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SUMMARY - In order to study the effects of a complementation with concentrates on the fattening performance of young bulls, barley straw treated with 4% urea in solution is fed under trial conditions to 36 steers (24 Brown and 12 Pirenaico) between 230 and 470 kg live weight with 2 levels of concentrates (2 and 4 kg per head per day). The animals receiving 2 and 4 kg concentrates had a daily weight gain of 1.25 kg and 1.08 kg respectively. A complementation with 4 kg of concentrates for final fattening in those animals receiving 2 kg of concentrates did not lead to compensatory growth.

Key words: Steer, fattening, treated straw, urea, supplementation.

RESUME - "Performances de taureaux alimentés en lots à la paille traitée". Pour étudier les effets de la complémentation concentrée sur les performances d'engraissement de taurillons, de la paille d'orge traitée à 4% d'urée en solution est expérimentée sur 36 taurillons (24 Bruns et 12 Pirenaico) entre 230 et 470 kg de poids vif avec 2 niveaux de concentré (2 et 4 kg par tête et par jour). Les animaux recevant 2 et 4 kg de concentré ont eu un GMQ de 1,25 g et 1,08 kg respectivement. Une complémentation avec 4 kg de concentré en fin d'engraissement, chez des sujets ayant reçu 2 kg de concentré, n'entraîne pas de croissance compensatrice.

***Mots-clés** : Taurillon, engraissement, paille traitée, urée, complémentation.*

Introduction

The improvement in nutritional value of straw resulting from treatment with ammonia or urea is a result of the increases in nitrogen content, dry matter digestibility and dry matter intake.

However its nutritional value is still low for utilizing it on cattle fattening diets. Treated straw has to be supplemented with concentrates to achieve the bull fattening requirements on energy, protein, oligoelements and vitamins and allow daily growth rates higher than 1 kg.

The aim of this work was to study the effect of concentrate supplementation on the performances of bulls fed with treated straw.

Material and methods

Barley straw treated with 4 per cent of urea solution and a 75 per cent of dry matter content, which crude protein (DM) was 9.8 per cent and 58.1 per cent the *in vitro* DM digestibility, was used as a forage for fattening bulls.

24 Brown Swiss 12 Pirenaico bulls averaged 230 kg initial weight were fed in lots of 6 animals, with treated straw (TS) with 2 or 4 kg of concentrates (TS+2+F; TS+4+F). Afterwards, when they reached an average weight of 390 kg, they were put on a finishing (F) diet on concentrates until they achieved the slaughter weight of 470 kg. Two lots of bulls were fed treated straw, supplemented with 4 kg concentrate without finishing period on concentrates (TS+4). Weights were recorded individually at 21 days intervals. Treated straw intake was controlled by lot. Kidney and pelvic fat was removed from each carcass and weighted to evaluate the fat carcass grade.

Results

Bulls fed treated straw and supplemented with 4 kg of concentrate had 1.25 kg per day average daily gain. However, bulls supplemented with 2 kg of concentrate had 1.08 kg per day average daily gain (Fig. 1).

