Comments on Paper by Bruce Gardner: "A Framework for Investigating Issues in Factor Markets and Economic Organization of Russian Agriculture"

1.1. William Liefert

Bruce's paper presents a sound analytical framework for our project on Russian agricultural factor markets. I do not have any major criticism of the paper. Rather than directing my comments specifically to this paper, I am going to present some of my own thoughts as to how we could focus our work on this project. My ideas are largely consistent with Bruce's, and in my comments I integrate his ideas with mine as much as possible.

I believe that our study of agricultural factor markets in Russia, as well as the study of Russian agriculture in general during transition, can be divided into two main parts. The first is commodity and input restructuring, and the second is institutional change. After briefly examining the nature of both parts of reform, I will discuss the approaches we might take in this project in work concerning each part of reform, and how we could integrate our work on the two parts.

Commodity and input restructuring involves changes in the volume and mix of agricultural goods that are produced, consumed, and traded, as well as changes in the volume and mix of inputs used to produce output. Economic reform has caused major commodity/input restructuring of Russian agriculture. The main developments are that production and use of intermediate inputs have both fallen. Average annual output for agriculture during 1997-99 was down 40 percent compared with average annual output during 1986-90, with livestock production falling by 48 percent. Use of intermediate inputs, such as fuel, fertilizer, pesticides, and animal feed, has also dropped substantially.

The main reason reform has spurred such strong commodity/input restructuring of Russian agriculture is that consumer preferences for goods have replaced planners' preferences as the dominant force in determining what goods are produced and consumed. Commodity/input restructuring thereby involves the question of *what* goods are produced in the economy, and *what* inputs are used to produce the goods. The specific policies that have most driven the restructuring are price and trade liberalization. These policies substantially changed prices and incomes—the two main factors on which producers and consumers base their decisions to produce, buy, and sell output and inputs. Changes in these variables in turn induced major changes in agricultural production, consumption, and trade. Perhaps the most important change was the substantial rise in the prices of inputs relative to prices of output (which Bruce refers to in his paper), which reduced Russian agricultural producers' terms of trade (the ratio of output to input prices) from 1990 to 1997 by almost 80 percent. The decline in input use because of rising real input prices was a major cause of the drop in agricultural production.

A key point about commodity/input restructuring during reform is that it can occur without any changes in the nature or system of production; that is, it can occur, and be analyzed, within the economy's existing production capacity. Analytically, commodity/input restructuring involves moving along the economy's existing production possibilities frontier.

2. The second major part of agricultural reform is institutional change. This involves such matters as land reform, privatization, development of new types of agricultural producers, a strengthening of the upstream and downstream linkages for agriculture, and creation of supporting institutional infrastructure for agriculture, such as systems of market information and commercial law. Institutional change, especially at the farm level, involves the question of *how* goods are produced. Institutional change can increase productivity in agriculture, such that more output can be produced from a given amount of input. This would improve the production function for agriculture, pushing out the production possibilities frontier.

The distinction I make between commodity/input restructuring and institutional reform is consistent with Bruce's thinking in his paper. Early in his paper, Bruce lists some key obstacles to agricultural growth that experts have identified (or hypothesized). The first is low output prices relative to input prices, a major complaint of Russian agriculture. This is an issue involving commodity/input restructuring, because it deals with the question of the appropriate prices for inputs relative to output prices, prices being the single most important determinant of the structure and mix of output and input use. The next general obstacle Bruce identifies is that economic reform has been incomplete. The types of reforms he discusses for this point mainly involve institutional change, such as land reform, the nature of private property, and changes on the former state and collective farms.

The nature of, and differences between, commodity/input restructuring and institutional change have implications for the type of questions we ask, and analytical approaches we take, in our project work concerning these two parts of reform. Because commodity/input restructuring during reform (as I have defined it) involves questions of output and input use decisionmaking *within the economy's existing production capacity*, the appropriate question to ask is, what is the best, or optimal, way to use existing resources, given the constraint of producing with the economy's existing technology and institutional system. Economic theory frames questions of optimal economic behavior in terms of pursuit of a specific economic objective, typically to maximize or minimize the value of some variable. An example is that an enterprise is at its optimal level of output when it is maximizing its profit, by producing where its marginal revenue from the sale of output equals its marginal cost of production. A country is at its optimal volume and mix of foreign trade with respect to comparative advantage when it is maximizing its gains from trade, by producing and trading such that the ratio of the domestic prices (which should reflect production cost) for any two traded goods equal the ratio of the prices at which the goods are traded.

I am explicitly making a point that Bruce makes a bit more implicitly—that a major part of our work on this project should focus on measuring the degree to which the use of agricultural inputs in Russia conforms to economically rational, or optimal, behavior, as defined by economic theory. Such an approach requires an assumption as to what is the major economic objective of farms and enterprises in their decisionmaking. The most common assumption made for producers is that they wish to maximize their profit. One could argue, however, that producers, and particularly Russian farms during transition,

have other competing objectives. For example, a farm's main objective might be to preserve the existing level of employment. However, even if the assumed objective of a producer (such as profit maximization) is not in fact its dominant goal, analysis of the economic rationality of Russian farms and other entities within the agricultural and food economy has the general merit of identifying and measuring the economic benefits and costs of decisionmaking in terms of well established economic criteria, as well as allowing for the analysis and measurement of the tradeoffs to be made in pursuit of competing economic objectives.

In his paper, Bruce appropriately identifies the main question we should focus on concerning the economically rational behavior of agricultural producers with respect to input use: are producers employing inputs to the level where the price paid for the input equals the value of the input's marginal product (VMP, which in turn equals the marginal product of the input times the price of the output good)? If this condition is met, the producer is employing the input at the level consistent with its profit maximization.

The purpose of this type of empirical research for our project is to determine whether a problem exists concerning the current volume and mix of agricultural input use, a "problem" being defined as a major deviation from the "optimal" level of input use, as well as to measure the degree of the problem (nonoptimality). Solution of the problem requires further restructuring of input use, which is also likely to restructure agricultural output to some degree.

If empirical analysis identifies that use of an input is suboptimal (or that some other economic efficiency condition is not being satisfied), the next step would be to identify the reasons why. The appropriate policy recommendations then would be those steps that would correct the inefficiency. For example, assume one finds that in certain regions the "real wage" being paid to labor on former state and collective farms is greater than the labor's VMP, such that it would be economically rational for the amount of labor employed to fall. Any government policies that impede labor mobility would be harmful, and thereby would be a contributing cause of the inefficiency, the obvious policy prescription being to eliminate these obstacles. For example, some cities, such as Moscow, impose special residency requirements that strongly impede emigration to them.

In many cases, though, correction of the problem involves not just eliminating a specific government regulation or practice, but rather making a major institutional change. Assume again that empirical work shows that agricultural workers on former state and collective farms receive a real wage greater than their VMP. Since farms continue to provide social welfare services for their workers, such as health, education, housing, and entertainment, this cost could be the marginal expense that puts labor's real wage above its VMP. (In his workshop paper, Vasily Uzun cites the finding from a farm survey that provision of these welfare services raises farms' total cost of operations by 10-30 percent.) If regional or local governments were to take over the responsibility of providing these services, the real wage paid by farms would fall. The farms' profit-maximizing level of employment thereby would increase. Such a change, however, requires altering farms' institutional nature.

Work within our project on each of the two major parts of agricultural reform—commodity/input restructuring and institutional reform—is related to the other part in the

following way. Empirical examination of whether the current structure (volume and mix) of agricultural input use is economically rational (or optimal) helps identify whether serious allocation problems exist, while examination of institutional matters helps identify the causes of, and solutions to, the input use imbalances. That is, systemic restructuring can be a means to achieving a more optimal structure of input use.

Institutional reform, though, has the potential benefit of not only improving the current mix of input use within the economy's existing production capacity, but also of increasing the productivity of inputs, thereby expanding the economy's production capacity. This is a point Bruce mentions at the start of his paper: that growth in Russia, not only in agriculture but economy-wide, must come from increasing output per capita. Although Russian agriculture has tremendous potential for productivity growth, the low level of growth achieved thus far has been disappointing. Lerman et al. (2001) find that from 1992 to 1997, total factor productivity in Russian agriculture rose only 7 percent (in total, not annually).[3] A major focus of our project should therefore be on identifying institutional changes--at the farm-level, in upstream and downstream operations, and perhaps also in areas outside of the agriculture and food economy--that could encourage and facilitate productivity growth. The new vertically integrated agricultural producers (or "operators") that Dmitri Rylko discusses in his paper could be an example of effective institutional change in agriculture that raises productivity. Productivity growth could close the gap between the current performance of Russian agriculture and the sector's potential.

[3] Zvi Lerman, Yoav Kislev, Alon Kriss, and David Biton, "Agricultural Output and Productivity in the Former Soviet Republics," presented at the Meetings of the American Agricultural Economics Association, Chicago, IL, August 5-8, 2001.

Organizational Types of the Agricultural Production in Russia

V.Y. Uzun

6. INTRODUCTION

This report offers preliminary results of the research of the organizational types in the agricultural production in Russia and defines the main problems, which must be in the focus of further research works.

