

## MAINTENANCE SYSTEMS USED IN ABERDEEN ANGUS FARMS FROM THE NORTH-EASTERN ROMANIA

F. Țenu<sup>1,2\*</sup>, R.E. Donosă<sup>2</sup>, V. Maciuc<sup>2</sup>

<sup>1</sup>The National Agency for Animal Husbandry (ANZ), Iași, Romania

<sup>2</sup>University of Life Sciences "Ion Ionescu de la Brad", Iași, Romania

### Abstract

Raising and fattening cattle for meat production is an important source of profit, playing an important role in the agriculture' intensification and efficiency. This is due to the superior utilisation of cheap fodder resources that are transformed into meat, a product with high biological and nutritive value. Increasing the meat production of the Aberdeen Angus breed, in order to improve the production qualities, adapted in the north-eastern region of Moldova, requires knowledge of the maintenance and feeding systems applied in the farms from the studied area.

**Key words:** Aberdeen Angus, meat production, maintenance, feeding, european

### INTRODUCTION

In Romania, the technologies for bovine youth raising and fattening vary depending on the conditions existent in the farm; so, there may be farms with an extensive, intensive, and super-intensive fattening system. [1]

The technology of beef cattle is characterized practically through fattening, this being a physiological process of increasing body mass in size, volume of muscles, fat deposition, based on proper nutrition and maintenance systems. [2;3]

The ever-increasing demand of the internal and external markets for beef has required that the aim of this research to be the study of Aberdeen Angus breed's maintenance systems in the north-eastern of Romania, in terms of the comfort conditions ensured for the animals, in accordance with the current technologies and also, reviewing the intensive feed production technologies.

The beef production in the north-eastern part of Moldova is based on the meat produced in private farms, through intensive and semi-intensive fattening system.

### MATERIAL AND METHOD

The biological material was represented by Aberdeen Angus beef cows herds raised in three farms on Suceava, Iași and Neamț counties.

The research regarding the maintenance and feeding system to the Aberdeen Angus breed were carried out in the following farms: S.C. Cosmivas Impex SRL (Șcheia-Suceava), with 390 heads, raised in an intensive system; Astra - Trifești Farm (Iași), with 40 heads, operated in a semi-intensive system and I.F. Percă Fabian (Sagna-Neamț), a semi-intensive system with 27 heads.

---

\* Corresponding author: feliciatenu@yahoo

The manuscript was received: 09.10.2023

Accepted for publication: 14.01.2024

Table 1 The cattle herd distribution by age categories and maintenance system

No.	Age categories	Cosmivas Implex S.R.L. Suceava	I.F. Percă Fabian Neamț	Astra Trifești Iași
		Maintenance system		
		Intensive	Semi-intensive	
1	Beef cows (reproduction livestock)	160	10	20
2	Authorised breeding bulls	4	1	2
3	Fattened bulls (1-2 years)	100	5	6
4	Heifers	44	5	4
5	Female calves 3-4 month	29	3	4
6	Male calves 1-4 month	53	3	4
	Total	390	27	40

The study results were evaluated comparing the maintenance and feeding systems of the three zootechnical farms, but also based on the data obtained from the studied farms managers

## RESULTS

### 1. RESULTS REGARDING THE MAINTENANCE SYSTEM

**a) The commercial company Cosmivas Implex SRL** is an agro-zootechnical unit raising beef cattle in an intensive system, established in 2014, located in the town of Șcheia, Suceava county. The farm extends over an area of 5,000 m<sup>2</sup> of buildings for animals, 10,000 m<sup>2</sup> of storage space and 20,000 m<sup>2</sup> of courtyard where the bulls are kept.

The raising system is mixt for reproduction and fattening. The beef cows are destined for the breeding sector for the mount, between June 1st and October 1st, with calving that takes place between February and August. Around November 1st most calves are weaned (7-8 months). The cows are divided into lots in a free raising system, distributing 30-40 head/paddock. The paddocks have an average of 400 m<sup>2</sup>, each with dimensions of 40x10 m. Inside, the paddock is divided into a resting area (7.5 m) and a feeding line (2.5 m).

The central alley has a width of 1.5 m for the technological trailer circulation in order to distribute the fodder in the manger.

The rest area is equipped with a bed of straw, which is refreshed every 2-3 weeks, with the discharge of manure every 2-3 months with a tractor with a bulldozer blade.

