AGRICULTURE OF VAȚA DE JOS COMMUNE, HUNEDOARA COUNTY

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Abstract: *Vaţa de Jos commune, located on the road that connects Brad to Oradea, covers an area of 20.263 hectares, of which 3.570 are agricultural lands. Its population is about 3.718 inhabitants and is composed of 13 settlements: Vaţa de Sus, Căzăneşti, Basarabasa, Prăvăleni, Ciungani, Ociu, Ocişor, Brotuna, Târnava de Criş, Prihodişte, Tătărăştii de Criş, Vata de Jos and Birtin. Vaţa de Jos commune is located at the northeastern tip of Hunedoara County. The geographical position of the Vaţa de Jos commune is 46°11' north latitude and 22°36' east longitude. In the north and west, the commune borders with Arad County, in the south-west and south it borders with Tomeşti commune, to the southeast with Vorţa commune, and in the east with Baia de Criş commune. The distance from Vaţa de Jos to Deva is 60 km, and to Brad it is 20 km. The closest villages to the commune center are Prihodişte and Basarabasa, located 2 km away. In the northeast, the commune is crossed by the national road DN 76 (Oradea-Brad-Deva) and almost parallel to it, by the railway that connects Deva with the localities Brad, Vaţa de Jos and Arad. Vaţa de Jos commune is located in the Brad - Hălmagiu intra-mountain depression, at the foot of the Metaliferi Mountains, on the western edge of the Ţării Moţilor Crişeni and at the confluence of the Ponor and Crişul White watercourses. The relief is mostly hilly and grows from the Crişul Alb meadow to the Metaliferi Mountains, presenting elements of a geometric symmetry. The relief shows altitude differences between the actual submerged basin and the surrounding hills, specific to the intramontane tectonic basins. The height of the land is approximately 230 m. The climate is temperate, being specific for depressions, with slight variations in temperature. The wind has low intensities due to the relief shapes, which prevent the massive air travel. Annual average temperature: 9^0C. Precipitation average: 700 mm (quite high). The precipitation waters - abundant in this area - are gathered by the Crişul Alb and the Ponor stream (Vaţa), both having a torrential character, giving rise to the floods, especially in spring, but not only, because in December 1995 the waters of the two streams flooded the area. The soil of the administrative territory of the commune belongs mainly to agricultural land (50.33%), but also to forests (46.17%). The timber fund is capitalized through the care of the foresters and the economic agents that carry out their activity in this field. Vaţa de Jos commune covers an area of 20.263 ha, representing about 3% of the area of Hunedoara County, of which: 3.570 ha - agricultural land, of which: - 1.730 ha arable land, - 1.021 ha grassland, - 819 ha meadow.*

Keywords: Vaţa de Jos, Hunedoara, agriculture, grassland, meadow

INTRODUCTION

Since agriculture is an important branch of the national economy, it is found in daily life as a main source of economic activity and use of labor with various functions: biological, ecological factor of environmental protection, fighting against desertification in many areas of the Earth, a way of life, a technical and cultural tradition, but not least, agriculture is a civilization.(DANIEL DORIN DICU, PAUL PÎRSAN, JELENA MARINKOVIC, FLORIN IMBREA, DRAGOSLAV VLAD MIRCOV; D. DICU, R. BERTICI , I. GAICA, 2016)

Agriculture, in our country, undergoes the most profound process of property restructuring and operating system, continuing to hold a very important status. It remains one of the priority branches of material production, especially since the economic and social progress of the contemporary world is in close correlation with the level of agricultural achievements and cannot be conceived outside the strong development of this production branch.(LOREDANA DARICIUC, I. GAICA, D. DICU, 2016; LOREDANA DARICIUC, I. GAICA, D. DICU, 2016)

