

RESEARCH REGARDING GREEN MASS CONSUMABILITY OF NATURAL GRASS LANDS AND PRODUCTIVE EFFECT IN FATTENING YOUNG CATTLE

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Abstract

This experiment, aims to establish the relationships between chemical composition of volume forages, their consumability and the productive effect in fattening young cattle of Brown breed. The productive effect of volume forages along with concentrates administered in the food young cattle, is influenced in the most part by ingestion capacity, which varies depending of many factors. Thus, was organized three experimental groups: E₁, E₂ and E₃ of eight heads young cattle of Brown breed. The First one experimental group received green mass which coming from a natural grass lands, consisting of a mixture of graminaceous that dominate Lolium perene and vegetable, all harvested from the third pastoral cycle, given as the only component of the ration. The second experimental group received green mass ad libitum and two kg concentrates for each head every day, keeping the rations before established. The third experimental group received green mass ad libitum and three kg concentrates for each head every day.

The results of this experiment showed that: the green mass consumability was different from quantitative point of view (ingestion capacity per head per day), it have been in close interdependence with nutritive value, the presence or absence of the other types of fodder in ration. In the same time there is a other factors related to the body specificity, such as, the age, the body weight, the capacity of the rumen etc.

Key words: fattening young cattle, green mass consumption, natural grass lands, productive effect

INTRODUCTION

Animal breeding scientist are very interested concerning the meat production, of cattle breeds from economical, organizational and technological point of view.

The main important parameters which directly influences the capacity of food consumption, increased weight gain, meat quality, production, economic efficiency and indirectly the health of animals are: the level, the type and the food quality, the feeding technologies [7], [10].

The volume forages have a very good forage value given by the high content of nutrients but compared with concentrates their consumability is lower [1].

The meat of young cattle have the highest energy value, due content in vitamins, minerals and especially proteins with high biological value. The highest value in

essential amino acid was observed in the meat of young cattle in fattening [8].

To improve the nutrition of young cattle in fattening we need to use much better of the forages lands by changing the technologies of production, the preservation and preparation of them. At the same time, is necessary the knowledge of real nutritive value foods for optimization of feeding animals.

MATERIAL AND METHOD

This experiment was organised by using a trial scheme involving a number of three variants (Table 1): The first variant was to establish the capacity of green mass ingest which coming from a natural grass lands, consisting of a mixture of graminaceous that dominate Lolium perene and vegetable, all harvested from the third pastoral cycle, given as the only component of the ration.

The second variant received green mass ad libitum and two kg. concentrates/head/day, keeping the rations before established.

The third variant received the green mass ad libitum and three kg concentrates/head/day, on

two and three variants will determine the capacity of replacement the volume forage studied by concentrates.

Table 1
 Experimental Scheme

Lot	Nr. head	Sex	Age (months)	Body weight (kg/head)	Rations given
E ₁	8	M ¹ =5 F ² =3	5,2	127	Green mass ad libitum given to ³ manger
E ₂	8	M ¹ =4 F ² =4	5,1	127	Green mass ad libitum given to manger ³ + 2 kg concentrates/head /day
E ₃	8	M ¹ =4 F ² =4	5,2	127	Green mass ad libitum given to manger ³ + 3 kg concentrates/head/day

¹)male

²)female

³)green mass of natural grass lands, the third pastoral cycle.

For each variant, was organized the three experimental groups: E₁, E₂ and E₃ (Table 1) of 8 heads young cattle of Brown breed, with an average age of 5 months and an average body weight of 127 kg.

The structure of concentrates for the experimental group E₂ was: 77,67% corn, 19,42% grist sunflower and 2,91% CaCO₃ and for lot E₃ was: 73% corn, 26,29% grist sunflower and 2,63% CaCO₃. This study had 30 days subdivided in 3 experimental period of 10 days each.

The animals used for experiment have been weight at the beginning of the experiment and then from 10 to 10 days.

RESULTS AND DISCUSSION

The chemical composition of the food used in the experiment was determined by using the IBNA methodology [3], [4], [9].

Thus, was obtain the followed values: for dry matter value situated between 23,38% and 30,67%, for the protein average content was between 2,91% and 3,55%, for cellulose gross value situated between 6,18% and

8,96%. For the ash values ranging between 2,18% and 2,74%. Regarding the composition of floriculture for the total experimental period, graminaceous owns 59% (dominate *Lolium perenne* with 35 %), legumes 23% (represented by species *Trifolium repens* with 23%), and plant species affiliation of the other botanical families 18% (dominate *Achillea millefolium* with 8%).

Compared with green mass used in the first and second experimental period the nutritive value of green mass used during the third experimental period was so rich in D.P.B. (19,53 g/kg. forage) and the N.U. (0,155 U.N./kg. forage).

This situation is explains by increasing content of dry matter in the third experimental peroid (0,307 kg./kg forage).

Regarding the evolution of body weight, compared with control group E₁ (E₁ = 143 kg./head = 100%) the highest values was recorded by lots E₂ and E₃ (E₂ = 152 kg./head = 106,3%, E₃ = 160 kg./head = 111.9%).

Regarding the daily average weight gain, the differences between lots for the total experimental period, was obvious ($E_1 = 512$ g/head/day = 100%, $E_2 = 838$ g/head/day = 163,6%, $E_3 = 1100$ g/head/day = 214,8%).

