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

WEED MANAGEMENT

1.1 CLIMATE CHANGE ADAPTATION AND RESILIENT FOOD SYSTEMS ISSUE

In Semi-Arid Tropics (SAT) where rainfall is erratic and mostly low, loss of water due to competition with weeds results in reduction in yield and quality. The little water that is available in this harsh environment must be put under the most beneficial use. It should not be left to go to feed weeds which are by definition unwanted plants.

1.2 ESSENTIAL TECHNICAL INFORMATION

Weed is a plant considered undesirable and troublesome and competes with the crop plants for soil nutrients, space and water and causes lower yields. Reduction in crop yields and production efficiency is a direct effect due to weeds and varies from 34.3% to 89.8% depending upon the crop. A weed is any plant growing where it is not wanted. Another set of weeds are referred to as parasitic plants that attach themselves in this case on sorghum and pearl millet plants sucking nutrients from them. Parasitic weeds include striga species (witch weed). Parasitic weeds cause serious economic losses to cultivated host crops. Chemical exudates from the host plant stimulate germination of the seed and as soon as it germinates the seedlings will attach themselves to the root of the plant's host, deriving assimilates, water and minerals from the host. After some days when green tissue is established they begin to synthesise their assimilates but still depend on the host root for water and water minerals, causing severe loss to the crop.

Figure 9: Sorghum field infested with striga

Figure 10: Striga infested sorghum Plant

1.3 HOW TO IMPLEMENT WEED MANAGEMENT

Control of common weeds: (a) Mechanical weed management involves physical disturbance of the weeds, through activities including pulling weeds, tilling the soil before or after weeds emerge, and mowing. Use of hand hoe to control weeds is a common practice. Ensure the root system of crops is not disturbed. When weeding, ensure roots of weeds are exposed so that they dry (b) Chemical Weed Control involves using herbicides. Many different herbicides, including soil-applied (before weeds or crops germinate) and foliar-applied products (when weeds have germinated), selective (kills certain types of weeds without affecting crops) and non selective products. Every herbicide product commercially available is required by law to have a label. The label provides a great deal of information about the product, including how it is to be applied, where, and in what quantity. Herbicide labels change frequently, so be sure to consult the most current label when using a product. Extension agents should explain to farmers how to use, including safety (use of masks, plastic clothing etc.) and when to apply. Herbicides are sprayed by knapsack.

Control of parasitic weeds: Striga is a root-parasitic plant of the major agricultural cereal crops, including sorghum and millets, in tropical and semi-arid regions of Africa. These plants attach to and penetrate the roots of crops, then feed on nutrients of its host, therefore, stunting host growth. Severe striga attack produces symptoms resembling wilting due to drought. Control methods include creating awareness of the damage it causes, hand pulling before striga flowers and crop rotation with non-host plants in Burkina Faso groundnut and cowpea, and in Tanzania groundnut, sunflower and cowpea.