Agriculture is a branch that is based on continually self-renewing resources, unlike other branches that use natural resources (petrol, coal, minerals, etc.), which are exhausted as exploitation continues. (ANIȘOARA DUMA-COPCEA, NICOLETA MATEOC-SÎRB, TEODOR MATEOC-SÎRB, CASIANA MIHUȚ, 2013; ANIȘOARA DUMA – COPCEA, CASIANA MIHUȚ, L. NIȚĂ, 2014)

Agricultural production appears because of complex processes of transformation of a multitude of substances and forms of energy (solar, chemical, biochemical, fossil, etc.) through the living organism of plants and animals, under the impact of natural factors, material and financial resources, labor, in specific material assets. (LATO, A.NEACSU, A.; CRISTA, F. ; LATO, K.; RADULOV, I.; BERBECEA, A.; NITA, L.; CORCHES, M., 2013; KAREL IAROSLAV LAȚO, LUCIAN NIȚĂ, ALINA LAȚO, ISIDORA RADULOV, FLORIN CRISTA, ADINA BERBECEA, 2013)

Vaţa de Jos commune, located on the road that connects Brad to Oradea, covers an area of 20.263 hectares, of which 3.570 are agricultural lands. Its population is about 3.718 inhabitants and is composed of 13 settlements: Vaţa de Sus, Căzăneşti, Basarabasa, Prăvăleni, Ciungani, Ociu, Ocişor, Brotuna, Târnava de Criş, Prihodişte, Tătărăştii de Criş, Vata de Jos and Birtin. (CASIANA MIHUȚ, ANIȘOARA DUMA-COPCEA, LUCIAN NIȚĂ, SIMONA NIȚĂ, 2016; MIHUȚ CASIANA, 2018)

The geographical position of the Vața de Jos commune is 46°11' north latitude and 22°36' east longitude, being located at the northeastern tip of Hunodoara County. (L. NIȚĂ, D. ȚĂRĂU, D. DICU, GH: ROGOBETE, GH. DAVID, 2017; NITA SIMONA, NITA L., PANAITESCU LILIANA, 2015)

The relief is mostly hilly and grows from the Crișul Alb meadow to the Metaliferi Mountains, presenting elements of a geometric symmetry. It has altitude differences between the actual submerged basin and the surrounding hills, specific to the intramontane tectonic basins. The height of the land is approximately 230 m. The annual average temperature is 9^0C; the precipitation average is700 mm. Vața de Jos commune covers an area of 20.263 ha, representing approx. 3% of the area of Hunedoara County, agricultural land - total 3.570 ha. (POPA M.; LATO A.; CORCHES M; RADULOV I.; BERBECEA A.; CRISTA F.; NITA L.; LATO KI;POPA D., 2016; LAURA SMULEAC, SIMONA NITA, ANISOARA IENCIU, ADRIAN SMULEAC, DICU DANIEL, 2013)

MATERIAL AND METHODS

For the elaboration of the present paper, the data retrieved is taken from different sources of statistics, municipalities and public institutions from Vața de Jos, Hunedoara County.

RESULTS AND DISCUTION

The following shows graphically the crop structure, the areas occupied by them as well as the yields obtained on the unit area.

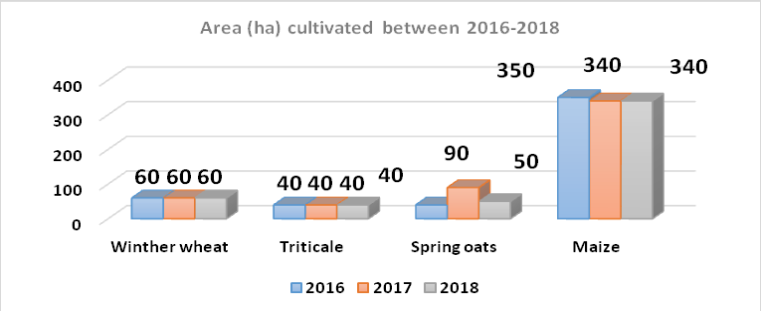

Fig. 1. Area cultivated with cereals

In figure 1, one can observe that the area cultivated with winter wheat was 60 ha in all three years, along with triticale. For the winter oats, the cultivated area varies so that in 2016 it was maintained at 40 ha, in 2017 it increased by 50 ha reaching an area of 90 ha, and in 2018 the area decreases to 50 ha.

