

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

CROP LIVESTOCK SYSTEM

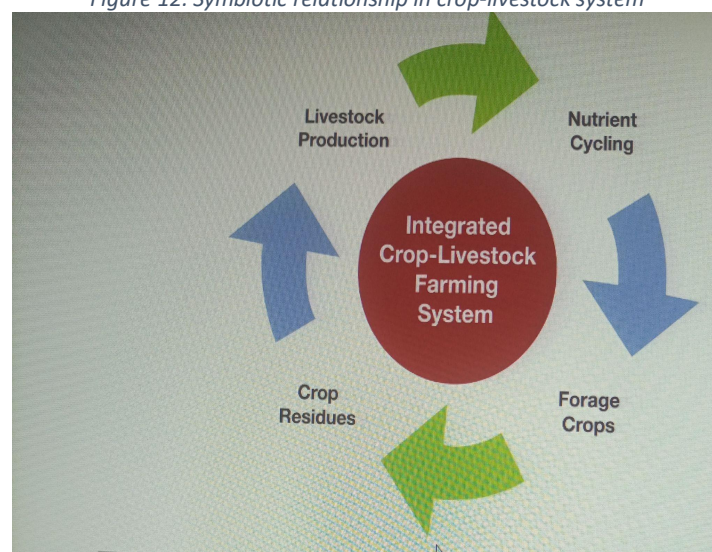
CLIMATE CHANGE ADAPTATION AND RESILIENT FOOD SYSTEMS ISSUE

While the integrated system that includes livestock provides a productivity buffer against chronic climate stress, in extreme cases it may exacerbate pollution, land degradation and vulnerability to climate extremes.

ESSENTIAL TECHNICAL INFORMATION

Although primarily most households in the semi-arid and tropics depend on crop production for their livelihood some households in addition to crops keep livestock in the form of cattle, goats, sheep, or chickens. Households in the latter category are more secure because i) existence of a natural symbiotic relationship between crops and livestock whereby the practice of one activity influences the other through its effects on the ecosystem. For example, during the dry season natural forage is in short supply, and the quality is normally very low. The residues of most crops, which are of little or no value to the cultivator, provide a superior diet for the cattle herd. (ii) At the same time, manure deposited on the fields as the cattle graze is beneficial for the subsequent crop. The occurrence of this symbiotic relationship is widespread and varied in its ecological and economic complexity.

Figure 12: Symbiotic relationship in crop-livestock system



Livestock diversify and hedge risks; for example, cattle can move from one grazing area to another to escape drought. Cattle diseases are also less troublesome in dry areas. Livestock are a strategic investment when cash is available, and a cash source when times are hard

(sometimes referred to as 'walking wealth'). In the integrated system, the waste product of one serves as a resource for the other. For example, manure is used to enhance crop production and crop residues and by-products are used as animal feeds, supplementing often inadequate feed supplies.

The integrated crop-livestock system requires farmers to have adequate nutrients to sustain crops and livestock and to maintain soil fertility. Farmers need to be trained in manure management and application but also let them know it is not sufficient for crop requirement. There is a need for additional sources - fertiliser microdosing and legumes in the system. For livestock, grow fodder legumes as part of rotation to supplement crop residue with a high nutritional value crop. Livestock farmers are not generally connected with veterinary service, as part of the project, the service provider is trained as veterinary agents. Improved livestock management should include water availability throughout the year through water harvesting for animals to drink and growing fodder off season.

Because of these benefits It is recommended to keep some few livestock units on the farm with the number and type being related to the carrying capacity of the available land. The farmer will depend on the advice of the VBA/extension person as it will be among other factors time dependent.

EXTENSION ADVICE FOR FARMERS

In the semi and arid sorghum-based farming system often controversy occurs between deciding whether the few crop residues should be left on the farm to serve as mulch - especially in conservation agriculture - or be fed to livestock? The choice is usually to go for the latter when the cop residue is very scarce.