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## **FARM STRUCTURE AND LAND CONCENTRATION – EVIDENCE FROM FRANCE<sup>1</sup>**

Key words: France, farm structure, land concentration, average farm size, land availability

**ABSTRACT.** The aim of the study was an attempt at evaluating the level of agricultural farm structure between 1970-2016 in France. The country is a major player on European agricultural markets and possesses significant farmland resources. The main purpose of the study was to determine the share and dynamics in selected area farm groups in the process of farm area changes. The number of farms between 1970-2016 decreased from 1.58 million to 0.46 million (over 1.12 million lost), while the area occupied by these farms decreased from 29.9 million ha to 27.8 million ha (over 2 million ha lost). At the same time, the average farm size increased from 18.8 to 60.9 ha. The share of farms by their number increased most significantly in area groups above 100 ha, while their share in utilized agricultural area increased less significantly. The highest decrease in farm number and occupied area was noted at farms of up to 50 ha. Moreover, the results of surveys conducted in 61 agricultural farms confirmed advanced land concentration processes in French agriculture. Significant pressure of land competition were noted among large farms. Due to general statistical data the dynamics of farm structure change may be classified as relatively high.

### **INTRODUCTION**

Since EU membership, France has maintained a dominant position in agricultural production on the continent. Produced value by sector exceeded 13,888 mln euros in the case of animals, 11,323 mln euros in the case of cereals, 8,960 mln euro and 7,956 mln euros in wine and horticultural production [Statista 2018]. Since 2005, the share of agriculture, fishery and forestry has stagnated at around 1.6% of total GDP. French agriculture follows international trends, especially in high developed countries, where even dynamics of the rural population and farmer numbers decline were dominant between 1979-2007 [Purseigle, Hervieu 2009]. According to statistical data, over 966 thousand people were working on French farms. That number was one of the highest figures recorded among

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EU Member States and represented a decrease of 26.7% compared with 2000. Due to the AWU, the decrease was less than 22.8%, and dropped from 855,660 to 660,780 AWU in 2010 [Eurostat 2010]. Large commercial farms have low prospects of providing jobs either to the vast numbers of people still dependent on agriculture, or to new entrants to the rural labour force [Dorin 2017, Dorin et al. 2013, Imai et al. 2017].

To define farm size, what is usually measured is the amount of land used [Eastwood et al. 2009, Hazell et al. 2007], though some databases could considered the number of livestock or gross sales as criteria. Depending on the type of production or climate condition, farm size in hectares provides only an approximate measure of production potential. According to Agreste Statistics (FR), agricultural farms were classified according to farm size: up to < 5 ha; 5-19.99; 20-49.99; 50-99.99; 100-199.99; 200-299.99; 300-499.99; over 500 ha. Between 1988 and 2010, the midpoint farm size – the size at which half of all land is on bigger farms and half is on smaller farms – almost doubled from 28 to 56 ha [Agreste 2010].

## MATERIAL AND METHODS

The data of farm structure was collected on the basis of Agreste and Eurostat database issues from 1970 to 2016 (last available data). Farm structure was described by: the number of farms, occupied farmland and average farm size in France. Moreover, the results of 61 surveys realized with farmers from: Occitanie, Nouvelle-Aquitaine, Auvergne and Centre Val de Loire Regions were included. Moreover, availability criteria of questioned objects were used.

In the paper the comparison and description method was used [Kopeć 1983]. For the evaluation of land concentration particular ratios (the share of farms and occupied land over 100 ha in general population) were used.

## RESULTS

Due to historical data, the number of farms between 1955 and 2013 decreased from 2.3 mln to 0.45 mln units. In 2016, 456.5 thousand farms operated 27.8 million hectares. In light of legal regulations, French AG land turnover is recognized as one of the most restrictive and protected for national and local farmers. Since 1962, land distribution is held by SAFER (Land Development and Rural Establishment Companies) – a non-profit agency under the control of the French Ministries of Agriculture and Finances, which can buy and sell agricultural land. In European countries, without improper legal regulations remains the problem of “land grabbing” where agricultural land is taken over by international corporations and treat land as alternative investments [Baird 2014]. In the opinion of many authors - small farms are recognized as nonviable at present times but only large commercial units are thought to be a justified alternative [Collier and Dercon, 2014].

