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## Conference Paper

# Agroecology Living Labs in the "South - Muntenia" and "South-East" development regions in Romania (identification, classification, characterization)

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# AGROECOLOGY LIVING LABs IN THE "SOUTH - MUNTENIA" AND "SOUTH-EAST" DEVELOPMENT REGIONS IN ROMANIA (IDENTIFICATION, CLASSIFICATION, CHARACTERIZATION)

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**Abstract:** *The paper refers to the identification and classification of Living Agroecological Laboratories (ALL) and the selection of the most relevant ALL- Organic in the South-Muntenia and South-East development regions of Romania in 2021. Hypotetically, an Agroecology Living Laboratory should be any organic certified farm according to regulations of organic farming of IFOAM & European Comission. Based on the information provided by the "Ecological Agriculture" Department and the website of the Romanian Ministry of Agriculture and Rural Development, as well as in accordance with the concept and categories of business models from the RUBIZMO Horizon project (G.A. 773621, 2018-2021) and classification of farming systems, in this paper is presented: Type and number of operators: farmers, aquaculture producers, food and feed processors, traders, importers, exporters, collectors of wild flora and livestock and beekeepers, as well as the crops and livestock species and their area, respectively animals number in ecological agriculture identified in each county of the studied development regions; The ALL-Organic business models representative of "South-Muntenia and "South-East" regions in Romania 2021;*

**Keywords:** *Agroecology Living Labs (ALL-Organic), development regions, business model*

**JEL Classification:** *O11, O12*

## INTRODUCTION

Agroecology Living Labs (ALL) is a new concept founded on Living Labs theory and more or less, similar with Agroecosystem Living Laboratories which can increase the relevance and impact of scientific activities; accelerate innovation and adoption; and empower participants to tackle more complex challenges facing agroecosystems (Chris McPhee et al., 2021). Till now, the types of ALL are a few – 3 research initiatives and as many research projects: Canadian government proposal at the G20 Meeting of Chief Agricultural Scientists (G20 MACS) in 2018 to evaluate the potential of "Agroecosystem Living Laboratories"; the project "European Agroecology Living Lab and Research Infrastructure Network (ALL-READY): Preparation Phase (2020-2023), financed by Horizon 2020 "Grant agreement ID – 101000349", and in progress, Agroecology Living Labs (ALL) to promote robust and resilient Organic production systems (ALL-Organic), financed by ERA-NET CORE Organic Cofund project 2021-2024, respectively 3 scientific papers - Chris McPhee et al., 2021 "The Defining Characteristics of Agroecosystem Living Labs; MDPI sustainability", Toncea Ion et al., 2022 "Agroecological living laboratories (ALL-Organic) from Romania. Case Study "Beleza Store SRL, Ecological farm/Vâlcelele Călărași", and Aurora Ranca and Ion Toncea, 2022 "The Living Agroecological Laboratories. Case study "Ecological vineyard from SCDVV Murfatlar"; and the

ALL-READY publications: *Accelerating agroecology transition using living labs: policy enablers and barriers* (<https://doi.org/10.5281/zenodo.10001865>); *The benefits of a European Network of Agroecology Living Labs and Research Infrastructures* (<https://doi.org/10.5281/zenodo.10001815>); *Systems thinking: an important competency for agroecology transition* (<https://doi.org/10.5281/zenodo.10001836>); *Building a FAIR Future in Agroecology: Data Strategy Recommendations for Living Labs and European Research Infrastructures* (<https://doi.org/10.5281/zenodo.10001857>); *Supporting the sustainable long-term implementation of a European Network of Agroecology Living Labs and Research Infrastructures* (<https://doi.org/10.5281/zenodo.10033336>)

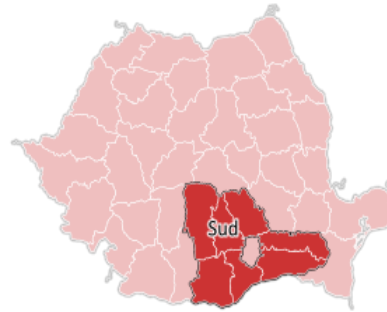
Agroecology Living Labs in the South–Muntenia and South–East Development Regions in Romania is part of the Milestone 4.3 “*Identification of the innovative business models in organic agri-food systems*” of the project “*Agroecology Living Labs (ALL) to promote robust and resilient Organic production systems (ALL-Organic)*”. Also, the paper is set up on hypothesis that each organic certified farm is an Agroecology Living Lab (ALL) and on ALL-Organic specific assumptions as: exploitation of biodiversity through balanced and diverse spontaneous flora and soil microbial communities; high-quality and healthier foods by reducing the impact of pests and diseases; reducing wastes and nutrients loss from agroecosystems by efficient use of on-farm resources and by-products and reconsider the use of off-system inputs; mitigate the impact of climate change on organic cropping and farming systems by progressive adaptation to the adverse and erratic environmental conditions guaranteeing the stability of yields; demonstration environmental and socio-economic quality performances of agroecology centred organic farming systems, confirming their pivotal role in the transformative pathways of food systems towards sustainability; promotion of innovations among farmers, technicians and researchers by set up knowledge hubs aimed at enhancing the diffusion of best practices, the socialisation of failures; producing evidence-based recommendations targeting different socio-economic groups at National, transnational and European level by catalyze consumers awareness on the overall advantages of diversified system based organic food (<https://projects.au.dk/coreorganicconfund/2021-call-projects/all-organic>). The paper refers to the identification and classification of Living Agroecological Laboratories (ALL) and the selection and analysis of the most relevant ALL-Organic. Agroecology Living Labs (ALL) are, according to ALL-Organic proposal: farms certified organic (WFs) and/or other standards of quality e.g. GLOBALG.A.P

