

Progress From the UGA Pecan Breeding Program



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An Example: The Life Story of Ga. 00-7-75

The cross was ‘Gloria Grande’ x ‘Barton’, the 7th cross made in 2000 (00-7), one of 16 different crosses made that season.

- Since 1999 we have made 233 different crosses, utilizing 88 different cultivars as parents.
- We average about 15 crosses a year, it goes up and down with ‘Off’ and ‘On’ year cycles.



The Start: Making the Cross

150 clusters of 'Gloria Grande' were bagged and pollinated with 'Barton' pollen.

● Out of those pollinations we collected 141 seed.

● We average about 1 nut per bag applied.



Growing the Tree: Planting

The seed from cross 00-7 was planted in the ground in a seedling nursery in 2001.

- All crossed together that year's crosses produced 1,975 seed.
- In the 16 years we have been crossing pecans we have produced about 27,00 seed.

The 141 seed from 00-7 produced 81 trees, we typically get about 60% of the seed to produce vigorous seedlings, varies widely depending upon the mother tree.



We now plant seedlings in pots to facilitate scab screening in the first year.

- Screen for foliar resistance to pecan scab.
- Up to 80% elimination of some progenies.



Growing the Tree: Transplanting

The year 2000 progenies spent 2 years in the nursery before being planted in the progeny field in the spring of 2003. Potted trees now spend 1 year in a pot and are planted in the progeny field the next year.



Growing the Tree: First Fruit

Ga. 00-7-75 produced its first crop of nuts in 2007, its 7th year of growth, 5 years after transplanting.

- First fruiting season is generally in years 7-9, six years is the earliest we have fruited something.
- Seedlings take longer than grafted trees to fruit because they go through a juvenile period.



Making a Selection

We watched Ga. 00-7-75 for only 2 years before topworking it into our trial orchard.

- When something is propagated for further trials it goes from being a “seedling” to a “selection”.
- We have topworked a few selections, but mostly we have had to graft young trees, which take longer to fruit.



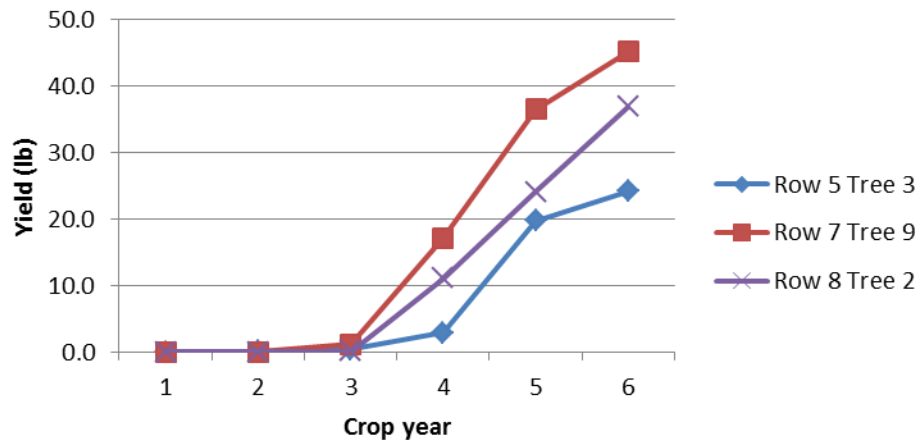
Trialing the Selection: Station Yield Trials

Topworked trees began fruiting in 2011, the third year from topworking.

Yields are approaching that of unworked trees.

How much yield data is enough to release?

00-7-75



Trialing the Selection: Off-Campus Trials

Off-Campus trials of Ga. 00-7-75

Shiloh Farms:	17 trees planted in 2012
SE Georgia Pecan Nursery:	14 trees planted in 2014
NILO Plantation:	Will topwork several trees in 2015
Hampton Pecan Nursery:	Will graft trees for trial in 2015
Linwood Nursery:	Will graft trees for trial in 2015

We hope to expand this type of testing in the future.



Trialing the Selection: Scab Resistance Trials

Unsprayed trial at various locations.

- Ponder Farm, Tifton Ga.
- NILO Plantation, Albany, Ga.
- UGA Attapulugus station.

Ga. 00-7-75 has not scabbed at any location. 'Sumner' has had moderate scab in these tests.



Road to Release: Review Teams

Pecan cultivar recommendation committee: Made up of prominent pecan growers, scouts, shellers, and nursery owners. Meets annually in Sept. to tour plots and evaluate nuts.

UGA cultivar release committee: Made up of 4-5 breeders from UGA. Agronomists weight heavily towards having replicable yield data. Meets biannually.



In the Pipeline: 23 Selections now in trials.

Selection	Year Entered	Female parent	Male parent	Nuts / lb.	% Kernel	Harvest season ^y	Scab ^z	UGA trees	Shiloh trees	NILO trees	SE GA trees
00-7-75	2009	Gloria	Barton	47	53	EM-M	N	4	17		14
99-2-28	2009	Elliott	Ocone	53	57	EM	S-M	8	17	6	
01-10-6	2014	Sumner	Elliott	49	58	ML	N	5	26		
00-10-32	2014	Forkert	Jackson	54	59	EM	M	5			
00-9-10	2014	Forkert	Caddo	54	56	EM	M	5			
00-13-5	2014	Barton	Jackson	53	56	E-EM	N	5	31		
03-6-72	2014	Sioux	Desirable	51	62	M	M-H	5	20		
99-1-246	2014	Elliott	Desirable	54	58	M	N	5	23	5	17
99-2-108	2010	Elliott	Ocone	50	58	EM-M	S	8	17	6	6
03-3-31	2014	Brooks	Desirable	60	55	M-ML	S	5	19		
01-23-11	2014	Jenkins	O.P.	60	53	E-EM	N-S	5			
00-14-45	2014	Barton	Caddo	62	60	E-EM	S	5	24		
02-5-144	2014	Sumner	Pawnee	54	58	ML	N	5			
00-14-46	2015	Barton	Caddo	51	59	EM	M-H				
03-8-33	2014	Schley	Desirable	51	54	EM	M-H	5			
99-6-38	2014	Barton	Elliott	55	59	EM	N	5			
03-6-32	2009	Sioux	Desirable	46	56	EM-M	M-H	4	17	5	18
04-5-34	2012	Melrose	70-6-15	61	55	E-EM	N	3			
99-9-3	2010	Elliott	Pawnee	58	57	EM	M-H	1	17		
03-1-20	2014	Chickasaw	Jackson	57	55	E	M	5			
99-2-15	2010	Elliott	Ocone	59	59	EM	M-H	4	11		
04-8-7	2014	70-6-15	Sioux	50	57	EM-M	M		19		
03-7-13	2012	Kicklighter	Shoshoni	60	62	E	M	3			

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CommissionThank You!

