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# The Development of Agricultural Production Cooperatives in the Russian Federation

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## Abstract

After the break-up of the Soviet Union, many collective farms (*kolkhozes* and *sovkhozes*) were transformed into agricultural production cooperatives. Two decades later, most of these production cooperatives are still in operation. Although they face problems as regards e.g. wage levels, profitability and productivity, they are strong in many regions of the Russian Federation and within many branches of agriculture. The continued existence of such agricultural production cooperatives puzzles many Western economists. This paper attempts to provide an explanation in terms of the history of Russian cooperatives in the agricultural sector and of the institutional conditions prevailing during establishment of the current agricultural production cooperatives.

## Keywords

Russia, agriculture, production cooperative, kolkhoz, collective farm

## Introduction

In the former Soviet Union, agricultural production was conducted within large collective farms, some of them organized as “cooperatives” (*kolkhozes*), while others were under direct state ownership (*sovkhozes*) (Domar, 1966). In 1990, on the eve of transition, agricultural production in Russia was carried out by approximately 12,800 *kolkhozes* and 13,000 *sovkhozes*. On average, each of these farms controlled about 7,800 hectares of agricultural land with 320 permanent workers. However, there was also an important household production sector comprising about 14 million rural households that provided a significant proportion of food (Uzun, 2008).

With the collapse of the socialist regimes in countries in Central and Eastern Europe (CEE) and the break-up of the Soviet Union, agricultural economists argued that decollectivization could lead in only one direction, namely a transformation into private family farms, which over time have shown their dominance all over the world (see Schmitt, 1993, for a review). In particular, it was argued that the type of organization which would emerge in agricultural production in a competitive environment would be determined by transaction costs, i.e. the costs of acquiring information, monitoring and supervision, and enforcing contracts (Ollila, 1999). Since agricultural production is largely determined by natural conditions and only to a smaller extent by individual efforts, it is not only costly to monitor workers but also difficult

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to assess the contribution of each worker to the overall performance. So it would be difficult to hand over these tasks to employed workers (Allen and Lueck, 2005). The same reasoning could also be applied in agency theory. The principal (e.g. the owner of a farm) would not trust any agent (e.g. worker), as agents cannot be fully controlled and, hence, have the option of cheating and free-riding.

In most CEE countries and in Russia, the newly installed governments followed policies which promoted individual farming. However, when looking at the organization of agricultural production in these countries today, the outcome is different. In some countries, such as Estonia, Albania, Romania, and Armenia, all collective farms were dissolved and split up into family farms. In most CEE countries, however, the structure became polarized, with transformed and decollectivized large-scale farms on the one hand, and family farms including small-scale semi-subsistence farms on the other. Even in East Germany, where family farming was heavily supported after unification, this organizational form has not come to dominate (Wolz et al., 2009).

In Western countries, especially in North America, there has been a trend towards huge agricultural enterprises during recent decades. The concept of “industrialization of agriculture” has become widespread (Boehlje et al., 1995). This development is due to the introduction of new production technologies, which are more efficient. A parallel development has been the introduction of new management tools, such as profit-sharing, outsourcing, and contracting, which make it possible to achieve alignment of the interests of the various participating actors – the financiers, management, the laborers, etc. The large-scale agricultural enterprises in Russia and the CEE countries to some extent use the same technologies and management tools, which help them to become more efficient. However, this does not explain the continuing existence and success of the agricultural production cooperatives in these countries.

