INTRODUCTION

- Agriculture is considered the main nitrogen source of pollution in water bodies (OECD, 2001);
- Environmental policy measures have been focused on water quality protection (EEC 91/676, MIPAF, 2006);
- At the moment the application of low impact animal breeding with low emissions of nutrients, N in particular, is considered the only way to improve N utilisation efficiency at farm scale. (Crovetto and Sandrucchi, 2010)

AIM

- Aim of this study was to demonstrate that dairy cows N excretion can be reduced by adopting feeding techniques based on the reduction of diet CP content without negatively affect animal performances.

MATERIALS AND METHODS

- The study was performed in two demonstrative dairy farms located in Grana Padano (GP) and Parmigiano Reggiano (PR) production areas (Table 1);
- GP and PR cows were used to compare two diets with different CP content provided in two consecutive years. In the 2nd year CP was 5% reduced (Table 2);
- Experimental design was a pretest-posttest with one group and two consecutive trials of one year each. Milk yield, fat, and protein contents were determined after being once a month;
- Data were subjected to paired Student's t-test using IBM-SPSS® Statistics v.19;
- Nitrogen balance was estimated according to ERM/AB-DLO (1999) and EMR (2001) methodology using N input/output flows to determine N excretion such difference between dairy cows N intake and milk N retention.

RESULTS

- In GP farm no difference was found in milk yield as well as in milk quality composition between the two years monitored;
- In PR farm milk fat content resulted higher in PR1 than in PR2, while no difference was observed in milk yield and protein content (Table 3);
- N excretion was reduced by 8 and 7% respectively in GP and PR farm as a consequence of CP reduction in dairy cow diet (Table 4).

CONCLUSIONS

- The reduction of CP diet had positive effects on environment improving nitrogen utilisation efficiency at farm scale without negatively affect dairy cows performances.

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