

# Organic livestock in the Republic of Croatia and Europe

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#### SUMMARY

The aim of the present study was to analyze the situation in organic livestock farming in Croatia and Europe. In the European countries in the year 2017, around 4.5 million cattle, 5.2 million sheep, 1 million pigs and 50 million poultry were registered in organic farming. The highest share of organically registered domestic animals compared to the total population in Europe and the European Union-28 was in cattle (3.5% and 5.2%) and sheep (3.4% and 5.0%), and the lowest in pigs (0.6% and 0.7%). In Croatia the highest share is in sheep (8.57%) and the lowest in poultry (0.02%) number. The largest increase in recent ten years in the EU has been in the number of poultry (by 103%) and the smallest in the number of pigs (by 47.6%), while the increase was the number of cattle and sheep was around 76% and 74%, respectively. In Croatia organic sheep production increased the most (by 65.0%), while the number of cattle and poultry increased by 62 and 64%, and the smallest increase is in the number of pigs (by 24%). The majority of organic meat of all species of domestic animals is produced in France and in United Kingdom, while organic milk is produced mostly in Germany and France. During the year 2018, most organic beef was produced in the UK and France, organic pork in France and Finland, organic sheep meat in Spain and the UK, organic goat meat in Spain, while most of organic poultry was produced in France and in the UK. A significant increase in the number of livestock in organic farming in Europe and in Croatia indicates an increasing interest in organic livestock farming, not only increase of farmers and processors but also increase of consumers of organic products in European countries.

**Keywords:** organic livestock farming, organic animal products, Croatia, Europe, European Union

#### INTRODUCTION

Organic farming can be defined as an approach to agriculture in which the aim is to create integrated, humane, environmentally and economically sustainable agricultural production systems (Blair, 2011). Organic agriculture is the fastest growing branch of agricultural production in the world.

According to Eurostat, 14.6 million ha were under organic farming in European countries at the end of 2017 and 12.8 million ha in the EU-28, which is 2.9% in Europe and EU-28 7.2% of total agricultural area (FiBL, 2020). In the world, only Australia has a higher share of organic agricultural land in total agricultural area (8.5%). The countries with the largest organic agricultural land in Europe are Spain

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(2.1 million ha), Italy (1.9 million ha) and France (1.7 million ha). Comparing the share of organic agricultural land with total agricultural land, the highest percentage shares are in Liechtenstein (38%), Austria (24%) and Estonia (20.5%). According to the data of the Ministry of Agriculture (2019), the share of agricultural organic areas in the total agricultural area in the Republic of Croatia is 6.94%. Antunovic et al. (2020) reported that in the recent five years there has been a significant increase in agricultural land under organic agriculture (by 51.48%). The aim of organic livestock production is to obtain high-quality food for human consumption, but also to ensure animal welfare and environmental protection (Senčić et al., 2011). Organic livestock production encourages the use of natural resources of a particular farming area in terms of the selection of local genotypes and forages, as well as open barns and canopies, in order to better adaptation of animals to environmental conditions (Antunović, 2011). The development of organic agriculture, and in particular organic livestock farming, has also been driven by changes in the understanding the importance of animal health and welfare as well as abandonment of the anthropocentrism concept. Likewise, the occurrence of various diseases (foot-and-mouth disease, mad cow disease, bird flu, scabies...) caused increased interest in organic livestock farming (Sosnowska-Czajka et al., 2014). Appropriate legislation in the EU has existed since 1991, updated and upgraded in 1999 and 2007, regulating organic agricultural production in a good way. The increase in the number of organic producers and processors of organic products in Europe has been significant over the last 10 years. In Europe and in the EU-28 countries, the number of organic producers has increased by almost 79% and 55%, and the number of organic processors by almost 110% and 106% (FiBL, 2020). The largest number of organic producers in Europe has Turkey (more than 75,000) and in the EU-28 Italy (almost 67,000). The largest number of organic processors in Europe is in Italy (18,092). According to the Ministry of Agriculture, in the recent five years the number of persons in organic production has increased by 114% and the number of processors of organic animal products by 52.28% (Antunović et al., 2020).

