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# **Conformation and market effects of corporate cereal farms in Hungary**

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## **Abstract**

Functions and existence of agricultural corporate farms have concerned agricultural economists for a long time. It is worth examining in a given market how these forms of companies evolve, work, what effects they have on supply chain, land market or natural environment, etc. Importance of the topic is also underpinned by western experts arguing that a totally different pattern of agricultural structure developed in former socialist states (superlarge farms) than in West-Europe (family farms). The aim of this paper is to present how superlarge companies affect their environment in the Hungarian cereal market, which is one of the leading sectors of the national agriculture. Moreover, growing cereals are suitable for large scale companies, especially in Hungary, where 84% of the total agricultural land was arable land in 2005.

## **Introduction**

Presence and significance of corporate farms in agriculture have concerned agricultural economists for a long time. One of the ancient debates is formulated around scales of production, mainly, around the following three questions:

1. Determination of the size of corporate farms is a huge task (Lund and Price, 1998).

Land size of farms is not a perfect measuring method of the extent of a farm; a better one can be measuring by turnover or added value, which are neither perfect. It is clear, for example, that corporate farms, due to their size, have more houses and farm buildings, which raises the input of production and therefore, the value of the farm (Sutherland,

1983). Some literatures mention the number of labour as a type of measure, but family and lease work complement rather than substitute each other (Fertő, 2002). In the case of individual farms, however, rate of buildings are relatively high in correlation with other input factors.

2. The second question of debate is to specify an optimal farm size. First, it is difficult because the notion of optimal farm size has different meanings country by country; second, because the same factors (politics, law, regulation, etc.) have different effects in time and space. Farm sizes evolved by the 1990s in CEEC countries, namely, are extremely large ones with a Western-European eye but extremely small with an eastern one (Koester, 2005).

3. The third question is whether corporate farms are more effective than smaller ones. First, measurement of effectiveness is a great task, especially when people confuse similar measures with different meanings (Fertő, 2002). Debates are around validity and reliability of such measures (Russel-Young, 1983). The traditional view, which argues that due to economics of scale and market power, larger farms are more effective than smaller ones, is criticised by more and more agricultural economists (Johnson and Ruttan (1994), Kislev and Peterson (1996)). Gorton and Davidova (2004) pointed out that the traditional view omits several factors like management or human resources. According to Kislev and Peterson (1996), the main difference between small and large farms is only the quality of land because a plant or animal does not know who grows or keeps them. Furthermore, the author couple claims the work outside the farm deteriorates the judgement of smaller ones as they have to work more to earn the same level of profit, so have less time for a specified activity.

Naturally, presence of the state also contributes to the debate. It is easy to be effective with state subsidies – affirm international market analysts. According to a study made in the USA, 10% of agricultural companies get 73% of subsidies, that is, a small amount of farms obtain a large amount of subsidies (Riedl B., 2002). This is quite dangerous in point of the future as large scale companies become even larger by buying up their smaller counterparts. This is not just a phenomenon demonstrated in the USA: practice of endorsing large farms is neither unknown for European Union. In the United Kingdom, 17000 farms got less than 1000 pounds respectively, while 2269 farms received more than 100000 pounds, and 304 farms obtained even more than 250000 pounds<sup>1</sup>.

## **Methodology**

On the one hand, this work demonstrates secondary data and literature, facts and statistics in order to understand the current situation of superlarge farms in Hungary. On the other hand, a qualitative analysis is made. Under the research, 5 interviews were made in September-October 2006 with experts of cereals market's large farms, with noting method. Selection of the participants was voluntary, but some criteria were used. I searched just those people who have an ability to see through market processes according to their working position, therefore those experts who deal with cereals market in large was interviewed. It is clear that these criteria can distort results, but I think that statements of 5 from existing 18 large farms (see Table 5.) are valid for the other 13 as well. It was tried to treat the assumptions properly, which manifested mainly in the

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<sup>1</sup> [http://news.bbc.co.uk/1/hi/uk\\_politics/4373397.stm](http://news.bbc.co.uk/1/hi/uk_politics/4373397.stm) (12 November 2006)

questions of the interview (1. Attachment) and questions were asked without influencing people and results are interpreted in a consistent, realistic way.

