

Purposefulness of a more intensive supporting milk production in conditions of dispersed agriculture of Southern Poland

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Abstract: A disadvantageous tendency of resigning from milk production by small and medium sized farms has been observed in the recent years in the provinces of Southern Poland. It results from the low profitability of milk production on these farms and therefore the difficulties in reaching the income parity. It leads to a decline in the bovine population not compensated by an increase in the yield per animal and it poses a serious hazard to protecting the natural resources which is the function dairy farms perform in this region. The problem is serious since in the analyzed region, milk is acquired from 75% of farms keeping herds of up to 10 cows. Moreover, grasslands constitute a notably high share in the arable land structure, and for maintaining them cow keeping is a crucial condition. Hitherto functioning system of EU payments proved insufficient; therefore the Polish government intends to provide an additional financial support for dairy farms. The authors intended to reason that despite the hardly important participation of the analyzed regions in total milk production in Poland, an additional support for small and medium sized dairy farms from the state budget is socially necessary, in the first place because of the additional functions fulfilled by these farms.

Key words: milk production, income parity, natural resources, subsidies

An important Common Agricultural Policy reform was agreed during the EU-15 ministers of agriculture summit in Luxembourg in 2003, before the Poland's accession into the European Union structures. The accepted principles guiding the directions of agriculture support until 2013 were then introduced into the EU legislation. The key rules governing these agreements were included in the following regulations: European Community regulation EC No. 1782/2003, EC No. 795/2004, EC No. 796/2004 and EC No. 1973/2004.

According to these regulations, in the years 2004 to 2006, the EU-15 countries were gradually accepting new terms of direct payments and since 2007, the payment system hitherto known in Poland and connected with production, the so-called standard system, ceased to function. It denoted that farmers in the EU would no longer receive direct payments per 1 ton of milk supplied to a dairy plant or per 1 hectare of the cultivated crop. A small support for some directions of production was left as an option to be chosen by the member state. Some countries used this option, the other did not. In 2007, c.a. 90% of direct payments were paid as unconnected with the production. The above mentioned principle was introduced for several reasons.

Subsidizing the actual production causes that the produce does not meet the current market demand but

that which receives the highest subsidies. The system was criticized by the World Trade Organization as disturbing the trade conditions on the global scale.

Farmers who fulfil the specific requirements concerning the cross-compliance have the right to receive full direct payments. The rule demands that the farmers conduct their activities meeting the natural environment protection, food safety and animal welfare requirements. The amount of direct payments depends on the extent to which these requirements are fulfilled. The extended system of direct payments, the so-called standard system, was replaced by the support system per 1 farm or per 1 hectare of agricultural land, irrespective of the conducted agricultural production (Ministry ... 2010; Seremak-Bulge 2009).

In the context of supporting milk production in Southern Poland, it is important that some marginal part of payments connected with agricultural production was left to support these directions of production which otherwise would be non-competitive (e.g. the support for keeping suckler cows). The type of agricultural production which should be supported is milk production under the specific conditionings of Southern Poland.

The Common Agricultural Policy does not solve all problems of farming in the agricultural areas, which beside a limited production function fulfil also other

important functions comprising also the protection of natural resources. In the authors' opinion, it is necessary to conduct a national policy supporting these types of production through co-financing many development tasks from the national budgets.

The paper aims to justify the introduction of an additional financial support for dairy farms in the regions of Southern Poland with dispersed agriculture.

These activities are supposed to be an additional instrument of agricultural policy (beside direct payments) responsible for supporting and stabilization of agricultural incomes in the areas, which fulfil the non-production functions (Rymanowski 2010).

It should be also emphasized that apart from its production function (primarily restricted to producing foodstuffs for the needs of farmers and their families), the agriculture of the region to fulfil, to a great extent, also other non-production functions, including a widely understood protection of public goods (natural resources).

