

CAULIFLOWER VARIETY EVALUATION IN FLORIDA¹

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Abstract. Twenty-six cauliflower cultivars and/or breeding lines were grown in an observational trial during the 1978-79 season and evaluated for curds produced per total number of plants, marketable curds, curd diameter and weight, days to harvest, and number of harvests. Nine of the best cultivars from this trial and 4 other cultivars were grown in 5 replicated plantings during the 1979-80 fall, winter and spring seasons and evaluated for the same characteristics as in 1978-79. Based on these characteristics, the best cultivar over all 5 plants was 'Snow Crown' with curd diameter averaging 6 inches and good curd quality. It was early, maturing in 59 days, and produced 84% marketable curds over all plantings. 'Burpeeana,' 'Snowball A,' 'Grower No. 2,' 'Grower No. 1,' and 'Self Blanche Improved' produced well in the early plantings with the former 3 cultivars being early and the latter 2 late in maturity. 'Starlight' produced well in the mid-plantings and is late in maturity. Variation in downy mildew damage was observed in planting 3; 'Burpeeana,' 'Snowball 76,' 'Snow Crown,' 'Snowball 23,' 'Starlight,' 'Grower No. 1,' and 'Grower No. 2' were the most tolerant. Forty-six other entries were planted in an observational trial in the 1979-80 season concurrent with plantings 1 (only 39 entries), 3, and 5 of the replicated trial. A few entries compared favorably in production with 'Snow Crown': 'White Contessa No. 10,' 'Tropical 55 Days,' 'Farmers Early No. 2,' 'Farmers Early,' '75-87' and '78-832.' Other entries which had comparable marketable curd production to 'Snow Crown' in individual plantings were 'Snow Diana,' 'Snow Peak,' 'Christmas White No. 7,' 'Farmers Early No. 3,' 'White Top,' 'White Summer,' 'Wallaby,' 'Coolabah,' '9189,' 'White Empress,' and '78-882.'

Commercial cauliflower (*Brassica oleracea* L. Botrytis Group) production in Florida has increased tremendously in the last 2 years with supplies available from November through April. Prior to 1978 no production data are available, but in the 1979-80 season there were 392,000 22-pound cartons shipped out of state (1).

As in other crops, the selection of the best cauliflower cultivar is one of the most important decisions in growing a crop. A number of new cauliflower cultivars have become available (2) and there is a need for current variety evaluation for Florida. Consequently, a number of cauliflower cultivars were evaluated for their adaptability, production potential, earliness, and curd size and quality, and the results of this work are reported here.

Materials and Methods

General. Three trials were conducted. The first was an observational trial in 1978-79 and the other two were a replicated and observational trial in the 1979-80 season. The trials were grown on Myakka fine sand prepared similar to

that used in tomato culture (3). The plantings were made on raised beds treated with Dowfume® MC-33 at 350 lbs/acre (9,675 row feet/acre) and covered with black plastic mulch. Fertilizer was applied at 1 ton/acre of 18-0-25-2 distributed in 2 bands 18 inches apart and 100 lbs/acre each of 18-0-25-2, Uramite® (33% N), and superphosphate (0-20-0) containing 80 lbs/ton fritted micronutrients (FN 503) broadcast on top of the bed. The plants were set in single rows in the middle of the bed. Recommended pesticides were applied twice a week for disease and insect control.

The wrapper leaves were tied over the curd when it was 1 to 2 inches in diameter. Two or 3 days later, the curd was harvested by cutting the stalk 1 to 2 inches below the curd and cutting the wrapper leaves above, level with the curd. The curds were graded for marketability and those which were "ricey" (individual floral parts become extended and curds are loose or not compact), split or leafy (leaves develop in the curd) were considered unmarketable. The number of curd-producing plants, marketable curds, number of days to harvest (calculated by summing the number of days from transplanting for each curd cut and dividing by the number of curds), number of harvests, and curd diameter and weight were recorded. Despite application of fungicides, considerable downy mildew did develop in planting 3 of the 1979-80 season. Six Horsfall-Barratt ratings (4) for downy mildew were made per plot.

1978-79 Observational Trials. Seed of 26 entries were sown in 2x2 inch peat pots November 22, 1978. Two replicates of 18 plants each were transplanted in the field 18 inches apart on January 23, 1979.

