

## BREEDING AND EXPLOITATION OF CATTLE IN VIEW OF MEAT PRODUCTION BY APPLYING THE “MEAT COW” TECHNOLOGY

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**Abstract:** The paper deals with the breeding and exploitation of cattle in view of meat production and efficient capitalization of natural and cultivated pastures; by applying the “Meat cow” technology. An experimental lot was set up; consisting of 8 cows of the Romanian Piebald breed; with a natural disposition towards the production of meat-milk. The accent was mainly put on the reproduction activity; the dynamics of body evolution for calves; the organization of a rational grazing with the aid of the electric fence and the economic efficiency of the activities.

### INTRODUCTION

The favorable pedological; climatic and socio-economic conditions from the mountain and pre-mountain area; the continuous growth in demand for beef on the internal and external market; as well as the difficulties in collecting and capitalizing the milk production in the mountain area; led to the breeders' re-orientation towards the exploitation of beef cattle. The “Meat cow” technology applied in our unit represents the breeding and exploitation of cattle exclusively for the production of meat. It implies the breeding of the cow together with its calf on the pasture and their capitalization when the maximum of meat production is reached under provided economic efficiency conditions. The technology also implies the capitalization of the zootechnic and mountain agro pastoral potential (pastures and hayfields); as well as the modernization of the shelters necessary for animal breeding.

### MATERIAL AND METHOD

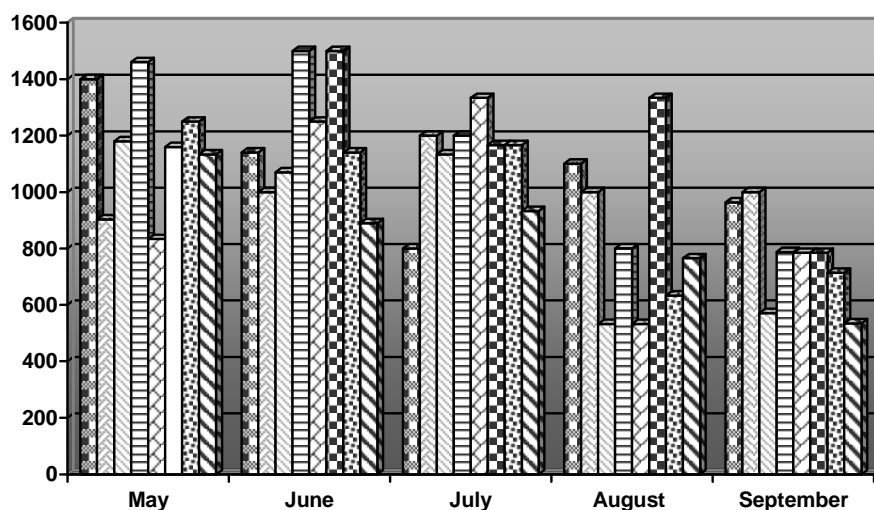
The experiment took place within ICDM Cristian during the period 2004-2006. An experimental lot was set up; consisting of 8 cows of the *Baltata romaneasca* and *Bruna* breed; which from a morpho- productive (body structure and mixed morpho-productive type for the production of meat-milk) and reproductive point of view (mounted in April-May) corresponded with the “Meat cow” technology.

The main technological activities in view were: arrangement of the shelters for the animals in the experimental lot; respectively a simple technological area; semi opened of 12/21 m; with a paddock of 6/35 m; where the animals were kept in an open air enclosure; determination and providing of the optimal fodder ratio; the dynamic monitoring of the body weight evolution; application of certain ecological pasture technology measures in view of rationally improving and exploiting the pastures; the economic efficiency of the activities. The pasture destined to exploitation by the cattle from the experimental lot was set up near the shelter. The grazing was performed according to a grazing schedule; established according to the production of bio mass of the parcels delimited by the electric fence.