The consumability ratios for the total experimental period was different for lots E_1 and E_2 compared with lot E_1 ($E_1 = 14,358$ kg. green mass/ head/day = 100%, $E_2 = 11,255$ kg green mass/head/day = 78,4% from E_1 , $E_3 = 11,225$ kg green mass/head/ day = 78,2%), which explains the situation only by the different feeding system applied to the three groups (energy and protein highest ratios in the case of lots E_2 and E_3 , which benefit concentrates in their daily ration led to an increased appetite for green mass resulting in the third pastoral cycle).

The level provided of feed for the total experimental period was: D.M. 887,8 kg, 447,8 N.U. and 57,12 kg D.P.B. for lot E_1 ; D.M. 1125,1 kg, 913,3 N.U. and 101,18 kg D.P.B. for lot E_2 ; D.M. 1336,4 kg 1170,3 N.U. and 140,23 kg D. P.B. for lot E_3 ;

The daily ration of animals by group E_1 not fully covered needs in the energy nor the protein. The concentration of energy makes

ration increase or decrease daily consumption of D.M. with consequences on the degree of recovery of the principles nutrition and weight gain benefit. Reducing the weight gain is the consequence increasing the number of days feeding and therefore increase food consumption [2], [6],[10].

The lowest specific consumption expressed in the N.U./kg. gain and D.P.B. g/kg. gain for the total experimental period, was recorded by lot E_1 (3641N.U. and 481 D.P.B. g/gain) due to low content of green mass in energy and in D.P.B., followed by lots E_2 (4543 N.U. and 503,4 D.P.B. g/kg gain) and E_3 (5269 N.U. and 624,4 D.P.B. g/kg gain).

Dry matter consumption.

Analyzing Table 2, is found that the addition of concentrates in a daily ration of young cattle, along with green mass contribute to the reduction ingestion of the dry matter from grass lands, with values ranging between 37,2% and 47,1% depending the amount concentrates ratios added, quality managed green mass, especially the body weight of animals.

Table 2
 Dry matter consumption

Specification	Lot	D.M. (g/head/day)			D.M. (% total g/head/day)		
		Total	Green mass	Concentrates	Total	Green mass	Concentrates
1 th experimental period	E_1	3565	3565	-	100	100	-
	E_2	4318	2574	1744	100	59,6	40,4
	E_3	5168	2545	2623	100	49,2	50,8
2 nd experimental period	E_1	3499	3499	-	100	100	-
	E_2	4258	2514	1744	100	59,0	41,0
	E_3	5063	2440	2623	100	48,2	51,8
3 rd experimental period	E_1	4033	4033	-	100	100	-
	E_2	5542	3745	1797	100	67,6	32,4
	E_3	6475	3883	2592	100	60,0	40,0
Total experimental period	E_1	3699	3699	-	100	100	-
	E_2	4688	2944	1744	100	62,8	37,2
	E_3	5568	2946	2622	100	52,9	47,1

Regarding green mass consumability recorded by lots E_1 followed by lot E_2 and lot E_3 .

The daily quantity of D.M. ingested for the total experimental period to young cattle of Brown breed (E1) was approximately 3565-4033g/head which corresponds to 14,358 kg green mass/head/day.

Ingest capacity (CI) expressed in units of steers satiety (UST) was calculated by the formula: $CI=0.219 \times G^{0.60}$ [5]

The differences for this parameter was obvious to the three experimental periods, the

causative enlightening as represented by that body weight is periodically amended with old.

Satiety value of green mass was calculated by the formula:

$V.S.T. = 95 / (g \text{ SU} \times \text{kg}^{0.75})$ (the volume of feed consumed per kg $^{0.75}$) [5] where 95 is taken as standard ingestibility (g SU normally consumed per kg $^{0.75}$).

Table 3
 Green mass consumability

Specification	Lot	Forage consumption (kg./head/day)	Live weight (kg./head)	Metabolic weight ($G^{0.75}$)	Green mass consumption		$G^{0.60}$	Ingest capacity C.I. (U.S.T.)	Satiety value (V.S.T.)
					g S.U./head/d	g S.U./kg $^{0.75}$			
1 th exper. period	E ₁	15,240	133	39,16	3565	91,04	18,81	4,12	1,04
	E ₂	11,000	135	39,61	2574	64,98	18,98	4,16	1,46
	E ₃	10,880	139	40,48	2545	62,87	19,31	4,23	1,51
2 nd exper. period	E ₁	14,700	138	40,26	4399	86,91	19,23	4,21	1,09
	E ₂	10,563	144	41,57	2514	60,48	19,73	4,32	1,57
	E ₃	10,250	150	42,86	2440	56,92	20,21	4,43	1,67
3 rd exper. period	E ₁	13,140	143	41,35	4033	97,53	19,64	4,30	0,97
	E ₂	12,200	152	43,29	3745	86,51	20,38	4,46	1,10
	E ₃	12,550	160	44,99	3833	86,31	21,01	4,60	1,10
Total exper. period	E ₁	14,358	138	40,26	3699	91,88	19,23	4,21	1,03
	E ₂	11,255	144	41,57	2944	70,82	19,73	4,32	1,34
	E ₃	11,225	150	42,86	2946	68,74	20,21	4,43	1,38

CONCLUSIONS

The green mass administered as the sole component of ration can provide only partial energy requirements and nutritional principles, let to different productive effects depending on the quality green mass coming the natural grass lands.

Added the concentrates in the daily ration to young cattle of Brown breed among with volume forage was contribute to the reduction green mass ingestibility.

The results of this experiment showed that: supplementing ration with concentrates we can obtain an additional increase of weight gain (326 g/head/day by lot E₂ and 588 g/head/day by lot E₃) benefits consisting of a considerable shortening of the fattening period.

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