

## BRANCHING POLLEN FREE SUNFLOWER CULTIVAR EVALUATION

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**ABSTRACT:** Field grown single stem sunflowers often have stem diameters greater than .5 in which are too large for use in floral arrangements. Stems of branching sunflowers often have a smaller stem diameter compared to single stem cultivars. Pollen free sunflowers are preferred by florists and consumers for flower arrangements because the blooms do not shed pollen which may stain table cloths and clothing. Sixteen pollen free, branching sunflower cultivars were evaluated in field production beds. The cultivars were planted on 6 separate planting dates from April to September. “Moulin Rouge”, “Claret”, and “Strawberry Blonde” were in the group that produced the most stems in the trial on all 6 of the planting dates

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Field grown single stem sunflowers often have stem diameters greater than    inch which are too large for use in floral arrangements. Stems of branching sunflowers often have a smaller stem diameter compared to single stem cultivars. Pollen free sunflowers are preferred by florists and consumers for flower arrangements because the blooms do not shed pollen which may stain table cloths and clothing.

Sixteen pollen free, branching sunflower cultivars were evaluated in field production beds. The cultivars were planted on 6 separate planting dates from April to September. “Moulin Rouge”, “Claret”, and “Strawberry Blonde” were in the group that produced the most stems in the trial on all 6 of the planting dates

**MATERIALS AND METHODS:** Seeds of 16 sunflower cultivars were planted in 1204 cells containing Metro Mix 366 media on six dates in 2003: April 25, June 16, June 30, July 15, August 8, and August 18. The seedlings were fertilized with 100 ppm ( $\text{mg}\cdot\text{L}^{-1}$ ) N using Peter’s Peat Lite Special 20-10-20 water soluble fertilizer until the first leaves emerged after which the fertilization rate was increased to 250 ppm ( $\text{mg}\cdot\text{L}^{-1}$ ) N from Peter’s 20-10-20. The seedlings were drenched with Banrot (etridiazole + thiophanate methyl) at a rate of 2 oz/gal prior to transplanting to the plant beds to reduce the chance of root rot problems.

The seedlings were transplanted to raised beds on six dates in 2003: May 19, July 7, July 15, August 5, August 26, and September 10, 2003. The beds were fertilized before planting with 1 lb 8-8-8/100ft<sup>2</sup> of bed. The beds were fertigated with 100 ppm N from Peter’s 20-20-20 once per week, and irrigated as needed through a drip tube.

**RESULTS AND DISCUSSION:** “Moulin Rouge”, “Claret”, and “Strawberry Blonde” were in the group that produced the most stems in the trial on all 6 of the planting dates (Table 1). “The Joker” was in the group producing the most stems on 5 of the 6 planting dates (Table 1). “Indian Summer”, “Sundown”, “Apricot Twist”, and “Goldrush” were in the group that produced the fewest number of stems on 5 of the 6 planting dates (Table 1). “Lemon Éclair” was in the group that produced the fewest number of stems on 4 of the 6 planting dates (Table 1).

The number of days from seeding to harvest ranged from 81 to 51 days on the 5/16/03 planting date; 65 to 45 days on the 7/15/03 planting date; and 80 to 53 days on the 9/9/03 seeding date (Table 2). “Cappuccino”, “Claret”, and “Infrared” were in the group that required the longest period of time from seeding to harvest on 5 of the 6 planting dates (Table 2). “Strawberry Blonde” and “Moulin Rouge” were in the group that required the longest period of time from seeding to harvest on 4 of 6 planting dates (Table 2). “Sundown” and “Indian Blanket” were in the group of cultivars that required the least amount of time from seeding to harvest on 6 of the 6 planting dates (Table 2).

Sunflower stems generally need to be at least 36 in long for florist usage. The stems of the branching sunflowers in this trial were shorter. “Infrared”, “Moulin Rouge”, and “Claret” were in the group with the longest stems on each of the planting dates (Table 3). “Strawberry Blonde” was in the group with the longest stems on 4 of the 6 planting dates, and “Cappuccino”, “Goldrush”, and “The Joker” were in the group with the longest stems on 3 of 6 planting dates (Table 3). “Lemon Éclair” and “Apricot Twist” were in the group producing the shortest stems in 4 of 6 planting dates (Table 3).

“Moulin Rouge” and “Infrared” were in the group that produced the largest blooms on 5 of the 6 planting dates (Table 4). “Shine”, “The Joker”, and “Claret” were in the group of cultivars that produced the largest blooms on 4 of the 6 planting dates (Table 4).

There was no interaction between cultivar and planting date with regard to stem diameter, therefore the stem diameters were analyzed over the 6 planting dates (Table 5). The stem diameters of the branching sunflower cultivars in this trial ranged from .38 to .18 in which would be an acceptable for florist usage (Table 5).

