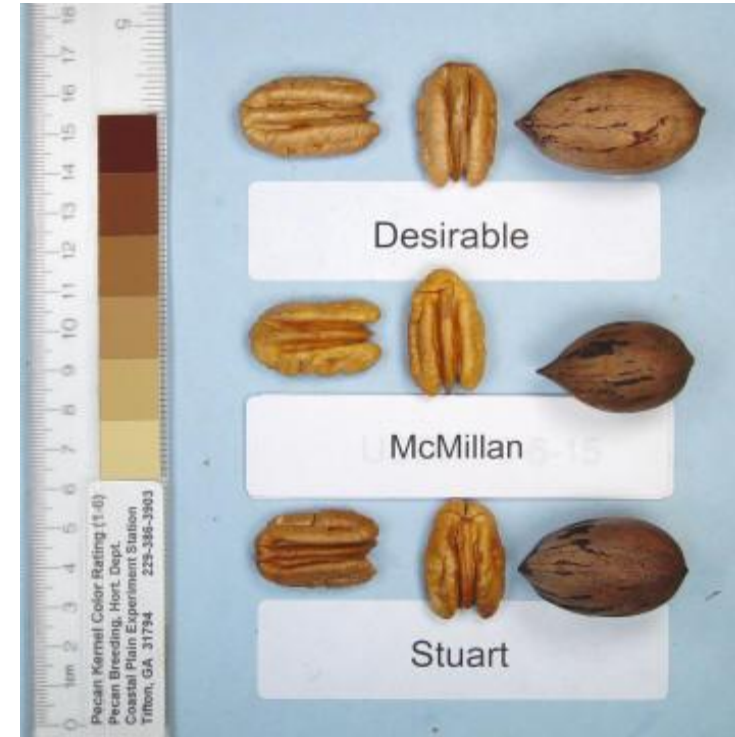


McMillan

51 nuts/lb.

50% kernel

- Thick shell limits % kernel.
- Color was dark in some years.
- Looks like a good quality 'Stuart'.
- Doesn't have the kernel "fuzz" that 'Stuart' does.
- Vigorous, productive tree.





'McMillan'



'Stuart'



'McMillan' nut
and kernel in
comparison to
'Stuart' in 2012.

McMillan

Adaptability

- No scab in our sprayed orchard.
- Will scab in high pressure situations, but should be controlled easily.
- Fairly wide canopy.





Excel

45 nuts/lb.

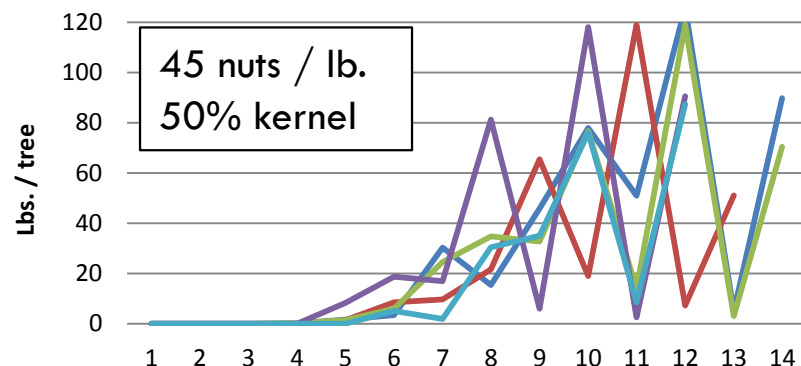
50% kernel

- Very thick shell limits % kernel.
- Excellent kernel color.
- Good size.

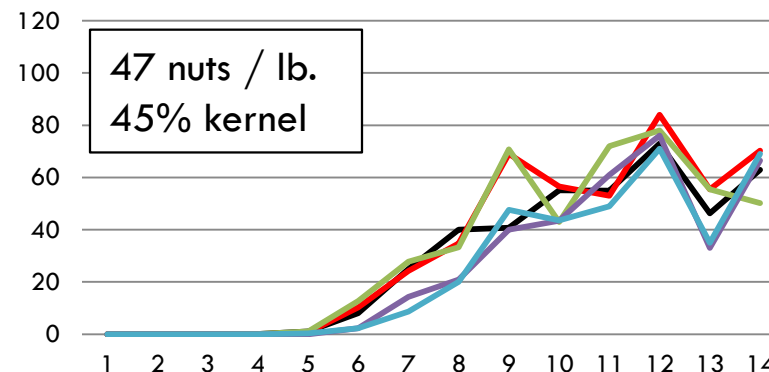


‘Excel’ Productivity 2002- 2015

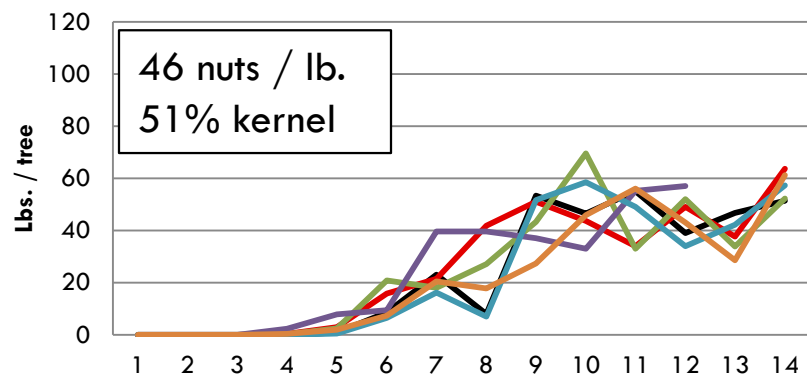
Excel - Av. 26 lbs.



Stuart - Avg. 29 lbs



Desirable - Avg. 24 lbs.



‘Excel’ needs summer shaking
in the ON year or it will
alternate.





Excel

Adaptability

- No scab in sprayed orchard.
- Aphids not a problem.
- Weepy canopy.
- Very late budbreak.



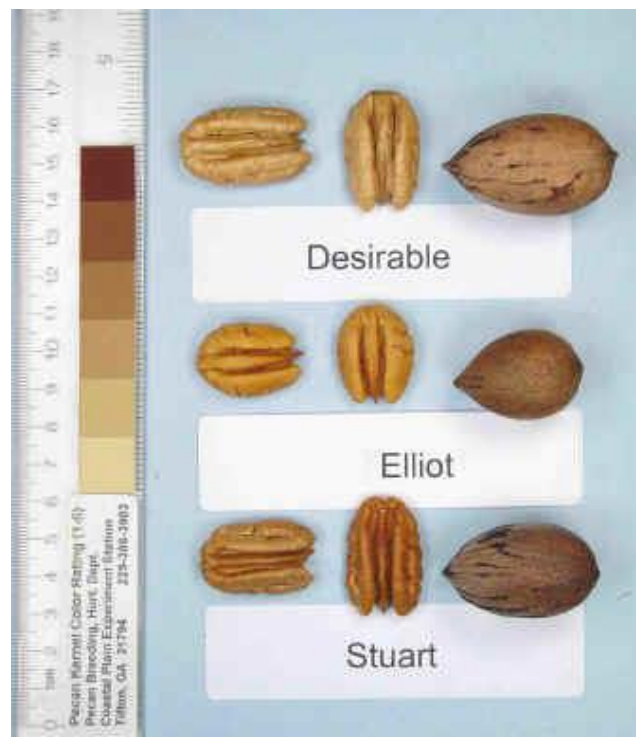


Elliott

77 nuts/lb.

