

POLISH AGRICULTURE: PRESENT AND FUTURE - THE POLARIZATION PROCESS OF THE FAMILY FARM IN POLAND -

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This report presents future characteristics of the family farm in Poland using data from the latter half of the 1990's. The situation of Polish agriculture in the latter half of the 1990's is quite different from that in the first half. The conclusion of this report is very simple. The family farm in Polish agriculture is now in a crisis and the polarization process has already begun in the latter half of the 1990's. There are only two alternatives: large-scale farms which can survive in the EU economy, or minute-scale farms which can survive as garden-hobby agriculture.

This report is a revised version of my paper presented at the international conference in the Czech Republic in October 2000.¹

THE POLARIZATION TRANSFORMATION OF POLISH AGRICULTURE IN THE LATTER HALF OF THE 1990'S

First, I want to show some dramatic statistical data relating to Polish agriculture in the latter half of the 1990's.

Please look at Table 1. This table shows the number of farmers in Poland in the 1990's. It is necessary to note the following restrictions in this table.

First, the word "farmer" indicates a person who is devoting most of his working hours in a week to his own agriculture. A person, whose working time in other sectors is larger than the working time in his own field is not included in the category

1 "The Polarization Process of Polish Agriculture in the Latter Half of the 1990s: Hobby Farmer, Week-end-farmer, Euro-farmer or Euthanasia," in Ieda, O., ed., *The New Structure of the Rural Economy of Post-communist Countries* (Sapporo: Slavic Research Center, 2001).

“farmer”. On the other hand, the word “farmer” includes a person who works in other sectors but whose working time outside his farm is less than the working time in his farm.

Secondly, in Table 1 the word “farm” includes small farms of one hectare or less. That is, a person who works in a farm of less than one hectare is included in Table 1 although small farms of less than one hectare are not included in the category of “individual farm” in the Polish agricultural statistics in Table 2.

With these restrictions in mind, please look at the number of farmers in Poland in Table 1. We see that the number of farmers decreased about 10% from 3,344,000 in 1992 to 3,036,000 in 1995, and that now the number has decreased even further to 2,317,000 in 2000. That is, during the last 5 years the number of farms has decreased about 25%. However, no conclusions can be deduced from Table 1 alone. It is quite possible that many farmers only changed into “worker-farmers” who work mainly at the factory. The number of farmers in a true sense may not have decreased.

Next, Table 2 shows the number of farmers in 1995 by farmer’s age, comparing it to the number in 2000. The definition of “farmer” is the same as in Table 1. In Table 2, it should be noted that the number of farmers who are younger than 44 years old has decreased in the last 5 years. Moreover, the number of farmers who are older than 55 years has also decreased greatly in the same period. Please pay attention especially to the following fact. The number of people from 30 years to 54 years old was 1,472,000 in 1995, and in 2000 these people belong to the group from 35 to 59 years old. The number of these people in 2000 is only 1,300,000. In other words, 172,000 farmers have disappeared in the last 5 years. However, farmers in the middle generation hardly change their job, in Japan as well as in Europe. Should we understand that 172,000 farmers died? The answer is no. 172,000 farmers in the middle generation began to work mainly in factories, shops and so on. These farmers sold off the main part of their land and began to work on a small piece of land and to work mainly at factories or shops. In relation to these people we should pay attention to the fact that they in fact work in the field but, according to the definition of Polish agri-

cultural statistics, they are not included in the category of farmer.

The statement above can be confirmed from Table 3. Please see section A of this table. The number of farms of more than one hectare decreased to 1,989,000 in 1998 though the number of these farms in 1995 was 2,048,000. It may appear strange that only 59,000 farms disappeared in this period, because, as shown in Table 1, in the same period the number of "farmers" decreased by as many as 380,000. Table 3 shows surprising statistical data. The number of farms with 1-2 hectares has increased in the 1990's, the number of farms with 2-5 hectares has not changed, and the number of farms with 15 hectares or more has markedly increased. The number of farms with 5-15 hectares has obviously decreased.

The statistics in section B of Table 3 show the drastic increase of farms with 1-2 ha of land in the latter half of the 1990's.

This tendency can also be confirmed from Table 4. In Poland there are 17 prefectures and we can classify them into 4 groups according to their harvest of crops. Please see Figure 2. Prefectures 1, 2 and 4 bear under 27 deci-ton harvest per 1 ha. Prefectures 12 and 13 bear more than 35 deci-ton, and 11, 14 and 15 bear between 31 and 35 deci-ton. That is, the first group in Table 4 belongs to the region with poor soil and the second group belongs to the region with rich soil. The tendency of the change in numbers of private farms is somewhat different between these two groups.

In the first group of prefectures 1, 2, 3 and 4, the number of private farms with under 2 ha has greatly increased. Especially in prefectures 2 and 3, the number of these farms increased 42% and 45% during only 3 years. On the other hand, in prefectures 11, 12, 13, 14 and 15 the number of these farms increased only 10 % to 19 %.

The number of medium size farms with 10-15 ha and 15-20 ha has decreased in both groups. This is a very important point. But the degree of decrease is bigger in the first group than in the second group.

The number of large size farms with 50 ha and more, that is categories G and H in Table 4, has increased in both groups, but

the degree of increase is much bigger in the first group than in the second group.

The number of farms with 5-7 ha (not shown in Table 4) and the number of farms with 20-50 ha (category F), both have not changed in the last 3 years. The number of farms with 7 to 10 ha has decreased slightly as shown in category C of Table 4.

That is, the polarization process of private farms in Poland has already begun in the latter half of the 1990's in all prefectures. The tempo of the polarization process is higher in the first group with poor soil than in the second group with rich soil. This process is illustrated in Figure 1 of the appendix.

We must recognize that the quality of soil of Poland is relatively lower than that of Western Europe. Therefore in the near future when Poland will be integrated de facto to the EU economy, the polarization process will be accelerated in the whole country.