The transition from the socialist to market agriculture in Russia turned to be long and complex. A rather simple and clear scheme of reformation, which included land privatization, reorganization of collective (state) farms and organization of the "western type" farms was proposed at the beginning of the reforms. However, due to political, economic and social conditions of the 90s in the XXth century this scheme was not implemented.

Organizational types of the agricultural production happened to be rather various. Currently, Russia has family farms of the western type, large private capitalist agricultural enterprises, socialist enterprises, which have not actually changed since the soviet times, patriarchal subsidiary plots, which have existed for many centuries.

The purpose of this research is to analyze organizational types of the agricultural production, mechanisms of their interaction, and their role in the agrarian structure of Russia in the past, present and nearest future.

The main tasks of the research are:

- classification of the organizational types of the agricultural production;
- characteristics of the main organization types: large agricultural enterprises, small enterprises, private family farms, subsidiary plots of the population;
- analysis of the development problems typical of each of the main organizational types and proposition of the possible solutions;
- comparative analysis of the management mechanisms and effectiveness of various organizational types;
- analysis and evaluation of the changes in the agrarian structure, classification of the regional agrarian structures;
- development of the propositions on the agrarian policy focused on the improvement of the agrarian structure

The current state of the problem. A number of publications by Russian and foreign authors have been devoted to the investigation of the organizational types of the agricultural production. As a rule, these works consider certain organizational types and provide a monographic description of specific farms.

Some organizational types have not been studied at all (for example, small agricultural enterprises, collective and private livestock farming. There is no systematic research, which could provide classification of the farms, their share in the agricultural production, land, labour resources, as well as sectoral production. There are practically no studies,

analyzing interaction between various organizational types, specifically - interaction of large agricultural enterprises and family farms.

There are only some attempts to evaluate the dynamic development of the agrarian structure in Russia, but there no evaluations of certain organizational types regarding their role in the perspective or any propositions on the improvement of the governmental policy to each of the main organizational types.

In this report we shall make an attempt to answer the above stated questions.

Information base of the research. For the activity analysis of the large and medium size agricultural enterprises, their classification according to various features, we have used the database of the State Committee of Statistics for the period 1995 - 1999. As for the family farms and private household plots, we have used publications of the State Committee of Statistics on the Russian Federation and its regions, as well as materials of the selective researches.

7. CLASSIFICATION OF THE ORGANIZATIONAL TYPES OF THE AGRICULTURAL PRODUCTION IN RUSSIA

Taking into account the purposes of this research, classification was conducted according to the following criteria (see Chart 1):

- type of the enterprise: corporate and family enterprises;
- corporate enterprises are classified according to the number of employees: large and medium size agricultural enterprises (more than 60 average annual employees), small enterprises (less than 60 average annual employees) and other agricultural producers (farms of industry, construction, military and other non-agricultural organisations);
- organizational and legal forms:

- state and municipal unitary enterprises (SUE, MUE)
- joint stock companies (open joint stock - OJS and close joint stock - CJS)
- limited liability companies (LLC)
- limited partnerships (LP);
- agricultural production cooperatives (APC);
- other types

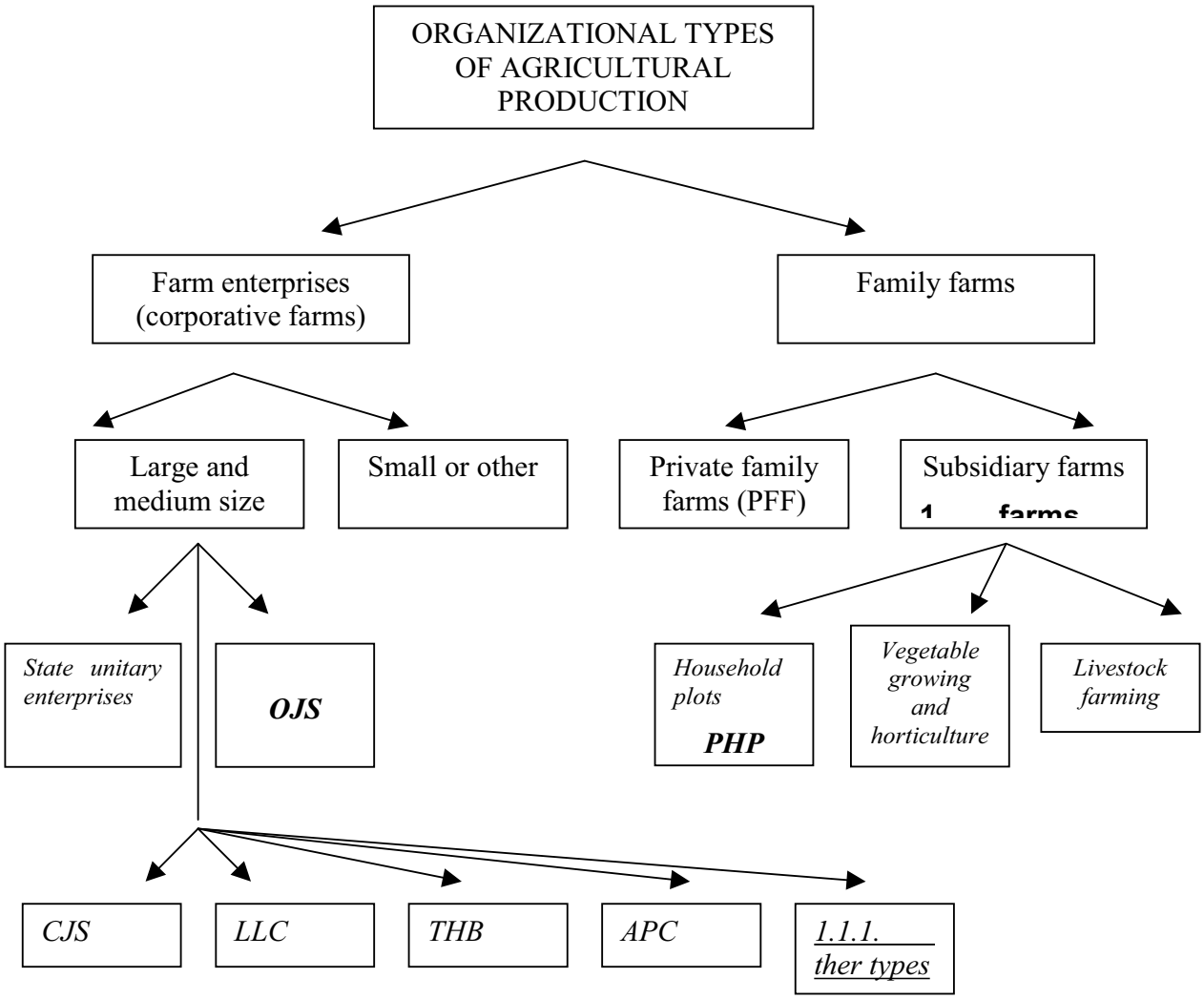
- family enterprises are classified according to their purposes:

- private family farms - PFF (mostly focused on the commodity output);
- subsidiary farms (mostly focused on the consumption)

- according to legal and organizational structure, subsidiary farms are classified into:

- private household plots (PHP)
- private and collective vegetable growing and horticulture;
- private and collective livestock farming.

Figure 1. Classification of various organizational types of agricultural production



Private household plots are usually owned by village people, who have a house in the village and a household plot. During the last decade many urban citizens have inherited or purchased village houses and become owners of the private household plots. Besides household plots, their owners often use field allotments (field for haymaking or grazing, given to the family or owned by the village administration)

Collective and private vegetable gardens used by villagers, who live in multi dwelling buildings and do not have a subsidiary plot, or they can be owned by city dwellers. Construction of houses and administrative buildings is forbidden on the territory for vegetable gardens

Collective and private fruit gardens are subsidiary plots, mostly owned by the city dwellers, which have received allotments in the suburban area and use them for the agricultural production and leisure. These allotments usually have houses (or dachas)

Collective and private livestock farms are subsidiary plots of the citizens, who live in small towns and who have been given allotments for haymaking and grazing.

8. LARGE AND MEDIUM AGRICULTURAL ENTERPRISES

3. 3.1. Organizational and legal types

By 1990 Russia had 25.800 agricultural enterprises. On average, each enterprise had 320 average annual employees and 7.800 hectors of land.

In the socialist epoch the agrarian policy was developed basing on the dogma that the state property is the highest, most effective type of property. As a result of such policy, the share of the state sector (sovkhoz and other types of state enterprises) increased, whereas the share of the private and even collective farms (kolkhoz) decreased.

Thus, during the period from 1960 till 1990 the number of state farms (sovkhoz) in Russia increased from 4.000 up to 13.000, and the number of collective farms (kolkhoz), on the other hand, decreased from 18.500 to 12.800. Even in 1960 about 60% of the agricultural land was assigned to state farms (sovkhoz). If in 1960 less than 40% of the main land fund was assigned to state farms, in 1990 this figure reached more than 60%.

