

## APPLICATION FOR RELEASE

### APPLICATION FOR RELEASE OF (check one):

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> CULTIVAR | <input type="checkbox"/> PARENTAL LINE |
| <input type="checkbox"/> ASSOCIATE CULTIVAR  | <input type="checkbox"/> GENETIC STOCK |
| <input type="checkbox"/> GERMPLASM           |  |

1. Crop: Pecan, (*Carya illinoensis*)
2. Experimental no. or name: Ga. 00-7-75
3. Pedigree and history: In 2000 the cross 00-7 ('Barton' x 'Gloria Grande') was made by Patrick Conner at the UGA Tifton Campus. 'Barton' is a 1953 USDA release which is notable for a thin shell, early harvest, and strong resistance to pecan scab [*Fusicladium effusum* (syn. *Cladosporium caryigenum*)]. 'Barton' is not recommended for planting in Georgia because of alternate bearing with poor kernel quality in the "ON" year. 'Gloria Grande' is a selection from Orangeburg S.C. with unknown parentage. 'Gloria Grande' was recommended for planting in Georgia for many years because of its stable and high yields and strong resistance to pecan scab. It is no longer recommended because its thick shell reduces percentage kernel and kernels are dark and often "fuzzy" (bitter tasting packing material sticks to the seed coat). 141 nuts were collected from this cross and they produced 79 seedlings. These seedlings were grown in a seedling nursery for two years and then they were planted into a seedling orchard at the Ponder Farm in western Tift County. Ga. 00-7-75 first fruited in 2007, and has fruited every year since. Ga. 00-7-75 was selected for trial in 2009 because of its lack of scab infection, large nut size, good kernel quality, and moderately early harvest. It was topworked into a bearing yield trial at the Ponder Farm in 2009-2012 and grafted trees were planted in a commercial yield trial at a grower orchard in Ray City in 2012. Additionally, Ga. 00-7-75 was topworked into an unsprayed scab screening trials at the Ponder Farm in 2011. Young trees were also planted in an unsprayed scab screening trial at the Attapulcus station and at a grower orchard in Albany, Ga.
4. Description of plant material:

**Tree** – Ga. 00-7-75 trees are vigorous with an upright growing canopy. Trunks are scaly and brown in color (RHS N200C). Leaves are dark green (RHS 137A) on the adaxial side and lighter in color on the abaxial side (RHS 137C). Leaf and leaflet size and shape vary within the canopy and are not suitable for cultivar identification.

**Flower** – Ga. 00-7-75 is protogynous in flowering (type II) with midseason receptivity and mid to late season pollen shed (Fig. 1). It would be pollinated by 'Byrd', 'Desirable', 'Gafford', and 'Pawnee'. It would pollinate 'Desirable', 'Gafford', and 'Pawnee'. The stigma is small, upright with small lobes, and light green (RHS 145B) in color (Fig. 2).

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**Nut in shuck** – Topography is smooth and shuck texture is rough (Fig. 3). Shuck suture wings are relatively small (2-3mm in height). Typically only 1 shuck has a russet stripe which runs from the base to the apex and is 1.5-2.0 mm in thickness. Shuck color is whitish green (RHS 146C) and is lighter in color than most cultivars. Shuck apex is obtuse. Light shuck color and rough texture are the most useful identification traits for this cultivar.

**Dry nut** – Nut shells have moderate shell striping which extends from the apex to the equator (Fig. 3). Dots are small and present from base to apex. Nut shape is oblong with a cuspidate base and an acute, grooved apex. Nuts are round in cross section. Shell topography is slightly bumpy with ridges from the base to the apex. Shell thickness is medium and 0.8 – 1.0 mm thick at the equator.

