

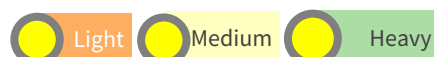
Species diversification involves a shift from a single species of livestock to more species in an attempt to manage risk and explore more resilient livestock farming options. Species diversification can be introduced in response to changes in local environment/climate conditions, including increasing temperatures, unreliable sources of water and availability of pasture, etc. The aim of this approach is to explore the introduction of species that may be more viable and adaptable in changing local conditions thus improving production levels by keeping animals that will be productive under harsh weather conditions and sustain the quality of the produce. Diversification as a climate smart practice assists farmers with utilising available resources more effectively, e.g. mixing grazers and browsers. Species that react well to changing climatic conditions may cause a shift of demand from grazers to browsers. This practice mitigates disease control, can improve soil fertility and increase water management. Government policies can also influence farmers in diversifying their species with many countries dedicating agricultural research and extension to explore the introduction of different species (e.g. cattle to goats) to assist farmers. It is important that species that are introduced do not have an adverse impact on local fauna or the surrounding environment.

## MOST SUITABLE AGRO-ECOLOGICAL CONDITIONS

### Value chain



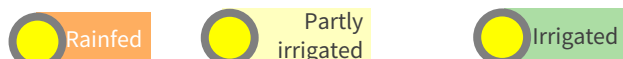
### Soil texture



### Climatic zone



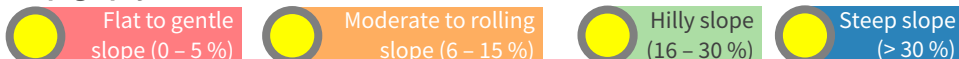
### Water source



### Annual average rainfall (mm)



### Topography



## MOST APPROPRIATE CONDITIONS AND REQUIRED INPUTS

### Farming system

Does it require collective action



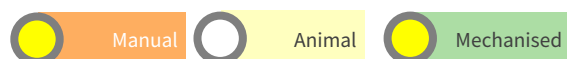
Characteristics



Farm size (ha)

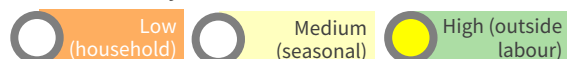


Mechanisation



### Human resources

Labour intensity - level of effort

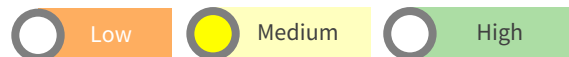


Gender/youth smart (low investment/low labour requirements)