In modern Russia one can see various organizational-legal types of agricultural enterprises coexisting at the same time:

- Agricultural enterprises, which did not undergo any considerable changes during the reform period. At the beginning of 1998 there were 5220 collective farms (kolkhoz) and 2078 state farms (sovkhoz), 42 inter farm enterprises;
- Enterprises, founded in accordance with the law of the RSFSR “On enterprises and entrepreneurship activity”, adopted in 1991; Open joint-stock companies (OJS) and close joint-stock companies (CJS), limited liability company (LLC), mixed partnerships (MP), production cooperatives (PC), founded in accordance with the law of the USSR “On cooperation”, adopted in 1988, associations of farmers (AF);
- Agricultural enterprises, founded in accordance with the Civil code of the RF, introduced in 1995, and the laws adopted on its basis: “On joint-stock companies”, “On agricultural cooperation”, “On limited liability companies”. These enterprises include open and close joint-stock companies (OJS, CJS), limited liability companies (LLC), limited partnerships (LP), agricultural production cooperatives (APC), agricultural state and municipal unitary enterprises (SUE, MUE)

Beside the above mentioned three groups of agricultural enterprises there is a rather large group of enterprises, which do not correspond to any of the above-listed organizational and legal types and which were set up with the violation of the law. For example, at the beginning of 1997 there were 2.252 so called collectively owned agricultural enterprises (COAE) , not foreseen by any of the old or active laws.

It is also worth noting, that agricultural enterprises set up before 1995 (under the law “On enterprises and entrepreneurship activity”, 1991) often differed by the name (CJS, LLC), but in fact were production cooperatives, in which every member has one vote regardless of the capital contributed. These rules were explained by the large number of the participants of the agricultural enterprise (as a rule 500 - 800 people)

The State Committee of Statistics of the Russian Federation does not draw a strict distinction between agricultural enterprises founded before and after the acceptance of the Civil Code of the Russian Federation. Because of this, we can only provide an

approximate number of agricultural enterprises, which fall into legal-organizational types stipulated by the State Committee of the RF.

At the beginning of 2000 there were 27.259 large and medium size agricultural enterprises. 5.221 out of them can be classified as joint-stock companies, including 679 open joint-stock companies, 4.601 limited liability companies, 215 partnerships (limited, unlimited and mixed); 12.652 out of them can be referred to agricultural production cooperatives; 2.969 - to state enterprises. Some of the agricultural enterprises have an indefinite status and cannot be classified as any of the organizational-legal types stipulated by the State Committee of the RF (Table 1)

The period of 1995 - 1998 was characterized by the active process of bringing the constituent documents of the agricultural enterprises into consistency with the Civil Code of the Russian Federation. At the same time, many partnerships and limited liability companies were transformed into production cooperatives, as the new law on OOO defined the maximum number of the participants - not more than 50 people. The number of participants in most of TOO and OOO exceeded the established limit by many times.

There is a persistent tendency for a decrease of the number of limited liability companies, state companies, close joint-stock companies and other agricultural enterprises. The number of open joint-stock companies, limited partnerships and production cooperatives on the contrary increases. (Table 1)

Table 1. Number of agricultural enterprises representing various organizational types (as of the end of each year).

Types of agricultural enterprises	1995	1996	1997	1998	1999		1999 compared to 1995 %
					Number	%	
State and municipal enterprises	3 385	3256	3 076	2 990	2969	10,9	87,7
OJS	298	366	427	524	679	2,5	227,9
CJS	5 119	5 189	4947	4 770	4542	16,7	88,7
LLC	7 107	6 884	6 658	5 962	4601	16,9	64,7
LP	149	172	189	214	215	0,8	144,3
APC (cooperatives), kolkhoz, inter-farm cooperatives	7 939	7 948	8 858	10 264	12652	46,4	159,4
Other types	2 889	3 046	2 832	2 563	1601	5,9	55,4
Total in the RF	26 896	26 861	26 987	27 287	27259	100,0	101,3

Having compared the number of agricultural enterprises representing various legal-organizational types and their effectiveness, one can see that the number of more effective types gradually increases, and the less effective - decreases. The only exception of this rule is the number of agricultural production cooperatives. The reason for this is

that the number of participants in cooperatives, in contrast to CJS and LLC, is not limited by the law. This process is also influenced by the preference of the village people, for whom cooperatives are more habitual and understandable.

The increase of open joint companies can hardly be explained only by the factor of effectiveness. The impact of large Russian businesses is obvious here, they are ready to invest money into habitual organizational type - OJS, what forces some agricultural enterprises to transform into this type of business organization.

Many scientists, though recognizing variability of business types, still give their preference to certain organizational-legal types and harshly criticize other types as unsuitable for agriculture, for Russian mentality, etc.

For example, A.A.Shutkov, academician of the Russian Academy of the agricultural Science, and his colleagues are in favour of cooperatives.

"In order to build a multi-structural economy in the agrarian sector it is necessary ... to gradually transfer from the joint stock companies, which are not typical of agro-industrial production, to cooperative types of business organization"[4]. "Cooperatives are a perspective legal - organizational types..."[5] "Today the most perspective organizational-legal type for agricultural enterprises are agricultural production cooperatives"[6]

A common argument in favor of cooperatives is reference to collectivism of the Russian people. Another argument says that all other forms of business organization, such as joint stock companies, limited liability companies, limited partnerships are private enterprises.

Arguments "for" and "against" production cooperatives have been carefully studied in another special research work.[7] A thorough description of establishing production cooperatives and their functioning in various countries of the world, as well as analysis of the theoretical model of the production cooperative is given in the work by Y.Serova[8] . This type of the enterprise has a very limited application in the world; it is characterized by instability, week motivational mechanism, and low competitive capacity in the market. Relatively effective are cooperatives with a small number of members (for example, French cooperatives, which consist of 2-3 families) or cooperatives, controlled by the manager and a group of members, and the rest of the members are hired employees.

K.Froberg points to the week motivation of not only employees, but managers as well, "Week motivation of the members of the agricultural enterprise is one of the drawbacks of the cooperative. After all, the results of the successful activity are distributed between all the members (it applies to the managers too). Cooperatives do not have highly qualified managers, as they do not stimulate the labour"[9] .

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[4] Diverse economics of RF AIC. Theory and practice, A.A.Shutkov, Moscow, Kolos, 1998. p.10

[5] see above, p.13

[6] see above, p.47

[7] Agricultural production cooperative, Moscow: The Encyclopedia of Russian Villages, 1999

[8] E.V. Serova, Agrarian Economics: Textbook for students of economics, Moscow, 1999. p.99-114

[9] K.Froberg, Optimum size of an agricultural enterprise in market economy. Politeconom, 1999. № 1(12). p.33-34

As proof of the effectiveness of the production cooperatives, many Russian economists refer to Israel kibbutzim. Invalidity of these references was revealed by T.Hansted.[10]

4. 3.2. Financial and economic state

The current state of large and medium size agricultural enterprises in Russia is characterized by a deep financial and economic crisis. The main features of this crisis are:

- most of the agricultural enterprises have been loss-making for 7 years in a row;
- the effective debt of all enterprises reached 229 billion roubles by the end of 2000, 158 billion out of this amount is past-due[11];
- The past-due debt per all liabilities exceeds the balance profit of the agricultural enterprises by ten times, which proves that the industry on the whole is unable to pay the debts;
- On the 1st of January 2001, 89.1% of agricultural enterprises had a past-due credit indebtedness per all liabilities. The debt is distributed between the enterprises unevenly. One fourth of the enterprises account for two thirds of the past-due credit indebtedness. The defaulters are usually loss-making enterprises, though there are some defaulters among profitable agricultural enterprises as well;
- On the 1st of January 2001, more than half of the past-due debt (58.9%) was accounted for fiscal payments to the budget (14.2%) and state off-budget funds (44.6%), the debt to the vendors formed 33.4%. At the same time, the debt in profitable enterprises was mostly to vendors and banks, whereas in loss-making enterprises 70-80% of debts were accounted for fiscal payments;
- The most part of the past-due debt to the budget and off-budget funds are fines and penalties.

5. 3.3. Roots of the financial crisis

Insolvency of the agricultural enterprises is the consequence of many reasons, which can be divided into macroeconomic, depending on the general economic policy of the country, and microeconomic, caused by the activity of the agricultural enterprises themselves.

Macroeconomic reasons:

- *Price disparities*. During the period of 1990 - 1999 the prices for agricultural products went up by 6.5 times slower than the prices for the industrial products, consumed by agricultural enterprises;
- *Market regulation policy*: compulsion to produce unprofitable products through the state order, which made up 1/3 of the commodity output; untimely payment for the state order; week protection of the Russian producers against importers, who received subsidies in their own countries; internal to systems and regional trade barriers;

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[10] T.Hansted, Are small farms suitable for former Soviet Republics? Seattle: Rural Development Institute, 1998. p.9

[11] RF AIC. Statistics, Moscow GosKomStat, 2001, p.56

- *System of fiscal payments*. It did not take into account that the income from the agricultural products had a seasonal nature. The fine and penalty rate was too high (in some years - 1% per one day of delay)
- *Social sphere financing*. Up till now agricultural enterprises support a considerable number of community facilities. Financing of the social sphere leads to the expenditure increase by 10-30% (director survey);
- *State support of insolvent enterprises*. Taking into account that agricultural enterprises in Russia actually form the basis of the village and their bankruptcy can increase unemployment and social strain, the government of the Russian Federation and power bodies of the subjects of the RF are looking for the ways to support insolvent agricultural enterprises. With this purpose, the insolvent enterprises with "blocked" accounts receive directly or indirectly a credit against goods, what prolongs “the agony” of some enterprises or gives time to adapt to the market economy to the others;
- *Regional policy*. In Russia the subjects of the Russian Federation receive two thirds of the state support. The regions implement different policies: for example, Tatarstan actively subsidized agricultural enterprises and only one third of the enterprises in this republic are loss-making, whereas in the neighboring regions this figure reached 90%.
- *Incompleteness of the reforms*. Land privatization and structural reforms in Russia have not been completed yet (and in some subjects of the RF have not started yet), a motivated effective owner has not come into the scene yet, and the enterprises are being destroyed and pilfered.