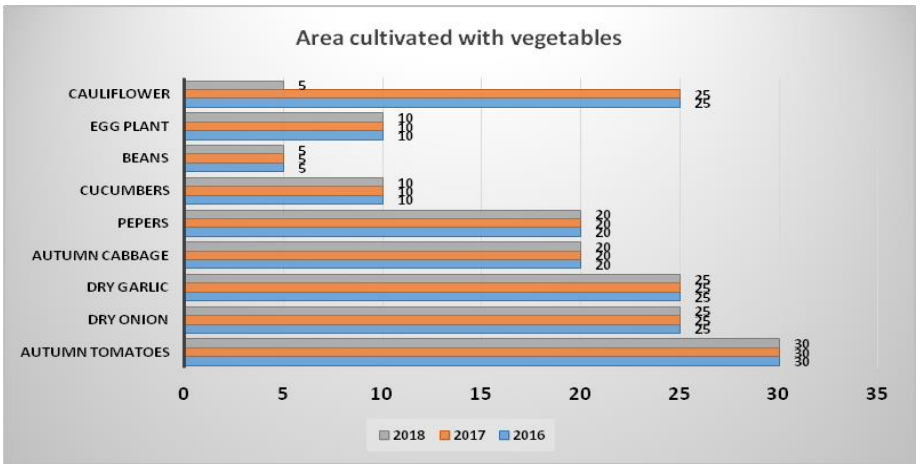

Fig. 2. Area cultivated with vegetables between 2016-2018

In figure 2, one can notice the area cultivated with vegetables between 2016-2018. In 2016, cauliflower was cultivated on merely 5 ha, but increased by 20 ha reaching 25 ha between 2017-2018. The area cultivated with eggplant remains constant throughout the three agricultural years. The same situation is valid for the crops of beans, cucumbers, peppers, cabbage, garlic, onions and tomatoes: 5ha beans, 10ha cucumbers, 20ha peppers, 20ha cabbage, 25ha garlic, 25ha onions and 30ha tomatoes.

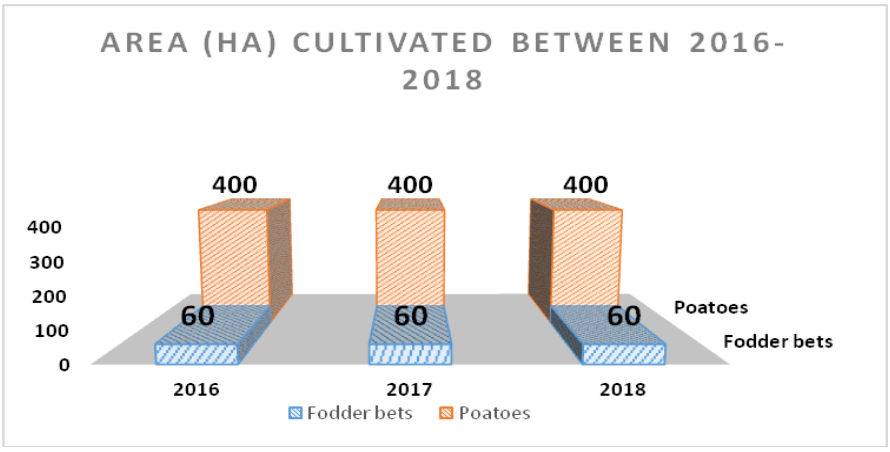

Fig.3. Area cultivated with technical plants

In figure 3, we observe the area cultivated with technical plants, namely 60ha for fodder beet between 2016-2018, and 400ha for potatoes between 2016-2018.