With regard to this polarization process it is also necessary to analyze garden-agriculture with one hectare or less. Although statistical data after 1997 do not exist, Table 3-b presents the total number and the total area of garden-agriculture from 1990 to 1996. The total number of garden farms has hardly changed, from 970,000 to 984,000. We can mention that the total number of garden-farmers has also not changed. I think that a new process concerning garden-agriculture has begun in 1996 and the number of garden farms is now growing, such as minimum-size farms with 1 ha to 2 ha.

I assume that many farmers sold off their former larger land with 5-20 ha, but maintained small land with one hectare or less and entered the category of garden-agriculture or hobby-agriculture.

Next, consider Table 5. There is a big difference in row C between the number of farms with less than one hectare and those with 1-2 hectares, namely 68.3% and 24.9%. Most garden-farmers with less than one hectare produce their agricultural products only for self-consumption. In garden agriculture the ratio of farms which do not produce any agricultural products reaches 17.4% as is shown in row B of Table 5. A typical scene of a farm of this type is as follows. There stand only a few apple

trees and one old man or woman lives in a ruined cottage. As shown in Table 7, 49% of garden farms with less than 1 ha receive their income mainly from outside agriculture, and 49% of them receive their income mainly from social transfer, for example old-age pension. As shown in row F of Table 6, only 1.3% of them belong to the category of farmer in the true sense. This 1.3% of minimum-size farmers cultivate mainly flowers in glass hothouses or gather mushrooms in the forests.

I call these farms with less than one hectare, that is 99% of minimum-size farms, hobby-farms. The hobby farmer never disappears due to changes in the national economic situation, because his agricultural production is a hobby. I consider that hobby-agriculture can survive even in the 21st century.

Table 6 presents the structure of income source of private farms. Category B of Table 6 indicates pure farmers and category C indicates farmers who mainly work on their land but who also work outside of the land. Category E is similar to category C, but indicates farmers who possess three kinds of source of income. Row F in Table 6, in my understanding, indicates the proportion of farmers in the true sense. In 4-5 ha land, this figure is only 36.4 %, but in 5-7 ha land it exceeds 50%. I call the group of farms with from 1 ha to 5 hectares of land weekend-farms.

From my understanding the characteristics of Polish individual farms can be classified into four groups. The first is garden-agriculture or hobby farms, with less than 1 ha. The second is weekend-farms with 1 to 5 ha. The fourth group is the candidates for Euro-agriculture, with more than 10 ha. The third group is perishing agriculture with 5 to 10 ha. Later I will explain why I call this group “perishing agriculture”. Also it should be noted that, as shown in Figure 1, a perishing agriculture group and a Euro-candidate group coexist in farms with between 10 and 20 ha.

Now let us observe farms with 5 hectares or more. As shown in row E of Table 5, more than 80% of this group produce agricultural products mainly for the sale to the market. This group of farms subjectively possesses the desire to survive in the agricultural sector in the EU community. However, we must pay

attention to the fact that this desire is only a subjective wish. As will be mentioned below, if 20 hectares or more are not cultivated, candidates for Euro-agriculture cannot survive in the EU. The group of farms with 5-20 hectares has to decide whether to expand their land and join the category of Euro-agricultural farms or to sell off their land and be garden-farmers or weekend-farmers. This decision must be made in the very near future. In farms with 5 to 20 ha it is impossible to cultivate land without one's own tractor. The medium-size farm in Poland, generally speaking, invested much capital in the 1970's and 1980's. Therefore even now they have excessive capital, that is a surplus of real assets. They do not want to buy new tractors, and use their own old tractors or buy second-hand tractors from a large-scale farm. In the near future the medium-size farmer will be obliged to buy a new tractor or sell off his land. Almost all lower-medium size farms with 5 to 10 ha will sell off their land. On the other hand, as shown in row F of Table 6, more than 84% of farmers with 10 ha and more are farmers in the true sense and they invested capital actively in the 1990's. The number of these active farmers is as high as 341,000. They bought 18,600 new tractors between 1990 and 1996. This group can survive in EU agriculture in the future. In Poland there exists about 14 million hectares of agricultural land. In 1999 about 5 million hectares were owned by small farms with 7 ha and less and 9 million hectares were owned by medium and large farms with 7 ha and more. In the future, in my opinion, these 9 million hectares of land will be owned by these 340,000 farmers. That is, in the future Euro-farmers in Poland will cultivate on average 30 hectares per farm.

Row D of Table 7 shows that in farms with 5 hectares or less quite a small part of their income, that is from 7.5% to 37.2%, is earned from their own farms. Therefore, I call this group weekend-farms and pension farms. The main part of their income comes from wages from companies or from the old-age pension from the government budget. As shown in row D of Table 7, in 1996 about 319,000 farmers with 5 to 10 ha of land earned their main income from their own farms. For this group, however, there is no chance to survive in EU economy, because

75% or 80% of this group did not invest at all in the 1990's and their income from one hour of work in their own farm is only 70% of the average wage in other sectors.² They have no capital accumulation in real assets, because almost all their capital assets are now amortized. Furthermore they have no financial savings. They must perish in the near future. I call this group perishing agriculture. Of course in this group there are active farmers who have specialized their cultivation, for example in fruit culture, but their number is quite small.

In the future farms of this perishing agriculture will be obliged to sell off their land and even now some of them do not cultivate their land.

Now I present some dramatic data. In 1990 in Poland only 163,000 hectares were not cultivated. In 1999 in all Poland 1,500,000 hectares was non-cultivated land or rest-land. About 11 % of agricultural land is not utilized in all Poland. In Lublin prefecture (prefecture 3) 25.8 % of agricultural land is not utilized, and in Slask prefecture (prefecture 11) 23.0 % of agricultural land is not cultivated.³

These aged farmers do not sell off their land for the time being, because farmers are always conservative and attach themselves to land and even for speculation they keep land. On the other hand a small number of very rich farmers has now appeared, especially in Warsaw prefecture (prefecture 2). These rich farmers now purchase land even in neighboring prefectures. It is true that in Poland there exists surplus agricultural land for its agricultural production. But according to the price mechanism, that is the adjustment by demand and supply, the price of agricultural land is now rising. In 1988 the price of land for medium quality was 8 tons of rye, in 1995 it was 8.7 tons of rye, and in 1999 it jumped to 13.9 tons of rye. So agricultural land has already begun to circulate due to the polarization process of Polish agriculture.

