

Planting Date and Plant Spacing Recommendations for ‘Medallion’ and ‘Pearl’

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Summary

This study demonstrated distinctly different yield distribution patterns between ‘Medallion’ and ‘Pearl’, with ‘Medallion’ producing much greater yields from November and January. Both cultivars can be planted as early as Oct 6. Late planting after Oct 14 should be avoided, especially for ‘Medallion’. The average fruit size was 15% to 27% greater in ‘Medallion’ than in ‘Pearl’ throughout the growing season, but it was minimally affected by planting date. The compact and upright plant habit of ‘Medallion’ allow this cultivar to be planted on closer spacing, which can result in a 17% yield increase without negative side effects on fruit quality. We recommend 12” plant spacing for ‘Medallion’.

‘Medallion’

‘Medallion’, which was originally evaluated as the breeding selection FL16.30-128, is a new red strawberry cultivar released from the UF strawberry breeding program. It has a compact and upright plant habit that may allow it to be planted on closer spacing than is standard in the Florida industry. It has slightly lower yields than ‘Florida Brilliance’ and Sensation®, but with higher fertilization this yield difference might be lessened. Its yield distribution seems to complement ‘Florida Brilliance’ and Sensation®, with a slightly later first peak of production. It has excellent fruit shape and flavor, with fruit size slightly smaller than that of ‘Florida Brilliance’.

‘Pearl’

‘Pearl’, which was originally evaluated as the breeding selection FL16.78-109, is the first white strawberry cultivar released from the UF strawberry

breeding program. It is white with red achenes and a pink blush on the sun-side of the fruit when fully ripe. Its yield is 2/3 to ¾ as much as the standard varieties, with fruit size slightly smaller than Beauty. The plant is robust and is of average height and width but is denser than ‘Florida Brilliance’, with shorter stems.

Methods

Two strawberry field experiments were conducted during the 2020-2021 season at the UF/IFAS GCREC in Balm, FL. In the first experiment, ‘Medallion’ and ‘Pearl’ seedlings were transplanted with 16” plant spacing (16,335 plants/acre) on October 6, 14, and 21, 2020. In the second experiment, ‘Medallion’ seedlings were transplanted with 12” and 16” plant spacing (21,780 and 16,335 plants/acre, respectively) on October 14. In both experiments, bare-root transplants shipped from Crown Nursery, CA) to GCREC on October 3, 2020 were used. Each treatment had four replicated plots with 16 plants per plot. Harvests were performed 24 times between November 16, 2020 and February 25, 2021.

Results

Cultivar effects

‘Medallion’ and ‘Pearl’ had distinctly different yield distribution patterns (Table 1). Averaging among three planting dates, November, December, January, and February yields accounted for 3%, 10%, 30%, and 57% of the total-season yield in ‘Medallion’, respectively, and 2%, 5%, 13%, and 80% of the total-season yield in ‘Pearl’, respectively. ‘Medallion’ produced 88% to 194% higher yields than ‘Pearl’ from November to January, but both cultivars produced similar yields in February. ‘Medallion’ had a 24% total-season yield than ‘Pearl’.

The average fruit size was 15% to 27% greater in 'Medallion' than in 'Pearl' throughout the growing season (Table 2). Fruit Brix measured during the peak harvest (Feb 18, 2021) was 0.30 °Brix higher in 'Medallion' than in 'Pearl' (Table 3).

Planting date effects

Planting date significantly affected the yield distribution of 'Medallion' and 'Pearl' (Table 1). In both cultivars, only the first two planting dates produced yields in November. Delaying planting date increased December yields by 41% to 52%. In January, by contrast, delaying planting date tended to decrease yields in 'Medallion' but increase yields in 'Pearl'. In February, delaying planting date decreased yields of both cultivars by 30 to 42%. Delaying planting date from Oct 6 to Oct 21 decreased total-season yields by 34% in 'Medallion' and by 20% in 'Pearl'.

Planting date showed different effects on fruit size between the two cultivars. The average fruit size of 'Medallion' was unaffected by planting date throughout the growing season, whereas that of 'Pearl' showed reductions in December and increases in January as a result of delaying planting date. Delaying planting date increased fruit Brix measured during the peak harvest (Feb 18, 2021) by 0.60 °Brix in 'Medallion' and by 0.45 °Brix in 'Pearl' (Table 3).

The results suggest that both cultivars can be planted as early as Oct 6. Yields can be significantly reduced by delaying planting date, especially for 'Medallion'. The impact of planting date on fruit size is minimal. The reduction in fruit Brix measured in February by delaying planting date may be due to source-sink relationships.

Table 1. Monthly and total-season yields of 'Medallion' and 'Pearl' strawberry as affected by planting dates.

