CHARACTERIZATION OF FEEDING PLANS ON EXTENSIVE SYSTEMS IN LUSITANO BROODMARES BY BODY CONDITION AND METABOLIC INDICATORS ASSESSMENT

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Introduction

- Body condition scoring is a useful and practical tool to access body reserves in livestock. Changes in BC along the year could provide valuable information about the adequacy of feeding management.

- This method could be also supported by the assessment of some metabolites in body fluids, allowing for a detection of nutritional unbalances. Serum or plasma concentrations of glucose and non-esterified fatty acids (NEFA) could provide information about the energy status of the animal, while albumin and urea are good indicators of protein status.

Objective

To evaluate the adequacy of feeding practices in Lusitano broodmares under extensive traditional management conditions using body condition scoring and some metabolic blood indicators.

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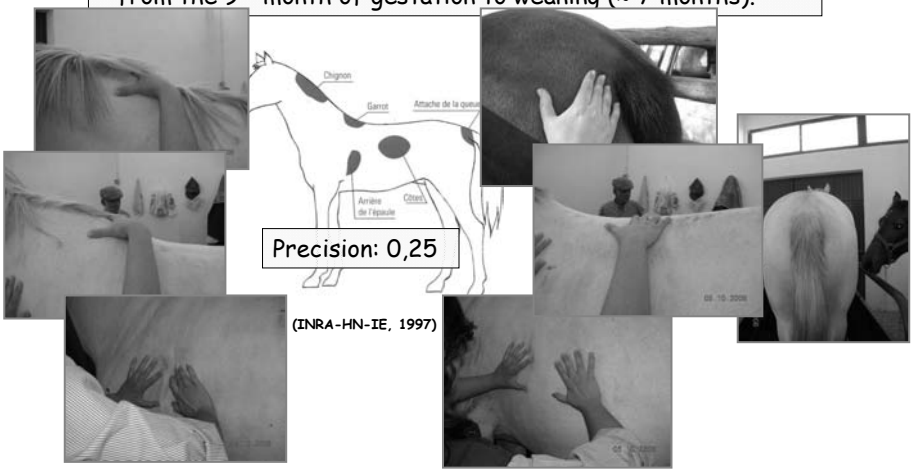
Materials & Methods

- Body condition (BC) was monthly assessed in three groups of mares from different stud farms (A n=14, B n=8, C n=13), from the 9th month of gestation to weaning (≈ 7 months).



Precision: 0,25

(INRA-HN-IE, 1997)

Materials & Methods

- Mares were kept on pasture and were supplemented with compound feeds and with grass hay or cereal straw, according to pasture availability and farm practices.

- Supplementary feeds were collected for nutritional assessment.
- UFC and MACD were calculated according the prediction equations in the French horse feed evaluation system (Martin-Rosset *et al.*, 1994; Vermorel & Martin-Rosset, 1997; Martin-Rosset *et al.*, 2006)

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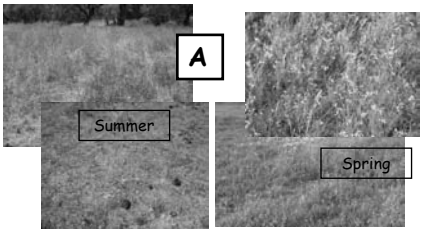
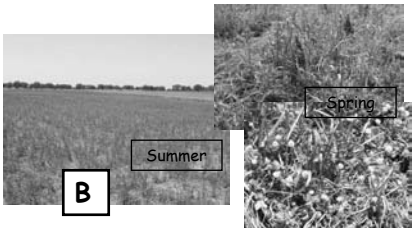
Materials & Methods

Pastures characterization



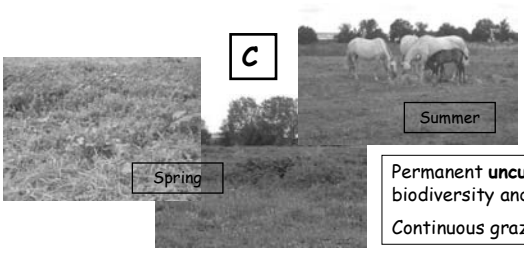
Permanent **uncultivated** pastures with some biodiversity and several herbs and weeds;

Rotational grazing.



