BULETINUL Universităţii Petrol – Gaze din Ploieşti	Vol. LVIII No. 1/2006	1 - 14	Seria Ştiinţe Economice

Recent Developments in the Agriculture of European Union Member and Candidate Countries

Constantin Ciutacu, Luminița Chivu

Institutul de Economie Națională, Academia Română, Calea 13 Septembrie nr. 13, Bucureşti
e-mail: constantinciutacu@ien.ro

Abstract

The agricultural sector, which covers around 5% of the EU workforce (and a considerably higher proportion in the new Member States and candidate countries), is currently going through major structural changes, also because of the reform of the Common Agricultural Policy and the Union's recent eastward extension.

This comparative study examines the main characteristics of the agricultural sector (defined as NACE sector 01) in 23 European Union (EU) Member States (Luxembourg and Portugal being the exceptions), alongside with two candidate countries (Bulgaria and Romania) and Norway. The article is part of a comparative study on Industrial Relations in Agriculture, coordinated by the Romanian National Centre under the aegis of the European Industrial Relations Observatory. The original version of the study is available on the EIRO website (www. eiro.eurofound.eu.int).

The study looks into: basic employment and economic data on agriculture; the amount of land farmed; the main types of crops and livestock; the number, structure and average size of farms; mechanization, chemical fertilizers/pesticides and IT systems use.

Key words: *agriculture sector, European Union, employment, productivity*

The Agricultural Sector

In 2003, the 26 countries analysed by the study had over 477 million inhabitants in total, out of whom 203.6 million represented the employed population. Agriculture provided jobs for 13.3 million people, representing 6.6% of total employment - see table 1 below.

The national distribution of employment in agriculture is extremely uneven. There are 5.8 million people employed in agriculture in the 13 'old' Member States considered, where employment in agriculture makes up only 3.6% of the total - the level of employment in agriculture ranges from 1.2% in the UK to 5.3% in Finland, 5.5% in Austria, 5.6% in Spain, 6.4% in Ireland and 16.3% in Greece. In 10 of the new Member States, agriculture provides jobs for about 3.6 million people - an average of 12.4% of total employment and ranging from 18.7% in Lithuania and 18.2% in Poland to 8.4% in Slovenia, 6.3% in Estonia, 6.0% in Slovakia and 4.5% in the Czech Republic. In Bulgaria and Romania, the number of people working in agriculture reaches up to 3.85 million, which is more than in the 10 new Member States added

together and the equivalent of 66% of the total employment in agriculture in the 13 old Member States.

Table 1. Agriculture - total employment, contribution to gross domestic product (GDP) and productivity compared with national average, 2003

	Employment in agriculture, forestry, hunting and fisheries		Gross added value in agriculture	Agriculture's contribution to GDP	Gross added value/employed in agriculture	GDP/employed in total economy
	Thousands	% of total employment	EUR millions	%	EUR thousands	EUR thousands
Austria	204	5.5	2,722	1.2	13.3	61.2
Belgium	70	1.7	2,680	1.0	38.3	65.1
Denmark	89	3.3	2,997	1.6	33.7	69.5
Finland	126	5.3	1,466	1.0	11.6	61.7
France	1,042	4.3	30,604	2.0	29.4	63.1
Germany	871	2.4	15,704	0.7	18.0	61.8
Greece	654	16.3	8,228	5.4	12.6	38.0
Ireland	113	6.4	2,598	1.9	23.0	77.4
Italy	1,040	4.7	29,092	2.2	28.0	59.8
Netherlands	218	2.7	9,165	2.0	42.0	56.8
Spain	934	5.6	26,971	5.4	28.9	29.9
Sweden	111	2.5	1,579	0.6	14.2	59.3
UK	356	1.2	11,267	0.7	31.6	54.3
Total 13 old EU MS	**5,828**	**3.6**	**145,073**	**1.6**	**24.9**	**56.5**
Cyprus	17	5.2	423	3.7	24.9	35.0
Czech Republic	212	4.5	866	1.1	4.1	16.7
Estonia	37	6.3	175	2.2	4.7	13.5
Hungary	211	5.4	1,953	2.7	9.3	18.5
Latvia	146	14.6	211	2.1	1.4	10.0
Lithuania	276	18.7	421	2.6	1.5	11.0
Malta	4	2.5	69	1.6	17.3	27.0
Poland	2,485	18.2	4,209	2.3	1.7	13.4
Slovakia	130	6.0	354	1.2	2.7	13.6
Slovenia	75	8.4	387	1.6	5.2	27.1
Total 10 NMS	**3,593**	**12.4**	**9,068**	**2.1**	**2.5**	**15.2**
Total 13 old EU MS + 10 NMS	**9,421**	**5.0**	**154,141**	**1.6**	**16.4**	**50.2**
Bulgaria	320	11.1	1,532	8.7	4.8	6.1
Romania	3,530	37.7	5,653	11.2	1.6	5.4
Total CCs	**3,850**	**31.4**	**7,185**	**10.6**	**1.9**	**5.6**
Total EU 23 +CCs	**13,271**	**6.6**	**161,326**	**1.7**	**12.2**	**47.4**
Norway	66	2.9	1,947	1.0	29.5	85.6
Total 26 countries	**13,337**	**6.6**	**163,273**	**1.7**	**12.2**	**47.9**

Note: MS = Member State; NMS = new Member State; CC = candidate country.
Source: based on data from the European Commission (Agriculture in the European Union; Statistical and Economic Information 2004, Directorate-General for Agriculture and Rural Development, February 2005) and EIRO.

The 13.3 million people employed in agriculture across the 26 countries considered generated EUR 163.3 billion of gross added value in 2003, with an average of EUR 12,200 per employed person (see table 1 above).