([https://www.globalgap.org/export/sites/default/.content/galleries/Documents\\_for\\_Mailings/17071\\_2\\_GG\\_IntroPPT\\_EN\\_Session\\_KM.pdf](https://www.globalgap.org/export/sites/default/.content/galleries/Documents_for_Mailings/17071_2_GG_IntroPPT_EN_Session_KM.pdf)) and/or to contribute, by research and innovation, to reach a quality standard, as Experimental fields of the research stations (EFs) and Organic Long Term experiments (OLTEs).

## MATERIALS AND METHODS

The paper is based on the information provided by the Ecological Agriculture Department regarding number of operators and areas in organic agriculture in 2021 in the counties of the South-East and South-Muntenia development regions (*Communication MADR no 239867/07.11.2022*) & *Communication MADR no. 222673/18.07.2023*) and the website of the Romanian Ministry of Agriculture and Rural Development regarding ecological agriculture in the South-Muntenia and South-East development regions of Romania, in 2021.

**The South – Muntenia**, a development region of Romania without administrative powers, is located in the South-South-Eastern part of Romania, in the historic region Muntenia, bordering on the North with the Centre Region, on the East with South-East Region, on the South with Bulgaria, the limit being given by the Danube River, and to the West with the South-West Region and consists of seven counties - Argeş, Călăraşi, Dâmboviţa, Giurgiu, Ialomiţa, Prahova and Teleorman.



Also, the South - Muntenia region includes three major forms of relief: mountain 9.5%, hill 19.8% and plain and meadow 70.7%. The rather rich hydrographic network is dominated by the Danube River, into which the main rivers of the region flow: Olt, Argeş, Dâmboviţa, Ialomiţa and Prahova. This is complemented by a series of natural and man-made lakes (<https://www.adrmuntenia.ro/despre-sud--muntenia/static/>).

**South – East** is a development region of Romania without administrative powers and covers the Southeast part of the Romania, which includes the old historical regions of Dobrudja, southern Moldavia, and northeastern Muntenia.



The South – East region is made up of six counties: Brăila (Muntenia), Buzău (Muntenia), Constanţa (Dobrudja), Galaţi (Moldavia), Tulcea (Dobrudja) and Vrancea (Moldavia), and is bordering on the North with the North-East and Center Regions, on the East with the Black see and Moldova Republic, on the South with Bulgaria, the limit being given by the Danube River, and to the West with the South-Muntenia Region ([https://en.wikipedia.org/wiki/Sud-Est\\_development\\_region](https://en.wikipedia.org/wiki/Sud-Est_development_region)).

The collection of information was done according a template (*Annex 1*), which is structured on two parts; *Operators types and theirs number* and *Business models categories*, especially arable farms (WFs), mixed farms, commercial farms, agro-technologic scientific activities etc.

**Annex 1**

**Operator types and number & Business Models Categories**

<b>Operators (Producers and Businessmans)</b>	<b>Number</b>	<b>Source of information, specify _____ (where to find more information; e.g. provide specific links to literature source, policy brief, web site, order address, etc.)</b>
Organic farmers:		
Aquaculture producers:		
Organic food (feed) processors:		
Organic traders:		

<b>Operators (Producers and Businessmans)</b>	<b>Number</b>	<b>Source of information, specify _____ (where to find more information; e.g. provide specific links to literature source, policy brief, web site, order address, etc.)</b>				
Importers of organic products:						
Exporters of organic products:						
Collectors spontaneous flora:						
Animal and bee breeders:						
Cattle breeders						
Sheep breeders						
Goat breeders						
Breeders of laying hens						
Beekeepers						
<b>Business model categories</b>						
<b>Agricultural production</b>		<b>Food (Feed) production</b>	<b>Agricultural &amp; Food (Feed) production</b>	<b>Experimental (ICT, EFs, OLTEs)*</b>	<b>Commercial</b>	<b>Others</b>
<b>Crops</b>	<b>Area (ha)</b>					
Cereals						
Legumes						
Industrial crops						
Tuberculiferous and root plants						
Green harvested plants						
Ather crops on arable land						
Fresh vegetables						
Strowbery						
Melons						
Orchards						
Fruit bushes						
Walnuts, almonds, hazelnuts						
Vine						
Seeds and vegetative propagation material						
Pastures and hayfields						
Uncultivated land						
<i>Total Organic land</i>						
<i>Utilised agriculture area (UAA)</i>						
<i>Total area of region:</i>						
Livestock:	<i>Number</i>					
Cattle						
Sheep						
Goats						
Laying hens						
Bee families						

\*Information & Communication Technology (ICT), Organic Short-Term Experimental Fields (OEFs) and Organic Long-Term field Experiments (OLTEs).

