



DEPARTMENT OF AGRICULTURE

Regional Field Office No. 02

Tuguegarao City, Cagayan

SQUASH

PRODUCTION GUIDE





Squash

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 **Squash Production** in Region 02.

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INTRODUCTION

Squash (*Cucurbita maxima* L.) locally known as “kalabasa” is a popular vegetable among the Filipinos. The shoots, flowers and young fruits can be cooked as dinengdeng, bulanglang or sautéed with meat, fish or shrimps and mixed with other vegetables. Aside from its uses as viand, squash fruits can also be made into catsup, pastillas, leche flan, flour for bread, chips and curls. The seeds can also be made into *kutchi*. Like other cucurbits, squash is recognized as an excellent source of vitamins A, C, B1, B3, and B5 and minerals. Squash contains Beta carotene which is a powerful anti-oxidant and anti-inflammatory. It is also beneficial in preventing cancer, lung diseases, high blood pressure and oxidation of cholesterol in the body. It also contains potassium which reduces urinary calcium excretion.

ADAPTATION

Soil and Climatic Requirements

Squash thrives in any type of soil. It performs best, however, in well-drained, sandy loam and clay loam soils with pH level of 5.5 to 6.5.

The crop requires a relatively dry warm climate which is essential for fruit setting. The optimum temperature for good crop growth ranges from 18-30°C. Generally, squash is planted in October to December in the lowland areas and May to July in the highland areas.

Varietal Selection

Select varieties that are adaptable to local conditions, resistant to insect-pests and diseases, with market preference. Squash varieties are listed in Table 1.

Table 1. Varieties of squash adapted to Region 02 condition.

Variety	Maturity (DAT)	Fruit Type		Features
		Color	Shape	
Suprema F1	85	Thick flesh, attractive and very sticky	Uniform, flat round and regularly ridged	Thick flesh, highly tolerant to virus and powdery mildew, adapted to wide range of agro-climatic condition
Malandi				
Matavia				

CULTURAL MANAGEMENT PRACTICES

Land Preparation

Prepare the field thoroughly to obtain good soil tilt. Plow the field 2-3 times at one week interval to prevent growth of weeds. Plow at a depth of 15-20 centimeter for better root penetration. Harrow every after plowing to pulverize and level the field. A well-pulverized soil promotes good soil aeration and enhances root formation. Make furrows after the last harrowing at a distance of 2.0 – 3.0 meters (m) apart.

Construct drainage canals to prevent water logging during rainy season.

Zero tillage can also be applied in squash production. Clear the area by cutting the weeds manually. Dig holes at a depth of 10 cm spaced at 3m. Pulverize the soil to facilitate seed germination.

Fertilizer Application

The fertilizer requirement of the crop depends on the result of soil analysis. Submit soil samples for analysis at the Cagayan Valley Integrated Agricultural Laboratory (CVIAL), Department of Agriculture, RFO 02, Carig Sur, Tuguegarao City or at Ilagan Soils Laboratory, San Felipe, Ilagan City, Isabela for analysis to determine

the kind and amount of fertilizer to apply.

In the absence of soil analysis, incorporate with the soil fully decomposed farm manures, compost or organic fertilizer at the rate of 1-2 kg/hill before planting. Add 10 grams (g) or one (1) tbsp of complete fertilizer (14-14-14) per hill and cover with fine soil.

To sustain the nutrient needs of the plants, side-dress one (1) tbsp of urea per hill one month after planting or when the plants have produced vines about one meter long. Apply 10 g or 1 tbsp of potash (0-0-60) per two (2) weeks after the first side-dressing. Additional amount of urea or potash at 1 tbsp per hill may be applied every 15 days depending on crop stand.

Planting

Squash can either be direct-seeded or transplanted. Transplanting method is recommended for hybrids to save on seeds and ensure seedling survival. One (1) hectare of farm requires 2-2.5 kg of seeds.

To facilitate germination, soak the seeds overnight with clean water. Wrap with moist cloth and place in dark and cool place until the seed coat breaks or the radicals have emerged.

Plant 1-2 pre-germinated seeds per hill at a distance of one meter. Cover the seeds with fine soil. During the wet season, plant squash in raised beds or in ridges to prevent rotting of seeds or seedlings due to flooding.

For transplanting method, grow seedlings in potlets or seedling trays. Prepare growing media of one part compost or organic fertilizer, one part garden soil and one part carbonized rice hull (CRH) (1:1:1 ratio). Mix thoroughly. Fill the potlets or seedling trays with the prepared media. Water the potting media before sowing. Sow one pre-germinated seed per potlet at least 1-2 cm deep and cover with fine soil. Place the potlets or seedling trays under a temporary shade. Water the seedlings regularly. Before transplanting, harden the seedlings by gradually reducing the frequency of watering and exposing to direct sunlight. Seedlings are ready for transplanting 10-

15 days after emergence (DAE) or when true leaves have developed. Transplant one seedling per hill at a distance of one (1) meter between hills. Transplant in the afternoon or during cloudy days to prevent transplanting shock. Replant missing hills.