The differences between countries in terms of labor productivity in agriculture are far greater than the differences in terms of total national labor productivity - see table 2 below. The productivity of a person employed in agriculture differsif compared to the average for agriculture in the 26 countries (100%) between 11.8% in Latvia and 343.4% in the Netherlands, while whole-economy productivity ranges from 11.3% in Romania to 178.7% in Norway (100% being the average for the 26 countries). The average level of national whole-economy productivity, calculated for the 26 countries, is 3.9 times the productivity in agriculture.

The greatest part of the difference between national average productivity and productivity in agriculture has structural causes. In general, however, the contribution of agriculture to gross added value is apparently smaller due to subsistence farming and the working and consumption patterns specific to various countries. A large number of household activities related to agriculture are omitted from national accounts or official statistics. Also, the pricing system for agricultural products affects, by means of various mechanisms, the competitiveness of the other economic sectors.

The contribution of agriculture to the creation of added value and GDP is a function of two major variables: the number of workers and labor productivity. As employment in agriculture declines, it increases the 'upstream' and the 'downstream' of the sector and also contributes to the increasing of the population's wealth and economic welfare.

Table 2. Countries ranked by productivity of the national economy, productivity in agriculture and the ratio between them

Country	Agriculture gross added value/employed in agriculture	Country	Gross domestic product/employed person	Country	Average national productivity/productivity in agriculture
Netherlands	343.4	Norway	178.7	Poland	**7.91**
Belgium	312.7	Ireland	161.8	Lithuania	**7.19**
Denmark	275.1	Denmark	145.1	Latvia	**6.95**
UK	258.5	Belgium	136.0	Finland	**5.30**
Norway	241.0	France	131.9	Slovenia	**5.25**
France	239.9	Germany	129.2	Slovakia	**5.00**
Spain	235.9	Finland	128.8	Austria	**4.58**
Italy	228.5	Austria	127.8	Sweden	**4.17**
Cyprus	203.3	Italy	124.9	Czech Republic	**4.09**
Ireland	187.8	Sweden	123.8	**Total 26 countries**	**3.91**
Germany	147.3	Netherlands	118.6	Germany	**3.43**
Malta	140.9	UK	113.4	Ireland	**3.37**
Sweden	116.2	**Total 26 countries**	**100.0**	Romania	**3.37**
Austria	109.0	Greece	79.3	Greece	**3.02**
Greece	102.8	Cyprus	73.1	Norway	**2.90**
Total 26 countries	**100.0**	Spain	62.6	Estonia	**2.86**
Finland	95.0	Slovenia	56.6	France	**2.15**
Hungary	75.6	Malta	56.3	Italy	**2.14**
Slovenia	42.1	Hungary	38.7	Denmark	**2.06**

Bulgaria	39.1	Czech Republic	34.9	Hungary	**2.00**
Estonia	38.6	Slovakia	28.4	UK	**1.71**
Czech Republic	33.4	Estonia	28.3	Belgium	**1.70**
Slovakia	22.2	Poland	28.0	Malta	**1.56**
Poland	13.8	Lithuania	22.9	Cyprus	**1.41**
Romania	13.1	Latvia	21.0	Netherlands	**1.35**
Lithuania	12.5	Bulgaria	12.8	Bulgaria	**1.28**
Latvia	11.8	Romania	11.3	Spain	**1.04**

Source: based on data from the European Commission (Agriculture in the European Union; Statistical and Economic Information 2004, Directorate-General for Agriculture and Rural Development, February 2005) and EIRO.

Level and Structure of Employment

As stated above, agriculture's share of the total employment differs considerably between the countries examined. The structure of agricultural employment by gender also varies substantially - see table 3 below. Men make up for the majority of agricultural employment in all countries, but the extent of their predominance differs, from 55% or less of the total in Austria, Slovenia and Romania, to 75% or more in Denmark, Ireland, Sweden, the UK, Hungary and Malta. On average, across the 23 EU Member States and two candidate countries considered, 62% of agricultural employment is made up by men, with the proportion standing at 69% in the old Member States, around 60% in the new Member States (just under 66% in all EU Member States considered), and only 53% in the two candidate countries.

Table 3. Employment in agriculture, total and by gender, 2003

	Total	**Men**		**Women**	
	Thousands	**Thousands**	**%**	**Thousands**	**%**
Austria	204	107	52.6	97	47.4
Belgium	70	51	73.6	18	26.4
Denmark	89	67	75.2	22	24.8
Finland	126	86	68.5	40	31.5
France	1,042	732	70.2	310	29.8
Germany	871	575	66.0	296	34.0
Greece	654	373	57.1	281	42.9
Ireland	113	100	88.3	13	11.7
Italy	1,040	730	70.2	310	29.8
Netherlands	218	152	70.0	65	30.0
Spain	934	680	72.8	254	27.2
Sweden	111	88	79.3	23	20.7
UK	356	281	79.0	75	21.0
Total 13 old EU MS	**5,828**	**4,022**	**69.0**	**1,804**	**31.0**
Cyprus	17	11	66.2	6	33.8
Czech Republic	212	146	68.9	66	31.1
Estonia	37	26	69.6	11	30.4
Hungary	211	163	77.3	48	22.7
Latvia	146	95	65.1	51	34.9
Lithuania	276	162	58.7	114	41.3
Malta	4	3	92.7	0	7.3
Poland	2,485	1,426	57.4	1,059	42.6

Slovakia	130	93	71.4	37	28.6
Slovenia	75	41	55.0	34	45.0
Total 10 NMS	**3,593**	**2,166**	**60.3**	**1,426**	**39.7**
Total 13 old EU MS + 10 NMS	**9,421**	**6,188**	**65.7**	**3,230**	**34.3**
Bulgaria	320	207	64.8	113	35.2
Romania	3,530	1,832	51.9	1,698	48.1
Total CCs	**3,850**	**2,039**	**53.0**	**1,811**	**47.0**
Total EU 23 +CCs	**13,271**	**8,227**	**62.0**	**5,041**	**38.0**

Note: MS = Member State; NMS = new Member State; CC = candidate country.
Source: based on data from the European Commission (Agriculture in the European Union; Statistical and Economic Information 2004, Directorate-General for Agriculture and Rural Development, February 2005).

