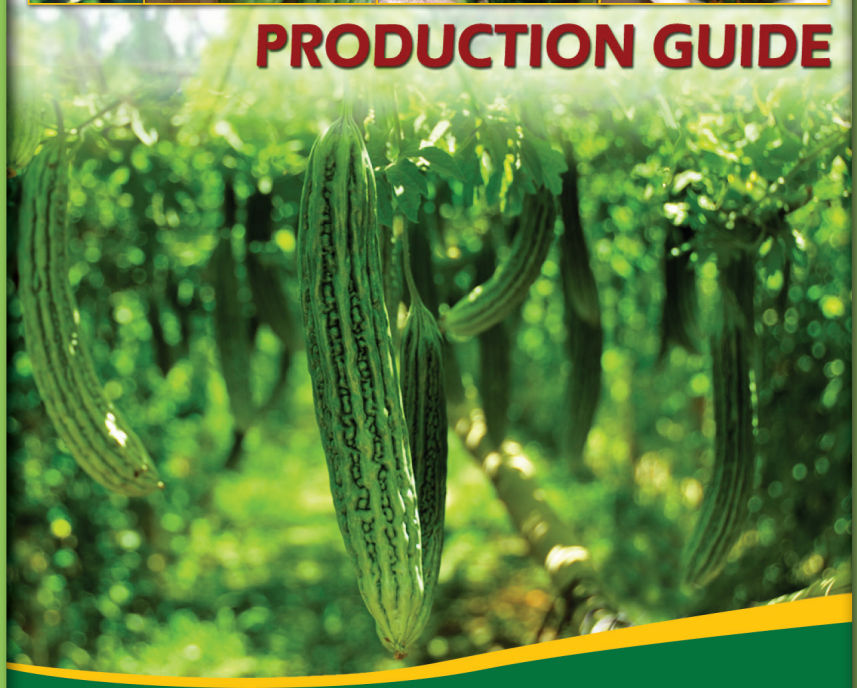
DEPARTMENT OF AGRICULTURE
Regional Field Office No. 02
Tuguegarao City, Cagayan

AMPALAYA

PRODUCTION GUIDE



Ampalaya

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 **Ampalaya Production** in Region 02.

February 2017

INTRODUCTION

Bitter gourd (*Momordica charantia*), is commonly known as ampalaya. It is a tropical and sub-tropical vine of the family *Cucurbitaceae*. It is widely grown for its edible fruits, shoots, nutritional value, and medicinal properties.

Ampalaya is a good source of vitamins A, B, and C, iron, folic acid, phosphorus and calcium. It is prepared in various dishes such as stir-fried with ground beef and oyster sauce or with eggs or with diced tomato. Pinakbet, a very popular Ilocano dish is not complete without ampalaya. The young ampalaya shoots and leaves are eaten as salad and a good combination for chicken tinola and mungo.

Aside from its nutritional value, ampalaya has been a folkloric cure for generations but has now been proven to be an effective herbal medicine for many ailments. The Philippine variety has proved to be the most potent. It contains a mixture of flavanoids and alkaloids which make the pancreas produce more insulin that regulates the blood sugar in diabetics. It has many other herbal benefits such as anti oxidant, paraciticide, antibacterial and antipyretic.

ADAPTATION

Soil and Climatic Requirements

Ampalaya can be grown in any type of soil. However, for optimum profit, grow ampalaya in sandy loam or clay loam soils with good drainage, high organic matter and pH ranging from 6.0 to 6.7.

The crop can be planted anytime of the year but best from October to February.

Varietal Selection

Select varieties that are adaptable to local conditions, resistant to major insect pests and diseases and with market preference. Two kinds of ampalaya varieties are available in the market. These are the open pollinated varieties (OPV) and the hybrid varieties. OPV are available at the nearest DA Research Outreach Stations (ROS) and hybrid varieties are available from local agricultural input dealers. Varieties of ampalaya are listed in Table 1.