Irrigation

Water is very important in crop production. Squash needs water especially during the fruiting stage. Furrow irrigation is recommended in large scale production. For backyard gardening, use sprinkler or any modified irrigation system.

Irrigate the plants once a week or water the plants with one liter per hill every other day. Water the plants every after fertilizer application to prevent leaf injury. Withhold watering or irrigation when the fruits have reached mature green stage because irrigating the plants at this stage results to lower fruit quality.

Pruning

Pruning or removal of all the lateral branches and female buds below the 8th node is a practice to enhance fruit development. Remove all deformed fruits while still small to avoid nutrient competition. Place 5-6 cm thick of bedding materials like straw, rice hull beneath the good fruits to prevent in contact with the soil that could possibly result to rotting.

Pollination

Squash needs pollination for the development of the fruits. Insect pollinators are the common aides in the pollination of squash. However, to increase squash fruit setting, practice hand pollination by inserting the male flower of the same age to the female flower between 6:00 to 8:00 in the morning.

Weeding and Cultivation

Weeding is necessary especially during the early growth stage of the crop. For backyard gardening, remove weeds in between plants

at 7-14 DAE. Practice regular weeding to minimize the growth of weeds that could serve as pests habitat. In large scale production, off-bar 15-20 DAT and hill-up 10 days later. Pull remaining weeds in between plants after hilling-up.

Pests Management

Field sanitation is recommended to minimize occurrence of insect pests and diseases. Aphids and 28-spotted lady beetle are the most prevalent insect pests of squash throughout the year. Powdery mildew is a common disease of squash but the most damaging disease is mosaic virus. Prevent the occurrence of pests by practicing field sanitation, plant resistant varieties, crop rotation, and as last recourse, spray insecticide / fungicide following the manufacturer's recommended dosage. In case of virus, pull and burn infected plants.

Harvesting

Harvest immature fruits at 30 to 40 days from pollination. This is the best stage of the fruit that are usually used for food preparation. Cut the peduncle using a knife with a portion still attached to avoid fruit damage.

For seed purposes, harvest fully matured fruits. This is determined by the appearance of powdery whitish substance on the surface of the fruit and the hardening of the rind. At this stage, the seeds are already matured and fully developed.

**COST AND RETURN ANALYSIS FOR ONE HECTARE
SQUASH PRODUCTION**

A. Labor Cost

PARTICULARS	QUANTITY 1/		VALUE IN PESO (P)
	Man-days	Man-animal-days	
1. Land Preparation			
a. 1st Plowing		8	3,200
b. 1st Harrowing		6	2,400
c. 2nd Plowing		6	2,400
d. 2nd Harrowing		4	1,600
e. Furrowing		3	1,200
2. Planting	8		2,000
3. Fertilizer application			
- 1st application	4		1,000
- 2nd application	4		1,000
- 3rd application	4		1,000
4. Irrigation/Watering (5x)	20		5,000
5. Weeding and Cultivation			
a. Hand weeding (2x)	12		3,000
b. Hilling-up		4	1,600
6. Control of pests (6x spraying)	18		4,500
7. Harvesting (3x)	12		3,000
8. Sorting and packing (3x)	6		1,500
9. Hauling (3x)	6		1,500
Sub-Total			35,900.00

B. Inputs

Item	Quantity	Unit Cost (P) 2/	Amount (P)
1. Seeds (OPV)	2 kg	1,000.00	2,000.00
2. Fertilizer			-
- Complete (14-14-14)	2 bags	1,100.00	2,200.00
- Urea (45-0-0)	1 bag	900.00	900.00
- Muriate of Potash	1 bag	1,000.00	1,000.00
- Organic Fertilizer	20 bags	310.00	6,200.00
3. Insecticide	4 kg	850.00	3,400.00
4. Fungicide	2 kg	780.00	1,560.00
5. Fuel	20 liters	50.00	1,000.00
6. Jute sack	600 pieces	5.00	3,000.00
7. Miscellaneous			1,500.00
Sub-Total			22,760.00
Total (A&B)			58,600.00
Sub-Total (A&B)			114,940.00
C. Contingency			17,241.00
(15% of the total labor & material inputs)			6,909.00
GRAND TOTAL			52,969.00
Yield /ha (kg)	25,000		
Gross Income		3/ P 10.00/kg.	250,000.00
Net Income			197,031.00
Return on Investment (ROI)			371.97

1/ Man-days = P250

MAD = P400

2/ Cost of items as of December 2015

3/ Farm gate Price

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