

Chapter 8.

Specialty Asian Vegetable Production in South Florida

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The term “specialty Asian vegetables” is used herein to designate a group of lesser known vegetables which are primarily Asian in origin. At present, most consumers who purchase these products are either Asian or are preparing Asian cuisine. Some may have potential for appealing to a wider range of consumers.

CUCURBITS

This group (Table 1) includes fruits, eaten either immature or mature, and several vegetables with edible tender stems and leaves. All can be grown on raised beds using plastic mulch and drip irrigation. Fertilizer recommendations for cucumbers are applicable to bitter melon (Fig. 8-1), smooth loofah, Chinese okra, and bottle gourd (Table 2 and Table 3). Recommendations for watermelons should be followed for winter melon. No recommendations exist for chayote (Fig. 8-2), tindora (Fig. 8-3) or parvar, though a program comparable to that for watermelon would most closely approximate the nutritional needs of these crops (Table 2 and Table 3). With the exception of tindora and parvar which are propagated by stem cuttings, all can be started from seed or transplants (Table 4). Many need some type of support for quality fruit production (Table 4).

LEGUMES

The Asian legume group (Table 5) includes fruits (usually known as pods), which are eaten at the immature stage plus some crops with edible immature seeds. The winged bean (Fig. 8-4) also has edible leaves and roots, though the latter do not appear to be cultivated commercially in the Continental U.S. All the pole or indeterminate types can be grown on raised beds using plastic mulch and drip irrigation. The determinate types (yard long bean and lablab bean) can also be grown on plastic mulch, but the growing season may be too short to justify this expense. Fertilizer recommendations for pole beans are applicable to this group (Table 6). All of these crops should be started from seed, with growers taking note that winged beans require scarification prior to planting (Table 7). All the indeterminate types need some type of support (Table 7).

SOLANUMS

The group (Table 8) includes fruits which are eaten at the immature or mature stage. Pea eggplant (Fig. 8-5) also has edible tender shoots. All can be grown on raised beds using plastic mulch and drip irrigation. Fertilizer recommendations for eggplant should be used for the Thai (Fig. 8-6), Japanese and pea eggplant, while recommendations for pepper should be followed for bird's eye peppers (Table 9 and Table 10). These crops can be started from seed or transplants (Table 11). All the indeterminate types need some type of support (Table 11).

OTHER

The final group (Table 12) includes fruits, which are eaten at the immature stage and edible leaves or stem tips. With the exception of sweetpotato, no fertilizer recommendations have been developed for this group. These crops should be started from seed, corms or stem cuttings (Table 13).

CONCLUSIONS

The specialty Asian vegetables grown in south Florida are shipped to Asian markets, with very few being sold in “traditional” supermarkets. Yields vary by crop (Table 14), ranging from 2,400 lbs/acre for smooth loofah and winged beans to 13,500 lbs/acre for fuzzy squash and long squash. Growers are primarily Asians, and even this group has noted some difficulties in selling to markets other than their particular nationality or ethnic group. Anyone considering producing any of these crops should do a thorough study of the prospective market before planting. Experimental plantings should be very limited in size since even minute changes in volume can have drastic effects on market price. As with other commodities grown in Florida, this group experiences competition with off-shore production, primarily from the Caribbean.

Table 1. Common and scientific names, synonyms, and edible portions of Asian cucurbits.

Common Name	Scientific Name	Synonyms	Edible Portion ¹
bitter melon	<i>Momordica charantia</i> L.	bitter gourd, balsam pear	<i>immature / mature fruit</i>
winter melon	<i>Benincasa hispida</i> (Thunb.) Cogn.	wax gourd	<i>immature / mature fruit</i>
smooth loofah	<i>Luffa aegyptiaca</i> Miller	dishcloth or sponge gourd	<i>immature fruit</i>
Chinese okra	<i>Luffa acutangula</i> (L.) Roxb.	angled loofah	<i>immature fruit, leaves</i>
long squash	<i>Lagynaria siceraria</i> (Mol.) Standl.	calabash or bottle gourd	<i>immature fruit, tender shoots, leaves</i>
chayote	<i>Sechium edule</i> (Jacq.) Swartz	mirilton, vegetable pear	<i>fruit, tender shoots, leaves</i>
tindora	<i>Coccinia grandis</i> (L.) Voigt	ivy gourd	<i>fruit, tender shoots, leaves</i>
parvar	<i>Tricosanthes dioica</i> Roxb.	pointed gourd	<i>immature fruit, tender shoots</i>

¹ Italics indicate the edible portion grown in south Florida

Table 2. Target pH, and recommended N, P₂O₅, and K₂O fertilizer for specialty Asian cucurbits.