The authors of presented article are of the opinion that for this very function, the agriculture operating under the conditions of the region, and particularly milk production, should be additionally supported, which means additional subsidies in the frame of the regional policy, payments compensating the costs born by the agriculture of the region due to its function protecting public goods, i.e. landscape, waters, forests, air and grasslands.

As a result, it would improve the quite low profitability of dairy farms and therefore inhibit the disadvantageous trend of abandoning milk production in the regions with the dominating share of grasslands.

In the EU system of agricultural farm subsidizing currently functioning in Poland, the uniform area payments are realized at present. The agriculture supporting policy conducted so far to a certain extent covers the less favoured areas; however, the level of support does not consider the costs born by agriculture in the sphere of the natural resources protection.

The suggested designated subsidies from national budgetary sources would be calculated per 1 dairy cow on farms keeping herds up to 10 heads. These subsidies would enable small and medium sized dairy farms to approach the level of income parity and to continue milk production.

MATERIAL AND METHODS

Profitability of milk production under the conditions of dispersed agriculture in Southern Poland depends on the intensification of support. In order to justify the above stated thesis, 3 target regions situated in

the Southern part of Poland, i.e. the Śląski, Małopolski and Podkarpacki provinces were selected for the analysis. These will be further called a region of milk production. The region is characterized by a similar structure of land ownership, agrarian structure, the level of agricultural production, economic size of agricultural holdings and the production potential. A characteristic feature of this region is a considerable proportion of the legally protected areas. The percentage of these grounds in the Małopolskie makes up almost 60% of the area and comprises national parks, landscape parks, protected landscape areas, nature reserves, protected landscape areas, nature-landscape protected complexes, ecological grounds, sites of importance for nature conservation and nature monuments.

The region comprises also mountain and submontane areas and other terrains situated above 350 m a.s.l., with steep slopes hampering tillage. Higher than elsewhere in Poland, a high percentage of woods occurs in these areas. The conditionings mentioned above place the agriculture of this region into a much less favourable position in comparison with the other parts of the country (Kokoszka and Kuboń 2006).

The main obstacle preventing intensive agricultural production is the faulty farm area structure and the resulting farm area only slightly exceeding 3 ha of arable lands (for a farm over 1 ha). A prevailing part of agricultural holdings (c.a. 97%) remains private property. Cattle production, including milk production, remains strictly connected with the land resources owned by farms.

A high proportion of permanent grasslands in the region, particularly in the mountain and submontane communes where grasslands cover 90% of the structure, should be emphasized. Such a high proportion of this type of lands implies a large production of the so-called absolute forage, which determines cattle production (cattle and sheep) as the trend of the undertaken agricultural production. The current low sheep population due to the unprofitability of this branch of production does not guarantee any rational utilization of feeds originating from grasslands, whereas the cattle numbers have been declining for many years. In this situation, the absolute forage resources constituting a considerable potential of the cheap animal feeds in the region are not fully used.

The profits generated by dairy farms of various scale of cow husbandry were presented for the Małopolski region. The farms were selected from this region, from a sample of private farms identified from the observation field FADN 800 region Małopolska and Pogórze. According to the methodology applied by the Polish FADN (Farm Accountancy Data Network),

Table 2. Global production and limits of milk quotas allocated to producers

Regional offices of Agricultural Market Agency	Milk production (M kg)		Wholesale supplies				
	2000	2007	2006 (M kg)	2007 (M kg)	2008 (M kg)	2009 (M kg)	change 2009/2006 (%)
	Śląski region	377.3	263.1	185.2	191.7	194.7	196.0
Małopolski region	758.9	467.4	182.6	183.8	182.3	175.5	-3.9
Podkarpacki region	689.9	414.6	131.1	131.6	133.0	127.7	-2.6
Poland	11 543.1	11 743.7	8 580.0	9 124.0	9 113.6	9 345.6	8.9

Source: Agricultural Market Agency data: www.arr.gov.pl and Sałacki 2009

these were farms counted to the type F – “dairy cattle”. Farms classified to this type reach over 2/3 of the total value of the SGM (Standard Gross Margin) from milk production, which provided the basis of their classification.