51% kernel

- Excellent resistance.
- Good quality kernel.
- Well-known to buyers.
- Alternates.
- Small nut size.
- Freeze damage in north.
- Yellow aphids a common pest.



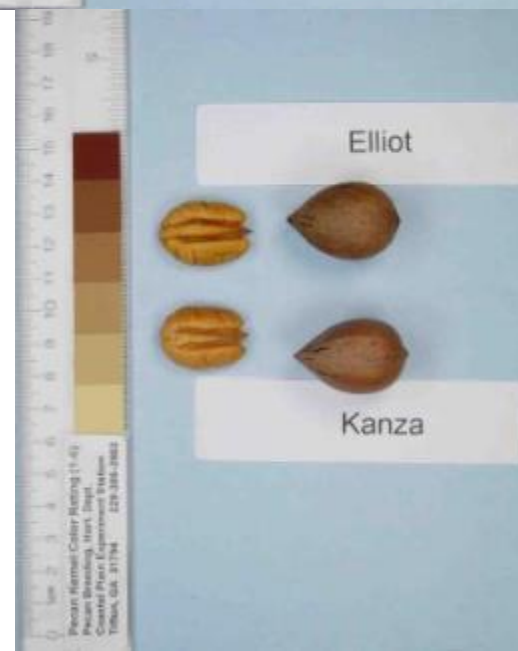


Kanza

68 nuts/lb.

51% kernel

- Excellent resistance.
- Similar nut to ‘Elliott’.
- Cold hardy.
- Early harvest data, end of September.
- Small nut size.
- Tends to alternate.



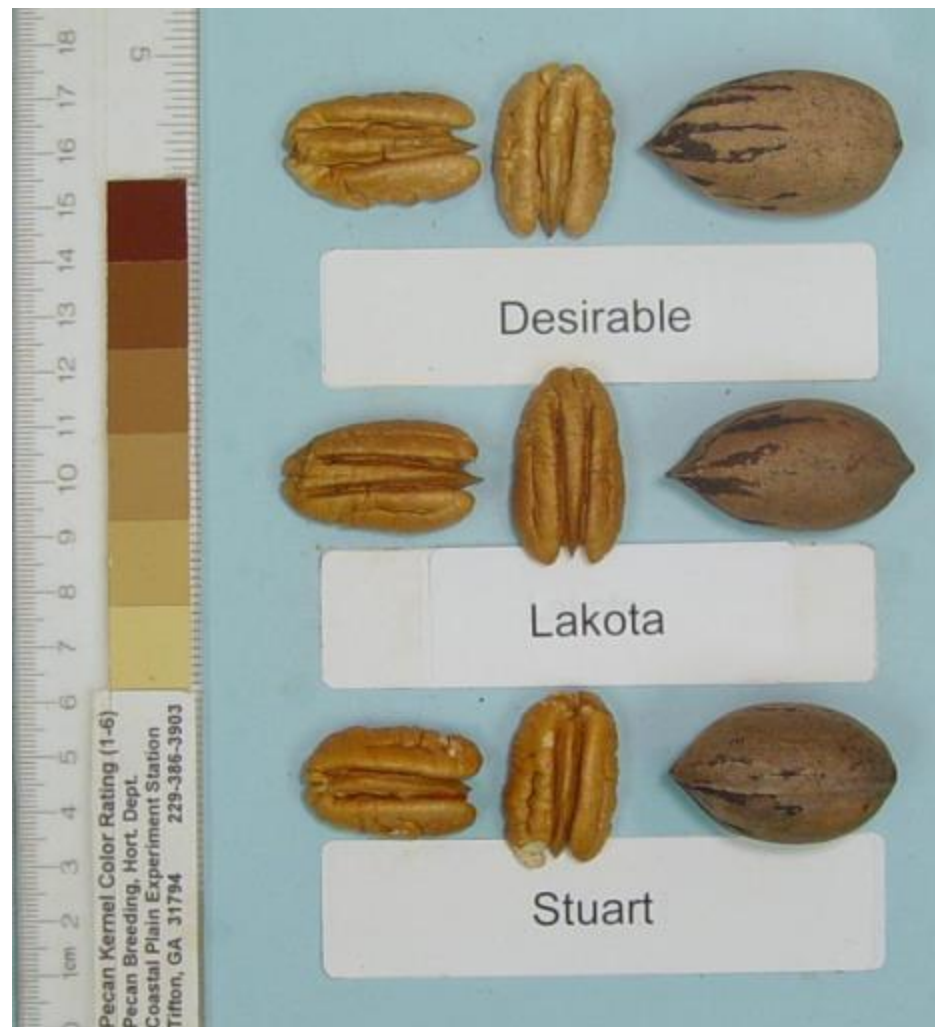


Lakota

51 nuts/lb.

57% kernel

- 2007 USDA release. (Mahan x Major)
- Excellent scab resistance so far.
- Harvest end of Sept.
- Some variability in nut size.
- Little testing in this region.
- Some reports of low quality.
- Good tree vigor.
- Will need crop thinning!!





Amling

61 nuts/lb.

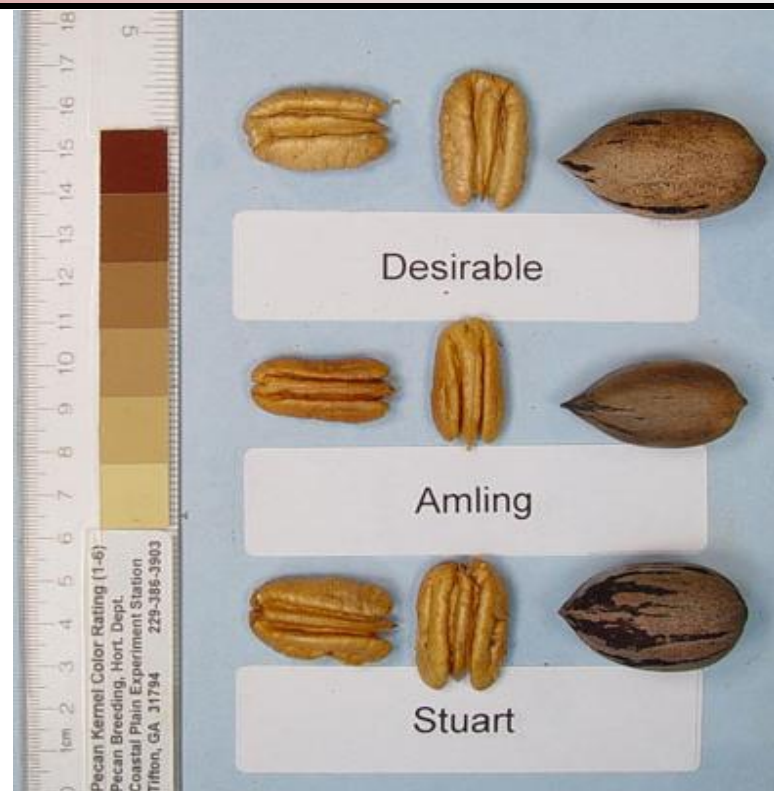
55% kernel

Excellent overall pest resistance.

Medium sized nut.

Pretty, oily kernel.

Protandrous (Type I) flowering.



Can pollinate ‘McMillan’,
‘Excel’, ‘Elliott’, ‘Kanza’,
and ‘Lakota’.



Cultivars with Good Resistance

Recommended

Caddo
Desirable
Elliott
Forkert
Kanza
Oconee
Pawnee
Sumner
Zinner

Recommend Conditionally

Cape Fear
Creek
Kiowa
McMillan

Recommended for Trial

Amling
Byrd
Excel
Lakota
Morrill



Sumner

54 nuts/lb.