### **The Hungarian farm structure<sup>2</sup>**

In the Hungarian agriculture, there were 7900 corporate and 707000 individual farms in 2005, which means an 8% decrease in the number of individuals compared to 2003. Average crop land used by corporate farms was 487 hectares, while in the case of individuals, it was almost 3.5 hectares in 2005. As for production structure, there were no significant changes since 2003. In 2005, 75% of corporate farms dealt with crop production, while this rate for individuals was 47%. In 2005 corporate farms employed 85000 permanent and 15000 seasonal workers. It is typical of Hungarian farm structure that before the transition and up to 1994 corporate farms dominated the arable land. In 1995, the situation was almost balanced, while from 1996, individuals got into majority. Share of individuals has increased up to 2002 when it reached its peak at 59%.

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<sup>2</sup> Source of data mentioned in this chapter is the Hungarian Central Statistical Office and FADN. If else, it is mentioned separately.

**Table 1. : Distribution of arable land by type of farms (%), 1990-2005.**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Corporate farms</b>	82.2	79.5	82.2	74.5	57.8	52.6	48.2	44.8	43.2	42.6	45.5	41.8	40.8	41.9	42.7	43.2
<b>Individual farms</b>	17.8	20.5	17.8	25.5	42.2	47.4	51.8	55.2	56.8	57.4	54.5	58.2	59.2	58.1	57.3	56.8

Source: HCSO, 2006

Although individual farms with different production structure cultivate more arable land than corporate ones, they are almost as much effective as corporate ones in point of their yields. According to HCSO, cereals yields of small and large scale farms have differed little for years. In 2005, corporations produced 130 kg/ha more for wheat and 180 kg/ha more for maize than individuals. This is not a huge difference considering that corporation's average yields were 4570 kg/ha for wheat and 7670 kg/ha for maize in 2005. As for financial situation, Hungarian cereals farms above 100 ESU<sup>3</sup> are strong ones in Europe.

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<sup>3</sup> ESU (Standard Gross Margin) = (Output-Variable Costs)/€1200

**Table 2. : Financial situation of specialist cereals farms above 100 ESU in 2004**

Countries/Year Average in EURO	2004						
	Economic size (ESU)	Total Assets	Net income	Average farm capital	Net Investment	Cash Flow	Efficiency (Net income/Total Assets)
Czech Republic	273.1	1384095	233974	1266949	12008	117575	0.17
Denmark	202.3	3227550	168290	1309946	45252	53023	0.05
France	152.2	449956	91452	373027	-7405	94689	0.20
Germany	293.6	1204540	215404	619601	14592	128379	0.18
Hungary	293.5	1569016	413719	1430660	-2511	88177	0.26
Italy	176.6	2456127	186655	389537	-11839	122155	0.08
Lithuania	180.9	1340450	270023	973778	194980	219071	0.2
Poland	189.5	848827	230267	628123	34143	189908	0.27
Slovakia	278.9	2149979	298348	2010419	50763	143597	0.14
Spain	141.1	959278	144916	350535	-2574	108270	0.15
United Kingdom	228.3	2308341	115041	552953	3110	118516	0.05
TOTAL	197.9	1259000	140106	135612	465	25347	0.11

Source: FADN, 2006 (the last column is the author's own calculation)

In 2004, according to FADN, an average Hungarian farm above 100 ESU specialised in cereals almost had a size of 300 ESU, which is among the highest values among the countries examined. Moreover, Hungary had almost €414,000 net income and



approximately €1,430,000 average farm capital. Meanwhile, the same numbers for Slovakia were €300,000 and €2,000,000, for Denmark they were €170,000 and €2,100,000. Among countries examined, Hungary had a negative net investment in 2004, while Lithuania had the largest positive one with almost €200,000. Efficiency measured by asset turnover was the highest from countries examined, which means that Hungarian corporations realised their assets 0.26 times in income a year, while for the United Kingdom, the same return was only 0.05 times a year.