In comparison with other EU countries, the role of leased land in total utilization of UAA is significant. Share of leased land in France took this country into 3rd place after Slovakia and the Czech Republic which exceeded 70% in 2010 [Ciaian et al. 2012]. Between 1970 and 2016, the number of farms declined over 3-times. On the other hand, the number of units over 100 ha increased also more than 3 times (Table 1). The number of small farms (up to 20 ha) in France in 1970 was almost 1.1 million, while in 2016 only 193 thousand. In the period under consideration, the most stable number of farms was noted in the area group of 50-100 ha.

In comparison, between 1970 and 2016 years, the share of smallest farms declined from 69 to 42% while increasing from 1,7 to 21,9% in the case of largest units (over 100 ha). The most stable situation was noted for the 20-50 ha area group (Table 2).

The highest dynamics in changes of farm share in selected area groups were characterized by the biggest units (almost 1,300% increase). Lower dynamics of change (330%) were noted in 50-100 ha unit sizes. The changes in share of farms due to number was presented in Figure 1.

Table 1. Number of farms, by farm size

Farms by size [ha]	Number of farms [thousands]						
	1970	1979	1988	2000	2010	2013	2016
To 20	1,097.64	766.73	606.44	359.14	235.43	202.23	193.74
20-50	369.61	347.32	288.49	138.26	88.36	79.05	74.46
50-100	93.22	114.08	128.40	122.31	97.61	93.33	88.39
Over 100	27.13	34.54	43.83	78.84	93.30	97.60	99.93
Total	1,587.60	1,262.67	1067.16	698.55	514.70	472.21	456.52

Source: own elaboration based on Agreste and Eurostat data [1970-2016]

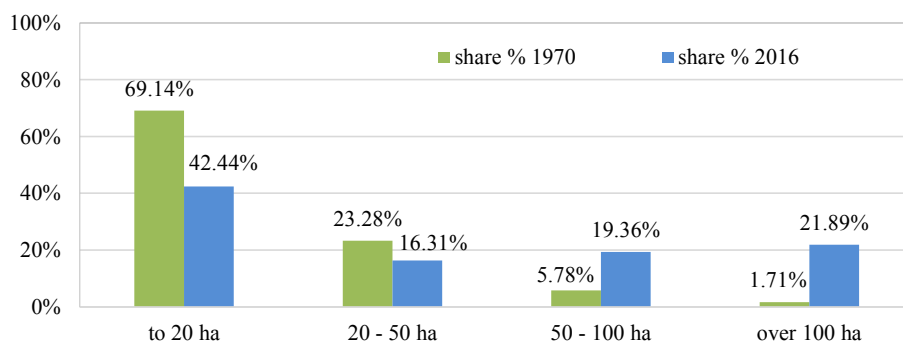


Figure 1. Share of farms in selected area groups in 1970 and 2016 (number of farms)

Source: own elaboration based on Agreste and Eurostat data [1970-2016]

In the years 1970-2016 French agriculture lost 2 million ha of utilized agricultural area which is equal to 45 thousand ha average/year. The surface of operation almost remained unchanged in the 50-100 ha group (Table 3). The greatest outflow of land concerned farms up to 50 ha – over 15.5 mln ha. On the other hand, the biggest units enlarged their area by 13.4 million ha. At the end of the period under study, the largest area was dominated by the area group above 100 ha (17.7 mln ha).

Table 2. Farms structure, by farm size

Farms by size [ha]	Structure of farms [%]						
	1970	1979	1988	2000	2010	2013	2016
To 20	69.14	60.72	56.83	51.41	45.74	42.83	42.44
20-50	23.28	27.51	27.03	19.79	17.17	16.74	16.31
50-100	5.87	9.03	12.03	17.51	18.96	19.76	19.36
Over 100	1.71	2.74	4.11	11.29	18.13	20.67	21.89
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: own elaboration based on Agreste and Eurostat data [1970-2016]

