



Agroforestry for ruminants in Northern Europe: recent studies to address challenges expressed by stakeholders

Sandra Novak¹, Jo Smith², Boki Luske³

¹ UE Ferlus, INRA, Lusignan, Vienne, France

² Organic Research Centre, Newbury, RG20 0HR, United Kingdom

³ Louis Bolk Institute, Bunnik, 3981 AJ, Netherlands

Context

Agroforestry could play several functions in ruminant production systems.

At present it constitutes only a minor part of ruminant husbandry in Northern Europe.

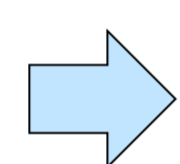
Objective

Lift the bottlenecks for developing agroforestry in European ruminant systems.

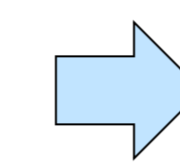
- ⇒ To know the expectations and questions of stakeholders
- ⇒ Provide scientific and practical knowledge

Methods

Establishment of stakeholder groups with farmers, advisors and researchers in France, The Netherlands and UK.



Organisation of workshops in these 3 countries in 2014 to know the stakeholders expectations.



Selection of innovations to be trialled in the frame of EU FP7 AgForward project (2014-17).

Studies implemented in France, the Netherlands and United Kingdom to answer stakeholder expectations

Integrating agroforestry into dairy cattle systems

Novak *et al.* 2017

Nutritive value of tree fodder

Analyses comparing tree species, management modes, seasons

Spatial organization of the trees

Test of multipurpose trees: fodder, timber, litter, fuelwood

Tree protection from cattle

Test of 7 types of protection

Use of tree leaves as conserved fodder



Effect of trees on soil properties

Fodder trees for cattle and goats

Luske *et al.* 2017

Analyses of nutrients of 3 species on 2 soils at 3 periods



Effect of 2 species on soil organic matter and earthworm biomass

Preliminary case study

Combining organic livestock and bioenergy production

Smith *et al.* 2017

Analyses comparing 5 tree species

Test of air-drying 3 species



Conclusions and perspectives

To promote agroforestry in ruminant production systems several knowledge gaps still remain.

- ⇒ What proportion could tree biomass play in the diet?
- ⇒ Do tree leaves contain antinutritional compounds?

- ⇒ What are the effects of the nutritive value of tree leaves on the health and production of cattle?
- ⇒ What is the role of trees on ruminant welfare, especially in the case of climate change?