



HAL
open science

Grassland production systems: combining animal species and crossbreeding to strengthen sustainability?

Patrick Veysset, Sophie Prache, Karine Vazeille, Pascal Dhour

► To cite this version:

Patrick Veysset, Sophie Prache, Karine Vazeille, Pascal Dhour. Grassland production systems: combining animal species and crossbreeding to strengthen sustainability?. 67. Annual meeting of the European Federation of Animal Science EAAP 2016, Aug 2016, Belfast, Ireland. 5 p. hal-02739555

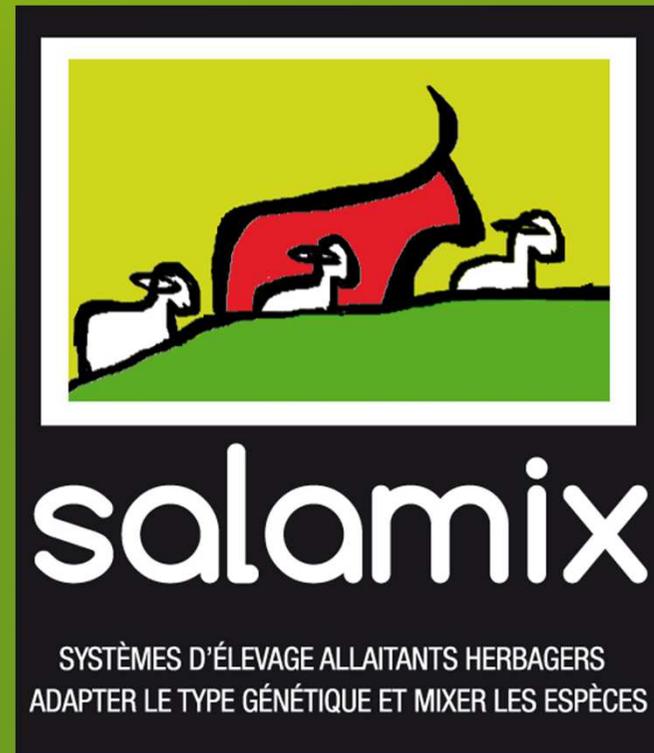
HAL Id: hal-02739555

<https://hal.inrae.fr/hal-02739555>

Submitted on 2 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Grassland production systems: combining animal species and crossbreeding

Salamix: an inter-disciplinary experiment et the system level

Veysset P.¹, Prache S.¹, Vazeille K.², Dhour P.²



¹ INRA Auvergne-Rhône-Alpes, UMRH, 63122 St Genès-Champanelle

² INRA Auvergne-Rhône-Alpes, Herbipôle, 63820 Laqueuille

Context

❖ **French suckler farming systems: alarming observations!**

- ✓ Decrease of the factors' productivity (land, intermediate consumptions, capital)
- ✓ Decrease of the use of the animals and plants resources
- ✓ Very few (or none) animals are fattened with a 100% grass diet
- ✓ Fattening diets (lambs and cattle) → grain (like monogastrics!)
- ✓ No wealth created by suckler farms

❖ **But:**

- ✓ French organic beef and lamb sector: positive dynamic needing animals
- ✓ Due to the concentrates' prices, 70% of the bovine males from organic certified suckler cattle farms are sold as store animals on the conventional market!
- ✓ Lambs in mountain areas are fattened indoor with grain
- ✓ Grass-based systems have a positive image and real environmental and social advantages

Livestock farming project



❖ Objectives

- ✓ **Lamb and beef production with grass in a low-input , self-sufficient and sustainable production systems**
- ✓ Grass-based systems with a maximization of the use of grassland, and a minimum inputs' use → **added-value creation**
- ✓ Set up sustainable production systems in the **agro-ecological** framework

❖ Questions

- ✓ **Combining animal species** (sheep and cattle) → agro-ecological advantages?
- ✓ **Cross-breeding** → better use of resources?

❖ System experiment (Herbipôle, Laqueuille, Massif Central)

- ✓ **Mountain** area, 1100 to 1400m asl., **100% permanent grassland**
- ✓ **Organic Farming** systems
- ✓ **3 systems**: sheep, beef, sheep+beef. Same UAA (40ha), LSU (30) and average annual stocking rate (0.75 LSU/ha) per system



Combining animal species: hypothesis

Bibliography review

❖ Better use of forages?

- ✓ diversity of species and categories → animals' complementarity
- ✓ Positive interaction on forage intake and use: better use of the nutritive value of forages, reduction of wastages

❖ Better individual performances and per surface unit?

- ✓ Better system efficiency (less inputs per unit produced)

❖ Better parasites control?