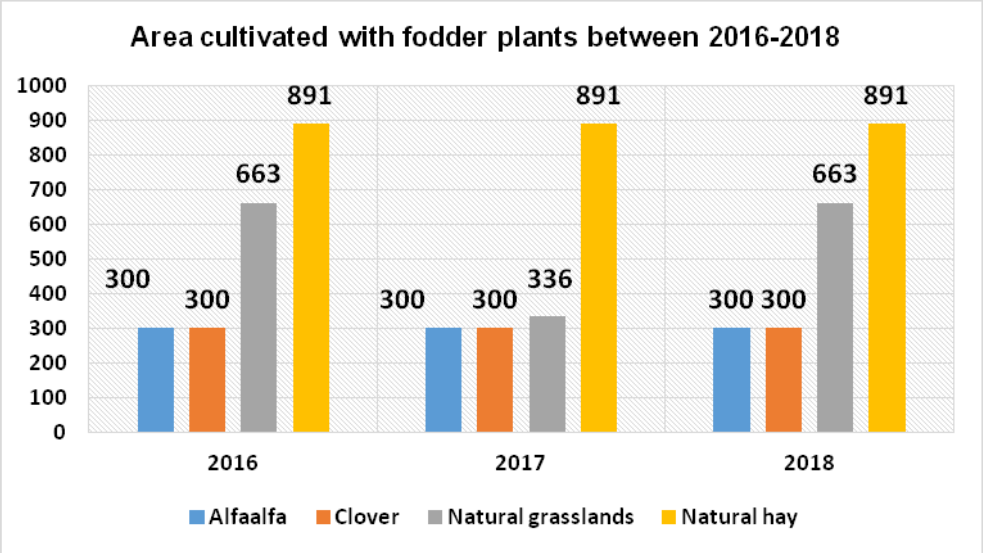

Fig. 4. Area cultivated with fodder plants

In figure 4, we notice the area cultivated with fodder plants. The 300 ha cultivated with alfalfa was maintained between 2016-2018, the same situation if found in the case of the clover crop, namely 300ha between 2016-2018. In 2016 and 2018 there was an area of 663 ha of natural grassland, but in 2017 it decreased by 327ha reaching an area of 336ha.

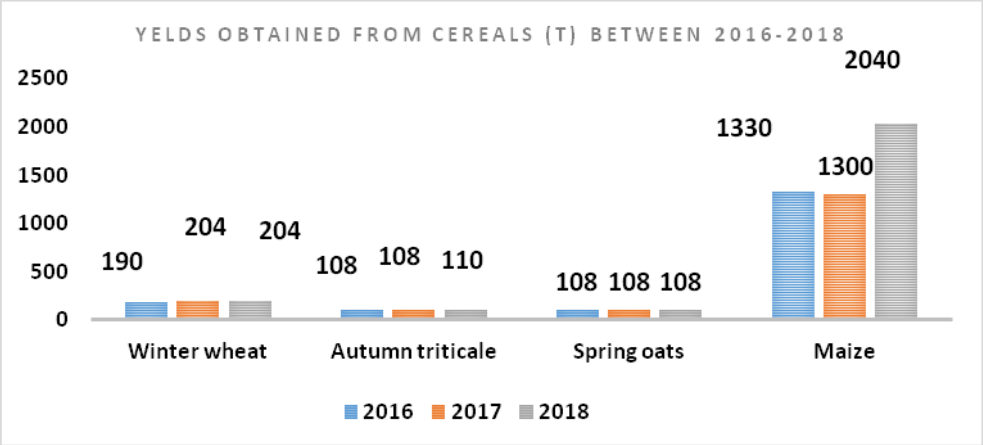

Fig. 5. Yields of cereal crops

Figure 5 shows the situation of yields of cereal crops. For the winter wheat, there were yields of 190t in 2016, 204t in 2017 and 2018. For the triticale crops, there were yields of 108t in 2016 and 2017, and in 2018 it increases by 2t, reaching a yield of 110t. The yield of the oats crop is maintained at 108t between 2016-2018. For maize, the yields were 1330t in 2016, in 2017 it decreases by 30t reaching a yield of 1300t, and in 2018 it increases by 740t, reaching a yield of 2040t.

