Effects of Planting Date and Irrigation on Yield and Grade in Runner-type Peanut Cultivars in North Florida

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ABSTRACT

Peanuts (*Arachis hypogaea* L.) have been one of the most profitable crops in the southeastern coastal plains but with increasing cost of production, growers continually seek to lower inputs and enhance overall profitability of their farms. Peanut cultivars with high yield potential and disease resistance along with drought tolerance are therefore obvious choices for sustainable production. Runner-type peanut cultivars were evaluated for pod yield and grade for three yr. Five peanut cultivars were evaluated in 2014 and 2015 and six cultivars in 2016 at the North Florida Research and Education Center, University of Florida, Quincy, FL. Cultivar performance was observed at different planting dates, four in 2014 and three in 2015 and 2016, to evaluate impacts of early, mid, and late planting with and without irrigation. Georgia cultivar GA-12Y consistently yielded greater than the other varieties in all yr of the study. Average pod yield for GA-12Y was 5980 kg/ha for three yr compared to 5140 kg/ha, 4730 kg/ha, 4890 kg/ha for GA-06G, FloRun 107, and TUFRunner 511, respectively. Florida cultivar TUFRunner 297 yielded greater (5300 kg/ha) than the rest of Florida cultivars irrespective of the planting date and had higher proportion of total sound mature kernels (TSMK) compared to GA-12Y in two of the three yr. Planting date had no impact on peanut pod yield in 2014 and 2015. However, peanut yield for all the cultivars was higher at later planting dates in 2016. The advantage of irrigation was not always consistent in all the yr, likely due to high rainfall during the study yr, removing that advantage.

Key Words: Groundnut, peanut, *Arachis Hypogaea* L., drought tolerance, peanut cultivars, planting date

Increase in peanut (*Arachis hypogaea* L.) pod yield and grade with reduction in production cost is desired by growers for farm profitability. High peanut yield requires optimum crop variety selection, right fertility and soil conditions, rainfall, irrigation, and planting dates (Davidson *et al*., 1990; Lamb *et al*., 1997; Smith *et al*., 2003; Wright *et al*., 1986). Effective management of these requirements is necessary to produce maximum peanut yield. Grichar *et al*. (1998) reported that peanut yield and sound mature kernels were affected by planting dates on three runner- and one spanish-type cultivars. Endemic foliar diseases have mostly driven a dramatic change in the management strategies for peanut production in the last five to ten yr. Peanut genotype and planting date are the major factors that influence pod yield and severity of spotted wilt in peanut (Brown *et al*., 2005; Culbreath *et al*., 1999, 2003; Nuti *et al*., 2014; Tillman *et al*., 2007). Peanuts planted from middle to late May maybe at lower risk of losses to tomato spotted wilt tospovirus than peanuts planted in April or early May in the southeastern United States (Brown *et al*., 2005). This has led to a shift in the planting date of peanuts when compared to the yr before the tomato spotted wilt became a problem (Culbreath *et al*., 2003). However, several studies have shown that peanut pod yield and stand density are more influenced by peanut cultivars than by peanut planting dates (Culbreath *et al*., 2010; Hagan *et al*., 2015).

A grower's decision to plant peanut is also impacted by other factors such as conflict with other crops that need to be planted or harvested during peanut planting season, hectarage, equipment availability, and weather. Having the option to plant peanut over a wide range of dates might be useful for growers in terms of managing the logistics of harvest and curing of the crop. The ability to plant peanut in April and early May is desirable for farmers with large hectarage or for a farmer who plans to plant other crops such as fresh produce later in May. Therefore, it is important to evaluate peanut cultivars at different planting dates to provide flexibility to the farmer without sustaining a loss in crop yield.

Higher peanut yields do not always correlate to higher economic returns as production cost and crop price must be considered for overall profitability (Lamb *et al*., 1997, 2007). Smith and Smith (2015) compared a cost analysis of irrigated and non-irrigated peanut production in Georgia in 2015. Irrigated peanut production cost was esti-

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Table 1. Description of planting date, harvest date, and peanut cultivars planted in 2014, 2015, and 2016 at Quincy, FL.

