Comparison of Three High-Oleic Peanut Cultivars under Varying Field Conditions in the Southwestern United States

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ABSTRACT

Cultivar selection is one of the most economically important decisions made by peanut producers. The development of genotypes capable of maintaining yield and quality under a wide range of conditions is important so that profitability can be maximized. Issues such as declining irrigation capacity and diseases limit production in parts of Texas. Efforts of the Texas AgriLife Peanut Breeding Program are to develop breeding lines with improved yield potential, total sound mature kernels (TSMK), and disease resistance. Cultivar trials were conducted in 2009, 2010, and 2011 to evaluate the performance of the cultivar Tamrun OL11. Trials were established in several different production areas under various field conditions and included the commercial standards Flavor Runner 458 and Tamrun OL07. Yields were similar for Flavor Runner 458 and Tamrun OL07 at 4538 and 4534 kg/ha, respectively; whereas, Tamrun OL11 averaged 4845 kg/ha ($P = 0.02$). TSMK plus sound splits (SS) for Tamrun OL11 were 1.3% higher than Flavor Runner 458 and 2.4% higher Tamrun OL07. When comparing cultivars in fields with a history of severe Sclerotinia blight (caused by *Sclerotinia minor*) yield increases of 1240 and 2229 kg/ha were observed for Tamrun OL11 over Tamrun OL07 and Flavor Runner 458, respectively. Results from these studies illustrate the high yield potential and superior TSMK of Tamrun OL11.

Key Words: Agronomic performance, disease reaction, Southwest, deficit irrigation.

Peanut (*Arachis hypogaea* L.) is an economically important crop in the southwestern United States and was planted on approximately 730,000 hectares in 2008 (USDA-NASS, 2009). Texas comprises 82% of total production in this region and growing areas are concentrated in four distinct geographic locations in the state (Central, High Plains, Rolling Plains and South). Each of these areas has distinct constraints capable of limiting yield and quality. The total seasonal water use required to maximize yield is approximately 610 to 711 mm (Baughman *et al.* 2007). In Texas, the majority of peanuts are grown in areas that receive 381 to 508 mm of rainfall annually. As such, these acres are certified as irrigated for federal reporting purposes (USDA-NASS, 2009). In the semiarid High Plains, declining pumping capacity, in addition to pending state legislation limiting irrigation amounts could greatly impact peanut production.

Numerous diseases affect peanut production throughout the southwestern United States (Thiessen and Woodward, 2012). Verticillium wilt, caused by the soilborne fungus *Verticillium dahliae* (Kleb.), is the most important disease of cotton (*Gossypium hirsutum* L.) in the High Plains of Texas (Wheeler *et al.* 2012), and is becoming increasingly important in peanut (Woodward *et al.* 2011). The fungus survives in the soil as microsclerotia, and the density of microsclerotia in the soil is positively correlated with disease incidence in cotton (DeVay *et al.* 1974; Paplomatas *et al.* 1992). Melouk *et al.* (1983) found that inoculation of the peanut cultivar Tamnut 74 with *V. dahliae* reduced root and shoot weight, as well as peg production. Initial symptoms of the disease consist of marginal chlorosis on the leaves, which results from systemic infection by the fungus and leads to vascular discoloration (Porter and Melouk, 1997). As the disease progresses, the integrity of the vines diminish contributing to yield loss. Substantial losses to Verticillium wilt have been observed (Woodward, personal observation). Information regarding the impact of Verticillium wilt on peanut cultivars is limited; however, Woodward *et al.* (2008) reported differences in disease response and performance of commercially available cultivars.

The soilborne fungus *Sclerotinia minor* Jagger, causal agent of Sclerotinia blight, was first observed in central Texas in 1981 and quickly spread to several other production regions in the state (Wildman *et al.* 1992). The fungus has a broad host-range and can survive on several weed species (Hollowell *et al.* 2003; Woodward *et al.* 2008). Several fungicides are currently registered for use

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against Sclerotinia blight in Texas (Baughman *et al.* 2007); however, use of such products greatly increases input costs. While initial application timing can be improved using specialized algorithms (Phipps *et al.* 1997), two applications may be required on susceptible cultivars to maximize profitability (Damicone and Jackson, 1996). The development of partially resistant cultivars has provided an effective means on minimizing losses due to Sclerotinia blight (Akem *et al.* 1992; Goldman *et al.* 1995).