Permanent **cultivated** pastures with a good balance between grasses and legumes; low level of weeds;

Rotational grazing.



Permanent **uncultivated** pastures with some biodiversity and a large number of weeds;

Continuous grazing.

Materials & Methods

Blood samples were collected:

- Non-esterified fatty acids (NEFA);
- Glucose;
- Urea;
- Albumin.

Statistical analysis:

- one-way ANOVA (STATISTICA); LSD post-hoc comparison test ($p<0.05$).

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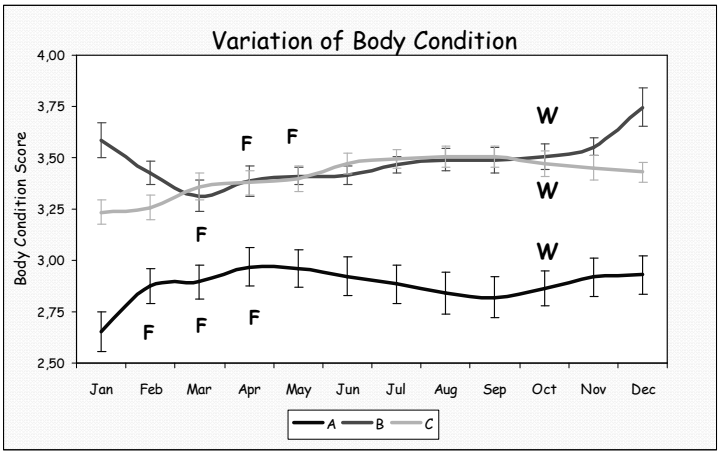
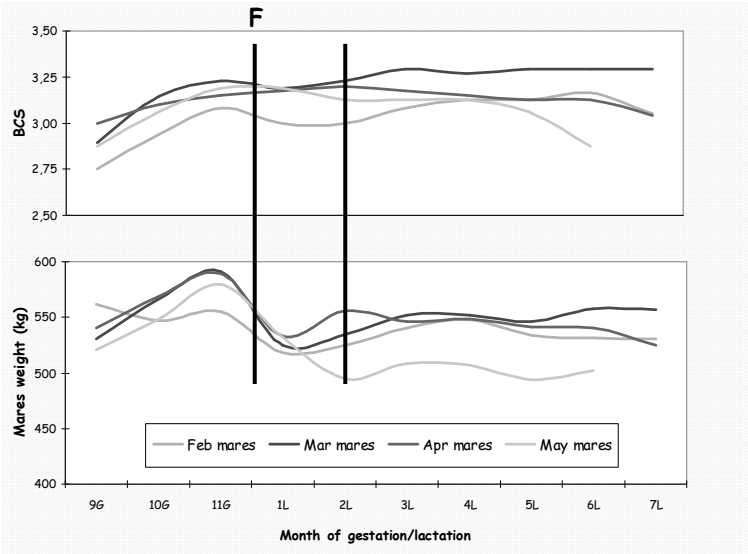
Results & Discussion



F – foaling W – weaning

R & D

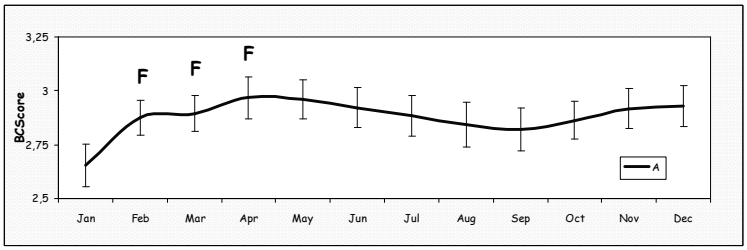
BC and BW changes of all mares according to foaling month