Across all the countries examined, the age structure of agricultural employment indicates a high percentage of people aged 35-54 years (just under half of the total) and a relative balance between the number of those under 34 and those over 55 years - see table 4 below. The highest proportion of those under-34 is found in the Netherlands (38%), Denmark (31%) and Romania (31%), and the lowest in Cyprus (12%), Greece (18%) and Austria (19%), while the proportion is slightly higher in the new Member States than in the old and in the two candidate countries than in the other two groups. The highest proportion of people over 55 is found in Cyprus (48%), Greece (41%) and Slovenia (41%), and the lowest in Slovakia (10%), Hungary (11%) and Malta (16%), while the proportion is higher in the old Member States than in the new and in the two candidate countries than in the other two groups.

The share of part-time employment in agriculture in the countries covered by the study averages 19% - see table 4 below - compared to a whole-economy average for the EU 25 of 17% in 2003 (Eurostat figure). There are large differences between countries, with agricultural part-time employment rates ranging from 3% in Slovakia and the Czech Republic and 5% in Hungary to 39% in the Netherlands, 33% in Cyprus and 29% in Romania. Part-time employment is less common in the old Member States considered (13%) than in the new Member States (19%) and candidate countries (28%).

In 2003, of all people in (full-time) employment in the EU 25, some 15.5% were self-employed (according to Eurostat). This is an area where agriculture is distinctive, as in the EU Member States and candidate countries examined here some 72% of all those in employment in agriculture are self-employed and only 28% are employees. The highest percentage of employees in total agricultural employment is registered in Slovakia (94%), the Czech Republic (82%), Estonia (71%), Hungary (68%), Germany (60%) and the Netherlands (50%). By contrast, in Greece, self-employed workers reach up to 93% and employees only up to 7% and in Romania the percentages are 90% and 10% respectively. The rate of self-employment is lower in the old Member States considered (60%) than in the new Member States (74%) and candidate countries (88%).

Table 4. The structure of employment in agriculture by age, full-/part-time and employment status, % of total employment in agriculture, 2003

	Age brackets			**Full-/part-time**		**Employment status**	
	Under 34 years	**35-54 years**	**Over 55 years**	**Full-time**	**Part-time**	**Employees**	**Self-employed**
Austria	19	58	23	84	16	25	75
Belgium	21	56	23	88	12	32	68
Denmark	31	47	22	86	14	49	51
Finland	20	56	24	84	16	29	71
France	23	58	19	88	12	31	69
Germany	23	57	20	83	17	60	40

Greece	18	41	41	92	8	7	93
Ireland	22	45	33	88	12	21	79
Italy	25	54	21	89	11	47	53
Netherlands	38	44	18	61	39	50	50
Spain	29	49	22	93	7	49	51
Sweden	22	40	38	75	25	35	65
UK	30	44	26	82	18	48	52
Total 13 old EU MS	**24.6**	**51.6**	**23.8**	**87**	**13**	**40**	**60**
Cyprus	12	40	48	67	33	29	71
Czech Republic	23	60	17	97	3	82	18
Estonia	29	51	20	93	7	71	29
Hungary	30	59	11	95	5	68	32
Latvia	28	52	20	78	22	57	43
Lithuania	28	51	21	83	17	28	72
Malta	24	60	16	93	7	48	52
Poland	28	53	19	77	23	12	88
Slovakia	25	65	10	97	3	94	6
Slovenia	20	39	41	80	20	27	73
Total 10 NMS	**27.5**	**53.6**	**18.9**	**81**	**19**	**26**	**74**
Total 13 old EU MS + 10 NMS	**25.7**	**52.4**	**21.9**	**84**	**16**	**35**	**65**
Bulgaria	23	45	32	89	11	38	62
Romania	31	34	35	71	29	10	90
Total CCs	**30.3**	**34.9**	**34.8**	**72**	**28**	**12**	**88**
Total EU 23 +CCs	**27.0**	**47.3**	**25.7**	**81**	**19**	**28**	**72**

Note: MS = Member State; NMS = new Member State; CC = candidate country.
Source: based on data from the European Commission (Agriculture in the European Union; Statistical and Economic Information 2004, Directorate-General for Agriculture and Rural Development, February 2005).

Used Agricultural Area and Cultivated Area

The 26 countries this comparative study focuses on cover a total area of 455 million hectares, of which agriculture used 180.4 million hectares in 2003, and 90.6 million hectares were cultivated with various crops - see table 5 below.

The used agricultural area (UAA) and the area cultivated with crops widely vary if taking into account the proportion of the total area of each country. In the 13 'old' EU 15 countries considered, UAA represents 36.9% of the total area and the area cultivated with crops represents 18.5%. The respective figures are: 47.3% and 28% in the new Member States (NMSs); 41% and 20.3% in the current EU as a whole; and 42.4% and 21.4% in the EU plus the two candidate countries. The countries where the UAA makes up the smallest proportions of national area are Norway (3.2%), Finland (6.6%) and Sweden (7.0%), and those where the UAA is proportionally greatest are Hungary (68%), UK (64.4%), Ireland and Romania (both 62.2%).