² *Rolnictwo polskie w okresie transpromacji systemowej 1989-1997* (Warszawa: IERiGZ, 1998), p. 21.

³ *Charakterystyka obszarów wiejskich oraz przemiany agrarne w Polsce do 1999r.* (Olsztyn: GUS, 2000), p. 22.

The polarization process of Polish agriculture was accelerated by the dissolution of the state-owned farm “Sochoz”. As shown in Table 11, of 3,750,000 hectares of the former state-owned farm “sochoz” PGR, 3,100,000 hectares was sold off or offered for lease to the private sector. In 1999, as shown in Table 11, 703,000 hectares were already sold. 700 individual farmers and 300 private agro-enterprises bought more than 100 hectares, and 9,300 individual farmers and 1,000 private agro-enterprises bought more than 10 hectares but less than 100 ha. We can say that the land of the former state-owned Sochoz was sold mainly to large-scale farms. 31,700 individual farmers bought from 1 to 10 hectares of land, and 46,200 individual farmers bought under 1 hectare. In 1999, as shown in Table 11, 2,403,000 ha were offered for lease. Only 2,500 individual farms and 1,500 private agro-company leased land over 100 ha from the state agency of the former Sochoz, but the total area of this land amounts to 1,830,000 ha. The average area of these lease contracts was 450 ha. We can confirm that the purchase and leasing of land from the former Sochoz accelerated the polarization process of Polish agriculture.

CAUSE OF THE POLARIZATION TRANSFORMATION

I would now like to consider the reason for the polarization process of Polish agriculture. As shown in Table 9, the real gross output index in the individual agriculture sector has decreased from 100 in 1995 to 83.8 in 1998. The real gross value-added index has also decreased similarly, to 82.5. On the other hand, in the private manufacturing sector, the former has increased to 153.2 and the latter to 144.8 respectively. The private manufacturing sector in Poland has thus developed greatly in the latter half of the 1990's and the agricultural sector has retreated miserably.

Why has such a situation arisen? As already shown in Table 3, there has been no big change in the total number of individual farms or in the total area of agricultural land. There have also been no big changes in agricultural production in quantity terms. As will be mentioned later, it is the change of relative

prices which has brought about this drastic change in agricultural production in value terms.

Table 8 shows the price index of agricultural products which farmers sell, and the price index of commodities which farmers buy. The price ratio between these two did not change from 1990 to 1995, and in the field of crop production it even changed in an advantageous direction for private farmers.

The situation in the first half of the 1990's, in which the private sector of agriculture was warmly supported, changed completely in 1996. As shown in Table 8, the relative price level of agricultural products has dropped greatly, compared to the relative price level of industrial products. This fall in the relative price level induced the relative decrease of value-added in Polish agriculture.

In addition, the thoroughgoing introduction of the market mechanism worsened the situation of farmers. Table 10 shows the decrease of real disposable income of the private agricultural sector. The condition of life of private farmers deteriorated considerably, compared to those of factory workers. This deterioration was brought about by the increase in rent fees on land and by the increase of social insurance payments to the state budget in addition to the relative decrease of the price level of agricultural products. As shown in Table 10, social insurance payments increased constantly and continuously, and in 1998 reached even 5% of the total value-added in the private agricultural sector. The rent payment on land increased every year, as shown in Table 10, and in 1998 reached 5% of the total value-added in the private agricultural sector, although the private agricultural sector in 1998 leased as much as 2,400,000 hectares of land from the former state-owned farm "sochoz" PGR. 10% of the value-added in the private agricultural sector is now sucked into the state budget by these two instruments.

In this situation a non-negligible proportion of private farms of 5-15 hectares abandoned their agricultural production. They became hobby-farmers or weekend-farmers. Not only the medium-scale farmers but also the whole of Polish agriculture, was plunged into a crisis. Real investment in the private agricultural sector began to decrease in 1996, and in 1998, as shown in Ta-

ble 10, it had decreased to 80% of the level in 1996. This decrease of investment will induce a crisis for the whole of Polish agriculture in the future, especially in the medium-size family farm, since in the latter half of the 1990's investment in the private agricultural sector means investment by the medium-scale farmer and the large-scale farmer. If this tendency continues, the medium-size family farm in Poland in the 21st century might be impoverished.

The first hope of Polish agriculture is the large-scale farm of 20 ha and more. The number of farms in this group increased from 84,151 in 1996 to 87,382 in 1999. During these 3 years the total area of land which was utilized by this group increased from 3,533,000 ha in 1996 to 3,714,000 ha in 1999.

The second hope of Polish agriculture is the specialized farm which produces fruits, flowers and vegetables labor-intensively with a small amount of land.

THE FUTURE OF POLISH AGRICULTURE AND THE SOLUTION TO THE PROBLEM

The statement that the miserable situation of the present Polish agriculture was brought about by the market economy is in a broad sense correct, but in a strict meaning is wrong. The main cause of the difficulty of present Polish agriculture is the decrease of the price level of agricultural products. The price of agricultural products came to be decided by the market mechanism and not by the government policy as in the socialist era.

The decrease of the price of agricultural products, however, was not brought about by the market mechanism in itself. It was brought about by the difference between demand and supply in the market. In other words, the main cause of this crisis is the decrease of demand for domestic agricultural products.

Then let us investigate why the demand for the domestic products decreased. It is wrong to lay the responsibility against the agricultural protection policy of the EU or against the agricultural policy of the Russian government. The main cause is the change of demand structure for foodstuffs by Polish consumers.

