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

Chayote
Production Guide

AGRI Pinoy

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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 **Chayote Production** in Region 02.

First Edition
November 2012

CHAYOTE PRODUCTION GUIDE

Chayote *(Sechium edule)* popularly known as "sayote" in the Philippines, is an edible plant that belongs to the gourd family Cucurbitaceae along with melons, cucumbers and squash. The fruits are pear shaped with thin green wrinkly skin and white flesh ranging from 10 to 20 cm in length. The flesh has a fairly bland taste, and a texture described as a cross between a potato and a cucumber.

It can be eaten raw, cooked, mashed, baked, boiled, fried or even pickled. The root, stem, seeds, and leaves of the plant are all edible. The fruit which has 80% edible part contains: water -89.8%, protein – 0.9%, fat – 0.2%, carbohydrates – 7.7%, fiber – 0.4%, ash – 1.0% and Vitamin A – 650 mcg. The root contains: water – 79%, and carbohydrates – 17.8%. Chayote is a good source of amino acids and high in potassium, calcium, iron, and vitamin C.

Chayote vine can be grown on the ground, but it is climbing plant that will grow onto anything and can easily rise as high as 12 meters. Its leaves are heart-shaped, 10-25 cm wide and with tendrils on the stem.

Climatic Responses

Chayote can be grown in the tropics and subtropics from sea-level to 6000 feet above sea-level. Optimum conditions for growth and fruiting are 30°C daytime and 15°C nighttime temperatures. It req- uires 12 to 12.5 hours daylength for flowering. The plant can grow under full sun or mild shaded conditions. Fruits exposed to full sun are light yellow, while shadegrown plants produce darker green fruit.

Areas planted to chayote in the region is found mostly in Nueva Vizcaya Province.

CULTURAL MANAGEMENT

Soil

Chayote prefers rich, well-drained soil. It can not withstand waterlogging. In wet high rainfall areas, it is planted in raised hills or mounds. Good preparation of the planting hole is important. Work the soil 2 feet deep and 3 feet in diameter. Addition of organic matter will improve drainage and nutrient uptake.

Propagation and Planting

Propagation is by planting the entire fruit. Round basal short cuttings are also sometimes used. Place the fruit at a 45 degree angle with the shoot downward and the narrow stem-end base slightly protruding from the soil line. Deep planting will lead to fruit rot. Space plants 7-11 feet apart. The trellis is about 6 feet tall and needs to be solid to support the growing vines. In home gardens, the

plants can be trained to grow on trees or fences. In areas with no irrigation, the crop is planted at the beginning of the rainy season. Planting material (whole fruits) are normally available locally from gardeners or growers.

Irrigation

Chayote needs ample soil moisture for good growth. Irrigation is necessary during dry spells in the growing cycle. Do not allow the soil to be waterlogged.

Fertilization

In the homegarden chayote requires little nitrogen but fruit yields do respond to potassium fertilization.

Excessive nitrogen applications may promote vine growth at the expense of fruit yields. Excessive nitrogen may also result in flower abscission. Under commercial conditions rates between 300-500 lbs are required to attain maximum yields. For maximum yields, the Nitrogen (N) is applied every 2 months at two applications 5 inches deep at a 5 inches distance from the plant, plus 50 lbs of Phosphorus Pentoxide ($P_2O_{5)}$ applied all at planting, and 50 lbs of Potassium Oxide (K_2O) applied half at planting, and the second half six months after planting.

In a 200 day growing season, chayote was found to absorb most nitrogen and phosphorus between 105 and 135 days after planting, and to absorb most potassium between 150 and 165 days after planting. Chayote can be stored for 4-6 weeks at 45°F and 85-90 RH. Sprouting is promoted at 78°F (25°C).

PESTS AND DISEASES

Diseases and insects are similar to those affecting squash and pumpkin. Roots of chayote are susceptible to the nematode Heterodera radicicola. The melon fly causes blemishes, but do not develop on the fruit. Other insects pests include cucumber bettle, squash ladybug, and the squash vine borer. Early downy mildew attacks often kills chayote before reaching maturity. Common diseases in the tropics include Mycovellosiela cucurbiticola, and Ascochyta phaseolorum. These diseases are common during the rainy season and persist until harvest. High diseases incidence of Mycocellosiela and Ascochyta have also been observed in the field receiving high nitrogen fertilizer rates.
Squash bugs or bettles, Orthaulaca similis Oliv., also attack the plants. They can be controlled by proper field sanitation. Aphids or plant lice can be sprayed with Sevin or Malathion. The disease commonly attacking cucumber are the downy and powdery mildews.

HARVESTING, CURING AND STORING

Index of maturity – Cucumbers are short season crops maturing within 75 to 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 sizes and the purpose for which they are to be utilized.

Procedure of harvesting - For picklings, the fruits should be harvested with the use of a sharp knife or pruning shears at the lengths of 10 or 15 cm. or the like and for slicing, at the desired length 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 fruits should not be kept too long to avoid spoilage in storage without refrigeration if they are intended for pickles.

COST AND RETURN ANALYSIS PER ONE HECTARE

Labor (P250/dayman-day (MD)
VARIABLE COSTS

Items	Amount (P)
Clearing (20 MD)	5,000
Manure application (10 MD)	2,500
Seed preparation (2 MD)	500
Planting (6 MD)	1,500
Sidedressing (2x) (4 MD)	1,000
Weeding/hilling-up (12 MD)	3,000
Irrigation (10 MD)	2,500
Spraying (10x) (20 MD)	5,000
Harvesting/hauling (20 MD)	5,000
Sub-Total	**26,000**

Materials

Items	Amount (P)
Seeds (5-10kg)	10,000
Organic Fertilizer (100 bags)	20,000
Fertilizer	
14-14-14 (3 bags)	6,000
0-0-60 (3 bags)	3,000
Fungicides (1 liter)	850
Insecticides (1 liter)	900
Fuel and oil	2,500
Miscellaneous (e.g. pail, gloves, etc.)	1,000
Sub-Total	**44,250**

Depreciation

Knap sack sprayer (1 unit)	500
Hoe (5 pcs.)	500
Shovel (3 pcs)	450
Plastic drum (2 pcs.)	500
Sub Total	**P1,950**
Grand Total	**P72,200**

Gross Income

Regular season (at P10/kg w/ 15t/ha yield) = P150,000
Offseason (at P20/kg w/ 10t/ha yield) = P200,000

Net Income

Regular season - - - - - - P150,000 - P72,200 = P77,800
Offseason - - - - - - - - - P200,000 - P72,200 = P127,800

References:

Cultural Directions for Philippine Agricultural Crops, 1986

Chayote Production Guide, Information Bulettin No. 270 / 2008

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