Microeconomic reasons:

- *Forms of business organization*. The preference is given to production cooperatives, which did not find a wide spread in the countries with the highly developed market economy;
- *Stimuli and responsibility of the owners and managers*. The ownership is scattered; nobody as a rule has the controlling block of shares. The process of making managerial decisions is complicated and responsibility for them is not clear. In practice, the owners of the enterprises do not answer for their obligations. Maximum that they can lose is shares, which they received free during privatization. The owners also bear limited responsibility for the shares. Nobody controls the actions of the directors, and it often leads to theft and other violations.
- *Week response to the market*. Even now for many directors the priority tasks are to keep up the production volumes, number of employees and livestock capita. Managerial bodies also insist on it. As a result, the business structure changes very slowly, in fact much slower than in private household farms and private family farms (PHP and PFF);
- *Excessive resources*. One can observe a rather odd regularity in the agricultural enterprises: the more there are resources, the more there are losses. The same regularity is true about land;

- *Private household plot expenditures.* Since the country does not have a system for crediting and providing services to family households, their owners use resources of the agricultural enterprises for the purposes of their private household plots; moreover, they often do it without any compensation. According to the director survey, the support of the private household plots leads to the expenses increase of the agricultural enterprises by 20%, most part of these expenses is not compensated;
- *Accounting misrepresentation*. Things are not so bad as they look in the accounting documents. Income figures are underreported in order to avoid taxes and deductions to the off-budget funds. The products are not entered into the books, but given to the employees as payment in kind and to the vendors as payment for the fuel, fertilizer, etc.

6. 3.4. Consequences of the crises

The main consequences of the financial and economic crises are as follows:

- Bank accounts of about 90% of the agricultural enterprises remain blocked even after a favorable financial and economic period of 1999 - 2000 (the share of loss-making enterprises decreased from 88% in 1998 to 54.1% in 2000);
- Most of the agricultural enterprises moved into the shadowy, half-legal business. Barter transactions (60% of the turnover) and payment settlements in cash (70% of the money turnover) prevail. Non-cash transactions made up only 12.4% of the total revenue from goods and services in 1998;
- Payment discipline deteriorates with every year. If in 1992 the off-budget funds received 77% of the amount charged, in 1998 - only 39%;
- Agricultural enterprises are losing earlier accumulated capital. For the period from 1994 till 1998 the cost of fixed assets in the comparable prices decreased by 33%; the cost of the net assets decreased by 30% for the period from 1995 till 1998;
- Machine and tractor fleet, as well as animal farm equipment, has not been replaced for the last 10 years and has been almost worn out. Further development of the agricultural production is impossible without investments;
- The number of people employed in agriculture fell up to 3 million people during the period of 1991 - 1999; unemployment level in the village is higher than in the city.

7. 3.5. Categories of enterprises according to their financial and economic state

Categorization enabled us to single out such enterprises, which do not actually need any specific measures for the financial recovery (group 1); enterprises, in which solvency can be recovered (group II); and enterprises, in which solvency can not be recovered and where the most appropriate approach is to transfer resources to new users and owners (groups III - V)

The financial and economic indicators of each group are shown in Table 2.

Table 2. Categorization of the agricultural enterprises of the RF according to their financial state in 1999.

	Categories of enterprises				
	I – financially sound (BP>=0, D<=0,5)	II – temporary insolvent (BP>=0, 0,5<D<=1, BP<0, D<=0.5)	III – insolvent (BP>=0, 1<D<=2, BP<0, 0,5<D<=1)	IV - protracted insolvency (BP>=0, 2<D<=4, BP<0, 1<D<=2)	V – bankrupt (BP>=0, D>4, BP<0, D>2)
Number of enterprises	5957	4607	4470	4849	7376
%	22	17	16	18	27
Share, %					
Commodity production	53	18	13	9	7
Past due indebtedness	9	15	19	21	36
Per one employee, thousand rubles					
Sales revenue	58	35	28	22	13
Balance profit	14	3	0	-5	-9
Credit indebtedness (total)	15	26	35	39	51
Including past due	5	14	20	24	33
Methods for financial recovery	*Noninterference*	*Solvency recovery*	*Taking over, sale of the controlling block of shares*	*Extra judicial property transfer*	*Bankruptcy*

*BP - balance profit, D - Debt Ratio: D = (CI - DI)/R; CI - Credit Indebtedness DI - Debit Indebtedness R - Revenue. Enterprises with the revenue less than 1500 roubles per employee and less than 1000 roubles per hector are referred to group V.

The first group - financially stable enterprises. This group includes about 6.000 enterprises, i.e. 22% of all agricultural enterprises in Russia. They are the main manufactures of the commodity output (53%). Most of them do not have past-due debts. Some of the enterprises have past-due debts, though they have enough profit to pay them. However, they do not want to do it, obviously looking at other defaulters. Disciplinary measures of the government can help solvent the problem of debts in this group, as the profit here exceeds the stale debt by three times.

The second group - temporary insolvent enterprises (4.600 or 17%). Part of these enterprises are loss-making. At the same time, they continue production: these enterprises account for 18.2% of the commodity output, 18.3% of employees, 19.5% of the growing area and livestock capita. These enterprises have an opportunity to recover solvency. For this, it is necessary to give them an opportunity to restructure their debts. Besides, these enterprises need to restructure their business, improve management, concentrate capital and management in the hands of most capable owners.

The third group - insolvent enterprises (4.500 or 16%). Most of them are loss-making, unable to effect current payments, their debt exceeds their annual revenue by 1.3%. Financial recovery without an investor is impossible here. The investor can incorporate

such a debtor or make contributions into his authorized capital and turn it into his subsidiary.

Incorporating such an enterprise or turning it into a subsidiary enterprise, the investor becomes the debtor's cessionary. It allows avoiding conflicts with the creditors and with the owners of the insolvent enterprise.

The fourth group - enterprises with protracted insolvency (4.800 or 18%) These are loss-making enterprises with debts exceeding the revenue by 2 times. Most of the debts are past-due and they are imposed with daily fines and penalties. The share of these enterprises in the commodity output makes up only 9% and in the past-due debts - 21.1%. They are unable to recover their solvency by themselves, and it unlikely that investors will agree to take responsibilities for the debts. At the same time they are in charge of 17.2% of all agricultural fields (interestingly, that only half of them was under crops in 1999), cattle, buildings and constructions, which can be attractive to investors. Thus, it will be appropriate for them to give over the land and property to new users and owners with further elimination of the old enterprise. Implementation of the property transfer requires an agreement of the creditors and owners.

The fifth group - enterprises with the collapsed financial and economic system (7400 or 27.1%) The commodity output in these enterprises has been curtailed (the share of this group in the commodity production is less than 7%). The debts exceed the cost of the commodity production by 4 times. Many of these enterprises have actually stopped their activity, the owners and employees are pilfering the property; it is sold for nothing by law-enforcement officers or has already been given to other organizations.

If there is such an investor who decides to take the remains of the property and to hire part of the employees, he can do it only through the bankruptcy procedure, as the relations between such debtors and creditors can hardly be settled without arbitral court. If there is not such an investor, it will be appropriate to give over the land and the property of such enterprises to private family farms and the owners of private household plots, as well as their cooperatives.

8. 3.6. Necessity of transferring insolvent enterprises resources to new users and owners

The necessity of transferring the land and other resources of enterprises from group III - V to more efficient users is especially obvious if we compare the figures of the financially successful and unsuccessful in their dynamics. (Table 3)

Table 3. Business indicators of financially sound and insolvent groups of the agricultural enterprises in Russia.

	Financially sound (I group)	**Insolvent (V group)**

	1995	1999	1999 compared to 1995 %	1995	1999	1999 compared to 1995 %
1.1.1. Number of enterprises	4815	4815	100	6544	6544	100
Revenue share, %	42	53	126	14	7	50
Number of employees	344	304	88	207	133	64
Land available, ha	18	20	111	30	40	133
Capital-labour ratio, thousand rubles	72	159	221	75	197	263
Agricultural land, ha	6225	6173	99	6204	5318	86
Area under crops, ha	4000	3837	96	2914	1808	62
Head of cows	497	409	82	345	142	41

Employees, being the most mobile part of the production forces, leave insolvent enterprises (36% of employees quitted for 4 years). As a rule, the most highly qualified young specialists "hurry" to leave unsuccessful enterprises (specialists, machine-operators, drivers), which could find a job in another place and decided to move to another residential area. The least qualified employees and employees of the older age groups, who cannot settle in a new place, start their own business, and do not want to change the place of residence. The number of employees decreases in financially successful enterprises as well (approximately by 3% a year), but in this case it is connected with the increase of the productivity, retirement, dismissal of the least qualified employees.