A focus of the Texas AgriLife Research Breeding Program has been improving resistance to Sclerotinia blight in runner market-types. Several cultivars, including Tamrun 98 and Tamrun OL07 have shown partial resistance to Sclerotinia blight in the field (Simpson *et al.* 2000; Baring *et al.* 2006). Tamrun OL07 has been widely used in fields infested with *S. minor* and is planted on approximately 10% of peanut hectares in the state (Black, 2011). More recently, Tamrun OL11 was released and possesses a high yield and TSMK potential, as well as partial resistance to Sclerotinia blight (Baring *et al.* 2013). The objective of these studies were to compare the yield and grade performance of Tamrun OL11 to standard peanut cultivars in different production regions, and to evaluate these cultivars in fields with histories of Verticillium wilt and Sclerotinia blight. A preliminary report of these results has been published (Woodward *et al.* 2012).

Materials and Methods

A total of 18 small plot trials (ten in the High Plains and four each in the Rolling Plains and South Texas) were conducted during the 2009, 2010 and 2011 growing seasons to evaluate the performance of commercially available runner-type cultivars and/or advanced breeding lines. Trials were established in fields representing a wide range of irrigation capacity, production inputs and yield expectations. Four additional trials were conducted in the High Plains to evaluate cultivar performance in fields with a history of Verticillium wilt. Three trials were also conducted at the Texas AgriLife Research and Extension Center in Stephenville to compare the response of cultivars to fungicides in fields infested with *S. minor*. Applications of maximum label rates of the fungicides fluazinam (Omega 500F; Syngenta Crop Protection, Greensboro, NC) or fluopyram plus prothioconazole (Propulse; Bayer CropScience, Research Triangle Park, NC) were initiated 65 to 70 d after planting with a sequential application being made after 30 days. Broadcast applications of fungicides were made using a CO_2-pressurized backpack sprayer calibrated to deliver 188 L/ha with two 8002EVS nozzles (TeeJet Technologies, Springfield, IL) per row. Final disease assessments (disease incidence) were made for Sclerotinia blight and Verticillium wilt at each of the respective locations prior to plants being inverted by determining the number of 30.5 cm row increments exhibiting disease symptoms or signs of the pathogen (Rodriguez-Kabana *et al.* 1975). Disease incidence was calculated by determining the percentage of total row length within a plot and was used for the comparison of cultivars.

In all trials, cultivars were arranged in randomized complete block designs with 3 to 6 replications. Plots were two rows wide with lengths ranging from 7.6 to 15.2 m in length. Rows were planted 91.4, 96.5 or 101.6 cm apart. Since cultivars and breeding lines evaluated varied by location and year, comparisons were only made among Flavor Runner 458 (Beasley and Baldwin, 2009), which was replaced with Tamrun OL01 (Simpson *et al.* 2003) in south Texas, Tamrun OL07 (Barring *et al.* 2006) and Tamrun OL11 (Barring *et al.* 2013). All production practices other than fungicide applicaations (in the Sclerotinia blight trials) were based on Texas AgriLife Extension recommendations (Baughman *et al.* 2007). Plots were dug and inverted based on pod maturity (Williams and Drexler, 1981) with the exception of the Sclerotinia blight trials, which were dug at approximately 140 days after planting. This was done to minimize the potential for frost to impact yield in the late planted trials. Plants were allowed to cure in the windrow for five to seven days and picked with a combine. Yield samples were cleaned and adjusted to 10% moisture. The percentages of total sound mature kernels (TSMK) and sound splits (SS) were determined by subjecting a 250 g pod sample to Federal-State Inspection procedures (USDA, 1993). Data from individual trials were subjected to analysis of variance and cultivar means were separated using Fisher's Protected LSD at $P \leq 0.05$. In the Verticillium wilt trials, cultivar yields were related to mean disease ratings using linear regression.

Results and Discussion

Agronomic Performance

Environmental conditions varied greatly during the three growing seasons in which these studies were conducted. Annual precipitation deviated from the 20 yr historical average (43.9 cm) by

Table 1. Pod yields of the peanut cultivars Flavor Runner 458, Tamrun OL07, and Tamrun OL11 for field trials conducted in the High Plains of Texas[a].