Table 12 shows imports of fish and of fruit. Consumers' demand now decides the import of fish and fruit, though the amount of the import of meat is under the control of the Polish government for the purpose of the protection of Polish agriculture. As shown in Table 12, the import of the prepared foodstuffs has increased markedly. The chief cause of these phenomena is the rapid change of preference and lifestyle of Polish consumers. Many huge supermarkets financed by EU capital were opened around big cities. Shopping for imported foodstuffs by Polish consumers became their usual behavior. To demand that Polish consumers return to their old preferences and lifestyles would be absurd.

Some people have proposed a policy by which rural industry can be located in villages and work opportunities offered for farmers. They claim that such a policy will greatly benefit weekend-farmers and hobby-farmers, and will also bring a constant income increase for medium-scale farmers with 5-20 ha.

Industrial policies of this kind are not only useless as the true solution of the problem but also delay this solution. They may soften the patient's pain, but they cannot save the patient's life, as like narcotics. In the author's opinion such agrarian policies can be called bitter euthanasia for agriculture. Bitter euthanasia policies should not be adopted.

Then, what solution is adequate? The demand for Polish agricultural products should be expanded in the export market. In the field of agricultural products such as sugar beet, fruits, dairy products and labor-intensive products, demand from foreign countries can be expected. However, at least ten years might be necessary for the establishment of a foreign market for Polish domestic products. If several adequate agrarian policies are not adopted, then even able patients, that is, even able farmers will be unable to survive during this period and Polish agriculture might become extinct. The most urgent aim is to convert a large number of medium-scale farmers (5-20 ha) into the category of Euro-farmer candidates. Prevention of the polarization process is not adequate. On the contrary, it is necessary to promote the polarization process and for this purpose adequate agrarian policies must be adopted.

The recovery of agricultural investment is very important. It is necessary to introduce, for example, a system of bank loans with low interest rates for capital investment and for the purchase of land. Therefore it is necessary to expend government subsidies for this purpose. However, a price subsidy policy by which not only able farmers but also incapable farmers can equally benefit should not be introduced.

On the other hand, however, such a policy will force poverty on the majority of Polish farmers. For the purpose of social fairness and social welfare the social transfer of income should relieve the poor farmers.

Now I would like to present my conclusion.

Hobby-agriculture can in any case survive. Pension-agriculture will disappear in the future, because the old farmers will die or retire. Weekend-agriculture also can survive. However, candidates for Euro-agriculture cannot be found in the category of weekend-farmers except for persons who saved a large amount of money in the private commerce sector. Euro-agricultural candidates with 10-20 hectares have a big chance to survive in the EU economy as well as large-scale farms with more than 20 ha, although it must be noted that some candidates cannot survive unless adequate measures are adopted by the government.

Table 1. Number of Farmers in Poland: Persons Who Worked Mainly in Individual Farms (in thousands)

1992 May	3344	1997 May	2847
1993 May	3325	1998 May	2656
1994 May	3140	1999 February	2433
1995 May	3036	2000 First quarter	2317
1996 May	3014		

- 1) Farmers who worked more than 1 hour in a week.
- 2) The number of farmers does not include persons who mainly worked outside of farm.
- 3) The number of farmers includes persons who mainly worked in their own farm, but also worked outside of farm as part-time workers.
- 4) Individual farm includes farms which utilize under 1 ha.

Source: *Aktywnosc Ekonomiczna Ludnosci Polski I kwartal 2000* (Warszawa: GUS, 2000), pp. XXXVIII, LVII.

Table 2. Number of Persons Who Worked Mainly in Individual Farms by Age in Poland (in thousands)

age	1995 May	2000 First quarter
15-19	86	40
20-24	221	141
25-29	257	216
30-34	289	243
35-44	672	596
45-54	511	554
55-59	298	150
60-64	276	138
65 and more	427	238
30-54	1472	
35-59		1300

- 1) See footnotes of table 1: worked mainly his own farm of which area is more than 0.1ha.

Sources: *Aktywnosc Ekonomiczna Ludnosci Polski Maj 1995* (Warszawa: GUS, 1995), p. 10; *Aktywnosc Ekonomiczna Ludnosci Polski I kwartal 2000* (Warszawa: GUS, 2000), p. 13.

Table 3.**Number of Individual Farms (more than 1 ha) and Their Structure According to the Size of Agricultural Land in Poland**

	A				B		
	1990	1995	1997	1998	1996	1998	1999
Individual farm more than 1ha (in thousands)	2138	2048	2008	1989	2041	2150	2181
1.01-1.99 ha (%)	17.7	20.9	21.9	22.6	22.6	25.0	26.0
2.00-4.99 ha (%)	35.1	33.7	34.4	34.0	32.7	33.8	33.8
5.00-6.99 ha (%)	14.9	13.4	12.7	12.4	12.8	12.2	11.8
7.00-9.99 ha (%)	14.9	13.3	12.3	12.3	12.7	11.7	11.3
10.00-14.99 ha (%)	11.3	10.7	10.3	10.2	10.6	9.5	9.2
15.00 ha and more (%)	6.1	8.0	8.4	8.5	8.6	7.8	7.8
Average agricultural land (ha)	6.3	6.7	6.9	7.7	7.6	6.6	6.6

Sources: A) *Rocznik Statystyczny 1999* (Warszawa: GUS, 2000), p. 359.

B) *Charakterystyka obszarow wiejskich oraz przemiany agrarne w Polsce do 1999r.* (Olsztyn: GUS, 2000), p. 101.

Note: The reason for the difference between A and B is unknown.

Table 3-b. Total Area of Garden-farms under 1 ha

	1990	1994	1995	1996
Total area of garden-agriculture (in thousands ha)	431	434	437	340
Number of garden-farms (in thousands)	970	978	980	984

Source: *Rocznik statystyczny 1997* (Warszawa: GUS), p. 324.

