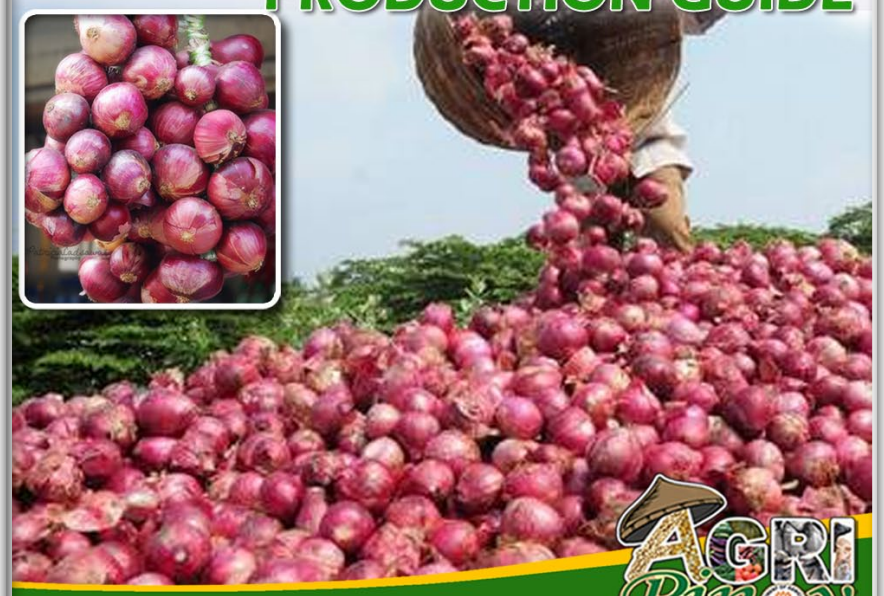
DEPARTMENT OF AGRICULTURE

Regional Field Office No. 02

Tuguegarao City, Cagayan

ONION

PRODUCTION GUIDE



AGRI Pinoy

Onion

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 **Onion Production** in Region 02.

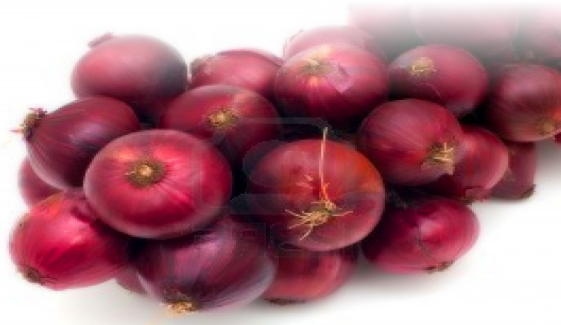
November 2012

INTRODUCTION

Bulb onion *(Allium cepa* L.*)* locally known as "sibuyas", is probably the most indispensable culinary ingredient in the favorite seasoning. Its pungent aroma and sharp taste make it ideal for spicing up meat, salads and vegetable dish. It is also used to cure a various physiological disorders such as cough, obesity, insomnia, hemorrhoid and constipation.

There are two types of bulb onion grown in the Philippines; the yellow and red. The yellow varieties are either the granex (flat) or the grano (round) type and short day onions. The red varieties, on the other hand, are produced because of their long storage life. Strains of Red Creole and Red Pinoy are among the popular varieties being grown.

Bulb onions are grown at about mainly in Central Luzon and the Ilocos Region and are usually exported to Japan, Hongkong, Singapore and Thailand.



PRODUCTION MANAGEMENT

Varieties

Yellow Onions	Red Onions
Yellow Granex	Hybrids Red Orient
Superex	Red Creole
Cal 120	Red Pinoy
Cal 202	BGS 95 (F1 hybrid)
Liberty	Capri

Climatic and Soil Requirements

Bulb onions grow well in friable and well-drained loam soil with good water holding capacity and pH between 5.8 - 6. For best growth and bulb quality, onion requires cooler weather during the early stages of growth and a dry atmosphere to moderately high temperature for bulb development and maturation.