The aim of this research was to analyze the situation in organic livestock in the Republic of Croatia and in Europe.

#### *The state of organic livestock in Europe*

Although statistics are often deficient and sometimes are assessments, they can nevertheless serve as an estimate of a particular manufacturing sector. Analyzing the available statistical databases (EUROSTAT, FiBL, Croatian Bureau of Statistics, MP RH), the situation on organic livestock farming in the Republic of Croatia and Europe will be presented. During 2017, around 4.5 million cattle, 5.2 million sheep, around 1 million pigs and 50 million poultry were registered in European countries for organic livestock farming (Table 1). Comparing the number of registered domestic animals in organic farming with their total numbers in Europe and the EU-28 shows that the highest share in Europe and EU-28 belongs to cattle (3.5% and 5.2%) and sheep (3.4% and 5.0%) and the lowest to pigs (0.6% and 0.7%). The highest share in the Republic of Croatia is in sheep (8.57%) and the lowest in poultry farming (0.02%). The highest increase in the recent ten years in the EU (2008-2017) was in the number of poultry (103%) and the least in the number of pigs (47.6%), while the increase in the number of cattle and sheep was around 76% and 74%, respectively. In the Republic of Croatia the number of sheep increased the most (by around 65.0%), the number of cattle and poultry increased by 62 and 64%, while the lowest increase was in the number of pigs (by about 24%). The reasons for this may be due to, among other things, different composition of diets, because the ruminant diet is based on forage feedstuffs whose production is cheaper than non-ruminant diets, where the bulk of the rations are made from concentrates. The production of concentrates is significantly more demanding and more expensive compared to the cost of forage. Furthermore, competition in the food chain between humans and animals, like non-ruminants, is more pronounced.

Table 2 shows the number of organically farmed livestock in European countries and their total number in Europe, EU-28 and the percentage of EU-28 in the total number of livestock registered in organic farming in Europe.

**Table 1 Total number of livestock in Europe, EU-28 and the Republic of Croatia in the year 2017, and percentage of livestock number in organic farming compared with the total number of livestock and its increase in recent 10 years in Europe and recent 5 years in Croatia (FiBL, 2020; EUROSTAT, 2020; Croatian Bureau of Statistics, 2020, MP RH)****Tablica 1. Ukupan broj stoke u Europi, EU-28 i Republici Hrvatskoj u 2017. godini te postotni udio broja stoke u ekološkom uzgoju u ukupnom broju stoke i povećanje broja u zadnjih 10 godina u Europi te zadnjih 5 godina u RH (FiBL, 2020.; EUROSTAT, 2020.; Državni zavod za statistiku RH, 2020., MP RH)**

Livestock species - Vrsta životinja	Europe			EU-28		Republic of Croatia		
	Animals (head) - Životinje (kom.)	Organic share (%) - Ekološki udio (%)	Change, % (2008-2017) - Promjene, % (2008.-2017.)	Animals (head) - Životinje (kom.)	Organic share (%) - Ekološki udio (%)	Animals (head) - Životinje (kom.)	Organic share (%) - Ekološki udio (%)	Change, % (2013-2017) - Promjene, % (2008.-2017.)
Bovine	4398530	3.5	75.8	4159911	5.2	451000	3.82	62.03
Sheep	5187715	3.4	73.6	4941613	5.0	637000	8.57	64.45
Pig	998828	0.6	47.6	961212	0.7	1121000	0.13	23.57
Poultry	50145276	2.0	103.0	47384977	3.3	10399000	0.02	63.60

**Table 2 Number of livestock in organic farming in European countries and its total number in EU-28 during 2018 (Eurostat, 2019)****Tablica 2. Broj ekološki uzgajanih domaćih životinja u Europi po zemljama i ukupno za EU-28 u 2018. godini (Eurostat, 2019.)**

