Food and Agriculture Organization of the United Nations

The International Treaty ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Views, Experiences and Best Practices as an example of possible options for the national implementation of Article 9 of the International Treaty

Note by the Secretary

At its second meeting of the Ad hoc Technical Expert Group on Farmers' Rights (AHTEG), the Expert Group agreed on a revised version of the template for collecting information on examples of national measures, best practices and lessons learned from the realization of Farmers' Rights

This document presents the updated information on best practices and measures of implementing Article 9 of the International Treaty submitted by Malawi on 1 August 2019.

The submission is presented in the form and language in which it was received.

Food and Agriculture Organization of the United Nations

The International Treaty ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Template for submission of

Measures, Best Practices and Lessons Learned from the Realization of Farmers' Rights as set out in Article 9 of the International Treaty

Basic information

- Title of measure/practice
  PARTICIPATORY PLANT VARIETY SELECTION
- Date of submission
  31ST July 2019
- Name(s) of country/countries in which the measure/practice is taking place
  MALAWI
- Responsible institution/organization (name, address, website (if applicable), e-mail address, telephone number(s) and contact person)

  Malawi Plant Genetic Resources Centre
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- Type of institution/organization (categories) : **Government Institution**

Description of the examples
Mandatory information:[1]

- Short summary to be put in the inventory (max. 200 words) including:

  The Malawi Plant Genetic Resources Centre started working on the Participatory Variety Selection of 56 Bambara nut accessions in the year 2001/02. The work involved three research stations in the Department of Agricultural Research Services namely: Chitedze in Lilongwe district, Chitala in Salima district and Mbawa in Mzimba district. Agricultural Extension Planning Areas (EPAS) and Farmers from villages surrounding the research stations were also involved in the Bambara nut PVS. The major objective of the work was to identify high yielding and farmer preferred accessions since Production of Bambara nuts in Malawi is characterized by low yields. Core components of the work included; (i) Farmer involvement which contributed to program success and ensured farmer commitment in activity implementation, (ii) integration of local technical knowledge and scientific knowledge in the research process, (iii) Development of readily acceptable varieties by farmers which is one of the fundamental research gaps in Malawi. The major outcome of the PVS was the official release by the Department of Agricultural Research Services through MPGRC of three Farmer preferred Bambara nut varieties

[1] This mandatory information is required in order for the measure/practice to be included in the Inventory.

namely; *Kayera*, *Kadziunde* and *Makata*. Key lessons learnt included that integration of farmer preferences at an early stage in varietal development enhances adoption rates.

- Brief history (including starting year), as appropriate

Malawi Plant Genetic Resources Centre (MPGRC) has been working with farmer communities in Malawi in the conservation and sustainable utilization of plant genetic resources since the centre's inception in 1992. During the year 2001/2002, 56 Bambara (Vigna subterranea (L.) Verdc) accessions that were collected in the country and maintained in the national genebank collection were preliminary characterized with the aim of identifying high yielding and farmer preferred accessions. From the 56 accessions eight gave yields between 400 - 1500 kg/ha and were selected for multi-location trials. The eight accessions were then systematically evaluated at Chitedze (33.6˚E, 13.9˚S and Alt. 1146 m) in Lilongwe district, Chitala (34.3˚E, 13.7˚S and Alt. 606 m) in Salima district and Mbawa (33.4˚E, 12.1˚S and Alt. 1253 m) in Mzimba district during 2002/2003 and 2003/2004 seasons. In all sites, farmers scored the accessions at vegetative, harvesting and post harvesting stages. Criteria for scoring were developed by farmers with assistance from researchers.

- Core components of the measure/practice (max 200 words)

The development of varieties that are readily accepted by farmers remains a fundamental research gap, which requires immediate attention by most national programs including Malawi. In Malawi production of Bambara nut is characterized by use of landraces due to lack of improved varieties. Therefore, the integration of farmers' preference in varieties at an early stage of development enhances adoption rates. This integration is achieved through various ways including Participatory Variety Selection (PVS). In the PVS, farmers establish their criteria for selection with assistance or guidance from researchers. In participatory approaches programs are likely to be successful if farmers or stakeholders are involved. Farmers and others (local leaders and chiefs) who participate actively in such programs are likely to be more committed which facilitates acceptance and implementation of policies and technologies that best promotes their rights. Participation of farmers may also enhance the use of local technical knowledge and contribution to decision making process. In this case, science can make most contribution to research and development for small-scale farmers when it takes account of and utilizes farmers' indigenous knowledge based system.

- Description of the context and the history of the measure/practice is taking place (political, legal and economic framework conditions for the measure/practice) (max 200 words)

Bambara nut (*Vigna subterranea* (L.) Verdc) is the third most important grain legume in Africa after groundnuts and cowpeas. It makes a complete food as it contains sufficient quantities of protein, carbohydrate and fat and its gross energy exceeds that of other common pulses. In terms of production, Bambara nut has relative advantages over other grain legumes as it performs well under drought conditions, poor soils, and extreme heat as well as fixes nitrogen in the soil, thereby making it a suitable crop for the low-input production systems. Despite its relative advantages over other grain legumes, Bambara nut is still regarded as one of the neglected and underutilized crops in Africa due to limited research efforts. This status has led

to non-existence of improved and readily accepted varieties by farmers. Lack of improved varieties contributes to low yields low as 400 kg/ha compared with potential yields of 4000 kg/ha.

Malawi as a country has a rich plant genetic diversity of 555 species reported as food crops and wild edible plants, due to its diverse range of agro-ecological systems. Despite the existence of wide plant genetic diversity which includes Bambara nut, these valuable resources have not been fully exploited in terms of variety selection and development for enhanced socio-economic prospects of Malawian farming communities. Despite the availability of other legal instruments such as National Agricultural Policy and Environmental Management Act, there is no specific policy to support agrobiodiversity conservation, sustainable utilization and farmer's rights for access and benefit sharing in Malawi.

