Modifying milk composition trough dairy cow's diet to improve human nutrition and health

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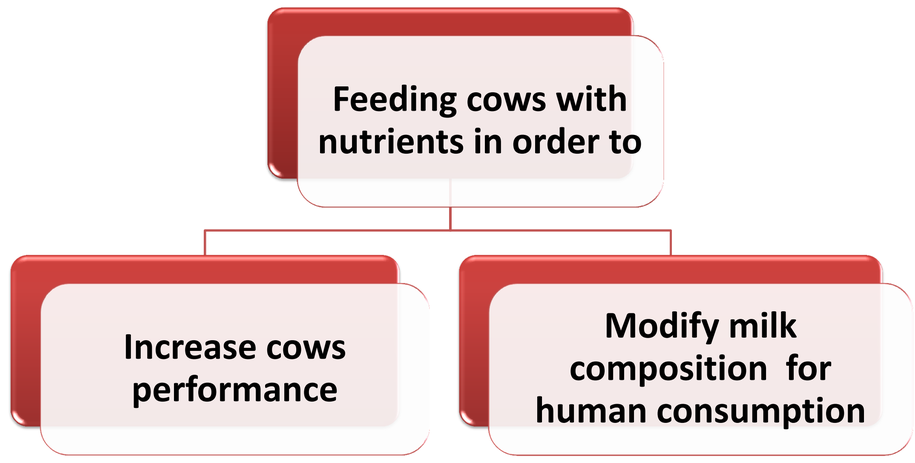
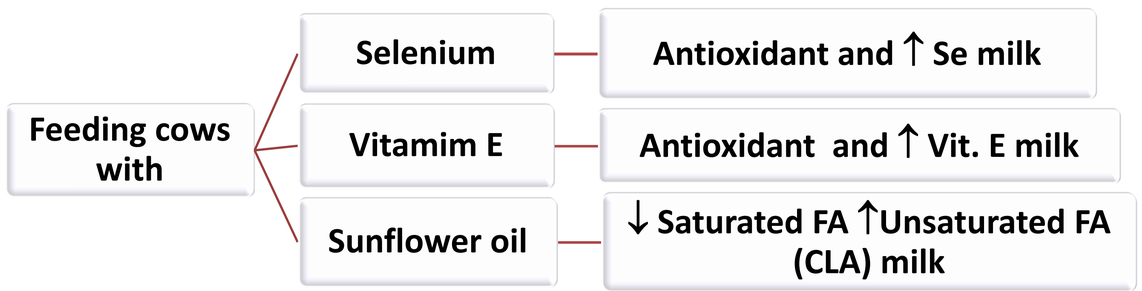
ABSTRACT

Health nutrition is a challenge for modern man and a preoccupation of most of the world's population, therefore the importance of animal science projects in conjunction with nutrition and human health to obtain a better milk nutrient composition. The aim was to study the effect of sunflower oil as a source of fat to improve the fatty acid profile of milk, combined with the effects of the antioxidants vitamin E and selenium added to the diet of lactating cows in the milk composition, productivity and health. Thirty-two lactating Jersey cows from APTA/Brazil, during 75 days (fifteen in adaptation) in a randomized block design (early and mid lactation) were allocated in four treatments: C (control); C + A (2,5 mg of organic selenium + 2000 IU of vitamin E/kg DM); O (4% of sunflower oil in DM diet); O + A (4% of sunflower oil in DM diet + 2,5 mg of organic selenium + 2000 IU of vitamin E/kg DM. Cows were fed with a total mixed ration of: 0.50 of concentrate, 0.42 of corn silage and 0.08 of coast-cross hay (DM). The daily milk yield and milk composition parameters were taken once a week. Data were analyzed using SAS PROC GLM. Milk production and milk fat, protein, lactose, and solids not fat did not differ among treatments. Cows supplemented with C + A had lower DMI at 30 days (11.55, 9.92, 10.82 and 10.01 kg / day for C, C + A, O, O + A, P = 0.08). The remaining data of selenium, vitamin E, fatty acid composition of milk and blood as well as health parameters of the cows are still being analyzed. The milk produced from this project was offered to elderly volunteers and evaluated by medical researchers from USP/Brazil. Preliminary data suggest that the supplementation of these nutrients in the diets of lactating cows provided the same milk production with a lower food intake.