Between May and October, the calves are kept with their mothers on pasture or in the stable (fig. 1). The youth male and bull categories receive the same feed diet until slaughter.

The fattening youth is divided according to the weight from 250- 300 kg and maintained until delivery (550- 600 kg) (fig. 2).

At the 14 months of age, the heifers reach 400 kg weight, and thus being assigned to the mount.

**b) Astra Trifești - Iași farm** was founded in 1960, known as the State Agricultural Enterprise (IAS) Popricani. In 1996, the farm was dissolved, and the livestock was sold. Since 2000, the "Lungu Domain" Holding on the old farm structure, constituted the current zootechnical farm, which currently owns numerous animals and poultry breeds.

The raising system of Aberdeen Angus bulls is semi-intensive, with free maintenance. The shelter has a length of 30

meters, a width of 11 meters and with a roof ridge's height around 7 m, being semi-open (fig. 3).

The farm foundation was made of reinforced concrete with a framework of concrete beams. The roof of the building is made of asbestos. The shelter has a paddock which permits a free movement of animals. The shelter benefits from natural light provided by the windows located 1.5 m above the floor. The windows have been designed and sized in such a way as to

provide adequate light in relation to the square meter of floor space.

The cows are housed together with the calf on permanent straw bedding (fig. 4), in the maternity sector until weaning.

The floor is made of concrete, and in the rest area the bedding is made of straw and sawdust. The manure evacuation from shelter and paddock is carried out every 3-4 months, transporting it to the manure platform. The slurry is picked up with septage and transported and spread on the agricultural lands.



Fig. 1 Calves maintained with mothers  
(original photo - Cosmivas Implex SRL)



Fig. 2 Male youth in stabulation



Fig. 3 Cattle stable  
(original photo - Astra Trifești farm)



Fig. 4 Calves' maintenance until weaning  
(original photo - Astra Trifești farm)

c) **The family enterprise Percă Fabian - Neamț** is a farm whose object of activity is the Angus beef cattle raising, founded in 2017.

The maintenance system for Aberdeen Angus beef bulls is semi-intensive, free-range. The cows are kept on pasture, together with the calf, until 7-8 months of age, when they are weaned, at an average body weight of 200- 250 kg.

Due to the fact that animals are kept on pasture, there are low labour costs.

Calvings are scheduled in spring for a better valuation of the green fodder. By the time the cows enter stabulation, the calves are slaughtered or transferred for fattening. During the summer season, the animals are kept only on pasture, the calves always receiving mother's milk in their diet.

The shelter is semi-open system with three compact walls. The dimension of the shelter is 20x11 m, and the height to the roof is up to 7 m. The light is natural through the windows located 1.5 m above the ground. The shelter for adult animals (fig. 5) has a

treaded earth floor with a framework of concrete beams. The roof is made of tin. In addition, the shelter has an outside paddock where access is free for all categories of animals. For the youth, there is an extension of the outdoor shed with a wooden frame, protected with tarpaulins from the weather (fig. 5).

In the cold season, the animals are maintained in the farm paddock (fig. 6). The calves are reared near mothers until weaning.

The summer paddock (fig. 7) has a resistance structure on a metal frame with wooden beams. The roof and sides of the shelter are protected with tarpaulins to protect from direct sunlight and from air currents.

Water is *ad libitum*, through ball watering cans, anti-freeze, mounted in the outer paddock, connected to a mobile cistern.

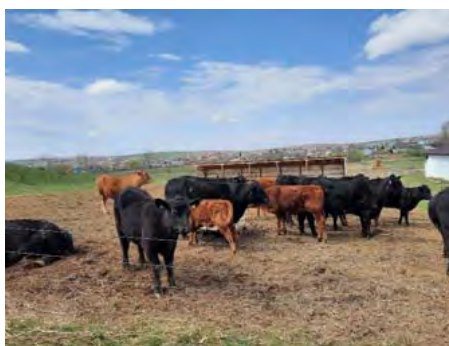
The manure evacuation is done twice a year, with the tractor with a scoop attached. Manure is stored on a special platform.



Fig. 5 Semi-open shelter for adults and calves  
(original photo - I.F. Percă)



Fig. 6 Adult cattle maintenance during winter time  
(original photo - I.F. Percă)



7 Summer padock  
(original photo - I.F. Percă)

## 2. RESULTS REGARDING THE FEEDING SYSTEM

**a) The commercial company Cosmivas Implex SRL** has a fodder base provided by its own crops extended on over 100 ha of pasture, 45 ha of alfalfa and 100 ha of agricultural crops (corn, wheat, barley). The farm also has a silo with cells extended on a surface of over 5000 m<sup>2</sup>.