1979-80 Replicated Trial. Nine of the best entries from the above trial and 4 others were selected for 5 replicated plantings. The 13 cultivars were sown in 2x2 inch Todd Planter® flats, transplanted in the field and harvested on the dates indicated in Table 1. In each planting, 3 replicates of 12 plants each were planted in a randomized complete-block design with 16 inches between plants.

Table 1. Time schedule of the 5 plantings of the replicated trials and the 3 plantings of the observational trials in the 1979-1980 season.

Planting	Sowed	Transplanted	Harvested	
			First	Last
1	August 24	September 24	October 27	December 26
2	October 2	November 9	January 10	March 3
3	November 8	January 8	March 6	March 25
4	January 3	February 11	April 1	May 12
5	January 19	March 7	April 8	May 29

1979-80 Observational Trial. Three plantings of the observational entries were made at the same time as plantings 1, 3 and 5 of the 1979-80 replicated trial. In the initial observational trial there were 39 entries and in the latter two, 46 entries were included. Fourteen plants of each entry were spaced 16 inches apart.

Results and Discussion

1978-79 Observational Trial. Curd-producing plant varied from 0 to 100% (Table 2). Generally, the entries either produced a fairly high proportion of curds or none. Marketable curds also ranged from 0 to 100%. 'Moran 2028' ('Starlight'), 'Snowball 42,' 'Burpeeana,' 'Snow Crown,' and 'Grower No. 1' produced greater than 90% marketable

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curds. From those entries which produced curds, the range in the mean number of days to harvest was from 68 to 85 days with 'Snow Crown' being the earliest and 'Moran 2028' ('Starlight') being the latest. The range in number of harvests was from 3 to 5 and of those entries producing greater than 90% marketable curds, 'Snow Crown' was the only cultivar which required only 3 harvests. Cauliflower is packaged and marketed by curd size or diameter with the larger curds returning premium prices. Curd size is designated by the number of curds it takes to fill a 22-pound single-layer package. The designations in increasing curd size are 16, 12, or 9 with curd diameters of 4 to 5, 5 to 6, and greater than 6 inches, respectively. All entries producing curds had 6-inch curds or larger except 'Monarch 73M,' 'Burpeeana,' and 'Grower No. 2' which produced 5.9, 5.8, and 5.0 inch curds, respectively. 'Snow Crown' produced the largest curd (7.2 inches). Generally the variation in curd

weight and diameter were similar. 'Snow Crown' had the heaviest curd (3.7 lbs).

1979-80 Replicated Trial. Analyses of variance indicated there were significant differences among plantings for each of the parameters observed. Therefore, data is presented for each planting.

There were no mean differences in percent curds produced among the 13 cultivars in plantings 1, 2 and 4 (Table 3). In planting 3, 'Snow King' and 'Monarch 73M' curd production means were 77% and 89%, respectively, which was lower and different from the other entries. The poor performance of 'Snow King' is attributed to the extended time period the seedlings were maintained from sowing to transplanting in the greenhouse. 'Snow King' is an early variety and the early cultivars were adversely affected by this prolonged growth in flats. In planting 5 the best curd producing cultivars were 'Grower No. 2,' 'Snow King,' 'Early

Table 2. Percent curds per total number of plants, percent marketable curds per total number of plants, days to harvest, number of harvests, curd diameter and curd weight of observational trial in the 1978-1979 season.

Entry	Source	Per total no. plants		Mean days to harvest	No. of harvest	Curd. diam. (in.)	Mkt. curd weight (lbs)
		% curds	% mkt. curds				
1. C2041-1	Moran	0	0	0	0	0	0
2. C5138-M	"	92	78	80	3	6.4	2.5
3. Feb 10024M	"	0	0	0	0	0	0
4. Snowball Y Imp M	"	75	61	79	4	6.1	2.6
5. Raupehu L	"	0	0	0	0	0	0
6. Early March L	"	0	0	0	0	0	0
7. Self Blanche M	"	86	86	80	3	6.6	2.5
8. Snowball 421 L	"	42	0	86	1	7.6	0
9. Monarch 73-M	"	92	86	77	5	5.9	2.7
10. Selection 23-EL	"	84	84	78	3	6.1	2.8
11. Moran 2028 (Starlight)	"	97	95	85	4	6.7	3.2
12. Snowball A	Ferry Morse	68	32	79	4	6.5	3.5
13. Snowball Y	"	89	70	79	4	6.8	2.9
14. Snowball 42	"	95	95	78	4	6.6	3.2
15. Snowball X	"	70	57	78	4	6.4	2.6
16. Snowball 76	"	83	78	76	4	6.1	3.0
17. FM 10521	"	0	0	0	0	0	0
18. FM 10420	"	0	0	0	0	0	0
19. St. Valentine	"	0	0	0	0	0	0
20. Snowball E	"	94	79	79	3	6.4	2.6
21. FM 10722	"	0	0	0	0	0	0
22. Burpeeana	Burpee	100	100	72	4	5.8	2.1
23. Early Snowball A	"	80	80	73	5	6.0	2.5
24. Snow Crown	"	97	97	68	3	7.2	3.7
25. Grower No. 1	Local grower	95	92	81	4	6.6	2.7
26. Grower No. 2	"	87	87	76	4	5.0	1.5

