

## PRESENTATION OF THE AGROZOOTECNICAL AGRICULTURAL SYSTEM IN THE AREA OF VINȚU DE JOS, ALBA COUNTY

R. TIMARIU, Alexandra ONEȚIU PAVEN( SCROB), D. DUȘCĂ, A. OKROS, Casiana MIHUȚ  
USABMV T  
e-mail: [timariu\\_raul2009@yahoo.com](mailto:timariu_raul2009@yahoo.com)

***Abstract:** The agricultural system comprises a set of sectors, technologies, machines and technological aggregates where the soil is used as the main production resource for agriculture. Thus, the agricultural system differs from one area to another depending on the facilities and the working methods of each community in Romania. Vințu de Jos commune is located in the centre of Alba County, a village with favourable conditions for the development of modern (intensive) and mixed farming systems, as climatic factors positively influence the growth and development of plants and animal husbandry. The purpose of this paper is to highlight how a farm in this commune can combine land cultivation and livestock breeding by implementing a system of agriculture at a superior and complex technological level. Thus, in this paper we will present climatic data, the type of predominant soil, the cultivated areas, the obtained productions and the technological park.*

### INTRODUCTION

Agricultural systems are functional units of the biosphere, of the natural and socio-economic framework, created for vegetal and animal production, directed, controlled and managed by the cultivator. Agricultural systems must be balanced economically, but based on solid ecological foundations, adopting the judicious cultivation of soil and plants under different climatic and soil conditions, maintaining rich crops and increased labour productivity. [1,7,10]

Agricultural systems include traditional systems, from small and medium areas, including chemistry and mechanization components, as well as those intensive based on frequent chemical processing and mechanization, with high conventional energy consumption - where industrial cultivation methods on large areas of land are applied. [4,6]

Vințu de Jos is located on the banks of the Mureș River in the centre of Alba County, about 10 km from Sebeș on DN7 National Road and 15 km from Alba Iulia on 107C County Road and DN1 National Road. [8,9]

The climate is characterized by warm summers, long autumns and mild winters, with an average annual temperature of +10°C and precipitations reaching an annual average of 650 m.

Alba County is formed, predominantly by mountains (61%), and by hills (39%).

From a pedological point of view, the land is characterized by: [3,5]

-enal gleyic calcaric alveolar

-eutric coluvic alveolar

-calcium peroxide

-calcium mollium albumin

Vintu de Jos has an area of 8527 ha, out of which 4,339 ha in the built-up area and 4,000 hectares outside the urban area.

## MATERIALS AND METHODS

For the elaboration of the present paper, the data retrieved is taken from different sources of statistics, municipalities and public institutions and from the farm in Vintu de Jos, Blandiana and Pianu de Jos.

## RESULTS AND DISCUSSIONS

During the three agricultural years, namely 2016-2018, tables and graphical data on the cultivated areas, the yields obtained, the zootechnical sector and the agricultural park within the farm in Vintu de Jos, are illustrated. Besides this commune, land is also cultivated in Pianu de Jos and Blandiana communes. [2,7]

Table 1.

Cultivated area and yield obtained in 2016			
2016			
Crops	Area	Average yield	Total yield
Wheat	230 ha	5,6 t/ha	1288 t
Maize	300 ha	7 t/ha	2100 t
Soybean	50 ha	2,5 t/ha	125 t
Rapeseed	100 ha	3,5 t/ha	350 t
Sunflower	45 ha	3 t/ha	135 t
Triticale	5 ha	51 t/ha	1020 t
Alfalfa	20 ha	4,11 t/ha	20,44 t

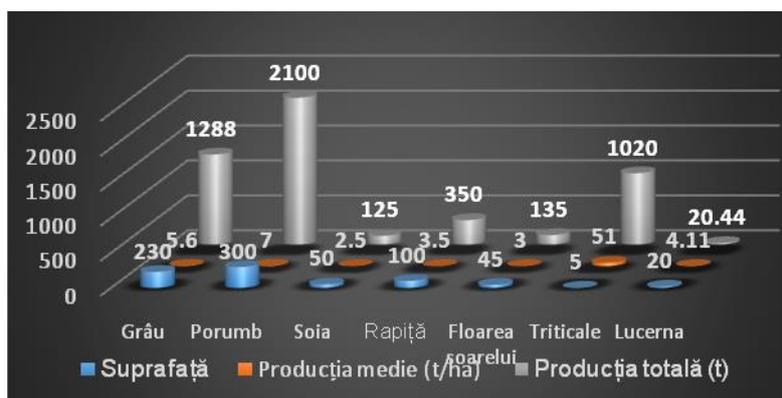


Fig. 1. Area, average yield and total yield for crops cultivated in 2016

Table 2.