Seed Establishment and Seed Sowing (Nursery)

Seedbed should be located in a well-drained, friable soil with good water holding capacity and with high organic matter content. If soil pH is lower than 5.8, lime application is necessary at the rate of 3 tons/ha., applied one month before transplanting.

Land should be prepared by thorough plowings and harrowings. Level and pulverize the soil to facilitate formation of beds (1 meter wide and 20 m long). Prior to seed sowing, sterilize the beds by burning rice straw on top or by pouring boiling water to prevent pest and disease infestation.

Broadcast decomposed or processed chicken manure or compost at the rate of 4 tons/ha combined with 3 bags 14-14-14. Space 10-15 cm between rows and sow seeds evenly in a row at 5-6 seeds/inch. Cover the seeds with rice hull before watering the bed. Approximately, 25 grams of seeds is needed per square meter. Irrigation should be applied adequately in the field right after seed sowing. Seeds will germinate at about 7-10 days after sowing and are ready for transplanting 45 days after sowing.

Land Preparation and Formation of Beds

Prepare the field by 2 plowings and 2 harrowings. Level and pulverize the soil to a fine texture to facilitate formation of beds. Raised beds are constructed at 75 cm wide with 10-15 cm high.

Basal Fertilization and Transplanting

Basal application of chicken dung or compost at the rate of 100 bags/ha combined with 3 bags 14-14-14 (complete fertilizer) or 2 bags 16-20-0 (Ammonium phosphate) will be applied in the prepared area and cover with rice straw.

Transplant one seedling in each hole by pressing downward the base of the seedlings so that the roots will have a good contact with the soil. Irrigate after transplanting.

Side-dressing

Side-dressing will be done ten days after transplanting with 1 bag/ha of Urea plus 2 bags/ha of Muriate of Potash.

Land Preparation

Spray the field infested with "Mutha" and other noxious weeds with any weedicide with the rate of 18-20 tbs per 16 liters of water.

Plow the field vertically (1st plowing) followed by harrowing, plow horizontally (2nd plowing) followed by harrowing to attain good tilth and maintain "glomolin" (super glue) in the soil structure.

Fertilization

Four application of fertilizer is required.

- 1st application – basal (organic or inorganic fertilizer 7-10 days before transplanting).
- 2nd application – side dress by band placement (5 cm away from the plant and 8 cm deep from the root system, Phosphorus Pentoxide (P_2O_5) must be applied with nitrogen at 20-30 days old.
- 3rd application – apply nitrogen and potassium at 30-40 days. Do not apply Phosphorus Pentoxide (P_2O_5) beyond 30 days old plant.
- 4th application – apply nitrogen and potassium 45-50 days, do not apply any fertilizer beyond 50 days old plant.

Spraying of Foliar Fertilizer

Spray foliar fertilizer when seedlings are 55 days old (formation of bulb). Spray early in the morning or late in the afternoon. Repeat spraying when the plants are 70 days old.

Irrigation

Bulb onions require adequate moisture for steady, continuous and desirable growth. Depending on soil types, irrigate between 4 and 7 days. The last irrigation should be a light one. Irrigation should be applied after transplanting. Weekly irrigation is done or whenever necessary. Most frequent watering is needed when the bulbs are developing. Do not irrigate 3-5 days before harvesting or when 20-30% of the plant tops fall over naturally.

Cultivation and Hand Weeding

Cultivation and hand weeding should be done 10 days after transplanting to be followed by two to three times more to eliminate weeds and avoid waterlogging.

MANAGEMENT OF INSECTS PESTS AND DISEASES

Pests

- Thrips – Abundant during dry season. Adult and nymphs rasp the leaf surface and suck juice from the leaf. The leaves appear slippery with sunken area that later dry up resulting to weakened plant, reduced growth and lower yields. Examine closely some plants from 14 m perimeter of the field by pulling the leaves apart from the base. If attack is severe, apply chemical control.
- Armyworms – The larvae bore into the onion leaves and fed leaving the exterior almost intact. Damage is worst in weedy fields. Thorough land preparation is done to destroy the egg laying sites and feeding source. Chemical control is recommended especially when population in high.
- Cutworms – Larvae feed at night and hide near their feeding site during the day. They roll when disturbed. Apply chemical insecticide.