Table 3. Percent curds per total number of plants, percent marketable curds per total number of plants, days to harvest, number of harvests, curd diameter, and curd weight cultivars in 5 replicated plantings during the 1979-1980 season.

Entry	Source	Percent curds per total no. of plants					Percent marketable curds per total no. plants				
		Planting					Planting				
		1	2	3	4	5	1	2	3	4	5
1. Snowflower	Asgrow	83	98	92	82	66	57	71	42	0	6
2. Burpeeana	Burpee	95	98	100	95	80	87	76	78	0	17
3. Early Snowball A	"	95	98	100	95	92	82	57	49	0	19
4. Snowball 42	"	89	95	97	80	77	61	83	35	0	0
5. Snowball 76	"	82	98	95	82	77	48	79	52	0	0
6. Snow Crown	Takii	100	93	100	95	90	100	88	92	71	71
7. Snow King	"	100	100	77	100	93	71	88	71	44	33
8. Snowball 23	Moran	92	91	95	89	69	76	83	47	0	0
9. Monarch 73M	"	93	100	89	81	67	58	93	43	0	0
10. Self Blanche Improved	"	98	98	100	70	37	91	67	63	50	6
11. Starlight	"	84	100	98	80	59	61	64	91	69	36
12. Grower No. 1	Local grower	100	93	100	81	42	100	84	78	56	0
13. Grower No. 2	"	97	93	97	91	95	89	76	60	8	43
LSD (0.05)		NS	NS	10	NS	25	23	NS	30	16	19

Table 3 Continued

Entry	Source	Days to harvest					Number of harvests				
		Planting					Planting				
		1	2	3	4	5	1	2	3	4	5
1. Snowflower	Asgrow	80	79	70	74	72	4.3	4.7	2.3	5.0	2.6
2. Burpeeana	Burpee	66	67	65	56	67	3.7	2.7	2.3	4.0	4.0
3. Early Snowball A	"	67	69	67	68	69	4.3	3.0	2.7	5.3	4.3
4. Snowball 42	"	77	81	71	83	74	4.0	4.7	3.0	6.0	2.7
5. Snowball 76	"	76	80	70	78	74	5.0	5.0	3.0	6.0	2.3
6. Snow Crown	Takii	52	67	65	56	55	5.0	2.0	3.0	4.3	3.3
7. Snow King	"	42	61	56	50	46	3.3	2.7	2.7	2.7	4.3
8. Snowball 23	Moran	77	80	70	77	72	4.0	4.7	2.0	6.0	3.0
9. Monarch 73M	"	73	75	69	75	71	5.0	4.7	2.3	5.3	3.3
10. Self Blanch Improved	"	83	75	70	85	80	4.0	3.7	2.0	4.0	2.0
11. Starlight	"	80	79	73	90	78	5.0	4.7	3.7	5.0	3.7
12. Grower No. 1	Local grower	90	75	70	78	83	3.3	3.0	2.0	5.3	1.0 ^a
13. Grower No. 2	"	57	66	65	58	59	5.0	1.7	2.0	4.0	4.3
LSD (0.05)		4	7	6	5	3	1.3	2.7	NS	NS	1.0