Table 4. Changes in the Number of Individual Farms According to Size (absolute number and index: 1996=100)

Prefecture	A) 1-2 ha	B) 2-5 ha	C) 7-10 ha	D) 10-15 ha	E) 15-20 ha	F) 20-50 ha	G) 50-100 ha	H) 100- ha
1. Podlaskie	1996	9000 (100.0)	16528 (100.0)	18674 (100.0)	24289 (100.0)	12441 (100.0)	9955 (100.0)	199 (100.0)
	1998	11379 (126.4)	19034 (115.2)	18391 (98.5)	23324 (96.0)	12059 (96.9)	9545 (96.4)	228 (114.6)
	1999	12276 (136.4)	19501 (118.0)	17505 (93.7)	22335 (92.0)	11749 (94.4)	9815 (98.6)	266 (133.7)
2. Mazowieckie	1996	45070 (100.0)	86654 (100.0)	51574 (100.0)	41782 (100.0)	15149 (100.0)	9345 (100.0)	214 (100.0)
	1998	57280 (127.1)	100840 (116.4)	50206 (97.3)	38854 (93.4)	13628 (90.0)	8675 (92.8)	272 (127.1)
	1999	64302 (142.7)	105240 (121.4)	48983 (95.0)	38352 (91.8)	13835 (91.3)	9505 (101.7)	376 (175.7)
3. Lubelskie	1996	40589 (100.0)	87543 (100.0)	39505 (100.0)	24775 (100.0)	7024 (100.0)	3642 (100.0)	168 (100.0)
	1998	55508 (136.8)	100124 (114.4)	36397 (92.1)	21893 (88.4)	6096 (86.8)	3495 (96.0)	174 (103.6)
	1999	58918 (145.2)	100936 (115.3)	35538 (90.0)	21887 (88.3)	6423 (91.4)	3932 (108.0)	200 (131.0)
4. Lodzkie	1996	26286 (100.0)	53447 (100.0)	31536 (100.0)	21308 (100.0)	5866 (100.0)	2682 (100.0)	80 (100.0)
	1998	32111 (122.2)	60848 (113.8)	30620 (97.0)	20004 (93.9)	5384 (91.8)	2550 (95.1)	84 (105.0)
	1999	34039 (129.5)	61381 (114.8)	29782 (94.4)	19893 (93.4)	5563 (94.8)	2848 (106.2)	98 (122.5)
11. Slaskie	1996	48810 (100.0)	40646 (100.0)	6509 (100.0)	3545 (100.0)	1030 (100.0)	821 (100.0)	88 (100.0)
	1998	52084 (106.7)	43484 (107.0)	6518 (100.1)	3329 (93.9)	965 (93.7)	708 (86.2)	85 (96.6)
	1999	54623 (111.9)	45646 (111.9)	6487 (99.7)	3480 (98.2)	981 (95.2)	776 (94.5)	109 (123.9)
12. Opolskie	1996	13065 (100.0)	13709 (100.0)	5972 (100.0)	5353 (100.0)	2471 (100.0)	2572 (100.0)	226 (100.0)
	1998	14004 (107.2)	15377 (112.2)	6210 (104.0)	5323 (99.4)	2328 (94.2)	2386 (92.8)	237 (104.9)
	1999	14459 (110.7)	15730 (114.7)	6038 (101.9)	5158 (96.4)	2291 (92.7)	2495 (97.0)	260 (115.0)
13. Dolnoslaskie	1996	20447 (100.0)	22029 (100.0)	11728 (100.0)	9881 (100.0)	4143 (100.0)	4504 (100.0)	682 (100.0)
	1998	22057 (107.9)	23327 (105.9)	11475 (97.8)	9284 (94.0)	3884 (93.7)	4496 (99.8)	714 (104.7)
	1999	24451 (119.6)	24833 (113.0)	11154 (95.1)	9080 (91.9)	3807 (91.9)	4697 (104.3)	847 (124.4)
14. Wielkopolskie	1996	27828 (100.0)	32972 (100.0)	23815 (100.0)	27053 (100.0)	12079 (100.0)	10202 (100.0)	657 (100.0)
	1998	30112 (108.2)	36508 (110.7)	24329 (102.2)	26773 (99.0)	11807 (97.7)	10074 (98.7)	732 (111.4)
	1999	31707 (113.9)	37545 (113.9)	23895 (100.3)	26040 (96.3)	11722 (97.0)	10464 (102.6)	822 (125.0)
15. Kujawsko-pomorskie	1996	13094 (100.0)	17019 (100.0)	15709 (100.0)	17467 (100.0)	8729 (100.0)	8147 (100.0)	527 (100.0)
	1998	13622 (104.0)	18011 (105.8)	15587 (99.2)	16822 (96.3)	8508 (97.5)	7937 (97.4)	497 (94.3)
	1999	14483 (110.6)	18782 (110.4)	15210 (96.8)	16430 (94.1)	8342 (95.6)	8472 (104.0)	635 (120.5)

Source: *Charakterystyka obszarow wiejskich oraz przemiany agrarne w Polsce do 1999r.* (Olsztyn: GUS, 2000), pp. 101-106.

Table 5. Structure of Individual Farms According to Scale and Activity at 12 June 1996 (Agricultural Census in Poland)

	A		B		C		D		E		
	Number of individual farms	Number	Farms which do not engage in agricultural production	Number	Farms which produce products only for self-consumption	Number	Farms which produce products mainly for self-consumption	Number	Farms which produce products mainly for sale to the market	Number	%
Total individual farms	3,052,961	222,744	7.2%	919,309	30.1%	807,525	26.5%	1,103,383	36.1%		
under 1 ha	1,000,160	173,938	17.4%	682,628	68.3%	132,211	13.2%	11,338	11.1%		
1-2 ha	460,690	25,424	5.5%	114,742	24.9%	204,816	44.5%	115,708	25.1%		
2-3 ha	280,779	8,927	3.1%	45,579	16.2%	145,949	52.0%	80,324	28.6%		
3-4 ha	211,878	4,261	2.0%	22,950	10.8%	105,868	50.0%	78,799	37.2%		
4-5 ha	173,214	2,504	1.4%	12,710	7.3%	73,799	42.6%	84,201	48.6%		
5-7 ha	260,135	2,619	1.0%	12,086	4.6%	79,547	30.6%	165,883	63.8%		
7-10 ha	259,601	1,807	0.6%	7,136	2.7%	42,547	16.4%	208,111	80.2%		
10-15 ha	216,737	1,140	0.5%	4,148	1.9%	16,276	7.5%	195,173	90.1%		
15-20 ha	89,219	412	0.4%	1,290	1.4%	3,578	4.0%	83,939	94.1%		
20-50 ha	75,040	452	0.6%	1,107	1.5%	1,677	2.2%	71,804	95.7%		
50-100 ha	5,473	75	1.3%	128	2.4%	58	1.1%	5,212	95.2%		
100-200 ha	1,497	32	2.1%	54	3.6%	22	1.5%	1,389	92.8%		
200-500 ha	952	17	1.7%	46	4.8%	9	0.9%	881	92.5%		
500-1000 ha	384	3	0.7%	17	4.4%	0	0%	344	89.6%		
1000 ha and over	85	2	2.3%	4	4.7%	1	1.1%	78	91.8%		