Planting	Harvest	GA-06G	GA-12Y	TUFRunner 511	FloRun 107	TUFRunner 297	FloRun157
2014							
April 23	Sept 10	X	X	X	X	X	—
May 8	Sept 25	X	X	X	X	X	—
May 19	Oct 6	X	X	X	X	X	—
May 29	Oct 16	X	X	X	X	X	—
2015							
April 10	Sept 15	X	X	X	X	X	—
May 14	Oct 6	X	X	X	X	X	—
June 9	Oct 26	X	X	X	X	X	—
2016							
April 20	Sept 23	X	X	X	X	X	X
May 13	Oct 12	X	X	X	X	X	X
June 3	Oct 21	X	X	X	X	X	X

mated $2,388/ha with an expected pod yield of 5269 kg/ha whereas non-irrigated peanut production cost estimate was $1,797/ha with expected yield of 3811 kg/ha. Thus, an irrigated system for peanut production adds up to $591/ha, which includes variable and fixed costs, but with an average 1458 kg/ha yield advantage over non-irrigated production system. Therefore, it is desirable to have cultivars with drought tolerant characteristics with comparable yield potential so that farmers could avoid the yield disadvantage when planting non-irrigated as compared to irrigated.

Growers are seeking cultivars with disease resistance and drought tolerant characteristics for sustainable crop systems with lower cost of production and greater economic returns. Along with these desired characteristics, the ability to plant peanuts over a wide range of dates will help in overall logistics of the farm operation. The objective of this research was to evaluate the impact of planting date, irrigation, and cultivar selection on peanut pod yield and grade.

Materials and Methods

A three-year study (2014 to 2016) was conducted to evaluate different runner-type peanut cultivars for pod yield and grade at North Florida Research and Education Center (NFREC), Quincy, Florida (latitude 30.54 N and longitude -84.59 W). The soil at the research site is Dothan-Fuquay (fine-loamy kaolinitic, thermic Typic Kandiudult) which is composed of 2% organic matter, 80% sand, 12% silt, and 8% clay, sandy clay loam in the top 60 cm (NRCS, 2019). Different cultivars were evaluated during the scope of the study and details of cultivars compared along with planting and harvest dates for each year are provided in Table 1. Two Georgia cultivars GA-12Y (Branch, 2013) and GA-06G (Branch, 2007) and three Florida cultivars FloRun 107 (Tillman and Gorbet, 2015), TUFRunner 511 (Tillman and Gorbet, 2017) and TUFRunner 297 (Tillman, 2018) were evaluated for all the three yr (Table 1). FloRun 157 was evaluated for one yr in 2016. Peanut cultivars were planted at four planting dates in 2014 and at three planting dates in 2015 and 2016 (Table1).

The study was a randomized complete block design with a strip-split plot arrangement (planting date by irrigation by cultivar). The main plots were 20.7 m by 9.1 m and consisted of different planting date treatments. The lateral line overhead irrigation was applied to half of each replicate and the other half was non-irrigated. Rainfall and weather data for Quincy, FL was collected from the Florida Automated Weather Network (FAWN). Potential evapotranspiration was calculated from the meteorological data and was used in scheduling overhead irrigation. Each irrigation event was applied at the rate of 1.52 cm to the irrigated treatments during the growing season. The sub-plots were 9.1 m by 9.1 m and consisted of irrigated and non-irrigated treatments. The sub-sub plots were 1.8 m by 9.1 m and consisted of different peanut cultivars. The Monosem single row planter (Monosem Inc., Edwardsville, KS) was used to plant peanut seeds at a depth of 6.35 cm. A 2.43 m alleyway separated blocks, main plots, and sub-plots. Two rows of seeds were planted per plot at a row spacing of 0.91 m and at a rate of 19.7 seeds per m of row.

A KMC strip till rig (Kelly Manufacturing Co., Tifton, GA) was used to prepare the plots for the study. University of Florida Extension recommendations were used for peanut management (Wright *et al.*, 2016). Peanuts were dug and inverted using a KMC peanut digger (Kelly Manufacturing Co., Tifton, GA) based on the optimum maturity for each cultivar between 139 and 158 d after planting (DAP) for all the planting dates during three yr of the study. Peanut optimum maturity was determined by mesocarp color and color change was observed by removing exocarp by hand scrapping. Wet weights were recorded and a 4.5 kg sub-sample was dried to 10% moisture and dry weights were recorded for evaluating peanut pod yield. A 600g sub-sample of dried peanuts was shelled and graded to determine percentage of total sound mature kernels (TSMK), other kernels (OK) and damaged or diseased kernels.