Also, it was used the proQuantis template/2018 (Annex 2) inspired from the RUBIZMO project (DOI10.3030/773621), as well as classifications of farming systems (e.g. <https://digitalagrifarm.com/types-of-farming-systems>) for more detailed characterization of business models, full organics or able to be organics.

### Business models categories and Defining characteristics

Business models categories	Defining characteristics & Source, specify _____
<b>Agriculture</b> (the crop and livestock production, aquaculture, fisheries and forestry for food and non-food products),	
<b>Food production</b> (transforming raw materials into edible food products in industrial units)	
<b>Agriculture and Food production</b> (producing agriculture products for food and processing and manufacturing of these into edible food products at farm level or household)	
<b>Technology (ICT, OLTEs, EFs etc.)</b> (the methods, systems, and devices which are the result of scientific knowledge being used for practical purposes), specify _____	
<b>Bio-based values chain _ BBVC)</b> , (Bio-economy approach for waste management), specify _____	
<b>Bio-energy</b> (the renewable energy (eg. electricity and biogas) that is generated from organic matter, known as biomass) , specify _____	
<b>Ecosystem services</b> (the benefits provided by ecosystems that contribute to making human life both possible and worth living by supporting, provisioning, regulating and ensuring of life wellbeing on earth), specify _____	
<b>Agro-Tourism</b> (involves any agriculturally based operation or activity that brings visitors to a farm or ranch), specify _____	
<b>Rural development services</b> (the process of improving the quality of life and economic well-being of people living in rural areas), specify _____	
<b>Other</b> (that is different or distinct from one already mentioned or known about Business model categories), specify, e.g. (e.g. <a href="https://digitalagrifarm.com/types-of-farming-systems">https://digitalagrifarm.com/types-of-farming-systems</a> ): - <b>Based on Semi – Commercial system:</b> mixed farming, precision farming, intensive farming; specialised farming; - <b>Cultivation system:</b> extensive farming, intensive farming; conservation farming; regenerative farming; cover farming; dry farming, irrigated farming; - <b>Traditional farming:</b> subsistence farming, smallholder farming; nomadic farming, pastoral farming, shifting agriculture; - <b>Organic farming:</b> ecological agriculture, byodynamic agriculture, permaculture, natural farming; - <b>Specialised farming:</b> Agroforestry, Plantation farming, Urban farming;	

## RESULTS AND DISCUSSION

The paper refers to Organic (ALL-Organic) Agroecological Living Laboratories – farms certified organic (WF) and/or according to other quality standards (eg GLOBALG.A.P (<https://www.globalgap.org/export/sites/default/.content>), as well as to contribute, through research (EF and OLTE) and innovation (ICT), to the achievement of a quality standard.

## 1. Identification of ALLs-Organics across South – Muntenia and South – East development region of Romania

The ALLs-Organics are defined by type and number of operators and business models characteristics in organic farming – crops, livestock, processing, trade, research etc.

### 1.1 Identification of the types and number of operators, crops and livestock in organic farming and organic business model categories in Romanian development region South – Muntenia.

The organic agriculture of South-Muntenia development region in 2021 covered about 31,447 ha (1,293 % UAA), one of the smallest regional organic agricultural area in Romania comparative to UAA (2,432,381.80 ha) and a just as small number of operators – 538 organic farmers or Working organic farms (WFs), 37 food and feed processors, 1 collector spontaneous flora and other businessman categories – 29 organic traders, 1 importer of organic products and 9 exporters of organic products, mainly raw agricultural materials - grains of cereals, legumes and oilseeds (*Communication MADR no 239867/07.11.2022*). Regarding organic business model categories, from table 1.1 it turns out that in South - Muntenia region the main category is Agriculture production model, characterized by a high diversity and, more or less, accordingly to climate and soils agroecosystems distinctive characteristics. The business agriculture production models in South – Muntenia region are dominated by the cereals, industrial crops, green harvested crops, pastures and hayfields (*Communication MADR no 239867/07.11.2022*). The organic horticulture business models are also quite well represented in this region, mainly by organic orchards and vineyards. In the South – Muntenia region, the smallest business models, in terms of number and area, are those for the cultivation of legumes, vegetables and for the production of organic seed and vegetative propagation materials. Also, in this region, models of food production and plant cultivation & food production and integrated "crop - animal - food" models are very few and small.

**Table 1.1**

### Operators types and number in organic farming and Organic business categories in” South-Muntenia” region - Romania in 2021

Operators (Producers and Businessmans)	Number	Source, specify_____
Organic farmers:	538	Communication MADR no. 239867/07.11.2022 (2)
Aquaculture producers:	0	
Organic food (feed) processors:	37	
Organic traders:	29	
Importers of organic products:	1	
Exporters of organic products:	9	
Collectors spontaneous flora: Nuts in the shell;	1	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/flora-spontana/AG_SOV%20ADELINA%20ADDITION%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/flora-spontana/AG_SOV%20ADELINA%20ADDITION%20SRL.pdf</a> .
Animal and bee breeders		Communication MADR no. 222673/18.07.2023 (3)
Cattle breeders	16	
Sheep breeders	6	
Goat breeders	4	
Breeders of laying hens	3	
Beekeepers	137	
Organic business models categories of the ”South-Muntenia” region/ Romania in 2021		
Agricultural production		Technology   Commercial

