

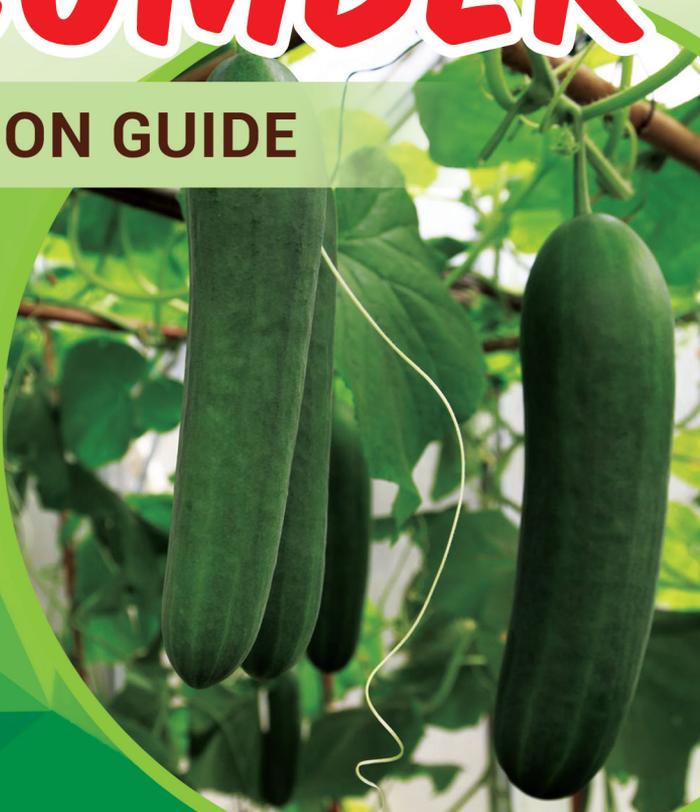


DEPARTMENT OF AGRICULTURE
Regional Field Office No. 02
Tuguegarao City, Cagayan



CUCUMBER

PRODUCTION GUIDE





Cucumber

Production Guide

This Publication is a project of the **Department of Agriculture, Regional Field Office No. 02, High Value Crops Development Program**. It contains the most recently available and locally adaptable technical information on **Cucumber Production** in Region 02.

June 2017

INTRODUCTION

Cucumber (*Cucumis sativus L.*), is a monoecious annual vegetable belonging to the Cucurbitaceous family with creeping (trailing) vines up to 5 cm long. The leaves are triangular-ovate and 8-14 cm long; flowers are staminate and pistillate, occasionally hermaphrodite, about 2-3 cm across. The fruits are usually cylindrical, 10-30 cm long, more or less rounded in cross-section.

NUTRITIONAL VALUE

The nutrient composition of cucumber per 100 g of edible portion is shown below:

Nutrient	Amount
Water	96.40%
Food energy	12.00%
Protein	0.60 g
Fat	0.20g
Total Carbohydrates	2.40g
Fiber	0.50g
Ash	0.40g
Calcium	19.00 mg
Phosphorus	12.00 mg
Potassium	122.00 mg
Iron	0.40 mg
Sodium	5.00 mg
Vitamin A	Trace
Thiamine	0.02 mg
Riboflavin	0.02 mg
Niacin	0.10 mg
Ascorbic Acid	10.00 mg

RECOMMENDED VARIETIES

Pilmaria (UPL Cu-6) - A highly gynoecious, open-pollinated, pickling variety. Fruits are blocky in shape, dark green in color, striped with whitespines. It matures in 40 days during the dry season with an average yield of 26.5 t/ha. and 42 days during the wet season with 27.5 t/ha. It is tolerant to watermelon mosaic virus, downy mildew, and fusarium wilt and moderately resistant to leaf folders, aphids, and beetles.

Bituin (UPL Cu-11) - A high yielding open-pollinated slicing variety. It is strongly gynoecious and fruits are medium to long (15-18 cm), uniformly dark green in color with white spines. It has a potential yield ranging from 25-35 t/ha. It is moderately tolerant to downy mildew, cucumber mosaic virus, and powdery mildew. The most common insect pest are aphids, leaf folders, and squash beetles.