In order to justify the necessity for the additional financial support for dairy farms, their economic data (including subsidies) obtained at present and after the introduction of suggested subsidies were presented.

The basic material for the article were data provided by the Central Statistical Office (CSO) and the subject literature, the method applied is a tabular and descriptive method combined with graphic presentation of the data.

RESULTS AND DISCUSSION

Conditionings of agricultural production

In 2005, there were in total 772.0 thous. farms running agricultural production in the analyzed region of Poland and the greatest number was located in

the Małopolski region – 312.8 thous., 273.5 thous. were in the Podkarpacki region and 185.6 thous. in the Śląski region. Jointly the farms in the region accounted for 31.3% of the total number of farms in Poland, which conducted agricultural production in 2005. The data were compiled in Table 1.

Arable land constituted 84.9% of the total area of the Śląski region, 79.4% of the Małopolski region and 83.8% of the Podkarpacki region. Permanent grasslands made up a considerable proportion of the in arable land, which has been shown on Figure 1.

The percentage of permanent grasslands in the region reveals the level stable in time, reaching c.a. 30% in the Małopolski and Podkarpacki regions and almost 25% in the Śląski region.

According to the data for 2005 provided by the Central Statistical Office (CSO), there were 22.3 thous. farms in the Śląskie region which were keeping 61.0 thous. cows, i.e. in average 2.7 cow per 1 farm. 94.8 thous. farms operating in the Małopolskie region were keeping 161.1thous. dairy cows, which in conversion per 1 farm gave 1.7 cows (farms keeping 2 cows). The lowest number of cows per farm was characteristic of the Podkarpacki region with 81.8 thous. farms and

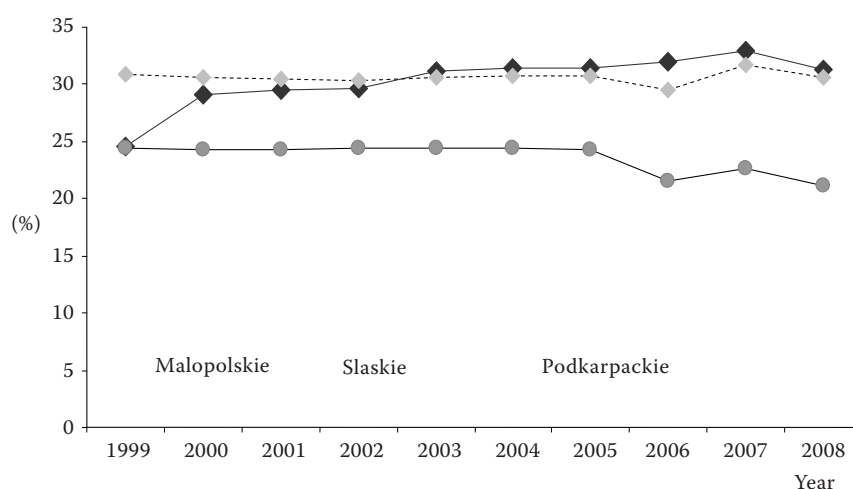


Figure 1. Share of meadows and pastures in the agricultural land structure in the selected regions