Entry	Source	Curd diameter (inches)					Curd weight (pounds)				
		Planting					Planting				
		1	2	3	4	5	1	2	3	4	5
1. Snowflower	Asgrow	5.6	5.6	6.4	7.0	7.0	2.6	1.9	2.1	2.5	2.0
2. Burpeeana	Burpee	4.9	6.6	7.4	6.5	6.9	1.6	2.0	3.0	1.5	2.1
3. Early Snowball A	"	5.2	5.5	6.9	6.8	7.0	1.9	1.3	2.3	2.0	2.0
4. Snowball 42	"	5.6	5.3	6.3	7.0	6.9	2.7	1.9	2.0	2.7	2.2
5. Snowball 76	"	5.8	4.8	6.2	7.0	7.0	2.5	1.6	1.9	2.7	2.2
6. Snow Crown	Takii	4.9	5.9	7.1	5.6	6.5	1.8	2.1	3.1	1.5	1.9
7. Snow King	"	5.7	5.4	5.2	6.4	6.3	1.8	1.6	1.3	1.3	1.4
8. Snowball 23	Moran	5.9	5.7	6.4	6.6	6.9	2.9	2.1	2.1	2.2	2.2
9. Monarch 73M	"	6.1	5.7	6.6	7.0	7.0	2.8	2.0	2.3	2.5	2.5
10. Self Blanche Improved	"	4.6	5.0	6.4	6.6	6.5	2.3	1.5	2.1	2.2	1.8
11. Starlight	"	5.8	5.6	6.5	6.5	6.3	2.7	2.0	2.4	2.2	2.0
12. Grower No. 1	Local grower	5.7	5.2	6.6	6.5	5.8	2.7	2.0	2.3	2.4	1.4
13. Grower No. 2	"	5.3	6.6	6.8	6.2	7.0	1.7	2.1	2.2	1.3	1.8
LSD (0.05)		0.7	1.4	0.6	0.7	0.5	0.5	NS	0.4	0.5	0.4

^aLow value due to few curds produced.

Snowball A,' 'Snow Crown,' 'Burpeeana,' 'Snowball 42,' and 'Snowball 76,' with 95, 93, 92, 90, 80, 77 and 77 percent curds produced. The lower production in planting 5 can be attributed to increasingly warm temperatures.

Although the percent curd production is important information, the most important criteria is the percent marketable curds produced. There were no significant differences among cultivar means for marketable curds in planting 2 (Table 3). In plantings 1, 3, 4, and 5, 'Snow Crown' had a better production potential in all 4 plantings while 'Grower No. 1' was one of the better entries in 3 of the 4 plantings, and 'Burpeeana,' 'Self Blanche Improved,' and 'Starlight' were among the best entries in 2 of the 4 plantings. Marketable production in plantings 4 and 5 were low due to high temperatures.

Over all plantings there was a range from 42 to 90 days in number of days to maturity with significant differences among cultivars in each of the plantings (Table 3). The earliest cultivars were 'Snow King,' 'Snow Crown,' 'Grower No. 2,' and 'Burpeeana.' Earliness is an important attribute because marketing can begin sooner when market prices may be better and because pest control costs are less.

Uniformity of production is reflected in the number of harvests necessary to cut all curds. The better the uniformity, the fewer harvests required and the lower the harvesting cost. In plantings 3 and 4 there were no significant differences in numbers of harvest (Table 3). The cultivars in planting 1 which had the fewest numbers of harvest were 'Snow King' and 'Grower No. 1' and in planting 2, 'Grower No. 2' and 'Snow Crown' had the fewest harvests.

In planting 5, 'Snowball 76,' 'Snowflower,' 'Snowball 42,' 'Snowball 23,' 'Snow Crown,' and 'Monarch 73M' had the fewest harvests.

The mean curd diameters for all varieties in plantings 1 through 5 were 5.5, 5.6, 6.5, 6.6, and 6.7, respectively (Table 3). The curd diameter in plantings 1 and 2 were about 1 inch smaller than the other plantings. In planting 1, 'Monarch 73M,' 'Snowball 23,' 'Starlight,' 'Snowball 76,' 'Snow King,' 'Grower No. 1,' 'Snowball 42,' and 'Snowflower' had the largest curds. In planting 2, the curd diameter of the cultivars was not significantly different from each other except for the cultivar 'Snowball 76' and 'Self Blanche Improved,' which was smaller. In planting 3, 'Burpeeana,' 'Snow Crown,' 'Early Snowball A,' and 'Grower No. 2' had larger and significantly different curd diameters. Curd diameter in plantings 4 and 5 was lower for 'Snow Crown,' 'Grower No. 2,' 'Snow King,' 'Starlight,' and 'Grower No. 1.' Curd size for the latter 2 plantings was not very meaningful because most of the curds were unmarketable. Generally, all cultivars produced acceptable curd size.

