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Peaches and Nectarines for Central and North Florida[1]

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The development of high quality peach and nectarine (*Prunus*) cultivars with the low chilling needs of a mild climate has greatly expanded the potential for commercial peach and nectarine production in north and north-central Florida. Deciduous fruits, such as peach and nectarine, require accumulated exposure to cool temperatures during winter dormancy for budbreak and the resumption of normal growth the following spring. The minimum amount of accumulated cool temperature exposure needed for normal growth, which varies by cultivar, is referred to as the chilling requirement.

Because temperate-zone cultivars have higher chilling requirements than can be satisfied in Florida's mild climate, the University of Florida initiated a Prunus breeding program in 1953 to develop low-chill, early ripening, peach and nectarine cultivars with quality characteristics equal to temperate-zone cultivars.

The 14 peach and 4 nectarine cultivars discussed here have potential for commercial and homeowner use in Florida. Table 1 lists their tree, flower, and leaf characteristics. The cultivars are grouped according to estimated chilling requirement, which is given in chill units (cu) (low chill = less than 300 cu; medium chill = 300 to 525 cu). One chill unit is equal to one hour of exposure to the optimum chilling temperature (about 43°F). Fractions of chill units result from one hour's exposure at temperatures either slightly above or below the optimum. Chilling requirements were estimated by comparing their bloom and leafing dates with those of older, standard cultivars with known chilling requirements.

Figure 1 shows hours below 45°F received up to February 10 in 75% of winters. Mean January temperatures necessary for normal budbreak and foliation are related to chilling requirement and may be used by growers to judge the suitability of peach and nectarine cultivars for a given location based on weather records (Fig. 2). Cultivars with a cu requirement of up to 250 are adapted to central Florida, and cultivars with a cu requirement of 300 to 400 are adapted to north-central and north Florida. This translates to mean January temperatures of 16° to 64°F) for central Florida and 13.5° to 15°C (57° to 59°F) for north-central and north Florida. Cultivars with estimated chilling requirements of 400 cu or greater, should be planted only in north and northwest Florida.

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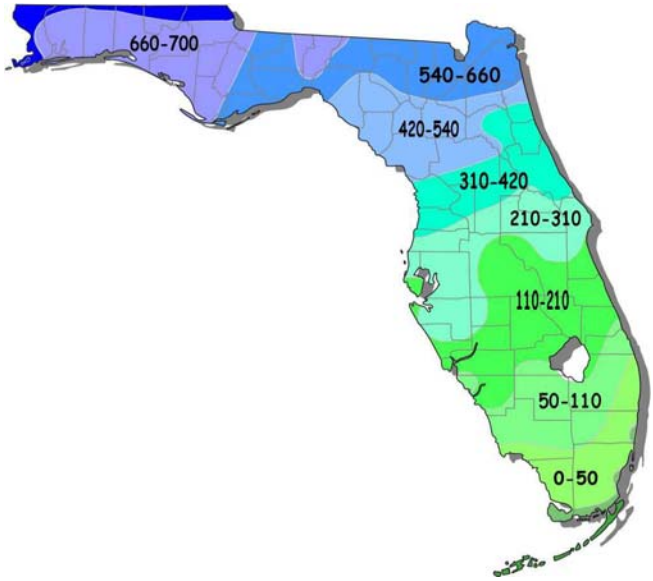

Figure 1. Estimated chill unit accumulation for Florida. (Adapted from Weinberger, 1956 and Sharpe, 1970.)

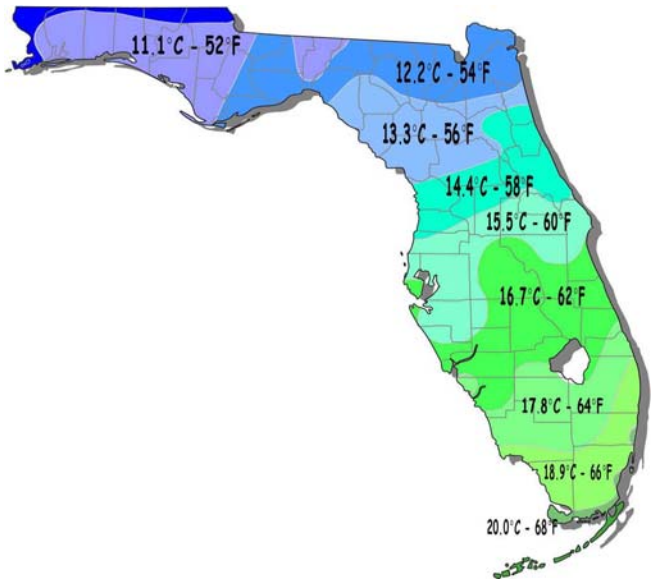

Figure 2. Average January temperatures. *Adapted from Gittings, 1941.*

Both flower type and leaf gland shape are useful for cultivar identification purposes. Flower type (showy or nonshowy) refers to the presence or absence of conspicuous petals. Leaf gland shape is either reniform (kidney-shaped) or globose (roundish).

