

Costs and Returns Analysis Per Hectare

ITEMS	AMOUNT (P)
VARIABLE COSTS	
A. Labor (@P220/MD; P440/MAD)	
Plowing (5MAD)	2,200.00
Harrowing (3MAD)	1,320.00
Furrowing/Bedding (5MAD)	2,200.00
Manure application (6MD)	1,320.00
Fertilization; basal (2MD), sidedress (2MD)	880.00
Planting (4MD)	880.00
Trellising (20MD)	4,400.00
Irrigation (12MD)	2,640.00
Spraying (8MD)	1,760.00
Weeding (3X) (20MD)	4,400.00
Vine training (8MD)	1,760.00
Roguing (4MD)	880.00
Harvesting (24MD)	5,280.00
Miscellaneous activities	10,000.00
Subtotal	39,920.00
B. Materials	
Seeds (3 kg/ha)	5,000.00
Trellis	30,000.00
Manure (10t)	10,000.00
Fertilizer: 14-14-14 (5 bags)	4,750.00
46-0-0 (4 bags)	4,200.00
0-0-60 (4 bags)	3,800.00
Pesticides/Fungicides	10,000.00
Miscellaneous	10,000.00
Subtotal	77,750.00
Subtotal (A + B)	117,670.00
C. Contingencies (15%)	
	17,650.50
GRAND TOTAL	135,320.50
Gross Income	180,000.00–240,000.00
Net Income	44,679.50–104,679.50

With marketable yield of 15–20 t/ha at a farmgate price of P12/kg.

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Cucumber Production Guide



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Introduction

Cucumber (*Cucumis sativus* L.) is also known as *pipino* (Tagalog), *kalabaga* (Bisaya), or *kasimum* (Bontoc). It is grown for its immature fruits which are used in salads (slicing type), or are soaked and stored in brine (pickling type). Pickling cucumbers are also called gherkins.

Cucumber is grown in 1,587 ha (Bureau of Agricultural Statistics 2005). The top producers are the Cordillera Administrative Region (320 ha), Region 9 (165 ha), Region 3 (140 ha) and Region 2 (111 ha).

Nutritional Value

Per 100 g edible portion, immature fruits contain:

Properties	Amount
Water (g)	96.0
Protein (g)	0.60
Fat (g)	0.10
Carbohydrates (g)	2.20
Calcium (mg)	12.0
Iron (mg)	0.30
Magnesium (mg)	15
Phosphorus (mg)	24.0
Vitamin A (IU)	45
Vitamin B ₁ (mg)	0.03
Vitamin B ₂ (mg)	0.02
Niacin (mg)	0.3
Vitamin C (mg)	12
Energy Value (kJ)	63

Source: Siemonsma, J.S. and Piluek, K. (Editors). 1994. PROSEA Handbook No. 8. Vegetables. Pudoc, Wageningen. 1993/Prosea, Bogor.

Production Management

Commercial Varieties

Pickling Type Pilmaria	Explorer
Slicing Type Ambassador Bituin General Lee Governor Jaguar	Matipuno Melissa Poinsett Puma Thalia

Soil and Climate Requirements

Cucumber can be grown throughout the year across locations. It grows best in sandy loam soil rich in organic matter with pH 6.5–7.5.

Land Preparation

Plow and harrow the field twice. Prepare furrows 0.75 m apart. Apply fully decomposed chicken manure along the furrows at 1 kg/linear meter or 500 g/hill. Mix thoroughly with the soil. Make holes 30 cm apart. Water the holes before planting.

Planting

About 3 kg of seeds are required per hectare. Wet the seeds overnight for uniform germination. Air dry and sow 2–3 healthy seeds/hill, 1 cm deep. Cover lightly with soil and mulch with rice straw. After three days, remove the rice straw covering the hole to give way to growing seedlings. Pull out excess seedlings and replant to missing hills. Maintain only 2 seedlings/hill.

Fertilization

Apply 10 g/hill 14-14-14 at planting. Sidedress with a mixture of two parts 46-0-0 and one part 0-0-60 at 10 g/hill on the 15th and 30th day after transplanting. Tea manure and fermented plant juice can be applied weekly as foliar fertilizer during the vegetative stage to increase plant vigor and resistance to downy and powdery mildew.

To prepare tea manure, soak $\frac{3}{4}$ sack dry cow/horse manure in a plastic drum filled with 189.25 L water for seven days. To prepare fermented plant juice, mix chopped actively growing plant parts with equal amount of molasses or brown sugar. After one week of fermentation, extract the juice and apply as foliar fertilizer at 1 tbsp/3.785 L water. Apply to the whole plant, especially on the growing tips.

Trellising

Provide trellis soon after emergence. Set up 2-m long ipil-ipil posts along the row with a spacing of 3 m between posts. Connect the posts by installing GI wire # 16 near the base, at the middle, and near the top end. Hang abaca twine or synthetic straw from the topmost wire to serve as support to the growing vines. Train the vines every two days.

Irrigation

Irrigate the field once a week. Cucumber needs abundant supply of water during the growing period. However, it cannot tolerate waterlogging.

Weed Management

Practice off-barring and hilling-up at 20 days after emergence to suppress weed growth. Apply mulch such as rice straw or mulching film to minimize weeds and conserve moisture.

Pest and Disease Management

Insect Pests/Diseases	Control
Fruitfly Cucumber beetles	Fruitfly attractant, wrapping of fruits; scatter wood ash on the leaf surface; spray recommended pesticides
Leaf folders	Hot pepper spray (100 g macerated hot pepper/16 L water); Bt (<i>Bacillus thuringiensis</i>) spray; spray recommended pesticides
Aphids	Hot pepper spray; predators (lady beetles, predatory wasps); spray recommended pesticides
Thrips, mites	Intercropping/mixed planting; spray recommended miticides
Powdery mildew	Compost tea spray; tea manure, spray recommended fungicides
Downy mildew	Mulching; pruning and burning of infected leaves, compost tea spray, spray recommended fungicides

To minimize pest incidence, plant barrier crops like corn and legumes. Intercrop with herbs and aromatic plants like marigold, alliums, lemon grass, ginger, and basil to repel insects. Grow flowering plants such as cosmos and sunflower to attract predators and pollinators. Spray the plants with compost tea and tea manure to increase resistance to fungal diseases and to improve plant vigor.

To prepare compost tea, mix one cup compost with $\frac{1}{4}$ cup molasses. Place the mixture in used stockings and tie into a ball. Soak the compost tea bag in 18.9 L water in a colored jar and place under the sun. The mixture is ready for use as spray against fungal diseases after soaking for 4 hours.

Harvesting

Harvest slicing types at 38–45 days after emergence, and pickling types; 3–5 days earlier. Harvest every other day or when necessary. Remove all deformed and damaged fruits to enhance production of more fruits.

Severely damaged fruits can either be included in the compost pile or used as fermented plant juice. To prepare fermented plant juice, mix chopped actively growing plant parts with equal amount of molasses or brown sugar. After one week of fermentation, extract the juice and apply as foliar fertilizer at 1 tbsp/3.785 L water.