Crops	Area (ha)	Food (Feed) production	Agriculture & Food (Feed) production	(OLTEs, EFs )*	
Cereals	12,206.79	√	√	√	√
Legumes	474.36	√	√	√	√
Industrial crops	9,373.685	√	√	√	√
Tuberculiferous and root plants	98.75	√	√		
Green harvested plants	4,421.60				
Ather crops on arable land	0.00				
Fresh vegetables	59.9936		√	√	√
Strowbery	3.94	√			
Melons	34.05	√			
Orchards	337.29	√			
Fruit bushes	219.83	√			
Walnuts, almonds, hazelnuts	232.08	√			
Vine	152.57	√			
Seeds and vegetative propagation material	2.82	√			√
Pastures and hayfields	3,308.20				
Uncultivated land	521.11				
<i>Total Organic land</i>	<i>31,447.06</i>				
<i>Utilised agriculture area (UAA)</i>	<i>2,432,381.80</i>				
<i>Total area of region:</i>	<i>3,445,300</i>				
Livestock:	<i>Number</i>				
Cattle	798	√	√		
Sheep	1048	√	√		
Goats	339	√	√		
Laying hens	75250	√	√		
Bee families	19364	√	√		

**\*Short-term Experimental Fields (EFs) and Organic Long-Term field Experiments (OLTEs).**

From a scientific point of view, the South - Muntenia region is served by the Agroecological Center for Research, Innovation and Technological Transfer of the National Institute of Agricultural Research and Development Institute (NARDI) Fundulea by conducting and innovating of the short-term experiments (EFs) as: *Identification of genetically stabilized genotypes of cereals, grain legumes and industrial, fodder, aromatic and medicines plants corresponding to agro-ecological technologies of land cultivation and Breeding of cereals and legumes crops*; and of the long-term (OLTEs) field experiments as: *Interdisciplinary applied research on establishing the particularities and agro-ecological solutions for land cultivating with cereals, grain legumes, industrial crops, fodder, aromatics and medicines and Design of integrated and multifunctional agroecological technologies and Ecological seeds multiplication*. Important is also, the research activity of Beleza Store SRL, the vegetable case study of ALL-Organic project.

The organic livestock in South-Muntenia region in 2021 (*Communication MADR no. 222673/18.07.2023*) was represented by five animal and bee breeder's categories - breeders of cattle (mainly milking cows), sheep, goats, laying hens and bees families, but, excepting Prahova and Teleorman counties which had all these animal species certified organic, in most of the regional counties exist just two or three organic animal species. Also the number of the animal and bee breeders (166), comparative with number of organic farmers (538) is low, but the number of organic livestock



(2060 Livestock units - LSU), comparative with organic area (31,447.06 ha) is very low (0,0655 LSU/ha). It is also more less than Organic regulation (1,00 LSU/ha) which can ensure for consuming of 60% of agriculture production, maintaining the long-term fertility of soils by supply with the manure and contributing to a high level of biodiversity (*Official Journal of the European Union, 14.06.2018 - REGULATION (EU) 2018/848*).

### **1.2 Identification of the types and number of operators, crops and livestock in organic farming and organic business model categories in South-East Romanian development region.**

In South-East region, the organic agriculture covered about 154,756 ha (6.6575 % of UAA) in 2021, one of the biggest regional organic agricultural area in Romania comparative to UAA (2,324,530 ha) and a highest number of operators – 1682 organic farmers or Working organic farms (WFs), 26 food and feed processors, 3 Aquaculture producers, 1 collector spontaneous flora and other businessman categories – 58 organic traders, 5 importer of organic products and 4 exporters of organic products, mainly raw agricultural materials - grains of cereals and legume and oilseeds (*Communication MADR no 239867/07.11.2022*).

Regarding organic business model categories, from table 1.2 it turns out that in South - East region the main category is, also Agriculture production models, characterized by a high diversity and, more or less, accordingly to climate and soils agroecosystems distinctive characteristics.

The business agriculture production models in South – East region are dominated by the cereals, industrial crops, pastures and hayfields, green harvested crops, uncultivated area and legumes. The organic horticulture business models are also quite well represented in this region, mainly by organic vineyards and orchards. In the South – East region, the smallest business models, in terms of number and area, are those for the cultivation of vegetables and for the production of organic seed and vegetative propagation materials. Also, in this region, models of food production and plant cultivation & food production and integrated "crop - animal - food" models are very few and small. From a scientific point of view, the South – East region is served by the ALL-Organic Vineyard Murfatlar, and Buzău vegetable research-development station, by conducting and innovating of long-term (OLTEs) field experiments, and, respectively, of different short-term (EFs) field experiments.

The organic livestock in South-East region in 2021 (*Communication MADR no. 222673/18.07.2023*) was represented only by four animal and bee breeders categories – breeders of the cattle (mainly milking cows), sheep, goats, and bees families.

Also, excepting the breeders of cattle and bee families which were in all six regional counties, the breeders of the sheep and goats existed only in Buzău, Constanța, Galați and Tulcea counties.

