

Spate Irrigation: Sorghum



Introduction

- The potential of sorghum is relatively undeveloped
- Has a remarkable array of untapped variability in grain type, plant type, adaptability, and productive capacity
- **Why is it useful?**
 - Grows on a large range of soil types and is more tolerant to salinity than maize
 - Drought and heat tolerant and more efficient in water and

Country	Sorghum usage	Yield (kg/ha)
Ethiopia	Sorghum (grain)	1000-1500 (Steduto et al. 2012)
Eritrea	Sorghum (grain)	800-3750 (Van Steenberg et al. 2010)
Pakistan	Sorghum (grain)	360-550 (Van Steenberg et al. 2010)
	Sorghum (fodder)	1500-4800 (Van Steenberg et al. 2010)
Sudan	Sorghum (grain)	600 (Steduto et al. 2012)
Yemen	Sorghum (grain)	600-3500 (Van Steenberg et al. 2010)
	Sorghum (fodder)	810-11500 (Van Steenberg et al. 2010)

Table 1: Sorghum yield per country (kg/ha)

Best practices: Eritrea

- High yields due to highly efficient moisture management
- Land is ploughed before the irrigation season to open up the soil
- After the fields are irrigated, farmers plough again and carefully mulch the soil
- Ploughing and mulching is done twice – this assures soil moisture is preserved for several months



Sorghum varieties

- **‘Tetron’**:
 - Gives high yields
 - Good resistance to drought and pest infection
- **‘Hejeri’**:
 - Well-branched root system
 - High yielding, short stalked and is very efficient at extracting residual moisture from the soil (good ratoonability)
- **‘Feterita’**: A white grain variety – produces darker flour
 - Short growing season and short stalks
 - Has less bird problems



Sorghum varieties

- **‘Hartsetsa’**: A red grain variety – produces a greyish flour
 - Growing cycle of three months
 - Has an intermediate stalk, compact head, a high yielding but a poor ratoonability
 - Good for human consumption
- **‘Durra’**: A tall, open headed and early maturing variety
 - Good ratooninability
 - Seeds are red
 - Has a low yielding and is more cultivated as animal feed than for human consumption



Recommendations

- Intercropping with legumes and use of fertilizer
- Water conserving techniques
 - Providing adequate moisture helps to double sorghum yields.
 - Land is ploughed prior to the irrigation season to “open up the soil”
- Command area is also kept relatively compact
- Improve row planting
- Reduce plant density
- Improved grain storage