Source: own calculation based on the CSO data: www.stat.gov.pl

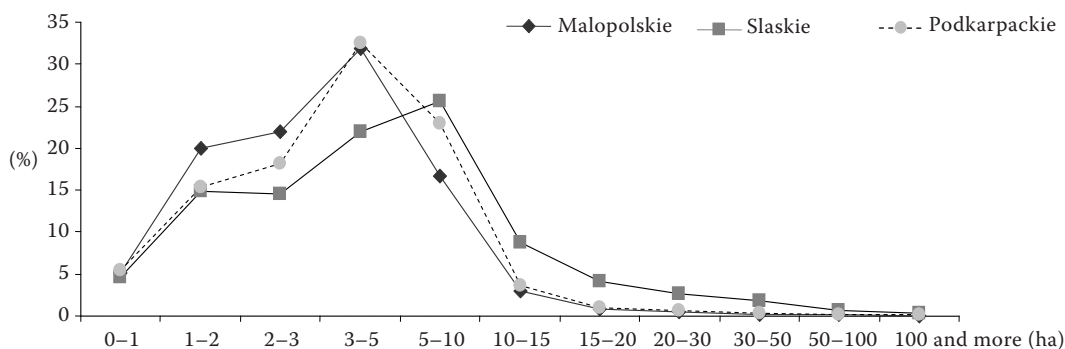


Figure 2. Share of farms keeping cows, according to area groups, in the selected regions (2007)

Source: own calculation based on the CSO data: www.stat.gov.pl

125.2 thous. dairy cows, i.e. 1.5 cow per 1 farm. In the Śląski region, 75.8% of farms keeping cows had herds of two heads; there were 86.5% such farms in the Malopolskie and even 91.1% in the Podkarpackie region (Characteristics ... 2006).

The low concentration of cattle husbandry is correlated with the number of kept cows and with the scale of their keeping on farms belonging to various farm area groups. The area characteristics of farms keeping dairy cows were shown in Figure 2.

In the discussed region of Southern Poland, the highest number of farms keeping cows is within the range of between 3–5 ha and 5–10 ha. Two regions, Malopolski and Podkarpacki, reveal the greatest similarity in this respect, whereas in the Śląski region, the greatest number of cow keeping farms are in the farm 5–10 ha area range, which evidences that bigger farms are involved in the dairy cattle husbandry and the concentration of milk production on a higher level than in the other two regions.

Changes in production and procurement of milk in the years 2006–2009

The analyzed region supplies small quantities of milk within the wholesale milk quotas. The low marketable

milk yield is connected with the existing dispersion of agricultural farms and their considerable self-supply level (Matysik 2003). In 2009, the wholesale supplies accounted for 5.3% of the country limit. As results from the data compiled in Table 2, only the Śląski region increased the wholesale milk supplies in relation to the initial year 2006. In this period, the wholesale milk supplies in the other two regions decreased respectively by 3.9%, i.e. in milk mass by 7.2 million kg in the Malopolskie and by 2.6%, i.e. by 3.4 million kg in the Podkarpackie. In the analogous period, an increase in the wholesale quotas was registered in 12 other regions. The concentration processes in the regional dairy industry both on the production and industrial processing level are going on very slowly. Dairy plants operating there process c.a. 10 M tons of milk annually and they sell the ready – made products mainly in the local markets (Cieślak et al. 2006). Seremak-Bulge et al. (2007) think that the costs of milk procurement in the region where the commodity milk production is poorly developed burden heavily the costs of dairy plants running and are one of the main reasons of their poor financial condition. The problems of obtaining lower prices for the supplied milk in the analyzed region were discussed by Ziętara (2009).

In 2009, the number of the wholesale suppliers in Poland was 195.6 thous., which was by 159.7 thous.

Table 2. Global production and limits of milk quotas allocated to producers

Regional offices of Agricultural Market Agency	Milk production (M kg)		Wholesale supplies				
	2000	2007	2006 (M kg)	2007 (M kg)	2008 (M kg)	2009 (M kg)	change 2009/2006 (%)
Śląski region	377.3	263.1	185.2	191.7	194.7	196.0	5.8
Małopolski region	758.9	467.4	182.6	183.8	182.3	175.5	-3.9
Podkarpacki region	689.9	414.6	131.1	131.6	133.0	127.7	-2.6
Poland	11 543.1	11 743.7	8 580.0	9 124.0	9 113.6	9 345.6	8.9

Source: Agricultural Market Agency data: www.arr.gov.pl; Sałacki (2009)

