

LOWLAND POTATO PRODUCTION TECHNOLOGY

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Introduction

Potato is traditionally grown in the highlands whose temperature is relatively low. Hence, the main potato production areas in the Philippines are the high elevation areas of Benguet and Mt. Provinces, comprising approximately 90 percent of the total potato production area in the country. Expansion of production areas in the highlands to cope with increasing demand for the crop would mean destruction of the already dwindling forest resources. In view of this, other suitable areas were identified to augment production in the highlands.

The Ilocos provinces have been identified as potential areas for the expansion of potato production in the lowlands. The collaborative work of MMSU and the Southeast Asian Program on Potato Research and Development (SAPPRAD) resulted in the development of the lowland potato production technology (LPPT). This was pilot tested in the provinces of Ilocos Norte, Ilocos Sur, and Cagayan and proven to be feasible, socially acceptable, and profitable which, manifest the appropriateness of the technology.

The Technology

- **Recommended Variety**
 - Raniag
 - CIP 385130.6
 - CIP 385030.7
 - CIP 385383.1

- **Site Selection**

Ideal sites for planting have the following characteristics:

 - Light and well-drained soils with pH ranging from 5.9 to 6.8
 - Have a ready supply of irrigation water
 - Have not been previously planted to solanaceous crops.

- **Land Preparation**
 - Light soils
 - Plow the field two times.
 - Harrow after the second plowing.
 - Heavy soils
 - Add organic materials (*e.g.* rice hull) at the rate of about 20 t ha⁻¹. Do not use carabao or cow manure.
 - Plow the field three times.

- Harrow after the last plowing.
- **Planting**
 - Schedule – Last week of October to December 15
 - Method
 - Plant in double-rows, 80 cm between double rows and 40 cm between rows.
 - Set the seed tubers 30 cm between hills at a depth of 7 cm in light soils and 5 cm in heavy soils.
 - Cover the seed tubers with pulverized soil.
- **Fertilizer Application**
 - Basal
 - Apply complete fertilizer 14-14-14 along the furrows at the rate of 20 bags per hectare.
 - Cover the fertilizer with the soil.
 - Sidedressing
 - Sidedress urea at the rate of 1 bag per hectare during hilling-up, *i.e.*, 25 to 30 days after planting (DAP).
 - Apply foliar fertilizer using the manufacturer's recommendation from 15 to 60 DAP at weekly interval.
- **Mulching and Irrigation**
 - Mulch the double row with 1 cm thick rice straw after planting.
 - Water the newly planted potatoes by overhead irrigation until 30 DAP. Irrigate at 5 to 7 days interval in light soils and at 7 to 10 days interval in heavy soils.
 - Irrigate along the furrows after hilling-up at two weeks interval.
 - Stop irrigation 10 to 15 days before harvesting.
- **Hilling-up and Weeding**
 - Hill-up 25 to 30 DAP.
 - Plow between the double rows and place the soil at the base of the plant using a spade. Raise the double rows by plowing in between. Place the soil at the base of plant using a spade.
- **Pest Control**
 - Seed sanitation and careful site selection should be considered to prevent disease outbreak.
 - Alternately spray Selecron and Tameron to control insect pests such as thrips and mites.
 - Spray broad spectrum fungicides to control diseases.
- **Harvesting**
 - Dehaulm the potatoes 5 to 7 days before harvesting.
 - Dig the tubers using spading fork. Be careful not to damage the tubers.

- **Storage**
 - Store seed tubers in rustic storage facilities or DLS.
 - Dust the seed tubers with Sevin to control mealybugs.
 - Remove rotten tubers regularly.

Benefits

Potato production is highly profitable. Following the technology, a net return of ₦ 230,246.00 per hectare could be attained (Table 1). This is equivalent to a return above variable cost of 2.78.

Table 1. Cost and return (₦ ha⁻¹) of producing potato following the recommended lowland potato production technology.

Item	Total Cost (₦)
I. Cost of Production	
A. Labor Cost	
1. Land Preparation, 25 MD	3,175
2. Fertilizer Application, 4MD	508
3. Planting, 25 MD	3,175
4. Mulching, 10 MD	1,270
5. Spraying, 15 MD	1,905
6. Weeding, 15 MD	1,905
7. Hilling-up, 15 MD	1,905
8. Irrigation, 20 MD	2,540
9. Harvesting, 25 MD	3,175
10. Sorting, 8 MD	1,016
Sub-Total	20,574
B. Material Input	
1. Seed tubers, 2 tons@ ₦ 15/kg	30,000
2. Fertilizer	
a. Complete, 20 bags	4,800
b. Urea, 2 bags	720
3. Pesticide	2,500
4. Foliar fertilizer	660
5. Red bags, 350 pcs	3,500
6. Rice straw, 1400 bundles	7,000
Sub-total	49,180.00
Total Cost of Production	69,754.00
II. Returns	
A. Gross Income, 20 tons tubers@₦15/kg	300,000.00
B. Net Income	230,246.00