	2009						2010		2011		
Cultivar	GC 1	GC 2	TC 1	TC 2	TC 3	YC	GC 3	TC 4	GC 4	TC 5	Mean
	Pod yield (kg/ha)[b]										
Tamrun OL11	4324 a	6866 a	5886 a	7482 a	5377 a	3594 ab	4954 a	4991 ab	2187 a	5076 a	5074
Tamrun OL07	3750 b	5507 b	5790 a	7515 a	5665 a	3379 b	4533 b	4556 b	2146 a	4645 b	4749
Flavor Runner 458	3459 b	5830 b	4413 b	7448 a	5295 a	4138 a	5204 a	5352 a	2159 a	4155 c	4745

[a]A total of 10 trials were conducted in Gaines county (GC), Terry county (TC) and Yoakum county (YC) from 2009-2011.
[b]Data are the means of three to four replications per trial. Values within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

approximately -5.5, 8.5 and -36.8 cm for 2009, 2010 and 2011, respectively (West Texas Mesonet, 2011). While temperatures in 2009 and 2010 were reasonable; heat unit accumulation from Apr to Oct 2011 (3509) was approximately 42% above the 20 yr average (2480). Due to such extreme conditions, significant trial by cultivar interactions were observed for most parameters included in each of the analyses conducted.

High Plains Trials. Pod yields varied greatly by trial and among years with trial means ranging from 2164 kg/ha in 2011 to 7482 kg/ha in 2009 (Table 1). Significant differences were observed in seven of the 10 trials conducted in the High Plains. Overall, yields for Flavor Runner 458 and Tamrun OL07 were similar. In trials where differences among cultivars were observed, yields of Tamrun OL11 were 24.6 and 14.6% greater than Flavor Runner 458 and Tamrun OL07, respectively. Baring *et al.* (2013) reported that yields of Tamrun OL11 grown in the High Plains of Texas were similar to those of Flavor Runner 458 and Tamrun OL07. These data corroborate those findings and provide additional support as to the high yield potential of Tamrun OL11.

Significant differences in TSMK were observed among cultivars in five of six trials in 2009, one of two trials in 2010 and both trials in 2011 (Table 2). TSMK for all cultivars in 2009 and 2010 were high ranging from 73.3 to 79.2%, but were adversely affected by the drought conditions experienced in 2011 averaging 60.6 and 63.0% for the two trials. TSMK were lowest for Tamrun OL07 in all trials. Where differences were observed, TSMK were increased by 0.4 to 3.4 percentage points and 1.9 to 5.3 percentage points for Flavor Runner 458 and Tamrun OL11, respectively. These results are in agreement with previous studies where TSMK percentages for Tamrun OL11 were equivalent to Flavor Runner 458 and superior to Tamrun OL07 (Baring *et al.* 2013).

Rolling Plains Trials. Growing conditions similar to those experienced in the High Plains occurred during the duration of the trials conducted in the Rolling Plains. As a result, yields varied greatly by year and were greatest in 2010 and considerably lower in both trials conducted in 2011 (Table 5). Significant differences were observed in three of the five trials conducted and were generally higher for Tamrun OL11 and Flavor Runner 458 than for

Table 2. Total sound mature kernels (TSMK) of the peanut cultivars Flavor Runner 458, Tamrun OL07 and Tamrun OL11 for field trials conducted in the High Plains of Texas[a].

	2009						2010		2011		
Cultivar	GC 1	GC 2	TC 1	TC 2	TC 3	YC	GC 3	TC 4	GC 4	TC 5	Mean
	TSMK (%)[b]										
Tamrun OL11	75.5 a[c]	75.3 a	79.2 a	79.5 a	75.5 a	77.0 a	77.5 a	76.7 a	61.8 a	65.7 a	74.4
Tamrun OL07	73.3 b	74.5 a	76.6 b	77.6 b	72.7 b	73.7 c	77.0 a	76.3 a	61.7 a	60.4 c	72.4
Flavor Runner 458	75.4 a	75.0 a	77.0 b	77.9 b	76.0 a	75.1 b	77.4 a	77.1 a	58.4 b	63.0 b	73.2

[a]A total of 10 trials were conducted in Gaines county (GC), Terry county (TC) and Yoakum county (YC) from 2009–2011.
[b]Values within a column are the percentage of sound mature kernels (SMK) plus sound splits (SS) in a 250-g sample of whole pods from each plot.
[c]Values within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

Table 3. Verticillium wilt incidence for the peanut cultivars Flavor Runner 458, Tamrun OL07 and Tamrun OL11 for field trials Conducted in the High Plains of Texas[a].

