

La Blanche Maison
CRA Normandie
France



Experimental
FARM



THE DAIRY HERD

- Livestock Units (LU): 149
- Dairy cows – Breed: 92 Normande
- LU dairy heifers: 36,4
- Caving period(s): 4
- Age at 1st calving: 28,5 months

PRODUCTION

- Liters produced: 622,506
- Liters sold: 593,808
- % fat and protein content: 4.3% / 3.6%
- Liters produced/cow/year: 6,752 litres
- Liters/ha forage area: 7,600
- Stocking rate : 1.6 LU/ha forage area:
- Other production(s): Beef

BUILDINGS

Dairy cows

- Milking system: Milkin Parlour
- Stable: Cubicles

Heifers and calves

- Bedding system: Straw

AN AGRO-ECOLOGICAL DAIRY SYSTEM IN THE NORMANDY CONTEXT

AGRICULTURAL AREA

97 ha Agricultural Area (AA)

- Permanent grassland: 54 ha
- Temporary grassland: 23 ha
- Legumes content: 30% white clover
- Grazing area: 25 ha
- Maize silage: 17,4 ha
- Crops / Rapeseed / Others: 0 to 4.5 ha

- Main fodder area: 93 to 96 ha
- % of forage area/AA: 98 %
- % of grassland/forage area: 82%

OBJECTIVES

Dairy production is now facing a challenge that is to reconcile food challenge, competitiveness and environment. For this, it must be economically viable, produce more and better.

The experimental farm of La Blanche Maison built a dairy system to integrate this challenge and will answer to the question **“How optimizing the economic efficiency and the resilience of a 88 norman cows in an agro-ecological system producing milk and meat ?”**

CLIMATE

- Altitude : 65 m
- Rainfall/year: 1 022 mm
- Draining water : 459 mm
- Average T° in Spring: 14.1°C
- Average T° in Summer : 21.9 °C
- Average T° in Autumn : 14.1 °C
- Average T° in Winter : 7.6 °C

BENCHMARK FIGURES 2020

MILK PRODUCED IN
TOTAL, FPCM
CORRECTED

606 589
kg/year

QUANTITY OF
CONCENTRATES PER
COW

1 288
kg/year

QUANTITY OF
CONCENTRATES
PER LITERS OF MILK
PRODUCED

189
g/l

PART OF HOME GROWN
CONCENTRATES /
TOTAL BY THE DAIRY
COWS

18 %

FEED SELF-
SUFFICIENCY FOR
FORAGE

100
%

FEED SELF-
SUFFICIENCY FOR
PROTEIN

66
%

TIME IN PASTURE
FOR COWS

208
days per
y

DAIRY COWS NUTRITION

FORAGE

(kg DM/dairy LU/year)

- Grazing grass 1 839 kg DM
- Grass silage 1 073 kg DM
- Maize silage 1 890 kg DM
- Hay 306 Kg DM

→ **Total** **5 108kg DM**

CONCENTRATE

(kg/cow/year)

- Rapeseed cake 803 kg
- Cereals 91 kg
- Dry brewer's grain 394 kg

→ **Total** **1 288 kg FM**

CALVING PERIODS

- 25% of calving in autumn
- 25% of calving in spring
- 25% of calving in winter
- 25 % of calving in summer

BREEDING

Cows and heifers not intended for renewal will be inseminated with beef cattle breeds (Charolais, Blond Aquitaine, ...) in order to develop beef trials.

EXPECTED RESULTS

The system is intended to be forage self-sufficient, with a low use of mineral nitrogen fertilizers (35 kg N/ha/year). We also aim to allow grazed forage resources to meet 100% of the dairy herd feed requirements in spring (meteorological season), and 50% in winter.