Regarding the number of the animal and bee breeders (331), comparative with number of organic farmers (1682), it is very low, but the number of organic livestock (4457 Livestock units - LSU), comparative with organic area (154,755.83 ha) is extremely low (0,0288 LSU/ha) and it is more less than provisions of the Organic EU regulations (1,00 LSU/ha).

**Table 1.2**

#### **Operators types and number in organic farming and Organic business model categories in "South-East"/Romania in 2021**

<b>Operators (Producers and Businessmans)</b>	<b>Number</b>	<b>Source, specify _____</b>
Organic farmers:	1682	Communication MADR no. 239867/07.11.2022 (2)
Aquaculture producers:	3	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/acvacultura/CT_SC%20ECO%20DANUBE%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/acvacultura/CT_SC%20ECO%20DANUBE%20SRL.pdf</a> <a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/acvacultura/TL_S.C.%20DELTA%20SAMITUR%20S.R.L..pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/acvacultura/TL_S.C.%20DELTA%20SAMITUR%20S.R.L..pdf</a>

		<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/acvacultura/TL_DANUBE%20RESEARCH%20CONSULTING%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/acvacultura/TL_DANUBE%20RESEARCH%20CONSULTING%20SRL.pdf</a>			
Organic food and feed processors:	26	Communication MADR no. 239867/07.11.2022 (2)			
Organic traders:	58				
Importers of organic products:	5				
Exporters of organic products:	4				
Collectors spontaneous flora: Walnuts; Walnut kernels	1				
Animal and bee breeders		Communication MADR no. 222673/18.07.2023 (3)			
Cattle breeders	32				
Sheep breeders	42				
Goat breeders	17				
Beekeepers	240				
Organic business model categories of the "South-East"/ Romania in 2021					
Agriculture production		Food (Feed) production	Agriculture & Food (Feed) production	Technology (OLTEs, EFs etc.)*	Commercial
Crops	Area (ha)				
Cereals	73,255.53	√	√		
Legumes	2,358.53	√	√		
Industrial crops	47,475.85	√	√		
Tuberculiferous and root plants	58.69	√	√		
Green harvested plants	5,947.98				
Other crops on arable land	54.28				
Fresh vegetables	167.07	√			
Strowbery	0.30	√			
Melons	12.40	√			
Orchards	508.23	√			
Fruit bushes	289.18	√			
Walnuts, almonds, hazelnuts	724.71	√			
Vine	1088.99	√		√	√
Pastures and hayfields	18,443.14				
Uncultivated land	4,370.95				
Organic land	154,755.83 (6.6575 % of UAA)				
Utilised agriculture area (UAA)	2,324,530.0				
Total area of the region:	3,576,200.0				
Livestock:	Number				
Cattle	2073	√	√		√
Sheep	9672	√	√		√
Goats	6224	√	√		√
Bee families	37465	√	√		√
Aquaculture: freshwater fish and sturgeons		√	√		√

## 2. ALL-Organic business models categories in organic farming of the South - Muntenia and South-East development regions

The ALL-Organic farming is present in each county of both development regions:

### 2.1 The relevant ALL-Organic business models in South-Muntenia region.

According to table 2.1, the representative ALL-Organic business models in South-Muntenia/Romania in 2021 were:

#### - In Collecting spontaneous flora:

\*SOV ADELINA ADITION SRL/AG ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/flora-spontana/AG\\_SOV%20ADELINA%20ADITION%20SRL.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/flora-spontana/AG_SOV%20ADELINA%20ADITION%20SRL.pdf)), as collecting Nuts in the shell, certified by the RO – 007 ECOCERT.

#### - In Agriculture production:

\* Agro-ecological Research, Innovation and Development Centre of I.N.C.D.A. Fundulea/Calărași ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CL\\_I.N.C.D.A.%20FUNDULEA.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CL_I.N.C.D.A.%20FUNDULEA.pdf)) as production of Organic Vegetative propagation material and seeds for cultivation: Winter wheat (2,00 ha) and Milk thistle (*Silybum marianum*) (0.80 ha) and adequate organic crops in rotation - Soybean (2.20 ha), Oats (1.00 ha), Maize (1.00 ha), Sunflower (1,00 ha) and Camelina (0.83 ha), as well as OLTEs and EFs in an organic 4 year crops rotation – annual legumes (1,10 ha), and cereals (1,10 ha), industrial crops (0.80 ha) and alfalfa (1,5 ha) with oldest and newest varieties, including CCPs and Dynamic populations, certified by the RO-ECO 008 ”ECOINSPECT”.

\*SC ECO FRUCT SRL, Stefan cel Mare/Calărași ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/producatori/CL\\_SC%20ECO%20FRUCT%20SRL.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/producatori/CL_SC%20ECO%20FRUCT%20SRL.pdf)) as production of Organic Sunflower (27.15 ha), Winter wheat (21,65 ha), Canola (15,43 ha), Maize (7,60 ha), Soybean (5,15 ha), Field peas (2,90 ha), Flax (2,20 ha), Alfalfa (4,00 ha), certified by the RO-ECO 018 ”AUSTRIA BIO GARANTIE”.