Cultivar	2009	2010		2011	Mean
	TC	TC	GC	TC	
	Disease incidence (%)[b]				
Tamrun OL11	14.5 a[c]	14.6 a	9.8 b	22.7 b	15.4
Tamrun OL07	14.0 a	13.2 a	14.8 b	34.0 ab	19.0
Flavor Runner 458	13.5 a	18.9 a	32.3 a	41.3 a	26.5

[a]Trials were conducted in Gaines county (GC) and Terry county (TC).
[b]Percentage of 30.5 cm segments of row exhibiting symptoms of Verticillium wilt. Data are the means of three to four replications per trial.
[c]Values within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

Tamrun OL07, except for the trial conducted in 2009, where yield of Tamrun OL07 was similar to that of Tamrun OL11 and greater than that of Flavor Runner 458.

Acceptable mean TSMK levels (68.1 to 76.1%) were obtained in the 2009 and 2010 field trials (Table 5). TSMK for both trials conducted in 2011 were considerably lower, averaging 50.6 and 64.9% for Location 4 and 5, respectively. Overall, TSMK contents were greatest for Tamrun OL11 and lowest for Tamrun OL07; whereas, TSMK contents for Flavor Runner 458 were intermediate.

South Texas Trials. Tamrun OL01 was utilized as the commercial standard in this trial in place of Flavor Runner 458. Differences in yield were observed two of the three years; however, the performance of Tamrun OL01 and Tamrun OL11 were inconsistent (Table 6). Yields of the three cultivars were similar in 2010; whereas, Tamrun OL11 yielded 681 kg ha^{-1} less and 2090 kg ha^{-1} more than Tamrun OL01 in 2009 and 2011, respectively. Tamrun OL11 has performed similarly to both Tamrun OL01 and Tamrun OL07 in previous studies conducted in South Texas (Baring *et al.* 2013).

Differences in TSMK between cultivars were observed in all three years (Table 6). TSMK levels of Tamrun OL01 and Tamrun OL07 were similar averaging 72.3, 66.2 and 69.3% for 2009, 2010 and 2011, respectively; whereas, TSMK contents for Tamrun OL11 were 75.5, 73.3 and 70.5% over the same years. Similar results were found by Baring *et al.* (2013), where, TSMK levels of Tamrun OL11 were 1.7 to 3.8% higher than those of either Tamrun OL01 or Tamrun OL07.

Verticillium Wilt Trials

Initial disease symptoms were evident by early-August during 2009 and 2010; however, limited progression occurred through September and October (data not shown). Despite harsh growing conditions, higher levels of disease were observed in the two trials conducted in 2011. High temperatures and low relative humidity resulted in a delay in the onset of disease by approximately three weeks compared to other years (data not shown). To account for the estimated high transpiration rates experienced and to optimize humidity within the canopy to facilitate pollination and peg development, irrigation was administered frequently in 2011. This may have helped exacerbate disease

Table 4. Pod yields and total sound mature kernels (TSMK) of the peanut cultivars Flavor Runner 458, Tamrun OL07, Tamrun OL11 in Verticillium wilt trials conducted in the High Plains of Texas[a].

Cultivar	2009	2010	2011			2009	2010	2011		
	TC	TC	GC	TC	Mean	TC	TC	GC	TC	Mean
	Pod yield (kg/ha)					TSMK (%)[b]				
Tamrun OL11	4834 a[c]	5132 a	4973 a	4204 a	4786	74.9 a[c]	76.1 a	68.5 a	50.1 a	67.4
Tamrun OL07	4254 b	4962 a	5055 a	3604 b	4469	73.8 b	74.2 b	67.9 a	50.9 a	66.7
Flavor Runner 458	4960 a	3903 b	4861 a	3585 b	4327	74.1 ab	75.9 a	68.2 a	49.4 a	66.9

[a]Trials were conducted in Gaines county (GC) and Terry county (TC). Data are the means of three to four replications per trial.
[b]Values within a column are the percentage of sound mature kernels (SMK) plus sound splits (SS) in a 250-g sample of whole pods from each plot.
[c]Values within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

Table 5. Pod yields and total sound mature kernels (TSMK) of the peanut cultivars Flavor Runner 458, Tamrun OL07 and Tamrun OL11 for field trials conducted in the Rolling Plains of Texas[a].

