

UGA variety test update: 'Zinner' looks good for commercial plantings in Georgia

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'Zinner' was planted into the University of Georgia pecan variety test on its Ponder Farm in western Tift County in 2002. This test orchard is set up to evaluate new pecan cultivars and selections for commercial production in Georgia. Four to six replicate trees of each cultivar are planted and monitored for several years for yield, nut quality, bloom time, and damage from pests. As this data is collected, new cultivars are compared to standard cultivars like 'Desirable', 'Stuart', 'Sumner', and 'Pawnee' to determine if they have a place in Georgia orchards. For more information on how we manage this orchard and collect data refer to our article "UGA variety test update: 'McMillan' shows promise for low-input plantings" in the spring 2013 issue of the Pecan Grower or online (<http://www.caes.uga.edu/commodities/fruits/pecanbreeding/papers/index.html>).

Most trial selections wash out, but a few go on to be-

come popular cultivars. Generally if a new selection looks good in our test for several years we then recommend it for trial by Georgia growers. We usually don't fully recommend a cultivar until we have seen it for many years and know how it performs as a mature tree. Planting large acreages to any new cultivar is always a risk and is especially so in pecan because pecan trees take so long to come into mature tree production and because new races of scab can appear at any time. These risks must be weighed against the potential benefits the

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Dr. Patrick Conner

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new cultivar appears to possess and the well-known faults of many of our standard cultivars.

Like 'McMillan', 'Zinner' is a cultivar that was brought to our attention by Dr. Bill Goff of Auburn. 'Zinner' is a seedling selection which was discovered in Baldwin County, Alabama. While the parentage of this cultivar is unknown, the nut resembles 'Stuart' strongly in size, shape, and markings. The tree of 'Zinner' is also fairly upright in stature like a 'Stuart' tree. Given the prevalence of 'Stuart' in southeastern orchards I feel fairly confident in suggesting 'Stuart' is one parent of 'Zinner'. I have no suggestions as to what the other parent may be.

Unlike many of the cultivars released in the last few years, 'Zinner' is not a precocious tree. In fact, I began to worry that it may not be productive enough for commercial production. However, in comparing nut yield to 'Stuart' and 'Desirable', we see that production of 'Zinner' is very similar to these cultivars (Table 1). Young trees of 'Zinner' are very vigorous and somewhat slow to come into production, but as they reach years six and seven they are bearing very similarly to 'Desirable' and

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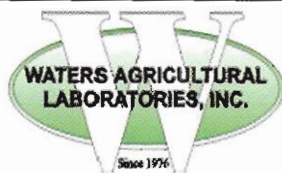


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'Stuart'. It appears 'Zinner' will have fairly even bearing and will not need as much crop thinning as more precocious cultivars like 'Byrd' and 'Cape Fear'. However, it will also not have the heavy production of these precocious cultivars.

While nut production is only average, the quality of these nuts is where 'Zinner' really excels. For several years now 'Zinner' has been my favorite cultivar in terms of the attractiveness of the kernels (Fig. 1). Size of the 'Zinner' nut is 48 nuts/lb, similar to 'Stuart' and smaller than 'Desirable' (Table 2). However, percent kernel has averaged 56%, much bet-

Table 1. Average yield of test cultivars each year from planting in 2002.

Cultivar	# Trees	1	2	3	4	5	6	7	8	9	10	11	Avg.
Zinner	5	0	0	0	0	1	7	20	22	55	53	52	19
Desirable	6	0	0	0	1	3	11	23	24	45	53	45	19
Stuart	5	0	0	0	0	1	7	20	30	54	48	58	20

Table 2. Average nut quality of test cultivars 2002-2012.

Cultivar	Yield lbs./tree/year	# Nuts / lb.	% Kernel	Cluster Size	Harvest date (50% shuck split)
Zinner	19.2	48	56%	2.5	Oct. 12
Desirable	18.5	45	52 %	2.5	Oct. 14
Stuart	19.8	47	45 %	2.6	Oct. 20

ter than 'Stuart' and better than 'Desirable' as well. The kernels shell out very well into clean halves with a bright kernel color. Over the years, I have nearly always rated the kernels as excellent in overall appearance.

Pest resistance of 'Zinner' trees has been very similar to 'Stuart'

(Table 3). 'Zinner' will show some scab and should be planted with the idea that a full spray schedule will be used, just like you would on 'Stuart' trees. Damage from scab has been very similar to 'Stuart' and much less than 'Desirable'. Black aphid

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damage has been a problem for 'Zinner' and this cultivar will need to be monitored for this pest similar to 'Sumner' and 'Oconee'.

A special footnote for 'Zinner' pest resistance needs to be made in terms of possible susceptibility to anthracnose. Dr. Tim Brennamin's program sampled six cultivars in the Ponder Variety Orchard in 2011 for latent infections of anthracnose, 'Zinner' and 'Desirable' had higher levels of latent infections compared to the other four cultivars. However, none of the trees showed symptoms of disease and it is not clear at this point how the presence of latent infections correlates with susceptibility. I have never seen anthracnose symptoms on 'Zinner', whereas I have seen symptoms on 'Desirable'. Some have suggested that 'Zinner' not be planted because of its potential susceptibility to this serious disease. However, to be consistent, you would also have to recommend 'Desirable' no longer be planted as it has not only shown the presence of latent infections but has also shown symptom expression. My recommendation at this point is that 'Zinner' has enough good points to warrant its trial planting. I would, however, not recommend it be planted in locations where anthracnose has been a problem in the past.