\*BELEZA STORE SRL, Valcelele/Calărași ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/producatori/B\\_BELEZA%20STORE%20SRL.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/producatori/B_BELEZA%20STORE%20SRL.pdf)) as production of Fresh vegetables (3,77 ha): *Sweet potato* (1.27 ha) + *Pepper* (1,25 ha) + *Eggplants* (1,25 ha), Potatoes (1,00 ha), annual Clover (0.70 ha), Strawberry (0.30 ha) and Alfalfa (8.55 ha), certified by the RO – 007 ”ECOCERT”;

#### - In Agriculture and Food production:

\*NOVALACT SRL, Ileana/Calărași ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-025/producatori/CL\\_SC%20NOVALACT%20SRL.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-025/producatori/CL_SC%20NOVALACT%20SRL.pdf)), as feeds production – Maize (7.28 ha), Barley (2.57 ha), Alfalfa (16.70 ha), permanent Pasture (15.00 ha) and Goats breeding (235) & Manufacture of dairy products - Goat fresh milk, Goat fresh cheese, Goat yogurt and Goat kefir, certified by the RO-ECO 025 ”BIO CERT TRADITIONAL”.

**Table 2.1**

### ALL-Organic business models representative in” South-Muntenia”/ Romania in 2021

AREAS	Operators
Total area (ha): 3,445,300	Organic farmers: 538
Utilised agriculture area – UAA (ha): 2,432,381.8	Aquaculture producers: 0
Organic land (ha): 31,447.06 (1,29285 % of UAA	Organic food and feed processors: 37
	Organic traders: 29
	Importers of organic products: 1
	Exporters of organic agricultural products: 9
	Collectors spontaneous flora: 1
Sources: Sud – Muntenia (development region) ; Communication MADR no. 239867/07.11.2022	

<b>Business models categories</b>	<b>Source, specify</b>
<b>Collectors spontaneous flora:</b> *Nuts in the shell;	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/flora-spontana/AG_SOV%20ADELINA%20ADDITION%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/flora-spontana/AG_SOV%20ADELINA%20ADDITION%20SRL.pdf</a>
<b>Agriculture production, specify: WFs – Plant and plants products:</b> * Vegetative propagation material and seeds for cultivation: Winter wheat and Milk thistle ( <i>Silybum marianum</i> );  * Winter wheat, Corn, Soybeans, Field peas, Lentils, Canola, Flax, Alfalfa;  * Strawberries, Potatoes, Fresh vegetables, Alfalfa, Clover;	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CL_I.N.C.D.A.%20FUNDULEA.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CL_I.N.C.D.A.%20FUNDULEA.pdf</a>  <a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/producatori/CL_SC%20ECO%20FRUCT%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/producatori/CL_SC%20ECO%20FRUCT%20SRL.pdf</a>  <a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/producatori/B_BELEZA%20STORE%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-007/producatori/B_BELEZA%20STORE%20SRL.pdf</a>
<b>Food production, specify</b>	
<b>Agriculture and Food production, specify: WFs: Alfalfa, Barley, Corn and Pasture &amp; Goats breeding &amp; Manufacture of dairy products and Cheeses.</b>	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-025/producatori/CL_SC%20NOVALACT%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-025/producatori/CL_SC%20NOVALACT%20SRL.pdf</a>
<b>Technology (ICT, OLTEs, EFs etc.), specify: OLTEs and EFs - Plant and plant products: 4 year crops rotation (<i>annual and perennial legumes, cereals, industrial crops</i>) with oldest and newest varieties, including CCPs and Dynamic population.</b>	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CL_I.N.C.D.A.%20FUNDULEA.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CL_I.N.C.D.A.%20FUNDULEA.pdf</a>

## 2.2 The relevant organic business models in” South-East” Romanian region.

According to table 2.2, the representative ALL-Organic business models in South-East/Romania in 2021 were:

### - **In Collecting spontaneous flora:**

\*RASMERITA VIOLETA-Elena I.I./GL ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/flora-spontana/GL\\_RASMERITA%20VIOLETA-ELENA%20I.I.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/flora-spontana/GL_RASMERITA%20VIOLETA-ELENA%20I.I.pdf)), as collecting walnuts and walnut kernels, certified by the RO-ECO 18 AUSTRIA BIO GARANTIE.

### - **In Aquaculture:**

\*SC DELTA SAMITUR SRL/TL ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/acvacultura/TL\\_S.C.%20DELTA%20SAMITUR%20S.R.L..pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/acvacultura/TL_S.C.%20DELTA%20SAMITUR%20S.R.L..pdf)), as aquaculture production of freshwater fish - carp species, zander, catfish, pike etc., certified by the RO-ECO 008 ECOINSPECT.

\*DANUBE RESEARCH CONSULTING SRL/TL ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/acvacultura/TL\\_DANUBE%20RESEARCH%20CONSULTING%20SRL.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/acvacultura/TL_DANUBE%20RESEARCH%20CONSULTING%20SRL.pdf)), as aquaculture production of fresh meat and caviar from different sturgeon species: Beluga, Bester, Osetra, Sevruga, Sterlet Albino and Sterlet, certified by the RO-ECO 018 AUSTRIA BIO GARANTIE.