TABLE 1. Varieties of Ampalaya Adapted to Region 02 condition

Variety	Maturity (DAT)	Fruit Type		Features
		Color	Shape	
Makiling	50	Deep green	Tapering on both ends	Tolerant to virus, powdery and downy mildew
Maldita	45	Green and Glossy	Tapering blossom end	Off-season, resistant to virus and mildews
Mayon F1	55-60	Light Green to Green	Smooth warts, tapering blossom end	Tolerant to mosaic virus, powdery mildew and anthracnose, off-season
Sta. Isabelle	70-75	Shiny Green	Long	Moderately resistant to downy mildew
Sta. Lucia (Condor)	70	Dark Glossy Green	Long, uniformly Straight	Resistant to downy mildew
Galaxy F1	48-52	Dark Green and Glossy Appearance	Long and fat fruits	Resistant to downy mildew and cercospora leaf spot; recommended for all season
Jade Star L	48-57	Green	Cylindical semi blunt	Tolerant to fruit cracking, high yielding
Verde Suerte F1	Early maturing	Deep Green	Long and good shape	Smooth dimples and light ridges.

CULTURAL MANAGEMENT PRACTICES

Land Preparation

Prepare the land thoroughly to obtain good crop stand and optimum yield. Plow and harrow the field 2-3 times alternately at seven (7) days interval. Plow at a depth of 15-20 cm for better root development. Pulverize and level the soil before planting.

Make furrows just before planting at a distance of two (2) meters during the dry season and three (3) meters during the wet season.

Planting

Ampalaya may be direct-seeded or transplanted. For pre-germinated seeds, soak the seeds overnight in clean water. Remove/drain water and wrap the seeds in damp cloth for 3-4 days or until the seed coat breaks to facilitate germination. Plant one pre-germinated seed per hill along the furrows at a distance of 1.5-2.5 meters. It requires three (3) kg of ampalaya seeds to plant a hectare.

Transplant in seedling trays before field establishment to save seeds and ensure plant survival. To grow seedlings, prepare and mix thoroughly soil media composed of 1:1:1 garden soil, Carbonized Rice Hull (CRH) and compost. Fill the seedling tray/container with mixed media. Plant one seed per tray potlet .

Harden the seedlings before transplanting by gradually reducing the frequency of watering or by exposing them under the sun.

Transplant at 15 days after sowing (DAS) or when true leaves have developed. Do not delay transplanting to avoid poor plant growth and high mortality. Transplant the seedlings late in the afternoon for higher percentage of seedling recovery.

Fertilizer Application

Continuous planting depletes the soil nutrients. It is therefore

necessary to apply fertilizer to supplement the nutrient requirements of the plants. However, to determine the right kind and amount of fertilizer to apply, submit soil samples for analysis at the Cagayan Valley Integrated Agricultural Laboratory (CVIAL), Department of Agriculture, RFO 02, Carig Sur, Tuguegarao City, Cagayan or at Ilagan Soils Laboratory, Ilagan City, Isabela.

In the absence of soil analysis, apply 10-20 tons of organic fertilizer per hectare or decomposed animal manure or compost before field preparation. Apply complete fertilizer (14-14-14) at the rate of 20 grams or two tbsp per hill before planting.

Side-dress with urea at the rate of 10 grams or 1 tbsp per hill before hilling up or 3-4 weeks after planting. Repeat application every 2 weeks for at least 2-3 times more. Cover the fertilizer with fine soil every after application.

Irrigation

Moisture is a limiting factor in ampalaya production. Irrigate the field when necessary during the growing period of the plant. Make furrows between the rows of plants to allow the water flows into these furrows and sustains the plants for about one week. Provide drainage canal because ampalaya cannot tolerate water logging.

Trellising

Provide trellis to support the climbing vines and promotes good quality fruits. It also facilitates cultural management operations.

Start putting up the trellis when the plants are about 15 cm high. Construct trellis at a distance of 2.5-3.0 m wide and 1.5-2 m high. Provide bamboo or wooden post in every 3 m distance. Put a strong roof trellis by intertwining tie wire or nylon as climbing support. Fix a plastic string or straw twine on the sides of the trellis along the hills to facilitate the vines to climb. Train the vines by tying them to the trellis.