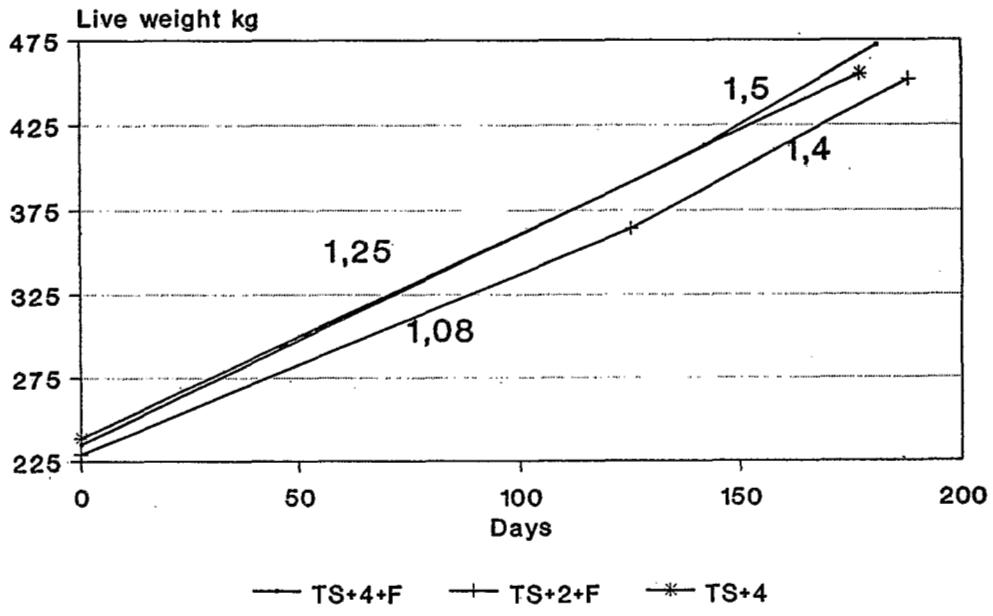


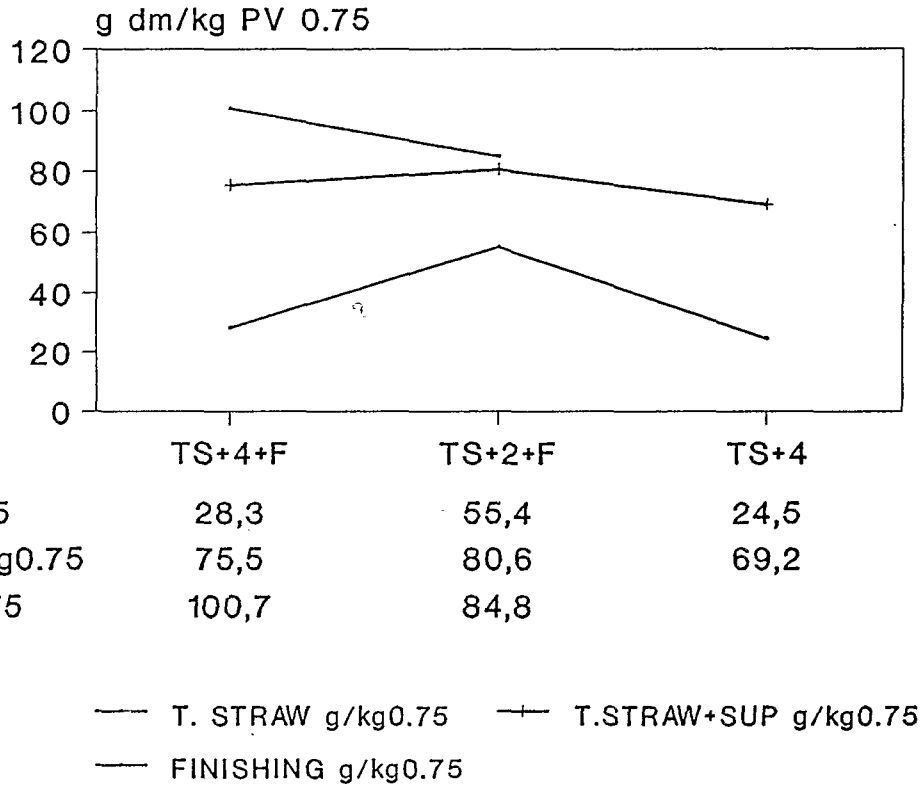
Fig. 1. Bulls fed with treated straw: average daily gain.

No compensatory growth was obtain through the finishing period by the bulls that had received before the 2 kg supplementation (1.4 kg per day *vs* 1.5 kg per day of others lots).

No significant differences were found between the average live weight gain of bulls supplemented with 4 kg of concentrates with or without finishing period on concentrates.

The dry matter intake of treated straw by the bulls supplemented with 2 kg of concentrates were almost twice that of the bulls supplemented with 4 kg. However, total intake of treated straw plus supplement was just 7% higher (Fig. 2).

Through finishing period, the dry matter intake of the bulls coming from 2 kg supplementation, were lower (85 g per $BW^{0.75}$) than others that had received 4 kg supplement (101 g per $BW^{0.75}$). This low intake explains the lack of compensatory growth and could reveal problems when changing from fibrous to rich carbohydrate diets.