During the early 1990s Russia embarked on an agricultural reform process which involved institutional changes that broke sharply with the Soviet past. The reforms were intended to make Russia’s agriculture economically competitive. “In place of collective farms, smaller, specialized farms using family and hired labor were expected to emerge as the backbone of Russian agriculture” (Wegren and O’Brien, 2002, p. 9). However, as in most CEE countries, large-scale landholdings still persevered. While a number of these were later dissolved, many were transformed into newly registered agricultural production cooperatives, limited liability companies, or (closed) joint-stock companies. By the end of the 1990s there were about 22,500 agricultural enterprises, of which about 7,300 were registered as agricultural production cooperatives. Besides agricultural enterprises there were about 260,000 private farmers and about 30 million household plot and garden cultivators (Uzun, 2008; Wandel, 2011). With respect to agricultural production, the shares of agricultural enterprises, household plot farmers, and private farms amounted to 49, 42, and nine per cent, respectively (O’Brien et al., 2011).

This study aims at exploring the historical and institutional background behind today’s agricultural production cooperatives within the Russian Federation. First, there might be historical reasons why the Russian agricultural sector is largely characterized by collective

action. Second, the political and administrative processes after the break-up of the Soviet Union may provide some understanding of why agricultural production cooperatives developed. The study is based mainly on a review of literature and analyses of statistical sources in Russia.

The study is structured as follows. The next section describes the early agricultural cooperative movement in Russia, i.e. before the collectivization process. The relative success of the present-day production cooperatives can, at least partly, be explained by historical developments. The following section comprises a discussion about the development of agricultural production cooperatives after the break-up of the Soviet Union, their structure and operations and main directions of their transformation into other organizational forms. The last section presents some conclusions.

## **Cooperatives in the Russian agriculture – a historical overview**

### *The cooperative movement before 1917*

Experiences from human collaboration have been collected over centuries within Russian agriculture. *Obshina* (village community), *artel*, *skladchina*, and *mutual aid* are some pre-cooperative forms of collective action (Podgorbunskih and Golovina, 2005). The creation of the first formal cooperative societies was a reaction to the emancipation of serfs and the advent of legally free peasants (1861). The first society was set up in 1866, but was soon followed by hundreds of others (Chayanov, 1991 [1919]; Kotsonis, 1999). Due to the growth of industry, banking, and trade, as well as the expansion of commodity-money relations in villages in particular, rapid development of the cooperative movement took place during the last decade of the 19<sup>th</sup> century. The development of cooperative societies in Russian agriculture has usually accelerated during periods when production was individualized, i.e. at the end of the 19<sup>th</sup> and start of the 20<sup>th</sup> century (Stolypin reform), within the NEP (New Economic Policy) years (during the 1920s), and during the latest reforms (from the end of the 1980s).

In 1917 the number of agricultural cooperatives in Russia amounted to 47,787, including credit cooperatives (16,055), consumer societies (20,000), agricultural societies and associations (8,132), butter-making *artels* (3,000), and handicraft and other types of *artels* (600) (Table 1). At that time, Russia had the second highest number of cooperatives in the world after Germany.

>Insert Table 1 or somewhat below<

With the advent of markets and trade, peasants as individuals as well as their associations were in need of access to financial services. As a result, *credit cooperatives* were set up in Russian villages. This cooperative form provided financial aid to rural workers in order to reduce their dependence on private (urban) banks. While such cooperatives were also set up in urban areas, the vast majority of them operated in rural areas.

Simultaneously, *consumer societies* were established to provide necessities at low prices to villagers. These cooperatives were owned by customers for their mutual benefit. Consumer cooperation was widely adopted in rural Russia during that historical period. The sales operations were typical for consumer societies. At the end of the Tsarist regime, this type of cooperation was the most popular form in Russia.

*Agricultural societies* were cooperatives designed to convey knowledge to practicing farmers and their associations. Local leaders formed such organizations for the purpose of exchanging information and promoting agricultural improvements. Specialist societies in beekeeping, poultry farming, dairying, flax cultivation, and other areas were popular.

*Agricultural associations* were cooperatives for different joint operations in agricultural production, such as collective tillage and harvesting, in order to cut labor peaks. Membership of such cooperatives permitted villagers to carry out difficult agricultural operations together. In general, they not only provided labor but also agricultural and household equipment.

