Pearl millet varieties *PE05684 & PE05532* emerging from farmer participatory selection – A Nigerian experience

There is considerable evidence that Participatory Plant Breeding (PPB) improves the acceptability of promising varieties among disadvantaged farmers. For PPB incorporates the farmers’ own preferences into the criteria for developing, testing and releasing new materials. This approach has been the backbone of collaboration between Lake Chad Research Institute (Maiduguri), the project ‘Mobilizing Regional Diversity’ and PROMISO, as well as CBARDP Nigeria. With the aim of strengthening existing partnerships with development initiatives and farmer organisations, various PPB activities were carried out during the 2006-2008 seasons. The objective was to improve farmer access to knowledge and technology for the various pearl millet zones of Northern Nigeria. This was based on a reconnaissance survey indicating that the uptake and sustained use of improved varieties is constrained by a lack of awareness, by traditional values, and by seed unavailability. Early maturity, bird damage and lack of fertilisers are further constraints.

Several promising entries were identified during the evaluation of 360 early-to-medium pearl millet accessions at the Maiduguri LCRI station in 2006. These were taken on-farm for detailed participatory evaluation in 2007 and 2008. Participatory selection activities were carried out across seven Nigerian states: Kebbi, Sokoto, Katsina, Zamfara, Jigawa, Yobe and Borno. Using the ‘ballot paper approach’ as a communication tool, 27 entries of pearl millet were ascertained by the farmers. Ballot papers of different colours were used to rank preferences:

- a. White/green ballot paper – good and acceptable for men/women respectively.
- b. Blue/yellow ballot paper – accepted as alternative for men/women respectively.
The ballot papers were dropped in black polyethylene bags before being counted per plot and expressed in % as follows:

- % white for men/green for women
- % blue for men/yellow for women
- % red for men/pink for women

Entries with scores of at least 70-100% white/green votes of total farmers per site were considered as selected. ‘Alternatives’ comprised between 51-69% blue/yellow votes, while rejected entry scores were 50-100% red/pink votes.

Farmers gave the pearl millet accessions PE05684 & PE05532 an acceptance score of 76% and 81% respectively. They based their decisions on the traits of medium maturity, compact head and bold grain. Their choice was also influenced by a previous priority-ranking exercise, which revealed that earliness and grain yield are the farmers’ first and second most valued traits – exactly what the two selected varieties possess. Farmers value these traits for several important reasons:

1. Pearl millet is the first crop to be planted at the onset of rains before being intercropped with either cowpea or groundnut.
2. Early maturing cultivars escape *Striga* infestation and damage from migrating birds.
3. The millet-producing areas of Nigeria have short rainy periods ranging from 75-100 days.

The two pearl millet accessions PE05684 & PE05532 originate from Mali and belong to the Malian Souna-type millets. The acceptance of these two varieties by Nigerian farmers illustrates the benefits of enhancing access to national agricultural research and regional pearl millet diversity. The farmers are now eagerly awaiting more seed in order to expand their production of these two varieties.

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