5. Need for and potential users of plant material:

Georgia is the leading pecan producing state, and pecans are one of Georgia's most valuable horticultural crops. In the humid growing conditions of the southeastern United States, the most economically damaging pest of pecan is pecan scab. This fungus infects the young leaves and nut shucks, killing the tissue as it spreads. Because pecan scab needs free water in order to germinate and infect the plant tissue, scab is bigger concern in the southeastern U.S. than it is in western pecan growing regions. Scab infection reduces both yield and quality of pecan kernels, and if uncontrolled can result in total crop loss in wet years. Chemical control of scab requires eight or more fungicide sprays over the course of a season. Unfortunately, many of these growers will still suffer lower yields and quality despite their best efforts. 'Desirable' is currently the most popular commercial cultivar in Georgia, and sets the standard for nut quality and stable yields in the Southeast. However, 'Desirable' requires excellent cultural practices to perform well, and in some areas has become nearly ungrowable due to scab. We no longer recommend planting 'Desirable' south of Hwy 280 in Georgia due to scab. Because of the difficulty of maintaining 'Desirable' trees, there is an increasing need for newer, better adapted cultivars for use in the southeast which also possess the good nut quality that the consumer demands.

6. Justification for release:

**Note:** A brief review of traits needed in a pecan cultivar can be found here: <http://extension.uga.edu/publications/detail.cfm?number=C898>

**Scab resistance:** Pecan scab infects young growing leaves early in the growing season and nut shucks throughout the year. We rate pecan scab on the leaves and on the nuts. Generally higher infection levels are seen on the nuts because they are susceptible during the summer monsoon season. Nuts are rated two ways, first we do an average rating. This is the average level of infection seen over the whole tree. The second rating is the maximum level of infection seen on any nut cluster on the tree. Over time, we have found that the maximum rating is better at predicting infection levels that would be seen when an entire orchard is planted to a single cultivar and fungicide protection is inadequate.

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Ga. 00-7-75 is being released as a scab resistant cultivar for planting throughout the southeastern pecan belt. Ga. 00-7-75 has shown very strong resistance to pecan scab in our tests. Trees have been grown in a sprayed orchard at the Ponder Farm since 2009, and at Ray City since 2012 and no scab infection has been observed on any of these trees on leaves or nuts (Tables 1, 2). In comparison, susceptible cultivars like 'Desirable' and 'Byrd' had significant scab infection. High pressure, unsprayed trials were conducted at the Ponder Farm and in these trials only slight scab was seen on a few nuts (Table 3). This disease incidence was not different from the highly resistant controls ('Elliott', 'Gafford', and 'McMillan'), and was better than moderately resistant controls ('Sumner' and 'Zinner'). Susceptible controls such as 'Cunard', 'Desirable', Pawnee and 'Stuart' experienced crop failure and defoliation each year due to scab infection. Young trees were also planted in scab screening orchards in Attapulcus and Albany. While they have not fruited yet, leaf scab resistance of Ga. 00-7-75 was similar to resistant controls and better than susceptible controls (Tables 3, 4, 5).

**Production:** In order to lessen the time to evaluate yield, Ga. 00-7-75 was topworked into a bearing orchard at the Ponder Farm. There is no simple way to compare yields of a top-worked tree to a planted grafted tree. The method we use is to look at the yields of the topworked tree and when they reach a significant amount (10-20 lbs. per tree) we then match that yield with neighboring tree yields and consider the tree to be of similar age and compare yield from that point forward. Ga. 00-7-75 began to produce 10-20 pounds of yield four years from topworking, which was similar to seven year old non-topworked trees. Thus we compared yields from 4 year from topworking Ga. 00-7-75 trees with seven year old grafted trees and went forward from that point.