The size of cultivated areas is a major issue in industrial relations in agriculture, especially in the context of the EU's Common Agricultural Policy (CAP) budget and support for the farmers' income, in one form or another, by national governments. The size and structure of agricultural areas has an impact on the annual work volume and the distribution of working time among permanent, temporary, seasonal and occasional activities, as well as on costs and income and their respective cyclical patterns.

Table 5. Total national areas, utilized agricultural area (UAA) and area cultivated with crops, 2003

	Thousand hectares			As % of total national farmland		As % of the combined area of the 26 countries		
	Total area	UAA	Cultivated with various crops	UAA	Cultivated with various crops	Total area	UAA	Cultivated with various crops
Austria	8,385.8	3,374	1,141	40.2	13.6	1.8	1.9	1.3
Belgium	3,052.8	1,393	735	45.6	24.1	0.7	0.8	0.8
Denmark	4,309.8	2,676	2,212	62.1	51.3	0.9	1.5	2.4
Finland	33,814.0	2,216	1,337	6.6	4.0	7.4	1.2	1.5
France	54,908.7	29,599	14,720	53.9	26.8	12.1	16.4	16.2
Germany	35,703.1	16,974	10,396	47.5	29.1	7.8	9.4	11.5
Greece	13,195.7	2,554	2,060	19.4	15.6	2.9	1.4	2.3
Ireland	7,029.5	4,372	372	62.2	5.3	1.5	2.4	0.4
Italy	30,133.6	15,421	7,754	51.2	25.7	6.6	8.5	8.6
Netherlands	3,552.5	1,951	826	54.9	23.3	0.8	1.1	0.9
Spain	50,488.0	24,840	10,851	49.2	21.5	11.1	13.8	12.0
Sweden	45,029.5	3,140	1,333	7.0	3.0	9.9	1.7	1.5
UK	24,410.1	15,722	4,279	64.4	17.5	5.4	8.7	4.7
Total 13 old EU MS	**314,013.1**	**124,232**	**58,016**	**39.6**	**18.5**	**69.0**	**68.9**	**64.0**
Cyprus	925.1	137	96	14.8	10.4	0.2	0.1	0.1
Czech Republic	7,886.5	3,652	2,385	46.3	30.2	1.7	2.0	2.6
Estonia	4,522.7	698	334	15.4	7.4	1.0	0.4	0.4
Hungary	9,303.4	6,326	4,082	68.0	43.9	2.0	3.5	4.5
Latvia	6,458.9	1,596	539	24.7	8.3	1.4	0.9	0.6
Lithuania	6,530.0	2,903	1,216	44.5	18.6	1.4	1.6	1.3
Malta	31.6	10	7	31.6	22.2	0.0	0.0	0.0
Poland	31,268.5	16,891	10,612	54.0	33.9	6.9	9.4	11.7
Slovakia	4,903.4	2,236	1,238	45.6	25.2	1.1	1.2	1.4
Slovenia	2,027.3	505	166	24.9	8.2	0.4	0.3	0.2
Total 10 NMS	**73,857.4**	**34,954**	**20,675**	**47.3**	**28.0**	**16.2**	**19.4**	**22.8**
Total 13 old EU MS + 10 NMS	**387,870.5**	**159,186**	**78,691**	**41.0**	**20.3**	**85.2**	**88.3**	**86.8**
Bulgaria	11,099.4	5,325	3,377	48.0	30.4	2.4	3.0	3.7
Romania	23,839.1	14,819	8,563	62.2	35.9	5.2	8.2	9.4
Total CCs	**34,938.5**	**20,144**	**11,940**	**57.7**	**34.2**	**7.7**	**11.2**	**13.2**
Total EU 23+CCs	**422,809.0**	**179,330**	**90,631**	**42.4**	**21.4**	**92.9**	**99.4**	**100.0**
Norway	32,387.7	1,038	...	3.2	...	7.1	0.6	...
Total 26 countries	**455,196.7**	**180,368**	**90,631**	**39.6**	**19.9**	**100.0**	**100.0**	**...**

Note: MS = Member State; NMS = new Member State; CC = candidate country.
Source: based on data from the European Commission (Agriculture in the European Union; Statistical and Economic Information 2004, Directorate-General for Agriculture and Rural Development, February 2005) and EIRO.

Crop Production

Cereals are by far the most important group of agricultural crops in the countries examined. The area cultivated with cereal crops in the 26 countries totaled about 60.5 million hectares in 2003, out of which wheat made up 29.9 million hectares, barley 14.3 million hectares and corn 9.2 million hectares.

The most extensive areas cultivated with cereal crops are found in France (9.3 million hectares), Poland (8.3 million hectares), Germany (6.9 million hectares), Spain (6.6 million hectares) and Romania (6.0 million hectares). Wheat covers 5.6 million hectares in France, 4.1 million hectares in Italy, 3.3 million hectares in Spain and 3 million hectares in Germany. The three leading barley cultivators are Spain (3.1 million hectares), Germany (2 million hectares) and France (1.6 million hectares), while the largest areas covered by corn are found in Romania (2.9 million hectares), France (1.8 million hectares), Hungary (1.2 million hectares) and Italy (1.1 million hectares).

The share of the various groups of crops in each country's area cultivated with crops, and each country's share of the total cultivated area of the 26 countries given over to each crop, is presented in table 6 below.