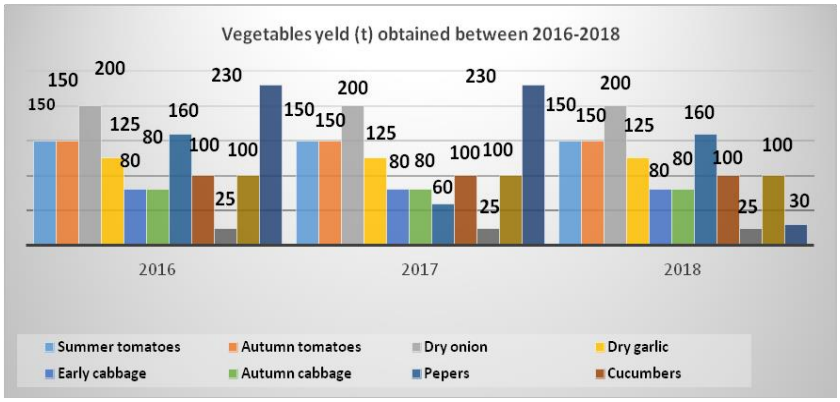

Fig.6. yields from vegetable crops between 2016-2018

Figure 6 shows the situation of yields from vegetable crops between 2016-2018. The yield stays at 150t between 2016-2018 for the summer tomatoes crop. The same situation applies to the autumn tomatoes, dried onions, dried garlic, early and summer cabbage, and autumn cabbage crops: 150t for the autumn tomatoes, 200t for the dried onions, 125t for the dried garlic, 80t for the early and summer cabbage, and 80t for the autumn cabbage. Yields for pepper crops stay at 160t in 2016 and 2018, compared to 2017 when the yield drops by 200t to 60t. The yield for cauliflower crops maintains at 230t in 2016 and 2017, compared to 2018 when it drops by 200t to 30t.

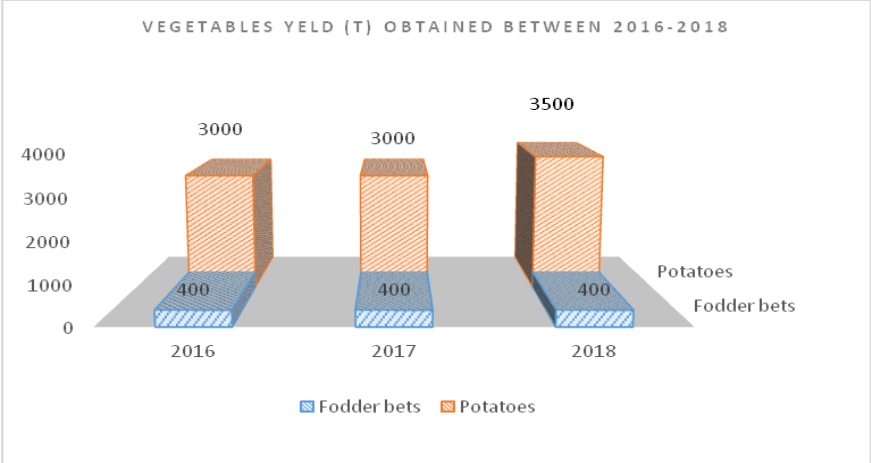

Fig. 7. yield of technical plants between 2016-2018

The yield remains constant between 2016-2018 for alfalfa, clover and natural grassland: 3000t for alfalfa, 300t for clover and 3100t for natural grassland. For the natural meadow, the yield increases in 2018 compared to the other crops, reaching 3600t.