Statistical Analysis. Statistical analyses were conducted by PROC GLIMMIX with ddfm = Kenward Roger (kr) option on the model statement (SAS v.9.4, SAS Institute, Cary, NC). Irrigation, planting date, and cultivar were considered as fixed effects and block, block x irrigation, block x irrigation x planting date were considered as random effects. Effects were considered significant when $P \leq 0.05$. Data were analyzed by analysis of variance (ANOVA) and computed using standard error and t values of adjusted degrees of freedom. A three yr combined ANOVA in many instances indicated significant yr effects and treatment by yr interactions; therefore, data were reanalyzed by yr and summarized for each yr separately.

Results and Discussion

Peanut cultivars influenced peanut yield in all of the three yr ($P \leq 0.001$) and TSMK in 2015 and 2016 ($P \leq 0.001$; Table 2). Planting date did not impact peanut yield in 2014 and 2015 (Table 2). However, a significant effect of planting date on peanut yield ($P \leq 0.001$) was observed in 2016. Planting date had significant effects on TSMK in 2014 ($P \leq 0.05$) and 2016 ($P \leq 0.001$) (Table 2).

In two (2014 and 2016) out of the three yr study, no impact of irrigation was observed on peanut pod yield (Table 2). However, in 2015 irrigation treatment effected pod yield ($P \leq 0.05$) but not TSMK or OK for all the three yr. Total rainfall received from April to October was 92, 75, and 104 cm in yr 2014, 2015, and 2016, respectively (data not shown). One possible explanation for no irrigation treatment effect in 2014 and 2016 could be that these yr were high rainfall yr. Presence of drought conditions would have been beneficial to compare the impact of irrigation on performance of different cultivars (Nageswara Rao *et al.*, 1985).

No interactions influenced pod yield except for cultivar x planting date ($P \leq 0.001$) in 2015 (Table 2). Significant interactions such as cultivar x irrigation (2015) and cultivar x planting date (2015 and 2016) were observed for TSMK. However, treatment interaction effects were not consistent for pod yield and grade across the yr (Table 2). Similarly, treatment interactions were also not consistent for OK for the three yr. A cultivar x planting date interaction was observed for OK in 2014 ($P \leq 0.05$) and 2015 ($P \leq 0.01$) (Table 2).

There were no effects of irrigation treatment on yield or grade for two of the three yr (Table 2). Therefore, data were pooled for non-irrigated and irrigated treatments to discuss yield and other parameters. In 2014, planting date and interaction of cultivar and planting date did not influence pod

Table 2. Analysis of variance (ANOVA) table showing the main and interaction effects of irrigation, planting date, and cultivar on peanut yield, total sound mature kernel (TSMK), and other kernels (OK).

Source of variation	Degrees of Freedom	Yield	TSMK	OK
		F-value		
2014				
Irrigation	1	5.29	1.28	0.00
Planting date	3	0.45	3.91*[a]	2.21
Irrigation x Planting date	3	1.92	2.09	1.47
Cultivar	4	15.26***	1.00	2.02
Cultivar x Irrigation	4	0.48	0.07	0.17
Cultivar x Planting date	12	0.68	1.11	2.37*
Cultivar x Planting date x Irrigation	12	0.97	1.05	1.09
2015				
Irrigation	1	6.73*	0.10	0.35
Planting date	2	3.92	28.21	48.28
Irrigation x Planting date	2	0.30	0.64	0.92
Cultivar	4	58.05***	47.75***	34.71***
Cultivar x Irrigation	4	0.60	3.00***	1.93
Cultivar x Planting date	8	6.65***	3.56***	3.65**
Cultivar x Planting date x Irrigation	8	0.41	1.06	1.66
2016				
Irrigation	1	1.12	2.76	0.40
Planting date	2	49.06***	41.50***	100.70***
Irrigation x Planting date	2	0.20	3.01	1.66
Cultivar	5	21.35***	26.20***	17.91***
Cultivar x Irrigation	5	1.89	0.10	0.36
Cultivar x Planting date	10	1.46	1.99*	1.22
Cultivar x Planting date x Irrigation	10	0.70	2.45*	0.89

[a]Abbreviations: Significant at 0.05 to 0.01, *; Significant at 0.01 to 0.001, **; Significant at the >0.001, ***.

Table 3. Effect of cultivar on peanut yield with different planting dates in Quincy, FL, 2014 and 2016.