Table 6. Main crops, share of each in national cultivated area, and national shares of the total 26-country cultivated area for each crop, EU Member States and candidate countries, 2004

	Total cereal crops (%)		**Industrial crops (oil seed and sugar beet) (%)**		**Vegetables and potatoes (%)**		**Orchards and vineyards (%)**		**Green fodder (%)**	
	Share of national cultivated area	National share of total 26-country cultivated area for crop	Share of national cultivated area	National share of total 26-country cultivated area for crop	Share of national cultivated area	National share of total 26-country cultivated area for crop	Share of national cultivated area	National share of total 26-country cultivated area for crop	Share of national cultivated area	National share of total 26-country cultivated area for crop
Austria	71.3	1.3	13.6	1.4	3.2	0.7	4.8	0.8	7.1	1.2
Belgium	42.2	0.5	15.9	1.0	15.8	2.3	2.4	0.3	23.7	2.6
Denmark	69.1	2.5	6.4	1.3	1.9	0.9	0.4	0.1	22.2	7.3
Finland	89.0	2.0	7.5	0.9	2.9	0.8	0.6	0.1	0.0	0.0
France	63.2	15.4	14.8	19.3	3.0	8.9	7.3	15.0	11.7	25.4
Germany	66.8	11.5	17.3	16.0	3.7	7.7	1.5	2.2	10.8	16.6
Greece	62.2	2.1	20.3	3.7	8.1	3.3	2.0	0.6	7.4	2.3
Ireland	80.4	0.5	8.9	0.3	5.6	0.4	0.0	0.0	5.1	0.3
Italy	52.4	6.7	7.4	5.1	7.2	11.1	20.7	22.5	12.3	14.2
Netherlands	28.2	0.4	13.8	1.0	29.3	4.8	2.5	0.3	26.2	3.2
Spain	61.0	10.9	8.9	8.6	4.7	10.2	22.0	33.5	3.4	5.4
Sweden	83.7	1.8	9.5	1.1	2.9	0.8	0.4	0.1	3.6	0.7
UK	75.8	5.4	14.4	5.5	6.3	5.4	0.6	0.4	2.8	1.8
Total 13 old EU MS	**63.7**	**61.1**	**12.6**	**65.1**	**4.9**	**57.4**	**9.3**	**75.8**	**9.4**	**80.9**
Cyprus	60.4	0.1	0.0	0.0	10.4	0.2	29.2	0.4	0.0	0.0
Czech Republic	65.5	2.6	20.4	4.3	2.3	1.1	0.5	0.2	11.3	4.0
Estonia	77.5	0.4	9.9	0.3	5.4	0.4	5.4	0.3	1.8	0.1
Hungary	72.3	4.9	16.3	5.9	3.7	3.0	4.3	2.5	3.4	2.0
Latvia	77.0	0.7	6.9	0.3	12.2	1.3	2.4	0.2	1.5	0.1
Lithuania	75.5	1.5	7.8	0.8	9.9	2.4	3.5	0.6	3.3	0.6
Malta	0.0	0.0	0.0	0.0	28.6	0.0	0.0	0.0	71.4	0.1
Poland	78.2	13.7	7.1	6.7	9.2	19.5	3.5	5.3	2.0	3.1
Slovakia	66.2	1.4	18.9	2.1	3.2	0.8	1.6	0.3	10.0	1.8
Slovenia	59.6	0.2	6.0	0.1	6.0	0.2	13.3	0.3	15.1	0.4
Total 10 NMS	**74.4**	**25.4**	**11.2**	**20.6**	**7.0**	**28.9**	**3.4**	**9.9**	**4.0**	**12.3**

Total 13 old EU MS + 10 NMS	**66.5**	**86.5**	**12.3**	**85.8**	**5.5**	**86.3**	**7.8**	**85.7**	**8.0**	**93.2**
Bulgaria	63.1	3.5	14.4	4.3	3.6	2.4	17.2	8.1	1.7	0.9
Romania	70.5	10.0	13.1	9.9	6.6	11.3	5.1	6.2	4.7	6.0
Total CCs	**68.4**	**13.5**	**13.4**	**14.2**	**5.8**	**13.7**	**8.5**	**14.3**	**3.9**	**6.8**
Total EU 23+CCs	**66.8**	**100.0**	**12.4**	**100.0**	**5.5**	**100.0**	**7.9**	**100.0**	**7.4**	**100.0**

Note: MS = Member State; NMS = new Member State; CC = candidate country.
Source: based on data from the European Commission (Agriculture in the European Union; Statistical and Economic Information 2004, Directorate-General for Agriculture and Rural Development, February 2005) and EIRO.

In terms of production of particular crops, the 25 countries for which there are comparable statistical data produced about 250 million tones of cereals in 2003 (282 million in 2000), 17.9 million tones of sugar (agricultural year 2004/5), 36.7 million tones of fruit (2003), 61.7 million tones of vegetables and 61.7 million tones of potatoes (2003) - see table 7 below.

France, Germany, Spain, Italy and Romania have a significant output of cereals. Germany and France each account for a fifth of the total sugar beet output, followed by Poland (9.7%). The main fruit producers are Spain (28.2% of total output) and Italy (25.0%), followed at some distance by France (11.3%) and Poland (9.0%). Italy (21.9%) and Spain (21.2%) lead in vegetable production, with other major producers being France (9.7%), Romania (7.6%) and Poland (7.2%). Finally, the leading potato producers are Poland (22.3%), Germany (16.1%), the Netherlands (10.5%) and France (10.3%).