Using this method, Ga. 00-7-75 appears to be a good yielding tree with yields steadily increasing each year (Table 6). Cluster size of Ga. 00-7-75 is 2.6, which is similar to other cultivars with stable bearing habits ('Desirable', 'Stuart', and 'Zinner') and less than alternating cultivars that need crop thinning ('Byrd', 'McMillan', 'Pawnee', and 'Sumner'). Generally large cluster sizes lead to higher production in younger trees, but overbearing in older trees (Sparks, 1992). Moderate cluster size, along with the mother tree's consistent cropping record (9 years with 50% or more of a crop), suggest that Ga. 00-7-75 will not need to be crop thinned. Additional yield trials are in place, but these trees are just beginning to bear. All new pecan releases are "recommended for trial" by Lenny Wells (UGA pecan extension specialist) and I until yield data becomes more complete. Once trees have performed well in grower orchards and in University yield trials, they may be moved to the "recommended fully" list. I wish to release this cultivar so that growers can begin to trial it in their orchards.

**Nut Quality:** Nut size (46 nuts/lb) and percent kernel (53.7%) fall within the range needed for optimum prices in the current market (Table 7). Shellers generally want nut size to be larger than 50 nuts/lb and more than 52% kernel for shipping to the Chinese market. Ga. 00-7-75 has similar size to 'Desirable' and a higher percent kernel (Table 7). Additionally, Ga. 00-7-75 has a little incidence of packing material sticking to the kernel and highly attractive kernels (Table 7). There is currently no other highly scab resistant

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cultivar available that has the size and quality of Ga. 00-7-75, except for the recent UGA releases ‘Huffman’, ‘Tanner’, and ‘Whiddon’, but those cultivars have not been tested extensively in unsprayed high pressure conditions, and their pedigrees do not involve scab resistant parents.

**Adaptation:** Ga. 00-7-75 is late to break bud in the spring (Table 8) which indicates some measure of frost avoidance if planted in the northern part of the state. For many years ‘Stuart’ was recommended for north Georgia, and budbreak of Ga. 00-7-75 is similar to ‘Stuart’. Harvest date is almost a week ahead of ‘Desirable’ (Table 8) which puts it in the early mid-season harvest period. This would make Ga. 00-7-75 among the first cultivars to be harvested, but not so early that extra protection from predators like crows would be necessary. Ga. 00-7-75 has medium susceptibility to black pecan aphid (*Melanocallis caryaefoliae*) which may require sprays in some years, but susceptibility is less than other widely grown cultivars such as ‘Zinner’ and ‘Stuart’ (Tables 1, 2, 3, 4).

**Synopsis:** Ga. 00-7-75 so far has excellent scab resistance, comparable to the best resistant cultivars we have, ‘Amling’, ‘Elliott’, ‘Gafford’, and ‘McMillan’. Ga. 00-7-75 has better nut size and kernel quality than these resistant cultivars, and sufficient nut size and quality to receive high prices. Tree productivity still needs to be investigated more fully, but initial results suggest that productivity should be similar to other recommended cultivars, with a low propensity to bear alternately. New pecan cultivars are always “recommended for trial” until many years of data are obtained and they have been observed growing in commercial orchards around the state. After this time they are then moved to the “recommended” list. If released, Ga. 00-7-75 would be “recommended for trial” by growers. It should be especially useful for growers in the south of the state where pecan scab is particularly difficult to control and current resistant cultivars have smaller nut size and/or insufficient nut quality.

7. Participating scientists: Patrick Conner
8. Location(s) at which plant material was developed: The University of Georgia – Tifton Campus
9. Recommended form of intellectual property protection and royalty: Plant Patent with royalty

### **Cultivar and associate cultivar applications only provide the following information:**

10. Method of propagation: Standard pecan grafting methods have been used to successfully propagate Ga. 00-7-75.
11. Amount of breeder seed stocks available (if applicable): NA
12. Amount of foundation seed stocks available if applicable: NA

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13. Amount of cutting or bud material available for vegetatively propagated material for nursery distribution (if applicable):

We have a row of 16 fruiting grafted trees at Shiloh Farms that have been verified by the breeder as true to type. These are the only non-topworked trees that have been verified as true to type. The original mother tree is still in place at the Ponder Farm and will be cut back this winter to produce more scion wood. Hampton Nursery grafted several trees of Ga. 00-7-75 last spring to use as stock trees, but they are still in the nursery. Nut Tree Nursery budded 500 trees to Ga. 00-7-75 in the summer of 2015. Southeast Georgia Nursery also has 14 trees grafted to Ga. 00-7-75.