Differences in average curd weight for each planting are similar to those for curd diameter (Table 3). The average curd weight in planting 1 is greater than the other plantings because they were cut lower on the stalk, leaving more wrapper leaves. Those cultivars with the heaviest curds in planting 1 are the same ones with the largest diameter curds, except 'Snow King' which was lighter. 'Snow King' does make a large curd but it is not a compact curd. In planting 2 the differences in curd weight among cultivars are not significant. 'Burpeeana' and 'Snow Crown,'

Table 5. Percent curds per total number of plants, percent marketable curds per total number of plants, days to harvest, number of harvests, curd diameter, curd weight, downy mildew rating, and curd cover rating of observational lines grown in the 1979-1980 seasons.

Entry	Source	% curds/ total plants Planting			% mkt. curds/ total plants Planting			Days to harvest Planting			No. of harvests Planting			Curd. diam. (inches) Planting			Curd wt. (pounds) Planting			Downy mildew rating	Curd cover rating
		1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5		
1. Snowball Y Improved	Moran	100	100	63	75	33	50	75	70	73	6	4	4	6.1	6.0	6.8	2.5	1.8	2.2	2.0 ^v	5 ^u
2. M2028 (Starlight)	"	93	100	73	64	60	40	80	72	75	6	4	6	5.3	6.8	6.0	2.3	2.2	2.1	2.0	5
3. Snowball A	Ferry Morse	79	93	36	43	14	0	81	71	73	6	5	3	5.9	5.9	7.2	1.7	1.6	2.0	1.8	3
4. Snowball E	"	77	100	36	23	27	0	77	70	76	5	3	4	5.7	5.7	6.5	2.6	1.6	2.0	2.2	5
5. Snowball X	"	67	100	36	25	0	0	78	66	73	4	4	3	5.7	5.8	6.9	2.4	1.4	2.0	2.5	4
6. Snowball Y	"	73	92	31	27	0	0	83	71	81	4	4	1	5.6	5.6	7.8	2.4	1.6	2.5	5.0	5
7. November-December	"	— ^z	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.8	—
8. February	"	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.0	—
9. March Early	"	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.8	—
10. Snow Queen	Takii	94	+ ^y	94	56	+	81	35	+	38	2	+	3	5.6	+	6.0	1.7	+	1.0	2.7	2
11. Snow Diana	"	81	100	94	75	100	44	70	68	68	4	2	4	6.1	6.8	7.0	2.3	2.6	2.3	2.0	2
12. Extra Early Nozaki	"	100	100	94	0	0	0	56	67	50	7	2	3	5.0	7.7	6.6	1.1	2.1	1.2	3.7	1
13. Snow Peak	"	100	+	63	100	+	56	46	+	45	4	+	3	5.2	+	5.4	1.5	+	0.8	4.3	2
14. Tropical 45 Days	"	100	+	75	100	+	25	33	+	35	4	+	3	4.7	+	5.4	0.9	+	0.6	4.3	1
15. Christmas White No. 7	Sakata	100	100	56	63	94	43	76	71	75	5	2	3	5.9	6.8	5.3	2.0	2.1	1.1	1.7	4