INTRODUCTION



OBJECTIVE



MATERIALS & METHODS

São Paulo State - Brazil

32 Jersey cows
Trial lenght : 75 days

TREATMENTS:

- ➥C (control);
- ➥C + A (2.5 mg of Se + 2000 IU of Vit. E/kg DM);
- ➥O (4% of sunflower oil in DM diet);
- ➥O + A (4% of sunflower oil + 2.5 mg of Se + 2000 IU of Vit. E/kg DM

PARAMETERS MEASURED:

- ➥Milk production
- ➥DMI
- ➥Milk composition: fat, protein, lactose and solids not fat

RESULTS

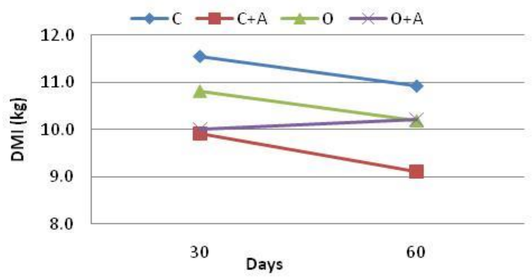


Figure 1. Dry matter intake (C vs C+A at 30 days; P = 0.08)

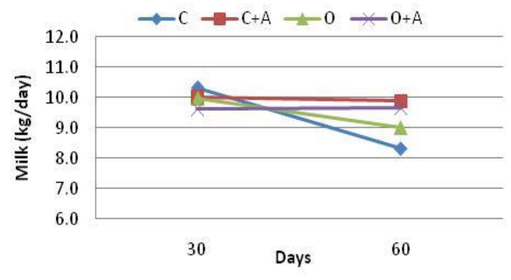


Figure 2. Milk production.

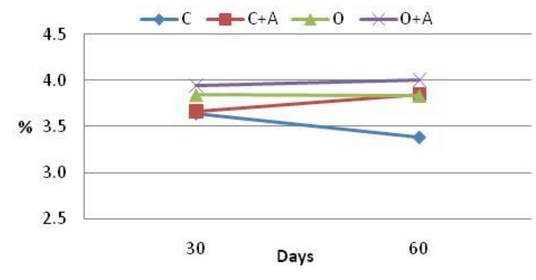


Figure 3. Milk fat content.

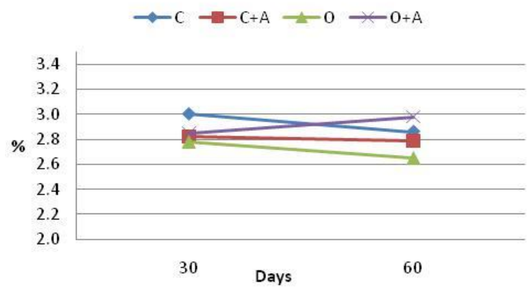


Figure 4. Milk protein content.

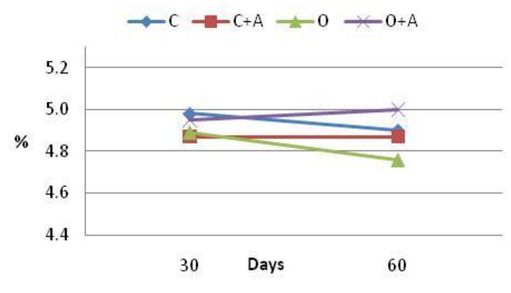


Figure 5. Milk lactose content.

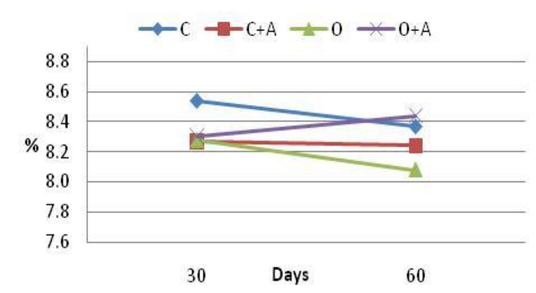


Figure 6. Milk solids not fat content.

CONCLUSIONS

Preliminary data suggest that the supplementation of these nutrients in the diets of lactating cows provided the same milk production with a lower food intake.

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