52% kernel

Nut similar to 'Schley'.

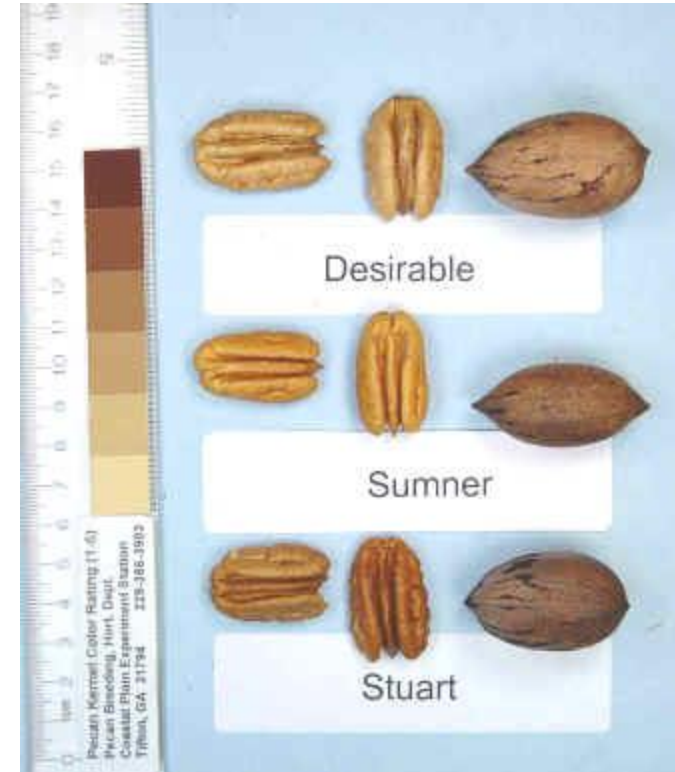
Good scab resistance.

Late harvest date.

Preferred by black aphids.

Can overbear as a mature tree.

Very popular in Georgia as a scab resistant cultivar.



Creek

55 nuts/lb.

48% kernel

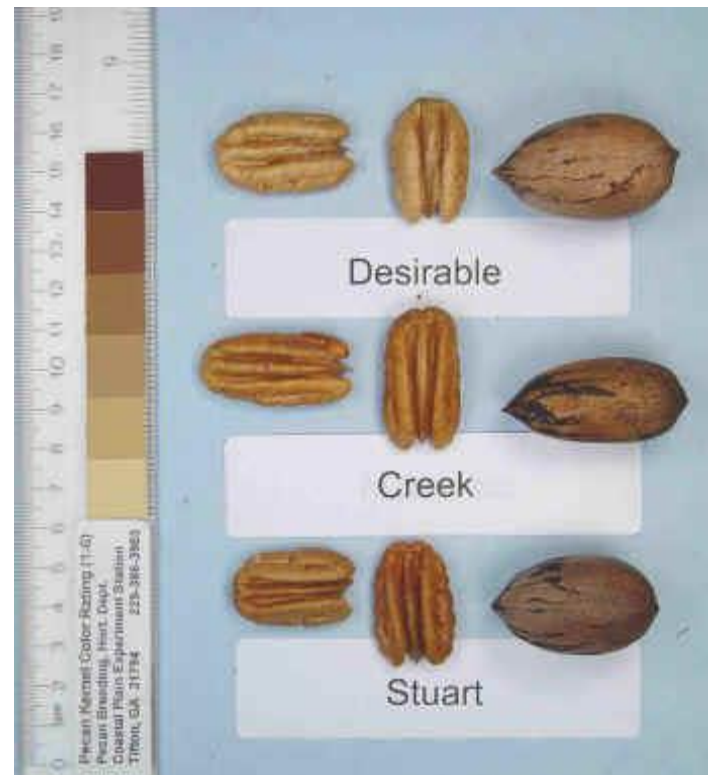
Fairly early harvest.

Overloads badly, needs crop thinning.

Upright strong tree.

Reported to bear well in competition.

Only plant it if you will crop thin!



Cultivars with Mediocre Resistance

Recommended

Caddo
Desirable
Elliott
Forkert
Kanza

Oconee

Pawnee
Sumner
Zinner

Recommend Conditionally

Cape Fear

Creek

Kiowa

McMillan

Recommended for Trial

Amling
Byrd
Excel
Lakota
Morrill



Oconee

48 nuts/lb.

53% kernel

Large nut size and good quality.

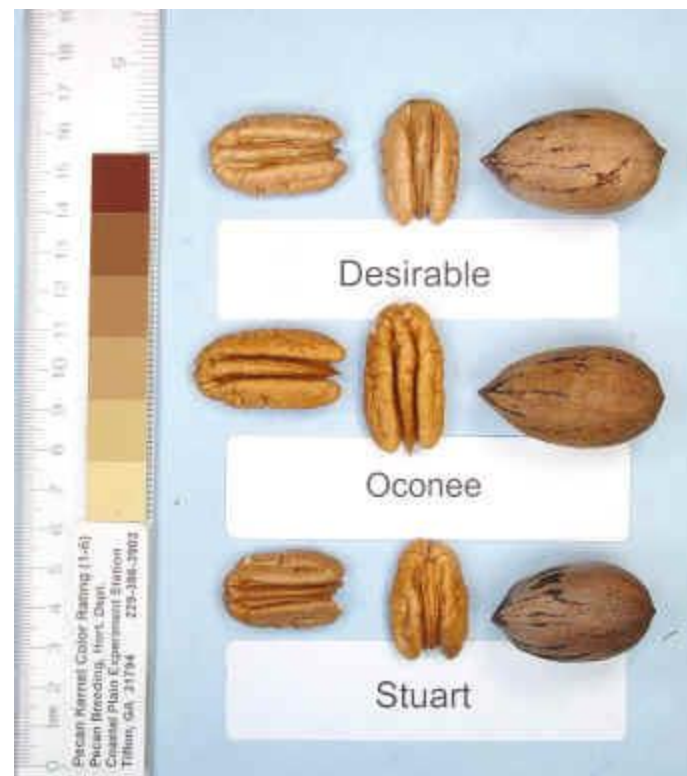
Variable scab resistance.

Vigorous tree is precocious.

Does not like to be shaded.

Preferred cultivar for black aphids.

Problems with kernel rot in 2015.



Cape Fear

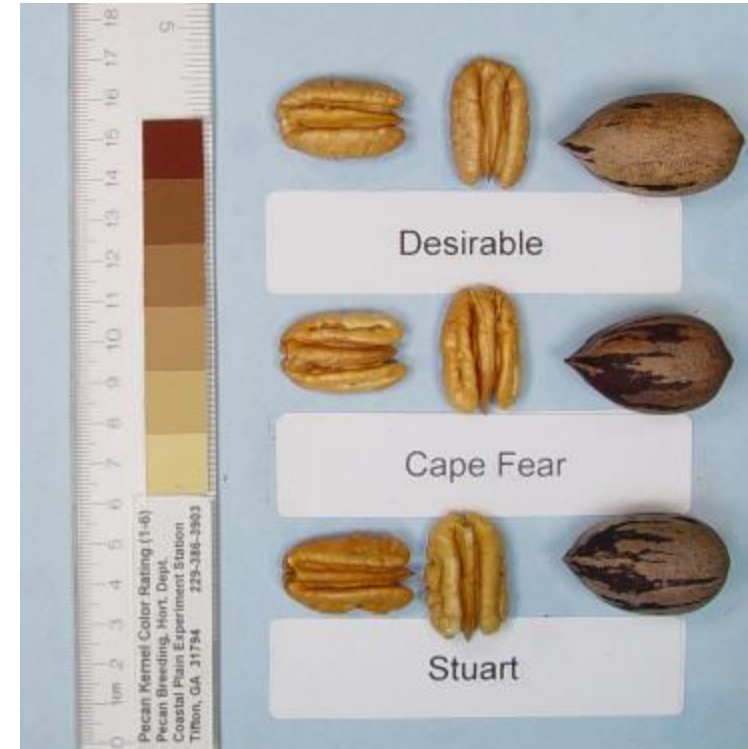
55 nuts/lb.