Target pH	N lb/A	P ₂ O ₅					K ₂ O				
		VL	L	M	H	VH	VL	L	M	H	VH
(lb/A/crop season)											
bitter melon, smooth loofah, Chinese okra, long squash											
6.5	150	120	100	80	0	0	120	100	80	0	0
winter melon, chayote tips, tindora, parvar											
6.5	150	150	120	80	0	0	150	120	80	0	0

Table 3. Injection schedule for N and K for specialty Asian cucurbit crops grown on soils testing very low in K.

Crop	Total nutrients (lb/A)		Crop development		Injection (lb/A/day)	
	N	K ₂ O	Stage	Weeks	N	K ₂ O
Bitter melon, smooth loofah, Chinese okra, long squash	150	120	1	1	1.0	1.0
			2	2	2.0	1.5
			3	6	2.5	2.0
			4	1	2.0	1.5
winter melon, chayote tips, tindora, parvar	150	150	1	2	1.0	1.0
			2	2	1.5	1.5
			3	4	2.0	2.0
			4	3	1.5	1.5
			5	2	1.0	1.0

Table 4. Life cycle, season, trellising requirements, mulching, and planting material for Asian cucurbits.

Crop	Life-cycle	Season	Trellis	Mulch	Planting Material
bitter melon	annual	fall-spring	yes	yes	seed
winter melon	annual	fall-spring	no	yes	seed
smooth loofah	annual	fall-spring	yes	yes	seed
Chinese okra	annual	fall-spring	yes	yes	seed
chayote tips	perennial	all year	yes	yes	whole fruit
long squash	annual	fall-spring	sometimes	yes	seed
tindora	semi-perennial	all year	yes	yes	stem cutting
parvar	semi-perennial	all year	yes	yes	stem cutting; dioecious

Table 5. Common and scientific names, synonyms, and edible portions of Asian legumes.

Common Name	Scientific Name	Synonyms	Edible Portion ¹
long bean	<i>Vigna unguiculata</i> (L.) Walp. subsp. <i>unguiculata</i> (L.)	asparagus bean, yard-long bean	<i>immature</i> pods, immature seed
lablab bean	<i>Lablab purpureus</i> (L.) Sweet.	hyacinth, Indian, lubia, or seim bean, papadi	immature pods, immature seed
winged bean	<i>Psophocarpus tetragonolobus</i> (L.) DC	Goa bean	<i>immature</i> pods / immature seed, leaves, root
guar	<i>Cyamopsis tetragonoloba</i> (L.) Taub.	cluster bean	<i>immature</i> pods /immature seed

¹ Italics indicate the edible portion grown in South Florida

Table 6. Target pH, and recommended N, P₂O₅, and K₂O fertilizer for specialty Asian legumes.

Target pH	N lb/A	P ₂ O ₅					K ₂ O				
		VL	L	M	H	VH	VL	L	M	H	VH
(lb/A/crop season)											
long bean, lablab bean, winged bean, guar											
6.5	90	120	100	80	0	0	120	100	80	0	0

Table 7. Life cycle, season, growth habit, mulching, and planting material for Asian legumes.

Crop	Life-cycle	Season	Growth Habit	Mulch	Planting Material
long bean - bush	annual	fall-spring	determinate	no	seed
long bean - pole	annual	fall-spring	indeterminate	yes	seed
lablab bean - bush	perennial grown as an annual	fall-spring	determinate	no	seed
lablab bean - pole	perennial grown as an annual	fall-spring	indeterminate	yes	seed
winged bean	perennial grown as an annual	all year	indeterminate	yes	scarified seed
guar	annual	fall-spring	determinate	yes	seed

Table 8. Common and scientific names, synonyms, and edible portions of Asian solanums.