16. White Baron No. 8	"	100	+	75	93	+	6	37	+	31	2	+	2	5.3	+	5.7	1.5	+	0.4	—	3
17. White Contessa No. 10	"	100	+	100	100	+	87	44	+	46	3	+	4	5.3	+	5.9	1.9	+	1.4	3.8	5
18. Boshu Mid Season	"	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.2	—
19. Boshu Late	"	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.0	—
20. Tropical 55 Days	"	100	+	93	100	+	93	48	+	49	5	+	4	5.1	+	6.0	1.6	+	1.3	3.7	5
21. Farmers Early No. 3	Known You	100	+	73	100	+	67	44	+	43	4	+	3	5.3	+	5.9	2.1	+	1.1	5.5	5
22. Farmers Early No. 2	"	100	+	100	100	+	87	46	+	42	5	+	4	5.2	+	6.5	2.0	+	1.3	4.7	5
23. Farmers Early	"	100	+	88	100	+	81	44	+	44	4	+	6	5.2	+	5.5	1.9	+	1.2	5.2	5
24. Brendo	van de Ploeg	100	92	50	91	46	13	83	69	81	2	1	6	6.1	7.1	6.4	3.3	2.7	1.7	2.2	5
25. White Top	Sluis & Groot	100	100	94	100	100	44	77	75	75	2	3	6	5.0	6.8	5.5	2.7	2.6	1.5	2.3	5
26. White Summer	"	100	100	88	81	100	63	74	71	70	3	3	4	5.6	6.5	5.7	2.4	2.2	1.6	2.5	4
27. Lawyna	"	93	94	56	64	88	19	63	72	76	4	4	5	6.2	6.5	6.9	2.4	2.0	1.8	2.7	5
28. Wallaby	Yates	88	100	71	75	94	36	80	73	71	6	5	4	6.4	6.8	6.6	2.3	2.1	1.9	2.0	2
29. Coolabah	"	88	100	56	63	100	56	78	73	71	6	4	3	6.0	5.9	6.1	2.4	1.6	1.5	2.0	2
30. 7091	"	80	100	39	0	14	0	83	73	79	5	5	2	5.2	5.7	7.3	1.4	1.5	2.0	5.8	1
31. 7095	"	94	92	13	6	8	0	91	71	81	4	3	1	5.9	6.3	6.0	1.1	1.4	1.2	2.0	1
32. 7140 Hybrid	"	81	92	56	44	39	13	79	70	73	6	2	4	5.3	6.4	6.9	1.6	2.0	1.9	2.7	1
33. 9173	"	100	100	—	53	50	—	81	70	—	4	3	—	5.7	7.5	—	1.6	2.2	—	3.7	1
34. 9189	"	100	88	91	93	69	73	76	70	70	7	3	6	6.7	7.4	7.6	2.9	2.6	2.9	3.7	3
35. Self-Blanche	Honma	71	100	50	71	60	17	86	69	83	3	2	1	5.8	7.0	5.1	3.5	2.3	1.3	3.3	5
36. White Empress	"	92	+	85	92	+	62	62	+	63	6	+	5	5.5	+	7.0	2.2	+	1.8	5.3	5
37. 75-87 (Stove Pipe)	"	100	+	100	94	+	88	56	+	59	5	+	3	5.6	+	6.2	1.8	+	1.5	7.8	5
38. P.I. 183214	Geneva New York	86	x	—	29	—	—	70	—	—	5	—	—	5.4	—	—	1.2	—	—	5.5	3
	P.I. Station																				
39. P.I. 234599	"	29	86	—	0	0	—	93	73	—	1	3	—	5.4	6.4	—	1.1	1.5	—	3.8	2
40. 77-873	Honma		90 ^w	60		64	27		51	50		3	4		5.4	5.7		1.0	1.2		3
41. 77-876	"		86 ^w	75		39	8		55	56		4	3		6.2	5.9		1.3	0.9		3
42. 77-879	"		57 ^w	67		54	27		53	47		2	4		5.4	5.7		1.1	1.2		3
43. 78-802	"		83 ^w	63		39	19		54	58		4	6		5.4	6.6		0.9	1.4		5
44. 78-832	"		100 ^w	87		86	80		55	61		4	5		6.1	6.4		1.2	1.4		5
45. 78-882	"		100 ^w	81		86	63		53	54		4	5		5.8	6.4		1.1	1.4		5
46. 78-908	"		100 ^w	75		75	25		61	66		7	5		5.8	6.4		1.4	1.7		5