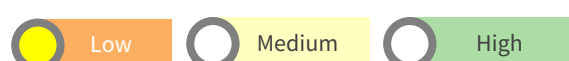


### Financial resources

Initial investment



Maintenance Costs



Access to finance capital or credit required



### Enabling Environment

Extension support



Access to inputs



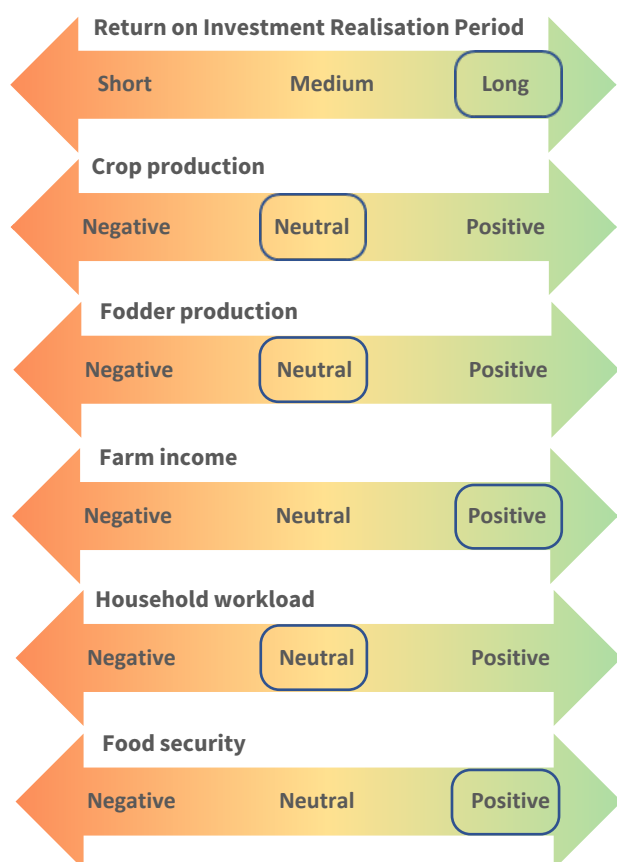
Market access



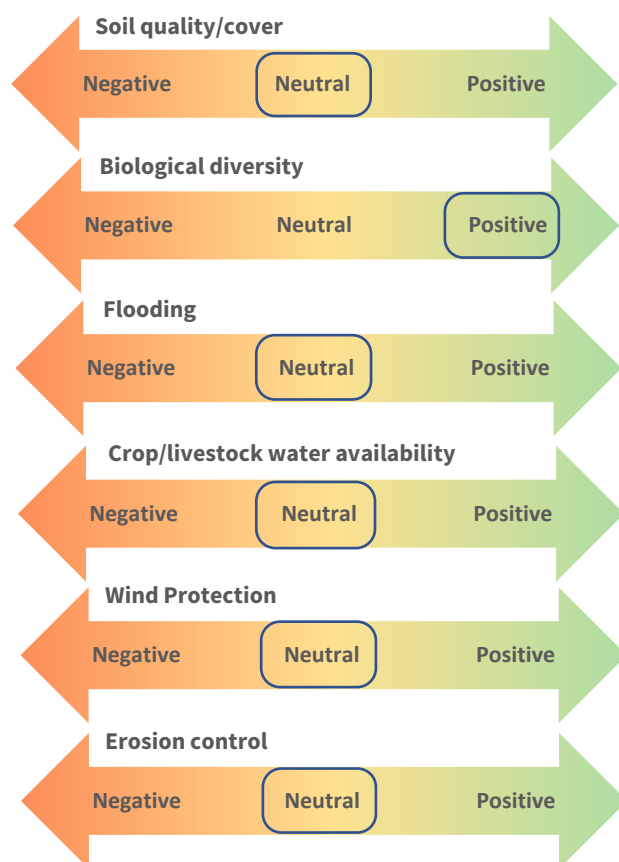
The purpose of this technical brief is to guide where this **practice, technology or strategy** could be applied. It may be applicable in other circumstances, but this brief focuses on where it is possibly **most suitable**. Content is general, and should be contextualised depending upon locality. The brief provides an overview, details of appropriate agroecological characteristics, appropriate conditions and inputs, possible outcomes and impacts, how the **practice, technology or strategy** should be applied, potential benefits and drawbacks, and provides suggestions for further reading in terms of CCARDESA materials and other sources, including those used to develop this technical brief.

**POSSIBLE IMPACT/OUTCOMES**

**Socio-Economic Impacts Positive or Negative**



**Ecological Impacts Positive or Negative**



These descriptors indicate whether the practice, technology or strategy has a positive, neutral, or negative impact or outcome. Those with no box are deemed not-applicable.

**TECHNICAL APPLICATION**

**To effectively implement species diversification:**

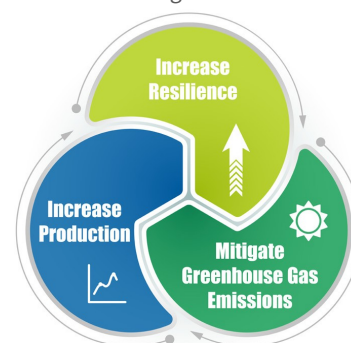
- **Step 1:** Research possible species of livestock that may be productive in the climate of the surrounding area and compatible with existing livestock.
- **Step 2:** Communicate with national agricultural extension/neighbouring farmers and research to gain an understanding of which breeds have been identified as having potential locally and which are available in the region. Other farmers in the area may have information and experiences to share.
- **Step 3:** Inform neighbouring farmers of the potential species that they may be interested in including into their farming system.
- **Step 4:** Outline the positive and possible negative aspects of incorporating different species into their system.
- **Step 5:** Identify how farmers can access different species and whether they are available at local markets or if these species need to be imported from other areas of the country/region.
- **Step 6:** Monitor introduced species to ensure that impacts – positive and negative – are understood.

## CLIMATE SMART AGRICULTURE OUTCOME(S)

Reflecting how this **practice, technology or strategy** contributes to Climate Smart Agriculture outcomes

Utilises available resources more effectively to maintain agricultural productivity.

Diversification can be an adaptation strategy, identifying species with beneficial traits under changing climate conditions.



## SUMMARY/KEY ISSUES

### Benefits

- Species diversity can assist farmers become more climate resilient by adjusting livestock holdings more adaptable species (camels, goats, etc) as other species can survive on less water and lower feed demands.
- Diversification may have significant impacts on household food security, income and be more productive.
- Different species may have traits that are more adaptable to harsh conditions including temperature increases, resistance to disease, drought tolerant, allowing more sustainable productivity (continue to produce milk, eggs meat etc.) and staying in line with market demands during harsher conditions.

### Drawbacks

- Introduction of exotic species can have negative impacts and may push traditional breeds out or have adverse effects on local fodder, water sources etc. if not managed correctly.

## REFERENCE MATERIAL

### CCARDESA Related Content

- CCARDESA, 2019. Technical Brief 17, Climate Smart Genetic Improvement Options for Livestock.

### Additional Information

- The Food and Agriculture Organisation (FAO), 2016. [Livestock Diversity Helps Cope with Climate Change](#). Rome, Italy.
- The Food and Agriculture Organisation (FAO), 2015. [The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture](#). Rome, Italy.
- The Food and Agriculture Organisation (FAO), 1997. [World animal review - Revue mondiale de zootechnie - Revista mundial de zootecnia](#). Rome, Italy.