**Table 3. Elements of balance sheet of specialist cereals farms in Hungary in 2004**

Economic size categories	2004						
	Total assets	Total fixed assets	Land, perman. crops & quotas	Buildings	Machinery	Stock of agricult. products	Other circulating capital
	Average	Average	Average	Average	Average	Average	Average
0 - <4 ESU	34687	24278	12706	5143	6330	814	9261
4 - <8 ESU	68712	54369	37143	5167	11373	2688	10777
8 - <16 ESU	104909	76474	39891	8856	26511	4273	23087
16 - <40 ESU	210545	155299	67825	24835	59901	9572	42610
40 - <100 ESU	441078	305284	99903	43797	159418	29361	105248
>= 100 ESU	1569016	730364	81108	227869	413394	221157	610349
<b>TOTAL</b>	<b>120829</b>	<b>80929</b>	<b>34827</b>	<b>13605</b>	<b>31564</b>	<b>8101</b>	<b>30780</b>

Source: FADN, 2006

Analysing assets of small-, medium-, and large scale farms nationally, huge differences can be found (Table 3.). Total assets of large scale farms were 50 times as much as of small scale farms (0-4 ESU) in 2004, while the difference in case of the value of machinery was even higher (almost 70 fold). All data on balance sheet increased with the rise of sizes, so this point of view supports economies of scale.

### **Hungarian example of large farm evolution<sup>4</sup>**

Superlarge corporate farms came into existence due to mergers and acquisitions. Several other factors helped this process, though. A decisive one of these was the market loss in the beginning of the 1990s. Corporate farms realised that vast majority of their consumers disappeared and stable markets were ceased at a dash. Former incomes began to transform into huge losses and several experts thought that the main cause was the structure of collective farm. Politicians also supported to perish these corporations as they were the part of the former system. Division of agricultural lands and assets began: lands were sold to private individuals (as corporations are still forbidden to buy them), while assets to privates and corporations, both cases at prices well below their real value. According to political propaganda, as many people as possible had to be compensated, even those never worked in agriculture. People started to believe that without proper assets, capital and expertise, they could get by on agriculture. Reality confuted them, but at a quite high price. Cessation of several jobs (due to bankruptcies) also supported this process. In the end, corporate and individual farms grew up.

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<sup>4</sup> According to qualitatively made interviews by the author

In line with this process, a quite stable legal, political and economic system began to work out, so foreign capital willingly came to Hungary, mainly for its virgin markets. Business conditions were favourable to corporate farms (relatively cheap land prices and labour force) as were climatic makings. Due to the subsidy system of the CAP (and formerly the state), corporate farms were the unambiguous winners, so foreign interest is comprehensible. It should be seen, moreover, that behind subsidies, there was not appropriate performance in every cases, so urban entrepreneurs obtained land and assets.

### **Hungarian superlarge farms in the cereals market<sup>5</sup>**

Cereals market is decisive in Hungarian agriculture as it can produce plant and animal feed in parallel, affecting positions of animal sectors as well. National conditions and climatic makings are favourable to cereals, from which almost 90% consists of three main products: wheat, maize, barley. Annual cereals production was around 16 million tonnes in around 3 million hectares in the previous 2 years. Cereals production gives 20% the agricultural gross output. For ages, 45-50% of the country's land has been arable land in Hungarian agriculture, which is even high from international point of view: in this regard, Denmark was the first in Europe (56.7%), while Hungary was the second (48.3%) in 2004.

In 2005, 73% of individual farms managed below a hectare, while 75% of corporate farms were above 10 hectares, which means a quite high concentration (see Table 4.). It

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<sup>5</sup> Source of data mentioned in this chapter is the Hungarian Central Statistical Office. If else, it is mentioned separately.

is interesting that only 1.5% of individuals use 300 hectares or more arable land, while the same indicator for corporate farms is 86%.