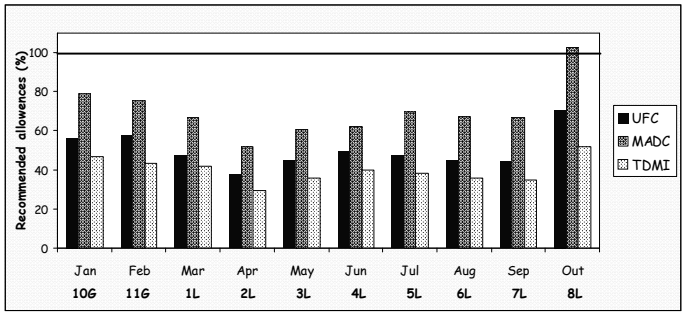


R & D

A

BC changes of "A" mares *vs* energy and protein content of supplementary feeds

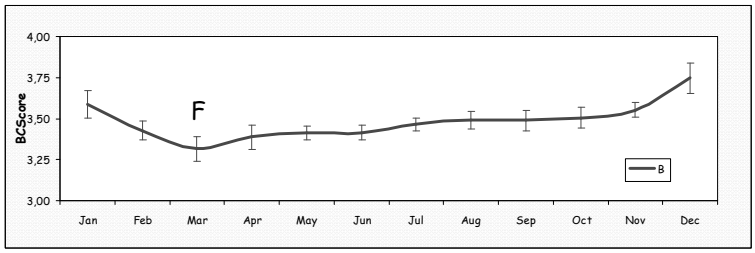


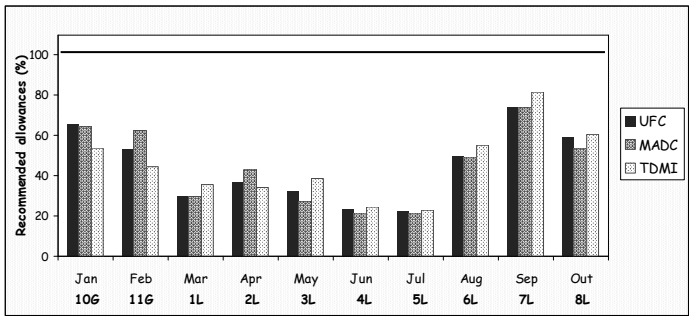


BC changes of "B" mares *vs* energy and protein content of supplementary feeds

R & D

B

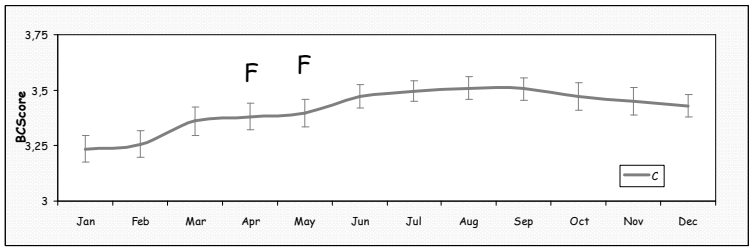


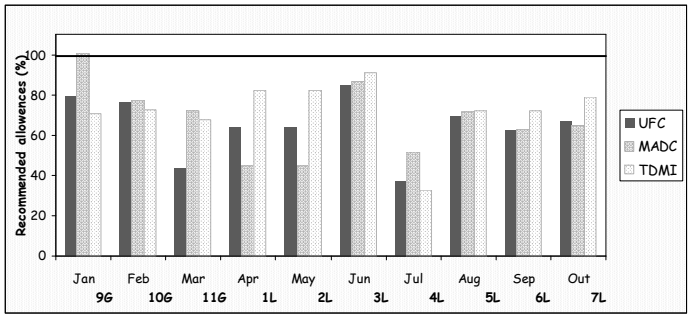


BC changes of "C" mares *vs* energy and protein content of supplementary feeds

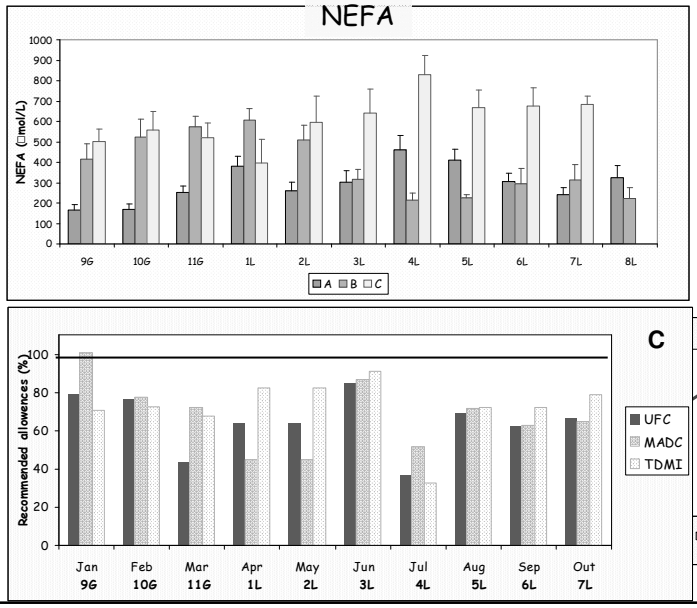
R & D

C





R & D