Table 3. Wholesale milk supplies in 2010

Regional offices of Agricultural Market Agency	Wholesale supplies (M kg)	Number of wholesale suppliers (thous.)	Milk quota per supplier (thous. kg)	Decrease in suppliers number in relation to 2004 (%)
Śląski region	196.0	5.8	33.8	from -42 to -56
Małopolski region	175.5	9.8	17.9	from -42 to -56
Podkarpacki region	127.7	7.4	17.3	-60

Source: Agricultural Market Agency data: www.arr.gov.pl; Sałacki (2009)

fewer than in 2004 – after introducing the milk quotas (Table 3). The decline was among other caused by the necessity of the producers' adjusting to the European Union regulations. The government also undertakes some measures, e.g. compensatory payments for abandoning the milk production. The highest decrease in the number of milk producers was caused by the lack of profitability of this branch of production and the progressing, although slowly, specialization process.

The highest decline in the wholesale milk suppliers' number was noted in the Podkarpacki region, Table 3. The quotas of the wholesale supplies in the investigated region are among the lowest in the scale of the whole country, which evidences a considerable dispersion of milk production. In 2009, an average milk quota per one wholesale supplier was 47.8 thous. kg.

A decrease in the numbers of the wholesale milk suppliers in the region might be regarded as a positive phenomenon testifying the concentration of production, however, on the condition of the increased milk production and procurement in the given region. In

the analyzed case, the decline in the number of the wholesale suppliers was accompanied by a decreasing amount of the procured milk, which shows a dwindling production in the individual regions. The phenomenon is observed primarily in two of the analyzed regions: Małopolski and Podkarpacki. The problem was wider discussed by Musiał (2008).

The data compiled in Tables 2 and 3 show unanimously a permanent phenomenon of farmers abandoning the milk production observed in the analyzed regions. No increase in milk yield per cow has been registered, so milk production decreases systematically, as well as the quantity of milk supplied to the milk procurement points. The analysis of this unfavourable phenomenon was one of the reasons for the suggested additional funding for dairy farms.

Economic results of dairy farms justifying the additional subsidies

The suggested subsidies from the state budget for the farms keeping up to 10 cows have been designed

Table 4. Selected economic indicators of dairy farms in the Małopolskie region in 2009 before considering the suggested subsidies on dairy cows

Specification	Number of cows per herd		
	2–5	6–10	11–20
Farm income (thous. PLN)	13.2	18.3	44.6
Subsidies total* (thous. PLN)	9.1	11.6	16.7
– area payments (thous. PLN)	3.5	4.9	8.4
Share of subsidies in farm incomes (%)	69.0	63.4	37.5
Farm income/FWU** (thous. PLN)	9.2	9.9	24.9
Farm income/FWU in relation to non-farm population*** (%)	33.3	35.9	90.2

*Subsidies total: LFA – Less Favoured Areas, SAPS – Single Area Payment Scheme, Agri-environmental payments and subsidies for semi-subsistence farms

**FWU Family Work Unit

***Parity on the level of net income (27.6 thous. PLN) non-farm population for 2009

Source: CSO data: www.stat.gov.pl; Cieślak and Żmija (2010)

for 5 Southern provinces (Lubelskie, Malopolskie, Podkarpackie, Świętokrzyskie and Śląskie), where the protected natural resources cover considerable areas. In these regions, 75% of milk production comes from such farms and in the Małopolskie province, even 85%. The estimated subsidy is 28.5 M Euro, which, at the assumption that about 200 thousand cows will be eligible for support, gives the rate per 1 cow on the level of 142.5 Euro (c.a. 550 PLN).

Table 4 shows, on the example of the Malopolskie province, the data justifying the necessity of an additional financing for farms keeping up to 10 cow herd.