Source: *Ludność związana z rolnictwem: czesz I* (Warszawa: GUS, 1997), pp. 230-231.

Note: Area of land includes not only agricultural land but also forest, pond, road and rest-land and non-cultivated land.

Table 6. Structure of Individual Farms According to Scale and Income Source at 12 June 1996
(Agricultural Census in Poland)

	A		B		C		D		E		F
	Total number of individual farms	Number	Number of farms whose income comes only from agriculture	B/A %	Number of farms whose income comes from two sources, mainly from agriculture	C/A %	Proportion of B and C in total number	(B+C)/A %	Number of farms whose income comes from three sources, with agricultural income in first place	E/A %	Proportion of B, C and E in total number
Total individual farms	3,052,961	240,010	7.8%	408,346	13.4%	21.2%	222,869	7.3%	28.5%		
Under 1 ha	1,000,160	6,443	0.6%	4,669	0.5%	1.1%	1,818	0.2%	1.3%		
1-2 ha	460,690	13,827	3.0%	13,835	3.0%	6.0%	6,946	1.5%	7.5%		
2-3 ha	280,779	14,231	5.0%	18,214	6.4%	11.4%	10,768	3.8%	15.2%		
3-4 ha	211,878	15,372	7.1%	24,261	11.4%	18.2%	15,042	7.1%	25.3%		
4-5 ha	173,214	16,672	9.2%	29,419	16.8%	26.0%	18,283	10.4%	36.4%		
5-7 ha	260,135	33,385	12.8%	63,566	24.4%	37.2%	38,687	14.8%	52.0%		
7-10 ha	259,601	45,546	17.5%	88,324	34.0%	51.5%	49,718	19.1%	70.6%		
10-15 ha	216,737	47,509	21.9%	89,175	41.1%	63.0%	46,386	21.4%	84.4%		
15-20 ha	89,219	22,394	25.0%	39,732	44.5%	69.5%	19,251	21.5%	91.0%		
20-50 ha	75,040	21,421	28.5%	33,884	45.1%	73.6%	14,784	19.6%	93.2%		
50-100 ha	5,473	1,919	35.1%	2,208	40.3%	75.4%	837	15.3%	90.7%		
100-200 ha	1,497	586	39.1%	504	33.7%	72.8%	188	12.6%	85.4%		
200-500 ha	952	383	40.2%	306	32.1%	72.3%	95	10.0%	82.3%		
500-1000 ha	384	152	39.6%	134	34.9%	74.5%	35	9.1%	83.6%		
1000 ha and over	85	36	42.4%	27	31.8%	74.2%	5	5.9%	80.1%		

Source: *Ludność związana z rolnictwem: część II* (Warszawa: GUS, 1997), pp. 342-343.

Note: Area of land includes not only agricultural land but also forest, pond, road and rest-land and non-cultivated land.

Table 7. Structure of Individual Farms According to Scale and Source of Income at 12 June 1996
(Agricultural Census in Poland)

	A		B		C		D		E	
	Total number of individual farms	Number	Main or unique source of income is activity outside of farm	Number	%	Main or unique source of income is social transfer, e.g. old-age payment	Number	%	Main or unique source of income is own farm	Number
Total number of farms		3,052,961	1,124,774	36.8	1,048,532	34.3	871,382	28.5	240,010	7.8
01-1.0 ha		1,000,160	496,717	49.7	489,579	49.0	13,084	1.3	6,443	0.6
1-2 ha		460,690	227,298	49.3	198,675	43.1	34,608	7.5	13,827	3.0
2-3 ha		280,779	122,522	43.6	115,007	41.0	43,213	15.4	14,231	5.1
3-4 ha		211,878	80,555	38.0	76,622	36.2	54,675	25.8	15,372	7.3
4-5 ha		173,214	56,392	32.6	52,435	30.3	64,374	37.2	16,672	9.6
5-10 ha		519,736	107,743	20.7	92,720	17.8	319,226	61.4	78,931	15.2
10-20 ha		305,956	24,393	8.0	17,099	5.6	264,447	86.4	69,903	22.8
20-50 ha		75,040	3,595	4.8	1,360	1.8	70,089	93.4	21,421	28.5
50 ha and more over		8,371	845	10.1	110	1.3	7,415	88.6	3,076	36.7

Source: *Ludnosc zwiazana z rolnictwem: czesc I* (Warszawa: GUS, 1997), p. 217.

Note: Area of land includes not only agricultural land but also forest, pond, road and rest-land and non-cultivated land.

Table 8. Price Relation of Agricultural Outputs and Agricultural Inputs in Poland

	1990	1995	1995	1996	1997	1998	1999
		(1990=100)	(1995=100)	(1995=100)	(1995=100)	(1995=100)	(1995=100)
Price index of crops	100	506.1	100	114.6	116.5	121.3	128.5
Price index of animal products	100	464.4	100	116.5	132.5	130.2	122.6
Price index of consumption goods by farm	100	529.1	100	120.7	137.6	152.3	162.7
Price index of current agricultural inputs to farm	100	528.5	100	120.7	138.3	151.0	162.2
Price index of investment inputs to farm	100	464.2	100	116.8	121.2	141.5	152.4

Sources: Calculated by author using data of *Rocznik Statystyczny 1999* (Warszawa: GUS, 2000), p. 339; *ibid. 2000* (Warszawa: GUS, 2001), p. 317.

