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Report on the production and marketing of new barley variety undertaken by forage seed multiplying cooperatives and private seed enterprises

Introduction

ICARDA has developed with its Tunisian NARES partner INRAT (National Agricultural Research Institute) a new drought tolerant barley variety called Kounouz (which means treasure in Tunisian language). To make this variety available in large quantity on the national forage seed market, collaboration with two national seed multiplying cooperatives and a private seed company who dominate the Tunisian forage seed market has been chosen as the most promising way.

CCSPS

The director of the central cooperative CCSPS (Coopérative Centrale des Semences et des Plants Sélectionnés) was invited to visit Kounouz demonstration plots at INRAT field stations. The performance of this variety, in particular under semi-arid conditions in the central west of Tunisia where annual precipitation is as low as 250 mm, has convinced him to order 5 tons of SM 2 seeds and some “mother lines”. CCSPS is beside COSEM the only central cooperative which is engaged in large scale forage seed multiplication. Their main customer of certified seeds is the “office de cereal”, a state owned institution in charge of delivering subsidized certified seeds like barley and wheat to farmers. Private forage seed market is poorly developed in Tunisia. That’s why collaboration with central or national cooperatives, state farms and institutions is essential to develop the market for Kounouz and assure scaling of this variety. CCSPS has subcontracted the multiplication of Kounouz SM 2 seeds with the following partners:

Name	Type of partner	Quantity (kg)	Area (ha)
Gouerouachi Wassel	Private multiplier	1200	5,6
Kouki Brahim	Private multiplier	500	2,4
Pepiniere Chebika	Private multiplier	600	2,8
Hattab Chihi	Private multiplier	550	2,6
SMCSA Ennama	Cooperative	1000	4,7
OTD Siliana 2	State farm	700	3,3
OTD Chemtou	State farm	250	1,2
OTD Badrouna	State farm	100	0,5
TOTAL		4900	23,1

The above table shows that multipliers use a seed rate of more than 210 kg /ha which is almost double the recommended rate of 110 kg / ha for barley production.

The Kounouz “mother line” remains with CCSPS. High standard and quality control will be assured by CCSPS technicians. Mother lines will provide SM 1 , SM 1 will provide SM 2 and SM 2 develops into basic, then certified seeds.

Once the subcontractors have multiplied the SM 2 they deliver to CCSPS where seeds will be cleaned and treated. Further multiplication into basic and certified seeds will be needed before the variety can enter into the Tunisian market and reach livestock farmers.



Fig: Seed testing at CCSPS



Fig: Seed cleaning at CCSPS

Subcontractors of CCSPS are producing either under rainfed or irrigated cropping conditions. The unfavorable raining season of 2017 / 2018 led to an average yield of only 1.65 tons/ ha. The total area of 23.1 ha produced only 38 tons of basic Kounouz seeds. They are multiplied in the season 2018 /2019 to produce certified seeds.

COSEM

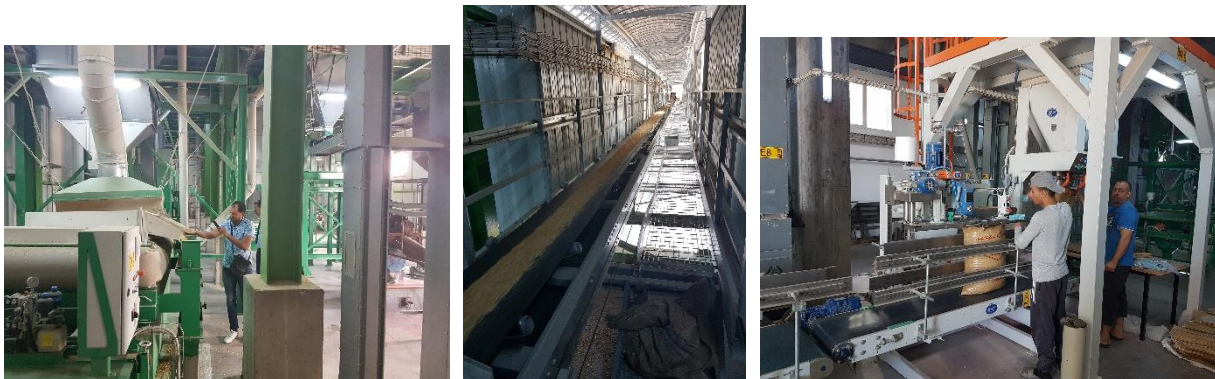


Fig: New seed treatment unit installed at COSEM in June 2018

COSEM (Cooperative Centrale des Semences) is another large scale cooperative in Tunisia specialized on cereal seed multiplication. INRAT has signed a production contract with COSEM and provided 2,5 tons of SM2 (pre-basic) barley-Kounouz seeds. They were produced under semi-arid conditions in central Tunisia. COSEM used a seed rate of 120 kg / ha and its seed multipliers cultivated about 21 ha. 5 ha produced 11,8 tons of grains, but the remaining 16 ha had no production at all, due to insufficient rainfall (less than 150 mm). The grain yield of Kounouz under favorable rainfed conditions were 2,4 t / ha as compared to 1,7 t / ha commonly grown barley Rihane variety. After cleaning of 11,8 t harvested Kounouz grains, 11,5 t of Kounouz basic seeds were obtained. They will be sown in November 2018 to produce certified seeds.

One of the major challenges was that Durum wheat seeds are much more expensive. It was therefore hard to find farmers multiplying barley seeds. COSEM produces only 5% barley, 5% bread wheat but 90 % durum wheat seeds.

Tunifert

INRAT has signed another production contract with Tunifert, a large Tunisian private enterprise involved in seed production. INRAT provided 5 tons of SM2 (pre-basic) barley-Kounouz seeds, which were produced under favorable semi-humid conditions. Tunifert used a seed rate of 100 kg / ha and only five seed multipliers cultivated about 50 ha. The average grain yield were 2,3 tons per ha. It can be estimated an overall Kounouz grain production of 115 tons, leading to 110 tons of basic seeds. 70 tons will be used to produce certified seeds in 2018 / 2019 and 40 tons are available as certified seeds on the local markets in Kairouan and Kasserine this season 2018 / 19. Tunifert sells them via middle man to local farmers. The seed will be enough to plant about 400 ha.

Scaling

To create a market demand for the new barley variety, ICARDA and its partners have chosen it as one of the innovative technologies in the extension research project "Mind the Gap". 560 farmer households in two regions / governorates of Central Tunisia received information about Kounouz. Informations are send either via SMS or transferred through technical and organizational trainings given by local NARES. Field visits to INRAT demonstration plots were organized.

After the first series of trainings in 2017 already 328 had expressed their interest in growing Kounouz. Each household received 100 kg subsidized seeds in November 2017.