Already during the latter half of the 19<sup>th</sup> century, *butter-making artels* were set up. Within a few decades this form of cooperation extended from the European part of Russia to Siberia. As a result, in 1906 Russia was the second largest exporter of butter in the world (after Denmark), while in 1914 Russia's exports of butter made up about 25 per cent of the world market. Besides ensuring a reliable source of farm income, these cooperatives, as well as handicraft and other *artels*, provided additional sources of employment and income to the rural population. In addition, handicraft *artels* promoted the development of home craft in rural areas.

#### *Cooperative development after 1917*

The October Revolution in 1917 resulted in fundamentally different organizational forms in agriculture. At that time Russia was still a rural country, with about 90 per cent of the population associated with agriculture. After the nationalization of all agricultural land, peasants received more than 160 million hectares (about five hectares per family). Nevertheless, farmers had insufficient assets and livestock for successful production. Particularly during the early years after the October Revolution the new government experimented with various forms of joint farming (Schiller, 1969). In 1921 the NEP was proclaimed. It introduced market relations in all spheres of economic life and had a critical impact on cooperative development. The main purpose of the NEP was the restoration of the agricultural sector by means of cooperatives. The success of the cooperative movement in the 1920s was a result of the introduction of basic cooperative principles, such as voluntary and open membership, democratic decision-making and control, active participation by members, and a spirit of mutual aid and collaboration.

The cooperative organizations were established in order to implement the new economic policy. Therefore the political leadership took measures to spread cooperation to all parts of the economy. Cooperative enterprises were promoted by financial support from the government and every possible privilege. Permits for free trade, tax concessions, and cheap

credit were instrumental for the development of cooperatives. Good trading warehouses, low railway and water tariffs, low rent rates, and prioritized acquisition of consumer and industrial goods were granted to the cooperative organizations. Due to this support, different forms of cooperatives such as agricultural associations, communes, and *artels* appeared in the villages and their numbers rapidly increased (Table 2). While various types of joint production cooperatives stagnated, service cooperatives of the Raiffeisen model expanded rapidly (Wädekin, 1974).

>Insert Table 2 or somewhat below<

In the Soviet era the terminology concerning agricultural cooperatives changed to a certain extent. Thus an *agricultural association* was the simplest form of production cooperative, with consolidated land and labor but private property rights to the means of production. The principle of income distribution was connected to labor inputs and family size.

An *agricultural commune* was a form of production cooperative with the joint use of capital, labor, and land. These were created on confiscated land of landlords and monasteries and used egalitarianism as a principle of income distribution – the distribution of income was equal per head. The former agricultural workers became members. The first commune with eleven families was created in the Kostroma region on 280 hectares of land.

An *agricultural artel* represented a specific form of collective establishment with distribution of income according to labor input. The members of *artels* had their own houses and personal household plots of limited size. Gradually, the *artels* became the basic and later the unique form of cooperation in agriculture. The term “*agricultural artel*” lost its meaning and in relevant legislation the term “*collective farm*” was used instead.

The most rapid expansion, however, could be observed among the service cooperatives. They had not been promoted during the first years after the October Revolution as they strengthened individual farming, but this changed with the NEP policies. However, their revival was short-lived (Wädekin, 1974).

Finally, three other forms of associations comprised *agricultural production cooperatives at secondary or higher levels*. They were formed according to the location, specialization, or organizational form of their member organizations. In specific terms, *regional agricultural unions* were umbrella organizations for all production cooperatives in a specific region. *Associations of agricultural production, processing, and marketing* operated in joint processing and marketing of agricultural products. *Multi-purpose agricultural associations* evolved on a voluntary basis and included different cooperatives irrespective of location, specialization, and size. All these higher forms were established not only to promote agricultural production, but also to lobby for the interests of production cooperatives and their members. By the end of 1926, about 7.8 million peasant farmers had become members of cooperatives.