51% kernel

Precocious and needs crop thinning.

Scabs badly in some locations.

Susceptible to bacterial leaf scorch.





Cape Fear showing
defoliation from bacterial
leaf scorch.

1/23/1999

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Kiowa

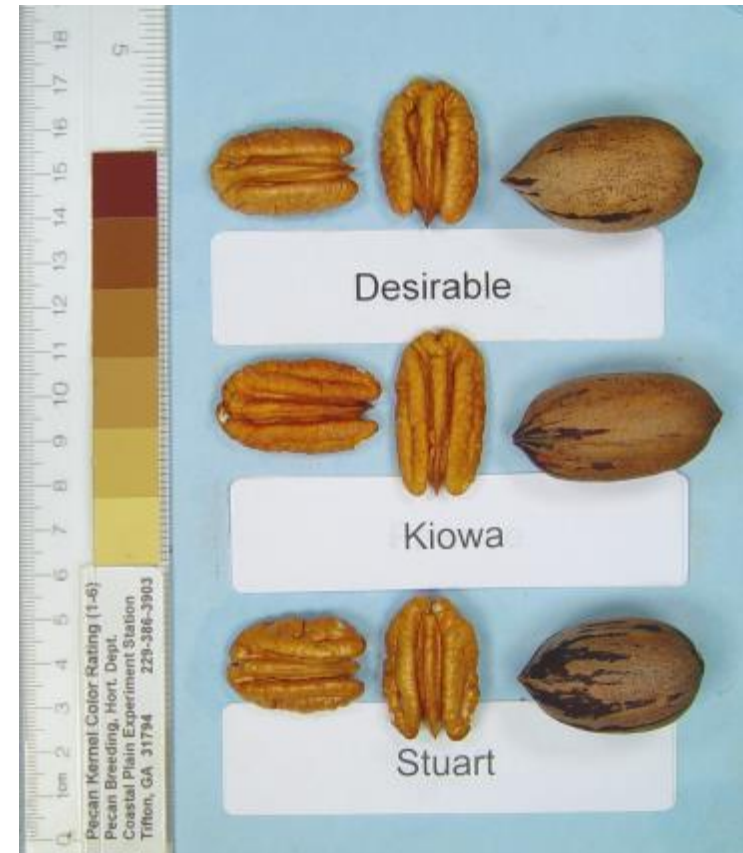
48 nuts/lb.

53% kernel

Precocious and needs crop thinning.

Variable resistance.

Somewhat similar to Desirable.



Zinner

48 nuts/lb.

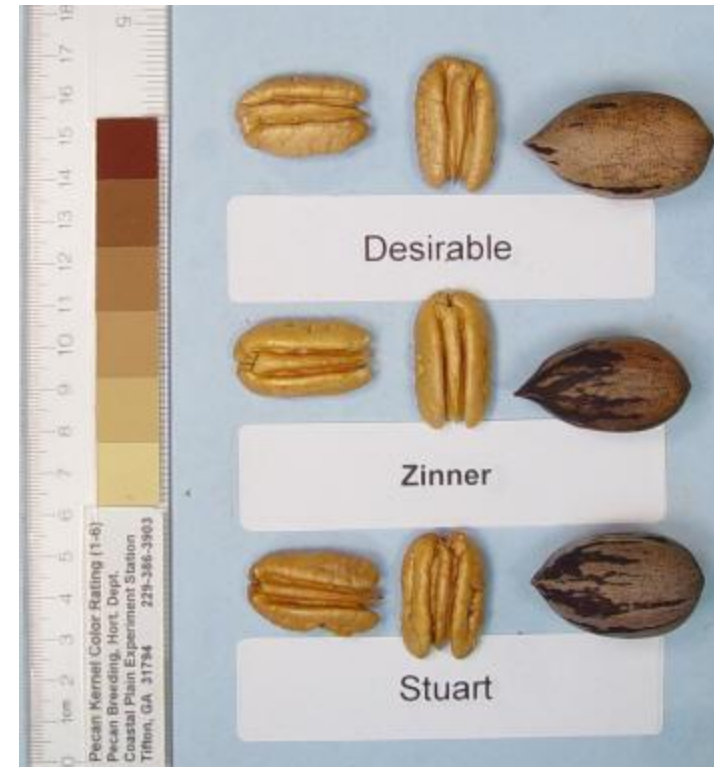
56% kernel

Consistent good production.

Size similar to 'Stuart'.

Excellent kernel quality.

Early-midseason harvest date.



Cultivars with Low Scab Resistance.

Recommended

Caddo

Desirable

Elliott

Forkert

Kanza

Oconee

Pawnee

Sumner

Zinner

Recommend Conditionally

Cape Fear

Creek

Kiowa

McMillan

Recommended for Trial

Amling

Byrd

Excel

Lakota

Morrill



Desirable

46 nuts/lb.

51% kernel

#1 Cultivar in Georgia.

Extremely susceptible to scab, must be sprayed often.

Consistent bearing from year to year.

Easier to grow in middle Georgia, not recommended south of Hwy. 280.



Pawnee

46 nuts/lb.

57% kernel

Ready to shake in Mid-September.

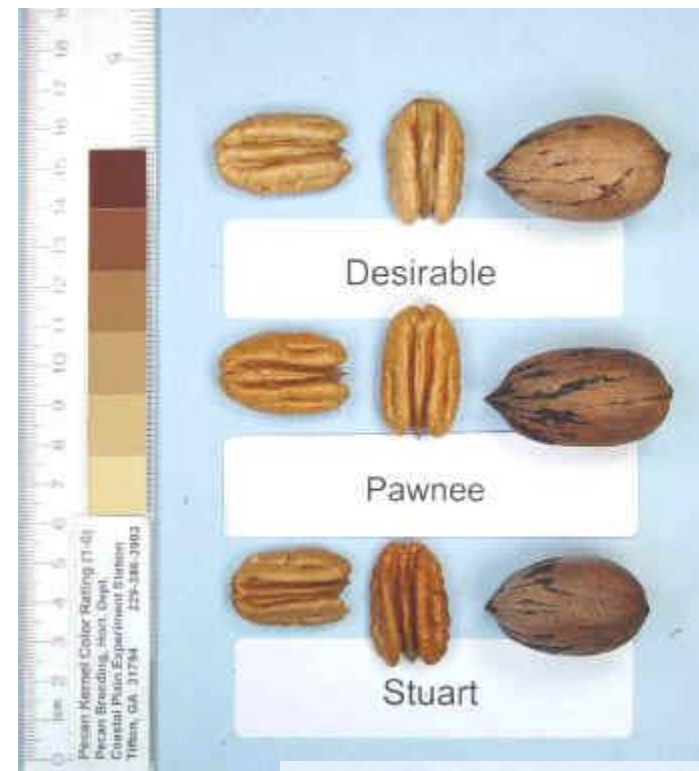
Large, high quality nut.