Table 9. Nominal Gross Output and Nominal Gross Value Added in the Private Agricultural Sector in the National Economy (in current prices)

	1995	1996	1997	1998	1999
Nominal gross output in agriculture and hunting in the private sector	100	119.6	120.7	128.2	120.8
Nominal gross output in manufacturing in the private sector	100	134.3	200.1	235.3	265.8
Nominal gross value added in agriculture and hunting in the private sector	100	117.4	125.0	126.2	112.9
Nominal gross value added in manufacturing in the private sector	100	132.9	191.5	223.1	257.6

Sources: *Rocznik Statystyczny 1998* (Warszawa: GUS, 1999), p. 514; *ibid. 1999* (Warszawa: GUS, 2000), p. 546, *ibid. 2000* (Warszawa: GUS, 2001), p. 533.

Table 10. Real Disposable Income of Individual Farmers and Workers Outside Agriculture in the National Economy and Agricultural Investment

	1995	1996	1997	1998	1999
Real disposable income of individual farmers in the national economy (1995=100)	100	90.9	83.4	75.9	57.2
Real disposable income of workers outside agriculture in the national economy(1995=100)	100	107.2	115.2	119.3	124.1
Land leasing fee payment by individual farmers (million zloty)	370.3	412.0	991.5	938.0	879.7
Social security payment by individual farmers (million zloty)	567.0	718.8	840.3	958.6	1052.3
Agricultural land area of individual farms (in thousands ha)	15205	15173	15293	15396	15431
Number of tractors (in thousands). 1990 figure was 1185.0.	1319.4	1302.9	1310.5	1310.5	1305.5
Investment in agriculture of private and public sector (million zloty)	1559.0	2390.6	2580.2	2290.6	2448.7
Real investment in agriculture of the private and public sector (1995=100)	100	129.5	125.0	103.9	106.2

Sources: *Rocznik Statystyczny 1999* (Warszawa: GUS, 2000), pp. 559, 557, 372, 516, 357; *ibid. 2000* (Warszawa: GUS, 2001), pp. 552, 550, 350, 582, 335; *ibid. 1998* (Warszawa: GUS, 1999), pp. 527, 343, 485.

Table 11. Utilization of Land of the Former State-owned Farm "Sochoz" (PGR) (in thousands ha)

	1996	1997	1998	1999
Already sold to private farmers	359.6	486.7	606.5	703.8
Leased to the private sector mainly to individual farmers	2804.2	2693.6	2354.6	2403.1
Attached to private companies	8.9	9.3	12.9	13.6
Under public administration	268	248.5	207.6	135.2
Granted freely to local government, etc.	53.4	58	116.7	158.2
Not cultivated land	256	255.4	273.9	340.2
Total	3750.1	3751.5	3752.2	3754.1

Source: *Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej, Analiza Produkcyjno-Ekonomicznej Sytuacji Rolnictwa i Gospodarki Żywnościowej w 1999 roku* (Warszawa: IERiGZ, 2000), p.287.

Table 12. Import of Foods and Prepared Foodstuffs in Poland

	1995	1996	1997	1998
Import of meat, fresh and frozen (in thousands of tons)	54.5	59.4	36.2	57.8
Import of fish, live and frozen (in thousands of tons)	85.2	96.4	117.8	131.6
Import of fish fillets (in thousands of tons)	84.8	100.8	100.7	119.0
Import of fresh fruits (in thousands of tons)	689.7	782.5	802.4	903.4

Source: *Rocznik Statystyczny 1999* (Warszawa: GUS, 2000), p. 449; *ibid. 1997* (Warszawa: GUS, 1998), p. 438.

