



Republic of Sudan

FEDERAL MINISTRY OF AGRICULTURE
AND FORESTS

Ankara 2016

INTRODUCTION

- Sudan is located in North Eastern part of Africa the continent, Bordered by Seven Country's and the Red Sea.
- The Country is endowed with Diversified Ecological Zones from the Desert to the rich savanna Which Qualify it to Produce Different Types of Crops.
- **Arable land:** 180 million fed
- **Area:** 1.88 million sq.km
- **Cultivated Area:** 20%of Arab land.



CONT

- Abundant Water Resources From Rainfall
- (1 Trillion cubic meters) Rivers, (20.55 Billion cubic meters) Underground water (16000 Billion cubic meters) and Seasonal stream (5-7 cubic meters).
- **Population:** 33.4 million
- **Live Stock:** 103 million heads.
- **Natural pasture:** 14 million hectares.
- **Forests:** 21 million hectares.
- **Federal System:** 17states.

Sudan challenge to Reduce on farm Losses



Losses

Losses take place at:

1. Pre harvest time
2. At the time of harvesting
3. Post harvest time

- At drying stage , transportation and storage stage by reducing the losses at each stage it bring on increase of grains as food
- Today ,s word faces various difficulties as production is planned to increase our challenge is to reduce the losses at previous stages to increase production volume

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- In Sudan we suffer and we look forward for these severe losses spatially at Pre harvest time this due to pre planting tillage results in bad
 1. seed bed
 2. rain infiltration

- In rain-fed area where 90% of the cereal and oil crops were planted with wide level disc(WLD) and chisel plow with tine harrow

The WLD in land preparation results in

- 1 does not provide good tillage under heavy trash condition
- 2 does not provide effective kill of grass
- 3 does not control depth of seeds placement during seeding

This will gives bad establishment of crops leading to lodging and then losses occurs

Planting implements

Most the Sudanese farmers especially in rain-fed area are using WLD which has several limitations

- 1 Seeding depth is uneven reducing crops establishment and contributing to weak root system
- 2 It provide no soil packing which reduced germination due to poor soil to seed contact in drying surface and heavy trash condition

Seed drills

Conventional seed drill and press seed drill are not recommended for rain-fed sector

It required well preparation of seed bed

it does not work well in trashy condition and mud easily in wet clay soil

HARVESTING TIME

- Method of harvesting and threshing used in Sudan vary from rejoin to rejoin
- Wide variety of tools are used Knives and Sickles
Combines Human Domestic Animals
- the method used reflect its social and economic situation

Types of harvesting used in Sudan

- Human power harvest
- Mechanical

Human power harvest

- Two kinds of Human power harvesting
 1. Manpower and manual harvesting with knives and sickle
 2. Traditional method using push or pull during the method
- Scattering of seeds were observed during the threshing of grains by beating with stick

Mechanical harvesting

- A variety of harvesting implement were used which were reduce farmer,s dependence of hand labour for harvesting operation to minimize losses for sorghum sun flower ...etc
- There are several types of combine, thresher cutter bar header cuts the stems and separate grain and straw in Sudan specifically we face big problem in sesame harvesting where high and severe losses taken place during harvesting time due to is scattering of seeds

Sesame harvesting losses

- Most of harvesters used are sesame cutter binder also we used swather
- The swather present a mechanical step between hand labour and binder
- Swather cuts sesame and lays in rows which eliminate the need of hand cutting

Sorghum harvesting losses

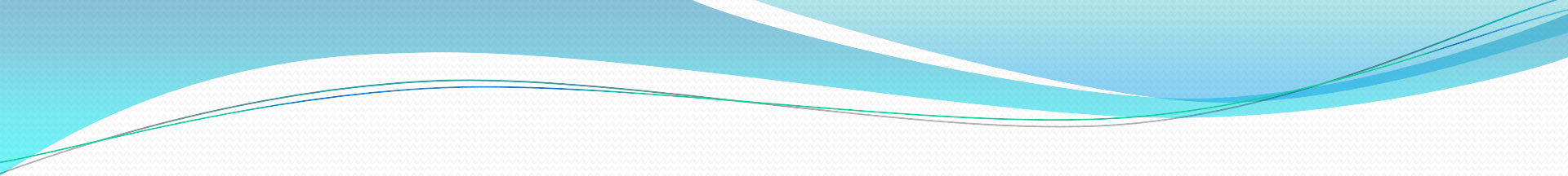
- Additional of sorghum fingers to conventional claas header are reduced header losses from 8 to 2
- It is standard harvest technology in sorghum growing Area

Sunflower harvesting

- Most of Sudanese farmer harvest their crops by hand and threshed with combine or stationary thresher
- Combine harvesting with the conventional combine grains header leading to header losses

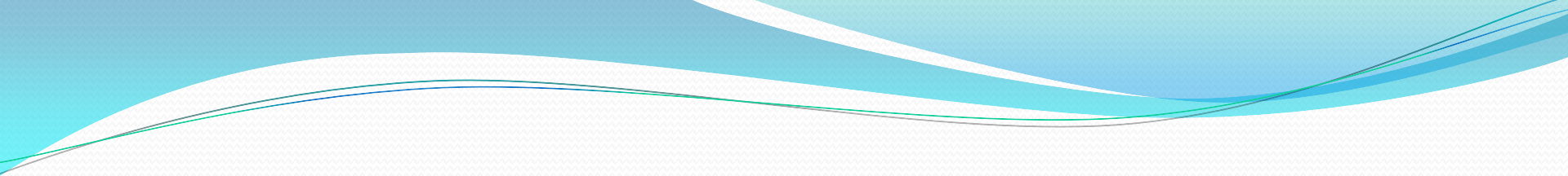
Sunflower harvesting

- So modified sun flower pans which are used in rained area showed positive results
- The pans guide the sunflower heads in to the cutter bar and heads delivered to Auger and prevent heads from falling off the cutter bar to ground reducing losses

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- Harvesting is compromise between loss of grains yield, reduction in quality and speed
 - The main routes of grains losses are dropping it on the ground or on the stalks

Most important in combine to reduce losses

- Adjustment in combine
- Training of combine operator
- Time of introducing the machine to the field

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- Harvesting losses of wheat grains in pre harvest, header and processing losses
 - With regard to field operating parameters:
 - Forward speed, time of harvesting, crop variety and machine make and age
 - Some survey results showed that the forward speed, time of harvest and machine age affected the harvesting losses

- Although crop losses caused by pest including Rodent and Birds and by diseases and Weeds are well defined as pre harvest and post harvesting losses
- In SUDAN losses evaluation methods vary but it is common to have 15 to 25 losses in rice due to high temperature at time of harvesting

- In wheat and cereal are high whereas in sesame is severe due scattering results from scarcity in machines for this of crops
- In Sudan the use of improved storage techniques and the use of post harvesting crop treatment is extremely low
- Also there is a severe losses in fruits and vegetables .



Thanks