Towards the end of the 1920s, the curtailment of the NEP policy and complete collectivization radically changed the traditional methods of management and the

organizational forms of agricultural production. Collective farms became the basic model in organizing agricultural production. Other forms of organization and cooperation in agriculture were gradually liquidated. Hence, communes, *artels*, and agricultural associations were transformed into collective farms. The supply and marketing functions were transferred to state companies. Instead of various forms of agricultural cooperatives as recommended by the Russian cooperative pioneer Chayanov, only collective farms (*kolkhozes*) were introduced, and this by legal force.

Legally, the collectivization of agricultural production was based on two decisions, namely “*About rates of collectivization and measures of the help of the state to collective-farm building*”, adopted in 1930, and “*About rates of the further collectivization and problems of strengthening of collective farms*”, adopted in 1931. In 1932, collectivization comprised 59.3 per cent of agricultural production, in 1937 92.6 per cent, and in 1940 96.6 per cent. In 1940 on average, a collective farm comprised 68 farmers, 485 hectares of arable land, 72 head of cattle, 28 pigs, and 139 sheep and goats (Minakov, 2007).

During the following decades the collectivization process continued, leading to an amalgamation of collective farms. In addition, many of them were transformed into state farms. Since the late 1950s, Soviet politics and economic science regarded cooperative forms of agricultural production as a temporary, transitional, and relatively minor phenomenon (Wädekin, 1974). With respect to daily management there was almost no difference between cooperative and state farms. Agricultural production cooperatives did not apply any of the characteristics or general principles of cooperatives. In conclusion, during the Soviet period neither form of enterprise exhibited any progressive development. None of them applied democratic principles but were managed “top-down”.

#### *Cooperative development at the break-up of the Soviet Union*

A new stage in cooperative development started during the second half of the 1980s. The government had recognized the necessity of smaller production systems that could adapt to changes in consumer demand more quickly and more flexibly, satisfy household needs in small-scale production, and offer a wide range of services more effectively. This policy change resulted in the law “*About cooperation in the USSR*” in 1988.

While the law referred to all sectors of the economy, it had a particular effect on agricultural production. In general, a certain number of workers (families) on collective and state farms could form a cooperative and rent land and equipment for a certain specified amount of output. Any surplus could then be disposed of autonomously (Islam, 2011). By 1990, about 2000 new agricultural production cooperatives had been registered (Table 3). On average, a cooperative comprised 78 hectares of agricultural land, including 50 hectares of arable land. As an average over a year, it had ten members. Almost all cooperative societies had a tractor and a truck, while one in five had a combine harvester. On average, each cooperative farm had 19 head of cattle, more than 30 pigs, and about 40 sheep.

>Insert Table 3 or somewhat below<

In general, these newly formed agricultural production cooperatives were closely linked to the state and collective farms. Most of the production cooperatives' assets were rented from such farms. In 1990 they hired on average 38 per cent of their tractors, 42 per cent of their combine harvesters, and 64 per cent of their animal houses. A large number of cattle were also leased. About 43 per cent of their total number of cattle (including 50 per cent of their dairy cows), over 70 per cent of their sheep, and 26 per cent of their pigs were leased. In addition, these newly formed cooperatives received inputs and raw materials from the collective and state farms. In return, they sold large amounts of their agricultural products to the former enterprises: 53 per cent of their grain, 43 per cent of their potatoes, 64 per cent of their vegetables, 59 per cent of their meat, and 66 per cent of their milk (Petraneva et al., 2005).

The newly formed agricultural cooperatives adapted to the local conditions by specializing in a variety of agricultural activities, but generally in more labor-intensive activities. Instead of grain production these cooperatives focused on potatoes, vegetables, seeds of grains and perennial grasses, sprouts, flowers, and mushrooms. Another choice was animal husbandry, like cattle fattening and pig, sheep and poultry raising which requires much manual work. Moreover, the cooperatives developed beekeeping, fur farming, and fish farming. The cooperatives' largest shares in overall production were in breeding and fattening of cattle (39.6 per cent market share), potatoes and vegetables (16.6 per cent), and honey and fish production (14.6 per cent) (Petraneva et al., 2005).