**Table 4. Distribution of the farms' number and arable land by the size of arable land, by farm groups, in 2005**

Arable land, size, hectare	Individual farms		Corporate farms		Total farms	
	Number	Land	Number	Land	Number	Land
	Distribution, per cent					
<b>0 (not use)</b>	41.84	-	38.03	-	41.79	-
<b>0&lt;0,2</b>	16.6	0.84	0.98	0	16.42	0.41
<b>0,2 -&lt;0,5</b>	13.39	1.58	0.94	0	13.26	0.76
<b>0,5 -&lt;1</b>	5.86	1.55	0.81	0	5.82	0.75
<b>1 -&lt;5</b>	13.9	12.21	4.75	0.05	13.8	5.89
<b>5 -&lt;10</b>	3.53	9.65	3.56	0.11	3.53	4.69
<b>10 -&lt;50</b>	3.89	31.74	13.5	1.45	3.99	15.99
<b>50 -&lt;100</b>	0.61	16.93	6.8	2.06	0.67	9.2
<b>100 -&lt;300</b>	0.37	23.94	12.89	10.66	0.51	17.03
<b>300 and more</b>	0.01	1.56	17.74	85.67	0.21	45.29
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: HCSO, 2006

On the one hand, the declared aim of the CAP is to favour individual farms, because from one hand, they have modern means of production, from the other hand, they can improve

the population retention rate of the countryside<sup>6</sup>. On the other hand, CAP and its intervention system have changed the Hungarian cereals market from 2004 as it has given all producers a satisfactory profit.

Due to subsidy, small farms can also live in the market, though they are below the level of economics of scale. The intervention price for cereals is now 101.31 €/tonnes, which rates high in the national market (AERI, 2006). As it gives a fixed sum of money without risk, more and more people started to deal with cereals production. It turned out, however, that not all producers come off well. Those without storage capacities have to sell their products to storage providers who earn the difference between their costs (producer price + storage costs) and the intervention price. That is why 1000 entities offer the product of 100.000 cereals producers in Hungary for intervention (that is, collect the product from many people). These collectors come off well, but small producers can just get by. Large corporate farms without risk earn even more as they have their own storages. Small and large profits without risk thus created a system where Hungary gave 53% of EU intervention stocks in 2005.

It is an extra economic piquancy of the intervention system that in the shade of surpluses, market price can increase. This phenomena is the consequence of the fact that the owner of the stocks is the EU and not the member state. Therefore, it can happen that a mill can not buy wheat in the inner market, moreover, it has to transport it from thousands of kilometres at a high price while the intervention storage is full of unsaleable wheat. Moreover, increase in prices gives subsequent ammunition to bakers and processors to raise their prices as well. Moreover, surpluses have to be carried through in case of slim

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<sup>6</sup> This is a gentle aim, however, it can not prohibit – just slow– the migration of rural people to cities (Popp, 2004)

storage capacities in order to give place to new products, which also increases costs. Hereinafter, it is worthwhile looking at the numbers of corporate farms using arable land in 2004 and 2005 by size.

**Table 5. Number of corporate farms using arable land in 2004 and 2005 by size**

Size in hectares	Number of farms		Size of area	
	2004	2005	2004	2005
9.99 and below	840	748	2,940	2,470
10-49.99	1,050	908	26,458	23,878
50-99.99	436	501	31,126	36,297
100-199.99	493	517	70,495	75,126
200-299.99	507	497	129,591	125,510
300-499.99	320	360	124,502	139,792
500-999.99	414	460	299,679	334,136
1000-2499.99	476	473	744,879	740,207
2500-2999.99	46	45	126,006	122,804
3000-3499.99	14	13	45,136	41,850
3500-3999.99	12	13	44,332	48,328
4000-4499.99	10	9	42,893	38,291
4500-4999.99	1	2	4,717	9,235
5000-	19	18	135,873	129,404
<b>Összesen</b>	<b>4,638</b>	<b>4,564</b>	<b>1,829,077</b>	<b>1,867,328</b>