Will need to shake twice.

Susceptible to scab.

Easier to grow in middle Georgia.

Veining and spotting is common in some years.



New UGA Releases

Byrd, Morrill, Cunard

Low levels of scab resistance.

Very precocious cultivars, will need top quality management.

Not recommended for new growers.

Huffman, Whiddon, Tanner, Tom

All are new, have only been released a few years.

Less precocious.

Not clear what level of scab resistance will be.

Recommend for trial only.



Stuart

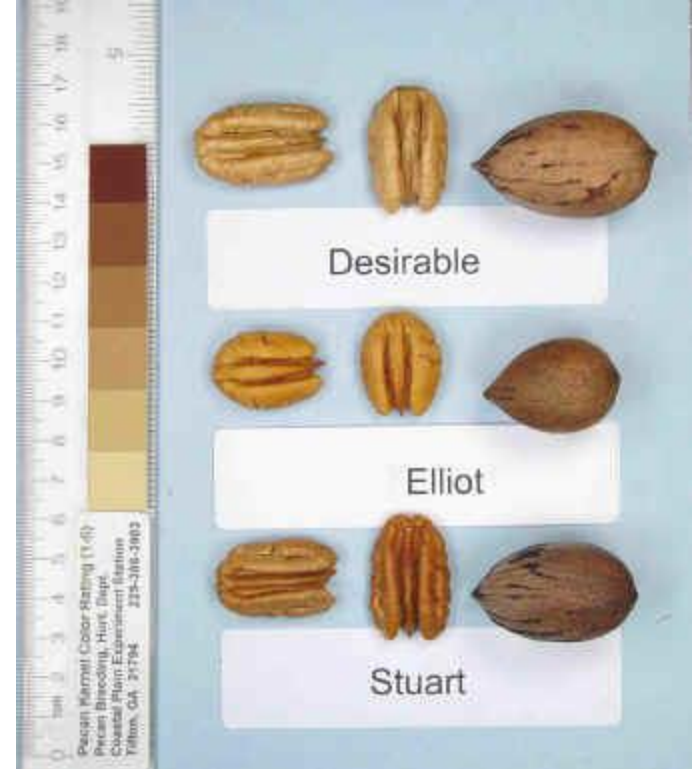
48 nuts/lb.

45% kernel

Well known, but no compelling reason
to plant this cultivar any more.

Marginal nut quality at best.

Old trees can be profitable.



My picks for small low-input plantings.

McMillan – Favorite choice.

Excel – If you need a larger nut than McMillan, must crop thin.

Lakota – Trial only, must crop thin.

Kanza – In northern areas to replace Elliott.

Amling – (pollinator)



My picks for sprayed plantings.

Pawnee – Early harvest, good quality, sell it fast.

Zinner – Steady bearing, high quality.

McMillan – Insurance for wet years.

Oconee – Large nut, good pollinator.

Sumner – Late harvest, good quality, good resistance.



Where to get more information.

Pecan Grower's Handbook.

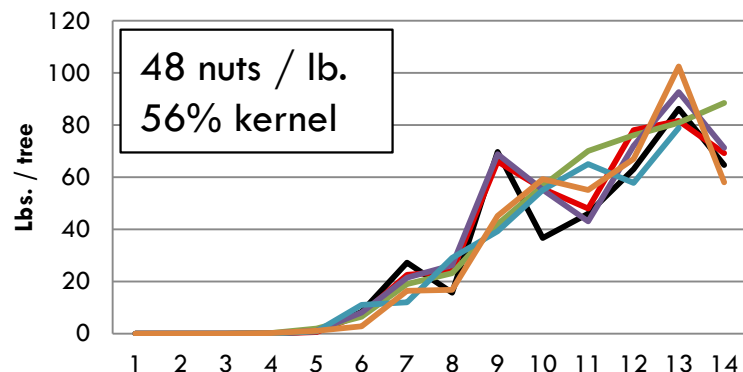
Pecan Breeding Website : Google for 'UGA Pecan Breeding'



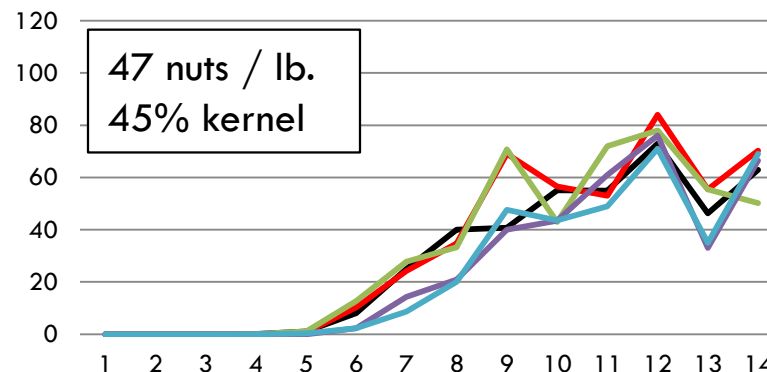


'Zinner' Productivity 2002- 2015

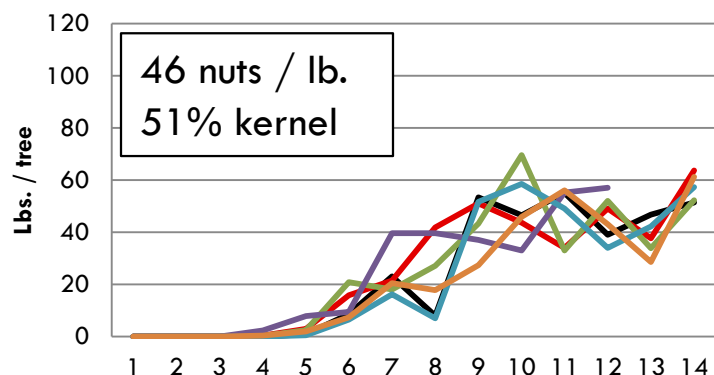
Zinner - Avg. 31 lbs.



Stuart - Avg. 29 lbs



Desirable - Avg. 24 lbs.





Zinner

Adaptability

- Will scab, but less damage than 'Desirable', similar to 'Stuart'.
- Black aphid damage similar to 'Stuart'.
- Upright tree form.
- Type II (protogynous) pollination.

Pest damage from a sprayed Tifton trial, 2002-2015

Cultivar	Leaf scab 1= none 4=worst	Nut scab 1=none 5=worst	Black aphid 1=none 4=worst
Zinner	1.4 (3.3)*	1.6 (3.3)	2.4 (3.8)
Desirable	2.4 (4.0)	3.2 (5.0)	1.8 (3.0)
Stuart	1.3 (3.4)	1.8 (3.8)	2.3 (3.8)



*Avg. (worst)

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Desirable



Zinner



Stuart



Cherryle

Nut Quality

- Large nut with excellent quality.
- Can have a split suture.
- A little dark in color some years.

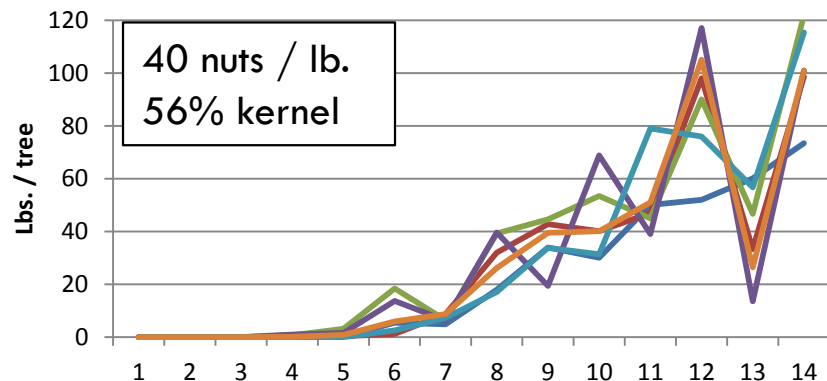
Average nut quality of test trees, 2006-2015, Tifton Ga.