	2009		2010	2011			2009		2010	2011		
Cultivar	CC	WC	WC	CC	WC	Mean	CC	WC	WC	CC	WC	Mean
	Pod yield (kg/ha)						TSMK (%)[b]					
Tamrun OL11	4815 a[c]	4562 a	5323 a	2860 a	1990 a	3910	76.8 a[c]	75.1 a	68.1 a	52.0 a	68.7 a	68.1
Tamrun OL07	5143 a	4043 b	4797 a	2308 b	1929 a	3644	73.8 b	67.2 c	68.4 a	51.4 a	63.7 b	64.9
Flavor Runner 458	4570 b	4459 a	4789 a	3069 a	2128 a	3803	72.2 b	71.0 b	68.8 a	48.4 b	62.2 b	64.5

[a]Trials were conducted in Collingsworth county (CC) and Wilbarger county (WC). Data are the means of three to four replications per trial.

[b]Values within a column are the percentage of sound mature kernels (SMK) plus sound splits (SS) in a 250-g sample of whole pods from each plot.

[c]Values within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

development as cool soil temperatures and high soil moisture conditions are best suited for growth and survival of *V. dahliae* (Bell and Presley, 1969; Rowe, *et al.* 1987).

Appreciable levels of Verticillium wilt developed at all locations with cultivar differences observed in three of the four trials (Table 3). Overall, disease incidence was greatest for Flavor Runner 458, intermediate for Tamrun OL07 and considerably lower for Tamrun OL11. Limited information on cultivar performance is available with regard to Verticillium wilt in peanut. Woodward *et al.* (2008) reported differences in susceptibility among ten runner-type cultivars evaluated with Flavor Runner 458 and Tamrun OL07 exhibiting similar levels wilt symptoms. Other studies have shown that Verticillium wilt symptoms are less severe in Tamrun OL11 (Woodward, *unpublished*). In cotton, the utilization of partially resistant or tolerant cultivars is used to maximize yield (Wheeler and Woodward, 2008); however, management of the disease is achieved through the integration of multiple factors (Wheeler *et al.* 2010; Wheeler el al. 2012).

In these studies, differences in yield and TSMK were established between Flavor Runner 458, Tamrun OL07 and Tamrun OL11 (Table 4). Trends similar to those observed in the cultivar trials were observed for yield; where, yields were greatest for Tamrun OL11. TSMK for Tamrun OL11 were numerically highest in all trials; however, significant differences among cultivars were observed only in 2009 and 2010. Negative correlations were observed between disease incidence and yield ($R^2 = 0.4878$; $P = 0.0037$) and TSMK ($R^2 = 0.5667$; $P < 0.0192$). Melouk *et al.* (1983) noted that infection by *V. dahliae* in greenhouse studies reduced vigor and reproductive capacity of Tamnut 74 regardless of when infections occurred. They further speculated that pod loss and maturity may be negatively affected when Verticillium wilt occurs in conjunction with other stresses. Pod development in 2011 was delayed due to the harsh growing conditions, thus peanut maturity and TSMK could have been confounded.

Sclerotinia Blight Trials

There was no fungicide by cultivar interaction; therefore, data were combined across fungicide treatments. Years are presented independently as fungicide programs were not uniform across years. All cultivars responded to the application of fungicides, where treated plots exhibited 34 to 64% less disease than non-treated controls (data not shown). Disease incidence was highest for Flavor Runner 458, the susceptible check cultivar

Table 6. Pod yields and total sound mature kernels (TSMK) of the peanut cultivars Tamrun OL01, Tamrun OL07 and Tamrun OL11 for field trials conducted in the south Texas (Frio county)[a].

Cultivar	2009	2010	2011	Mean	2009	2010	2011	Mean
	Pod yield (kg/ha)				TSMK (%)[b]			
Tamrun OL11	4010 b	5341 a	5104 a	4818	75.5 a	73.3 a	70.5 a	73.1
Tamrun OL01	4612 a	5005 a	3014 b	4210	72.5 b	66.4 b	69.5 a	69.5
Tamrun OL07	3820 b	5256 a	3160 b	4079	72.0 b	65.9 b	69.2 a	69.0

[a]Data are the means of three to four replications per trial. Values within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

[b]Values within a column are the percentage of sound mature kernels (SMK) plus sound splits (SS) in a 250-g sample of whole pods from each plot.

Table 7. Sclerotinia blight incidence for the peanut cultivars Flavor Runner 458, Tamrun OL07 and Tamrun OL11 for field trials conducted in central Texas (Erath county)[a].