**Table 1.** Number of stems of branched sunflower cultivars harvested from 2 plants on 6 planting dates 2003

Cultivars	5/16/03	7/7/03	7/15/03	8/5/03	8/26/03	9/9/03
Infrared	38.0 a <sup>2</sup>	20.0 ab	19.7 ab	17.0 bc	21.0 b-e	21.2 b-d
Moulin Rouge	37.0 a	23.0 a	19.7 ab	22.4 ab	29.2 a	28.5 ab
Jade	36.7 a	9.3 c-f	10.0 de	14.0 cd	10.0 g	21.5 a-d
Claret	34.7 a	21.5 ab	17.5 a-d	25.2 a	27.2 ab	29.7 a
Strawberry Blonde	34.2 ab	24.0 a	21.2 a	24.2 a	25.5 a-c	28.5 ab
The Joker	32.7 a-c	14.2 a-d	18.7 a-c	15.5 cd	22.0 a-d	27.0 ab
Cappuccino	27.2 b-d	21.5 ab	8.0 e	23.7 ab	19.0 c-f	24.5 a-c
Chianti	27.0 cd	12.2 b-e	12.0 c-e	12.5 c-e	11.7 fg	16.0 d-f
Shine	24.7 d	17.2 a-c	16.3 a-d	11.5 c-e	14.7 d-f	17.5 c-e
Aura Gold	24.2 de	2.0 f	7.7 e	7.0 ef	19.5 b-f	17.7 c-e
Aura Lemon	20.5 de	17.5 a-c	12.0 c-e	10.0 de	9.2 g	13.7 d-g
Lemon Éclair	17.2 ef	9.3 c-f	6.5 e	11.5 c-e	13.5 e-g	12.7 e-g
Indian Blanket	10.5 fg	7.3 d-f	12.7 b-e	9.5 de	8.7 g	7.2 g
Sundown	10.0 g	9.2 c-f	10.4 de	15.0 cd	12.2 fg	9.5 e-g
Apricot Twist	10.0 g	plants died	7.7 e	2.0 f	10.0 g	7.0 g
Goldrush	8.5 g	3.0 ef	18.2 a-c	6.0 ef	11.0 g	8.7 fg

<sup>2</sup> Mean comparison within columns by Fisher's Protected LSD at P=0.05. Means with the same letter do not differ at the 5% significance level

**Table 2.** Days from seeding to harvest of branched sunflower cultivars on 6 planting dates 2003

Cultivars	5/16/03	7/7/03	7/15/03	8/5/03	8/26/03	9/9/03
Cappuccino	81.7 a <sup>2</sup>	70.7 a	64.0 a	64.5 a	68.4 a	66.1 d-f
Infrared	77.8 ab	67.7 ab	59.4 a-c	62.7 a-c	64.7 ab	70.3 cd
Claret	77.8 ab	66.2 a-d	60.6 ab	61.6 a-c	65.6 ab	71.0 cd
Shine	77.2 ab	70.7 a	60.0 a-c	59.0 c-e	60.0 bc	67.5 c-f
Strawberry Blonde	76.2 a-c	63.2 b-e	59.4 a-c	60.7 a-d	65.2 ab	70.2 cd
The Joker	74.9 a-c	60.1 ef	54.0 ef	60.0 b-d	62.6 a-c	72.4 bc
Chianti	74.0 bc	67.1 a-c	58.0 b-d	64.0 ab	63.9 ab	69.8 cd
Moulin Rouge	73.5 bc	65.6 a-d	60.0 a-c	60.4 a-d	64.8 ab	69.2 c-e
Apricot Twist	71.3 b-d	plants died	54.0 de	50.0 h	53.5 de	59.4 g
Aura Gold	69.2 c-e	61.0 d-f	58.0 b-d	55.2 e-g	66.6 a	79.8 a
Aura Lemon	65.4 de	64.7 b-e	54.0 de	57.0 d-f	49.2 e	54.5 hi
Goldrush	63.6 ef	62.5 c-e	52.0 e-g	59.4 c-e	63.1 ab	77.6 ab
Lemon Éclair	63.2 ef	53.5 g	45.0 h	53.5 f-h	64.3 ab	63.8 e-g
Jade	57.0 fg	61.4 d-f	55.4 c-e	53.5 f-h	57.0 cd	62.4 fg
Sundown	52.3 g	56.8 fg	48.4 f-h	52.3 gh	53.0 de	53.3 i
Indian Blanket	50.9 g	54.7 g	47.5 gh	51.7 gh	42.4 de	56.3 hi

<sup>2</sup> Mean comparison within columns by Fisher's Protected LSD at P=0.05. Means with the same letter do not differ at the 5% significance level