14. Describe any unusual difficulty anticipated in the production of any class of seed stocks:  
None

15. Suggest up to three names for the cultivar, if appropriate: 2) Mystic (Ga. town), 3) Adel (Ga. town). This is still a major topic of discussion and is not really set yet.

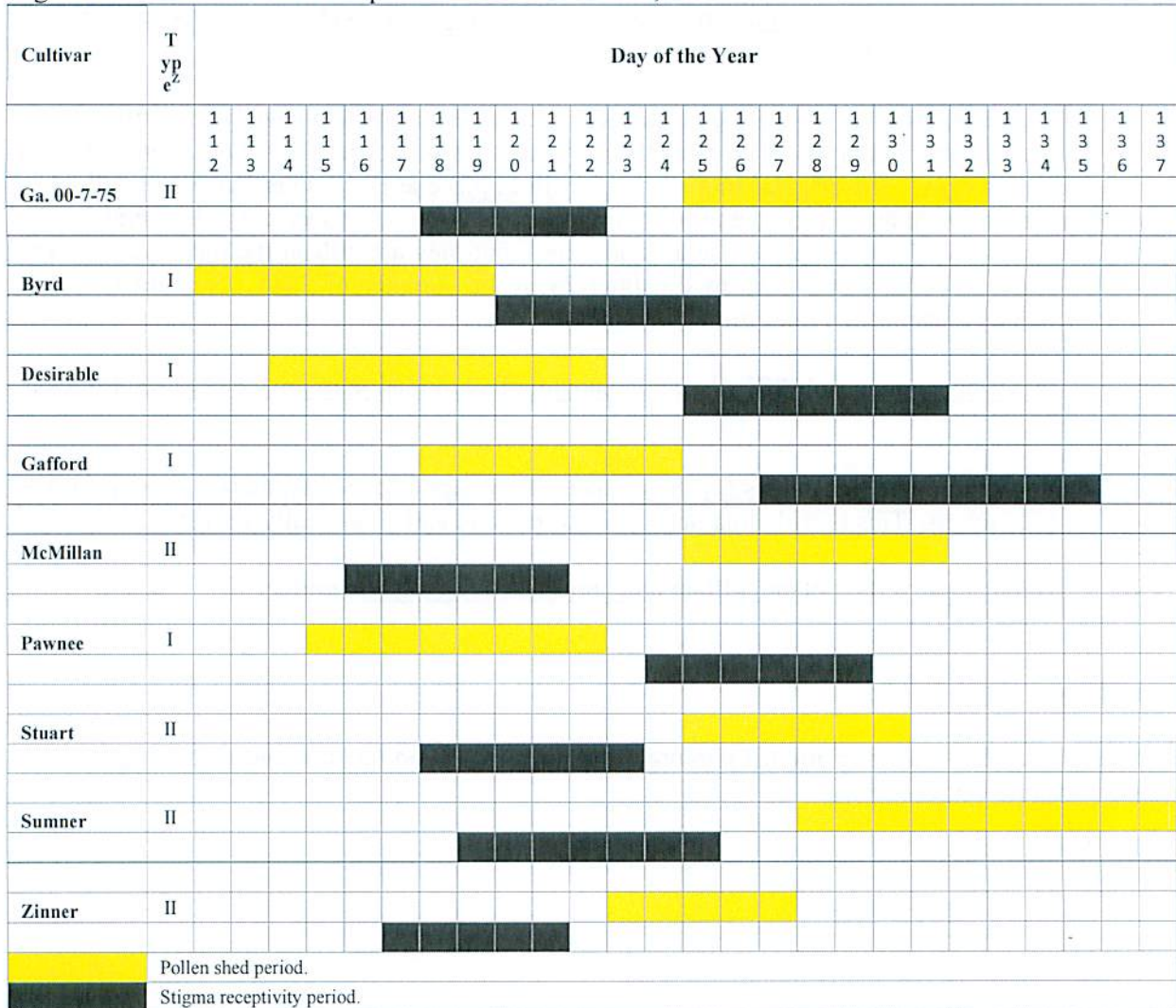
16. Name approved by plant cultivar and germplasm release committee:

### Literature Cited:

Sparks, D. 1990. Inter-relationship in precocity, prolificacy, and percentage kernel in pecan. HortScience 25:297-299.

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Figure 1. Pollination chart for pecan cultivars in Tifton, Ga.



Type I = protandrous, Type II = protogynous.

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Figure 2. Ga. 00-7-75 stigma.



.Figure 3. Ga. 00-7-75 nut and shuck attributes.

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Figure 3. Ga. 00-7-75 nut and kernel attributes in comparison to 'Desirable' and 'Stuart'.



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Table 1. Pest resistance of pecan cultivars and selections in a sprayed orchard over years 2009-2015 at Tifton, Ga.

Cultivar	# Trees	Leaf scab <sup>Z</sup>	Avg. nut scab <sup>Y</sup>	Max. nut scab <sup>X</sup>	Black aphid damage <sup>W</sup>
Ga. 00-7-75	6	1.0 b <sup>V</sup>	1.0 b	1.0 d	2.3 bc
Byrd	5	1.1 b	1.3 b	2.9 b	1.5 d
Desirable	6	3.7 a	3.4 a	4.6 a	2.2 bc
Gafford	4	1.0 b	1.0 b	1.0 d	1.0 e
McMillan	5	1.0 b	1.0 b	1.1 d	1.6 d
Pawnee	3	1.2 b	1.0 b	1.9 c	1.7 d
Stuart	5	1.0 b	1.1 b	3.1 b	2.6 b
Sumner	4	1.3 b	1.0 b	1.1 d	2.1 c
Zinner	6	1.3 b	1.1 b	2.9 b	3.1 a
Sig.		0.001	0.001	0.001	0.001

<sup>Z</sup>1 = no scab lesions, 2 = a few isolated lesions with restricted growth, 3 = multiple lesions with expanding lesions, 4 = stem scab lesions or defoliation.

<sup>Y</sup>1 = no scab lesions, 2 = a few lesions with restricted growth, 3 = multiple lesions, 0% to 10% coverage, 4 = 11% to 50% coverage, 5 = 51% to 100% coverage or nut drop. Average damage seen on nuts over the tree.

<sup>X</sup>1 = no scab lesions, 2 = a few lesions with restricted growth, 3 = multiple lesions, 0% to 10% coverage, 4 = 11% to 50% coverage, 5 = 51% to 100% coverage or nut drop. Maximum damage seen on any nut.

<sup>W</sup>1 = no damage, 2 = light chlorotic spotting, 0% to 25% leaves affected, 3 = moderate chlorotic spotting, 26% to 75% chlorotic spotting, 4 = heavy chlorotic spotting, 76% to 100% leaves affected.

<sup>V</sup>Mean separation within a column by Duncan's multiple range test,  $P \leq 0.05$ .

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Table 2. Pest resistance of pecan cultivars and selections in a sprayed orchard over years 2012-2015 at Ray City, Ga.