Table 7. Output of certain crops in EU Member States and candidate countries, most recent figures

	Total cereals		**Sugar beet**	**Fruit (excluding citrus)**	**Vegeta-bles**	**Potatoes**
	2000	**2003**	**2004/5**	**2003**	**2003**	**2003**
Total EU 23+CCs (thousand tones)	**281,872**	**250,494**	**17,887**	**36,748**	**61,669**	**61,693**
Total EU 23+CCs (%), of which:	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Austria	1.6	1.7	2.3	2.1	0.8	0.9
Belgium	0.9	1.0	5.1	1.6	2.5	4.1
Denmark	3.3	3.6	2.5	0.1	0.4	0.7
Finland	1.5	1.5	0.8	0.0	0.4	1.0
France	23.3	21.9	22.6	11.3	9.7	10.3
Germany	16.1	15.7	21.3	3.5	4.6	16.1
Greece	1.4	1.6	1.2	8.5	6.4	1.4
Ireland	0.8	0.9	1.2	0.1	0.4	0.8
Italy	6.9	6.6	5.6	25.0	21.9	2.6
Netherlands	0.6	0.8	5.6	0.0	6.3	10.5
Spain	8.4	8.2	5.6	28.2	21.2	4.5
Sweden	1.9	2.1	2.1	0.1	0.4	1.4
UK	8.5	8.5	7.3	0.7	3.7	9.6
Total 13 old EU MS	**75.2**	**74.2**	**83.2**	**81.2**	**78.6**	**63.8**
Cyprus	0.0	0.1	0.0	0.5	0.2	0.2
Czech Republic	2.3	2.3	2.6	0.5	0.5	1.1
Estonia	0.2	0.2	0.0	0.0	0.1	0.4
Hungary	3.6	3.5	2.2	2.0	2.2	1.2
Latvia	0.3	0.4	0.4	0.1	0.3	1.2
Lithuania	0.9	1.1	0.7	0.3	0.6	2.1

Malta	0.0	0.0	0.0	0.0	0.1	0.0
Poland	7.9	9.3	9.7	9.0	7.2	22.3
Slovakia	0.8	1.0	1.0	0.1	0.3	0.6
Slovenia	0.2	0.2	0.2	0.4	0.1	0.2
Total 10 NMS	**16.3**	**18.0**	**16.8**	**13.0**	**11.6**	**29.4**
Total 13 old EU MS + 10 NMS	**91.5**	**92.1**	**100.0**	**94.1**	**90.2**	**93.2**
Bulgaria	1.9	2.7	0.0	0.0	2.2	0.5
Romania	6.7	5.2	0.0	5.9	7.6	6.4

Note: MS = Member State; NMS = new Member State; CC = candidate country.
Source: based on data from European Commission (Agriculture in the European Union; Statistical and Economic Information 2004, Directorate-General for Agriculture and Rural Development, February 2005) and EIRO.

Livestock Production

In 2004, across the 26 countries examined, statistics indicate that there were 91.6 million cattle, 202.4 million pigs, 109.3 million sheep, 13.3 million goats, 3.9 million horses, 1,306.4 million poultry, 101.7 million rabbits, 8.4 million bee hives, 1.2 million mules and 0.5 million asses. The three leading countries for each species are presented as follows: cattle - France (19.2 million), Germany (13.4 million) and the UK (10.5 million); pigs - the UK (50 million), Germany (26.5 million) and Spain (24 million); sheep - the UK (35.5 million), Spain (24 million) and Greece (9 million); goats - Greece (5.4 million), Spain and France (both 1.3 million); and poultry - France (260 million), UK (181.1 million and Spain (129 million). To get an overall picture, the numbers of the various species of livestock can be converted into 'conventional livestock units' (CLUs), calculated as the sum of the results obtained by multiplying livestock numbers by coefficients for the various species (for cattle 0.85, pigs 0.3, sheep and goats 0.09, horses 1.0, asses and mules 0.9, rabbits 0.07 and poultry 0.05). Using this method, the 26 countries considered had a total of 162.2 million CLUs in 2004, of which 28.2 million were in the UK, 23.5 million in France, 20.7 million in Germany, 16.3 million in Spain, 10.9 million in Italy and 10.8 million in Poland - see table 8 below.

Table 8. Total livestock, expressed in conventional livestock units (CLUs), density per 1,000 inhabitants and density per 100 hectares of used agricultural area (UAA), 2004

	Livestock numbers		**Livestock density**	
	Thousand CLUs	**% of the 26-country total**	**CLU/1,000 inhabitants**	**CLU/100 hectares of UAA**
Austria	2,897	1.8	358.9	85.8
Belgium	4,411	2.7	424.1	316.7
Denmark	5,542	3.4	1,026.2	207.1
Finland	1,344	0.8	258.5	60.7
France	23,533	14.5	394.9	79.5
Germany	20,731	12.8	251.3	122.1
Greece	2,379	1.5	215.9	93.1
Ireland	7,786	4.8	1,946.5	178.1
Italy	10,926	6.7	190.7	70.9
Netherlands	7,291	4.5	450.1	373.7
Spain	16,274	10.0	399.8	65.5
Sweden	2,102	1.3	236.2	67.0
UK	28,224	17.4	476.0	179.5
Total 13 old EU MS	**133,440**	**82.3**	**362.0**	**107.4**
Cyprus	292	0.2	417.2	213.2

Czech Republic	2,345	1.4	229.9	64.2
Estonia	341	0.2	243.7	48.9
Hungary	2,544	1.6	251.9	40.2
Latvia	501	0.3	217.9	31.4
Lithuania	1,118	0.7	319.5	38.5
Malta	17	0.0	42.9	171.7
Poland	10,813	6.7	283.1	64.0
Slovakia	1,095	0.7	202.8	49.0
Slovenia	623	0.4	311.4	123.3
Total 10 NMS	**19,689**	**12.1**	**265.4**	**56.3**
Total 13 old EU MS + 10 NMS	**153,129**	**94.4**	**345.8**	**96.2**
Bulgaria	1,586	1.0	203.3	29.8
Romania	6,291	3.9	288.6	42.5
Total CCs	**7,877**	**4.9**	**266.1**	**39.1**
Total EU 23+CCs	**161,006**	**99.3**	**340.8**	**89.8**
Norway	1,211	0.7	263.4	116.7
Total 26 countries	**162,218**	**100.0**	**340.1**	**89.9**

Note: CLU = see main text for definition; MS = Member State; NMS = new Member State; CC = candidate country.
Source: Based on data from the Food and Agriculture Organization of the United Nations (FAO).

