

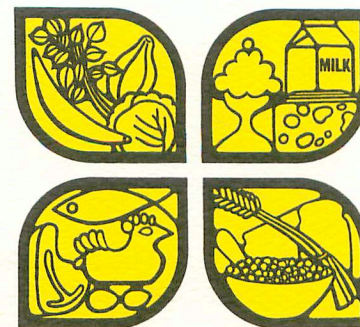
HAWAII COOPERATIVE EXTENSION SERVICE

Hawaii Institute of Tropical Agriculture and Human Resources

University of Hawaii at Manoa

COMMODITY FACT SHEET CU-3(A)

VEGETABLE



CUCUMBER PRODUCTION

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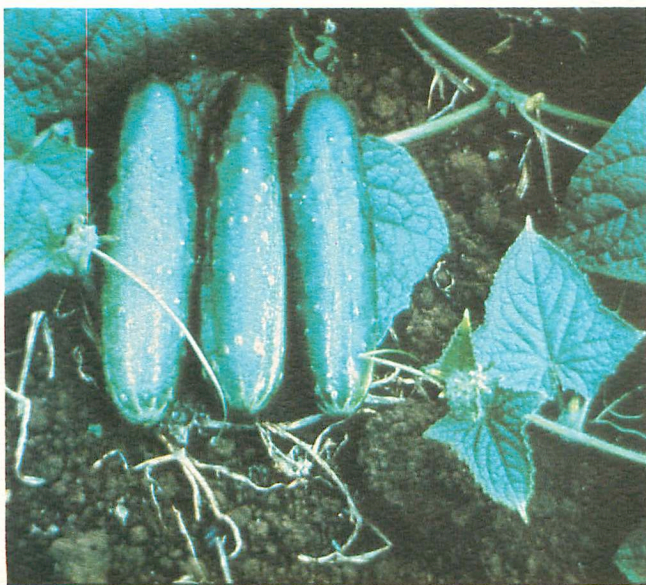


Figure 1. 'Burpee Hybrid' cucumbers.

Hawaii's growers harvest approximately 4.7 million pounds of cucumber per year from 270 acres, representing about 75 percent of the market supply for Hawaii.

Varieties

Burpee Hybrid	Excellent quality, susceptible to watermelon mosaic virus (WMV) and powdery mildew
Sweet Slice	Excellent quality, resistant to powdery mildew and WMV, poor shelf life
Green King	Japanese type, WMV resistant, looks promising in trials
Progress	Japanese type, WMV resistant, looks promising in trials

Planting and Culture

Cucumbers do best in soils that are well drained and high in organic matter. Apply 5 tons/acre chicken manure or 8 to 10 tons/acre steer manure.



Figure 2. Powdery mildew on cucumber.

Cucumbers are usually seeded directly in the field. Space rows 4 to 6 feet apart and plant 3 to 4 seeds per foot of row. Later, thin plants to 1 per foot of row. If the plants are to be trellised, allow 1½ to 2 feet between hills, with 2 to 3 plants per hill. Depth of seeding is ¾ to 1 inch. Two pounds of seed will be required per acre.

Lime and Fertilizer Requirements

Soil tests should be used to determine lime and fertilizer requirements. Optimum pH is 6.0 to 6.8.

Generally, 150 to 200 lb/acre nitrogen, 450 to 600 lb/acre phosphate, and 150 to 200 lb/acre potash are sufficient for a cucumber crop. Apply half the required amount at planting and the remainder 4 weeks later. The crop may also require 200 lb/acre ammonium sulfate or 100 lb/acre urea 3 to 4 weeks after harvest begins, to maintain vigor of the plants.

On soils low in magnesium, apply 150 to 200 lb/acre magnesium sulfate (Epsom salt).

Harvesting

Cucumbers should be harvested every other day for best yields and quality. If not harvested frequently, cucumbers quickly become oversized. Japanese cucumbers should be picked when they are 8 to 10 inches long. Handle the fruits carefully to prevent bruising and spoilage.

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.