Cultivar	# Trees	Leaf scab <sup>Z</sup>	Avg. nut scab <sup>Y</sup>	Max. nut scab <sup>X</sup>	Black aphid damage <sup>W</sup>
Ga. 00-7-75	6	1.0 b <sup>V</sup>	1.0 b	1.0 c	1.0 b
Amling	6	1.0 b	1.0 b	1.0 c	1.0 b
Desirable	6	3.5 a	3.8 a	4.9 a	1.0 b
Elliott	6	1.0 b	1.0 b	1.0 c	1.0 b
McMillan	6	1.0 b	1.0 b	1.0 c	1.0 b
Zinner	6	1.0 b	1.2 b	2.2 b	1.3 a
Sig.		0.001	0.001	0.001	0.001

<sup>Z</sup>1 = no scab lesions, 2 = a few isolated lesions with restricted growth, 3 = multiple lesions with expanding lesions, 4 = stem scab lesions or defoliation.

<sup>Y</sup>1 = no scab lesions, 2 = a few lesions with restricted growth, 3 = multiple lesions, 0% to 10% coverage, 4 = 11% to 50% coverage, 5 = 51% to 100% coverage or nut drop. Average damage seen on nuts over the tree.

<sup>X</sup>1 = no scab lesions, 2 = a few lesions with restricted growth, 3 = multiple lesions, 0% to 10% coverage, 4 = 11% to 50% coverage, 5 = 51% to 100% coverage or nut drop. Maximum damage seen on any nut.

<sup>W</sup>1 = no damage, 2 = light chlorotic spotting, 0% to 25% leaves affected, 3 = moderate chlorotic spotting, 26% to 75% chlorotic spotting, 4 = heavy chlorotic spotting, 76% to 100% leaves affected.

<sup>V</sup>Mean separation within a column by Duncan's multiple range test,  $P \leq 0.05$ .

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Table 3. Pest resistance of pecan cultivars and selections in an unsprayed orchard over years 2012-2015 at Tifton, Ga.

Cultivar	# Trees	Leaf scab <sup>Z</sup>	Avg. nut scab <sup>Y</sup>	Max. nut scab <sup>X</sup>	Black aphid damage <sup>W</sup>
Ga. 00-7-75	3	1.0 c <sup>V</sup>	1.0 c	1.3 c	2.6 bc
Cunard	1	3.3 ab	4.7 a	5.0 a	2.3 bc
Desirable	1	4.0 a	5.0 a	5.0 a	2.5 bc
Elliott	1	1.0 c	1.0 c	1.0 c	2.3 c
Gafford	1	1.0 c	1.0 c	1.0 c	2.0 c
McMillan	1	1.0 c	1.0 c	1.5 c	2.0 c
Pawnee	1	2.3 bc	5.0 a	5.0 a	2.8 abc
Stuart	1	2.5 bc	5.0 a	4.3 a	3.8 a
Sumner	2	2.1 bc	2.0 b	3.0 b	2.7 bc
Zinner	2	2.1 bc	4.5 a	4.0 a	3.4 ab
Sig.		0.001	0.001	0.001	0.007

<sup>Z</sup>1 = no scab lesions, 2 = a few isolated lesions with restricted growth, 3 = multiple lesions with expanding lesions, 4 = stem scab lesions or defoliation.

<sup>Y</sup>1 = no scab lesions, 2 = a few lesions with restricted growth, 3 = multiple lesions, 0% to 10% coverage, 4 = 11% to 50% coverage, 5 = 51% to 100% coverage or nut drop. Average damage seen on nuts over the tree.

<sup>X</sup>1 = no scab lesions, 2 = a few lesions with restricted growth, 3 = multiple lesions, 0% to 10% coverage, 4 = 11% to 50% coverage, 5 = 51% to 100% coverage or nut drop. Maximum damage seen on any nut.

<sup>W</sup>1 = no damage, 2 = light chlorotic spotting, 0% to 25% leaves affected, 3 = moderate chlorotic spotting, 26% to 75% chlorotic spotting, 4 = heavy chlorotic spotting, 76% to 100% leaves affected.

<sup>V</sup>Mean separation within a column by Duncan's multiple range test,  $P \leq 0.05$ . Years were treated as reps.