Common Name	Scientific Name	Synonyms	Edible Portion ¹
Thai eggplant	<i>Solanum melonogena</i> L.		<i>immature</i> fruit
Japanese eggplant	<i>Solanum melonogena</i> L.	Chinese eggplant	<i>immature</i> fruit
pea eggplant	<i>Solanum torvum</i> Swartz	cherry eggplant	<i>immature</i> fruit, tender shoots
bird pepper	<i>Capsicum frutescens</i> L.		<i>immature</i> or <i>mature</i> fruit

¹ Italics indicate the edible portion grown in South Florida

Table 9. Target pH, and recommended N, P₂O₅, and K₂O fertilizer for specialty Asian solanums.

Target pH	N lb/A	P ₂ O ₅					K ₂ O				
		VL	L	M	H	VH	VL	L	M	H	VH
(lb/A/crop season)											
Thai, Japanese & pea eggplant											
6.5	160	160	130	100	0	0	160	130	100	0	0
bird's eye pepper											
6.5	175	160	130	100	0	0	160	130	100	0	0

Table 10. Injection schedule for N and K for specialty Asian solanaceous crops grown on soils testing very low in K.

Crop	Total nutrients (lb/A)		Crop development		Injection (lb/A/day)	
	N	K ₂ O	Stage	Weeks	N	K ₂ O
Thai, Japanese & pea eggplant	160	160	1	2	1.0	1.0
			2	2	1.5	1.5
			3	6	2.5	2.0
			4	3	1.5	1.5
bird's eye pepper	175	160	1	2	1.0	1.0
			2	2	1.5	1.5
			3	7	2.5	2.5
			4	1	1.5	1.5
			5	1	1.0	1.0

Table 11. Life cycle, season, mulching, and planting material for Asian solanums.

Crop	Life-cycle	Season	Mulch	Planting Material
Thai eggplant	annual to semi-perennial	fall-spring	yes	seed
Japanese eggplant	annual	fall-spring	yes	seed
pea eggplant	semi-perennial	all year	yes	seed / stem cutting
bird pepper	annual to semi-perennial	fall-spring	yes	seed

Table 12. Common and scientific names, synonyms, and edible portions of other Asian vegetables.

Common Name	Scientific Name	Synonyms	Edible Portion ¹
jute	<i>Corchorus olitorius</i> L.	Jews' marrow, bush okra	<i>immature fruit</i>
callaloo	<i>Colocasia esculenta</i> (L.) Schott	taro leaves	<i>young leaves</i>
callaloo	<i>Amaranthus</i> spp.	edible amaranth	<i>tender shoots, leaves, sprouted seeds</i>
sweetpotato	<i>Ipomoea batatas</i> (L.) Lam.		<i>stem tips</i>

¹ Italics indicate the edible portion grown in South Florida

Table 13. Life cycle, season, and planting material for other Asian vegetables.

Crop	Life-cycle	Season	Planting Material
jute	annual or short lived perennial	fall-spring to all year	seed
callaloo	perennial	all year	corm
callaloo	annual	fall-spring	seed
sweetpotato tops	perennial	all year	stem cutting or tubers

Table 14. Average yield and price for selected Asian vegetables in Miami-Dade County (1988-89 & 1995-96).

Crop	Yield Lbs/acre	Average Price/lb	
		1988-89	1995-96
bitter melon	3,200	\$1.44	\$1.64
Chinese okra	4,500	n.a.	n.a.
fuzzy squash	13,500	n.a.	n.a.
long beans	4,200	\$1.25	\$1.38
long squash	13,500	\$2.25	n.a.
smooth loofah	2,400	\$1.28	n.a.
Thai & Chinese eggplant	6,000	\$1.82	\$1.40
tindora	8,500	\$1.00	\$1.00
winged bean	2,400	\$1.00	n.a.