Table 3. Land in farms, by farm size

Farms by size [ha]	Land in farms [thousands of ha]						
	1970	1979	1988	2000	2010	2013	2016
To 20	7,962.94	5,455.23	3,858.22	1,917.78	1,316.72	1,163.80	1,108.58
20-50	11,345.25	10,962.12	9,360.75	4,679.87	2,999.73	2,655.03	2,530.33
50-100	6,241.10	7,683.39	8,718.53	8,673.15	7,047.92	6,751.05	6,442.64
Over 100	4,355.45	5,395.78	6,812.81	12,726.08	15,723.43	17,169.55	17,732.60
Total	29,904.74	29,496.52	28,750.31	27,996.88	27,087.80	27,739.43	27,814.15

Source: own elaboration based on Agreste and Eurostat data [1970-2016]

Table 4. Farm structure, by farm size

Farms by size [ha]	Land in farms [thousands of ha]						
	1970	1979	1988	2000	2010	2013	2016
To 20	26.63	18.49	13.42	6.85	4.86	4.20	3.99
20-50	37.94	37.16	32.56	16.72	11.07	9.57	9.10
50-100	20.87	26.05	30.32	30.98	26.02	24.34	23.16
Over 100	14.56	18.29	23.70	45.46	58.05	61.90	63.75
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: own elaboration based on Agreste and Eurostat data [1970-2016]

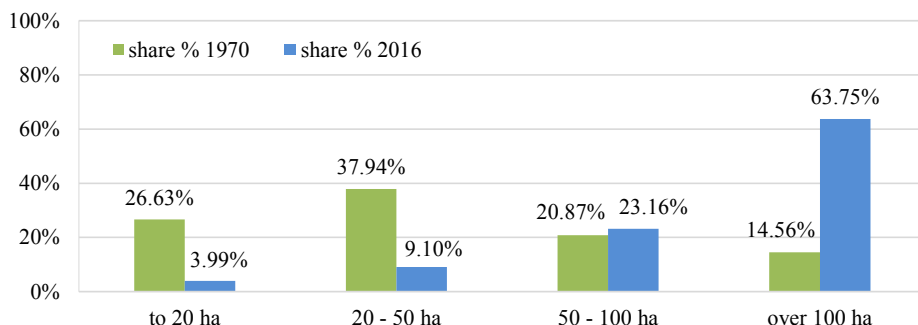


Figure 2. Share of land in selected area groups in 1970 and 2016 (farmland)

Source: own elaboration based on Agreste and Eurostat data [1970-2016]

Farm structure due to land in farms was presented in Table 4. Share of land utilized by smallest farms decreased from 26.6% in 1970 to 4% in 2016. The same trend was observed in the 20-50 ha area group. Nevertheless the opposite case was noted in biggest units (increased share from 14.6% in 1970 to 63.8% in 2016 – Table 4 and Figure 2).

Changes in the share of agricultural land ownership in the period under consideration in area groups of over 100 ha were significant.

According to Eurostat data in 2016, the share of farms of EU-28 Member States over 100 ha was estimated to be 3.3% while occupying 52.7% of total Utilized Agriculture Area (UAA). Due to statistical data, the share of biggest units in the total number of farms changed from 1.7% in 1970 to 21.9% in 2016. Moreover, the share of occupied UAA by this unit increased from 14.6% in 1970 to 63.8% in 2016. These numbers confirm a higher level of land concentration than average measurements for EU-28 countries. Farm size due to statistical data increased during the period under consideration over 3-times (Table 5).

Table 5. Land concentration

Farms by size [ha]	Year						
	1970	1979	1988	2000	2010	2013	2016
Structure of farms [%]							
To 100	98.3	97.3	95.9	88.7	81.9	79.3	78.1
Over 100	1.7	2.7	4.1	11.3	18.1	20.7	21.9
Share of land in farms [%]							
To 100	85.4	81.7	76.3	54.5	42.0	38.1	36.2
Over 100	14.6	18.3	23.7	45.5	58.0	61.9	63.8
Farm size [ha]							
Average	18.8	23.4	26.9	40.1	52.6	58.7	60.9

Source: own elaboration based on Agreste and Eurostat data [1970-2016]

## SURVEY RESULTS

In 2020, 61 surveys with farmers from: Occitanie, Nouvelle-Aquitaine, Auvergne, Centre Val de Loire Regions – using availability criteria - were conducted. The results were segregated into 5 area groups (Table 6). The research confirmed the lower age of management in bigger farms. Going from smaller to bigger units, the share of leased land was increasing and achieved over 80% in farms over 300 ha.

