Improvement of purple corn supply chain for increase of small scale farmers' income

APEC Symposium on Inclusive Business in Agriculture, Forestry and Fisheries for Rural Development and Poverty Alleviation

May 2016
Population living in Poverty Line

Lima Metropolitan: 14.5% (2007), 17.0% (2012)
Sierra Urban Area: 25.1% (2007), 31.8% (2012)
Costa Urban Area: 22.4% (2007), 31.7% (2012)
Selva Urban Area: 44.0% (2007), 53.8% (2012)
Costa Rural Area: 53.8% (2007), 69.2% (2012)
Selva Rural Area: 46.1% (2007), 58.8% (2012)
Sierra Rural Area: 58.8% (2007), 79.2% (2012)

Instituto Nacional de Estadística e Informática (National Institute of Statistics and Informatics)
Actual Situation of Agriculture (Cropping Technology)

- Insufficient use of agricultural inputs (high quality seed, fertilizer and other agricultural chemicals)
- Insufficient cropping management (fertilization, weed and pest control, maintenance of farming soil etc.)

• Low quality of product
• Low cropping yield
• Low sustainability of cropping

Low value products

Maize cropping farm covered with weeds
Actual Situation of Agriculture (Farming Management)

- Production without plan (cropping and sales)
- Individual production activities (cropping, purchase, sales)
- Unclear value and quality standard of the products
- Low confidence to other actors such as buyer

- Unstable and/or small volume of shipment (order) of product
- Unclear shipment (order) date of product
- Unstable quality of the product

High cost (risk) supply chain

Diagram:

Provider of agricultural inputs

Unstable order of products

High sales price

Farmers

Unstable supply of products

Low purchase price

Buyer of the products
Objective and Challenge

Objective

• Improvement of effectiveness / income of the supply chain through strengthening of farmer’s capacity as an important actor of the chain and cooperation with other actors of the chain

Challenges

• Improvement of products market value
• Improvement of cropping technology
• Improvement of farming management (production plan)
<table>
<thead>
<tr>
<th><strong>Crop</strong></th>
<th>Purple Corn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variety</strong></td>
<td>INIA 601</td>
</tr>
<tr>
<td><strong>Potential crop. yield</strong></td>
<td>3.0-6.0 metric ton/ha</td>
</tr>
<tr>
<td><strong>Elevation</strong></td>
<td>2,500 - 2,900 m</td>
</tr>
<tr>
<td><strong>Use</strong></td>
<td>Natural pigment (fresh and dry)</td>
</tr>
</tbody>
</table>
• Comparison of color content between different varieties
Improvement of Cropping Technology

High quality seed

Adequate Cropping Technology

Max Yield 11.8 t/ha

<table>
<thead>
<tr>
<th>Traditional Cropping Technology</th>
<th>Cropping Season 2012-13</th>
<th>Cropping Season 2013-14</th>
<th>Cropping Season 2014-15</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.5 t/ha</td>
<td>4.4 t/ha</td>
<td>5.5 t/ha</td>
<td>5.5 t/ha</td>
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<tr>
<td></td>
<td>2.0 t/ha</td>
<td>4.4 t/ha</td>
<td>5.5 t/ha</td>
<td>5.5 t/ha</td>
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<tr>
<td></td>
<td>3.0 t/ha</td>
<td>5.0 t/ha</td>
<td>5.5 t/ha</td>
<td>5.5 t/ha</td>
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<tr>
<td></td>
<td>4.0 t/ha</td>
<td>6.0 t/ha</td>
<td>5.5 t/ha</td>
<td>5.5 t/ha</td>
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<tr>
<td></td>
<td>5.0 t/ha</td>
<td>7.6 Prod.</td>
<td>241 Prod.</td>
<td></td>
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<tr>
<td></td>
<td>6.0 t/ha</td>
<td>5.5 Prod.</td>
<td>183 Prod.</td>
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</tbody>
</table>
Diversification of Products

- Trial of production of crashed purple corn core (raw material for extracting natural pigment) with an agro processing company
Improvement of Farming Management

Provider of Agri. Input (Fertilizer, Seed)

Order of stable quantity of agri. inputs

Farmers’ Association
  - Production Plan

Transporter Middleman

Wholesaler, Agro Processing Company

Supply of stable quality and quantity of products (stable quantity of cargo)

Low fare (0.1 soles / kg)
Wholesale price

Supply of high quality agri. Inputs with low price
Conclusion and Suggestion for Promoting Inclusive Business

1. Enhancement of farmer’s understanding of roles, advantages of different actors of supply chain / Improvement of farmer’s awareness as an important actor of supply chain.

2. Strengthening of basic skills (crop cross cutting) of cropping and farming management.

3. Enhancement of farmer’s understanding on importance of not only “increase” and also “stability”.


5. Establishment of farmers’ association with selected farmers which can provide “services” to non member farmers.