The area of the agricultural fields in the financially sound group of enterprises virtually has not changed, but in the insolvent enterprises - decreased by 14%. It testifies that the land has been transferred from the inefficient owners to efficient ones. However, this process did not keep pace with labour resources dynamics, as a result of which the load per one employee in the insolvent enterprises increased by 1.3%. These enterprises cannot use their land effectively. During four years the area of the growing area decreased by 38% and head of cows decreased more than by 2.5 times.

Capital assets also remained at the disposal of the insolvent enterprises. However, the employees can no longer use the existing buildings and constructions. Moreover, head of cows decreased, that means that farms remained without head of livestock and without security, which will eventually lead to pilferage.

Thus, the land and the property of the insolvent enterprises must be given over to new users and owners, interested in the development of agriculture as quickly as possible.

9. 3.7. Mechanisms of transferring land and property of insolvent farms to new users and owners

The land, which belongs to the owners of the plots of land, is transferred to new users on the basis of the lease contracts or other agreements; the state land is transferred in accordance with the decision, taken by the state bodies.

According to the active legislation of the Russian Federation, the property can be transferred by the following ways:

- *Take-over* of the insolvent enterprise by a profitable agricultural, processing, trade or other commercial organization.

Advantages of this approach: debt succession, retention of property rights by the shareholders. Disadvantages: debt repayment expenses reduce investment amounts, for the solvent company there is a risk of becoming insolvent.

- *Contributions to the authorized capital* of the insolvent enterprise and passage of the controlling block of shares to the investor.

Advantage of this approach in comparison with the previous one: the solvent enterprise does not bear obligations on the liabilities of the subsidiary enterprise.

- *Foundation of a new enterprise* by the investor and the insolvent enterprise. In this case the investor contributes money for the production development, the insolvent enterprise contributes into the authorized capital or gives its cattle, machinery, facilities into leasing. Later, the old enterprise shall be announced a bankrupt.

Advantages: agricultural production continues, there is no succession on debts. Disadvantages: former shareholders are no longer co-owners of the agricultural enterprises, the creditors may object to this approach.

- *Sale of the consolidated debt package* of the insolvent enterprise to the budget, off-budget funds and organizations, representing natural monopolies, with the discount and with further introduction of the debt buyer into the founder membership with the controlling block of shares.

Advantages: creditors' requirements will be partly met, which will help to overcome their objection to the process of the financial recovery. Disadvantages: the current legislation does not allow selling the debts to the fiscal creditors and introduction of the amendments into the current legislation can require a lot of time.

- *Transfer of land and resources to private family farms and private household plots and their cooperatives.*

Advantages: motivated producers. Disadvantages: lack of motivation among village people in starting their own business, lack of financial means for investments, the director of the enterprise is likely to be blamed for the intentional bankruptcy.

- *Bankruptcy with the following sale of the property, owned by the insolvent enterprise.*

Advantages: protection of the creditors' rights. Disadvantages: high likelihood that the cattle will be sold to the meat processing factory; machinery – to other farms, which will lead to the cessation of the production activity, unemployment and social strain.

In order to prevent negative consequences, the bankruptcy procedure should be initiated only with the absolute confidence that there are such investors, who will buy out the property, lease or buy out the land for the purpose of the agricultural production.

10. 3.8. Development problems and perspectives of the financially sound enterprises

Part of the agricultural enterprises in Russia have adapted to new conditions, sharply reduced their production expenses and sales expenses, managed to keep its position in the market. Even under the existing economic conditions they do not reduce, but on the contrary, increase their production and sales volume, revenue and profit. This section is devoted to the activity analysis and development perspectives of the most successful Russian agricultural enterprises.

For this analyses, basing on the general economic indicators we have selected 300 largest and most successful agricultural enterprises in Russia (Club AGRO 300) and 100 agricultural enterprises in each farming sector (Sectoral Clubs – 100)

In order to select 300 agricultural enterprises, we defined the rating of each out of 27.000 large and medium size enterprises in Russia. For the rating calculation we used three indicators:

Sales proceeds;

Gross margin;

Balance profit.

In order to level the influence of the weather conditions on the agricultural results, the rating was calculated on the basis of the average annual data for three years (1997 – 1999)

At first, we determined the rating of each agricultural enterprise per each of the above-mentioned indicators. For this purpose all agricultural enterprises in Russia were ranked per each indicator. After that, we added the positions, taken by the enterprise per each indicator and ranked every agricultural enterprise by the total number of the taken positions.

When the rating was calculated, we excluded from the list those enterprises where the total past-due debt for the beginning of 2000 exceeded the gross margin for 1999; loss-making enterprises were also excluded. Such enterprises can hardly be classified as stable and efficient.

Constituting 1.1% of the total number of the agricultural enterprises, enterprises of the Club “AGRO – 300” produced 16.1% of the commodity production in the period of 1997 – 1999. In 1999 the enterprises of the Club “AGRO – 300” received 12.3 billion roubles of the gross margin, 7.5 billion roubles of the profit.

The enterprises of the Club “AGRO – 300” had almost the same capital labour ratio as other agricultural enterprises, though the cost of the commodity production per average annual employee in these enterprises was four times higher than in the other agricultural enterprises.

For the period of 1997 – 1999 the agricultural enterprises of Russia reduced the number of employees by 11%, whereas the Club even increased the number of employees. For

the same period the members of the Club increased the area of the cultivated land by 6.2%, but the other enterprises decreased their growing area by 2.7 mln hectors, i.e. by 1.7% (Table 4).

In 1999 the cost of the commodity output of 10 largest agricultural enterprises was equal to the amount of sales proceeds of 7.500 worst agricultural enterprises in Russia.

The main factor of the success of the Club members is high entrepreneurship activity of the directors and specialists, observance of the labour and technological discipline, integration of the production, processing and sales. All this enabled the members of the Club to adapt to the market and retain their teams. The average number of employees in the enterprises of the Club is 4 times higher than in the rest enterprises.

Among the largest and most effective agricultural enterprises there are farms from all 11 natural-economic regions of Russia, from the Northern (14 farms) to Far Eastern (4 farms) regions. The Club includes farms from 50 subjects of the Russian Federation: from the Yaroslav Region up to Kamchatka. This is a clear demonstration of the fact that efficient agricultural production is possible in all natural-economic zones of Russia with the modern technologies and under the existing economic conditions.

Table 4. Comparative study of the farms of the Club "AGRO-300" and the rest of the agricultural farms of Russia

Business Indicators	1997–1999 (on average)					1999 compared to 1997 %	
	Club "AGRO–300"			The rest of the enterprises of the RF (Club"AGRO–300" not included)			
	RF %	Per 1 farm	Per 1 employee *	Per 1 farm	Per 1 employee*	Club "AGRO–300"	Enterprises of the RF (Club "AGRO–300"not included)
Number of farms	1,1	1	-	1	-		
Average annual employee, thousand people	4,7	0,8	1	0,2	1	103,7	89
Agricultural Basic production assets, mln rubles	4,4	141,5	168	34	179	81,9	77,5
Agricultural land, thousand ha	1,3	6,7	8,0	5,7	29,7	106,2	98,3
Area under crops, thousand ha	2	5	6,0	2,8	14,9	106,1	89,4
Head of cows, thous.	2,7	0,7	0,8	0,3	1,4	101,2	81,7

Sales revenue, mln rubles	16,1	65,5	77,9	3,8	20,1	230	184,4
Inc. from plant production	9,2	13,7	16,3	1,5	8	229,8	174,4
From livestock farming	21,8	45,9	54,5	1,8	9,6	238,9	206,8
Gross revenue, mln rubles	28**	32,4	38,5	0,4	2	276,1	
Wages fund, mln rubles	9,5	11,9	14,1	1,3	6,7	177,8	121,9
Balance profit (loss), mln rubles	42,7**	18,6	22,1	-0,9	-4,6	429,2	
Subsidy and compensation, mln rubles	10,1	3,1	3,7	0,312	1,6	90,8	83,9
Credit indebtedness, mln rubles	3,3	13,7	16,3	4,6	23,9	126,4	155,6
Inc. past-due	1	2,1	2,5	2,4	12,7	160,7	197,2

*Numbers are expressed in thousands (thousand of rubles, ha)

** Calculation of the profit share of the Club "AGRO -300" included only on profitable farms in the RF (6.958 farms made 13.062 mln rubles profit). Contribution to the gross margin is calculated similarly (13985 farms received 34669 mln rubles of gross income.

Besides the general rating of the agricultural enterprises of Russia, branch ratings were given to the largest and most efficient producers of the agricultural products: grain, sunflower, sugar beet, potatoes, vegetables, milk, beef, pork, poultry and eggs.