Cultivar	2014		2016	
	kg/ha			
GA-06G	5540	cd	4920	c
GA-12Y	6520	a	5780	a
TUFRunner 511	5900	b	4720	cd
FloRun 107	5450	d	4510	d
TUFRunner 297	5780	bc	5410	b
FloRun 157			4530	d
Standard error	229		236	

[a]Means within a column in a treatment group followed by the same letter are not significantly different according to $LSD_{0.05}$.

yield. Therefore, pod yield data for each cultivar will not be discussed for each planting date. Across all planting dates in 2014, average pod yield was 6520 kg/ha, 5900 kg/ha, 5780 kg/ha, and 5540 kg/ha for GA-12Y, TUFRunner 511, TUFRunner 297, and GA-06G, respectively (Table 3).

In 2015, GA-12Y and TUFRunner 297 yielded highest on the first and third planting dates and GA-12Y has the highest pod yield on the second planting date when compared to other cultivars (Table 4). GA-06G yielded similar to GA-12Y at the early planting date, but was lower in yield on the latter two planting dates (Table 4). In contrast, Florida cultivar TUFRunner 297 had similar pod yields to GA-12Y on the early and late planting dates in 2015 (Table 4). However, when planted on May 14, 2015 the pod yield for TUFRunner 297 was lower than GA-12Y and similar to GA-06G. Another Florida cultivar TUFRunner 511, yielded lower than GA-12Y in 2015 on all the planting dates which may have been due to late leaf spot (data not reported). When planted on May14, and June 9 in 2015, yield for GA-12Y was 11.1% and 19.2% higher when compared to GA-06G (Table 4). However, yield for GA-12Y was 15%, 44.4%,

Table 4. Effect of cultivar on peanut yield with different planting dates in Quincy, FL, in 2015.

Cultivar	Planting Date 1		2		3	
	kg/ha					
GA-06G	5230	ab	5060	b	4550	b
GA-12Y	5580	a	5690	a	5630	a
TUFRunner 511	4750	bc	3170	d	4270	b
FloRun 107	4540	c	3930	c	4230	b
TUFRunner 297	5580	a	4810	b	5170	a
Standard error	226		185		185	

[a]Means within a column in a treatment group followed by the same letter are not significantly different according to $LSD_{0.05}$.

Table 5. Effect of planting date on peanut yield in Quincy, FL, in 2016.

Planting date	kg/ha	
April 20, 2016	4130	b
May 13, 2016	5200	a
June 3, 2016	5600	a

[a]Means within a row in a treatment group followed by the same letter are not significantly different according to $LSD_{0.05}$.

and 24.2% higher when compared to TUFRunner 511 and 18.7%, 30.9%, and 24.8% higher when compared to FloRun 107 when planted on April 10, May 14, and June 9 in 2015, respectively. Across planting dates, yield was 5630 kg/ha, 5190 kg/ha, and 4950 kg/ha for GA-12Y, TUFRunner 297, and GA-06G, respectively (Table 4).

In 2016, cultivar and planting date main effects were significant for peanut yield (Table 2). Since no interaction effect of cultivar and planting date was observed, the yield data was pooled to study impact of cultivar and planting date. GA-12Y had the highest pod yield followed by TUFRunner 297. GA-12Y, TuFRunner 297, and GA-06G pod yields across the planting dates were 5770 kg/ha, 5410 kg/ha, and 4920 kg/ha, respectively (Table 3). The average pod yield for FloRun 157 and FloRun 107 were the lowest as compared to the other cultivars (Table 3). In 2016, average pod yield for all the cultivars pooled together was lower when planted on April 20 (Table 5). Performance of peanut cultivars improved when they were planted on later planting dates corresponding to mid-May and early-June (Table 5).

GA-06G is one of the most popular cultivars throughout southeastern U.S. and its ability to yield and grade well in different environments, different row spacing and seed rates may be the contributing factors for its widespread adoption (Plumblee *et al.*, 2018; Tubbs *et al.*, 2011). In three yr of the study, GA-12Y cultivar outperformed GA-06G in yields in six out of 10 observations when planted on different planting dates. One of the factors which might be contributing to the higher yields of GA-12Y is its prostrate growth habit compared to GA-06G which has a more upright growth habit. The prostrate growth habit can allow lateral vine growth and it is hypothesized that it would lap the middles more quickly than GA-06G. The quicker covering of row middles might provide agronomic advantages such as increased weed suppression and reduced soil temperatures during reproductive growth stages (Boote, 1982; Hauser *et al.*, 1982).

Another important factor which resulted in higher yields in GA-12Y is likely its resistance to

Table 6. Effect of cultivars on total sound mature kernels (TSMK) at different planting dates in Quincy, FL, in 2014, 2015, and 2016.