Higher values are close to those reported in horses and mares subjected to a short-period feed deprivation

(DePew *et al.*, 1994, Sticker *et al.*, 1995; Christensen *et al.*, 1997)

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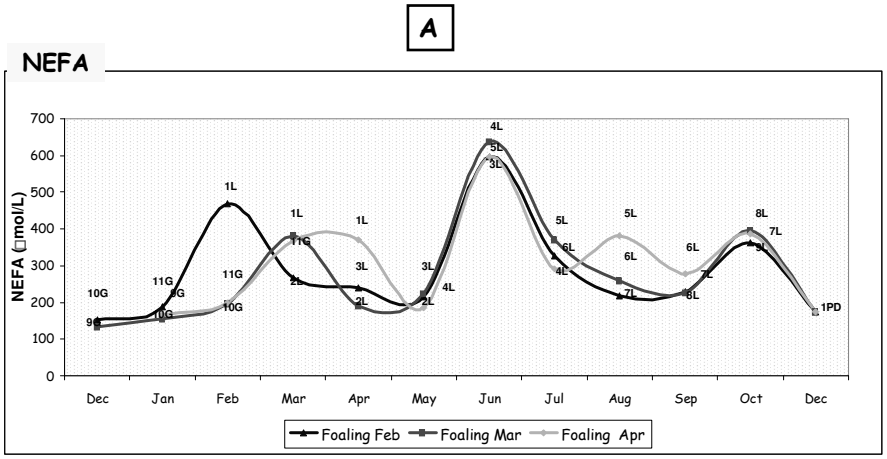
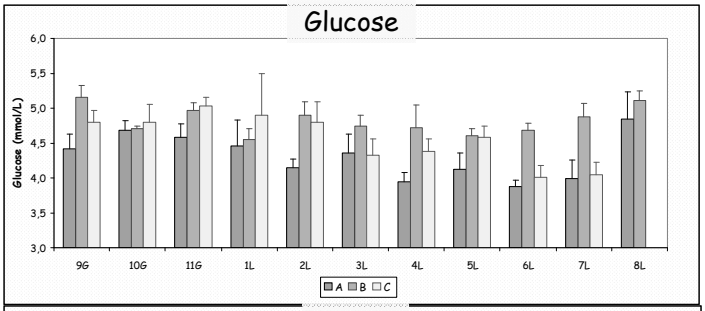
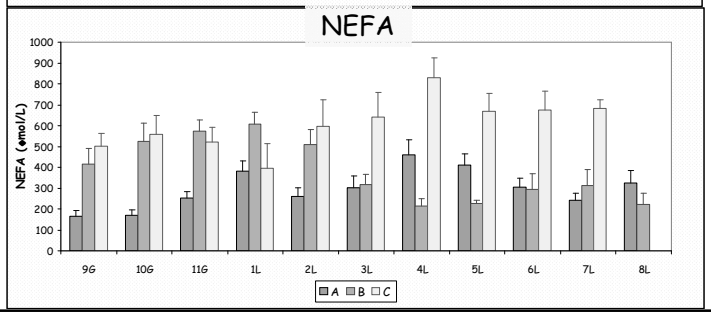
R & D



R & D





In other light breeds no significant differences were observed in glucose levels between late gestation and lactation period

(Harvey *et al.*, 2005)