Cultivar	Planting date	Marketable yield (8-lb flat/acre)				
		Nov	Dec	Jan	Feb	Total
Medallion	Oct 6	126 a	191 b	751 a	1,741	2,809
	Oct 14	83 ab	268 a	889 a	1,493	2,732
	Oct 21	0 c	269 a	580 ab	1,011	1,861
Pearl	Oct 6	64 b	96 cd	179 c	1,952	2,291
	Oct 14	47 b	70 d	250 bc	1,447	1,814
	Oct 21	0 c	146 bc	328 bc	1,361	1,835
Pooled data						
Medallion		70 a	243 a	740 a	1,415	2,467 a
Pearl		37 b	104 b	252 b	1,587	1,980 b
	Oct 6	95 a	143 b	465	1,846 a	2,550 a
	Oct 14	65 b	169 ab	569	1,470 b	2,273 ab
	Oct 21	0 c	208 a	454	1,186 c	1,848 b

Tukey-Kramer test at $P \leq 0.05$ (low ercase letters).

Table 2. Average fruit size of 'Medallion' and 'Pearl' strawberry as affected by planting dates.

Cultivar	Planting date	Average fruit size (g)				
		Nov	Dec	Jan	Feb	Total
Medallion	Oct 6	14.4 ab	17.3 abc	27.7 ab	32.5	28.0 a
	Oct 14	17.3 a	17.6 ab	29.9 a	32.3	28.3 a
	Oct 21	--	17.3 ac	28.7 ab	31.8	27.4 a
Pearl	Oct 6	12.0 b	17.5 abc	21.5 c	26.8	24.9 b
	Oct 14	13.1 b	14.0 cd	20.3 c	26.5	24.1 b
	Oct 21	--	13.8 bd	26.1 b	26.7	24.8 b
Pooled data						
Medallion		15.8 a	17.4 a	28.8 a	32.2 a	27.9 a
Pearl		12.6 b	15.1 b	22.6 b	26.7 b	24.6 b
	Oct 6	13.2 b	17.4	24.6 b	29.7	26.5
	Oct 14	15.2 a	15.8	25.1 ab	29.4	26.2
	Oct 21	--	15.6	27.4 a	29.2	26.1

Tukey-Kramer test at $P \leq 0.05$ (low ercase letters).

Table 3. Total soluble solids content (Brix) of 'Medallion' and 'Pearl' strawberry as affected by planting dates.

Cultivar	Planting date	Total soluble solids (°Brix)
Medallion	Oct 6	5.53
	Oct 14	5.98
	Oct 21	6.13
Pearl	Oct 6	5.18
	Oct 14	5.30
	Oct 21	5.63
Pooled data		
Medallion		5.88 a
Pearl		5.37 b
	Oct 6	5.35 B
	Oct 14	5.64 AB
	Oct 21	5.88 A

Tukey-Kramer test at $P \leq 0.05$ (low ercase letters) and $P \leq 0.10$ (uppercase letters).

Plant spacing effects ('Medallion')

Monthly marketable yields were 13% to 29% higher with 12" plant spacing than with 16", although these yield increases were statistically significant only in February (Table 4). Total-season yield was 17% higher with 12" plant spacing than with 16".

Average fruit size was unaffected by plant spacing throughout the growing season (Table 5). Fruit Brix measured during the peak harvest (Feb 18, 2021) showed a slight increase of 0.30 °Brix with 12" plant spacing than with 16" (Table 6).

These results indicate that the compact and upright plant habit of 'Medallion' allow this cultivar to be planted on closer spacing without negative side effects on fruit quality.

Table 4. Monthly marketable yields of 'Medallion' strawberry as affected by planting spacing.

Cultivar	Plant spacing (inch)	Marketable yield (8-lb flat/acre)				
		Nov	Dec	Jan	Feb	Total
Medallion	12	79	314	880	1,619 a	2,892 a
	16	70	243	740	1,415 b	2,467 b

Tukey-Kramer test at $P \leq 0.05$ (lowercase letters). Data are the average of three planting dates.

Table 5. Average fruit size of 'Medallion' strawberry as affected by planting spacing.

Cultivar	Plant spacing (inch)	Average fruit size (g)				
		Nov	Dec	Jan	Feb	Total
Medallion	12	15.3	16.9	28.0	32.7	27.7
	16	15.8	17.4	28.8	32.2	27.9

Treatment effects were non-significant at ($P > 0.10$). Data are the average of three planting dates.

Table 4. Total soluble solids content (Brix) of 'Medallion' strawberry as affected by planting spacing.

Cultivar	Plant spacing (inch)	Total soluble solids (°Brix)
Medallion	12	6.18 A
	16	5.88 B

Tukey-Kramer test at $P \leq 0.10$ (uppercase letters). Data are the average of three planting dates.

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