The average density of livestock, expressed in CLUs per 1,000 inhabitants and CLUs per 100 hectares of UAA indicates an extremely varied distribution by countries. In terms of density expressed in CLU/1,000 inhabitants, Ireland is on the top of the list (1,946.5 CLU/1,000 inhabitants), followed at a great distance by Denmark (1026.2) and at a further considerable distance by the UK (476). Measured in CLU/100 hectares of UAA, the highest livestock density is found in the Netherlands (373.7) and Belgium (316.7), while the lowest are in Bulgaria (29.8) and Lithuania (31.4).

In 2003, the leading countries in terms of livestock output by major farm producers, by type, were as follows:

- beef and veal - France (1.6 million tones), Germany (1.3 million tones), Italy (1.1 million tones), Spain and the UK (both 0.7 million tones);
- pork - Germany (4.2 million tones), Spain (3.2 million tones), France (2.3 million tones), Poland (2 million tones), Denmark (1.8 million tones), Italy (1.6 million tones) and the Netherlands (1.3 million tones);
- poultry meat - France (2.1 million tones), the UK (1.6 million tones), Spain (1.3 million tones), Italy and Germany (both 1.1 million tones);
- eggs - Spain (1.1 million tones), France (1 million tones), Germany (0.81 million tones), Italy (0.79 million tones) and the UK (0.7 million tones); and
- milk - Germany (28.5 million tones), France (24.6 million tones), the UK (15 million tones), Poland (11.9 million tones), the Netherlands (10.9 million tones) and Italy (10.8 million tones).

Number, Structure and Average Size of Farms

In 2003, the total number of farms in the EU and the two candidate countries considered was about 15.2 million - see table 9 below. In the past 10 years, the number of farms in these countries has decreased with around 2.5 million. In the EU 25, the number of farms decreased with 20%-25%, with the greatest rate of disappearance in NMSs in central and eastern Europe (for example, with falls of 30% in Poland, 43% in Estonia, 47% in Latvia and 49% in

Lithuania). In the old Member States, the most significant reductions in the number of farms have been registered in Germany, Belgium, Denmark, the Netherlands, Spain and France. Over 1998-2003, the number of farms in Norway also decreased, by 18%. According to the available data, it seems that the only old Member State where the number of farms has grown is the UK (to 281,000 in 2003 from 243,000 in 1993).

The average size of farms varies widely: 1 hectare in Malta; 2 hectares in Romania; 3.5 hectares in Cyprus; 5.6 hectares in Hungary; 6.3 hectares in Slovenia; 7 hectares in Poland; 17 hectares in Austria; 23-25 hectares in the Netherlands and Belgium; 32 hectares in Ireland; 40-45 hectares in France and Germany; 46 hectares in Sweden; 55-57 hectares in Denmark and the UK; and 66 hectares in Czech Republic. Broadly speaking, the average size of farms grows as one moves from East to West.

Table 9. Number of farms, average size and structure by size categories, 2003

	Number of farms (1,000)	Percentage of the 25-country total number of farms (%)	Average size of farms (hectares)	Structure of farms by size categories (%)		
				0-5 hectares	5-50 hectares	Over 50 hectares
Austria (2000)	199	1.3	17.0	36.4	59.1	4.5
Belgium	55	0.4	25.4	27.9	57.2	14.9
Denmark	49	0.3	54.7	3.7	60.9	35.4
Finland	75	0.5	29.9	9.9	73.6	16.5
France	614	4.0	45.3	27.6	39.4	33.0
Germany	412	2.7	41.2	23.6	56.1	20.3
Greece	817	5.4	4.4	76.8	22.7	0.5
Ireland	135	0.9	32.3	7.7	74.3	18.0
Italy (2000)	2,152	14.1	6.1	78.3	20.0	1.7
Netherlands	86	0.6	23.5	29.6	58.2	12.2
Spain (2000)	1,128	7.4	22.3	57.5	34.7	7.8
Sweden	68	0.4	46.1	10.4	61.2	28.4
UK	281	1.8	57.4	36.9	36.2	26.9
Total 13 old EU MS	**6,071**	**39.8**	-	-	-	-
Cyprus	45	0.3	3.5	87.6	11.5	0.9
Czech Republic	54	0.4	66.9	60.5	28.8	10.7
Estonia (1997)	37	0.2	21.6	50.8	43.5	5.7
Hungary	773	5.1	5.6	89.6	9.0	1.4
Latvia (1997)	141	0.9	10.2	55.5	42.1	2.4
Lithuania (1996)	279	1.8	9.1	61.6	36.6	1.8
Malta	11	0.1	1.0	98.2	1.8	0.0
Poland (1996)	2,178	14.3	7.0	64.7	34.4	0.9
Slovakia (1996)	72	0.5	29.8	91.9	4.8	3.3
Slovenia (1997)	77	0.5	6.3	57.5	42.2	0.3
Total 10 NMS	**3,667**	**24.0**	-	-	-	-
Total 13 old EU MS + 10 NMS	**9,738**	**63.8**	-	-	-	-
Bulgaria	1,780.6 (1997)	11.7	nd	nd	nd	nd
Romania	3,739.1 (1997)	24.5	2	nd	nd	nd
Total CCs	**5,519.7**	**36.2**	-	-	-	-
Total 25 countries	**15,257.7**	**100.0**	-	-	-	-

Note: MS = Member State; NMS = new Member State; CC = candidate country.