Cucumber Hybrids are now existing in the market which includes the pickle type.

SOIL AND CLIMATIC REQUIREMENTS

Cucumber is a warm season grown year-round locally. The optimum temperature for growth is about 30°C, while the optimum night temperature is 18-20°C. The soil should be fertile and rich in organic matter with a soil pH ranging from 6.5 to 7.5.

Land Preparation

Prepare the field at least one month before planting. Follow each plowing with harrowing and allow weed seeds to germinate between each plowing. Prepare furrows 0.75 m to 1 m apart. For wet season cropping, prepare raised beds instead of furrows. One week before planting, make holes 30 cm apart and apply well-decomposed animal manure at the rate of 200 g/hill. Mix the manure thoroughly with soil.

Planting

- Cucumber is usually direct-seeded but can be transplanted and requires 2 kg seed/ha.

- In the field with 0.75 m furrows rows, plant the first two rows leaving the third row vacant again in the next two rows, leaving the next row unplanted. This is to provide space to perform other field operations more efficiently within the trellis. Sow 2-3 seeds 30 cm between hills and cover them with a thin layer of soil.

Fertilization

- The rate of fertilization depends on soil analysis, but in its absence apply about 15 g or 1.5 tbsp complete (14-14-14) per hill before planting and cover with soil. Add a handful of well decomposed manure per hill
- At early vegetative stage or a month after sowing sidedress about 20 g of a mixture of 2 parts Urea (46-0-0) and 1 part Muriate of Potash (0-0-60).

Thinning

- 2-3 weeks after planting thin out weak seedlings leaving one healthy plant per hill.

Irrigation

- Irrigate immediately after planting to ensure uniform seed germination.
- During the dry months, furrow irrigate every 10 days. Irrigate only when necessary during the wet season. Construct drainage canals at the end of rows to avoid water logging

Weeding

- Thoroughly hand-weed the planted rows.
- Underbrush or rotavate the large spacing in between rows

Trellising

- Lay-out 2.5 m long and 2-2.5 in diameter poles, 4-5 m apart along the planted rows.
- Draw the poles together in the two adjacent furrows to form a tepee or A-like structure.
- Connect the poles at the top along the rows with wire (#16)

and tie the top wire to a posted state at the end of the row to make the poles stable. Connect the poles along the rows in the middle and lower portion of the poles with wire.

- Cut abaca twine or synthetic twisted twine and tie them vertically from the top to the bottom wires in every hill. Intertwine the vine in a counter clockwise manner to the vertical strings.

Insect Pest Management

- **Squash beetle** – yellow colored insect which is most destructive during the first month of the crop. They feed newly germinated seedlings and tender leaves of the young plant. Spray recommended insecticides if infestation is high.
- **Thrips** – small-bodied insects found on the underside of the leaves, sucking plant sap. Leaves turn bronze in color and later dry up. Spray insecticides judiciously, preferably late in the afternoon.

Disease Management

- **Powdery mildew** – powdery or cottony appearance on the surface of the leaves. Remove diseased leaves to prevent the spread of the disease. Spray Mancozeb fungicide to control the disease
- **Downy mildew** – the disease appears as yellow spots on the leaves with purplish yellow growth on the lower surface. The yellow spots turn to brown and leaves finally wither and die. Proper sanitation and good crop rotation help prevent the disease. It can also be prevented by Mancozeb fungicide application 10 days after germination. Weekly application of Metalaxyl-Mancozeb fungicide helps control the disease.
- **Anthraxnose** – leaves and fruits become dotted with reddish-brown to black spots and ultimately fruits show scorched appearance and later rot. The disease is seed transmitted, Collect and burn all the decaying vines, and seeds from diseased fruits, so that fungus cannot infect further. Do not plant any cucurbit in the infected field for 2 years.
- **Mosaic virus** – exhibits stunting, shortening of internodes, loss of vigor, yellowing or chlorosis of the leaf. Young leaves are first

affected, resulting to the stunting and mottling of the leaves. Rogue out infected plants from the field. Since beetles, white fly and aphids spread virus, spray the crop if the population of these insects is high.