## **The transformation and development of agricultural production cooperatives**

### *The conditions for transformation into cooperatives*

With independence of the Russian Federation the transformation process was enforced. As the socialist types of farms had to be re-organized, members had the option of starting their own private farms. In addition, they could choose to convert their farms into transformed agricultural production cooperatives or another type of agricultural enterprise, i.e. joint-stock or limited liability companies. The resolution from 29 December 1991, "*About an order of reorganization of collective and state farms*", provided the rationale. In general, a re-organization into agricultural production cooperatives was recommended. In this way, it was possible to split up the production means into smaller units within a reasonably short period of time. However, it took some years before the necessary laws with respect to agricultural cooperatives became effective.

The legal basis for agricultural producer cooperatives was laid down in three consecutive laws: (1) *Civil Code*, effective 30 November 1994, (2) the Law "*About Agricultural Cooperation*", effective 15 November 1995, and (3) the Law "*About Production Cooperatives*", effective 10 April 1996. Former collective and state farms could be transformed into one successor enterprise or into various smaller entities. Similarly, they could be transformed into a different legal entity, such as joint-stock or limited liability company. Some were closed down and split up into family farms.

Hence, two types of agricultural production cooperatives can be distinguished. One type was set up from scratch, i.e. in general they split off from existing farms. The other was the complete transformation of former collective and state farms. Depending on origins, they had different sources and amounts of equity. In the former case the total equity was made up of the paid-up share capital of the members. In the latter case the equity was transferred from the former collective or state farm. The cooperatives created after transformation of existing firms had initial advantages compared with cooperatives starting afresh. They had production means available at the outset, as a rule did not change the production orientation, and had fewer problems with staff, supplies of resources, and marketing of products.

In line with the two types of agricultural production cooperatives, the necessary steps for their formation were as follows. When members of collective farms or workers on state farms wanted to establish a new (usually small-scale) cooperative from scratch, they generally received support from these organizations. After approval by the general assembly, the land could be transferred to those members as either jointly used and owned, or jointly used and individually owned property. The ownership of the land was transferred free of charge. The average area of land for each member in the former enterprise was calculated through a division of the total land area by the number of workers, including other employees and pensioners of the respective enterprise. Additional plots of land were available for purchase. If newly established cooperatives needed a larger acreage, they could obtain that as rented land with the option to purchase it later.

With respect to the transformation of former collective and state farms into agricultural production cooperatives based on voluntary membership, a specific pattern had to be followed. When the owners of the land and the property shares (i.e. members and workers of former collective and state farms) wanted to establish a cooperative, they informed the enterprise's privatization commission that they wanted to use their shares as an entrance fee to the transformed cooperative. The privatization commission then allocated a part of land and assets for individual ownership, in general, in form of certificates of entitlement. However, there was no general pattern.

The relatively large sector occupied by the agricultural production cooperatives in Russia may be due to the influence of local leaders. Amelina (2000), in a comparative study about decollectivization in the regions of Leningrad and Saratov, stresses the role of regional governments in fostering or slowing down the development of private farming. It has also been argued that collective farm directors discouraged members from becoming independent farmers. These directors had a strong interest in maintaining the pre-reform status quo, which guaranteed them access to income, local power, and prestige (Allina-Pisano, 2008). Furthermore, the agricultural production cooperatives have benefited from an unfavorable macro-economic environment for private farming, comprising poorly functioning markets and limited political support

#### *Cooperative development within different regions and industries*

Looking at their regional distribution, agricultural production cooperatives can be found in all seven federal districts (*okrug*), but they are not spread evenly throughout the country.