	Planting Date											
	1			2			3			4		
Cultivar	TSMK.	Rank		Prop.	Rank		TSMK.	Rank		TSMK.	Rank	
2014												
GA-06G	0.71	5	a	0.71	5	a	0.70	4	a	0.72	1	a
GA-12Y	0.72	4	a	0.71	4	a	0.70	3	a	0.71	3	a
TUFRunner 511	0.73	3	a	0.72	3	a	0.72	1	a	0.69	5	a
FloRun 107	0.73	1	a	0.72	2	a	0.68	5	a	0.70	4	a
TUFRunner 297	0.73	2	a	0.73	1	a	0.71	2	a	0.71	2	a
Standard error	0.013			0.013			0.014			0.013		
2015												
GA-06G	0.75	1	a	0.77	1	a	0.77	2	a			
GA-12Y	0.70	5	b	0.71	4	bc	0.74	4	b			
TUFRunner 511	0.75	2	a	0.72	3	b	0.77	3	a			
FloRun 107	0.70	4	b	0.69	5	c	0.73	5	b			
TUFRunner 297	0.74	3	a	0.75	2	a	0.77	1	a			
Standard error	0.010			0.009			0.008					
2016												
GA-06G	0.71	2	ab	0.73	2	a	0.75	1	a			
GA-12Y	0.67	6	c	0.69	5	b	0.72	5	bc			
TUFRunner 511	0.71	3	ab	0.74	1	a	0.74	3	ab			
FloRun 107	0.69	5	bc	0.68	6	b	0.71	6	c			
TUFRunner 297	0.72	1	a	0.73	3	a	0.75	2	a			
FloRun 157	0.71	4	ab	0.70	4	b	0.74	4	ab			
Standard error	0.007			0.007			0.007					

[a]Means within a column in a treatment group followed by the same letter are not significantly different according to $LSD_{0.05}$.

tomato spotted wilt virus and white mold or stem rot (caused by *Sclerotium rolfsii* Sacc) even when planted early in mid-April (Branch, 2013). Florida cultivar TUFRunner 297 which has semi-prostrate growth habit, was shown to be comparable in yield to GA-06G which is consistent with results from Tillman (2018). It was also reported that TUFRunner 297 had higher incidence of white mold when compared to GA-12Y and GA-06G which resulted in slightly lower pod yield (Tillman, 2018). But slightly lower pod yields for TUFRunner 297 when compared to GA-12Y may be attributed to its slightly higher susceptibility to fungal diseases (data not shown). FloRun 107 has a prostrate growth habit and has substantially smaller seed. The pod yield of FloRun 107 was consistently lower than the Georgia cultivars which is consistent with the results published by Tillman and Gorbet (2015). One of the reasons for a lower yield by FloRun 107 is due to its susceptibility to white mold when compared to other cultivars (Tillman and Gorbet, 2015). TUFRunner 511 performed at par with GA-06G and GA-12Y during the first yr which is also consistent with findings from Tillman and Gorbet (2017). However, in 2015 and 2016 the yield from TUFRunner 511 was lower than GA-12Y for most of the planting dates. One of the reasons for its poor yield when compared to GA-12Y in these two yr could be attributed to higher disease incidence (data not reported). TUFRunner 511 has higher susceptibility to white mold and late leaf spot which was reported by Tillman and Gorbet (2017).

Total sound mature kernels (TSMK) parameter was calculated on a percent basis but was statistically analyzed as a proportion. In 2014, no differences were observed in TSMK proportion for all the cultivars on all the planting dates (Table 6). In 2015 and 2016, interaction effect of cultivar and planting date was observed for TSMK (Table 2). When planted on the first and the third planting date, TSMK proportion was higher for GA-06G, TUFRunner 511, and TUFRunner 297 (Table 6). However, proportion of TSMK for TUFRunner 511 was lower compared to GA-06G and TUFRunner 297 when cultivars were planted on the second planting date. FloRun 107 and GA-12Y were similar in TSMK proportion on all the three planting dates. In 2016, an overall increase in TSMK proportion was observed when cultivars were planted on the third planting date as compared to the first two planting dates (Table 6). In 2016, proportion of TSMK for TUFRunner 297 was higher than GA-12Y and FloRun 107 when planted on the first planting date. At the same planting date, TSMK for GA-06G, TU-

Table 7. Effect of cultivar on other kernels (OK) at different planting dates in Quincy, FL, in 2014, 2015, and 2016.

