EAAP 2015 – Session: « by-products use » – Poster 20713

Effect of Rapeseed meal on dairy performances: a comparative study in dairy farms of Haute-Marne in France

Charles TEINTURIER [1], Patrick CHAPOUTOT [2,3], David BOUTHORS [1], Philippe GILLET [1], Corinne PEYRONNET [4], Elodie TORMO [4], Alain QUINSAC [5] & Benoît ROUILLÉ [6]

(1) Chambre d'Agriculture 52, 26 avenue du 109 RI, 52011 CHAUMONT CEDEX, France; (2) AgroParisTech UMR 791 MoSAR, 16 rue Claude Bernard, 75231 PARIS CEDEX 05, France; (3) INRA UMR 791 MoSAR, 16 rue Claude Bernard, 75231 PARIS CEDEX 05, France; (4) Terres Univia, 11 rue de Monceau, CS 60003, 75008 PARIS, France; (5) Terres Inovia, Rue Monge, Parc Industriel, 33600 PESSAC, France; (6) Institut de l'Elevage, Monvoisin B.P. 85225, 35652 LE RHEU, France

Objectives

The objectives were to measure the influence of high levels of dietary RSM on the production and reproduction performances and the sanitary status of dairy herds and to identify the limitations, motivations and interests of the incorporation of RSM in Haute-Marne area.

Background

Zootechnical and economic results registered in farms confirm the interest of rapeseed meal (RSM) in dairy rations. However, the generalization of its use may be limited due to a number of questions that persist about this raw by-product.

Material and methods

Comparative study in farming conditions

42 farms RSM

At least 4 kg/d of RSM

- *Two homogeneous groups (maize silage system) composed of matched pairs, made by multivariate analysis*
- *Animal performances recorded for 3 months: milk production per cow, fat and protein contents, artificial insemination (AI) success, leucocytes and mastitis.*
- *Feed cost and feed margin calculated from purchase prices of concentrates and by-products, and standardized prices for fodder: 100 € / T dry matter (DM) for corn silage.*
- *Sociological study based on semi-structured interviews to collect the reasons and motivations of farmers to use, or not, RSM.*

42 farms No-RSM

Commercial nitrogen correctors

Results and discussion

Animal performances

It appeared that the addition of a large amount of RSM (4.8 ± 0.7 kg /dairy cow/d of RSM on a total of 5.2 ± 0.7 kg /dairy cow/d of nitrogen corrector) in the ration of the RSM group, compared to the No-RSM group, did not significantly changed the raw milk production or fat content. However, it significantly increased the milk protein content, although the intake of the two groups was nearly identical.

Reproductive performances, with the success rate of first AI on the 3-month study (+1.1% success), and the health status of the udder (mammary cell count and % of infected cows /month) were not significantly modified.

Table 1: Animal performances recorded from the two groups of dairy farms

Parameters	RSM group	No-RSM group	RSM effect
Milk production (kg/cow/j)	28.1	28.3	NS
Fat content (g/kg)	37.4	37.6	NS
Protein content (g/kg)	32.9	32.6	+ 0.3 *
Intake (kg DM/cow/j)	23.0	22.8	NS
AI success (%)	50.6	49.5	NS

* P value < 0,02

Economical impact

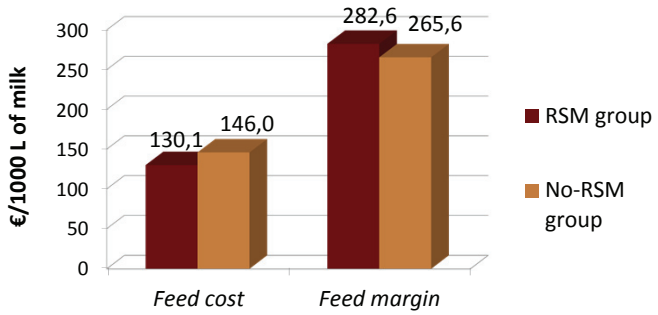

Figure 1: Feed cost and feed margin of the rations

↘ Feed cost
- 15.9 €/1000 L
(P<0,001; SD = 15.4)

↗ Feed margin
+ 17.0 €/1000 L
(P<0,001; SD = 15.5)

+ 8700 €/ year
for 60 dairy cows
at 8500 kg milk / lactation

Results of the sociological study

As a local and non GMO raw material with attractive price, rapeseed meal as a good image among farmers although it is perceived as a less "noble" product compared to soybean meal due to its lower protein content. However farmers who use rapeseed meal obtain generally similar or better animal performances in comparison with the use of other protein sources and improve their feed margin.

Conclusion

This study confirms that significant amounts of rapeseed meal can be introduced into dairy rations without affecting performances and allow an improvement of production costs of the dairy sector.