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Accelerating Impacts of CGIAR  
Climate Research for Africa



**Refresher Training Workshop on  
Feeds, Forage for Dairy  
Development**

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**Forage Seed Production  
and commercialization**

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# Introduction

Adoption of cultivated forage production in Ethiopia is still low. Some of the reasons:

- Poor awareness of livestock producers in forage production
- Traditional and subsistence livestock production (Not market oriented)
- Shortage of arable land
- Poor extension systems
- Lack of forage seeds and planting materials



# Learning Objectives

- Refresher topics on forage seed production and challenges in Ethiopia focusing in the highland areas
- Commercial seed production and forage seed marketing situations in Ethiopia
- How forage seed commercialization could be improved

# Discussion Topics

- What are the major technical challenges and opportunities in forage seed production in Ethiopia.
- What are the major skills and production practices need to be well addressed
- What is the forage seed marketing situation in Ethiopia
- How forage seed commercialization should be developed and strengthened in Ethiopia

# Why forage seed supply is very low in Ethiopia?

- There are no adequate number of commercial forage seed producers
- Lack of technical skills
- Most forage crops, especially perennial grasses and legumes are low seed producers
- High production costs
- Poor forage seed marketing systems
- The willingness to pay for forage seeds by farmers is not encouraging



# Forage Seed Production systems in Ethiopia

## 1. Formal Seed production

### A) Commercial seed production

Seed growers are organized in a form of large enterprise (regional enterprises like Oromia seed enterprise, Amhara seed enterprise, etc.)

### B) Small scale forage seed business

Private firms emerging around forage seed production and trading businesses in Ethiopia.

Some of these firms have their own pieces of land or use outreach farmers to produce forage seeds and need to be provided with technical training and

quality basic seeds.



# Forage Seed Production Approaches

## **2. Informal Seed production**

### **A) Farmers Cooperatives (Unions)**

Farmers' cooperatives and unions established for the production and supply of forage seeds aside with other activities

### **B) Individual farmers seed production**

Some forage seeds require less technical skills and can be produced at individual farm level. For example, forages like lablab, cowpea, oats, vetch, etc



# Forage Seed Production Approaches

## 2. Informal Seed production

### C) Community seed production

This is where community structures like farmers training centers (FTCs) are used to grow and disseminate forage seeds. In this approach, FTCs which were basically established at each kebele for practical training and demonstration purposes can be used to grow forage seeds

### D) Research Centers (ILRI, EIAR and regional research Institutes)

Research centers are mandated with collecting and maintaining forage genetic materials from various sources. They also multiply planting materials in limited quantities for dissemination to researchers, seed growers and extension work on not-for-profit basis. (**breeder and pre basic seeds**)





# What are the main forage seed production technologies and practices

## 1) Species - which species are widely produced

- Few species - Rhodes, panicum, alfalfa, oats, vetch

Cow pea, lablab

## 2) Agronomic practices

- Seeding rate / spacing
- Fertilizer
- Harvesting management
- Seed threshing and cleaning

## 3) Suitable production sites / agro-ecologies

Most species evaluated for their flowering and seed production potential

## 4) Seed quality

- Viability / Germination
  - Maturity, Dormancy, Hard seed coats, Storage



# Seed Productivity

## Fertilizer Application , Rhodes grass

Fertilizer	Average Seed yield Of Rhodes kg/ha
5 t/ha Manure	156.8
10 t/ha Manure	180.9
15 t/ha Manure	165.6
23 kg N/ha	201.0
46 kg N/ha	149.0
92 kg N/ha	163.4
Control, No fertilizer	158.4
Mean	167.9
Isd (0.05)	24.5

**Management improved  
seed yield and  
quality**

## Stubble clearing

Method of clearing	Seed (kg ha <sup>-1</sup> )	
	Rhodes	Panicum
<b>Burning</b>	227.56 <sup>a</sup>	145.15 <sup>a</sup>
<b>Cutting</b>	204.10 <sup>b</sup>	116.97 <sup>b</sup>
Mean	215.83	131.06
LSD (5%)	16.37	23.82

## Seed productivity over years

Age at harvest	Rhodes	Panicum
	seed yield kg/ha	
First year	*	*
<b>Second year</b>	<b>177.4</b>	<b>243.1</b>
Third year	123.5	164.3
Fourth year	92.4	190.0
Mean	131.1	199.2
LSD (5%)	43.2	29.3

\*No harvestable seed yield

# Annuals and perennial forage crops - where should the focus need to be in commercial seed production?

- Both annual and perennial forages have their own niche in herbage production and utilization
- In terms of ease of forage seed production, they have clear differences.

## 1. Annual forage grasses and legumes

- Field practices are relatively easier and very similar to most common food crops
- Produce high and good quality seed
- No need special skills



# Annuals and perennials in seed production

## **2. Perennial grasses and herbaceous legumes**

- Requires special seed production skills
- Field activities are very intensive
- Seed harvesting, threshing and cleaning requires experience and skills
- Seed productivity is very low
- Seed prices are very high

Perennial forage seeds need to be given high attention by commercial seed producers

# Who are the major forage seed suppliers in Ethiopia ?

## Seed production and supply

- Seed is produced by the national research systems and ILRI,
- Few private seeds producers like Eden field produce limited amount of forage seeds
- Forage seeds are not produced by government seed enterprises or very insignificant
- Seed supply is inadequate, mostly poor in quality and very high in price (inflated price).
- Seed demand is increasing due to the need for quality feed production

**Generally, forage seed systems in Ethiopia is underdeveloped**



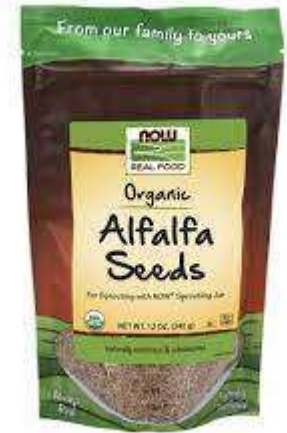
# Commercial forage seed producers

- Only few private commercial forage seed producers in the country
- Efforts has been going on to identify the challenges and support these producers
- Most of these private producers produce few and selected forage species
- They produce very limited quantities of seeds
- Some of them aggregate forage seeds from smallholder farmers and usually have of quality problem
- No formal certification schemes in place



# Forage Seed Marketing

- Forage seed marketing is not well developed in Ethiopia, primarily due to the low adoption of forage cultivation in the country
- Forage seed customers are **government extension** and **NGOs** and **development actors**, only insignificant number of farmers buy forage seed
- Development actors provide free hand out of forage seeds to farmers, which have affected the seed marketing
- The common forage marketing system in Ethiopia is on **bid**
- Strong and well-structured extension and value chain actors of forage development system in the country could improve forage adoption and seed marketing



# The way forward in forage seed production and commercialization in Ethiopia

1. There is a need to promote forage production and commercialization focusing on the dairy sector to create demand for forage seeds
2. Forage seed production including the private commercial seed production need to be supported by the government and development actors and the enabling environment should be in place
3. The regulatory bodies should be in place with the appropriate seed certification schemes like the QDS
4. Marketing systems need to be established in a well-organized way such as with fixed prices and proper packaging and labelling



# Takeaway messages

- Feed production based on cultivated forages need to be promoted to create demand for forage seeds
- Technical skill and experience is crucial to produce quality forage seeds
- Availability of forage seeds at reasonable prices are essential to improve adoption of cultivated forages
- The government and development actors need to support in establishing sustainable forage seed system in Ethiopia
- Specialization in forage seed business is important to ensure quality seed supply

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