Economic characteristic of units under consideration was presented in Table 7. Total gross revenues were almost similar in area groups to 50 ha and 50-100 ha. Surveys confirmed a very low share of non-agricultural income in total gross revenues (below 4%). Farms from 100-200 ha and 200-300 ha received almost the same amounts of EU subsidies.

In the particular cases of land concentration, estate turnover and ag land accessibility farmers were interviewed. The most important factor influencing selected issues was competition from large farms and neighbourly competition (total rank points 15.7 and 13.1). The level of non-ag income, direct payments and attractive investment areas was not so important and usually 4 times weaker than of that mentioned above. The general

Table 6. Management and land ownership in researched farms

Area group [ha]	Years of farm activity	Owner age [years]	Average UAA [ha]	Share [%]	
				own land	leased land
2-50	29.2	53	31.6	69.8	30.2
50-100	20.9	47	68.8	51.3	48.7
100-200	22.9	48	141.1	46.9	53.1
200-300	17.6	46	237.2	32.8	67.2
Over 300	15.0	43	510.0	19.6	80.4

Source: own research and elaboration

Table 7. Selected economic variables – average value per farm

Area group [ha]	Total Gross Revenue	Net cash income	Non-agricultural income	EU subsidies	Share of NAI in TGR
	Average value per farm [EUR]				
To 50	201,704.5	50,569.2	7,666.7	21,750.5	3.8
50-100	203,289.5	52,053.6	3,493.3	32,980.5	1.7
100-200	252,352.2	79,781.2	1,130.5	63,222.2	0.4
200-300	399,171.3	84,021.1	3,750.0	64,598.0	0.9
Over 300	997,143.7	325,669.0	0.0	135,176.7	0.0

Source: own research and elaboration

results confirmed direct independency from the level of ag income in all selected groups. The answers without any rank-points suggests low attractive investment areas in the case of 100-300 ha size units (Table 8).

The existence of farms and stable ag activity were key in the plans of management personnel for the future. The most meaning choice was to maintain a similar level of production (Table 9). Secondly, increasing production was important but with higher pressure in bigger area groups. The plans for the future connected with a reduction or discontinuation of production were unpopular. Maintaining the same level of production was more common for smaller are groups.

Table 8. Factors determining the prices and availability of agricultural land in the area

Area group [ha]	Competition from large farms	Competition of non-agricultural capital	Level of agricultural income	Non-agricultural income	Direct payments and other government assistance	Attractive investment areas	Willingness to invest from people outside the agricultural sector	Neighbourly competition
2-50	2.8	1.5	2.8	0.7	1.2	1.3	0.8	2.0
50-100	2.8	1.7	2.0	0.4	0.8	1.1	0.9	3.5
100-200	2.6	0.0	2.2	0.6	1.1	0.0	1.0	3.4
200-300	3.4	1.3	0.0	0.9	1.1	0.0	1.4	2.6
Over 300	4.0	1.3	3.3	0.7	2.3	1.7	0.0	1.7
Total	15.7	5.8	10.4	3.2	6.5	4.1	4.2	13.1

\* Rank 0-5 points, with 5 – highest weight, 0 – lowest weight

Source: own research and elaboration

Table 9. Plans of management for the future (0-1 point-choice)

Area group [ha]	Increase in production	Reduction in production	Maintaining production at a similar level	Discontinuation of production
2-50	0.00	0.00	0.67	0.00
50-100	0.20	0.00	0.60	0.13
100-200	0.33	0.10	0.57	0.00
200-300	0.57	0.00	0.43	0.00
Over 300	0.67	0.00	0.33	0.00
Total	1.77	0.10	2.60	0.13

Source: own research and elaboration

## CONCLUSIONS

French agriculture is an example of major AG players on European markets. According to statistics data, agricultural land resources are the biggest on the continent. The number of farms between 1970-2016 decreased from 1,58 million to 0,46 million (over 1,12 million lost), while the area occupied by these farms decreased from 29,9 million ha to 27,8 million ha (over 2 million ha lost). At the same time, average farm size increased from 18,8 to 60,9 ha. The share of farms by their number increased most significantly in area groups above 100 ha, while their share in utilized agricultural area increased less significantly. The highest decrease in farm number and occupied area was noted on farms of up to 50 ha.