Bacterial spot resistance and flower bud set were based on subjective ratings. (Bacterial spot resistance refers to infection of leaves; bacterial spot on fruit rarely occurs under Florida's climatic conditions.)

Fruit characteristics of the same peach and nectarine cultifvars are listed in Table 2. Days from full bloom to maturity, known as the fruit development period (FDP), vary with accumulated temperature. Fruit weights were determined from yearly samples collected at commercial maturity from properly thinned trees. Fruit size generally increases with FDP. Consequently, during late April peaches and nectarines averaging 80 g are marketable, whereas by late May the minimum marketable size increases to about 100 g.

Pit freeness depends on fruit type: The flesh of semicling fruit clings to the pit at soft ripe; the flesh of semifree fruit separates from the pit at soft ripe; and the flesh of freestone fruit separates from the pit when firm ripe.

Fruit color was rated visually. High percentages of red overcolor and bright yellow background color are desirable for high consumer acceptance.

Fruit shape, firmness, taste, and overall attractiveness were rated subjectively. Ideally, the shape of the fruit should be round to slightly oblong. Lower ratings were given to excessively oblong fruits or to fruits with protruding tips or sutures. Overall attractiveness takes into account all of the previously mentioned variables of fruit attractiveness (i.e., size, shape, color and flesh browning).

Following, are additional comments on each of the peach and nectarine cultivars.

Low-chill Peaches

Flordaprince (Fig. 3). Standard for a low-chill, early-ripening peach; susceptible to bacterial spot. Flordastar can replace Flordaprince in areas where bacterial spot is a problem.

Flordaglo (Fig. 4). Large fruit for its season; firm, nonbrowning white flesh; ripens about 1 week after Flordaprince.

UFSun (Fig. 5). Low chilling requirement, early ripening with large fruit for its season. Suggested for trial in south-central Florida.

Figure 3. Flordaprince.

Figure 4. Flordaglo.

Figure 5. UFSun.

UFBeauty (Fig. 6). Low chilling requirement, early-ripening, large fruit. Suggested for trial in central Florida.

UFBlaze (Fig. 7). Moderately low chilling requirement, ripens early with good fruit size. Suggested for trial in north-central Florida.

Figure 6. UFBeauty.

Figure 7. UFBlaze.

UFGold (Fig. 8). Large fruit for its season; non-melting flesh; excellent flavor and attractiveness; moderate flower bud set. Fruit set can be adversely affected by high night temperatures.

Figure 8. UFGold.

TropicBeauty (Fig. 9). Excellent shape, color, and firmness; susceptible to bacterial spot.

Figure 9. TropicBeauty.

UF2000 (Fig. 10). Large fruit with non-melting flesh; excellent shape and flavor; ripens in late May in north-central Florida.

Figure 10. UF2000.

UFO (Fig. 11). Saucer-shaped fruit with yellow, non-melting flesh and excellent flavor.

Figure 11. UFO.

Low-chill Nectarines

Sunmist (Fig. 12). An early, low-chill, white-fleshed nectarine with excellent aroma and flavor.

Figure 12. Sunmist.

Sunbest (Fig. 13). Moderately low chilling requirement, ripens with Sunraycer. Suggested for trial in north-central Florida and in areas where Sunraycer has fruited well.

Sunraycer (Fig. 14). Large fruit for its season; excellent color; fruit ripens about 5 days before Sunred and Sunblaze.

UFQueen (Fig. 15). Large fruit for its season non-melting flesh; ripens after Sunraycer; excellent flavor.

Figure 13. Sunbest.

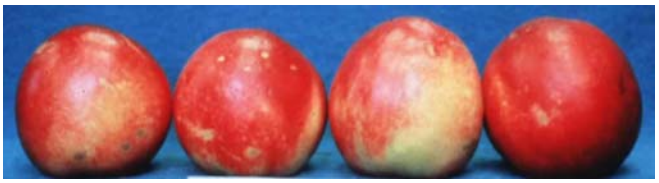

Figure 14. Sunraycer.

Figure 15. UFQueen.

Medium-chill Peaches

Flordadawn (Fig. 16). One of the first commercially shipped peaches to ripen in North America (usually late April in north Florida); good color, shape, and flavor; heavy, prolonged bloom; blooms early; fruit are relatively small but acceptable for their season.

Figure 16. Flordadawn.

Flordaking (Fig. 17). Industry standard for its season; early ripening (usually early May); large fruit; early bloom; light flower crop; poor color; high incidence of split pits.

Flordacrest (Fig. 18). Excellent color; good shape; attractive; ripens about 1 week after Flordaking; fewer split pits but smaller fruit than Flordaking.

Gulfprince (Fig. 19). Large fruit with non-melting flesh; excellent shape and flavor; ripens in late May-early June in north Florida. Currently, Gulfprince is suggested for trial for local markets only because of a possible storage disorder that may develop during packing and handling of fruit.

Figure 17. Flordaking.

Figure 18. Flordacrest.

Figure 19. Gulfprince.