Cultivar	Nuts / pound	% Kernel	50% Shuck split
Cherryle	40	56	Oct. 4
Desirable	46	51	Oct. 10
Stuart	47	45	Oct. 11

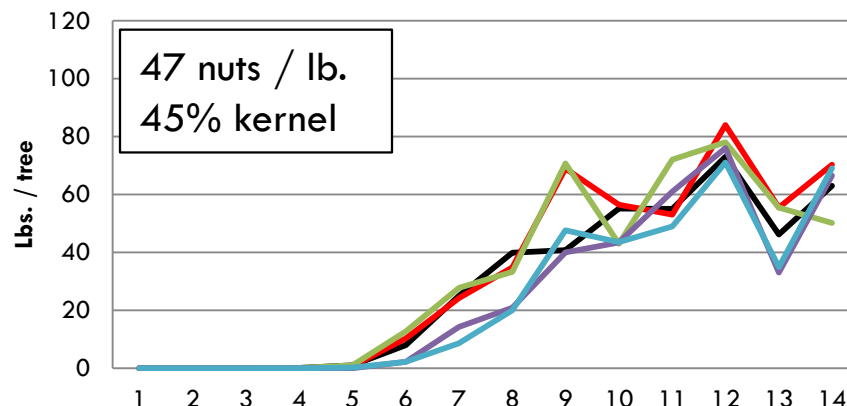


'Cherryle' Productivity 2002- 2015

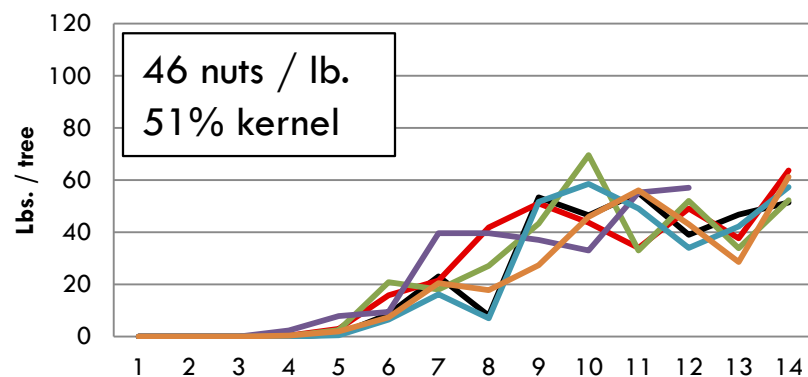
Cherryle - Avg. 29 Lbs.



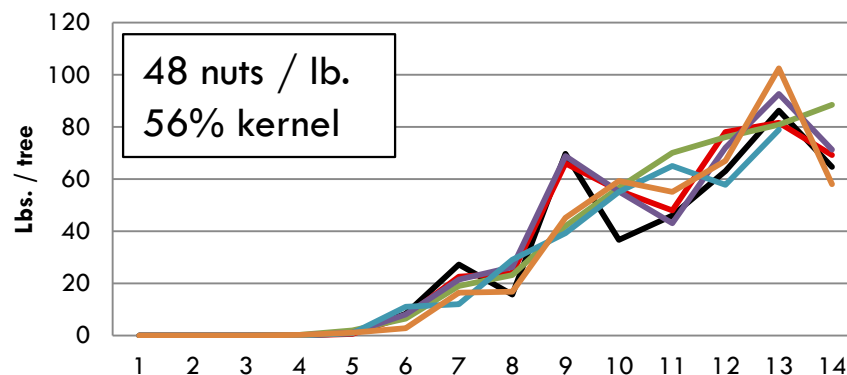
Stuart - Avg. 29 lbs



Desirable - Avg. 24 lbs.



Zinner - Avg. 31 lbs.





Cherryle

Adaptability

- Will scab, but less damage than ‘Desirable’ and ‘Stuart’.
- Spreading tree form, limb breakage common.
- Type II (protogynous) pollination.

Pest damage from a sprayed Tifton trial, 2002-2015

Cultivar	Leaf scab 1= none 4=worst	Nut scab 1=none 5=worst	Black aphid 1=none 4=worst
Cherryle	1.2 (1.8)*	1.2 (2.2)	1.8 (2.3)
Desirable	2.4 (4.0)	3.2 (5.0)	1.8 (3.0)
Stuart	1.3 (3.4)	1.8 (3.8)	2.3 (3.8)

*Avg. (worst)



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‘Zinner’
43 nuts/lb.
57% kernel

‘Cherryle’
39 nuts/lb.
56% kernel

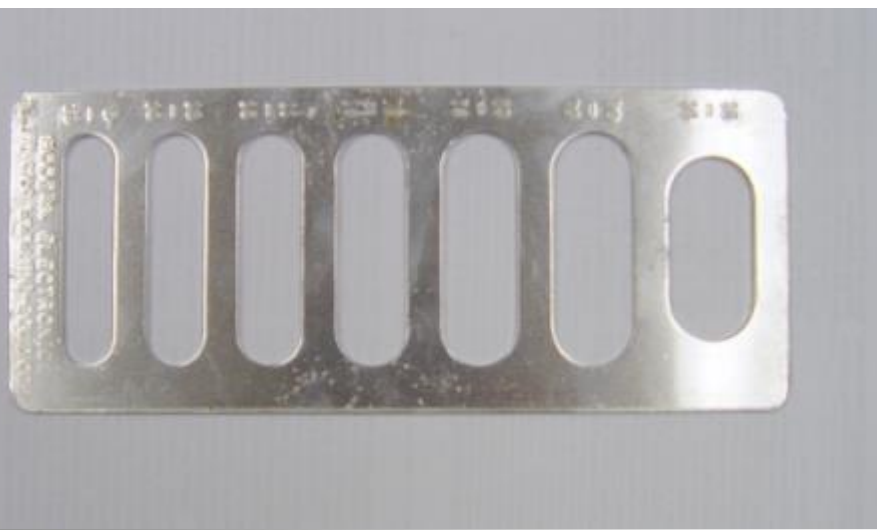
‘Desirable’
43 nuts/lb.
49% kernel





Nut size of cultivars.