	TS+4+F	TS+2+F	TS+4
T. STRAW g/kg0.75	28,3	55,4	24,5
T.STRAW+SUP g/kg0.75	75,5	80,6	69,2
FINISHING g/kg0.75	100,7	84,8	

Fig. 2. Bulls fed with treated straw: concentrate and straw intake.

There were no differences among diets in dressing percentage, although bulls with finishing period tended to a higher rate (Fig. 3).

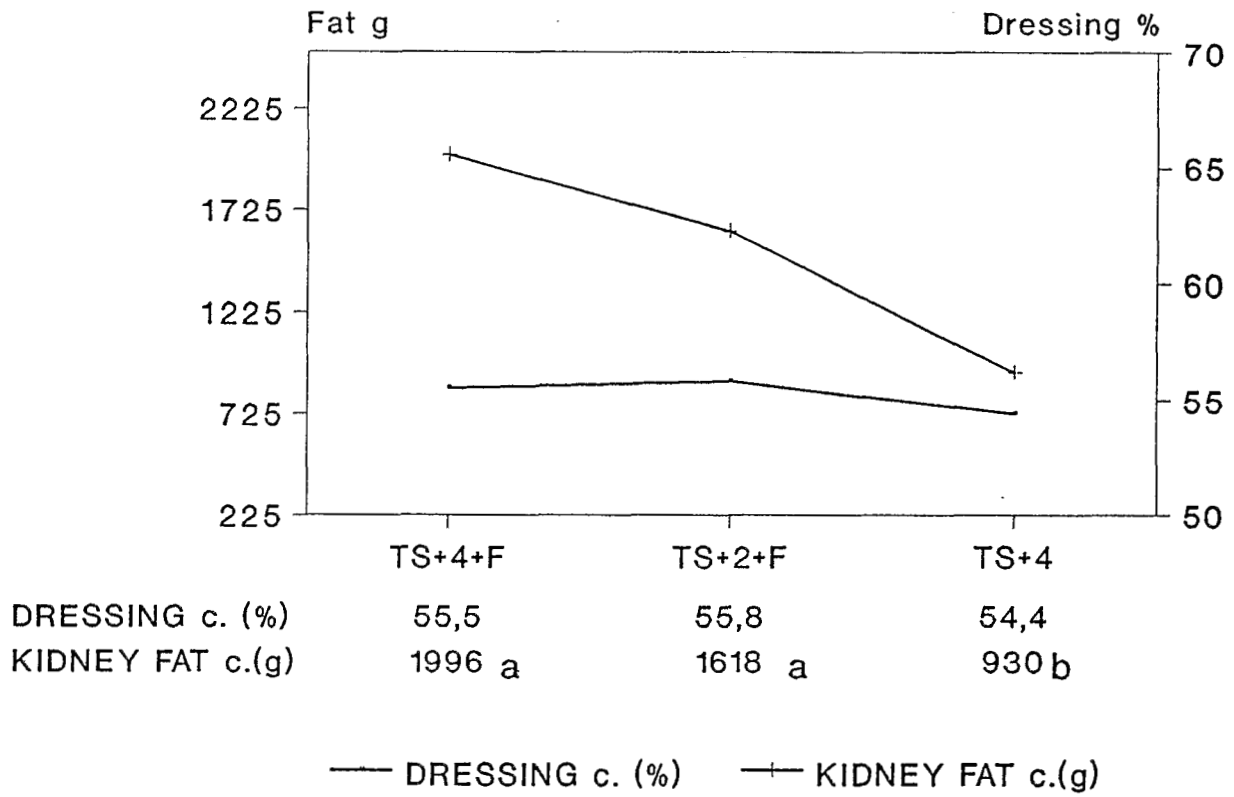


Fig. 3. Treated straw for fattening bulls: dressing percentage and kidney fat.

The bulls that did not receive a finishing period had lower kidney fat weight. The rate of carcass fat was proportional to concentrate intake of the diet.

Conclusion

In treated straw diets for fattening bulls, when the concentrate supplementation is 4 kg per day, a finishing period afterwards on concentrate did not improve bulls' daily gain performance. When the supplementation was 2 kg of concentrate the average live weight gain was reduced and no compensatory growth was obtained through the finishing period.