Bottlenecks and opportunities for improving the processing quality of potatoes in Bangladesh

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Consortium: Agrico, Bayer, & ACI Ltd

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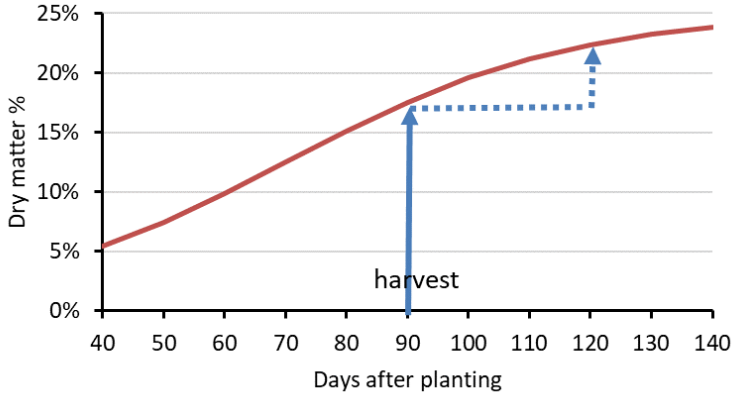
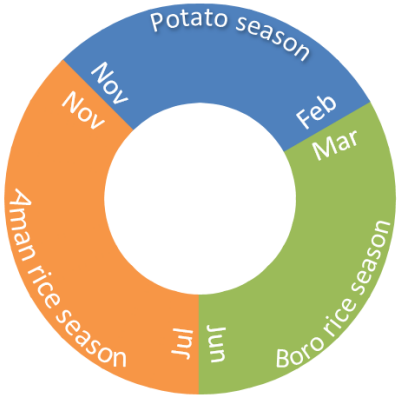
Background

- Bangladesh is 3rd potato producer in Asia, but
- Potatoes have low dry matter content making potato processing costly (crisps, flakes and French fries)



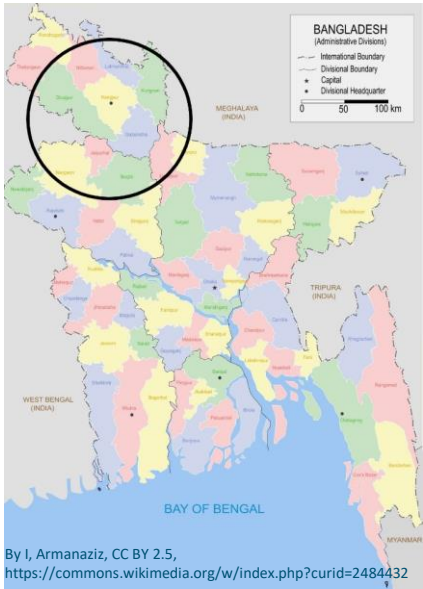
Simplified relationship between dry matter content of potatoes and growth duration



Typical *Aman* rice - potato - *Boro* rice crop rotation in Bangladesh

Objectives

1. Agronomic, economic and socio-cultural bottlenecks for low processing quality of potatoes
2. Agronomic opportunities for improving potato quality, and
3. Opportunities for companies to make the processing industry more cost-effective, viable and competitive.



Approach

- Identify opportunities to increase potato growing period from 90 to 120 days:
  - Collect and analyse local weather data
  - Run potato and rice simulation models with weather data using different planting dates
  - Yield optimization of rice-rice-potato rotations with different planting dates
- Comparison of net returns of current and alternative rice-rice-potato rotations
- Validation of data with local stakeholders and identify local constraints

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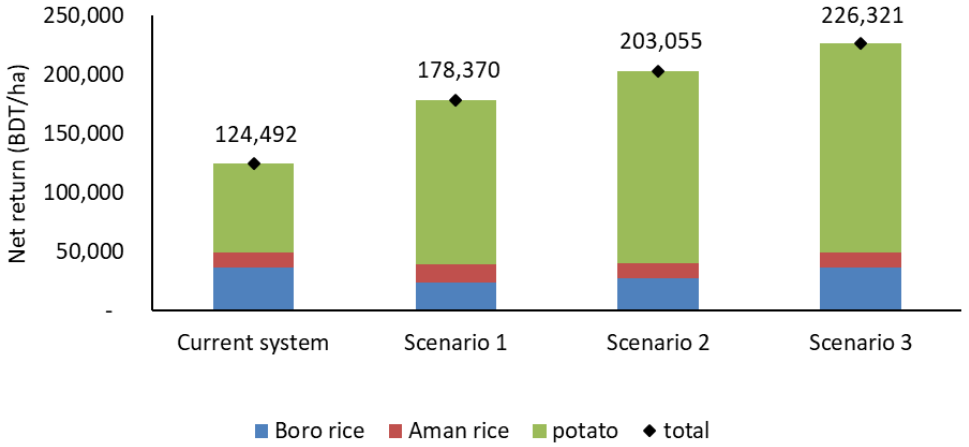
Results: Four rice-rice-potato rotation scenarios

1. Current rotation: 90 days potato
2. 30 days later harvesting: 120 days potato
3. 15 days earlier planting & 15 days later harvesting: 120 days potato
4. 30 days earlier planting: 120 days potato

Yields and net returns of four scenarios



Yields in t/ha:

Potato	23.5	32.0	34.3	35.6
Aman rice	4.1	4.2	4.1	4.1
Boro rice	5.4	4.7	4.9	5.4

100 BDT ≈ 1 Euro

The scenarios considered:

- 15% higher production costs of 120 days potatoes.
- Increase of dry matter content from 17.4% in 90 days potatoes to 22.5% in 120 days potatoes.
- Sufficient time between crops to do the necessary field preparations

Not considered:

- Premium prices for better quality 120 days potatoes.

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Conclusions

1. It seems not only feasible, but also economically of interest to increase the growth duration of potato from 90 to 120 days.
2. Extension of growing season from 90 to 120 days increases potato yields potentially with 36 to 51%.
3. The earlier the planting, the better for improving potato yield, quality and net returns of the entire cropping system.

Conditions and knowledge questions for business case

- Local farmers groups are interested but need proper incentives such as secured pricing and rapid pay-out after harvesting.
- For early planting: Select areas with low vulnerability to drainage problems due to late *Aman* rainfall.
- For late harvesting: Select areas that are not affected by surrounding flooded *Boro* rice fields.
- Test (new) potato varieties that have the potential to deliver the desired quality characteristics after 120 days growing period
- Train farmers to maintain crop health after 90 days growing period.

90 days potato crop……

Perspectives for business case development

- **Local potato processors** may source better quality potatoes, thus reducing processing costs and increasing competitiveness.
- **Seed potato companies**: Market for new varieties (120 days) and high quality seed.
- **Food processing equipment companies**: Demand for equipment if Bangladesh processing industry gets boost by sourcing better quality potatoes.
- **Storage companies**: Better storage and logistics solutions needed to process year-round high quality potatoes.
- Last but not least, extending the growing season is of financial interest for **farmers.**

Questions?

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