Country - Zemlja	Cattle - Goveda	Sheep - Ovce	Goats - Koze	Pigs - Svinje	Poultry - Perad	Horses - Konji
Belgium	106049	24670	7824	17399	-	-
Bulgaria	9314	21072	8039	24	2176	232
Czech Republic	262061	94089	8857	2867	49675	9399
Denmark	220754	11292	2158	488886	3506802	158
Germany	771320	193023	-	185401	-	-
Estonia	41499	32901	1413	458	36212	1711
Ireland	61819	83302	144	642	161816	-
Greece	138015	1299677	494031	4746	252280	-
Spain	212066	622958	76506	20196	1030745	6573
France	751382	1132809	109938	317925	20181495	4233
Croatia	19613	62315	4199	1887	1870	2088
Italy	375414	680369	110055	59623	3482435	-
Cyprus	469	879	4155	-	24330	-
Latvia	96423	39407	2707	1845	37417	1142
Lithuania	57884	24158	1060	142	16719	412
Luxembourg	4956	539	333	895	32528	163
Hungary	18964	5538	572	4459	83538	-

Netherlands	71715	12815	50944	93210	-	-
Austria	421953	123495	51099	74594	2594068	17752
Poland	26953	16243	3145	3221	349697	474
Portugal	93191	96620	5222	2896	57548	87
Romania	16890	32579	1360	9	83859	-
Slovenia	35751	35071	6856	3203	93145	-
Slovakia	63340	84912	1419	547	5340	541
Finland	72080	31985	2004	4857	312202	8
Sweden	332294	128914	1607	33579	1411540	-
Great Britain	324202	826598	717	37440	3383126	974
Iceland	236	1226	-	-	12413	-
Norway	30307	46823	1691	2924	592267	35
Switzerland	200450	84765	22317	38169	1053871	10577
Northern Macedonia	6390	101317	6901	-	-	-
Serbia	3594	5138	1486	284	6735	114
Turkey	5113	10457	10685	-	1242170	-
Europe	4851834	5967974	999444	1402328	40098019	56673
EU (28)	4605744	5718230	956364	1360951	37190563	45947
% EU in Europe	95.00	96.00	96.00	97.00	93.00	81.07

It is evident that in the year 2018 the largest number of cattle registered in organic farming was in Germany, France and Austria. The largest number of organic sheep was in Greece, France and United Kingdom, and the largest number of organic goats was raised in Greece, Italy and France. The largest number of pigs registered in organic farming was in Denmark, France and Germany, poultry in France, Denmark and Italy, while the largest number of horses was in Austria, Switzerland and the Czech Republic. An analysis on the share of organic livestock in the EU-28 and a comparison with the total number of organically registered livestock in Europe revealed a similar percentage for most livestock, with a lower proportion for horses (81.07%). The above indicated the importance of the EU countries in the overall European population of livestock registered in organic farming. The presence of ruminants in organic farming in Spain, Germany and in the United Kingdom is significant, which is also associated with the largest registered organic pastures in these countries in Europe.

The analysis of quantities of the most represented organic animal products in Europe, by country and total quantity in EU-28 during 2018, shows that organic meat of all livestock species is produced in France and the UK, while organic milk is produced mostly in Germany and France. During 2018, organic beef was mostly produced in the UK and France, while organic pork was mostly produced in France and Finland. Table 3 presents that most of organic sheep meat in the year 2018 was produced in Spain and the United Kingdom, organic goat meat in Spain, and organic poultry meat in France and in the United Kingdom.

The significant increase in the number of livestock in organic farming in Europe and in the Republic of Croatia indicates an increasing interest in organic livestock farming not only by the farmers and processors, but also by consumers of organic products.