Branch rating was given according to three indicators:

- volume of gross output;

- cost of the commodity output*** ;

- sales profit ***

Average annual indicators of each out of 27.000 large and medium size agricultural enterprises of Russia were taken for three years (from 1997 till 1999)

All agricultural enterprises were ranked according to each of the three indicators. Then the positions given to the enterprise were added and the enterprises were ranked again according to the resultant figure. 100 first farms were ranked.

The data presented in Table 5 shows production efficiency per all basic types of the agricultural products in the farms, included into the branch clubs.

Table 5. Agricultural production efficiency of the large sectoral producers for some products (average for 1997 – 1999)

Basic products	Profitability level, %	Sales profit 1 t of products, rubles
Grain	84	425
Sunflower	116	898

*** For grain, sunflower, sugar beat, potato, vegetables, beef, pork and egg the value of sold produce and sales profit does not include processed products. With milk and poultry meat it is included.

Sugar beet	47	91
Potatoes	94	953
Vegetables on open ground	67	690
Milk	49	834
Meat		
Beef	22	1503
Pork	18	1679
Poultry*	11	1297
Eggs	27	118**

* Only 30 farms were included into the rating of poultry production (in 1997 -1999 less than 100 broiler farms were profitable)

** Per 1.000 eggs

Production of all basic agricultural products in the farms, included into the sectoral clubs, is highly profitable. Particularly profitable is the production of sunflower, grain, potatoes, vegetables and milk.

With effective management, investments into agriculture bring a much higher profit than many other industries and the financial market.

The number of farms, included into the sectoral rating, represents less than 1% of the total number of the producers in each sector. This brings up the question: Is their role significant in the production? Figures in Table 6 point to the fact that these particular farms produce a considerable part of products in the sector.

The 100 farms, included into the club, gave 53.3% of the commodity output of eggs; 41.2% of vegetables; 31.4% - pork; 26% - potatoes, 15% - sugar beet. It's interesting to note that 30 producers accounted for 32.8% of the commodity output poultry.

Even in the production of grain, sunflower, milk and beef the share of the farms, included into the sectoral clubs is rather high. (6.2-10.8%)

Noteworthy also is the fact that the share of large sectoral producers in the general land use, livestock capita increases from year to year.

Table 6. The role of the largest sectoral enterprises in the production of the basic agricultural products.

Basic products	Ratio (%) of the sectoral clubs to the rest of the enterprises in the RF:		
	Area, head	Gross output	Commodity production value
Grain	2,2	4,4	6,2
Sunflower	5,7	9,7	10,8
Sugar beet	8,4	14,9	15,0
Potatoes	10,3	18,2	26,0
Vegetables on open ground	17,1	38,0	41,2
Milk	2,1	4,6	7,5

Meat			
Beef	2,6	4,7	7,9
Pork	20,3	31,7	31,4
poultry	13,6	27,7	32,8
Eggs	47,9	54,2	53,5

What allowed the farms of the sectoral clubs to achieve such high production efficiency? Among a number of reasons the four main ones (Table 7) are the following:

Production scale. The farms of the sectoral clubs produce ten times more products per one enterprise than the rest of the farms. Large scale production provided the opportunity for achieving high efficiency.

Yield capacity, productivity. The reason why crop yield in the farms of the sectoral clubs is twice as high as in the other enterprises of the RF and productivity of cows is 2.2 times higher, is as follows: the production in these enterprises is organized under the most favourable for this particular type of product conditions; they adapt the sectoral structure to the climatic conditions of the region. For example, 60% of the enterprises, included into 100 largest and most effective producers of grain are farms of Stavropol and Krasnodar regions. Moreover, farms of the sectoral clubs use the best machines and other production means, modern technologies, etc.

Table 7. The main efficient factors of the largest sectoral producers of the agricultural products.

Basic products	Production scale		Yield capacity,		Expenses,		Specialization	
	Gross production per 1 farm, t		0.1 t/ha; productivity per head, kg a year		Rubles per 1 t		(share in the commodity production, %)	
	Farms of the sectoral clubs	The rest farms of the RF	Farms of the sectoral clubs	The rest farms of the RF	Farms of the sectoral clubs	The rest farms of the RF	Farms of the sectoral clubs	The rest farms of the RF
Grain	24200	1900	25,6	12,4	506	643	32,6	18,6
Sunflower	2460	84	12,7	7,1	773	1039	15,7	2,3
Sugar beet	18120	382	266	139	192	326	6,1	0,9
Potatoes	4081	68	172	88	1018	1308	17,9	1,1
Vegetables on open ground	6497	39	255	86	1033	1412	30,9	1,0
Milk	7377	559	4709	2109	1692	2161	39,3	17,5
Meat								
Beef	635	47	202	107	6982	12442	12,5	6,0
Pork	1740	14	135	75	9327	18084	27,7	2,3

Poultry	6023	17	-	-	11429	14852	72,3	4,0
Eggs (mln.)	121	0,4	268	208	432	585	74,5	4,6

Expenses. In the enterprises of the sectoral clubs the expenses per ton of the product are 1.3 - 2 times lower than in the other agricultural enterprises in Russia. Beside the above-mentioned reasons (climatic conditions, modern technologies), it is necessary to stress the importance of effective management and relationship within the enterprise.

As the share of the sectoral clubs in the total production volume of the main agricultural products is rather high, the rest of the enterprises of the Russian Federation can look upon their production costs as a target. In order to become competitive in the market, the expenses of the large producer should not exceed the level of the enterprises from the sectoral clubs.

Specialization. One of the most important factors of success is high level of specialization of the enterprises from the sectoral clubs. The share of the enterprises included into the sectoral clubs in the structure of the commodity production is ten-fold higher than in the rest enterprises of the Russian Federation.

Particularly high level of specialization is characteristic to the enterprises of the sectoral clubs producing grain, eggs, poultry, milk and pork.

Even with the current economic mechanism of management, commodity output can be effective provided that it is organized in the regions with the favourable climatic conditions, using modern technologies, in specialized enterprises and in rather large amounts.

9. SMALL AGRICULTURAL ENTERPRISES AND OTHER AGRICULTURAL PRODUCERS

Farms with an average annual number of employees less than 60 can be classified as small agricultural enterprises. Unfortunately, the official statistics provides very limited data on small enterprises, which does not allow a detailed characteristic of this sector of the agrarian production. Furthermore, various statistical sources offer contradictory data on small enterprises.*

Other agricultural producers are subsidiary farms of industry, construction, military and other non-agricultural organizations.

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* For example, in contrast to the data in table 8, the statistical reference book “Small business in Russia” (Moscow, GosKomStat, 2000) says that the number of small agricultural enterprises in 1999 amounts to 13.500 and their production output - 4.7 billion roubles.

Table 8. Agricultural enterprises in Russia (1999)[**]

Indicators	All agricultural enterprises	including	
		Large and medium size	Small and others
Number of enterprises	43,7	27,3	16,4*
Agricultural products (in virtual prices, billion of rubles.)	244,4	229,0	15,4
Average annual number of employees, mln	…	5,1	…
Agricultural land, mln ha	161,8	152,7	9,1
Including arable land	104,0	…	…
Forage land	55,3	…	…
Area under crops, mln ha	77,6	73,0	4,6
Including cereals	42,2	39,7	2,5
Industrial crops	6,3	5,8	0,5
Potatoes, vegetable and melon plantation	0,5	0,4	0,1
Forage crops	28,7	27,1	1,6
Head (by the end of the year),mln heads:			
Head of livestock	17,5	17,3	0,2
Including cows	6,9	6,9	…
Pigs	10,0	9,5	0,5
Sheep and goats	4,8	4,8	…
Agricultural production, mln t:			
Grain	50,3	47,8	2,5
Sugar beet (industrial)	14,3	13,9	0,4
Sunflower seeds	3,5	3,3	0,2
Potatoes	2,2	2,0	0,2
Vegetables	2,6	2,4	0,2
Butcher livestock and poultry	1,7	1,6	0,1
Milk	15,7	15,7	…
Eggs	23,2	23,2	…

* Only for small enterprises

[**] Source: The figures on small and large enterprises and on the number of small enterprises - Goskomstat. The figures per small enterprises and other agricultural producers were calculated as the difference between all agricultural enterprises and large/medium size enterprises.

At the beginning of 1999 Russia had 16.400 small agricultural enterprises and other agricultural producers. Among small agricultural enterprises there are virtually no state or municipal enterprises (only 10 farms), i.e. small farms are usually privately owned. For the most part, they were set up in accordance with the law on cooperation (1988) or during reorganization of large and medium size agricultural enterprises in the reform years.

In 1999 small enterprises and other agricultural producers used 9.1 mln ha of the agricultural land and produced agricultural goods for the sum of 15.4 billion rubles. This sum is a little higher than all private family farms of the RF.

Small agricultural enterprises, for the most part, specialize in plant production (76%). In 1999 they produced 2.5 mln tons of grain, 0.2 mln tons of sunflower seeds. Livestock capita and volume of livestock production in small enterprises decrease from year to year.