- To which provision(s) of Article 9 of the International Treaty does this measure relate

  Art. 9.1 ✓

  Art. 9.2a ☐

  Art. 9.2b ☐

  Art. 9.2c ✓

  Art. 9.3 ☐

Other information, if applicable

- Please indicate which category of the Inventory is most relevant for the proposed measure, and which other categories are also relevant (if any):

No.	Category	Most relevant[2]	Also relevant[3]
1	Recognition of local and indigenous communities', farmers' contributions to conservation and sustainable use of PGRFA, such as awards and recognition of custodian/guardian farmers		
2	Financial contributions to support farmers conservation and sustainable use of PGRFA such as contributions to benefit-sharing funds		
3	Approaches to encourage income-generating activities to support farmers' conservation and sustainable use of PGRFA		
4	Catalogues, registries and other forms of documentation of PGRFA and protection of traditional knowledge		

[2] Please select only one category that is most relevant, under which the measure will be listed.

[3] Please select one or several categories that may also be relevant (if applicable).

5	In-situ/on-farm conservation and management of PGRFA, such as social and cultural measures, community biodiversity management and conservation sites		
6	Facilitation of farmers' access to a diversity of PGRFA through community seed banks[4], seed networks and other measures improving farmers' choices of a wider diversity of PGRFA.		
7	Participatory approaches to research on PGRFA, including characterization and evaluation, participatory plant breeding and variety selection	✓	
8	Farmers' participation in decision-making at local, national and sub-regional, regional and international levels		
9	Training, capacity development and public awareness creation		
10	Legal measures for the implementation of Farmers' Rights, such as legislative measures related to PGRFA.		
11	Other measures / practices		

- In case you selected 'other measures', would you like to suggest a description of this measure, e.g. as a possible new category? _____
- Objective(s)

  Identifying high yielding, adaptable and farmers' preferred genotypes/ varieties for production in Malawi.
  Also, to allow farmers have co-responsibility in the selection of preferred varieties for production in Malawi.

- Target group(s) and numbers of involved and affected farmers[5]

  20 farmers per site were involved for participatory variety selection.

- Location(s) and geographical outreach

  Malawi with participation of farmers around Chitedze in Lilongwe district, Chitala in Salima district and Mbawa in Mzimba district.

- Resources used for implementation of the measure/practice

  Funding of this work that was provided by the SADC Plant Genetic Resources Centre, the SADC Biodiversity Support Project and Malawi Government.

[4] Including seed houses.

[5] Any classification, e.g. of the types of farmer addressed, may be country-specific.

- How has the measure/practice affected the conservation and sustainable use of plant genetic resources for food and agriculture? Please describe the achievements of the measure/ practice so far (including quantification) (max 200 words)

  Through participatory farmer engagement, in addition to the yield, farmers' were able to come up with own criteria based on their preferred attributes which included; plant vigour, ability to fully bury its pods in the ground (mounding), maturity period, seed colour, and grain size, taste of boiled dry grain and taste of fresh pods were used to identify farmers' preferred genotypes.

  The Combination of yield and farmers' preference identified three genotypes (181RD, 181CR and 2768) as potential varieties for production in Malawi.

  Apart from the yield and agronomic traits, during the evaluation process farmers were also able to link the identified genotypes/varieties to particular utilization. As such Accessions 181RD and 2768 were specifically selected for relish unlike 181CR, which has been selected for use as snack.

  For enhanced decision making and empowerment, farmers' had the responsibility of the variety naming whereby Accessions 181 RD was named '*Kadziunde' meaning a variety that needs no mounding*, 2768 named *'Kayera' meaning a white / cream variety* and 181 CR named *'Makata' meaning a snack.*

  Production of Bambara nut in Malawi over the years had been poor and characterized with low yields, therefore by selecting potentially higher yielding varieties with farmer preferred attributes, Bambara nut production has significantly improved in Malawi. Bambara nut yields have also been improved from as low as 400kgs/ ha to a range of 485 to 1322Kg/ha.

- Other national level instruments that are linked to the measure/practice

  National Agricultural Policy

- Are you aware of any other international agreements or programs that are relevant for this measure/practice?

  ITPGRFA which promotes the conservation and sustainable conservation of PGRFA as well as Farmers Rights.

  Nagoya protocol which promotes issues of access and benefit sharing.

- Other issues you wish to address, that have not yet been covered, to describe the measure/practice

Lessons learned

- Describe lessons learned which may be relevant for others who wish to do the same or similar measures/practices (max 250 words).

Participatory approach to improvement of farmers' plant genetic resources management offers the potential to reach a large number of farmers and make local crop genetic diversity an integral component of agricultural development of farmers in less-favoured environments.

Participatory approaches require recognizing the central role that rural women play in agricultural production. Therefore, gender mainstreaming is a must in participatory variety selection.

- What challenges encountered along the way (if applicable) (max 200 words)

Inadequate awareness of researchers/ plant breeders on the significance of Participatory Variety Selection or Participatory Plant Breeding in crop improvement programs and technology adoption.

- What would you consider conditions for success, if others should seek to carry out such a measure or organize such an activity? (max 100 words)

The involvement of farmers in conservation and research work to ensure that identified /developed varieties have traits that are preferred by farmers for enhanced adoption of technologies as well as conservation and sustainable use of PGRFA.

Further information

- Link(s) to further information about the measure/practice

American Journal of Plant Sciences, 2012, 3, 1802-1808 http://dx.doi.org/10.4236/ajps.2012.312A221 Published Online December 2012 (http://www.SciRP.org/journal/ajps