### - **In Agriculture production:**

\*SC ADAFLOR SRL/TL ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-25/producatori/TL\\_SC%20ADAFLOR%20SRL.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-25/producatori/TL_SC%20ADAFLOR%20SRL.pdf)), as production of Organic Winter wheat (164.92 ha) and Spelt (7.05 ha), Sunflower (103.58 ha), Flax (64.38 ha), Maize (28.43 ha), Vegetables (24.67 ha), Canola (19.13 ha), Field peas (15.19 ha), Alfalfa (5.00 ha), certified by the RO-ECO 025 BIO CERT TRADITIONAL.

\* SC AGRANOLAND SRL/VN ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-16/producatori/VN\\_SC%20AGRANOLAND%20SRL.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-16/producatori/VN_SC%20AGRANOLAND%20SRL.pdf)), as production of Organic Maize (169.51

ha), Canola (112.55 ha), Winter wheat (104.87 ha), Barley (60.94 ha), Rye (16.15 ha), Soybean (5.00 ha), Alfalfa (4.22 ha) and permanent Pasture (3.6056 ha), certified by the RO-ECO 16 BIOAGRICERT SRL ITALIA.

- **In Agriculture and Food production:**

\* SC V&G OIL 2002 SRL/VN ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-016/comercianti/VN\\_SC%20V&G%20OIL%202002%20SRL.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-016/comercianti/VN_SC%20V&G%20OIL%202002%20SRL.pdf)), as Organic production of Spelt (382.12 ha), Canola (225.47 ha), Winter wheat (220.16 ha) and Maize (133.76 ha), as well as Producing organic flour and bran of winter wheat, spelt, and maize, as well as organic bread of wheat, wholemeal bread and multi-cereal bread, which are sold through the own stores "Băcănia Fermierului", certified by the RO-ECO 16 BIOAGRICERT SRL ITALIA. .

\* Research-Development Station for Viticulture and Winemaking Murfatlar/CT ([https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CT\\_STATIUNEA%20DE%20CERCETARE%20SI%20DEZVOLTARE%20PENTRU%20VITICULTURA%20SI%20VINIFICATIE%20MURFATLAR.pdf](https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CT_STATIUNEA%20DE%20CERCETARE%20SI%20DEZVOLTARE%20PENTRU%20VITICULTURA%20SI%20VINIFICATIE%20MURFATLAR.pdf)), as organic production of wine grapes & Processing, storage, bottling of organic wines, as well as organic EFs and OLTEs with oldest and newest varieties and wildflower strips for the weeds, pests and diseases control.

**Table 2.2**

**ALL-Organic business models representative in "South-East" region/ Romania in 2021**

Total area (ha): <b>3,576,200</b>	Organic farmers: <b>1682</b>
Utilized agriculture area – UAA (ha): <b>2,324,530</b>	Organic aquaculture producers: <b>3</b>
Organic land (ha): <b>154,755.84 (6.6575 % of UAA)</b>	Organic food and feed processors: <b>26</b>
	Organic traders: <b>58</b>
	Importers of organic products: <b>5</b>
	Exporters of organic products: <b>4</b>
	Collectors spontaneous flora: <b>1</b>
Sources: Sud – Est (development region) ; Communication MADR no. 239867/07.11.2022	

<b>Business models categories</b>	<b>Source, specify _____</b>
<b>Collectors spontaneous flora:</b> *Walnuts and Walnut kernels;	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/flora-spontana/GL_RASMERITA%20VIOLETA-ELENA%20I.I.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/flora-spontana/GL_RASMERITA%20VIOLETA-ELENA%20I.I.pdf</a>
<b>Aquaculture producers:</b> Freshwater fish  Sturgeons: caviar and meat	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/acvacultura/TL_S.C.%20DELTA%20SAMITUR%20S.R.L.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/acvacultura/TL_S.C.%20DELTA%20SAMITUR%20S.R.L.pdf</a> <a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/acvacultura/TL_DANUBE%20RESEARCH%20CONSULTING%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-018/acvacultura/TL_DANUBE%20RESEARCH%20CONSULTING%20SRL.pdf</a>
<b>Agriculture production, specify: WFs – Plant and plants products:</b> * Organic Winter wheat, Spelt, Maize, Field peas, Sunflower, Canola, Flax, Alfalfa;  * Organic Winter wheat, Barley, Rye, Maize, Soybean, Rapeseed, Alfalfa, Meadow;	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-025/producatori/TL_SC%20ADAFOR%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-025/producatori/TL_SC%20ADAFOR%20SRL.pdf</a>  <a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-016/producatori/VN_SC%20AGRANOLAND%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-016/producatori/VN_SC%20AGRANOLAND%20SRL.pdf</a>
Food production, specify:	
<b>Agriculture and Food production, specify:</b> *Cultivation of Spelt, Winter wheat, Canola and Maize and Producing organic flour and bran of winter wheat, spelt, and maize, as well as producing of organic wheat bread, whole meal	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-016/comercianti/VN_SC%20V&amp;G%20OIL%202002%20SRL.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-016/comercianti/VN_SC%20V&amp;G%20OIL%202002%20SRL.pdf</a>

bread and multi-cereal bread, which are sold through the own store "Băcănia Fermierului".	<a href="https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CT_STATIUNEA%20DE%20CERCETARE%20SI%20DEZVOLTARE%20PENTRU%20VITICULTURA%20SI%20VINIFICATIE%20MURFATLAR.pdf">https://old.madr.ro/agricultura-ecologica/2021/ro-eco-008/producatori/CT_STATIUNEA%20DE%20CERCETARE%20SI%20DEZVOLTARE%20PENTRU%20VITICULTURA%20SI%20VINIFICATIE%20MURFATLAR.pdf</a>
* Organic wine grapes & Processing, storage, bottling of organic wines;	
Technology (ICT, OLTEs, EFs etc.), specify:	

