

FARMING-SYSTEM SPECIFIC EXTENSION CONTENT FOR ENHANCING CLIMATE CHANGE ADAPTATION AND RESILIENT FOOD SYSTEMS IN SORGHUM-BASED DRYLAND FARMING SYSTEMS OF TANZANIA AND BURKINA FASO

VARIETY SELECTION

CLIMATE CHANGE AND RESILIENT FOOD SYSTEM ISSUES

At the pre-planting stage a major aspect that the extension agents need to be able to advise farmers on is the selection of varieties of the diverse crops of their choice that have the highest potential for achieving the CSA outcomes.

ESSENTIAL TECHNICAL INFORMATION

In Burkina Faso - as in the rest of the West and Central Africa sorghum-based farming system - the highest proportion of subsistence-oriented smallholder farm households that depend mainly on sorghum and pearl millet, groundnut and cowpea. Livestock is important in the system.

The Central Tanzania sorghum-based system is similar to that of West Africa except that pearl millet is relatively unimportant but pigeonpea is added to the mix as well as sunflower which is promoted by the Government as part of an effort to become self-sufficient in cooking oil.

The agro-ecologies of sorghum-based systems are characterized by high and increasing temperatures, low and variable rainfall and degraded soils. The crops are used for home consumption and markets and straw is for livestock feed.

FACILITATING VARIETY SELECTION

1.1.1 Generic desired attributes of varieties

Varieties selected should be tolerant to drought, resistant to diseases and pests, high yielding, early maturing and preferred by end users. In both countries, varieties are available from research that are drought and heat-resistant, making them suitable to climatic conditions in the areas. Available pigeonpea, groundnut and cowpea varieties are drought tolerant and improve soil fertility through nitrogen fixation. Sunflower in Tanzania is a drought-resistant crop promoted by the Government in an effort to become self-sufficient in cooking oil. Also in Tanzania, sorghum is increasingly being used in the brewing industry and white grain is the preferred trait hence varieties grown should be white-seeded

1.1.2 Available varieties of the major crops in the Tanzania sorghum-based system

In Tanzania, the Tanzania Agricultural Research Institute (TARI) - Hombolo which is dedicated to the drylands and is being converted into the Centre for Climate Resilient Crop Research, has developed the following varieties that can be demonstrated to farmers for selection:

1. **Sorghum** – research has led to release of a number of varieties (Macia, Wahu, Hakika, Pato, Tegemeo) and by Private sectors (Namburi: Naco Mtama 1 and two hybrids - Naco SH 1 and 2; Advante has two varieties Pac 501 and 537)
2. **Pearl millet** released varieties are Okoa and Shibe
3. **Finger millet** varieties released are P224, U15 and TARI Finger millet 1
4. **Groundnut** - more than 7 varieties have been released
5. **Sunflower** - released varieties include Record and Kenya Feather and four hybrids released by the private sector.
6. **Green gram** - two varieties released, Imara and Nuru
7. **Cowpea varieties** released are: Fahari, Tumaini, Vuli 1, Vuli 2, Vuli Ar 1, Vuli Ar, Raha 1, Raha 2
8. **Pigeonpea** - grown in Kongwa and Kiteto using varieties Ilonga 14-M1 and Ilonga 14-M2

1.1.3 Available varieties of the major crops in the Burkina Faso sorghum-based system

In Burkina Faso, the research systems have developed the following varieties that can be demonstrated to farmers for selection:

- i. **Sorghum** – IRAT 204, E 35-1, FRAMIDA, ICSV 1049, Sarioso 10, Sarioso 13, Sarioso 14
- ii. **Pearl millet** - CMV-IS 88102, IKMP 1, IKMP 2, IKMP 8201, SOSAT-C88, IKMP 18001, IKMP 18002, IKMP 18004
- iii. **Groundnut** – CGV 86082, NAFA 1, LOKRE, MIOU, TOUINWA, BEEDA, SOUKEBA
- iv. **Cowpea**: a number of varieties are grown but for rotation, it is local indeterminate landraces.