Insect Control

Insect	Treatment	Harvest Restriction ¹	Comments
Aphid	Diazinon 50% WP at 1 lb/acre or AG 500 at 1 pt/acre	7	
	Endosulfan (Thiodan) 3 EC at 1 1/3 to 2 2/3 pt/acre or 50% WP at 1 to 2 lb/acre	0	
	Oxydemeton-methyl (Metasystox-R) 2 lb/gal EC at 1 1/2 to 2 pt/acre	0	Do not apply more than twice per crop.
Whitefly	Methomyl (Lannate, Nudrin) 90% S at 1 lb/acre or 24% E at 2 qt/acre	3	Parasites are very effective in greenhouse on whitefly.
Leaf miner	Parasites are very effective on leaf miners.	0	Minimal spraying is recommended.
Mite	Kelthane 35% WP at 1 to 1 2/3 lb/acre	2	
	Oxydemeton-methyl (Metasystox-R) 2 lb EC at 1 1/2 to 2 pt/acre	0	
	Tetradifon (Tedion) 50% WP at 1 lb/acre	0	Do not apply more than 3 times per crop.
Melon fly	Malathion ² (Malawet) 25% WP at 2 to 4 lb/acre	1	Mix with 1 lb partially hydrolyzed yeast protein or enzymatic yeast hydrolysate in 40 to 100 gal water.

¹ After treatment, postpone harvest for number of days given.

² 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	Harvest Restriction ¹	Comments
Angular leaf spot	Use resistant varieties. Spray with fixed copper at 1 to 1½ lb actual metallic copper per acre.	0	Apply at 3-day intervals or as needed during wet weather.
Alternaria leaf spot	Maneb 80% WP or mancozeb 80% WP	5	Spray at weekly intervals or as needed, beginning at 2-leaf stage.
Anthracnose	or zineb 75% WP at 2 lb/acre		
Downy mildew	Chlorothalonil (Bravo) 6F at 1½ to 2	0	
Gummy stem blight	pt/acre for anthracnose and downy		
Scab	mildew; 2 to 3 pt/acre for gummy		
Phytophthora blight	stem blight		
	Captafol (Difolatan) 4F at 4 qt/acre	0	
	Benomyl (Benlate) 50% WP at ¼ to ½ lb/acre	0	Not effective where pathogen has developed resistance.
Powdery mildew	Karathane 25% WP at ¾ lb/acre	7	
	Benomyl (Benlate) 50% WP at ¼ to ½ lb/acre	0	
	Chlorothalonil (Bravo) 75% WP at 2 lb/acre	0	
	Folpet 75% WP at 3 lb/acre	0	
Seed decay	Treat seed with captan 75% WP or	0	
Damping off	thiram 75% WP at label directions.		
Virus diseases (Mosaic)	Plant resistant cultivars. Control aphids and weeds within and around the fields.	0	Sweet Slice, Green King, and Progress are resistant to watermelon mosaic virus. ²
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 Mocap 10% G at 20 lb/acre	0	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.

¹After treatment, postpone harvest for number of days given.

²The term "resistant" means highly tolerant to the disease. Plants may show slight symptoms of the disease without serious effects.

Weed Control

Chemical	Rate of Commercial Formulation	Comments
Alanap-3 (naptalam or NPA)	6 to 8 qt/acre or 28 to 37 lb/acre of 10.8% granules	Apply after seeding but before weeds and crop emerge. At vining stage before weeds emerge or after cultivation, broadcast granular form only. Spraying after crop emergence will cause stunting and leaf deformation. Apply granules when plant parts are dry.
Dacthal W-75 (DCPA)	8 to 14 lb/acre	Apply as a directed spray on soil around crops 4 to 6 weeks after seeding but before weeds emerge or after cultivation. Caution: Do not apply before seeding or on very young seedlings.
Alanap-3 (naptalam, NPA) plus Preemerge or Sinox PE (dinoseb, DNBP)	6 to 8 qt/acre 2.5 qt/acre	Apply after seeding but before weeds and crop emerge. Caution: Do not apply after crop emerges. Application to sandy soils or moderately wet soils may cause injury.
Dyanap or Ancrack (naptalam, NPA plus dinoseb, DNBP)	6 to 8 qt/acre	See comments for Alanap-3 plus Preemerge or Sinox PE.
Preemerge or Sinox PE (dinoseb, DNBP)	3 qt/acre	Apply after seeding but before weeds and crop emerge. Caution: Do not apply after crop emerges. Application to sandy soils or moderately wet soils may cause injury.
Prefar (bensulide)	6 qt/acre	Apply after seeding but before weeds and crop emerge. Irrigate thoroughly. After treatment, wait 18 months before planting any crop that is not listed on the herbicide label.

This publication was assumed to be correct at the date of its issue, but it may no longer represent the most up-to-date information on its subject. In particular, if this publication contains information about pesticide uses, the products mentioned may not currently be licensed for sale in Hawai'i or labeled for the uses described.