CROPS MANAGEMENT

SOILS NATURE

- Texture: Loamy sandy clay
- Organic matter on 0-30cm (%): 5.7

FERTILISATION

Agricultural
area

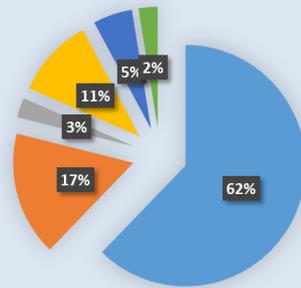
- N mineral/ha: 37 kg
- N organic/ha : 155 kg

AVERAGE YIELD

- Grasslands: 6.9 T DM/ha
- Maize silage: 12.3 T DM/ha
- Wheat: 35 qt/ha

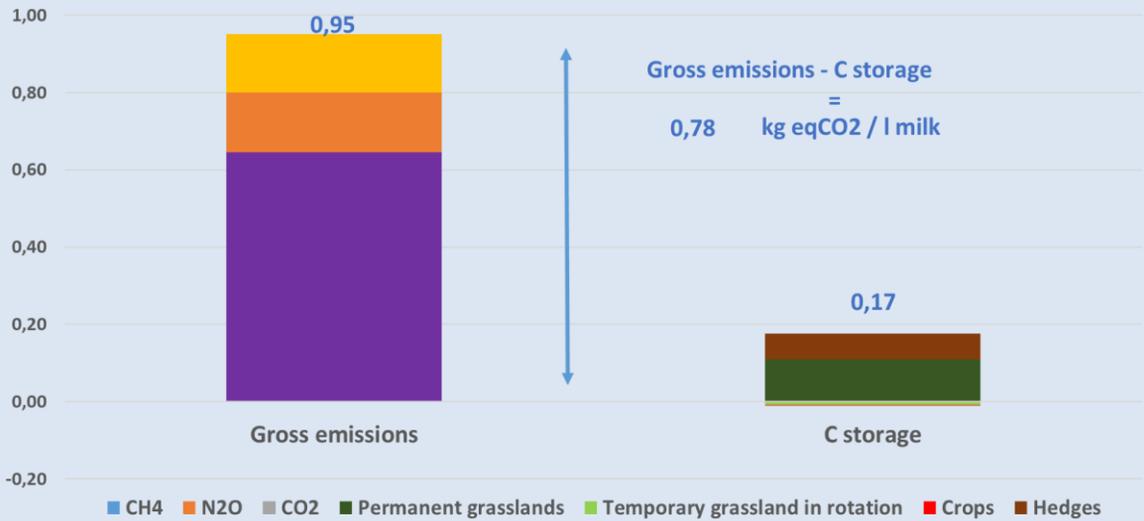
ENVIRONMENT CONTRIBUTION

→ CARBON FOOTPRINT AND CARBON SEQUESTRATION



- GHG emission posts**
- Enteric CH4
 - Manure Management
 - Mineral fertilization
 - Inputs
 - Energy Consumption
 - Others

Gross GHG emissions, carbon storage and net emissions - per litre of corrected milk (2020)