Source: based on data from European Commission (Agriculture in the European Union; Statistical and Economic Information 2004, Directorate-General for Agriculture and Rural Development, February 2005) and EIRO.

Mechanization, Chemical Fertilizers/Pesticides and IT Systems Use

In general, the degree of mechanization in agriculture is closely linked to the size of the farm; as a rule, in countries where the average agricultural area per farm is small, farmers do not have the financial resources necessary to buy much farming machinery. For certain activities they may resort to companies specialized in agricultural services.

In the Central and Eastern European countries, the change in land ownership in recent years was followed by a reduction in the degree of mechanization and in the use of chemical fertilizers and pesticides.

All countries are engaged in raising the degree of mechanization, including the use of robots and automatic equipment in animal husbandry, while striving to decrease and even entirely eliminate the use of pesticides that have a negative impact on the environment and on the health of humans and livestock.

The development of information technology (IT) used in farming has been notable in some cases: in Germany, farm households are currently above the national average in the use of computers, the internet and mobile telephony; in France the agricultural IT budget registers an annual growth of 7%; in Belgium, a third of farms use computers and a quarter are connected to the internet; in Denmark, there is a national database and software dedicated to animal husbandry; in Lithuania, 43% of farms use computers; in the Netherlands, computers are reportedly part of everyday life on farms; in the Czech Republic, over two-thirds of farms are connected to the internet; in Norway, IT is used on a large scale, as it is in Sweden; and in Poland, 17.1% of farm households have computers, 4.8% have access to the internet and 35% use mobile telephony.

During the recent years, the share of (bio) organic farming is growing in terms of number of farms and cultivated area.

Commentary

Agriculture is a very distinctive sector of economy and there is great heterogeneity and diversity among the 26 countries examined, which have differing climatic conditions, economic and socio-political systems and histories - factors that determine particular situations, issues, institutions and resolutions, including in the field of industrial relations. Agriculture is a living industry with its own distinctive features and rules, many of which cannot be changed by human intervention. For example, despite the progress made by natural sciences and biology, a new species or new basic product in agriculture cannot be created quickly, and the production and working cycle cannot yet be regulated mechanistically. The concept of new and/or enhanced products, with special qualities and a high degree of competitiveness - which is an issue in industrial relations in other sectors of the economy, often generating disputes between social partners - is quite another matter in agriculture. Owing to the specificities of agriculture, several aspects of industrial relations cannot evolve according to general, standardized and uniform rules - working time for instance must be organized according to the lifecycle and the needs of plants and animals. In addition to its production and commercial purposes, agriculture is a factor in competitiveness in the economy - for example, a rise in food product prices may trigger wage claims in other industries, affecting efficiency and employment.

Agriculture in European countries is currently going through a further stage of major structural change, focused on: continuing the concentration of farming activities and increasing the

average size and turnover of farms; increasing competitiveness as a result of domestic and international competition in the EU internal market and more widely based on World Trade Organization rules; standardizing, leveling and harmonizing product sale rules; and greater attention to livestock health, protection of the environment and bio-diversity. There is a huge range of issues currently affecting the sector, such as: overpopulation and agricultural depopulation; demographic ageing; income levels and security; BSE and foot-and-mouth disease; genetically-modified organisms; bio-diversity; climate change; protection of the environment; organic agriculture versus productive agriculture; animal welfare; soil erosion; and water management. The current structural challenges are having some dramatic effects, particularly in the new and future EU Member States.

The future of agriculture in Europe seems strewn with uncertainties, resulting from the internal characteristics of the sector as well as the EU enlargement process. In the expanding Union, key issues include the free movement of labor, differences between geographical areas with diverse infrastructures, deregulation, European and global competition and new CAP guidelines. Consensus through dialogue could generate a necessary reform of the traditional institutions and mechanisms specific to industrial relations and to implementing the CAP.

Reference

1. * * * , www. eiro.eurofound.eu.int

Evoluții recente în agricultura europeană

Rezumat

Sectorul agricol, care asigură ocuparea a 5% din forța de muncă a Uniunii Europene (şi o proporție considerabil mai mare în noile State Membre şi cele candidate), parcurge în prezent o nouă perioadă de schimbări structurale majore, nu în ultimul rând ca urmare a reformei Politicii Agricole Comune şi a recentei extinderi către est.

Prezentul studiu examinează sectorul agricol (cod CAEN 01) în 23 țări ale Uniunii Europene (statele membre cu excepția Luxemburgului şi Portugaliei), două țări candidate (Bulgaria şi România) şi Norvegia. Prezenta lucrare reprezintă parte integrantă a unui studiu comparativ mai amplu privind relațiile industriale în agricultură, elaborat sub egida Fundației Europene pentru Îmbunătățirea Condițiilor de Viață şi de Muncă, Observatorul European al Relațiilor Industriale, Dublin şi coordonat de Centrul Național EIRO România.

Principalele aspecte abordate se referă la: contribuția sectorului la PIB şi la total ocupare; productivitatea în comparație cu media națională; nivelul şi structura ocupării, suprafața agricolă utilizată şi cea cultivată, producția agricolă animalieră şi vegetală, numărul, structura şi dimensiunea fermelor.