## CONCLUSIONS

1. The Agroecology Living Labs Organic (ALL-Organic) is any Agroecology Living Lab (ALL) certified organic (ecologic).

2. The South-Muntenia development region in 2021 covered the smallest organic agricultural area in Romania (1.293 % UAA), comparative to UAA (2,432,381.80 ha) and a just as small number of operators – 538 organic farmers.

3. The South – East development region in 2021 was number one in Romanian organic farming as organic crops diversity and surface (6.6575 % of UAA), with Tulcea and Constanța two champions counties;

4. Identification of the business models/cases is the first step used by the entrepreneurs for generation of innovative ALLs business cases and models.

5. The business agriculture production models in South – Muntenia region are dominated by the cereals, industrial crops, green harvested crops, pastures and hayfields. The organic horticulture business models are also quite well represented in this region, mainly by organic orchards and vineyards. From a scientific point of view, the South - Muntenia region is served by the Agroecological Center for Research, Innovation and Technological Transfer of the National Institute of Agricultural Research and Development Institute (NARDI) Fundulea by conducting and innovating of the short-term experiments (EFs). In this region, the smallest business models, in terms of number and area, are those for the cultivation of legumes, vegetables and for the production of organic seed and vegetative propagation materials. Also, in this region, models of food production and plant cultivation & food production and integrated "crop - animal - food" models are very few and small.

6. In South – East region, the organic business models are dominated by the cereals, industrial crops, pastures and hayfields, green harvested crops, uncultivated area and legumes. The organic horticulture business models are also quite well represented in this region, mainly by organic vineyards and orchards. From a scientific point of view, the South – East region is served by the ALL-Organic Vineyard Murfatlar, and Buzău vegetable research-development station, by conducting and innovating of long-term (OLTEs) field experiments, and, respectively, of different short-term (EFs) field experiments. The weak points of organic farming in South-East region are: seeds and vegetative propagation material production zero, low area of legumes, low diversity and small number of livestock comparative with natural potential and organic arable area in the region, mainly with the low resources of organic nutrients.

7. Agroecology Living Labs (ALL-Organic) business models diversity is low in both development Romanian regions, the main categories being agriculture production and, quite rarely - agriculture & food production, collecting spontaneous flora, short-term (EFs) and long-term organic experiments (OLTEs), and aquaculture, especial in the region” South-East”;

8. The relevant ALL-Organic business models in development regions studied are:

- *in the South-Muntenia region, in agriculture production (WFs)* - **SC ECO FRUCT SRL**, Stefan cel Mare/Călărași as producer of organic sunflower, winter wheat, canola, maize, soybean, field peas, flax and alfalfa; **Agro-ecological Research, Innovation and Development Centre** of I.N.C.D.A. (NARDI) Fundulea/Calărași as producer of organic seeds at winter wheat, peas, soybean, camelina, sunflower and maize, as well as the EFs OLTEs and in an organic 4 year crops rotation –

annual legumes, and cereals, industrial crops and alfalfa with oldest and newest varieties, including CCPs and Dynamic populations ; **BELEZA STORE SRL**, Valcelele/Călărași as production of fresh vegetables: *sweet potato + Pepper + Eggplants*, annual clover, strawberry and alfalfa; **in agriculture and food (feed) production: NOVALACT SRL**, Ileana/Călărași, as feeds production – maize, barley, alfalfa, permanent pasture and Goats breeding (235) & Manufacture of dairy products - Goat fresh milk, Goat fresh cheese, Goat yogurt and Goat kefir;

- **in the South-East region, in agriculture production (WFs): ADAFLOR** Zebil/Tulcea as producer of organic winter wheat and spelt, sunflower, flax, maize, vegetables, canola, field peas and Alfalfa; and **AGRANOLAND SRL**, Vrancea as producer of organic maize, canola, winter wheat, barley, rye, soybean, alfalfa and permanent pasture; **in agriculture & food (feed) production: V&G Oil SRL**, Vrancea as producer of organic spelt, canola, winter wheat and maize, as producing organic flour and bran of winter wheat, spelt, and maize, and of organic bread of wheat, wholemeal and multi-cereal bread, which are sold through the own stores "Băcănăia Fermierului" and **SCDVV Murfatlar**, Constanța, as organic producer of wine grapes & processing, storage, bottling of organic wines, as well as organic EFs and OLTEs with oldest and newest varieties and wildflower strips for the weeds, pests and diseases control, **in aquaculture: DELTA SAMITUR SRL**, Constanța as producer of freshwater fish - carp species, zander, catfish, pike etc and **DANUBE RESEARCH CONSULTING SRL** Tulcea as producer of fresh meat and caviar from different sturgeon species: Beluga, Bester, Osetra, Sevruga, Sterlet Albino.

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