- ✓ Natural biological regulations: dilution, perturbations of cycles

❖ Better environmental performances?

- ✓ Lower consumption of chemical inputs → lower fossil energy consumption and GHG emissions, biodiversity preservation

❖ Work load?

- ✓ More complexity to manage

Crossbreeding

❖ Hardy, prolific breed dam x early-maturing breed sire

- ✓ Herd productivity
- ✓ Conformation of progeny
- ✓ Castration of all males (lamb and calves)
- ✓ Sale at slaughter of younger animals (beef)
- ✓ Better use off grass

Cows
Salers



X

Bull
Angus



Ewes
Limousine



X

Ram
Suffolk



3 livestock farming systems



❖ Specialized sheep farming system (30 LSU, 40ha)

- ✓ 164 ewes Limousines + 4 rams Suffolk + 2 rams Limousin
 - 20% replacement, 33 ewe lambs Limousine per year
- ✓ 1 lambing period per year: 15 March → 20 April
 - Lambs over 1 month old at turnout to grass
- ✓ Weaning from mid July
- ✓ Sale of 1st lambs at weaning, finishing lambs on grass regrowth

❖ Specialized beef farming system (30 LSU, 40 ha)

- ✓ 22 cows Salers + 1 bull Angus
 - 10% replacement, 2 heifers Salers (2 years old) purchased per year
- ✓ Cow-calf-fattener system. 100% animals sold to slaughter
 - Males castrated at 3-4 weeks
- ✓ Calving period: 15 January → 15 March
- ✓ Weaning on October
- ✓ Sale of young males and females (12 to 18 months old, 250-300 kg carcass), finishing with grass, hay and concentrates only if necessary

❖ Mixed sheep-beef farming system (30 LSU, 40 ha)

- ✓ 66 ewes Limousines + 2 rams Suffolk + 1 ram Limousin → 12 LSU (40%)
- ✓ 13 cows Salers + 1 bull Angus → 18 LSU (60%)
- ✓ Same herd management than for specialized systems

Measures and evaluations

- ❖ Animal performances: weighing, body condition scoring
- ❖ Grass monitoring: available grass, forages harvest
 - ✓ Sward height (before and after grazing)
 - ✓ Weighing of harvest, hay analyses
- ❖ Parasitism, animal health
 - ✓ Infestation monitoring: faecal examination, post-mortem
 - ✓ Targeted treatments
- ❖ Biodiversity: indicators and dynamic
 - ✓ Botanic compositions, insects
 - ✓ Mapping of agro-ecological components
- ❖ Carcass and meat quality
 - ✓ Experimental slaughterhouse and specific analysis
- ❖ Techno-economic performances at the system level
 - ✓ Comparison with commercial farms results
- ❖ Carbon footprint and fossil energy consumption
- ❖ Labour organization and labour conditions

Experiment setting up and 1st observations

❖ Winter and spring 2015

- ✓ Herds, animals batching (ages, index, ...)
- ✓ Allocation of the land parcels (hay, grazed, altitude, agronomic value, ...)
- ✓ Fences

❖ 2015: system experiment setting up, first year

- ✓ Turnout to grass late (21 May)
- ✓ Cows serviced by Salers bulls, Angus bulls purchased in summer
- ✓ 0 concentrates during the grazing period
- ✓ Good animal performances (average daily gain, weaning weight)
- ✓ Suckling animals growth (lambs and calves): mixed > specialized
- ✓ Lambs from the mixed system: 100% grass finished, 0 concentrates
- ✓ Lambs from the specialized system: 11% finished indoor with concentrates
- ✓ Salers baby beef fattening: hay + concentrates → ADG 1200g, sold at 300 kg carcass
- ✓ Techno-economic performances: financial period 1st May → 30 April, in progress

❖ 2016: first year of the conversion to organic farming

- ✓ Good numerical productivity (sheep and cattle)
- ✓ Angus bulls serviced all the cows (echography in fall)
- ✓ Early turnout to grass (13 to 25 April),
- ✓ Rotational grazing well conducted → good grass quality → good animal performances

Comments and perspectives

- ❖ **3 systems breaking with the local practices**
- ❖ **A inter-disciplinary platform**
 - ✓ Researchers from different disciplines working together on the same subject
- ❖ **A steering group involving stakeholders**
 - ✓ Researchers from several disciplines and higher education
 - ✓ Technical institutes (livestock institute, organic farming institute)
 - ✓ Local extension and development structures
 - ✓ Veterinary
 - ✓ Marketing co-operative of organic animals and meat
- ❖ **A long term experiment**