Cultivar	11/ 16	12 / 16	13 / 16	14 / 16	15 / 16	16 / 16
Zinner	0 %	0 %	3 %	33 %	52 %	13 %
Cherryle	0 %	0 %	1 %	12 %	63 %	24 %
Desirable	0 %	0 %	0 %	23 %	34 %	43 %
Stuart	0 %	0 %	1 %	17 %	34 %	48 %





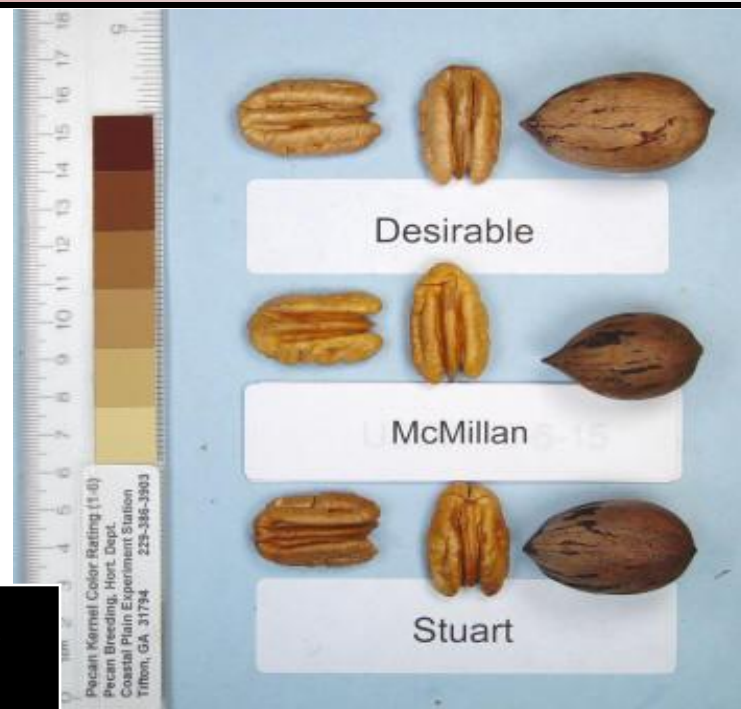
McMillan

Nut Quality

- Thick shell limits % kernel.
- Color was dark in some years.
- Looks like a good quality ‘Stuart’.
- Doesn’t have the kernel “fuzz” that ‘Stuart’ does.

Average nut quality of test trees, 2006-2015, Tifton Ga.

Cultivar	Nuts / pound	% Kernel	50% Shuck split
McMillan	51	50	Oct. 6
Desirable	46	51	Oct. 10
Stuart	47	45	Oct. 11





'McMillan'

48 nuts / lb.
49% kernel



'Stuart'

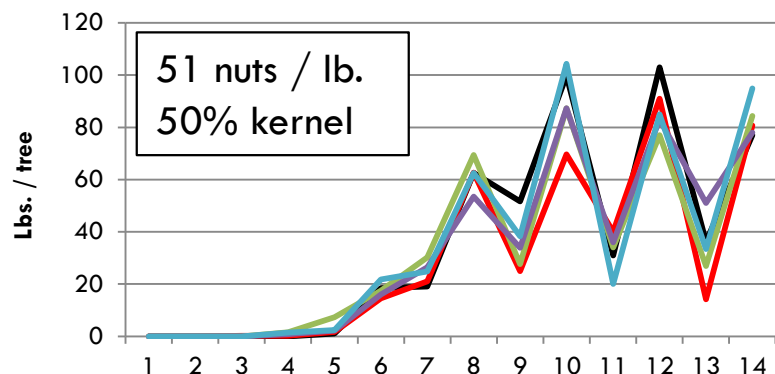
44 nuts / lb.
43% kernel



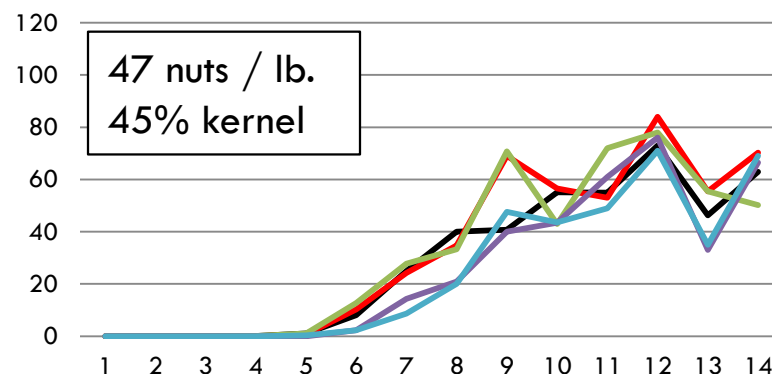
'McMillan' nut
and kernel in
comparison to
'Stuart' in 2012.

‘McMillan’ Productivity 2002- 2015

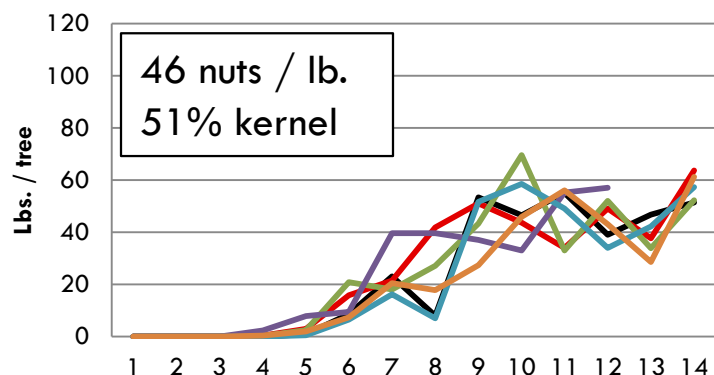
McMillan Av. 33 lbs



Stuart - Avg. 29 lbs



Desirable - Avg. 24 lbs.



‘McMillan’ will benefit from summer shaking in the ON year.





McMillan

Adaptability

- No scab in our sprayed orchard.
- Will scab in high pressure situations, but should be controlled easily.
- Fairly wide canopy.
- Type II (protogynous) pollination.



Pest damage from a sprayed Tifton trial, 2002-2012

Cultivar	Leaf scab 1= none 4=worst	Nut scab 1=none 5=worst	Black aphid 1=none 4=worst
McMillan	1.0 (1.0)*	1.0 (1.0)	1.5 (2.2)
Desirable	2.0 (4.0)	2.6 (4.8)	1.7 (2.7)
Stuart	1.4 (2.8)	1.1 (3.5)	2.2 (3.8)

*Avg. (worst)

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Byrd

Nut Quality

- Large nut with a thin shell.
- About 10 days after 'Pawnee' harvest.
- Large clusters at an early age.

Average nut quality of test trees, 2006-2015, Tifton Ga.

Cultivar	Nuts / pound	% Kernel	50% Shuck split
Byrd	48	58	Sept. 18
Desirable	46	51	Oct. 10
Pawnee	46	57	Sept. 9

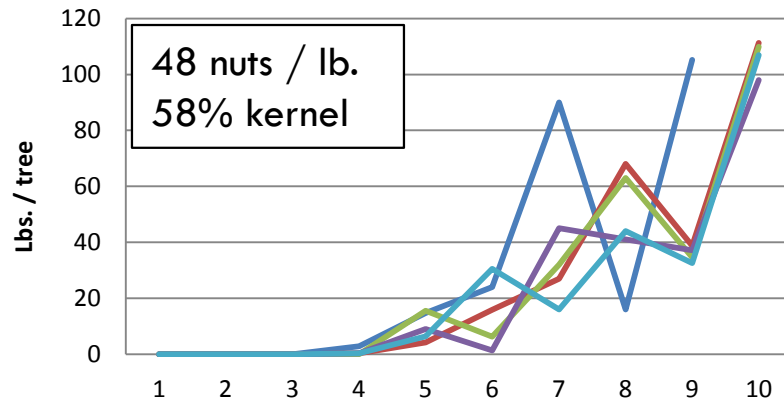


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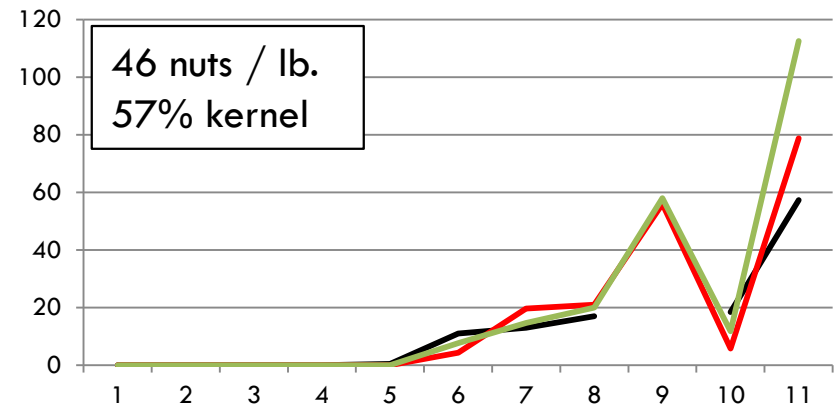