Cultivated area and yields obtained in 2017			
2017			
Crops	Area	Average yield	Total yield
Wheat	120 ha	5 t/ha	600 t
Maize	430 ha	6 t/ha	2580 t
Rapeseed	80 ha	3 t/ha	240 t
Sunflower	60 ha	2,5 t/ha	150 t
Triticale	20 ha	3 t/ha	60 t
Alfalfa	40 ha	25 t/ha	1000 t

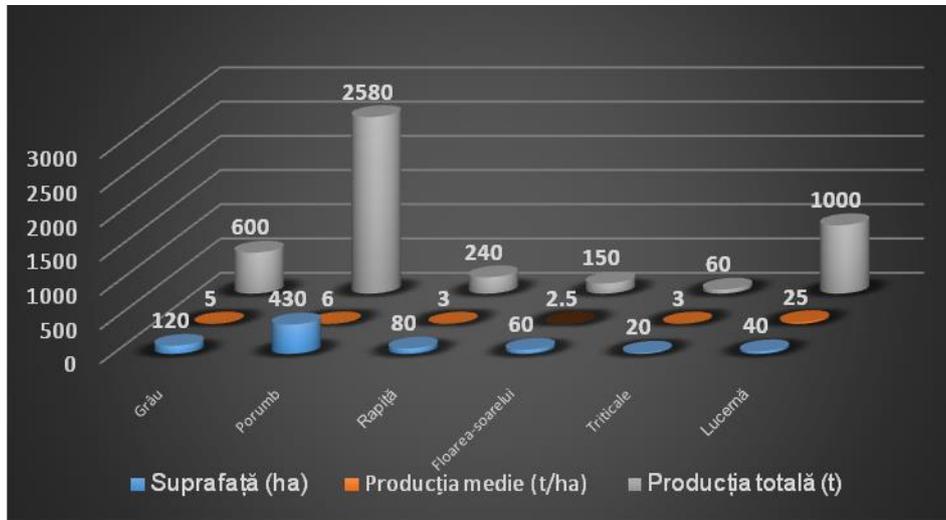


Fig. 2. Area, average yield and total yield for plants cultivated in 2017

Table 3

Cultivated area and yield obtained in 2018

2018			
Crops	Area	Average yield	Total yield
Wheat	250 ha	6,5 t/ha	1625 t
Maize	200 ha	10 t/ha	2000 t
Rapeseed	160 ha	4 t/ha	640 t
sunflower	100 ha	3 t/ha	300 t
Sugar beet	20 ha	50 t/ha	1000 t
Alfalfa	20 ha	60 t/ha	1200 t



Fig. 3. Area, average yield and total yield for plants cultivated in 2018

The livestock sector comprises:

- 20 UVM Angu;
- 1 Angus bull;
- 35 Angus calves;
- 10 pied UVM;
- 10 pied calves;
- 1000 sheep;
- 20 goats;
- 50 dogs;
- 5 peacocks

In addition to farmland, the farm also owns a 100-hectare pasture.

The technological park:

- 1 small-grain cereals selector;
- 1 grain dryer;
- 1 manitou;
- 1 harvester 3 D S 660 i;
- 2 ploughs 3 mouldboards +2 ploughs 5 mouldboards;
- 1 drill 4 m + 1 drill 3 m;
- 1 compiler 6 meters wide + 1 compiler 5 meters wide;
- 1 scarificator 5 claws;
- 1 vegetable shredder;
- 2 corncobs harvesters;
- 1 hard disc 4 meters wide;
- 2 small-grain seed drills / 4 rows;
- 2 hoe seed drills 6 rows;
- herbicide sprayer: 18 m wide (2500 l), 12 m wide (500 l);
- chemical fertilizer spreader (300 kg bunker);
- 2 MIG;
- 2 trailers 5 tons;
- 1 trailer: 10 tons and 18 tons;
- 3 mowers;
- 3 rakes;
- 1 cylindrical baler;
- 1 rectangular baler;
- 1 round bale wrapper;

Tractors:

- 3 U650;
- 1 3D 5820 – 88 CP;
- 1 3D 5100 R – 100 CP;
- 1 3D 6150 R – 150 CP;
- 1 3D 6930 PREMIUM – 165 CP;
- 1 3D 7430 PREMIUM – 190 CP;
- 1 3 D 8320 R – 320 CP;

Buildings:

- Grain storage;
- Removing machinery;

- Machine shop;
- Administrative space;
- 1 cow shed;
- 2 sheepfolds;
- 1 barn;
- 1 shed for fertilizers and chemicals.

## CONCLUSIONS

- Vințu de Jos is located in the centre of Alba County, 15 km from Alba Iulia on 107C County Road and DN1 National Road.
- Vințu de Jos has an area of 8527 ha, out of which 4339 ha in the built-up area and 4,000 ha outside the urban area.
- The plants grown within the three localities are: wheat, maize, sunflower, triticale, soybeans, rapeseed, sugar beet and alfalfa.
- In 2016, the largest areas are cultivated with maize and wheat, namely 300 ha and 230 ha, followed by the rest of the crops: rapeseed, soybean, sunflower, alfalfa and triticale. In 2017 the largest cultivated area is occupied by maize (430 ha) and wheat (120 ha), but this year soybean is not cultivated. In addition, in 2018 wheat occupies an area of 50 hectares more than maize, sugar beet being cultivated this year.
- 2018 recorded the highest average yields compared to other years. Thus, the average maize yield in 2018 is 10 tonnes, 7 tons in 2016, and 6 tons in 2017. For wheat, the yield is 6.5 tons in 2018, rising by about 1 ton compared to 2016 and by 1.5 tons compared to 2017.
- By comparing yields, it turns out that the year 2018 had the highest yields, being a good agricultural year with excellent results compared to previous years. Moreover, the smallest yields compared to the rest of the years were in 2017.
- In addition to plant cultivation, animal husbandry also takes place within the farm. The livestock sector is rich and vast.
- The Technological Park is equipped with sufficient state-of-the-art machinery to carry out a continuous and efficient work.

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