Use of Blight-Tolerant Potato Varieties

In Buguias, varieties that are resistant to pests and diseases are used by potato farmers in high elevation areas. The Igorota (LBR PO3), more commonly known to farmers as Late Blight Resistant (LBR), is a locally-bred potato variety, moderately resistant to late blight and leaf miner. This variety has a high dry matter content suited for both table and processing use. It matures in 90-120 days and has a potential yield of 25-35 tons per hectare.

The other variety, Solibao (LBR PO4), exhibits high levels of resistance to late blight showing negligible infection of 1% compared to other potato varieties. It has a maturity of 90-120 days, with an actual yield of 18-40 tons per hectare.

Adoption of blight-tolerant potato varieties is a strategy practiced by farmers in Buguias, Benguet to combat pest and disease infestations such as blight and leaf miner. The increased tolerance of potatoes to pests and diseases lessens the need to apply pesticides, providing farmers the potential to earn more.

About the Authors

This technical brief was produced through the UPLB-BSU-CIAT-DA partnership under DA-BAR project titled “Climate Resilient Agriculture (CRA) Assessment, Targeting & Prioritization for the Adaptation and Mitigation Initiative in Agriculture (AA-MII) Phase 2 in Benguet Province (Cordillera Administrative Region).”

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References


**Cost of Adopting CRA**

**Data Gathering**

1. Analysis of experiences of 33 farmers in the municipality of Buguias in Benguet province.
2. Conduct of Experts’ Workshop with experts from the academe (University of the Philippines Los Baños and Benguet State University) and the government (Municipal Agriculture Officers and Department of Agriculture – Cordillera Administrative Region) pooling knowledge and insights on emerging climate resilient farm practices.

**Study Site**

**Benguet Province**

**Recommendations**

- Use in high elevation areas especially during wet or rainy season.
- Research on other potato varieties.
- Invest further in research on other potato varieties to evaluate yield potentials and resistance to other pests and diseases that are prevalent during the wet season, aside from late blight.
- R&D institutes, SUCs, LGUs and farmers should continually evaluate and test technologies for adaptation to the changing climate.

**Initial Investment**

- **CRA** PhP 187,300
- **Non-CRA** PhP 361 million

**Initial Investment Breakdown**

- **Inputs** PhP 115,800
- **Labor & Services** PhP 71,500
- **Initial Investment** PhP 187,300
- **Maintenance** (Years 2-10) PhP 187,300
- **Operations** (Permanent/ non-permanent costs) PhP 26,000
- **Total Area Planted** 3,895 ha
- **NPV** PhP 294,372 USD 5,736
- **IRR** 152%
- **Discount Rate** 8.5%
- **Current Adoption Rate** 5%
- **Projected Adoption Rate** 55%

**Yield & Prices**

- **Without CRA**
  - Average annual farm yield: 16,335 kg/ha
  - Price: PhP 32/kg
- **Traditional Potato**
  - Average annual farm yield: 18,897 kg/ha
  - Price: PhP 29.76/kg
- **With CRA**
  - Average annual farm yield: 16,335 kg/ha
  - Price: PhP 32/kg

**Reasons to Invest**

1. Increased resistance to pests and diseases (i.e. blight and leaf miner)
2. Lower risk of production losses
3. Higher potential farm income
4. Reduced use of chemical inputs

**Externalities**

Further research is needed to quantify the externalities.

**Financial Analysis**

- **Net Present Value** PhP 294,372 USD 5,736
- **IRR** 152%
- **Discount Rate** 8.5%
- **Exchange Rate** 51 PhP 1 USD

**Sensitivity Analysis**

The CRA practice will still be more profitable than non-CRA practice even when:
- Yield of potato decreases by 8%
- *On top of profit from conventional practice*

**Blight-Tolerant Potato**

**With CRA**

- Avg. yield: 18,897 kg/ha
- Avg. price: PhP 29.76/kg

**Without CRA**

- Avg. yield: 16,335 kg/ha
- Avg. price: PhP 32/kg

**Reasons to Invest**

- Increased resistance to pests and diseases (i.e. blight and leaf miner)
- Lower risk of production losses
- Higher potential farm income
- Reduced use of chemical inputs

**Aggregated Impact**

- **Total Area Planted** 3,895 ha
- **NPV** PhP 361 million

**Assumptions**

- Period of Analysis: 10 years
- Discount Rate: 8.5%
- Exchange Rate: 51 PhP 1 USD

**Cost & Benefit**

- PhP 187,300
- Payback Period: 1 year
- Estimated Additional Annual Profit / ha * PhP 47,700 USD 930

**When & Where?**

- **What?**
  - Research on other potato varieties.
  - Invest further in research on other potato varieties to evaluate yield potentials and resistance to other pests and diseases that are prevalent during the wet season, aside from late blight.
- **Who?**
  - R&D institutes, SUCs, LGUs and farmers should continually evaluate and test technologies for adaptation to the changing climate.

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