Statistical data about the regional distribution of agricultural production cooperatives are not published annually. The most recent data published by the Statistical Office (*goscomstat*) of the Russian Federation refer to 2004. The regional distribution of agricultural production cooperatives and their respective proportion of the total number of agricultural enterprises are shown in Table 4. The largest proportion of agricultural production cooperatives is found in the Federal District of Volga (55.8 per cent) and Central Federal District (51.6 per cent). In the North-western Federal District the proportion amounts to 43.2 per cent, while in the Ural Federal District it is just 35.3 per cent.

>Insert Table 4 or somewhat below<

When looking at the regional level below the federal districts, agricultural production cooperatives may constitute the most dominant type of agricultural enterprise. Thus, in the Nenets Autonomous District they account for 88.5 per cent of all agricultural enterprises, in the Brijansk region 80.3 per cent, in the Kirov region 70.8 per cent, in the Tver region 64.0 per cent, and in the Chuvash Republic 68.0 per cent.

With respect to their proportion of total agricultural production, agricultural production cooperatives seem to have focused mainly on production that provides the most basic commodities. The market shares in 2004 were especially high when it comes to sunflowers, sugar beets, milk and grain (Table 5). Their proportion of gross production of sunflowers was 42.2 per cent, sugar beets 42.1 per cent, milk 40.8 per cent, grain 38.7 per cent, potatoes 27.6 per cent, livestock and poultry 21.9 per cent, and vegetables 20.0 per cent.

>Insert Table 5 or somewhat below<

At federal district level, agricultural production cooperatives are significant in the Volga area. In addition, they play an important role in the Federal District of Central Russia. At the regional level, agricultural production cooperatives are the dominant crop producers in some specific areas. For example, they contribute 84.7 per cent of the total grain production in the Republic of Kalmykia, 79.5 per cent in the Kirov region, and 68.8 per cent in the Novgorod region. With respect to sugar beet, agricultural production cooperatives in the Samara region contribute 89.0 per cent of total production, in the Ulyanovsk region 85.6 per cent, and in the Tambov region 75.4 per cent. Concerning sunflower production, they contribute 91.7 per cent in the Tula region (Minakov, 2007).

The relative contribution of agricultural production cooperatives to animal husbandry is low in comparison with crop production. However, in each federal district there are regions where they produce a large proportion of total meat and milk production. For example, their contribution to cattle and poultry production is 80.0 per cent in the Nenets Autonomous District, 66.3 per cent in the Kirov region, and 60.3 per cent in the Tambov region. Concerning milk production they contribute 96.7 per cent of the total in the Republic of Kalmykia, 73.5 per cent in the Kirov region, and 73.2 per cent in the Tambov region (Minakov, 2007)..

## Conclusions

Russia's experience with agricultural cooperatives is a unique case. At the end of the Tsarist regime there was already a strong cooperative movement, but during that time and particularly during the Soviet period, agricultural cooperatives were not so much self-help organizations as instruments of government policy.

After the break-up of the Soviet Union, many collective farms (*kolkhozes*) and state farms (*sovkhoses*) were transformed into agricultural production cooperatives. In addition, new agricultural production cooperatives were set up from scratch. After two decades, most of these production cooperatives are still in operation and play a significant role in agricultural production, although this role varies between regions and types of production. Given the prevailing conditions, the development of production cooperatives was a positive experience in Russian agriculture. Nevertheless, it is unclear whether they will be efficient over time.