‘Byrd’ Productivity 2006- 2015

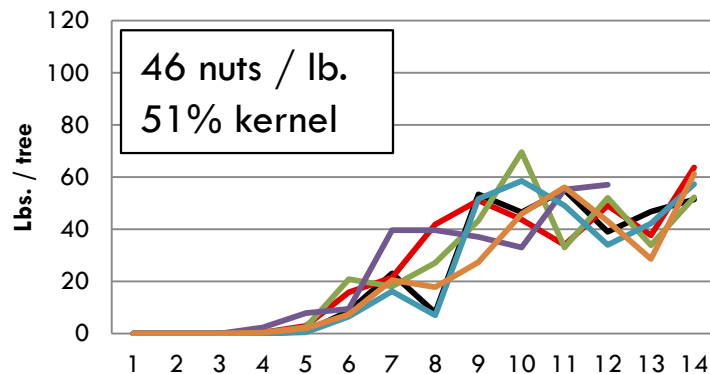
Byrd - Avg. 26 lbs.



Pawnee - Avg. 16 lbs.



Desirable - Avg. 24 lbs.



‘Byrd’ has very high yields from an early age, but will need crop thinning.





‘Byrd’ **MUST** be crop thinned!





Byrd

Adaptability

- Will scab and needs regular sprays, **will have trouble with scab in south Georgia.**
- Upright tree form.
- Type I (protandrous) pollination.

Pest damage from a sprayed Tifton trial, 2006-2015

Cultivar	Leaf scab 1= none 4=worst	Nut scab 1=none 5=worst	Black aphid 1=none 4=worst
Byrd	1.0 (1.4)*	2.4 (4.0)	1.4 (2.4)
Desirable	2.4 (4.0)	3.2 (5.0)	1.8 (3.0)
Pawnee	1.1 (1.7)	1.8 (3.3)	1.6 (2.7)

*Avg. (worst)

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Pawnee vs. Byrd

Of Note:

- 'Pawnee' is at least a week earlier, but 'Byrd' opens more evenly.
- 'Byrd' is likely more precocious and productive than 'Pawnee', but requires more crop thinning.
- 'Byrd' has marginally better kernel color, but can show some of the same veining as 'Pawnee', both should be sold right away.
- 'Pawnee' can tolerate a fair amount of scab and still produce a good kernel.



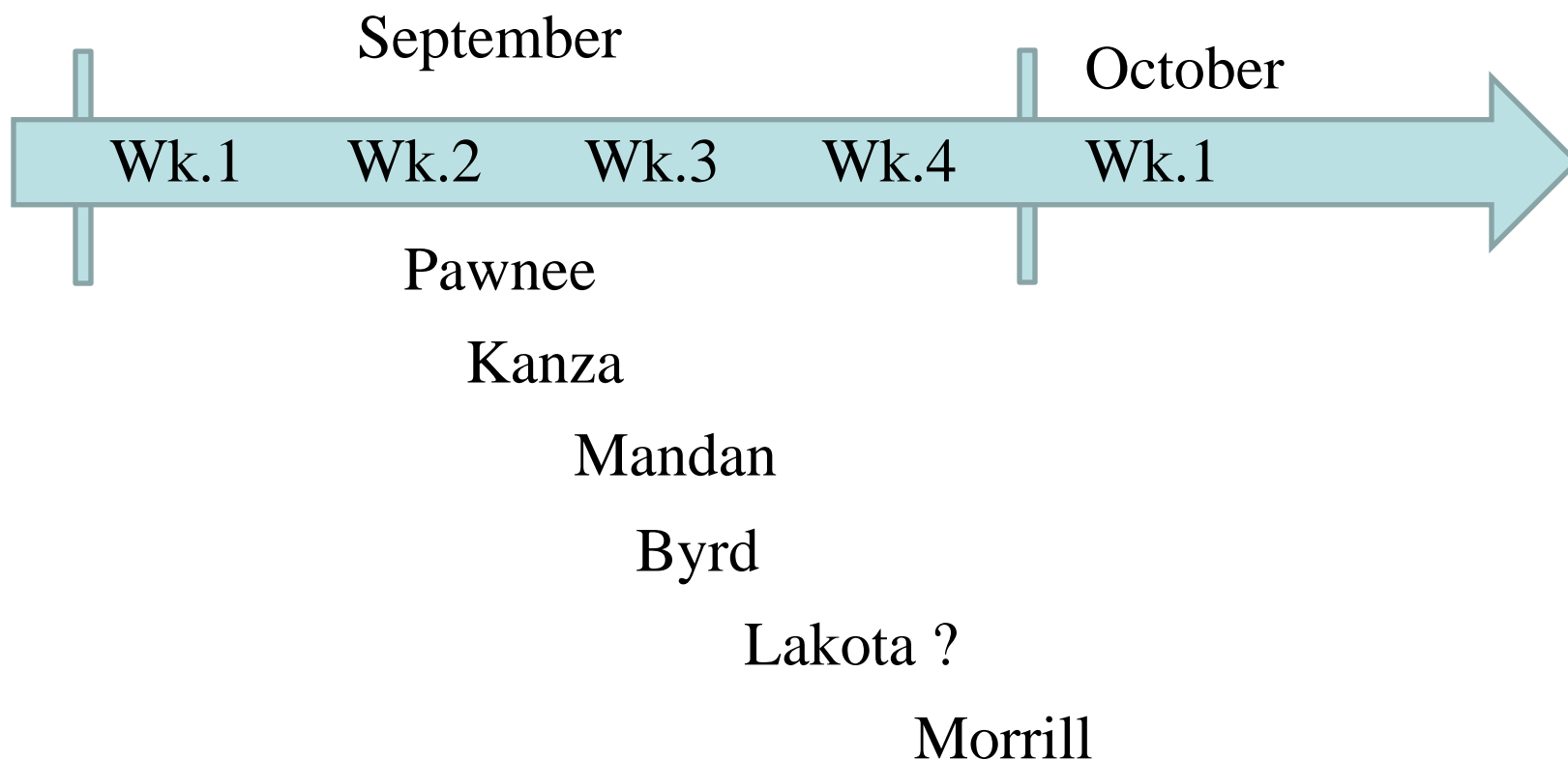


Byrd





Early Harvest Cultivars





Morrill

- 2nd UGA release by Darrell Sparks
- 'Wichita' x 'Pawnee'
- Harvest early October.
- Really large, pretty nut.
- 42 nuts / lb., 61% kernel (young trees).
- Will need crop thinning.
- Will need good scab control.





Mandan

- Released by USDA in 2009 (BW-1 x Osage).
- Harvest 1 week after 'Pawnee', Mid-Sept., similar to 'Byrd'.
- Questionable kernel quality some years.
- Limited testing in Southeast.
- Will scab, similar to 'Pawnee'.

Currently, quality is less than 'Pawnee' and has no advantages over 'Pawnee'. No compelling reason to plant 'Mandan'.