Financial and economic state of small agricultural enterprises does not differ essentially from large and medium size enterprises. Though the share of loss making enterprises among small enterprises was lower than among large and medium size enterprises (54.4% and 88% respectively); on the whole, the loss of small enterprises and other agricultural producers for 1999 was 1.6 billion roubles.

According to the land area per one enterprise and number of founders or employees, small enterprises are similar to partnerships and corporations widely spread in the agriculture of the USA and other countries.

10. PRIVATE FAMILY FARMS (PFF)

The first private family farms in Russia were set up at the beginning of the 90s. Up to 1995 the number of private family farms increased rather quickly, but starting with 1996 it began decreasing (by 7%). At the beginning of 2000 there were 261.100 of private family farms with the average size of one farm 55 ha (Table 9). For the most part, the private family farms use the land, which was given to them in their ownership or inherited by them (58.1%). The rented land in 1991 formed 41.9%. The share of rented land increases every year.

Table 9. Number and area of private family farms (at the beginning of the year)

	1992 г.	1996 г.	1997 г.	1998 г.	1999 г.	2000 г.
Number of registered PFF, (thousand)	49,0	280,1	278,6	284,1	270,2	261,1
Total area of the allotted plots of land, thousand ha	2068	12011	12237	13045	13845	14384
Average size of one family farm, ha	42	43	44	48	51	55

Most private family farms were founded by directors and specialists of former agricultural enterprises: 56.7% of the owners of private family farms have higher and vocational education.

On average for each private family farm there are 2.4 members. In addition, private family farms hire other employees (in 1999 private family farms hired 235.800

employees). However, most of the work is done by the members of the farm and the members of the farmer's family. For example, in 1999 they fulfilled 89% of all the work and only 11% was fulfilled by the hired employees.

Private family farms are rather well equipped. In 1999 for 100 farms there were 76 tractors, 36 trucks and 23 combine harvesters.
For the greater part private family farms specialize in production of grain (64.1% of farms) and sunflower (4.4% of farms). In 1999 the share of private family farms in the production of these goods in Russia was 7.1% and 12.6% respectively.

However, the private family farms did not take, as it was expected, the leading role in the agricultural production in Russia. In 1999 they produced 2.5% of gross output in agriculture.

According to legal-organization types, private family farms can be classified into farms registered as legal entities (according to the law on private family farms, 1990) and not registered as legal entities (according to the Civil Code of the RF, 1994)

Classification of the private family farms according to the area factor, shown in Table 10, and analysis of their production activity enable us to distinguish three groups of private family farms.

The first group includes farms, similar to private household plots, where the head and the other members of the family spend part of their working time and produce agricultural goods for their own consumption. During the last years part of the farms from this group has reregistered as private household plots, which was one of the reasons for the decrease of the private family farms.

Table 10. Classification of private family farms according to the farm area.

Enterprises classified according to the size of the farm	Total number of farms		Size of the farm		Average size of the farm, ha
	Number, thousand	%	Thousand hara	%	
Less than10 ha	100,8	38,6	503	3,4	5
10 – 100 ha	130,2	49,8	5132	35,8	39
101 – 200 ha	18,5	7,1	2765	19,2	150
More than200 ha	11,6	4,5	5984	41,6	516
Total	261,1	100	14384	100	55

The second group includes family farms, where the head and the members of the family work full time and produce agricultural goods for sale at the market.

The third group represents entrepreneur farms. These are large enterprises, which usually use hired labour. From the point of view of technology and business organization these enterprises practically do not differ from large agricultural enterprises. Due to this fact, many scientists and officials suggest registering them as Limited Liability Companies (OOO) or other types of agricultural enterprises.

Russian statistics does not publish any official data on profits and losses. According to the polls, most of the private family farms were loss-making in 1998 - 1999 and expectations for 2000 were more favourable (Table 11)

Table 11. Business activity of private family farms (%)

	1998	1999	Expected in 2000
Profit	34,2	41,3	60,6
Loss	65,8	58,7	39,4

Though farmers gave a rather pessimistic assessment of their financial status, the problem of non payment and bankruptcy is not so acute as in farm enterprises.

11. SUBSIDIARY PLOTS OF THE POPULATION

As noted above, subsidiary plots of the population are categorized into several groups: private household plots, collective and private livestock farms. The number of subsidiary plots and their area are given in Table 12.

Table 12. Number of subsidiary plots and their area (at the beginning of the year)*

	1991	1996	1997	1998	1999	2000
Private household plots:						
Number of families, mln.	16,3	16,3	16,3	16,4	16,0	15,5
Private household plots, thousand ha	3250	5810	5805	5923	6433	6137
On average per family, ha	0,2	0,36	0,36	0,36	0,4	0,4
Collective and private fruit gardens:						
Number of families, mln	8,5	15,0	15,1	15,1	14,5	14,1
Area, thousand ha	576	1242	1267	1264	1260	1262
On average per family, ha	0,07	0,08	0,08	0,08	0,09	0,09
Collective and private vegetable gardens:						
Number of families, mln	5,1	7,4	7,0	6,6	5,1	5,1
Area, thousand ha	379	603	576	545	447	437
On average per family, ha	0,08	0,08	0,8	0,08	0,09	0,09
TOTAL: per private household plots, thousand ha	4205	7655	7648	7732	8140	7836

* Source: Goscomstat.

However, the data provided in table 12 on the land available is obviously incomplete.

Firstly, the data does not include information on such a category of farms as private and collective livestock farms. According to Roszemkadastra (Land cadastre of Russia), on

1.07.2000 in Russia there were 1.7 mln families, engaged in private and collective livestock farming, and they used 5 mln ha of land, i.e. 2.9 ha per family[12].

Secondly, the data on private household plots (table 12) includes only subsidiary plots. Beside these subsidiary plots, private household plots can include arable land allotments. At the beginning of 2000 the total area of these allotments was 10.4. mln ha[13]. Moreover, those villagers who have cattle use the land of the village administration, intended for common use, for haymaking and grazing. At the beginning of 2000 the municipal administration owned 20.3 mln ha of the agricultural land, 13.1 mln ha out of them were passed into the ownership or leasing to legal and natural person, and 7.2 mln ha were intended for general use by the villagers.

Thus, in the use of villagers there were 29,7 mln ha of the agricultural land instead of 7.8 mln ha (7.1 ha out of which were agricultural land). 29.7 = 7.1 + 5.0 + 10.4 + 7.2

Not all private household plots include land allotments or haymaking and grazing allotments for common use. If we assume that these lands are assigned only to those private household plots, which have cattle and sheep, and there are 6 mln of such in Russia, then the average area of such private household plots is 3.4 ha. In many regions the average area of private household plots, calculated in this way, exceeds 10 ha.

Beside the above-mentioned agricultural lands, private household plots use part of the land and products owned by the collective farms. This fact needs to be taken into consideration too when evaluating effectiveness of land use in private household plots.

Subsidiary plots of the population are characterized by specialization in the production of potatoes, vegetables, fruits, berries and wool. For the last years the share of the subsidiary plots has sharply increased in the production of meat and poultry (1999 - 59.4%) and milk (49.7%). However, it is not explained by the increase of the production volume, but by the production decrease in the collective farms.

Agricultural goods, produced on the subsidiary plots are intended first of all for consumption and not for sale. Marketability is low and has decreased more during the last years.

Table 13. Marketability of subsidiary plots (sale to production output %)

	1991	**1995**	**1998**
Potatoes	28,5	12,2	10,2
Vegetables	16,7	8,8	9,5
Fruits and berries	20,7	13,8	12,2
Cattle and poultry	30,1	23,0	22,4
Milk and Milk	25,1	18,4	18,3

[12] RF Land reform progress as of 21.07.2000 Moscow, Goszemkadaster, 2000

[13] Agriculture in Russia. Statistics. Moscow, GosKomStat, 2000, p. 52.

products			
Eggs	18,6	12,6	12,6

*Source: Goscomstat.

Production of private household plots is based on hand labour and primitive technologies. Labour productivity is extremely low.

Rural people have to develop private household plots for several reasons. First of all, many villagers lost their jobs in collective farms due to reduction of livestock capita and production output; and failed to find a job in another place. Private household plots became their only work.

Secondly, the owners of private household plots do not pay any taxes except the land tax. It saves a lot of money. For example, in the collective farm it is necessary to pay 10 or 20 kopecks per each ruble of revenue, and per each ruble of salary - 26 kopecks to the off-budget fund, 13 kopecks income tax, 4 kopecks of local tax, i.e. no less than 50% of income must be given away. Working on a private household plot, the owner keeps the total revenue, except the land tax, which is very small.

One can judge on the role of private household plots for villagers by the following indicators. According to the budget survey, conducted by the State Committee for Statistics, in 1999 the average monthly income per one villager was 2333 rubles[14]. In the same year agricultural enterprises received the monetary means and goods for 20.3 billion rubles[15] (deductions to the off-budget funds and income tax not included), i.e. 514 rubles per each villager.

Thus, income, received from private household plots, was 4.5 times higher than from the farm enterprises.

Private household plots are not a specifically Russian phenomenon. Other countries have such farms too. About 60% of farms in the USA and Germany play a subsidiary role too. The owner of such a farm spends most of the year doing auxiliary work and it gives him the main income. Output value per one private household plot in Russia is comparable with realization value per one private household plot in the USA (for 1997 it was 9.000 and 10.000 respectively)[16].

