

Recent Issues of Agriculture Technology dissemination adopted by LI-BIRD

- LI-BIRD

Institutional Background

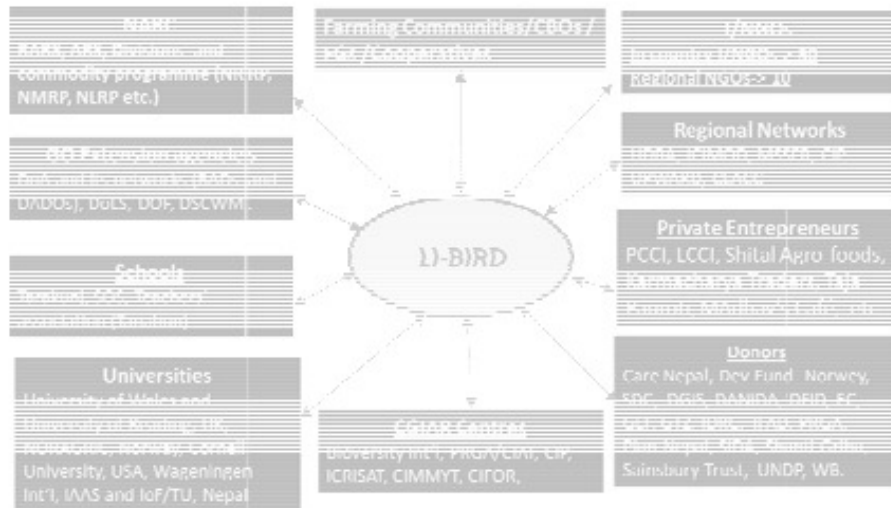
- Established as NGO in October 1995
- Head Office at Pokhara with network of site offices throughout Nepal
- Legal status: Registered at Kaski District Admin Office, Home Ministry, GoN and affiliated with Social Welfare Council (SWC)
- Governance: Governed by *Executive Board* and executed by Executive Director with support from a *Management Committee* (MC) and *Technical Committee* (TC)

Goal

Contribute to reducing poverty and improving social justice by empowering poor and marginalized people, and by creating opportunities to improve quality of life through partnership and participatory approaches to research and development on natural resources, biodiversity and ecosystem services.

Geographical coverage of LI-BIRD

LI-BIRD's Sphere of Collaboration



LI-BIRD's Working Approach/ Technologies developed/ Adopted by LI-BIRD

Farmer led Research & Development

Promotion of Farmer led research/ Participatory Innovation (Technology) Development

- Evidence based Extension services
- Higher adoption rate
- Empower community to find alternative technologies depending on geographic location, culture, and also level of cost

Innovation could be a process or product

1. Participatory crop improvement approaches

- Grassroots breeding
- Participatory plant breeding
- Client oriented breeding
- Participatory variety selection

2. Community based biodiversity management

- Community seed bank
- Community biodiversity register
- community biodiversity block
- value additions

3. Development of new crop varieties

- Rice, maize, legumes

4. Promotion of new varieties

- Informal research and development
- New variety stakeholder meetings

5. Seed production and distribution systems

- Community based seed productions

Innovative participatory crop improvement approaches •

Grassroots breeding (GB)

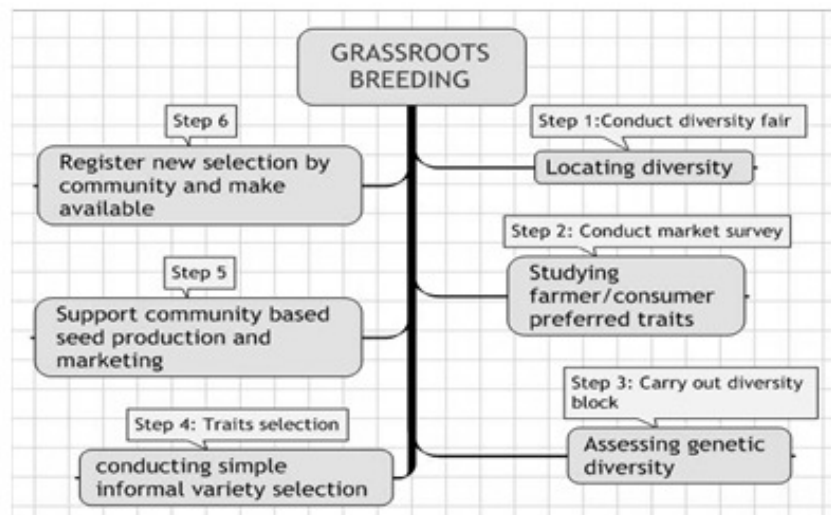
- Participatory plant breeding (PPB)
- Client Oriented Breeding (COB)
- Participatory variety selection (PVS)



Grassroots breeding

- The term ‘grassroots’ is coined to reflect two key elements:
 - It involves very grassroots (basic) type of plant breeding
 - Activities can be led by farmers and grassroots institutions
- The term ‘grassroots breeding’ is coined to capture a simple plant breeding approach that strengthens the organizational and selection skills of farmers and communities in plant breeding, seed production and marketing strategy

Process of grassroots breeding



Cases of grassroots breeding

Pokhareli Jethobudho

- 338 accessions collected in 1999
- Diversity assessed for consumer preference
- Six most preferred populations of Jethobudho rice were selected for quality traits
- Variety released by National Seed Board



Aromatic sponge gourd

- Variety identified through diversity fair: only one farmer in the local community cultivated 1998
- Seed multiplied and distributed to farmers in the local community and now almost all the farmers do cultivate this sponge gourd variety.