**Table 3.** Stem length (in) of branched sunflower cultivars from 6 planting dates 2003

Cultivars	5/16/03	7/7/03	7/15/03	8/5/03	8/26/03	9/9/03
Cappuccino	33.6 a <sup>2</sup>	21.4 c-e	22.6 bc	23.1 bc	14.0 cd	16.1 de
Infrared	32.0 ab	25.0 a-c	30.7 a	23.7 a-c	24.1 a	22.6 ab
Moulin Rouge	31.0 ab	27.4 a	29.0 a	27.8 a	22.0 ab	26.2 a
Goldrush	29.2 bc	12.0 g-i	21.8 b-d	11.9 g-I	11.4 cd	20.7 bc
Claret	28.3 b-d	26.5 ab	28.9 a	27.2 ab	21.9 ab	24.2 ab
The Joker	26.6 c-e	16.7 e-g	21.6 b-d	20.3 c-e	20.5 ab	23.7 ab
Strawberry Blonde	25.7 c-e	22.1 bc	23.1 b	21.9 cd	20.0 b	24.5 ab
Chianti	25.1 d-f	21.7 cd	17.2 c-e	17.3 d-f	13.5 c	13.9 ef
Aura Gold	25.0 d-f	16.9 d-f	20.8 b-d	9.1 i	10.4 d	18.0 cd
Shine	24.1 ef	16.1 f-h	16.5 d-f	13.8 f-h	11.5 cd	12.2 f
Apricot Twist	21.5 fg	plants died	16.6 d-f	4.0 j	5.3 e	4.9 g
Sundown	18.3 gh	16.5 fg	21.8 b-d	16.5 e-g	13.3 cd	11.2 f
Aura Lemon	17.5 h	16.7 e-g	18.8 b-e	12.2 g-i	6.0 e	4.7 g
Jade	14.9 hi	11.6 hi	13.4 ef	8.8 i	10.5 d	11.1 f
Lemon Éclair	14.3 hi	9.2 i	11.4 f	8.2 ij	12.9 cd	10.6 f
Indian Blanket	11.7 i	9.6 i	17.5 c-e	10.0 hi	11.6 cd	11.4 f

<sup>2</sup> Mean comparison within columns by Fisher's Protected LSD at P=0.05. Means with the same letter do not differ at the 5% significance level

**Table 4.** Bloom diameter (in) of branched sunflower cultivars from 6 planting dates 2003

Cultivars	5/16/03	7/7/03	7/15/03	8/5/03	8/26/03	9/9/03
Moulin Rouge	4.8 a <sup>2</sup>	4.3 b	5.0 ab	4.8 bc	4.2 a-d	4.3 a-d
Shine	4.8 a	5.2 a	5.2 a	5.6 a	4.7 a	5.0 a
The Joker	4.7 ab	3.8 b-d	4.1 c-f	5.3 ab	4.4 a-c	4.9 a
Infrared	4.6 a-c	4.4 ab	5.3 a	4.4 c-f	4.2 a-d	4.5 ab
Indian Blanket	4.3 a-d	3.6 b-e	3.9 c-f	3.4 h	3.8 c-e	4.2 b-e
Aura Gold	4.3 a-e	4.0 b	3.8 c-f	4.2 c-g	4.4 ab	2.4 f
Claret	4.2 b-f	3.9 bc	4.6 a-c	4.6 cd	4.4 a-c	4.4 a-c
Apricot Twist	4.2 b-f	plants died	3.5 e-g	3.8 f-h	3.7 de	4.9 a
Sundown	4.1 c-f	3.1 c-f	3.4 fg	3.7 gh	4.0 b-e	3.8 de
Strawberry Blonde	4.1 c-f	3.8 b-d	4.2 b-e	4.3 c-g	4.1 b-d	4.4 a-c
Cappuccino	4.0 d-f	4.0 b	4.3 b-d	4.1 d-h	4.0 b-e	3.6 de
Lemon Éclair	3.9 d-f	3.7 b-e	3.9 c-f	4.2 c-g	4.1 a-d	4.4 a-c
Chianti	3.7 e-g	3.9 bc	3.4 fg	3.9 e-h	4.0 b-d	3.5 e
Aura Lemon	3.7 fg	3.0 d-f	4.3 b-d	4.5 c-e	3.5 e	3.6 e
Goldrush	3.3 gh	2.9 f	3.7 d-f	3.9 e-h	3.9 b-e	4.4 a-c
Jade	3.0 h	2.9 ef	2.9 g	3.4 h	3.8 c-e	3.5 e

<sup>2</sup> Mean comparison within columns by Fisher's Protected LSD at P=0.05. Means with the same letter do not differ at the 5% significance level

**Table 5.** Stem diameter of branched sunflower cultivars from 6 planting dates

Cultivars	Stem diameter (in)
Infrared	.38 a <sup>2</sup>
Shine	.33 ab
Moulin Rouge	.32 ab
Claret	.30 bc
Cappuccino	.30 bc
Sundown	.29 b-d
Strawberry Blonde	.28 b-d
Goldrush	.28 b-d
Aura Gold	.27 b-e
The Joker	.27 b-e
Apricot Twist	.25 c-f
Chianti	.24 c-f
Aura Lemon	.22 d-f
Indian Blanket	.21 ef
Lemon Éclair	.21 ef
Jade	.18 f

<sup>2</sup> Mean comparison within columns by Fisher's Protected LSD at P=0.05. Means with the same letter do not differ at the 5% significance level