## RESULTS AND DISCUSSIONS

The animals in the experimental lot were kept in an open air paddock; in a simple shelter; semi open; divided for two categories of animals; cattle and calves. During this period; the animals were provided with corresponding fodder ratios throughout the period of gestation and post-calving (fibrous; draff). During the spring-autumn period; the animals were kept on a natural pasture; on parcels delimited by the electric fence. The calving took place normally; during the period February-April; in the shelters. There were refuge areas set up for the calves; during the period of sheltering and grazing; for the administration of concentrates and fodder supplements. There were no deaths and illnesses of the cattle and calves.

The sheltering period for the experimental lot lasted for 165 days; and the grazing period for 200 days. The entire milk quantity of the cows was destined to the calves. Throughout the entire period of the experiment; the cows were not milked. It has been observed that during the first 15 days of life; the calves consume an average of 6-8 l of milk per day in 3-4 portions; and afterwards the consumption reaches an average of 10-12 l of milk per day. It has also been established that the ageing of calves as well as their gain in weight do not lead to a growth in the maternal milk consumption; but rather to a growth in the consumption of concentrates; by an average of 20-25%; simultaneously with the growth in the consumption of green mass; fact which is emphasized by an increase of the grazing hours; from 1-2 hours/day to 4-6 hours/day. The growth and gain in weight of the calves register different values; according to the period and the individual. The dynamics of the gain in weight of the calves from the experimental lot is presented in graphic 1.



The dynamics of the daily average gain in weight of the calves in the experimental lot during the period May-September 2005

It can be observed that the development and gain in weight of the calves register variable values; ranging from 533-1500 g/day for calves and between 533-1333 g/day for heifers; values which are comparable to those registered by Silvas E. and Co 1989. The harmonious growth; the results of the weight dynamics and the daily average growth reveal the actual biological potential of these animals.

The pasture destined to the exploitation by the cattle from the experimental lot is located near the shelter; with the possibility to permanently provide water; salt; concentrate supplement and equipped with an access road; enclosure and bower. Until the experiment; the pasture was exploited in an alternative mixed regime; the mowing alternating with the rational grazing of the cattle. Before the start of the grazing; a series of organizational works took place; in order to assure good grazing conditions and to stimulate the plant growth; therefore to contribute to the increase of the production (Rotar I; 1. Carlier; 2005). The grazing took place on parcels delimited by an electric fence; with a period of pasture restoration of 16 days in May and 20 days in June. During the restoration of grass; the pasture was looked after (scattering of the manure; mowing of the unconsumed remains; etc). The animals gradually got used to the grass on the pasture; to the transition ratios and to the moderate grazing during the first days. Although free access to the shelter was granted; it has been observed that many times the animals remained on the pasture during the night.

The duration of the grazing period on one parcel was established based on the quantity of green mass; on the output coefficient as well as on the necessary quantity of green mass for each animal; an evaluation being made of 55-56 kg green mass/head for cattle and 15-20 kg green mass for calves; according to age and body weight. The calves were permanently provided with a refuge on each parcel; where concentrate supplements were administered as much as 1; 5-2; 5 kg/head/day.

Table 1

The grazing schedule of the animals from the experimental lot according to the quality and quantity of green mass

Parcel	S/h	GM Kg/h	GM/parcel kg	Date of determ.	Period of grazing -days-	Uncons. remains	Consumed GM kg	Daily average cons. kg	Output coef %
1	0.936	8013	7500	11.06.05	8	2450	5050	631	67.33
2	1.076	13801	14850	20.06.05	14	5701	9149	653.5	61.6
3	0.787	11450	9010	04.07.05	10	2510	6500	650	72.13
1	0.936	13234	12387	14.07.05	11	4797	7590	690	61.27
2	1.076	12752	13721	25.07.05	14	4761	8960	640	65.30
3	0.787	13694	10774	08.08.05	12	2794	7980	665	74.04
1	0.936	7655	7165	20.08.05	7	2650	4515	645	63.01
2	1.076	10325	11110	28.08.05	11	3850	7260	660	65.34
3	0.787	11118	8750	09.09.05	10	2300	6450	645	73.71
4	1.600	9000	14400	19.09.05	18	6500	7900	440	54.86

