REPORT

Field Day

on

Introduction to small scale machinery in South Tunisia

- Use and maintenance -

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1.Introduction

LCSR is tackling challenges like feed shortages and low quality through the introduction of small-scale machinery. In particular feed choppers and grinders as well as feed pelletizers and feed mixers contribute to the reduction of feed wastages and improve production and income of farmers. Locally available materiel is valorized in a more efficient way. These technologies also contribute to reduce pressure on pastural land and minimize overgrazing and soil erosion.

The initiative is collaborating with three farmer organizations (FOs) in the arid regions of South Tunisia, who have benefited from small machinery. The FO GDA El Marai in Douz uses a grinder, a feed mixer and a pelletizer to produce compound pellets; the FO Tamazret in Gabes uses a grinder to process crop and tree residues for feed and the FO Beni Khadeche has recently received a large feed pelletizer to equally get engaged in compound feed production. To ensure proper use and maintenance of these machines the initiative has organized practical trainings during field days..

2.Field day trainings

Three practical trainings on use of small-scale mechanization were organized between 23 – 25 January, 2023 in South Tunisia. The trainings were given by private companies and supported by scientists and technicians from ICARDA, IRA [1]Medenine and OE[2]P.

2.1 Feed grinder and chopper

The practical training was held on 23rd January 2023 in Tamazret, Gabes and was provided by a technician of the grinder manufacturer SFEMI in Kasserine, Tunisia. Beneficiaries of the training were six male members of the FO Tamazret. They use the mobile grinder mainly to chop tree branches for animal feed. As the grinder is driven by the PTO (cardan) of a tractor, a particular accent of the training was given to security measures as accident with the PTO can easily occur. Another security aspect was the proper use of the inlet of the machine. Rotating hammer can cause serious injuries.

Figure 1: Training on grinder / chopper(U.Rudiger 2023)

Besides the security aspects maintenance advises like regular greasing of nipples and moving parts were showed explained and practically shown by the trainer. Participants could practice the use of the grinder and greasing different elements.

[1] IRA : Institut des Regions Arides
[2] OEP: Office de l'elevage et des paturages

2.2 Feed pelletizer

Figure 2 Feed pelletizer in use (U.Rudiger, 2023)

Figure 3: Cleaning the sieves (U.Rudiger, 2023)

Figure 4 Exchanging parts (U.Rudiger, 2023)

On 24th January 2023, a technical training was organized with representatives from the FO Beni Kadeche, Medenine. Four male participants learned and practiced maintenance of feed pelletizers. The machine works with 380 V and has a production capacity of 500 kg / h. The machine importing company Juhaina sent his technical counterpart from Agrolink to give the training.

One of major problems of the pelletizer is the blockage of the sieves (Fig 3). This is due to lack of moisture in the used ingredients and the wrong drive in of the pelletizer. It is of high importance to use a mixture of sand and engine oil to drive in the pelletizing machine. If sieves are blocked it is very time consuming to clean them manually with a screwdriver.

Another important issue which was tackled was the replacement of the feed compressing rolls (Fig 4). Each 800 hours of working the rolls need to be replaced as they will be worn out and pellets won't be compressed properly anymore.

2.3 Feed mixer

Figure 5 Feed mixer (U.Rudiger, 2023)

The feed mixer is used as an essential part of the feed producing chain between grinding and pelletizing feed. It helps to safe time and work and makes the pelletizing process more efficient.

On January 25th a practical training was given by the machine importer in collaboration with the technician from Agrolink company. Technicians from OEP assisted the training to ensure a good coaching of the farmer organization and sustainability of the exercice.

Only two men of the FO participated at the training, the coordinator and a worker. Major constraint of the practicing FO was slow mixing process and the occasional blockage of the mixer. According to the trainers this is due to the dates which are mixed with cereals. They stick easily together leading to the blockage.

3. Conclusion and recommendation

Thirteen people from three farmer organizations were trained on different aspects of small-scale machinery use and maintenance. The training was considered very useful by the feed producing farmers as it was very practical.
Such types of simple, practical trainings should be repeated on a regular basis to avoid unnecessary damage of machinery and a sustainable use of it.

Annex: List of participants

#	Name of nominee	Gender	Location	Position/Organization
1	[redacted]	M	Tamazret, Tunisia	President of GDA Tamazret
2	[redacted]	M	Tamazret, Tunisia	Farmer, GDA Tamazret
3	[redacted]	M	Tamazret, Tunisia	Farmer, GDA Tamazret
4	[redacted]	M	Tamazret, Tunisia	Farmer, GDA Tamazret
5	[redacted]	M	Tamazret, Tunisia	Farmer, GDA Tamazret
6	[redacted]	M	Tamazret, Tunisia	Farmer, GDA Tamazret
7	[redacted]	M	Medenine, Tunisia	Researcher IRA Medenine
8	[redacted]	M	Beni Khadeche, Tunisia	Farmer, GDA Beni Khadeche
9	[redacted]	M	Beni Khadeche, Tunisia	Farmer, GDA Beni Khadeche
10	[redacted]	M	Beni Khadeche, Tunisia	Farmer, GDA Beni Khadeche
11	[redacted]	M	Medenine, Tunisia	Researcher IRA Medenine
12	[redacted]	F	Tunis, Tunisia	Researcher, INRAT
13	[redacted]	M	Tunis,Tunisia,	Agrolink enterprise
14	[redacted]	M	Tunis, Tunisia	Researcher, ICARDA

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