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Table 4. Pest resistance of pecan cultivars and selections in an unsprayed orchard over years 2012-2015 at Albany, Ga.

Cultivar	# Trees	Leaf scab <sup>Z</sup>	Black aphid damage <sup>Y</sup>
Ga. 00-7-75	3	1.3 b <sup>X</sup>	2.2
Byrd	2	4.0 a	1.6
Cunard	2	4.0 a	2.0
Desirable	3	4.0 a	2.4
Elliott	3	1.0 b	1.4
Sumner	3	1.7 b	1.9
Sig.		0.001	NS

<sup>Z</sup>1 = no scab lesions, 2 = a few isolated lesions with restricted growth, 3 = multiple lesions with expanding lesions, 4 = stem scab lesions or defoliation.

<sup>Y</sup>1 = no damage, 2 = light chlorotic spotting, 0% to 25% leaves affected, 3 = moderate chlorotic spotting, 26% to 75% chlorotic spotting, 4 = heavy chlorotic spotting, 76% to 100% leaves affected.

<sup>X</sup>Mean separation within a column by Duncan's multiple range test,  $P \leq 0.05$ .

Table 5. Pest resistance of pecan cultivars and selections in an unsprayed orchard over years 2012-2015 at Attapulgus, Ga.

Cultivar	# Trees	Leaf scab <sup>Z</sup>	Black aphid damage <sup>Y</sup>
Ga. 00-7-75	3	1.3 c <sup>X</sup>	2.0
Desirable	3	4.0 a	2.2
Elliott	3	1.5 c	2.1
Stuart	3	3.3 b	2.6
Sig.		0.001	NS

<sup>Z</sup>1 = no scab lesions, 2 = a few isolated lesions with restricted growth, 3 = multiple lesions with expanding lesions, 4 = stem scab lesions or defoliation.

<sup>Y</sup>1 = no damage, 2 = light chlorotic spotting, 0% to 25% leaves affected, 3 = moderate chlorotic spotting, 26% to 75% chlorotic spotting, 4 = heavy chlorotic spotting, 76% to 100% leaves affected.

<sup>X</sup>Mean separation within a column by Duncan's multiple range test,  $P \leq 0.05$ .

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Table 6. In-shell nut yield (lbs. per tree) of pecan cultivars in Tifton, Ga. years 7-10 from planting.

Cultivar	# Trees	Year 7	Year 8	Year 9	Year 10
Ga. 00-7-75 <sup>Z</sup>	6	17.3	24.7 b <sup>Y</sup>	47.2 ab	77.7 b
Byrd	5	42.0	46.4 a	49.7 ab	106.5 a
Desirable	4	15.9	28.5 ab	29.5 b	36.5 c
Gafford	4	26.7	40.0 ab	30.8 b	62.5 b
Pawnee	3	15.7	19.3 b	57.0 ab	12.0 c
Sumner	4	26.8	25.3 b	69.8 a	33.2 c
Sig.		NS	0.045	0.04	0.001

<sup>Z</sup>Ga. 00-7-75 was topworked into the orchard and when yields were similar to year 7 yields they were considered to be 7 years old.

<sup>Y</sup>Mean separation within a column by Duncan's multiple range test,  $P \leq 0.05$ .

Table 7. Nut and kernel quality attributes of pecan cultivars averaged over all years of testing at Tifton, Ga. A minimum of 4 and a maximum of 11 crops were evaluated for each tree.