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**Table 1. Development of cooperatives at the beginning of the 20<sup>th</sup> century in the Russian Empire (number of cooperatives)**

Type of cooperative	1901	1914	1917	Growth, 1901-1917 (times)
Credit cooperatives	837	13,839	16,055	19
Consumer societies	600	10,000	20,000	33
Agricultural societies	137	5,300	6,032	44
Agricultural associations	-	1,300	2,100	-
Butter-making <i>artels</i>	51	2,700	3,000	59
Handicraft and other <i>artels</i>	-	520	600	-
<i>Total</i>	<i>1,625</i>	<i>35,875</i>	<i>47,787</i>	<i>29</i>

*Source: Thach, 2003, p. 56.*

**Table 2. Development of agricultural cooperatives and their related associations in the Soviet Union, 1922-1925 (thousands)**

Types of cooperative	1922	1923	1924	1925
Agricultural cooperatives	22.0	31.2	37.9	54.8
of which agricultural associations	5.0	5.3	4.6	4.6
of which communes	1.9	1.8	1.5	1.8
of which <i>artels</i>	8.4	6.8	7.4	8.8
of which service cooperatives (Raiffeisen-type)	6.7	17.3	24.4	39.6
Regional agricultural unions	1.8	2.4	3.0	9.1
Associations in agricultural production, processing and marketing	4.7	4.3	4.3	8.6
Multi-purpose agricultural associations	7.0	10.4	17.0	21.9
<i>Total</i>	<i>35.5</i>	<i>48.3</i>	<i>62.2</i>	<i>94.4</i>

*Source: N.N., 1928, pp. 419-423.*

**Table 3. Number and size of newly established agricultural production cooperatives in Russia, 1 July 1990**

Economic region	Number of production cooperatives	Average size of cooperatives in terms of:					
		agricultural land, ha	arable land, ha	number of members	basic production assets, thousands of rubles	livestock, head	
						cattle	pigs
Northern	107	58	20	10	106.1	12	60
Northwest	81	118	67	13	297.6	87	19
Central	279	50	37	9	62.2	18	30
Volgo-Vjatsky	71	40	34	7	40.7	5	21
Central-Chernozem	76	72	60	9	73.0	42	6
Volga region	22	104	87	9	55.3	11	25
North Caucasian	533	37	18	11	43.2	5	16
Ural	216	169	123	11	87.0	21	41
West-Siberian	282	142	89	12	84.9	30	20
East-Siberian	130	103	39	9	64.8	35	23
Far Eastern	229	24	8	10	95.1	16	63
<i>Russian Federation</i>	<i>2026</i>	<i>78</i>	<i>50</i>	<i>10</i>	<i>77.8</i>	<i>19</i>	<i>31</i>

Source: Goskomstat USSR, 1991, p. 12-23

**Table 4. Number of agricultural production cooperatives in different Federal Districts of Russia (2004)**

Federal District	Number	% of total	% of the number of agricultural enterprises
Central	3525	28.2	51.6
North-western	775	6.2	43.2
Southern	1725	13.8	37.6
Volga	3837	30.7	55.8
Ural	600	4.8	35.3
Siberia	1437	11.5	38.1
Far-Eastern	601	4.8	41.3
<i>Russian Federation</i>	<i>12,500</i>	<i>100</i>	<i>46.1</i>

Source: Minakov, 2007, p.91

**Table 5. Contribution of agricultural production cooperatives within different Federal Districts of Russia, % (2004)**

Federal District	Grain	Sugar beet	Sun-flowers	Pota-toes	Vege-tables	Livestock, poultry	Milk
Central	47.3	45.1	47.4	29.6	18.8	21.9	44.1
North-western	46.2	-	-	16.1	8.6	14.7	31.4
Southern	28.9	22.9	33.5	27.4	27.5	14.9	27.0
Volga	50.3	57.6	56.8	39.1	16.6	33.0	54.2
Ural	25.6	-	20.5	15.9	28.6	10.4	24.2
Siberia	30.3	46.7	51.7	16.5	13.7	20.2	30.0
Far-Eastern	49.3	-	-	21.4	22.9	17.2	30.3
<i>Russian Federation</i>	<i>38.7</i>	<i>42.1</i>	<i>42.2</i>	<i>27.6</i>	<i>20.0</i>	<i>21.9</i>	<i>40.8</i>

Source: Minakov, 2007, p.92