

HAWAII COOPERATIVE EXTENSION SERVICE

Hawaii Institute of Tropical Agriculture and Human Resources
University of Hawaii at Manoa

COMMODITY FACT SHEET SP-3(A)

VEGETABLE



SWEET POTATO PRODUCTION

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Figure 1. 'Waimanalo Red' sweet potatoes.

Hawaii's growers harvest approximately 1.7 million pounds of sweet potatoes per year on 150 acres, representing about 75 percent of the sweet potatoes marketed in Hawaii. Two types of sweet potatoes are grown. The predominant type has dry, white to pale yellow or purple flesh and is used for boiling or frying. The other type, often called a yam, has moist orange flesh and is used for baking.

Varieties

Moist types

- Kona B High yielding, orange skin, flesh color
- Centennial Good yielding, copper skin, orange flesh
- Jewel Good yielding, light copper skin, orange flesh



Figure 2. Sweet potato weevil.

Dry types

- Waimanalo Red Red skin, white flesh, good quality, early maturing
- Onokeo Purple skin, white flesh, excellent quality
- HSPA-3 White skin, yellow flesh, excellent quality
- 71-3 Red skin, white flesh, good quality
- 71-7 Good yielding, yellow skin, yellow flesh, excellent quality
- Rapoza White skin, purple flesh, good quality

Semidry type

- 71-5 High yielding, red skin, orange flesh

Planting and Culture

Sweet potatoes grow best in soils that are loose, free of rocks, fairly fertile, and well drained. Plants

grown in tightly packed or rocky soils will produce misshapen roots.

Sweet potatoes are planted in rows 3 to 5 feet apart, with plants spaced 1 foot apart. Tip cuttings (8 to 12 inches long) are planted 6 to 9 inches deep, at an angle, with about three-fourths of the cutting covered with soil. Planting rows 3 feet apart will require 14,520 cuttings per acre; rows 4 feet apart will require 10,890 cuttings; and rows 5 feet apart will require 8,712 cuttings.

The crop should be irrigated at regular intervals. Irrigation after prolonged periods of drought may cause cracking of the roots. Irrigation should be stopped 3 to 4 weeks before harvest.

Lime and Fertilizer Requirements

Soil tests should be used to determine lime and fertilizer requirements. The optimum pH is 5.6 to 6.5. Generally, 75 to 100 lb/acre nitrogen, 200 to 300 lb/acre phosphate, and 200 to 300 lb/acre potash are sufficient for the crop. Apply half the required amount at planting and the remainder 4 to 5 weeks later. On soils testing very low in available phosphate, apply 1000 lb/acre treble superphosphate. This is applied before planting in 12- to 15-inch bands and worked to a depth of 6 to 10 inches. High nitrogen applications should be avoided because they will cause excessive vine growth and deeply ridged roots. Manure should not be used on the crop because of danger to the roots from scurf infection.

Harvesting

Sweet potatoes are ready for harvest 4 to 6 months after planting. Plants left to grow over 6 months will produce large "jumbo" roots that are not acceptable as Grade A. Leaving the crop in the soil longer than necessary increases the chance of weevil infestation and disease infection.

The crop should be harvested with care to prevent bruises and cuts on the roots. The vines are usually cut at the base of the plant and are either removed or left between the rows before roots are dug up with a middlebuster or sweet potato harvester.

Curing and Storing

Sweet potatoes should be cured for about 10 days after digging. The primary purpose of curing is to heal cuts and bruises quickly with a minimum of shrinkage. Also, some of the starches are converted to sugars, giving the potato a sweeter flavor. The best temperatures for curing are 80° to 85° F with a high relative humidity. After curing, the potatoes should be stored at 55° to 70° F. Temperatures below 50° F will damage the roots, and temperatures above 70° F may cause excessive shrinkage and sprouting.

NOTE: The use of trade names is for the convenience of readers only and does not constitute an endorsement of these products by the University of Hawaii, the College of Tropical Agriculture and Human Resources, the Hawaii Cooperative Extension Service, or any of their employees.

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Insect Control¹

Insect	Treatment	Harvest Restriction ²	Comments
Sweet potato weevil West Indian sweet potato weevil	Diazinon 14G at 21 lb/acre or 50% WP at 6 to 8 lb/acre or 4 lb/gal EC at 3 to 4 qt/acre	0	Preplant soil treatment is to apply broadcast and work into soil to a depth of 3 to 6 inches.
	Carbaryl (Sevin) ³ 50W at 2 to 4 lb/acre	7	Preplant treatment is to dip cuttings in a 1% solution (2 2/3 Tbsp/gal water).
	Malathion 57% EL at 1½ to 2 pt/acre or 25% WP at 2 lb/acre	0	Foliar treatment with full coverage of plants is essential. Use lower rates on young plants and higher rates on mature plants. Apply at 3-week intervals.
	Endosulfan (Thiodan) 3 lb/gal EC at 2/3 qt/acre	0	
Vine borers	Malathion 57% EL at 1½ to 2 pt/acre or 25% WP at 2 lb/acre	3	

¹ For further information, check Insect Pest Series No. 8.

² After treatment, postpone harvest for number of days given.

³ Requires a Special Local Needs (SLN) label. For further information contact your County Extension Agent or the Hawaii Department of Agriculture.

Disease Control

Disease	Treatment	Comments
Black rot Scurf	Use clean planting material.	Obtain cuttings from disease-free fields. Rotation of 2 to 3 years with other crops will help control black rot and scurf.
Scab	Plant resistant varieties.	Waimanalo Red is resistant to scab.
Rhizopus soft rot	Botran 50W at 1½ lb/100 gal water	Dip or spray plants with Botran solution. Dip roots for 10 to 15 seconds.
Nematodes	D-D at 18 to 25 gal/acre or Vidden-D at 15 to 25 gal/acre or Telone II at 9 to 15 gal/acre or Vapam at 40 to 100 gal/acre or Vorlex at 10 to 25 gal/acre or EDB at 3 to 4 gal/acre or Temik 15% G at 10 to 20 lb/acre or Mocap 10% G at 30 to 40 lb/acre or Dasanit 15% G at 20 to 46.7 lb/acre	Apply nematicide 14 days before transplanting. Space chisels 12 inches apart and inject chemical 10 inches deep. Granular materials are applied on 42-inch rows in a 12- to 15-inch band. Reduce rates proportionately if row treatment is used. Follow manufacturer's directions.

Weed Control

Chemical	Rate of Commercial Formulation	Comments
Dacthal W-75 (DCPA)	10 to 14 lb/acre	Apply as a spray over planted cuttings before weeds emerge. Important: At least ½ acre-inch (13,500 gal/acre) of water must be applied immediately after treatment for best results. Sprayer should have adequate agitation to prevent settling of wettable powder.
Dymid 80W or Enide 50W (diphenamid)	5 to 7 lb/acre or 8 to 12 lb/acre	Apply as a preemergence spray over transplanted crop.
Radox (CDAA)	4 to 6 qt/acre or 20 to 30 lb/acre of 20% granules	Apply as a preemergence spray over transplanted crop.
Dacthal W-75 (DCPA) plus Dymid 80W or Enide 50W (diphenamid)	10 to 14 lb/acre 5 to 7 lb/acre or 8 to 12 lb/acre	See comments for Dacthal W-75.