Agricultural income achieved by farms constitutes the payment for the involvement of the farmers' own agronomic inputs (including labour) in the operational activities and the owners' risk. In 2009, the average annual net salary in the national economy was 27 700 PLN per one employed person, so only farms keeping 11–20 cows were almost able to reach it, obtaining 90.2% of the parity labour payment. It corroborates the opinion that only dairy farms keeping c.a. 20 cows may be profitable (Cieślik and Żmija 2007). The smallest farms (2–5 cows) generated income per 1 FWU on the level of 33.3%, whereas farms possessing 6–10 cows on the level of 35.9% of the average net salary in the national economy. The disadvantageous level of farm profitability in 2–5 and 6–10 cows groups has been registered, despite a significant participation of subsidies in the generated financial results, respectively 69% and 63.4%. Area payments constituted 38.5% of the total subsidies on smaller farms (2–5 cows) and 42.2% on bigger farms. It is a fact that such small farms are unable to reach

the satisfactory incomes without any support or at the current subsidy level.

Therefore and also considering their dominating participation in milk production in the region, it becomes necessary to provide an additional financial support for these farms.

Considering the proposed subsidies (550 PLN per cow), the financial results might improve, but time will show if they reach the degree satisfactory for milk producers.

Farm income and income per 1 FWU would grow by 15.1% in the group of farms keeping herds of 2–5 cows and by 24% in larger farm group (6–11 cows). The income per 1 family work unit (FWU), in relation to salary in the national economy, would reach the level of respectively 28.4% and 44.6% of the parity value. The share of subsidies in the farm income would reach 72.4% on smaller farms (2–5 cows) and 70.5% on larger ones (6–11 cows). It is a very high level of financing, but the state has to provide the assistance in order to protect the natural resources and to maintain milk production in the analyzed regions.

These farms have been and will be monitored in future and in case the farmers will be resigning from milk production, increasing of the currently suggested support is predicted.

CONCLUSIONS

The EU Common Agricultural Policy does not offer a complete solution for farming the agricultural lands, which beside a limited production function fulfil also other functions, among other protecting natural resources.

Under the conditions of dispersed agriculture of Southern Poland, a rapid decline in the cow population has been registered during the last 10-year period and a decreased milk production, not compensated by the individual cow milk yield. Despite the undertaken measures involving the distribution of the European Union funds and the preferential crediting, reaching income parity on smaller farms specializing in cow husbandry encounters serious difficulties, because in the analyzed region, about 75% of milk production is run in the herds not exceeding 10 heads, which in the current economic conditions does not guarantee these farms a proper profitability level. The situation is aggravated by the fact, that these farms are situated in a region with a very high proportion of permanent grasslands in the agricultural land structure, which necessitates keeping cow herds ensuring the possibility of the absolute forage feeding. In the current situation, the resources of absolute forage, constituting a

Table 5. Selected economic indicators of dairy farms in the małopolskie region in 2009 after considering suggested subsidies on dairy cows

Specification	Number of cows per herd	
	2–5	6–10
Farm income (thous. PLN)	15.2	22.7
– increase in income (%)	15.1	24.0
Subsidies total (thous. PLN)	11.0	16.0
Share of subsidies in farm incomes (%)	72.4	70.5
Farm income/FWU (thous. PLN)	10.6	12.3
Farm income/FWU in relation to non-farm population (%)	38.4	44.6

Source: calculation on the basis of CSO data: www.stat.gov.pl; Cieślik and Żmija (2010)

considerable potential of cheap animal feeds in this region, are not satisfactorily used.

In the authors' opinion, it is necessary to conduct the national policy of supporting directions of production through co-financing many development tasks from the national budgets. These measures should be an additional (beside direct payments) instrument of agricultural policy responsible for supporting and stabilization of agricultural incomes in the areas which fulfil also the non-production functions.

Providing of additional subsidies aims at the improvement of the dairy farms profitability, inhibiting the current tendency of abandoning milk production and therefore ensuring that these farms will continue to fulfil an important function of protecting natural resources. At present, the Polish government may designate 28.5 M Euro to this purpose, however, if the suggested level of support for small and medium sized dairy farms proves insufficient, higher donations are predicted in the future.

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