Table 2

Green mass production and output coefficient

Grazing cycle	Parcel 1		Parcel 2		Parcel 3	
	GM/h kg	Output coeff. %	GM/h kg	Output coeff. %	GM/h kg	Output coeff. %
1	9168	65.29	12476	60.32	18269	74.15
2	8013	67.33	13801	61.60	11450	72.13
3	13234	61.27	12752	65.30	13694	74.04
4	7655	63.01	10325	65.34	11118	73.71
<b>TOTAL</b>	<b>38070</b>	<b>-</b>	<b>49354</b>	<b>-</b>	<b>54531</b>	<b>-</b>

The evolution of biomass production of the grazing parcels was influenced by the improvement measures that were applied but also by the meteorological conditions of the respective period. The distribution of grass production throughout the grazing periods was not uniform; being greater at the beginning and middle of the grazing season. The capitalization degree or output coefficient of the pasture was correlated with the quality of the grass layer.

The use of the electric fence led to a more intense grazing; in the sense that by offering the animals a limited grazing area; the quantity of consumed grass on the parcel increased and so the grass output coefficient also increased.

Analyzing the economic situation of the experimental lot after one year; strictly related to the accomplished productions; there can be established a profit of 290; 88 lei/head for cows and 118; 28 lei/head for calves.

Table 3

The economic efficiency of the experimental lots						
Indicators	M. U.	2005 (365 days)		2006 (185 days)		
		cows	calves	cows	calves	Replaced cows
A. Production value	lei/head	1769;20	1939;60	903;60	813;96	688;40
main share	lei/head	1669;20	1909;60	653;60	-	125;00
B. Total expenses	lei/head	1406;10	1826;30	1281;85	759;53	610;45
I. Fodder	lei/head	1219;20	1639;40	1042;23	629;46	403;25
II. Electricity	lei/head	22;75	22;75	8;40	6;74	7;93
III. Fuel	lei/head	31;50	31;50	2;49	0;25	2;49
IV. Medicine	lei/head	4;35	4;35	1;00	1;30	1;00
V. Other material expenses	lei/head	10;00	10;00	5;00	5;00	5;00
VI. Expenses with the workforce	lei/head	36;50	36;50	170;62	85;31	170;62
VII. Other expenses	lei/head	81;82	81;82	52;11	31;47	20;16
C. Profit		290;88	118;28	378;25	+54;43	+77;95
D. Profit rate		-	6;60	-	6;70	11;30

Because the milk production of the cows was destined to the consumption of calves; the profit made is due to secondary production (manure) and to the milk quantity estimated to be milked until the mammary rest. For calves; the profit is made by capitalizing the main production – meat; adding the subventions granted according to the provisions of Government Decision 64 -65/I 2005. The quality of the produced meat using this technology is superior; by its gustative qualities.

## CONCLUSIONS

- The young calves of the *Baltata romaneasca*; bred together with their mothers; with a milk consumption of 8-10 l/head/day; a supplement of concentrated fodder between 1;5-2;5 kg/head/day and benefiting during the grazing period from green mass at their discretion; reaches daily average gains in weight between 533-1500 g/day for calves and 533-1333 g/day for heifers; thus emphasizing their actual biological potential.
- The rational exploitation of pastures by parceling with electric fence; together with a series of improvement measures; leads to the increase of the vegetal production; the improvement of the floristic composition and so the growth of the economic value.
- The technology of breeding and exploiting the Meat cow is an integrated technology that can assure the efficient capitalization of the zootechnic and pastoral stock in the mountain and pre mountain areas.
- The breeds that are suited to exploitation in view of meat production are the aboriginal breeds such as the *Baltata romaneasca*; *Simmental* and their half-breeds; as well as the *Bruna*; interbred with mixed or meat breeds; with low milk productions between 1800-2200 l / head.
- The use of the technology of breeding and exploiting the meat cow may represent the solution of the future for the exploitations in the mountain and pre mountain areas; where

60% of the country's natural pastures are located and where the cattle exploitation for milk production is in a risk area; due to the fact that the European Union norms cannot be complied with.

- The analysis of the economic situation of the experimental lot after one year; strictly related to the accomplished productions; emphasizes a profit of 290; 88 lei/head for cows and 118; 28 lei/head for calves.

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