Figure 7 shows the yield of technical plants between 2016-2018. The yield of the fodder beet crop remains constant at 400t, as in the case of the potato crops, where the yield reaches 3000t. The yields of the two crops are constant between 2016-2018.

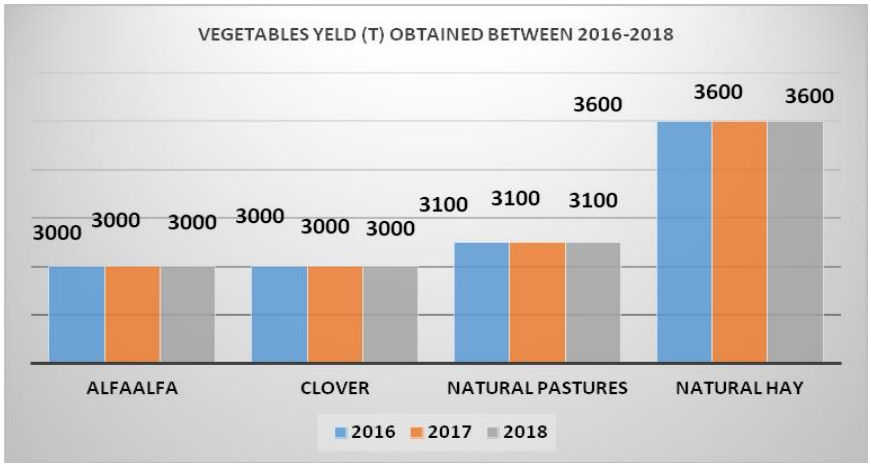

Figure 8 The situation of the yields for fodder crops between 2016-2018.

CONCLUSIONS

Vaţa de Jos commune covers an area of 20.263 ha, representing about 3% of the area of Hunedoara County, of which:

- 3.570 ha - agricultural land, of which:
- 1.730 ha arable land,
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BIBLIOGRAPHY

DANIEL DORIN DICU, PAUL PÎRSAN, JELENA MARINKOVIC, FLORIN IMBREA, DRAGOSLAV VLAD MIRCOV Effect of pre-sowing electromagnetic treatment on seed germination and seedling growth at maize Journal of Biotechnology, Volume 231, Supplement, ISSN: 0168-1656,

D. DICU, R. BERTICI , I. GAICA, 2016 - Evaluation of eco-pedological conditions for orchards conversion of lands from Moravita, Timis county Research Journal of Agricultural Science, Facultatea de Agricultură, Vol. 48 (4) ,Ed. Agroprint Timişoara,ISSN 2066-1843 2016

LOREDANA DARICIUC, I. GAICA, D. DICU, 2016 - Study on a mixed organic farm on the territory of Nitchidorf Timis county Research Journal of Agricultural Science,Facultatea de Agricultură, Vol. 48 (4) ,Ed. Agroprint Timişoara,ISSN 2066-1843 2016

ANIȘOARA DUMA-COPCEA, NICOLETA MATEOC-SÎRB, TEODOR MATEOC-SÎRB, CASIANA MIHUȚ, 2013, Economic evaluation pof agricultural land in the town Covaci, Timiș county, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Develoment, vol. 13, ISSN 2284-7995, E-ISSN 2285-3952, București www.agro-bucuresti.ro

ANIȘOARA DUMA – COPCEA, CASIANA MIHUȚ, L. NIȚĂ, 2014, The bonitation of agricultural lands in Foeni locality, Timiș county, International Symposium „Trends in the European Agriculture Development", - 29-30 May, edition VII a, Timișoara

ANIȘOARA DUMA COPCEA, CASIANA MIHUȚ, LUCIAN NIȚĂ, 2015 - Studies on the production capacity of agricultural land in the town Foeni Timis county, Lucrări Ştiinţifice – vol. 58 Iași, seria Agronomie

DUMA – COPCEA ANIȘOARA, MIHUȚ CASIANA, L. NIȚĂ, 2014 - The suitability of the soils in periam for cereals, potatoes, fodder beet and tree crops, Research jurnal of Agricultural science Timișoara, 2014.