Pruning

Prune all lateral vines when about one (1) foot long and

remove old leaves from the base up to one (1) m above so that the nutrients are concentrated on the fruiting branches.

The lateral vines that are pruned can be sold as vegetable.

Cultivation and Weeding

Weeds reduce yield if not controlled. Off-bar the plants at 7-10 days after planting (DAP) to control weeds. Hill-up at 15-20 days or one (1) week after off-barring or during the application of side dress fertilizers. Pull remaining weeds after hilling-up especially at the base and in between plants.

Pests Management

Protect the plants from the occurence of insect-pests and diseases to ensure good quality produce. The most destructive pest of ampalaya is fruitfly. It lays its eggs on the young fruit. The eggs hatch into larvae that eat inside the fruit. Symptoms are malformed fruits and fruits with holes that turn yellow-orange.

To control fruit flies, remove all damaged fruits from the field and bury them. Spray appropriate insecticides at manufacturer's recommendation after removing the damaged fruits. Wrap young fruits with newspaper or plastic bags to prevent fruitflies from laying their eggs on the fruits or apply insect attractant.

Downy mildew is the most common disease infecting ampalaya. The first symptom of the disease is the appearance of spots on old yellowing leaves. Remove infected leaves. Spray appropriate fungicide to control this disease.

Harvesting

Harvest fruits 18-20 days after blooming or when the fruits attain full size, with seeds still immature. This occurs three (3) weeks after petals fall.

To harvest, hold the fruits with one hand then cut from its peduncle using a sharp knife. Clsssify the fruits according to size and discard damaged fruits. Pack fruits in a kaing or basket lined with fresh banana leaves at the side and bottom to avoid bruising.

Fruits for seed purposes are harvested when ripe. To facilitate seed extraction, store the fruits for 4-6 days after harvesting to loosen the mucilage.

COST AND RETURN ANALYSIS FOR ONE HECTARE AMPALAYA PRODUCTION

A. Labor Cost

PARTICULARS	QUANTITY 1/		VALUE IN PESO (P)
	Man-days	Man-animals-days	
1. Land Preparation			
a. 1st Plowing		10	3,000.00
b. 1st Harrowing		5	1,500.00
c. 2nd Plowing		5	1,500.00
d. 2nd Harrowing		3	900.00
e. Furrowing		4	1,200.00
2. Making trellis	15		2,250.00
3. Planting	10		1,500.00
4. Basal Fertilization	4		600.00
5. Pruning	2		300.00
6. Care of the plants			
a. Irrigation (3x a week up to flowering)	48		7,200.00
b. Weeding and cultivation (4x)	20		3,000.00
c. Side dressing of fertilizer	6		900.00
d. Hilling up		6	1,800.00
e. Control of pests and diseases	4		600.00
7. Harvesting (8 primings)	12		1,800.00
8. Hauling	20		3,000.00
9. Hauling	10		600.00
Sub-Total			**31,050.00**

B. Inputs

Item	Quantity	Unit Cost (P) 2/	Amount (P)
1. Seeds (OPV)	2.5 kg	2,500.00	6,250.00
2. Fertilizer			
- Complete (14-14-14)	3 bags	1,900.00	5,700.00
- Urea	1 bags	2,000.00	2,000.00
- Organic Fertilizer	20 bags	200.00	4,000.00
3. Insecticides	2 liters	700.00	1,400.00
4. Fungicides	2 kg	350.00	700.00
5. Polyethylene	188 pieces	5.00	940.00
6. Fuel	40 liters	50.00	2,000.00
7. Bamboo (P60/pc)	660 pieces	60.00	39,600.00
8. Tie wire	6 rolls	3,300.00	19,800.00
9. Miscellaneous			1,500.00
Sub-Total			83,890.00
Sub-Total (A&B)			114,940.00
C. Contingency (15% of A & B)			**17,241.00**
GRAND TOTAL			132,181.00
Yield /ha (kg)	20,000	3/	
Gross Income		18,000/kg	360,000.00
Net Income			227,819.00
Return on Investment			**172.35**

1/ Man-days = P250
MAD = P400
2/ Cost of items as of December 2015
3/ Farm gate rice

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