Participatory plant breeding (PPB)

- PPB is a breeding strategy in which breeders and farmers closely participate to set breeding goals, develop and test new crop varieties
- It is “participatory” because users can have a role in all major stages of the process of plant breeding and variety selection
- Three essential components: 1. one parent is local, 2. selection in the target environment, 3. all stakeholder participate in the variety development process

Basic steps in PPB

- Identification of farmers’ need in a variety: PVS
- Setting breeding goals



- Choosing parents and smart crossing
 - Selection in target population environment (TPE) and for target population trait (TPT) •
- Seed production and distribution: IRD and CBSP
- Release/registration of the new variety

Client Oriented breeding (COB)

PPB and COB are similar in terms of key steps but they differ in the mode of participation of farmers and also in the specific location

- Identification of farmers' need in a variety: PVS •
- Setting breeding goals
- Choosing parents and smart crossing
 - Selection in target population environment (TPE) and for target population trait (TPT) •
- Seed production and distribution: IRD and CBSP
- Release/registration of the new variety

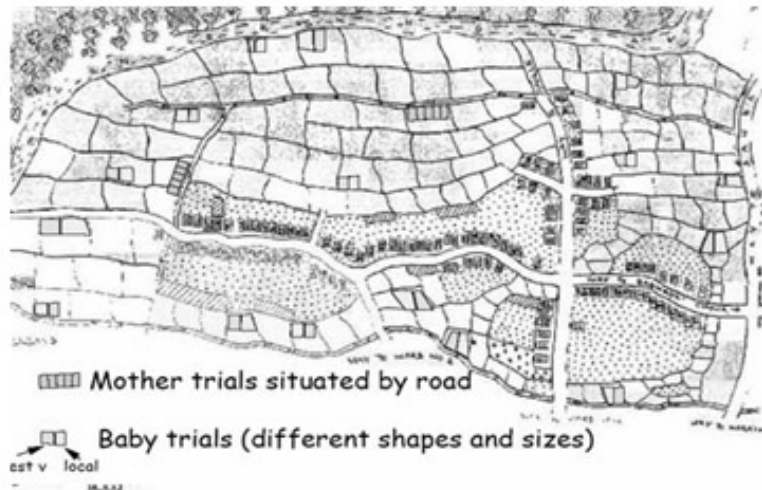
Participatory variety selection (PVS)

PVS is a very powerful approach:

- Both research and extension method
- Identification of farmers' need in a cultivar and aids selection of parents for crossing
- Variety testing (experimentation), verification and acceptability
- Technology dissemination approach



PVS: Mother and baby trial



PVS : Informal research and development

- One entry-identified variety
- Yield is not measured
- Farmers perception informally
- Farmer managed
- Free seed and benefit
- Not repeated in research station

Outputs/outcomes of PVS/PPB/COB

- Two rice varieties released nationally by the National Seed Board
 1. Barkhe 3004
 2. Sunaulo Sugandha
- **One variety has been approved** by the variety release and registration sub committee of national seed Board for formal release
 1. Barkhe 2014
- **Two varieties approved for registration** by the variety release and registration sub committee of national seed Board
 1. Sugandha 1
 2. Barkhe 1027

Outputs/outcomes of PVS/PPB/COB

- **Two maize varieties in pipeline for release and registration**
 1. Resunga CPOSITE
 2. Gulmi 2
- **Number of rice varieties in pipeline:**
 - Mansara lines, Biramphul lines, Kachorwa lines from PPB
 - Lumle 2, a rice variety for high altitudes
 - PDR 14, a kidney bean variety popular in Chitwan and many other districts of Nepal
 - Several lines in pipeline from COB viz. Judi 582, Barkhe 3017 etc

Community based seed production (CBSP)

- Decentralized seed production system
- Seed production in the farm community
- Participatory involvement-farmers, researchers, extension workers
- More than 300 tons of rice seed (almost 30 percent of the rice seed produced from the formal sector)



New variety stakeholder meetings (NVSM)

- All the stakeholders gather together
 - Information on new variety is shared
 - Food recipes prepared from new variety are tested by the stakeholders •
- Preference of the stakeholders collected

Other approaches/processes identified

- PROLINNOVA Nepal programme
 - Piloting Local Innovation on Climate change Adaptation •
- Piloting Local Innovation Support Fund

Other approaches/processes identified

- Community based biodiversity management (CBR, diversity block, community seed banks •
- Climate change adaptation
- Ecosystem services

Issues/Challenges in disseminating Agriculture Technologies

- LI-BIRD believes in two components of Technology transfer -
 - Physical components: Physical components which comprises of items such as products, tools, equipments, techniques and process
 - Informal components: Informal component which consists of knowledge in management, marketing, production, quality control, skilled and functional areas •

Socioeconomic issues-

- Small and fragmented landholding
 - Declining sharing of family labor
 - Gender concern/Gender participation
- Foundation of research-

- Prioritization based on knowledge and interest of Scientific communities rather than local knowledge and interest

Way forwards.....

- Agricultural technologies should clearly defined
- Government should create an enabling environment for the involvement of the private sector, donor agencies and NGOs in the production and marketing of agricultural technologies
- DoA should take lead role in technologies development and promotion through multi-stakeholder partnerships.
- Promotion of Farmer led research/Participatory Innovation (Technology) Development • MoAC should established Fund to promote farmers led research/Participatory Innovation (Technology) Development
- Joint Action Research Project Development
 - Programs to mitigate climate change effect
 - Conservation tillage
 - Rainwater harvesting
 - Value addition of crops, vegetable products and fruits
 - Documentation of indigenous technologies and successful story/cases related to agriculture practices and technology/Innovation
- Policy support for promotion of agriculture technology transfer