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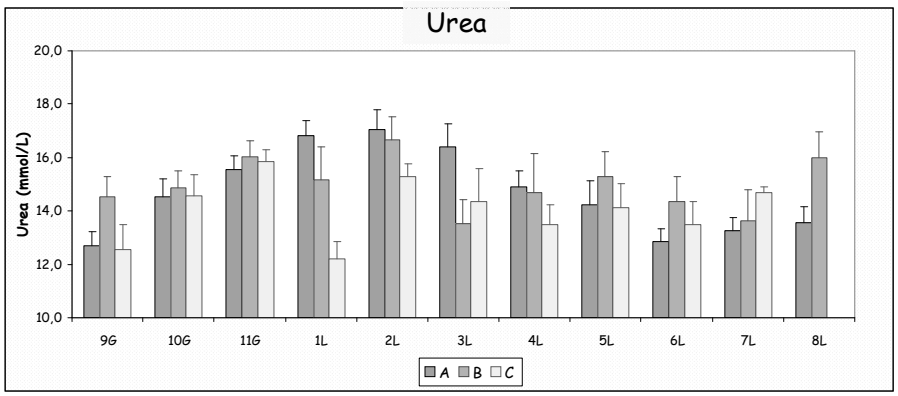
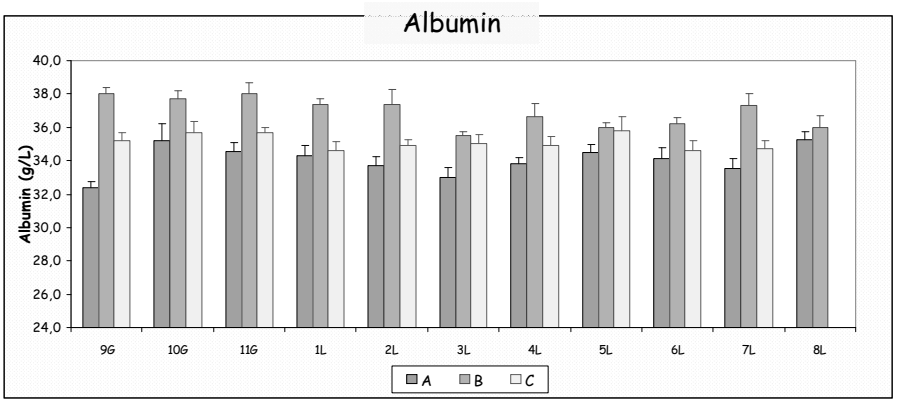
R & D



A significant increase in first months of lactation was reported (Harvey *et al.*, 2005)

Values are higher then the reported in other studies but consistent with values found by Lumsden *et al.* (1980)

R & D



In other light breeds no significant differences were observed between late gestation and lactation period (Harvey *et al.*, 2005)

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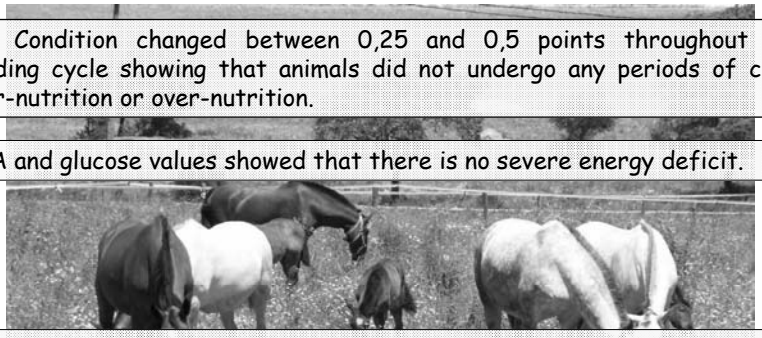
Conclusions

Body Condition changed between 0,25 and 0,5 points throughout the breeding cycle showing that animals did not undergo any periods of clear under-nutrition or over-nutrition.

NEFA and glucose values showed that there is no severe energy deficit.



Urea and albumin high values probably reflect an elevate protein intake which could be explained by an high protein content of compound feeds together with the high protein content of pastures during the spring time.

This study could contribute to identify some critical phases where the availability of feeds may not be sufficient to cope with nutritional requirements, allowing for a better application of feeding practices and management options.

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