Cultivar	# Trees	# Nuts per cluster	Nuts/lb	% Kernel	% Fuzz <sup>Z</sup>	Kernel rating <sup>Y</sup>
Ga. 00-7-75	6	2.6 b <sup>X</sup>	46 c	53.7 c	0.0 d	4.8 a
Byrd	5	3.5 a	48 c	58.0 a	1.0 d	4.3 b
Desirable	6	2.4 b	46 c	50.9 de	2.3 c	3.6 c
Gafford	4	2.7 b	49 bc	50.2 e	3.8 b	3.7 c
McMillan	5	3.3 a	51 ab	51.4 de	0.3 d	3.6 c
Pawnee	3	3.5 a	46 c	57.2 ab	0.0 d	3.9 bc
Stuart	5	2.6 b	47 c	45.4 f	7.7 a	2.2 d
Sumner	4	3.6 a	54 a	52.0 d	2.4 c	3.8 c
Zinner	6	2.6 b	48 c	56.4 b	0.2 d	4.9 a
Sig.		0.001	0.001	0.001	0.001	0.001

<sup>Z</sup>Estimated percentage of the kernel surface covered with packing material.

<sup>Y</sup>Attractiveness rating of the pecan kernels with 5=Excellent, 4=Good, 3=Average, 2=Poor, 1=Terrible. Ratings are based on kernel color, size, fill, shelling ability, and lack of defects.

<sup>X</sup>Mean separation within a column by Duncan's multiple range test,  $P \leq 0.05$ .

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Table 8. Phenology and number of nuts per cluster of pecan cultivars in Tifton, Ga., 2008-2015.

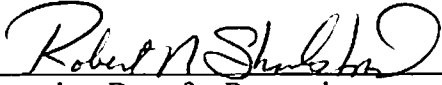
Cultivar	# Trees	Bud burst date	# Nuts per cluster	50% Shuck split date
Ga. 00-7-75	6	6-Apr a <sup>z</sup>	2.6 b	4-Oct c
Byrd	5	26-Mar d	3.5 a	18-Sep d
Desirable	6	30-Mar c	2.4 b	10-Oct ab
Gafford	4	6-Apr a	2.7 b	10-Oct ab
McMillan	5	31-Mar bc	3.3 a	6-Oct bc
Pawnee	3	31-Mar bc	3.5 a	9-Sep e
Stuart	5	3-Apr ab	2.6 b	11-Oct a
Sumner	4	31-Mar bc	3.6 a	9-Oct b
Zinner	6	1-Apr bc	2.6 b	5-Oct c
Sig.		0.001	0.001	0.001

<sup>z</sup>Mean separation within a column by Duncan's multiple range test,  $P \leq 0.05$ .


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Application for the release of Ga. 00-7-75 pecan.

Recommended:

- A. **Patrick Conner** Digitally signed by Patrick Conner  
DN: cn=Patrick Conner, o=Horticulture  
Dept., ou=University of Georgia,  
email=pconner@uga.edu, c=US  
Date: 2016.02.02 09:41:04 -05'00'  
\_\_\_\_\_  
Originating Scientist Date
- B. **Joe West** Digitally signed by Joe West  
DN: cn=Joe West, o=UGA CAES Tifton Campus,  
ou=Assistant Dean's Office,  
email=jwest@uga.edu, c=US  
Date: 2016.02.05 10:59:44 -05'00'  
\_\_\_\_\_  
Department Head Date
- C. **Douglas Bailey** Digitally signed by Douglas Bailey  
DN: cn=Douglas Bailey, o=University of  
Georgia, ou=Department of Horticulture,  
email=dabailey@uga.edu, c=US  
Date: 2016.02.11 07:04:03 -05'00'  
\_\_\_\_\_  
For Griffin and Tifton, Assistant Dean Date
- D. **Peggy Ozias-Akins** Digitally signed by Peggy Ozias-Akins  
DN: cn=Peggy Ozias-Akins, o=University  
of Georgia, ou=Institute of Plant Breeding,  
Genetics & Genomics and Horticulture,  
email=pozias@uga.edu, c=US  
Date: 2016.02.12 10:29:59 -05'00'  
\_\_\_\_\_  
Chair, GAES PCGRC Date
- E.   
\_\_\_\_\_  
Associate Dean for Research 2/12/2016  
Date

Approved:

- F.   
\_\_\_\_\_  
Dean and Director 2-15-16  
Date