

## THE PROJECT

**1650** farmers  
with **3.3** heads/farmer

**10** ton/farmer of annual milk production  
with **3.3** milking cows

### Brown swiss

weighing **550 KG** and producing **12 L/day**

### Holstein

weighing **475 KG** and producing **15 L/day**

### Cross breed

weighing **450 KG** and producing **10 L/day**

## PROJECT TEAM



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## BYPRODUCTS VALORIZATION

TO REDUCE FEED COSTS & INCREASE FARMERS' AUTONOMY



- A **33%** feed cost reduction
- A **high nutritional value-added** potential of byproducts



To valorize:

- **Agro-industrial byproducts** (e.g. beet or tomatoes pulp)
- **Agricultural byproducts** (e.g. wheat straw)



Today, **15** farmers of the project have implemented these practices – **Implementation process**

## MILKY WAY IN TUNISIA



## THE COUNTRY

**11** million inhabitants

**1,376,000** tons/year of milk production

**4,000** tons/year of milk importation

## ICONIC PRODUCT






## LOCAL DAIRY FARMS

In Tunisia, livestock represents a major component of the agricultural production and the national economy . Livestock has been ranked as one of the priority area as it generates 2 strategic production: milk and meat. There are 112 000 cattle breeders in Tunisia, and 83% of them have less than 5 cows.

The herd is constituted by approximately 437 000 cows, and half of them are pure-bred animals (Holstein, Brune des Alpes, Tarentaise). The other 45% are composed by crossbreeds and local breeds. We are facing a continuous decline of the percentage of local and cross breed cows (-1.7% per year) and an increase of the percentage of pure breeds (+2% per year). The milk production is about 1.3 M tons (+9% per year).

## FEED AVAILABLE LOCALLY

Currency conversion: 1 € = 2.6 TND

Fodder/ Byproducts	Energy value	Protein value	Rumination power	Digestibility	Cost (Local currency/ KG DM) DM: Dry Matter
Oat hay	Medium	Weak	Medium	Weak	0.33 TND/Kg
Alfalfa	Medium	Excellent	Excellent	Excellent	0.35 TND/Kg
Ryegrass	Excellent	Medium	Medium	Excellent	0.38 TND/Kg
Bersim	Medium	Excellent	Medium	Excellent	0.34 TND/Kg
Sorghum	Medium	Medium	Excellent	Medium	0.38 TND/Kg
 Wheat straw	Weak	Weak	Medium	Weak	0.07 TND/Kg
 Tomatoes pulp	<i>no analysis made so far at project level</i>				0.05-0.15 TND/Kg
 Beet pulp	<i>no analysis made so far at project level</i>				0.05-0.15 TND/Kg

Byproducts:



Agricultural



Agro-industrial

## DAIRY FARMING OPERATING SYSTEM DESCRIPTION

Average from project farms reality

### - FARM DESCRIPTION

Total area of farming operation: 8 ha

Total surface dedicated for feed production: 3 ha

Total surface for cattle pasture: 1 ha

Total feed production per year: 5 tons (for the hay)

### - CATTLE DESCRIPTION

Milking cows: Brown swiss – Holstein – Cross-breed

Weight: 500-600 KG (Brown swiss) – 400-550 KG (Holstein) – 400-500KG

(Cross breed)

Yield per milking cow: 12 L per day (Brown swiss) – 15 L per day (Holstein) –

10 L per day (Cross breed)



Total herd: 3.3 heads per farmer

Total milking cows: 3.3 per farmer



Total milk production per year: 10 ton per farmer

A focus on **water** : “To produce 1 liter of milk, we need at least 5 liters of water. Water is one of the vital needs of dairy cows. Water is necessary for life, temperature regulation, milk production!”

## EXAMPLE OF FEED RATION VALORIZING LOCAL BYPRODUCTS:

FEED RATION 1	
For a cow which produces : 15 KG/Day of milk	
FEED	KG DM per day
 Beet pulp	2.5
Oat hay	7
 Wheat straw	3

Cost: 3.5 TND/KG

FEED RATION 2	
For a cow which produces : 15 KG/Day of milk	
FEED	KG DM per day
 Tomatoes pulp	1.89
Bersim	3
 Wheat straw	3
Oat hay	4

Cost: 4.4 TND/KG

Byproducts:



Agricultural



Agro-industrial

## BYPRODUCTS: KEY PROJECT INPUTS

### The context:

To tackle the difficulties of fodder's availability.

Tunisia is characterized by a difficult climate, close to semi-arid climatic conditions. In this context, fodders are not developed and cows feeding is based on concentrates (3000 to 3500 kg/cow/year) with a high deficit in fibers. This unbalanced undermines the physiology and the reproduction of cows and thus, there is a deficit in heifers for herd renewal and a high cull rate.

### The idea:

To valorize agro-industrial (e.g. tomatoes and beet pulps) and agricultural (e.g. wheat straw) byproducts.

On the project intervention area there is a large production of beet pulp or tomatoes pulp (particularly in the North West and in the East). There are also many processing plants which produce large quantities of tomatoes pulp. Good to know: tomatoes and beet pulps can be conserved as silage.

### Global implementation results of the project:

#### ▪ **A 33% feed cost reduction**

A ration based on concentrates costs approximately 6 TDN per cow per day. With the byproducts, we can reduce by 2 TDN the ration cost.

#### ▪ **A high nutritional value-added** potential of byproducts

The project team would like to develop the integration of byproducts within feed rations by starting with an analysis of the nutritional benefits of these byproducts.

### The impact:

Today, 15 farmers of the project have implemented these practices – Implementation process

“We try to replicate this practice to all beneficiaries of the project.

### The challenges:

- These byproducts are less expensive but they are not produced all year long: it's one of the difficulties to get through in order to implement this practice: to make them available.

### The dissemination of these practices:

#### ▪ Existing means of communication:

- **Learn from others/Peers-to-peers network:** farmers develop the new practices by looking at others who have already shown benefits.
- **Visits:** organizing visits to the farmers using byproducts in their ration
- **Trainings**
- **Information days**

**“Local byproducts can represent a solution to tackle our difficulties of fodder resources’ disponibilities.”**

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**ACKNOWLEDGEMENT:**

*For any questions related to this project, please contact the project managers:*



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