'Zinner' is a protogynous (type II) cultivar with early-mid receptivity and late pollen shed. Excellent pollinators for 'Zinner' would be 'Cape Fear', 'Creek', 'Desirable', 'Gafford', 'Mandan', and 'Schley'. Pollination charts and additional pictures of 'Zinner' can be

Table 3. Average pest resistance of test trees 2002-2012.

Cultivar	Leaf Scab ^z Avg. (worst) ^v	Nut Scab ^y Avg. (worst)	Black Aphid Damage ^x Avg. (worst)	Sooty Mold Buildup ^w Avg. (worst)
Zinner	1.4 (3.2)	1.1 (2.0)	2.2 (3.7)	1.1 (1.8)
Desirable	2.0 (4.0)	2.6 (4.8)	1.7 (2.7)	1.1 (2.0)
Stuart	1.4 (2.8)	1.2 (3.5)	2.2 (3.8)	1.1 (2.0)

^z 1=No scab, 2=Few stray spots, 3=Several spots with expanding lesions, 4=Stem scab or defoliation.

^y 1=No scab, 2=Few stray spots, 3=Obvious scab but no quality loss (0-10%), 4=10-50% shuck coverage, 5=50-100% covered, nut drop.

^x 1=No damage, 2=Light spotting, less than 25% leaves affected, 3=Moderate spotting, 25-75% leaves, 4=Heavy spotting, >75% leaves affected, some leaves completely yellow.

^w 1=None, 2=Light, some black on few leaves, 3=moderate, black on most leaves, 4=Heavy, black flakes on leaves and stems.

^v Average score over all years and (average of worst year for each trait).

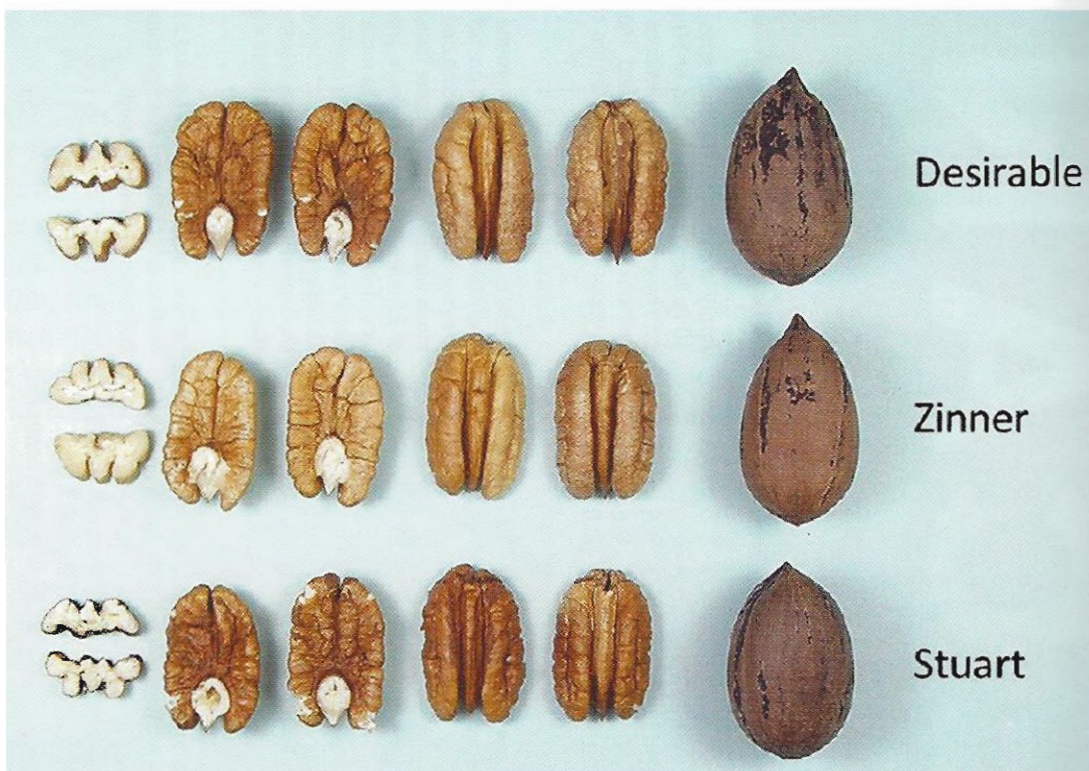


Fig. 1. 'Zinner', 'Desirable', and 'Stuart' nuts and kernels from the 2012 crop. 'Zinner' was 44 nuts/lb with 54% kernel, 'Desirable' was 40 nuts/lb with 50% kernel, and 'Stuart' was 44 nuts/lb with 43% kernel.

found on our website (http://www.caes.uga.edu/commodities/fruits/pecanbreeding/cultivars/cultivar_list.htm).

Overall 'Zinner' appears to have potential Georgia orchards. Nut size is a bit smaller than 'Desirable', but quality is superior. 'Zinner's' manner of bearing is similar to cultivars like Desirable which have been successful in the past, and appears to be suited for growers who don't want to mechanically thin their trees. 'Zinner' trees are not now available in the nurseries, but graftwood of 'Zinner' has been distributed to several nurseries in 2011 and some nurseries may be able to provide 'Zinner' trees by request.