Assessment of Harvest and Post-Harvest Losses of Banana and Mung bean Commodities in Thailand

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Rationale

- SDG12.3.1
- Reduce yield losses of produce
- How to measure yield loss in mungbean and banana?
Objectives

- How to measure yield losses?
- Making National Base Line by measuring yield losses of mungbean and banana
- what critical stages to have big losses?
Methodology

- Inquiries
- Actual measuring
Inquiries

• Mungbean
  • Farmers: 5 villages, 5 farmers in each village in Nakornsawan
    • 25 farmers
  • Stake holders
    • 4 millers in Kampangphet provinces
      Q: Inquiry “what causes of losses in planting until sell?”
      Q: “How many percent of losses?”
Actual Measuring

- Mungbean
  - Farmers: 5 villages, 2 farmers in each village in Nakorn sawan province
    - 10 farmers
  - Stake holders
    - 4 millers in Kampangphet province
Grain drops in the field

\[
% \text{ yield loss} = \frac{\text{wt. of grain drop in } 25 \text{ m}^2}{\text{total grain wt. in } 5 \times 5 \text{ m.}} \times 100
\]
Losses in miller

\[
\text{\% yield loss} = \frac{\text{wt. of damage grain in 5 kgs.}}{\text{wt. of 5 kgs.}} \times 100
\]
Actual Measuring

• Banana
  • Farmers: 5 villages, 1 farmers in each village in Pathimthani province
    • 5 farmers
  • Stake holders
    • 3 packing houses in Pathimthani province
Actual measuring banana
Losses at harvesting

\[
\% \text{ yield loss} = \frac{\text{wt. of unedible banana fruits in 3 bunches a farm}}{\text{Total banana fruit wt. in 3 bunches a farm}} \times 100
\]

Losses at packing houses

\[
\% \text{ yield loss} = \frac{\text{wt. of unedible banana fruits in 3 baskets}}{\text{Total banana fruit wt. in 3 baskets}} \times 100
\]
Table 1: Estimates of percentage loss of mungbean and banana under different channels by actual measurement

<table>
<thead>
<tr>
<th>Statistics</th>
<th>By actual measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mungbean Losses of grains in the field at harvesting</td>
</tr>
<tr>
<td>Estimate of loss percentage</td>
<td>7.08</td>
</tr>
<tr>
<td>Std. error</td>
<td>1.45</td>
</tr>
<tr>
<td>%CV</td>
<td>20.48</td>
</tr>
<tr>
<td>Sample size</td>
<td>10 farmers field</td>
</tr>
</tbody>
</table>
Table 2 Losses from actual measuring at harvesting and packing steps in banana, Hom variety in Pathumthani province

<table>
<thead>
<tr>
<th>Sources</th>
<th>causes</th>
<th>Stage Losses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer (n = 5)</td>
<td>Damaged by cutting wound, diseases, not completed fruits in comb and animals such as bird etc.</td>
<td>2.81</td>
</tr>
<tr>
<td></td>
<td>CV (%) 51.19 (not uniformed data)</td>
<td></td>
</tr>
<tr>
<td>Packing house (n = 3)</td>
<td>In postharvest processes for screen to get of the damaged banana mostly are cutting wound, disease and insect, ripen</td>
<td>1.68</td>
</tr>
<tr>
<td></td>
<td>CV (%) - (not enough data)</td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Losses in various harvesting of mungbean at Nakornsawan province from actual measurement

<table>
<thead>
<tr>
<th>causes</th>
<th>%</th>
</tr>
</thead>
</table>
| **Farmer (n = 10)** | Estimated losses from grain drop in the field  
Some was getting higher losses because | 7.08 |
| **Packing house (n = 7)** | None because this time has just bought and dry in process  
so the data could not be collected.  
Due to drying in the big amount so the owner could not have actual measure. The losses were just the weight losses from drying. | - |
Challenges and/or Difficulties faced during pilot

- collecting data (interview and actual measurement)
- analyzing data
Lesson Learned/Experiences

• How to manage the time for collecting data for many crops

• The methodology of construct national base lines of postharvest losses

• Obviously, appropriated postharvest technologies to reduce losses should be applied in critical stages of any crops
Opportunities and Innovations/way forward

- From experience, the arrangement for piloting data collecting by DOA teams who led and ran the projects helped build knowledge and capacity.

- However, Thailand still requires more knowledge in details for analyzing food loss data to compile national base line across crop commodities.
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