Cultivar	2009	2010	2011	Mean
	Disease incidence (%)[b]			
Tamrun OL11	15.3 c[b]	10.8 b	10.2 b	12.1
Tamrun OL07	24.8 b	13.8 b	14.2 b	17.6
Flavor Runner 458	38.6 a	30.5 a	25.3 a	31.5

[a]Data are the means of three to four replications per trial. Values within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

[b]Percentage of 30.5 cm segments of row exhibiting symptoms of Sclerotinia blight or signs of *Sclerotinia minor*.

(Beasley and Baldwin, 2009), in all three years of the study (Table 7). Tamrun OL07 exhibited less disease than Flavor Runner 458 in all three years, which is consistent with preliminary studies conducted at this location (Woodward, *unpublished*), as well as other trials conducted in fields with a history of Sclerotinia blight (Baring *et al.* 2006, and Baring *et al.* 2013). Disease incidence for Tamrun OL11 was similar to that of Tamrun OL07 in 2010 and 2011 and significantly lower in 2009. Tamrun OL11 was derived by crossing Tamrun 98, which is partially resistant to *S. minor* (Simpson *et al.* 2000), and Tx977116, which possesses resistance to *Tomato spotted wilt virus* (TSWV) and a high oleic to linoleic (O/L) fatty acid ratio (Baring *et al.* 2013).

Similar trends in yield among the cultivars were observed in all three years of the study, where yields were lowest for Flavor Runner 458, highest for Tamrun OL11 and intermediate for Tamrun OL07 (Table 8). Yields were negatively correlated with disease incidence in all three years (data not shown). The high yield potential and near optimal growing conditions in 2010, lessened this relationship compared to the other two seasons. Baring *et al.* (2013) reported that yields of Tamrun OL11 were superior to Flavor Runner and similar to Tamrun OL07 under high Sclerotinia blight pressure. Similar results were found in this study, except yields of Tamrun OL11 were increased over those of Tamrun OL07 by an average of more than 1120 kg/ha.

TSMK contents for all cultivars were relatively low (<70%) for each of the three years (Table 8). This is mostly attributed to later planting dates utilized to maximize disease development late in the growing season; however, further reductions in TSMK in 2011 may have resulted from adverse growing conditions that delayed maturity. Despite the different conditions experienced throughout the duration of this study, TSMK contents for Tamrun OL11 were 1.0, 2.5 and 1.6% higher than Tamrun OL07 in 2009, 2010 and 2011, respectively.

Conclusion

Tamrun OL11 was developed to provide producers with a high yielding, high quality cultivar. Results from these studies demonstrate that Tamrun OL11's performance was comparable to or better than Flavor Runner 458 in the High Plains and Rolling Plains of Texas. Definitive conclusions regarding the performance of Tamrun OL11 in south Texas cannot be made, due to the inconsistent performance of cultivars during the three seasons trials were conducted. Limited observations were made regarding the performance of Tamrun OL11 in fields infested with *V. dahliae* in this work; however, disease incidence was consistently lower and yields generally higher for Tamrun OL11 compared to Flavor Runner 458. Under moderate to high Sclerotinia blight pressure, Tamrun OL11 exhibited resistance similar to that of Tamrun OL07. Yields for Tamrun OL11 were superior to both Flavor Runner 458 and Tamrun OL07, thus providing producers an additional tool for managing Sclerotinia blight. Finally, the improvement in TSMK of Tamrun OL11 over Tamrun OL07, comparable to those for Flavor

Table 8. Pod yields and total sound mature kernels (TSMK) of the peanut cultivars Flavor Runner 458, Tamrun OL07 and Tamrun OL11 in Sclerotinia blight trials conducted in central Texas (Erath county)[a].

Cultivar	2009	2010	2011	Mean	2009	2010	2011	Mean
	Pod yield (kg/ha)				TSMK (%)[b]			
Tamrun OL11	5184 a[b]	5310 a	4313 a	4936	67.9 a	66.1 a	63.8 a	66.1
Tamrun OL07	3408 b	4505 b	3438 b	3784	66.9 b	63.6 c	62.2 b	64.2
Flavor Runner 458	2727 c	3956 c	2141 c	2941	67.6 a	64.3 b	63.3 a	65.1

[a]Data are the means of three to four replications per trial. Values within a column followed by the same letter are not significantly different according to Fisher's Protected LSD ($P \leq 0.05$).

[b]Values within a column are the percentage of sound mature kernels (SMK) plus sound splits (SS) in a 250-g sample of whole pods from each plot.

Runner 458, will help to maximize grower returns and maintain profitability in peanut growing regions throughout Texas.

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