Pollination/Isolation

- Introduce bee colony in planting area if bee population is low, or hand pollinate female flowers every early morning.
- Flowers open in the morning and remain receptive the whole day.
- Cucumber is cross-pollinated and requires an isolation distance of at least 500 m to maintain purity of variety.

Roguing/Field Inspection

- Remove off-type.
- Conduct field inspection at early vegetative stage, flowering stage, and fruiting stage.
- At vegetative stage, check the leaf size, shape, color, vigor and vine trailing habit.
- At flowering and early fruit development, observe for shape.

Enhancement of Fruit Set

Enhance fruit set by introducing one to two colonies of honeybees per hectare, as insect pollinators. Spray late in the afternoon. Use pesticides that are safe to insect pollinators.

PEST AND DISEASE MANAGEMENT

Disease	Recommendations
Beetles	Carbaryl
Leaf folders	Deltamethrin
Aphids	Malathion
Thrips, mites	Formetanate
Powdery midew	Mancozeb
Downy mildew	Benomyl

Use off-baring and hilling up to suppress weed growth in relatively large plantations. Regularly spot weeding is recommended for backyard gardening.

Most recommended varieties are tolerant to common pests and disease. However, if chemical control is necessary, use the recommended pesticides for specific pests as indicated above. Alternative control measures include:

- Adjustment in planting dates avoid planting between February and April to minimize thrips and mites population.
- Use of resistant varieties
- Proper sanitation (includes burning of infected plant parts)
- Crop rotation
- Use of botanical pesticides;and
- Use of other biological control measures (e.g. Trichogramma)

HARVESTING CURING AND STORING

Index of Maturity

Cucumbers are short season crops maturing within 75-100 days. Fruits for seed purposes ripen 50 to 60 days from setting.

Age of harvest

The fruits are harvested not on the basis of age but of size and the purpose for which they are to be utilized.

Procedure of harvesting

For pickling, the fruits should be harvested with the use of a sharp knife or pruning shears at the lengths of 10 or 15 cm. 3-5 days earlier, and for slicing, at 38-45 days after planting with the desired lengths or before the seeds become hard.

Care of harvest (curing)

The harvested pickling fruits should be placed in baskets or any receptacle under the shade or in the bodega where they are classified or graded preparatory to pickling or slicing.

Storage of harvest

Cucumber fruit should not be kept too long to avoid spoilage in storage without refrigeration if they are intended for pickles.

COST AND RETURN ANALYSIS PER HECTARE

ITEMS	AMOUNT(P)
1. VARIABLE COST	
Plowing (6 MD)	1,800
Harrowing (6 MD)	1,800
Furrowing/Bedding (4 MD)	1,000
Manure application (4 MD)	1,000
Trellising (Posting, netting & vine training 3x (40 MD))	10,000
Planting (4 MD)	1,000
Basal Fertilization (4 MD)	1,000
Irrigation (4 MD)	1,000
Weeding/cultivation (4 MD) 3x	3,000
Harvesting (4x) (10 MD)	10,000
Sub-Total	P31,600
A. Material	
Seeds (2 kgs)	10,000

Fertilizers:	
• Complete (14-14-14) (2 bags)	2,000
• Urea (2 bags)	1,960
• Organic fertilizer (20 bags)	5,000
• Insecticides (3 liters)	2,550
• Miscellaneous	1,500
Sub-Total	23,010
GRAND TOTAL	P54,610

Gross Income

Regular Season ----- (15t/ha @P15/kg = P225,000)

Offseason ----- -(10t/ha @25/kg = P250,000)

Net Income

Regular ----- P225,000 - P54,610 = **P170,390**

Offseason ----- P250,000 - P54,610 = **P195,390**

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