**Table 3 Quantity of animal products in Europe, by countries and total quantity in EU-28 during year 2018 (Eurostat, 2019)****Tablica 3. Količina ekoloških animalnih proizvoda u Europi, po zemljama i ukupno za EU-28 u 2018. godini (Eurostat, 2019.)**

Country - Zemlja	Meat, t - Meso, t						Milk, t - Mlijeko, t
	Total - Ukupno	Beef - Goveđe meso	Pork - Svinjsko meso	Sheep - Ovčje meso	Goat - Kozje meso	Chicken - Meso peradi	
Bulgaria	969	866	-	63	40	-	5280
Czech Rep.	13106	12217	157	545	19	167	33433
Denmark	6643	6643	-	-	-	-	689600
Germany	-	-	-	-	-	-	1117821
Estonia	3404	3071	38	255	4	29	7386
Ireland	2361	-	-	-	-	-	17791
Greece	839	-	-	-	-	-	75722
Spain	35803	23004	1939	8569	491	1289	42006
France	68948	29388	14837	1684	-	23039	909336
Croatia	2311	1456	141	571	17	2	3094
Cyprus	28	-	-	-	-	-	3706
Latvia	1629	-	-	-	-	-	94327
Lithuania	803	-	-	-	-	-	68133
Luxembourg	187	116	70	1	-	-	3772
Hungary	1110	-	-	-	-	-	4721
Austria	-	-	-	-	-	-	635751
Poland	-	-	-	-	-	-	26773
Romania	8	-	-	-	-	-	28062
Slovenia	410	-	-	-	-	-	7187
Slovakia	66	-	740	-	-	-	25998
Finland	3710	2610	5540	360	-	-	71028
Sweden	29750	21806	2800	1187	-	1217	464970
Great Brit.	53800	31600	-	7600	-	11800	564000
Iceland	23	-	394	-	-	-	402
Norway	3101	1603	-	641	4	459	51667
Serbia	14	11	-	-	-	3	7120
Turkey	1688	362	-	50	14	1261	12884
Europe	230711	134753	26656	21526	589	39266	4971970
EU (28)	225908	132777	26656	20835	571	37546	4900300
% EU in Europe	98.00	99.00	100.00	97.00	96.94	95.62	99.00

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## SAŽETAK

Cilj je ovoga istraživanja bio analizirati situaciju u ekološkom stočarstvu u Republici Hrvatskoj i Europi. U europskim zemljama 2017. u ekološkim uzgojima, evidentirano je oko 4,5 milijuna goveda, 5,2 milijuna ovaca, oko 1 milijun svinja te oko 50 milijuna peradi. Najveći udio ekološki registriranih domaćih životinja u usporedbi s ukupnom populacijom u Europi i EU-28 je za goveda (3,5% i 5,2%) i ovce (3,4% i 5,0%), a najniži za svinje (0,6% i 0,7%). Najviši udio u Republici Hrvatskoj je ovaca (8,57%), a najniži peradi (0,02%). Najveće povećanje u zadnjih deset godina u EU je broja peradi (za 103%), a najmanje broja svinja (za 47,6%), dok je povećanje broja goveda i ovaca bilo oko 76% i 74%. U Republici Hrvatskoj u ekološkim uzgojima najviše je povećan broj ovaca (za oko 65,0%), dok je broj goveda i peradi porastao za oko 62 i 64%, a najmanje je povećan broj svinja (za oko 24%). Najviše je ekološkog mesa svih domaćih životinja proizvedeno u Francuskoj i Velikoj Britaniji, a ekološkog mlijeka u Njemačkoj i Francuskoj. Tijekom 2018. godine proizvedeno je najviše ekološkog goveđeg mesa u Velikoj Britaniji i Francuskoj, ekološkog svinjskog mesa u Francuskoj i Finskoj, ekološkog ovčjeg mesa u Španjolskoj i Velikoj Britaniji, ekološkog kozjeg mesa u Španjolskoj, a ekološkog mesa peradi u Francuskoj i Velikoj Britaniji. Utvrđeno značajno povećanje broja domaćih životinja u ekološkim uzgojima u Europi i u RH ukazuje na sve veći interes za ekološkim stočarstvom ne samo uzgajivača i prerađivača nego i konzumenata ekoloških proizvoda u europskim zemljama.

Ključne riječi: ekološko stočarstvo, ekološki animalni proizvodi, Hrvatska, Europa, Europska unija