The hay is obtained from alfalfa crops first and third scythe (fig. 8a).

The corn silage provides fodder for one year long (fig. 8b). The raw material, respectively the chopped corn from the field, is harvested on September 15, when the grains are in the wax phase. After compacting with the tracked bulldozer, the silage is covered with foil and hermetically sealed.

The fodder is distributed to the animals in the stable with the technological trailer (fig. 9).

The foddors that are purchased from outside the farm are sunflower cake (30-40 tons) in order to supplement the young bulls' diet (fig. 10).

During the stabulation period, cows in gestation are fed with nutrients rich diet (alfalfa hay, corn silage and corn grains).

### **b) Astra Trifești – Iași Farm**

The diet is prepared in the farm chopped and mixed by the hammer mill. Foddors are administered to the manger. The diet used for the cattle is formed by high quality hay, corn silage, and grain concentrate mixture.

The water is administered in troughs specially made from metal materials; water being provided *ad libitum* to all the cattle (fig. 11).



Fig. 8 Fodder base - a. alfalfa hay bales; b. maize silage (original photo - Cosmivas Implex SRL)



Fig. 9 Technological trailer (original photo - Cosmivas Implex SRL)



Fig. 10 Storehouse for concentrate fodders and sunflower cake



Fig. 11. Fodder base (original photo – Astra Trifești)

Due to its location, the area is agriculturally favoured, the fodder being mostly provided within the farm.

Free grazing is practiced in the summer, due to the large pasture areas, being an advantage, especially for raising animals for

meat production. During the summer, the cattle is maintained on pastures, where are placed bowers to protect the animals.

**c) The family enterprise Percă Fabian**

During the summer, the cattle is maintained on the pasture on a surface of 5 ha; during the winter, the feeding is assured by fibrous and succulent fodder.

The farm is provided with a fodder park and a corn silage cell (fig. 12).

The cattle are fed with corn silage, alfalfa hay. Calves, fattening bulls, and breeding heifers receive a supplement of 2 kg of concentrated fodder (maize and sunflower meal). Feeding is done manually (fig. 13).

The diet used in the farm is formed by natural hay (10 kg), alfalfa hay (10 kg), corn silage (5-10 kg), corn cobs (1-2 kg), and concentrates (corn, wheat) (1 kg).



Fig. 12. Bales of natural and alfalfa hay, and maize silage (original photo – I.F. Percă)



Fig. 13. Manual feeding (original photo - I.F. Percă)

## CONCLUSIONS

The results obtained from the study of maintenance and feeding systems which were carried out in the three farms from north-eastern of Moldova, allowed to draw some conclusions:

- S.C. Cosmivas Implex SRL tends towards modernisation, to an intensive system and to purchase Aberdeen Angus breed bulls and females with very good aptitudes for meat production, from European Union countries.

Breeding purebred Aberdeen Angus herd is done in order to maximize the meat productive potential.

To optimize the fodder base on the farm:

- optimized diets based on corn silage are applied, which ensure higher incomes than diets based on fibrous fodder - the fodder base is structured in such a way that diets may be formulated depending on the fodder required for cows feeding; the amounts will be established after the diet optimisation according to the physiological state of the cattle.

For Astra Trifești farm and F.E. Percă the practiced maintenance system is semi-intensive one; the managers are stimulated to write European projects in order to request funds, for the farms modernisation.

The feeding system in both zootechnical units is carried out with fodder produced in the farm aiming to improve nutrition through diet optimisation, and so, increasing meat production (increasing body mass)

The results obtained from the study of maintenance and feeding systems which were carried out in the three farms from

## REFERENCES

1. Maciuc V. (2007) – Cattle raising management. Editura Alfa, Iași
2. Maciuc V., Leonte C., Radu-Rusu R. (2015) – Handbook of Good Practices in Cattle Breeding. Editura Alfa, Iași.
3. Velea, C. (2012) – Cattle Breeding Treatise. Edit. Ceres, București.
- 4\*\*\* S.C. Cosmivas Implex SRL
- 5\*\*\* Astra Trifești Iași
- 6\*\*\* I.F. Percă