Planting Date and Plant Spacing Recommendations for 'Medallion' and 'Pearl'

Shinsuke Agehara

Summary

We evaluated three planting dates for 'Medallion' and 'Pearl' and two plant spacing (12" and 16") for 'Medallion' in the 2021-2022 and 2021-2022 seasons. Some results were not consistent in the two growing seasons. In the 2021-2022 season, early planting did not improve fruit earliness and had no effect on early- or total-season yields. Plant spacing showed no significant effet on yield, fruit size, and fruit Brix. Yield loss by Pestalotia fruit rot was minimal (<2%), but overall plant growth was negatively affected by thrips. Planting date and spacing effects may vary depending on the occurrence of pest problems.

Medallion®

'Medallion' 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' 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 2021-2022 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 7, 14, and 21, 2021. In the second experiment, 'Medallion' seedlings were transplanted with 12" and 16" plant spacing (21,780 and 16,335 plants/acre, respectively) on the same three planting dates as in the first experiment. In both experiments, bare-root transplants shipped from Crown Nursery, CA) were used. Each treatment had four replicated plots with 16 plants per plot. Harvests were performed 22 times between November 24, 2021 and February 28, 2022.

Results

Note. Each table presentes data from both 2020-2021 and 2021-2022 seasons. Only the 2021-2022 data are discussed below. See the previous report for the discussion on the 2020-2021 data.

Cultivar effects

In the 2021-2022 season, 'Medallion' and 'Pearl' showed a similar yield distribution pattern (Table 1). Averaging among three planting dates, November, December, January, and February yields accounted for 0.1%, 21%, 31%, and 48% of the total-season yield in 'Medallion', respectively, and 1%, 21%, 30%, and 48% of the total-season yield in 'Pearl', respectively. 'Medallion' produced 55% to 59% higher yields than 'Pearl' from December to January. 'Medallion' had a 55% higher total-season yield than 'Pearl'.

In the 2021-2022 season, the average fruit size was 12% to 40% graeter in 'Medallion' than in 'Pearl' throughout the growing season (Table 2). Fruit Brix measured during the peak harvest (Jan 24, 2022) was 0.56 °Brix higher in 'Medallion' than in 'Pearl' (Table 3), but the difference was not statistically significant. Fruit Brix values were high (9.76–10.41), regardless of planting dates.

Planting date effects

Unlike in the 2020-2021 season, plating date had a minimal effect on yield, fruit size, and fruit Brix in the 2021-2022 season (Table 1-3).

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

2020-2021 season

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).

2021-2022 season

Cultivar	Planting date	Marketable yield (8-lb flat/acre) Nov	Dec	Jan	Feb	Total
Medallion	Oct 7	7	348	656	875	1,886
	Oct 14	0	403	575	878	1,855
	Oct 21	0	441	521	937	1,898
Pearl	Oct 7	42	275	352	573	1,242
	Oct 14	0	283	395	704	1,382
	Oct 21	0	203	355	458	1,016
		Pooled data				
Medallion		2 b	397 a	584 a	897 a	1,880 a
Pearl		14 a	254 b	367 b	578 b	1,213 b
	Oct 7	25 a	312	504	724	1,564
	Oct 14	0 b	343	485	791	1,619
	Oct 21	0 b	322	438	697	1,457

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

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

2020-2021 season

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).

2021-2022 season

Cultivar	Planting date	Average fruit size (g) Nov	Dec	Jan	Feb	Total
Medallion	Oct 7	18.0	17.1	25.2	25.3	23.0
	Oct 14	--	17.3	23.3	27.0	22.6
	Oct 21	--	21.0	24.1	28.9	25.1
Pearl	Oct 7	19.0	17.5	17.4	17.2	16.9
	Oct 14	--	15.5	18.9	19.9	18.5
	Oct 21	--	16.3	19.2	21.1	19.2
		Pooled data				
Medallion		18.0	18.4	24.2 a	27.1 a	23.5 a
Pearl		19.0	16.4	18.5 b	19.4 b	18.2 b
	Oct 7	18.5	17.3	21.3	21.2	19.9
	Oct 14	--	16.4	21.1	23.4	20.5
	Oct 21	--	18.6	21.7	25.0	22.1

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

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

2020-2021 season

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 $P \leq 0.05$ (lowercase letters) and $P \leq 0.10$ (uppercase letters).

2021-2022 season

Cultivar	Planting date	Total soluble solids (°Brix)
Medallion	Oct 7	10.38
	Oct 14	10.40
	Oct 21	10.63
Pearl	Oct 7	9.15
	Oct 14	10.38
	Oct 21	10.20
		Pooled data
Medallion		10.47
Pearl		9.91
	Oct 7	9.76
	Oct 14	10.39
	Oct 21	10.41

Treatment effects were non-significant at ($P > 0.10$).

Plant spacing effects ('Medallion')

Unlike in the 2020-2021 season, neither yield, fruit size, nor fruit Brix showed a significant effect of plant spacing in the 2021-2022 season (Tables 4-6).

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

2020-2021 season

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.

2021-2022 season

Cultivar	Plant spacing (inch)	Marketable yield (8-lb flat/acre) Nov	Dec	Jan	Feb	Total
Medallion	12	5	424	597	779	1,804
	16	2	397	584	897	1,880

Data are the average of three planting dates.

No significant difference was detected by Tukey-Kramer test at $P \leq 0.05$.

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

2020-2021 season

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.

2021-2022 season

Cultivar	Plant spacing (inch)	Average fruit size (g) Nov	Dec	Jan	Feb	Total
Medallion	12	--	18.4	24.1	26.2	22.9
	16	--	18.4	24.2	27.1	23.5

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

Table 6. Total soluble solids content (Brix) of 'Medallion' strawberry as affected by planting spacing.

2020-2021 season

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.

2021-2022 season

Cultivar	Plant spacing (inch)	Total soluble solids (°Brix)
Medallion	12	10.23
	16	10.47

Treatment effects were non-significant at ($P > 0.10$).

Recommendations

'Medallion'

- Optimum planting window is Oct 5-15.
- 12–16" plant spacing *fertilization program may need to be optimized when using narrow plant spacing

'Pearl'

- Optimum planting window is Oct 5-15.
- 15–16" plant spacing

Contact

Dr. Shinsuke Agehara
UF/IFAS Gulf Coast Research and Education Center
P: 813-419-6583
E: sagehara@ufl.edu
https://www.facebook.com/UFHortLab
https://www.youtube.com/channel/UCMyYAfFZsib6d4ZI-eaxCTQ