Diseases

- Purple Blotch – Fungal disease occurs on the leaves, bulbs, flowers. Lesions start at small sunken area with dark purple center. Infection of the bulb occurs as the plant approaches maturity. A combined approach involving cultural and chemical control is necessary.
- Sooty Mold – Occurs generally after the bulbs have been harvested. This is favored by high temperature and humidity. Curing the onions quickly with good ventilation is necessary.
- Bacterial Soft Rot – Bulbs that have mechanical injuries/bruises are susceptible. Make sure that plants are mature before harvest. Provide proper ventilation during the curing, packing and transport. Fungicide spraying is done to prevent fungal diseases. Spraying starts 12 days from sowing or as needed.

Harvesting and Curing

Harvest the crops as soon as the necks of the plants tends to fall down or when 75% of the stems are fallen over. Harvesting is done manually by pulling the matured bulbs. After harvest cut the leaf by using sharp knife up to the neck and place in red bag and bring them to the curing house. The curing house should be well ventilated and relatively dry. Harvested bulbs are cleaned by cutting the remaining roots before sorting.

Remove or cut tops with shears 1.5-2.5 cm from stem end of the bulbs. Do not remove outer scales. Place the bulbs on racks made of tiers of bamboo, wood or netted wire. Put the racks in a well-ventilated shed.

For easier harvesting system, pull the bulbs, then pile in group, followed by cutting of leaves up to the neck, and placing in red bag before bringing to the packing house. At the packing house, remove the bulbs inside red bag and trim onion roots by cutting through the use of scissors. Place onion bulbs cleaned in a sorting table and sort by size before packing on red bag and pile ready for market.

Post harvest

Cure harvested bulb for 10-14 days in a sunny well-ventilated area. Align onions so that the leaves of one onion can be parallel to another. Grade bulbs according to size and quality. Pack bulb onions in net sacks for storage and/or immediate disposal.

ESTIMATED COST AND RETURN ANALYSIS PER HECTARE OF ONION

ITEMS	AMOUNT(P)
VARIABLE COST	
A. Labor (P250/MD); (P300/MAD)	
Seedbedding	
Seedbed preparation (5 MD)	1,250
Plot preparation (3 MD)	750
Seed sowing (2 MD)	500
Collection & placement of rice hull on plot (5MD)	1,250
Care & maintenance of seedlings	750
Weeding of seedbed (10 MD)	2,500
Daily watering of seedbed (5 MD)	1,250
Plowing (3 MAD)	900
Harrowing (2 MAD)	600
Manure application (15 MD)	3,750
Pulling of seedlings (15 MD)	3,750
Planting (30 MD)	7,500
Irrigation (10 MD)	2,500
Side dressing (10 MD)	2,500
Spraying (10 MD)	2,500
Weeding (30 MD)	7,500
Harvesting (20 MD)	5,000
Miscellaneous activities (20 MD) (bagging, cleaning, sorting,final bagging)	5,000
Sub-Total	**P49,750**

B. Materials	
Seeds (400 kgs)	15,000
Animal Manure (100 bags)	20,000
Fertilizer:	
14-14-14 (3 bags)	6,000
16-20-0 (2 bags)	5,400
0-0-60 (3 bags)	4,600
Urea (1 bag)	1,400
Chemical sprays	5,000
Fuel and oil	5,000
Miscellaneous activities (20 MD) (harvesting, hauling, etc.)	5,000
Sub-Total	**P67,400**
Grand Total	**P117,150**

Gross Income

Regular season- - -12,000 kgs at P25/kg = P300,000

Offseason- - - - - - 3,000 kgs at P70/kg =P210,000

Net Income

Regular season - - -P300,000 – P117,150 = P187,850

Offseason season – P210,000 – P117,150 = P92,850

Sa AGRI Pinoy *Asenso'y Tuloy-tuloy*

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