	Spraying (10MD)	2,200.00
	Weeding (20MD)	4,400.00
	Harvesting (10MD)	2,200.00
	Miscellaneous activities (20MD)	4,400.00
	Subtotal	34,540.00
B.	Materials	
	Seed (200 g/ha)	1,000.00
	Animal manure (10t)	10,000.00
	Fertilizer: 14-14-14 (5 bags)	4,750.00
	46-0-0 (5 bags)	5,250.00
	0-0-60 (2 bags)	1,900.00
	Pesticides/Fungicides	5,000.00
	Miscellaneous	5,000.00
	Subtotal	32,900.00
	Subtotal (A & B)	67,440.00
C.	Contingencies (15%)	10,116.00
GRAND TOTAL		77,556.00
Gross Income		240,000.00–300,000.00
Net Income		162,444.00–222,444.00

With marketable yield of 12–15 t/ha at a farmgate price of ₱20/kg.

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Department of Science and Technology (DOST)

Lettuce
Production Guide

Introduction

Lettuce (*Lactuca sativa* L.) is the most popular salad vegetable. Its high fiber content makes it an ideal vegetable for those who watch their diet. There are many types of lettuce. The most popular locally is the crisphead type which includes green and light green varieties. The loose-leaf type includes red, bronze, dark green, apple green, and chartreuse varieties. Other types are Romaine/Cos and Butterhead.

A total of 411 ha were planted to lettuce in 2005 (Bureau of Agricultural Statistics, 2005). The top producers are the Cordillera Administrative Region (154 ha), Region 10 (152 ha), and Region 7 (44 ha).

Nutritional Value

Per 100 g edible portion, the leaves contain:

Properties	Amount
Water (g)	94.0
Protein (g)	1.2
Fat (g)	0.2
Fiber (g)	0.7
Ash (g)	0.7
Energy value (kJ)	50

Source: Siemonsma, J.S. and Piluek, K. (Editors). 1994. PROSEA Handbook No. 8. Vegetables. Pudoc, Wageningen. 1993/ Prosea, Bogor

However, nutritional properties differ among lettuce types. Leafy types contain more micronutrients than headed types. Dark green types have more carotene, iron, and vitamin C. Butterhead types are relatively more nutritious than crisphead lettuce.

Production Management

Commercial Varieties

Crisphead Type
- Bravo
- Grande
- Great Lakes 54
- President

Loose leaf Type
- Corelle
- Falbala
- Grand Rapids
- Green Coral
- Green Span
- Lollo Bionda
- Lollo Rosa
- Panorama

Butterhead Type
- Great Lakes
- Okayama Salad

Romaine/Cos Type
- Green Towers
- Tyrol

Seedling Production

About 150–200 g of seeds are required per hectare. Prepare five seedbeds measuring 1 x 10 m each. Pulverize the soil, incorporate 1 kg fully decomposed chicken manure and 300 g carbonized rice hull/m^2. Wet the seedbeds and make shallow lines 7–10 cm apart. Soak the seeds in warm water for four hours, air dry, and sow thinly. Cover lightly with soil and mulch with rice hull, chopped rice straw or coir fiber. Prick to nursery trays at two-leaf stage. Water regularly. Provide partial shade during the dry season and rain shelter during the rainy season. Harden seedlings one week before transplanting by decreasing the frequency of watering and by exposing fully to sunlight to minimize transplant shock. Transplant at three weeks after pricking.

Land Preparation

Plow and harrow the field twice. Prepare raised beds 1 m wide and 0.75 m apart. Incorporate 1 kg fully decomposed chicken manure and 300 g carbonized rice hull per m^2. Apply rice straw mulch or mulching film and make holes 30–40 cm x 30–40 cm, 2 rows/bed for crisphead, and 3 rows/bed for loose leaf types.

Transplanting

Water the holes thoroughly. Transplant 1 seedling/hill. During sunny days, transplant in the afternoon to minimize transplant shock. Replant missing hills at once.

Fertilization

During transplanting, apply 10 g/hill 14-14-14 as basal fertilizer. At 15 and 30 days after transplanting, sidedress with a 1:1 mixture of 46-0-0 and 0-0-60 at the rate of 5 g/ plant for crisphead varieties. Loose leaf varieties need only one sidedressing of 46-0-0 at the rate of 5 g/plant at 15 days after transplanting.

Apply tea manure and fermented plant juice once a week to increase plant vigor and resistance to pests and fungal diseases.

To prepare tea manure, soak ¾ sack dry cow/horse manure in a plastic drum filled with 189.25 L water for seven days and use as foliar fertilizer or as soil drench. To prepare fermented plant juice, mix chopped actively growing plant parts with equal amount of molasses or brown sugar. After one week of fermentation, extract the juice and apply as foliar fertilizer at 1 tbsp/3.785 L water.

Pest and Diseases Management

Semi-looper and aphids are two of the major pests of lettuce. Prepare hot pepper spray solution by mixing 100 g macerated hot pepper in 16 L water. Add 1 tbsp soap and use as botanical spray against these pests. Bacterial rot can be minimized by mulching and solar sterilization for one week of prepared beds before transplanting.

Harvesting and Postharvest handling

Harvest crisphead lettuce at 45–60 days from transplanting or when heads are firm. Harvest loose leaf lettuce as needed, preferably before bolting.

For large-scale planting, sort the heads in the field and pack immediately in perforated cardboard boxes. If available, vacuum cooling to 1°C is best. Transport at 4°C.

Costs and Returns Analysis Per Hectare

ITEMS	AMOUNT (₱)
VARIABLE COSTS	
A. Labor (@₱220/MD; ₱440/MAD)	
Plowing (5MAD)	2,200.00
Harrowing (3MAD)	1,320.00
Bedding (5MAD)	2,200.00
Manure application (10MD)	2,200.00
Seedling production (15MD)	3,300.00
Mulching with rice straw (10MD)	2,200.00
Transplanting (10MD)	2,200.00
Fertilization: basal (2MD)	440.00
sidedress (4MD)	880.00
Irrigation (20MD)	4,400.00