Source: HCSO, 2006

Numbers of corporate farms in areas smaller than 50 hectares changed significantly, while between 50-500 hectares, it raised from 2004 to 2005. Above 500 hectares, however, just slight changes occurred. Altogether, a small concentration can be seen as the numbers of farms decreased but the area cultivated increased. Most corporations could be found in the 10-49 hectares category in 2004 and 2005, while the least used 4500-4999 hectares. Above 5000 hectares – which we call large corporate farms – only 18 corporations used altogether 130.000 hectares of agricultural land. This means approximately 7200 hectares for an average superlarge farm, which is not extremely much with an eastern eye.

### **Effects of large corporate farms on cereals market<sup>7</sup>**

Large corporate farms have good relationships with politicians and investors, so selling their products or obtaining loans and subsidies are not such a crucial problem as for small farms. Moreover, they have a strong lobby power, so they should be called in to decisions concerning them. Almost each large corporate farm has its own storage or food processing capacity, so can work with a larger profit margin (storage let outs, “buy low sell high” strategies, etc.) It is a fact, therefore, that larger corporations usually integrate other participants of the vertical chain (trader, seed-corn maker, etc.). They hereby make supply chain work simpler by clamping more and more formerly separate activities. Mass sizes are not probable because of capital-scarcity mentioned above. In some cases, simplifications in supply chain can happen – which are diversification on the other hand - , but chain distorsion is not peculiar due to scarce number of large farms.

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<sup>7</sup> According to qualitatively made interviews by the author

Corporate farms also affect land use and land rent system. As 90% of agricultural land is private-owned (HSCO, 2006), large corporate farms have little effects on land prices, because they are determined by their quality and the profit obtained on them. An average rent price of land is around €115/hectares for a year, but €150 for a hectare is neither rare in special cases. An average rent time in these cases is 5-10 years, although 20 years are also conceivable. Letting an agricultural land out to superlarge farms have the advantage of fixed profit for a long period, although in case of floating land prices, this can be a disadvantage.

Large farms' effects on rural development are controversial. On the one hand, regions and cities dominated by large corporate farms have an extra profit and thus an advanced state of development with taxes paid by them; on the other hand, their technologies damage natural environment in many cases. On the positive side, we have to mention infrastructure development and proper pest control made by superlarge farms. Several essays deal with detrimental effects of superlarge farms, though, demonstration of which is not the topic of this paper. It should be seen, however, that due to low job demand and intensive technology, farms producing just cereals – which almost never occurs - have mainly detrimental effects of a region's job market.

On the whole, further spread of superlarge corporate farms is not probable in the Hungarian cereals market due to evolved market conditions (limited land sizes, trust in renting, etc.) Although in some years foreigners can buy land in Hungary, this concerns just a 10-15% of agricultural land, according to national experts. Slow and slight structural change, namely concentration is expected in the next few years.



## **Conclusion**

This paper analysed the evolution and market effects of superlarge corporate farms in Hungary. Several national and international data were used to make results comparable. It becomes clear that in spite of the small number of these farms in Hungary, they have decisive effects on the development of regions, on supply chain and land market, or on natural environment. Further research would be needed to quantify these effects and make them manageable to decision-makers.

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## **Attachment**

### **Interview-draft on superlarge farms**

1. How did superlarge farms evolved in Hungary?
2. What do you think about the role of the state in creating such corporations?
3. How does a superlarge and small work? What is the difference between them?
4. What do you think about the domination of the superlarge farms on the market?
5. Which are the greatest ones in Hungary?
6. How diversified is the activity of a superlarge farm?
7. How do they affect other market actors?
8. How do they influence land market and land use?
9. What is the effect of such a farm on the countryside?
10. What do you expect about this market for the next 5 years?