



Farmers' understanding of Ricebean  
diversity and its Preference Trait Analysis  
(PTA) in Gulmi, Nepal



FOSRIN Final Meeting  
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## Presentation outline

- Introduction
- Rationale of the study
- Study site and Method
- Results
- Conclusion





## Introduction

- Ricebean (*Vigna umbellata*) widely distributed minor food and fodder crop in Nepal
- Locally known as *Masyang*, *Jhilinge*, *Siltung* and *Guruns*
- Mostly being grown in rainfed marginal areas during summer season as an intercrop with maize or in terrace edges on the uplands
- Very limited study on Ricebean landrace diversity and its preferences
- FOSRIN project was instrumental in providing this opportunity



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## Rationale of the study

Rapid understanding of farmers' choice of ricebean landraces and its traits to incorporate their perceptive in FOSRIN project activities







## Study site

- Western DR where there is maximum area under Ricebean crop
- Darbar Devasthan village (800-1300 masl) of Gulmi district
  - Rainfed sloppy upland (95% area)
  - Ricebean commonly grown in small parcels of land as mix cropping with Maize (80% HHs)





## Study method

- Focus Group Discussion (FGD)
  - 2006 crop season
  - 18 participants (35% female)
  - Scoring and ranking
- Direct observation of crop and seed



## Results

Farmers' major criterion of naming ricebean landraces in Gulmi, Nepal

### 1. Days to maturity

- Early-September (<120 days) eg. *Bhadaure*
- Medium-October (120-140 days) Red ricebean
- Late-November(> 140 days) eg. Brownish white bold (Grey mottled)

### 2. Seed colour and its size

- *Rato* (Red)
- *Khairo seto Thulo* (Brownish white bold)
- *Pahelo Thulo* (Yellowish bold)-Late
- *Pahelo Sano* (Yellowish small) -early



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Farmers' named ricebean diversity of Gulmi

Local name	In English	Distinguishing traits
<i>Rato Jhilinge</i>	Red ricebean	Red, small to medium sized grain, medium in maturity, drought tolerant, low yield
<i>Khairo seto Thulo</i>	Brownish white bold (Gray mottled)	Brown with white stripes and bold grains, late in maturity, good yield
<i>Pahelo Thulo</i>	Yellowish bold	Bold yellowish grain, late in maturity, good yield
<i>Bhadaure Jhilinge</i>	Early season ricebean	Greenish to yellowish, small grains, early maturity, low yield



### Common uses of ricebean and its preferred traits

Common uses	Plant parts	Order of pref.	Preferred traits	Matching landrace of the area
Food ( <i>Dal, curry, Biraula, Batuk, Khichadi</i> )	Grain	1	High yielding (bold grain, non-shattering) Semi-determinate type, good taste	Yellowish bold-partly matching
Livestock fodder	Green foliage	2	Medium to late, Indeterminate type with luxurious growth	Gray mottled Yellowish bold
Green manuring	Green foliage	3	Early, succulent with luxurious vine growth	Not specifically mentioned

### Preference ranking of ricebean landraces

Traits	Red (Red)	Yellowish bold	Gray Mottled	Yellowish small ( <i>Bhadaure</i> )
Yield potential	3	1	2	4
Grain type	2	1	1	3
Grain colour	4	1	2	3
Maturity	1	3	3	2
Less shattering	2	2	2	1
Pod size	2	1	1	3
Drought tolerance	1	3	2	4
Tolerance to high rainfall	2	3	3	1
Market potential	4	1	2	3
Taste	4	1	2	3
Total score	25	17	20	27
Overall ranking	III	I	II	IV



### Perceived positive and negative traits of ricebean landraces

Name of landrace	Positive traits	Negative traits
Red ricebean	<ul style="list-style-type: none"><li>• Tolerance to drought</li><li>• Medium maturity</li></ul>	<ul style="list-style-type: none"><li>• Less testy,</li><li>• Low grain yield</li></ul>
Brownish white bold (Gray mottled)	<ul style="list-style-type: none"><li>• Good grain and fodder yield</li><li>• Attractive grain type</li></ul>	<ul style="list-style-type: none"><li>• Long duration</li><li>• Asynchronous maturity in the same vine</li></ul>
Yellowish bold	<ul style="list-style-type: none"><li>• Good grain and fodder yield</li><li>• Soft and tasty</li><li>• Attractive grain type</li></ul>	<ul style="list-style-type: none"><li>• Long duration</li><li>• Asynchronous maturity in the same vine</li></ul>
Yellowish small ( <i>Bhadaure</i> )	<ul style="list-style-type: none"><li>• Early maturity</li><li>• Tolerance to rainfall during flowering</li></ul>	<ul style="list-style-type: none"><li>• Low yield (both grain and fodder)</li></ul>



### Farmers' preferred traits for grain purpose

1. Higher grain yield (bold seed, more pods, )
2. Short to medium duration with semi-derminate growth habit
3. Synchronization in maturity of upper and lower pods of the same vine
4. Good taste and nutritional value (easy to digest)





### Preferred traits for the market

- Bold grain
- Good taste
- Uniform grain quality (no varietals mixtures)





## Scope of the crop

- Multiple use values (food, fodder and green manure) should be highlighted to promote among farmers rather than focussing only for grain
- Suitable for adapting to climate change in vulnerable areas (drought prone) and other rainfed marginal environments





## Conclusion

- PTA showed that farmers have some good landraces (**yellowish bold, gray mottled**) to fulfill their multiple use requirements
- PTA suggested to focus ricebean research on identifying/developing short duration varieties with high yield potential for grain purpose
- Better understanding of its nutritional awareness was realized to promote ricebean widely
- PTA was useful since it served as a basis for planning of FOSRIN activities
  - Characterization and dissemination
  - Based on PTA information, *Yellowish bold* and Gray mottled were made available to CAZS-NR to study the seed priming response and breeding initiatives



Thanks