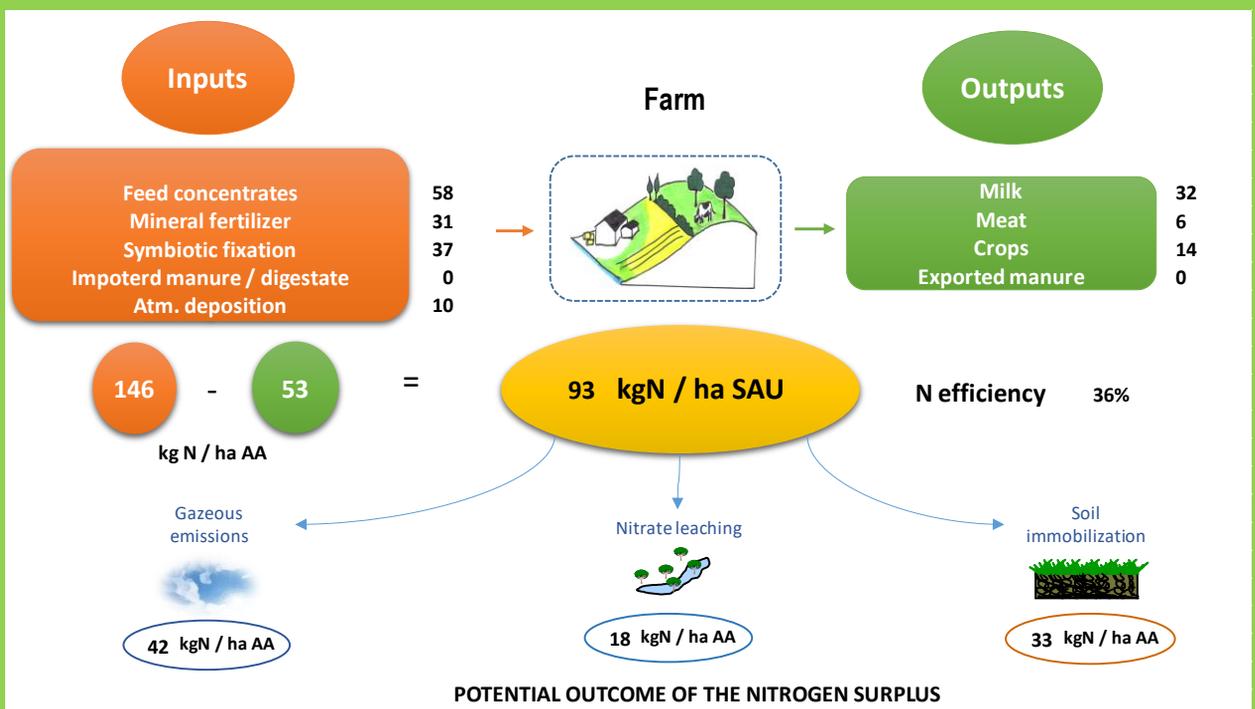


CAP'2ER®



0,78
Kg eq CO₂ / l

→ NITROGEN BALANCE



La Blanche-Maison : an agro-ecological dairy system in the Normandy context

B

Background

Since the end of the 1980s several appellations with rather similar concepts were developed to evoke the sustainability of dairy farms. It has emerged with the development of organic farming, then integrated agriculture, sustainable agriculture or agroecology. All of these concepts mobilize common principles of ecology for the design and management of sustainable agrosystems. First, the production and the integrity of the agroecosystem are at the same level of priority. Biodiversity is a resource to manage and preserve. Dairy systems must be productive and less dependent on chemical inputs by better integrating biological controls.

The dairy system was entirely redesigned in 2016-2017. The farm will be self-sufficient for fodder (92 ha of forage area - 85 % of grasslands and 15% of maize silage). The diet of the cows is mainly based on grass (100% during the grazing period and half of the diet in winter). The use of mineral fertiliser is limited (35 kgN/ ha AA), like the use of pesticides. The 88 cows are conducted in 4 groups of 22 cows, with 4 calving periods during the year. This type of behaviour aims to organize working time on key moments, limited in time (6 weeks of reproduction), and to obtain a better regularity of milk deliveries during the year.

I

Industry issues being addresses and likely industry impact

In response to price volatility, environmental requirements and agricultural policies, the major stakes of the dairy production is to reconcile technical-economic and environmental performances of the systems to improve the farm's durability.

In western France, the presence of binding and non-market quotas has led dairy farms to diversify (meat, crops). Normandy experienced a decline in grasslands much later than other French regions. In 1970, grass covered 84% of its UAA. Today, permanent grasslands represent between 25 and 45% of the AA. Nevertheless, grass is often not used as the first forage on the farm. Systems based on fodder maize are increasingly encountered in Normandy for three main reasons: (a) the maladjustment of parcels in the face of herd enlargement, (b) the good efficiency of the maize crop, (c) the representation of simplicity and modernity of maize cultivation in relation to the management of grasslands. Other factors, such as the establishment of efficient selection schemes or the development of feeding and rationing systems, have favored maize-based systems, which are more dependent on inputs (feed concentrates, mineral fertilizers, pesticides), conducting to more risk of impact on the environment (nitrates leaching, erosion ...).

The main issues addressed by our researches are to permit Norman farmers to manage risks related to market and climate volatility adapting to climate change, to reduce the competition with humans for the use of food resources and thus promote the "cellulosic" resources, to better manage the nutrients resources to reduce losses, and to provide social (employment) and environmental services (biodiversity, carbon storage, ...)