z—indicates no curds formed.

y+indicates plants formed premature heads (buttoned).

xBlank space indicates entry was not planted.

wThese entries were planted along with the 4th planting of the replicated trials.

vHorsfall Barratt Rating where 1 = 0 percent damage, 2 = 0-3, 3 = 3-6, 4 = 6-12, 5 = 12-25, 6 = 25-50, and 7-12 is the reciprocal. Data average of 6 ratings.

uCurd cover was rated as: 5 = Excellent, 4 = Very good, 3 = Good, 2 = Medium, and 1 = Poor.

which had the largest curds in planting 3, also had the heaviest curds with 3.0 and 3.1 pounds, respectively. The 4 cultivars with 7-inch curds in planting 4 also produced the heaviest curds. The cultivars with the heaviest curds in planting 5 were 'Monarch 73M,' 'Snowball 23,' 'Snowball 76,' 'Snowball 42,' and 'Burpeeana.' Generally, all cultivars except 'Snow King' had acceptable curd weight.

Despite a preventive pesticide spray, downy mildew (*Peronospora parasitica*), did develop in planting 3. Variation in tolerance of cauliflower cultivars to downy mildew has been reported (5). Differences in downy mildew tolerance were observed among the 13 entries (Table 4). 'Snowball 23,' 'Starlight,' 'Grower No. 2,' 'Grower No. 1,' 'Snow Crown,' 'Burpeeana,' 'Snowball 76,' and 'Monarch 72M' had the best tolerance to downy mildew while 'Snow King' was the least tolerant.

Table 4. Downy mildew damage and curd cover ratings of 13 cultivars in the 3rd replicated planting during the 1979-1980 season.

Entry	Source	Downy mildew	Curd cover
1. Snowflower	Asgrow	3.1 ^z	5 ^y
2. Burpeeana	Burpee	2.5	3
3. Early Snowball A	"	3.5	3
4. Snowball 42	"	3.0	5
5. Snowball 76	"	2.6	4
6. Snow Crown	Takii	2.3	4
7. Snow King	"	5.6	3
8. Snowball 23	Moran	2.1	5
9. Monarch 73M	"	2.9	5
10. Self Blanche Improved	"	3.3	5
11. Starlight	"	2.1	5
12. Grower No. 1	Local grower	2.3	5
13. Grower No. 2	"	2.1	4
LSD (0.05)		0.8	

^zHorsfall Barratt Rating where 1 = 0 percent damage, 2 = 0-3, 3 = 3-6, 4 = 6-12, 5 = 12-25, 6 = 25-50, and 7-12 is the reciprocal. Data average of 6 ratings.

^yCurd cover was rated as: 5 = Excellent, 4 = Very good, 3 = Good, 2 = Medium, and 1 = Poor.

In order to obtain the desirable white marketable curd, adequate wrapper leaves are necessary for tying over the curd. Cultivars in the replicated trial generally produced adequate wrapper leaves but 'Burpeeana,' 'Snowball A,' and 'Snow King' had the least desirable foliage (Table 4). Plant breeders are developing new cultivars which produce ample curd cover without tying the wrapper leaves. The cultivar 'Self Blanche Improved' is a result of some of this work. The leaves cover the curd in the early stages of development, but as the curd increases in size, it pushes apart the leaves in the center of the plant and exposes the curd to light. All cultivars evaluated to date should be tied.

In general, the best cultivar from this group of replicated entries was 'Snow Crown.' It was a consistent producer of good marketable curds and it was early and uniform in

production. 'Snow Crown' did not make large curds in the initial plantings but they were of acceptable size for the time of year, and in later plantings the curd size was larger. 'Snow Crown' has some tolerance to downy mildew. Other cultivars which produced well were: 'Burpeeana,' 'Snowball A,' and 'Grower No. 2' which were early and produced well in early plantings; 'Grower No. 1' and 'Self Blanche Improved' which also produced well in early plantings and were late in maturity; and 'Starlight' which produced well in the mid plantings and was late. 'Snow King' was the earliest cultivar and produced a relatively high proportion of marketable curds but the curds were light and "riced" easily.

1979-80 Observational Trial. This trial was conducted to find cauliflower which would perform better than those cultivars included in the replicated trial. The best cultivar in the replicated trial was 'Snow Crown' so the data of the entries in the observational trial was compared to the date of 'Snow Crown' for the same planting. It was unfortunate that in planting 3 the transplants were held in the flats too long because this caused the very early cultivars to "button" or produce a curd premature to foliage growth. There were some cultivars which produced as well or better than 'Snow Crown' (Table 5). The entries which compared with 'Snow Crown' were 'White Contessa No. 10,' 'Tropical 55 Days,' 'Farmers Early No. 2,' 'Farmers Early,' '75-87' ('Stovepipe'), and '78-832.' The former 4 produced an equal proportion of marketable curds to 'Snow Crown' in planting 1 and were earlier. In planting 5, they produced better than 'Snow Crown' but had smaller curds. '75-87' ('Stovepipe') and '78-832' produced a similar number of marketable curds as 'Snow Crown' and had a similar number of days to maturity, but the curds were slightly smaller. Other entries which produced marketable curds comparable to 'Snow Crown' in individual plantings and had comparable curd quality were 'Snow Diana,' 'Snow Peak,' 'Christmas White No. 7,' 'Farmers Early No. 3,' 'White Top,' 'White Summer,' 'Wallaby,' 'Coolabah,' '9189,' 'White Empress,' and '78-882.' All of these above mentioned observational entries should be grown in replicated trials in comparison with 'Snow Crown' and with the better entries in the replicated trial.

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