	Planting Date											
	1			2			3			4		
Cultivar	OK	Rank		OK	Rank		OK	Rank		OK	Rank	
2014												
GA-06G	0.02	2	ab	0.02	2	a	0.02	4	a	0.02	3	a
GA-12Y	0.02	1	a	0.02	1	a	0.02	2	a	0.02	5	a
TUFRunner 511	0.01	4	ab	0.02	5	a	0.02	3	a	0.02	2	a
FloRun 107	0.01	5	b	0.02	3	a	0.02	1	a	0.03	1	a
TUFRunner 297	0.02	3	ab	0.02	4	a	0.01	5	a	0.02	4	a
Standard error	0.004			0.004			0.004			0.004		
2015												
GA-06G	0.03	3	ab	0.01	5	d	0.01	3	bc			
GA-12Y	0.04	2	a	0.02	2	b	0.02	2	b			
TUFRunner 511	0.03	4	b	0.02	3	bc	0.01	5	c			
FloRun 107	0.04	1	a	0.03	1	a	0.03	1	a			
TUFRunner 297	0.03	5	b	0.01	4	cd	0.01	4	bc			
Standard error	0.005			0.003			0.003					
2016												
GA-06G	0.03	5	bc	0.02	5	c	0.02	4	b			
GA-12Y	0.05	1	a	0.03	2	ab	0.02	2	ab			
TUFRunner 511	0.03	4	bc	0.01	6	c	0.02	5	b			
FloRun 107	0.04	2	ab	0.03	1	a	0.03	1	a			
TUFRunner 297	0.03	6	c	0.02	4	bc	0.01	6	b			
FloRun 157	0.04	3	abc	0.02	3	abc	0.02	3	b			
Standard error	0.004			0.003			0.003					

[a]Means within a column in a treatment group followed by the same letter are not significantly different according to $LSD_{0.05}$.

FRunner 511, FloRun 157 was similar to TUFRunner 297. During the second planting date, TSMK proportion was higher in cultivars GA-06G, TUFRunner 511, and TUFRunner 297 as compared to other cultivars. When planted on the third planting date, TSMK proportion for GA-12Y and FloRun 107 was lower than TUFRunner 297 and GA-06G.

It is common for the cultivars to show differences in peanut grade (Faircloth and Prostko, 2010). Plumblee *et al.* (2018) reported that peanut cultivars affected TSMK while seeding rate did not show any effect on peanut grade. The TSMK results obtained in our study are in accordance with other studies which observed higher grade for GA-06G and TUFRunner 297 and slightly lower grade for GA12Y (Branch 2007 and 2013; Tillman 2018).

Data was analyzed for other kernals (OK). The percentage of OK ranged from 1.7% to 3.5% in the collective data set for three yr. The OK data was analyzed as a proportion (Table 7). In yr 2014, no differences were observed in OK for any cultivar or planting date treatment (Table 7). In 2015, GA-12Y, GA-06G, and FloRun 107 had higher OK proportion on the first planting date. (Table 7). When planted on the second planting date, OK proportion was highest in FloRun 107 followed by GA-12Y (Table 7). GA-06 G has the lowest proportion of OK when planted at the second planting date. The proportion of OK was highest for FloRun 107 when planted at the third planting date. GA-06G, GA-12Y, and TUFRunner 297 had similar OK proportion when cultivars were planted on the third planting date (Table 7). In 2016, FloRun 107 and GA-12Y cultivars showed higher proportion of OK when compared to other cultivars on all the planting dates. For 2015 and 2016, GA-06G and TUFRunner 297 had lower proportion of OK (Table 7). Data was also collected for damaged kernels and they ranged from 0.5% to 1.4% for all treatments (data not reported). Data for damaged kernels was not analyzed considering the low overall proportion in comparison to TSMK.

Conclusions

Georgia cultivar GA-12Y outperformed other cultivars in all the three yr. This cultivar has shown potential to be planted early during mid to late April without any yield loss. Among the Florida cultivars, TUFRunner 297 performed similar to GA-12Y in 2015 and 2016 in terms of yield and also has the potential to be planted early without impacting yield. Georgia cultivar GA-06G also performed similar to TUFRunner 297 for most of the planting dates in all three yr. FloRun 107 was inconsistent in yield over the yr. Planting date and irrigation treatment effects were inconsistent across yr and so no conclusive information could be deducted for these factors.

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