Figure 1. Polarizational Transformation of Polish Agriculture

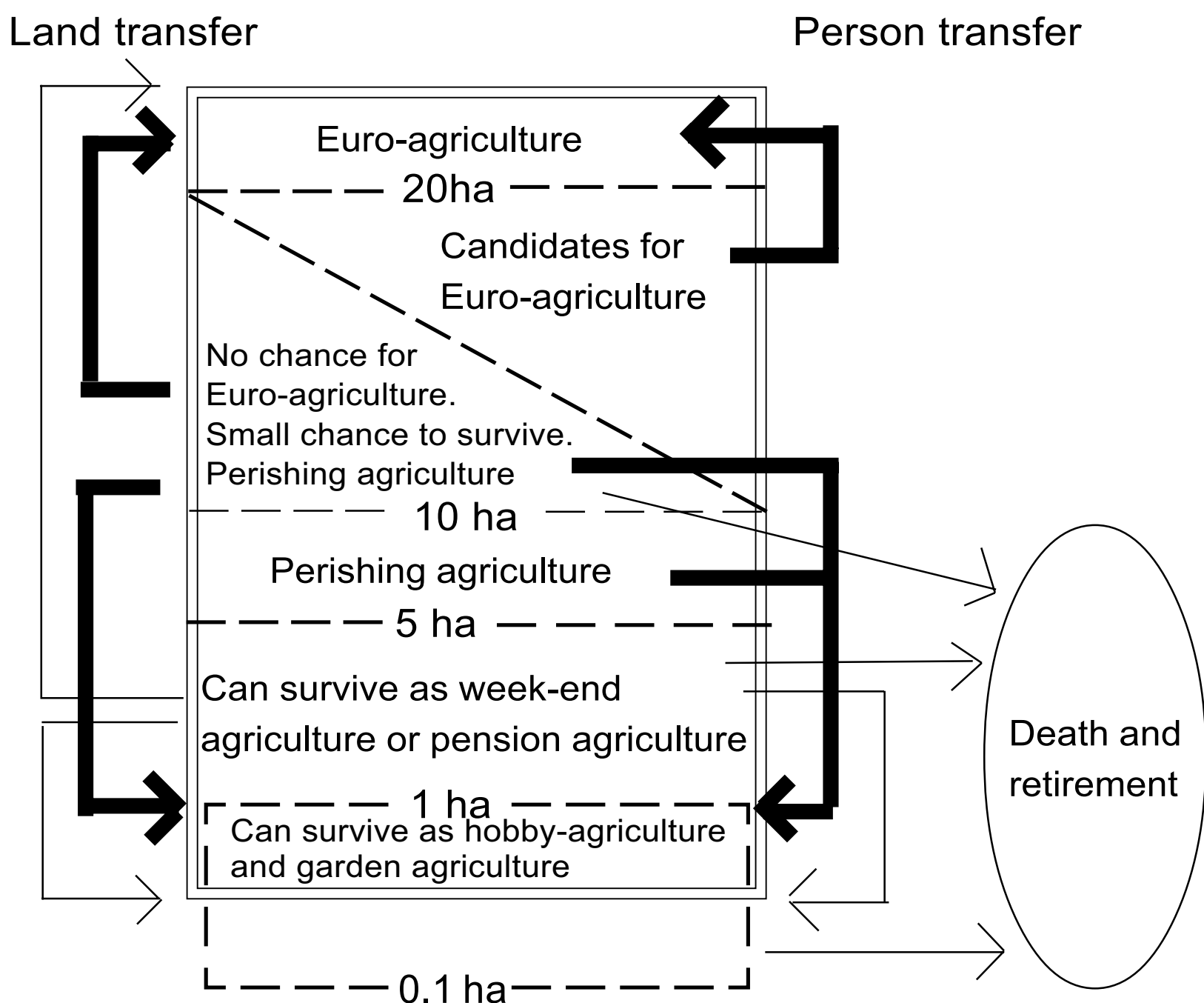
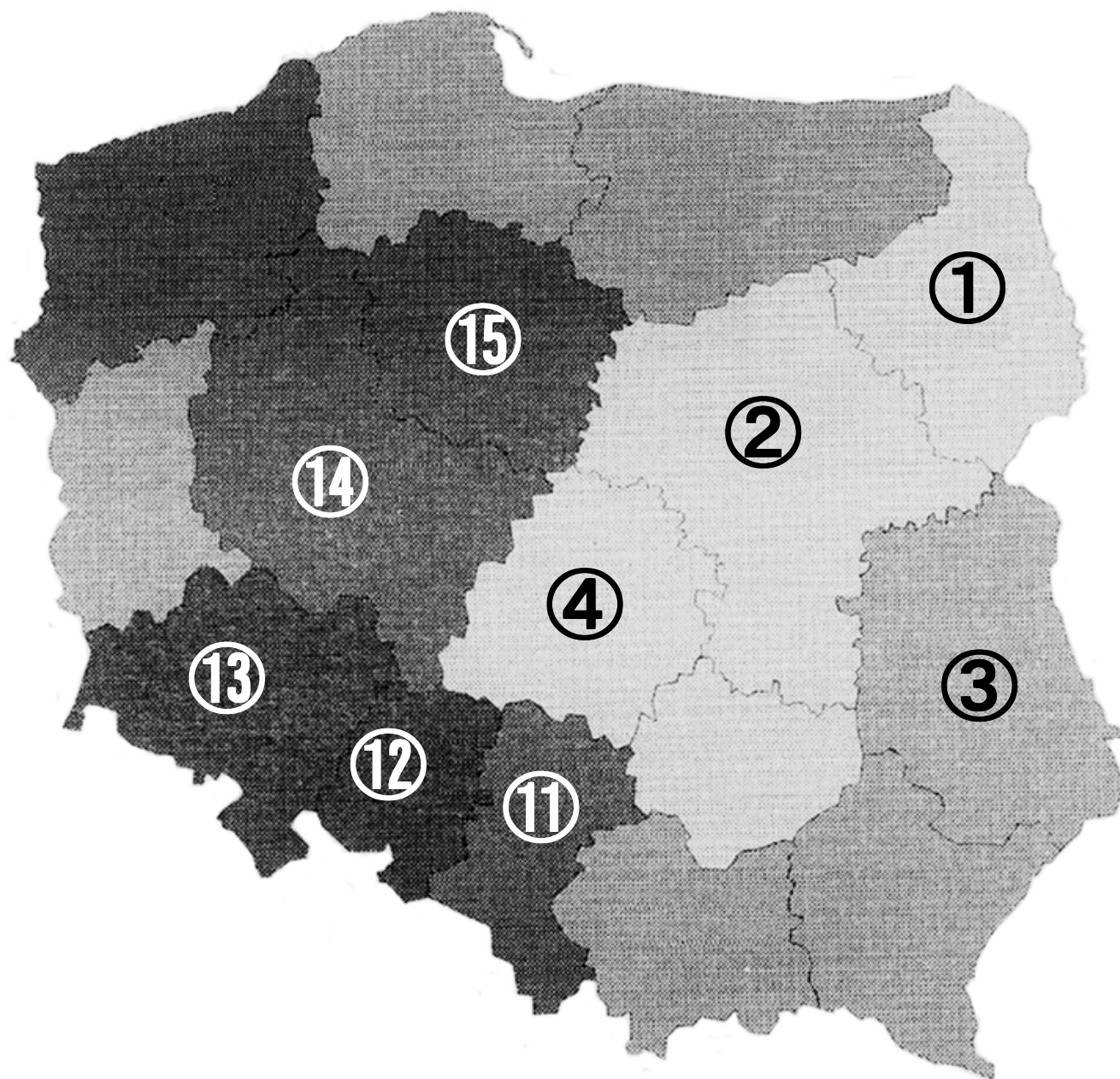
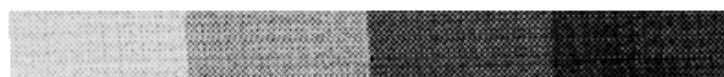


Figure 2.
Prefectures in Poland according to Crop Harvest



Plska 29.6 dt z 1 ha



27.0 31.0 35.0

dt (100 kg) per 1 ha