Despite many limitations introduced by SAFER, a non-profit agency, land concentration seems to be highly advanced in light of EU-28 average data.

The study results were also confirmed by farm questionnaires, whereby the majority of the population decided to maintain the same level of agricultural production. Moreover, the greatest impact on land turnover was competition from large farms. The French case study might be urgent for other EU countries especially in introducing new legal regulation concerning land turnover. The dynamics of farm structure changes might be classified as relatively high.

## BIBLIOGRAPHY

- Agreste. *Data Base – years from 1970 to 2016*, [https://agreste.agriculture.gouv.fr/agrestesaiku/?plugin=true&query=query/open/G\\_2047#query/open/G\\_2047](https://agreste.agriculture.gouv.fr/agrestesaiku/?plugin=true&query=query/open/G_2047#query/open/G_2047), access: 20.11.2020.
- Baird Ian. 2014. The global land grab meta-narrative, Asian money laundering and elite capture: Reconsidering the Cambodian context. *Geopolitics* 19 (2): 431-453.
- Ciaian Pavel, d'Artis Kancs, Jo Swinnen, Kristine Van Herck. 2012. *Rental market regulations for agricultural land in EU member states and candidate countries*. Faktor Markets. Working Paper No. 15, February 2012. Brussels: Centre for European Policy Studies (CEPS).
- Collier Paul, Stefan Dercon. 2014. African agriculture in 50 years: Smallholders in a rapidly changing world? *World Development* 63: 92-101.
- Dorin Bruno. 2017. India and Africa in the global agricultural system (1960–2050): Towards a new sociotechnical regime? *Economic & Political Weekly* 52 (25-26): 5-13.
- Eurostat. *Data Base – years from 1970 to 2016*, [https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Agricultural\\_census\\_in\\_France&oldid=379543#Labour\\_force](https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Agricultural_census_in_France&oldid=379543#Labour_force), access: 20.11.2020.
- Kopeć Bohdan. 1983. Methodology of economic research in agricultural farms. *Skrypt Akademii Rolniczej Wroclaw* 269: 166-199.
- Purseigle Francois, Bertrand Hervieu. 2009. For a sociology of agricultural worlds within globalization. *Etudes Rurales* 183 (1): 177-200.
- Statista. 2018. <https://www.statista.com/statistics/1108086/agricultural-production-value-by-sector-france>, access: 20.11.2020.

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## STRUKTURA OBSZAROWA GOSPODARSTW ROLNYCH I KONCENTRACJA ZIEMI WE FRANCJI

Słowa kluczowe: Francja, struktura obszarowa, koncentracja ziemi, średnia powierzchnia gospodarstwa, dostępność gruntów rolnych

### ABSTRAKT

Celem pracy jest próba oceny poziomu przemian struktury obszarowej gospodarstw rolnych w latach 1970-2016 we Francji. Kraj jest jednym z największych producentów na europejskich rynkach rolnych. Oszacowano stopień zaawansowania przemian obszarowych we francuskich gospodarstwach rolnych. W latach 1970-2016 ich liczba zmniejszyła się z 1,58 mln do 0,46 mln. W badanym okresie ubyło ponad 1,1 mln gospodarstw rolnych oraz ponad 2 mln ha użytków rolnych. Jednocześnie średnia powierzchnia jednostek produkcyjnych wzrosła ponad 3-krotnie – z 18,8 ha do 60,9 ha. Analiza stopnia koncentracji gruntów (udział gospodarstw pod względem liczby oraz zajmowanej powierzchni w grupie obszarowej powyżej 100 ha użytków rolnych) potwierdziła bardzo zaawansowany proces – w relacji do średnich danych europejskich - pomimo restrykcyjnego prawa w zakresie obrotu ziemi rolniczej. Ponadto, wyniki badań ankietowych przeprowadzonych w wybranych regionach Francji potwierdziły znaczącą konkurencję o grunty rolne przede wszystkim ze strony gospodarstw dużych obszarowo. W jednostkach produkcyjnych o średniej wielkości poziom sąsiedzkiej konkurencji był umiarkowany. Jednostki mniejsze obszarowo o powierzchni do 50 ha UR z reguły nie zamierzały zwiększać swojej powierzchni. Tempo przemian obszarowych we Francji można uznać za relatywnie szybkie.

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