GulfKing is a non-melting flesh peach with excellent flavor and eating quality. Fruit are large for the early season averaging 2 3/8 inches in diameter. Ripe fruit have 90 to 100% red skin color. Fruit ripens in early May with Flordaking in south Georgia. Gulfking is suggested for trial plantings in areas where Flordaking has fruited reliably.

Gulfcrest is a non-melting flesh, semi-freestone, peach with good flavor. Fruit ripen in mid-May in south Georgia with Flordacrest. Fruit are uniform, about 2 3/8 inches in diameter and have 90 to 100%

red skin color. Estimated chilling is 525 chill units. Gulfcrest is suggested for trial in south Georgia and northwest Florida.

Medium-chill Nectarines

Suncoast (Fig. 20). Large fruit with good color and shape; excellent firmness retention; ripens about 10 days after Sundollar.

Figure 20. Suncoast.

Conclusion

Proper cultivar selection is one of the most important decisions determining success or failure of a commercial peach orchard. Prospective growers are encouraged to consult their local county extension office for more information or write the Cooperative Extension Service at the Horticultural Sciences Department, P.O. Box 110690, Gainesville, FL 32611-0690.

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Table 1. Tree, flower, and leaf characteristics of low- and medium-chill peach and nectarine cultivars adapted to north and north-central Florida.

Cultivar	Estimated chill units	Mean January temperature[a]		Flower type[b]	Bacterial spot resistance[c]	Leaf glands[d]
		(F)	(C)			
			Low Chill - *Peach*			
Flordaprince	150	64	17.8	S	4	R
Flordaglo	150	64	17.8	S	8	R
UFSun	100	64	18.0	S	10	R
UFBeauty	200	62	16.7	S	10	G
UFBlaze	300	59	15.0	S	10	G
UFGold	200	62	16.7	S	8	R
TropicBeauty	150	64	17.8	S	5	R
UFO	250	61	16.0	S	10	R
			Nectarine			
Sunbest	250	61	16.0	NS	10	R
Sunmist	275	60	15.5	S	8	G
Sunraycer	250	61	16.0	NS	10	R
UFQueen	250	61	16.0	NS	10	R
			Medium Chill - *Peach*			
Flordadawn	300	59	15.0	S	10	R
Flordaking	400	58	14.4	NS	10	G
Flordacrest	350	58	14.4	S	7	G
Gulfking	350	58	14.4	S	10	R
Gulfcrest	525	55	12.5	NS	10	G
Gulfprince	400	58	14.4	S	10	R
			Nectarine			
Suncoast	375	58	14.0	NS	10	R

[a] Adapted from Weinberger, 1956; Sharpe, 1970. Areas with this average January temperature, or a lower one, will provide sufficient chilling to grow this cultivar successfully.
[b] S=showy, NS=nonshowy
[c] 1=least resistant to 10=most resistant
[d] R=reniform, G=globose

Table 2. Fruit characteristics of low- and medium-chill peach and nectarine cultivars adapted to north and north-central Florida.

Cultivar	FDP days[a]	Weight (g)	Flesh type[b]	Flesh[c] color	Color		Shape[e]	Taste[e]	Overall attractiveness[e]
					Overred (%)	Background[d]			
Low Chill - *Peach*									
UFSun	80	105	NM	Y	40	BY	9	9	9
UFBeauty	82	110	NM	Y	90	OY	10	9	10
UFBlaze	80	110	NM	Y	90	OY	9	9	9
Sunbest	85	110	M	Y	90	Y	7	8	8
Flordaprince	78	82	M	Y	80	GY	9	8	8
UFGold	80	110	NM	Y	60	OY	9	9	9
Flordaglo	78	94	M	W	80	CW	9	7	8
TropicBeauty	89	100	M	Y	80	BY	10	8	8
UFO	105	70	NM	Y	60	OY	5[f]	9	9
UF2000	95	150	NM	Y	50	Y	9	8	7
Nectarine									
Sunraycer	85	110	M	Y	90	BY	7	8	9
UFQueen	95	115	NM	Y	80	DY	9	10	6
Sunmist	80	90	M	W	85	W	9	10	6
Medium Chill - *Peach*									
Flordadawn	60	80	M	Y	80	BY	8	6	6
Flordaking	68	96	M	Y	50	DY	7	7	7
Flordacrest	75	92	M	Y	50	BY	7	8	8
Gulfprince	110	150	NM	Y	50	OY	9	9	9
Gulfking	77	120	NM	Y	85	OY	9	8	10
Gulfcrest	70	105	NM	Y	90	OY	9	8	9
Nectarine									
Suncoast	77	110	M	Y	90	Y	8	8	7

[a] FDP=fruit development periods (days from 50% bloom to first commercial harvest)
[b] M=melting flesh, NM=non-melting flesh
[c] Y=yellow, W= white
[d] BY=bright yellow, Y=yellow, DY= dull yellow, O=orange, OY=orange yellow, CW=cream white, W=white, GY=greenish yellow
[e] 1=least desirable to 10=most desirable
[f] Saucer-shape fruit (see fig.)