LATO, A.NEACSU, A.; CRISTA, F. ; LATO, K.; RADULOV, I.; BERBECEA, A.; NITA, L.; CORCHES, M., 2013 - Chemical properties and soils fertility in the Timis county wetlands journal of environmental protection and ecology Volume: 14 Issue: 4 Pages: 1551-1558 Published: 2013

KAREL IAROSLAV LAŢO, LUCIAN NIȚĂ, ALINA LAŢO, ISIDORA RADULOV, FLORIN CRISTA, ADINA BERBECEA, 2013 - Quality of soils from Barzava Plain for a sustainable agriculture Journal of Food, Agriculture and Environment vol. 2, 1060-1062, 2013

CASIANA MIHUȚ, ANIȘOARA DUMA-COPCEA, LUCIAN NIȚĂ, SIMONA NIȚĂ, 2016 – Studies regarding the production capacity of soils outside the built-in area of the Pojejena Commune, Caraș-Severin county. case study. Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development .Vol. 16, Issue 1, 2016, Bucuresti. PRINT ISSN 2284-7995, E-ISSN 2285-3952

MIHUȚ CASIANA, 2018 - Fizica solurilor agricole. Ed. Agroprint, Timișoara

L. NIȚĂ, D. ŢĂRĂU, D. DICU, GH: ROGOBETE, GH. DAVID, 2017 - Land found of Banat Research Journal of Agricultural vol. 49, no 3 http://www.rjas.ro/volume_detail/ 2017

NITA SIMONA, NITA L., PANAITESCU LILIANA, 2015 - Preliminary studies on the production capacity oftriticale (Triticosecale Wittmack) grains under the influence of fertilization and varieties, Volume 19(4),pag. 5- 8, 2015 JOURNAL of Horticulture, Forestry and Biotechnology, www.journal-hfb.usab-tm.ro

NIȚĂ SIMONA, NIȚĂ LUCIAN, PANAITESCU LILIANA, 2015 - Research regarding the introduction of sorghum crops in the in Almăj Depression , Analele Universităţii Din Oradea Fascicola: Protecţia Mediului, vol XXI anul 19 editura Universităţii din Oradea 2015 http://www.cabdirect.org/

NIȚĂ SIMONA, NIȚĂ LUCIAN DUMITRU ,MIHUȚ CASIANA, KOCIS ELISABETA, PANAITESCU LILIANA, LUNGU MARIUS, 2014- The agricultural system of the Armeniș township, Caraș -Severin county, Review on Agriculture and rural development Scientific Journal of the University of Szeged , Faculty of Agriculture, ISSN 2063-4803, Nr. 1 Vol 3, pag.344-349, 2014,BDI, http://www.mgk.u-szeged

POPA M.; LATO A.; CORCHES M; RADULOV I.; BERBECEA A.; CRISTA F.; NITA L.; LATO KI;POPA D., 2016 - Quality of some soils fromwesr region of Romania AGROLIFE SCIENTIFIC JOURNAL ISSN: 2285-5718, vol.5 2016

LAURA SMULEAC, SIMONA NITA, ANISOARA IENCIU, ADRIAN SMULEAC, DICU DANIEL, 2013- Topographic survey for the monitoring of the impact of the brua/rohuat pipe on water flow in the irrigation system at Fвntвnele, Arad county, Romania, International Scientific Conferences on Earth and Geo Sciences - SGEM VIENNA GREEN HOFBURG, ISSN 1314-2704, Vol.3

HTTP://MANAGEMENTJOURNAL.USAMV.RO/PDF/VOL.16_1/ART21.PDF