### *Bottom rot*

- Small red to brown spots on lower leaves, usually on underside of midrib which may expand rapidly causing the leaves to rot; amber colored liquid may ooze from leaf lesions; as stems rot, head of lettuce becomes slimy and brown and collapse; a tan or brown mycelial growth may be visible in infected tissue.

### *Control measures*

1. Plow soil before planting
2. Rotate crops regularly
3. Plant varieties with an erect growth habit to reduce leaf contact with soil
4. Avoid overhead irrigation
5. Applying appropriate fungicides (e.g. serenade) and botanical fertilizers
6. Practice good garden sanitation by removing garden trash, weeds and plant debris.

### *Harvesting and Postharvest*

- Harvest lettuce seeds at 120-125 days from transplanting. Allow seed heads to dry 2-3 weeks after flowering. Individual heads will ripen at different times making the harvest of large amounts of seed at one time nearly impossible. Wait until half the flowers on

Cut entire top of plant and allow to dry upside down. Small amounts of seed can be shaken daily from individual flowering heads. Rub with hands to remove remaining seeds. Separate seeds from chaff with screens, label and keep in a cool dry place.

**LETTUCE SEED PRODUCTION COST AND RETURN PER HECTARE**

| ITEMS | AMOUNT |
|---|---|
| A. Labor (₱350/MD) | A. Labor (₱350/MD) |
| Plowing&harrowing (5MD) | 1,750.00 |
| Bedding (20MD) | 7,000.00 |
| Vermicompost application (15MD) | 5,250.00 |
| Seedling Production(1MD) | 350.00 |
| Pricking of seedlings (20MD) | 7,000.00 |
| Transplanting (20MD) | 7,000.00 |
| Fertilization (15MD) | 5,250.00 |
| Spraying (24MD) | 8,400.00 |
| Weeding & hilling up (10MD) | 3,500.00 |
| Harvesting(30MD) | 10,500.00 |
| **B. Materials** | |
| Lettuce seeds (200g/ha) | 1,000 |
| Vermicompost (20sacks) | 9,800 |
| Biopesticide (23L) | 53,820 |
| Biofungicide (34L) | 23,120 |
| Hotpepper (4kg) | 800 |
| Total | 88,540 |
| Sub Total | 144,540.00 |
| **Contingencies (10%)** | 14,454.00 |
| **GRAND TOTAL** | 158994.00 |
| **GROSS INCOME** | 720,000 - 900,000 |
| **NET INCOME** | 561,006-741,006 |
| **ROI%** | 388% |

QR code

**Technology developed by: BPI - Baguio, Crop Research Development and Production Support Center (BPI-BNCRDPSC)**
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Republic of the Philippines
DEPARTMENT OF AGRICULTURE
**BUREAU OF PLANT INDUSTRY**

# ORGANIC LETTUCE SEED PRODUCTION

# INTRODUCTION

**Lettuce *(Lactuca sativa L.)*** is one of the most popular salad vegetables. It is high in fiber which makes it an ideal vegetable for health conscious individuals. With the growing demand for healthy and nutritious food brought about by the organic products, lettuce is one commodity to fit in. There are many types of lettuce. The most popular locally is the crisphead type which includes green and red iceberg varieties. The loose-leaf type includes grand rapid,oakleaf and lollorossa varieties. Other types are romaine/cos,butterhead/boston and bibb lettuce.

## CLIMATIC REQUIREMENTS

Lettuce is a semi-temperate vegetable requiring cool temperatures of 15 - 20°C. In warmer areas, iceberg varieties will not form heads. It can also be planted in low elevations during November to December but the quality is best in higher elevations (1000 meters above sea level).

### *Land preparation*

Prepare the land thoroughly then make beds 0.75m wide with desired length. Incorporate compost at 200g/m$^2$.

### *Transplanting*

The beds should be watered before transplanting. Seedlings are transplanted at 30cm between hills and rows in a plot. It is best to plant onion, garlic or ginger with marigold in the surrounding area.

### *Irrigation*

Watering is done three times a week through sprinkler or water hose in the morning. It is recommended to water the plants direct on the surrounding of the plant base to avoid rotting.

### *Fertilization*

Vermicompost is applied sufficiently as basal fertilizer during transplanting at 200 g/m$^2$. It is regularly applied once a month during the growth process of the plants to help improve the physical properties of the soil such as water holding capacity and soil structure for better growth of the plant.

### *A. Insect Pests*

***Aphids-*** soft-bodied,pear-shaped insects with a pair of dark cornicles and a cauda protruding from the abdomen; may be winged or wingless - wingless forms most common; feed in colonies; cause discoloration or mottling of foliage; often transmit virus diseases; excrete honeydew on which sooty mold grows.

### *Cutworms*

Soft-bodied, pear-shaped insects with a pair of dark cornicles and a cauda protruding from the abdomen; may be winged or wingless - Wingless forms are most common;feed in colonies; cause discoloration or mottling of foliage; often transmit virus diseases; excrete honeydew on which sooty mo grows.

### *Control Measures*

1. Sanitation, weeding and cultivation
2. Use of yellow sticky traps
3. Soap-and-Oil Sprays are part of the organic garden pest control toolkit. Insects breathe through pores in the sides of their exoskeletons. Soap surfactants cover these pores, suffocating the insects. The oil helps the soap spray stick to the insect. Spray plants, making sure you cover the undersides of leaves.

### *B. Diseases*

Leaf drop *(Sclerotinia drop)* - Wilting of outside leaves which spreads inwards until whole plant is affected; soft watery lesions on leaves; leaves collapse and lie on soil surface; black fungal structures on infected leaf tissue and soil surface.

### *Anthracnose (Shot-hole)*

- Small water-soaked tan spots on outer leaves which may expand and turn straw colored; centers fall out of mature lesions giving plant a shot-hole appearance.