The main distinction of Russia is not in private household plots as such, but in their exaggerated role in the agrarian structure. In the USA private household plots give only 3% of the marketable surplus, realized by the family farms in Germany - 12%, but in Russia the share of household plots makes up 95% of the gross output in the family sector.

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[14] Income, expenses and consumption of households in 1999 г. (results of a sample survey of budgets of households)Moscow, Goskomstat, 2000, p.23

[15] Aggregate annual report on Russian Farms

[16] V.Uzun. Corporate abd family farms in Russia, USA and Germany - Politeconom, 2000, № 12, p.96

12. COMPARATIVE ANALYSIS OF VARIOUS TYPES OF AGRICULTURAL ENTERPRISES AND FARMS

Business organization. Farm enterprises have a rather complicated organizational structure. As a rule, it is two or three leveled, territorial or sectoral.

Organizational structure of small enterprises is usually much simpler. The structure of private family farms (PFF) and private household plots (PHP) is even simpler.

Management. In farm enterprises decisions are usually made with participation of the owners of the enterprise, board of directors, executive directors, specialists, department managers. Decisions in small enterprises are as a rule made by the owner himself; and in private family farms and private household plots decisions are always made by the owner. It considerably increases management efficiency and responsibility for the undertaken responsibilities.

Official accounting and reporting is obligatory for farm enterprises. In small private family farms it is much less and there is no accounting for private household plots.

Resources availability. Farm enterprises have a lot of land, even more than they can cultivate. It is quite difficult to get land for small enterprises, and even more difficult for private family farms and private household plots.

For the last 10 years insolvent farm enterprises have lost most of their highly qualified employees because of the low wage and payment delays. For private family farms and private household plots the opportunities of hiring additional labour are favourable, especially if the payment is effected daily or weekly.

Current assets acquisition does not present a problem for farm enterprises provided the finance available. For small enterprises, private family farms and private household farms access to resources is limited because of the delivery problems. Lack of cooperatives, servicing small producers, leads to the price increase of the current assets.

Machinery and equipment are available first of all to efficient large enterprises. Insolvent enterprises cannot acquire machinery and equipment due to the lack of money, and small enterprises - because of the purchasing difficulties typical for small farms, lack of cooperation on the use of machinery, low level of service network.

Credit resources with the subsidized interest are available only for profitable farm enterprises. The rest of the farm enterprises cannot get a credit in a bank due to their insolvency, though they often get them via mediators but on less advantageous conditions. Private family farms and the owners of private household plots do not actually have an access to credits, as Russia does not have a system for crediting small producers, village credit cooperation is in a primitive state of development.

Market access. Large enterprises sell most of their products to agricultural processing companies and only a little part at the market. Small producers, especially owners of private household plots sell their products mostly at agricultural and district markets. Even the access to city markets is complicated because of their criminalization.

Efficiency. What types of agricultural enterprises are more efficient: family or cooperative? Another acute question for Russia is whether differences in legal-organizational types have an impact on the production efficiency. If so, then what types

of business organization are more efficient? Below (table 14) we have made an attempt to try to answer these questions, using the materials provided by the Russian statistics.

At the same time, it is important to bear in mind that statistics in Russia on three sectors (farm enterprises, private family farms, private household plots) is based on so different methods of the data collection that their comparison always causes fair criticism. Moreover, in Russia one can define only one indicator of efficiency: output value per 1 ha of the agricultural land. (Table 14)

Table 14. Efficiency of farm enterprises and family farms in Russia (1997 in virtual prices)*

Indicators	Enterprises of all categories	Including		
		Agricultural enterprises	Private farms	Subsidiary plots
1. Agricultural land used by agricultural producers	208,4	169,6	10,8	28
2. Gross output value:				
total, billion rubles	332,6	165,7	7,4	159,5
Per ha, rubles	1596	977	685	5696
3. Gross value of the plant production: total, billion rubles	171,5	80,9	5,1	85,4
Per ha, rubles	823	477	472	3050
%	100	58	57	371
4. Gross value of the livestock production:				
total, billion rubles	161,1			
		84,8	2,3	74,1
Per 1 ha, rubles.	773	500	213	2646

* Sourse: Goskomstat.

As livestock production depends to a large extent on the fodder, provided by collective farms, we shall compare output value of plant growing. Farm enterprises and private family farms produced half as much gross output per 1 ha as all the other types of farms on average, and the gross output of the subsidiary plots was three times higher.

High efficiency of the subsidiary plots of the population can be explained by the production structure, which is absolutely different from the structure of farm enterprise and private family farm. The owners of private subsidiary plots specialize in intensive crops - potatoes, vegetables, fruits and berries, whereas private family farms and farm enterprises produce less intensive crops: grain, industrial and forage crops.

13. CHANGE IN THE ROLE OF THE MAIN ORGANIZATIONAL TYPES OF THE AGRICULTURAL PRODUCTION IN THE COURSE OF THE AGRARIAN REFORMS

11. 8.1. Agrarian structure of Russia and its dynamic development.

The ideology of agricultural reorganization in Russia was based on two hypotheses:

Hypothesis one was focused on farmers-owners. Its essence is that farmers, having received the documents on the property right to a plot of land and a property share, will leave state and collective farms, take their property and land and set up their own farms. According to this hypothesis, it was expected that as a result of privatization and reorganization, agriculture in Russia will be represented, for the most part, by family farms, i.e. it will have the same structure as other developed countries of the world.

Hypothesis two was focused on farmers-collectivists. Its essence is that collective farms, having received the right to use the land and property at their own will without any directives on the production and purchasing, resource limitations, state interference into their financial activity, will realize their cooperative nature to full extent, and most of the state farms will be reorganized into cooperatives. These farms will be able to organize highly efficient production and will satisfy not only the demands of the home market, but also will export their products and prove their competitiveness within the country and abroad.

Neither of the hypotheses was validated. Only 5% of the farmers left state and collective farms and set up their own farms. The rest did not venture to set up independent farms and preferred to transfer their plots of land and property shares to the old or reorganized farm enterprises. The quick transition to rather large family farms, oriented on the commodity production did not find the adequate response among the majority of the farmers.

Collective farms failed to prove their efficiency either. Only 20% of the farms managed to adapt to the market conditions, the rest quickly reduced their volume of production and sales, dismissed employees and became bankrupt.

As a result of the reforms, the agrarian structure of Russia underwent considerable changes:

- The share of the family farms (private family farms and subsidiary plots of the population, including private household plots, vegetable growing and horticulture partnerships) in the structure of the gross output in agriculture increased from 26,3% in 1990 to 60.8% in 1998 (Table 15). During these years large farm enterprises (LE) decreased their gross output by 2.8 times, whereas private household plots of the population increased their gross output by 12.3%. Starting with 1999 the number of family farms started to decrease. Time will show whether this tendency will persist or not.

Table 15. The share of various types of agricultural enterprises in the gross output of the agricultural production. (in virtual prices, %)*

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000

LE	73,7	68,8	67,1	57,0	54,5	50,2	49,0	46,5	39,2	40,3	43,1
PHP	26,3	31,2	31,8	39,9	43,8	47,9	49,1	51,1	58,6	56,7	53,9
PFF	-	-	1,1	3,1	1,7	1,9	1,9	2,4	2,2	2,5	3,0
Total	100	100	100	100	100	100	100	100	100	100	100

* Source: Goskomstat.

- The trend has been toward specialization of various types of agricultural enterprises. Collective farms retain their leading role in the production of cereals and industrial crops, family farms - in the production of potatoes, vegetables, fruits and berries (Table 16);

Table 16. The share of various types of agricultural enterprises in the production of the main crop plants (%).

	1991	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
1. Grain:										
LE		97,4	94,2	94,2	94,4	94,6	93,0	92,3	92,0	90,7
PHP		0,5	0,6	0,7	0,9	0,8	0,8	0,9	0,9	0,9
PFF	0, 2	2,1	5,2	5,1	4,7	4,6	6,2	6,8	7,1	8,4
2. Sugar beet:										
LE		97,8	95,8	95,8	95,9	96,0	95,7	95,2	93,8	94,4
PHP		0,2	0,3	0,7	0,6	0,7	0,8	0,8	0,8	0,7
PFF	-	2,0	3,9	3,5	3,5	3,3	3,5	4,0	5,4	4,9
3. Sunflower:										
LE		93,0	88,6	88,2	86,2	87,0	87,8	87,6	86,1	84,4
PHP		1,2	1,5	1,6	1,4	1,6	1,4	1,5	1,3	1,4
PFF	0,4	5,8	9,9	10,2	12,4	11,4	10,8	10,9	12,6	14,2
4. Potatoes:										
LE	27,7	21,2	16,5	11,0	9,2	8,9	7,7	7,8	7,0	6,5
PHP	72,0	78,0	82,5	88,1	89,9	90,2	91,3	91,2	92,0	92,4
PFF	0,3	0,8	1,0	0,9	0,9	0,9	1,0	1,0	1,0	1,1
5. Vegetables:										
LE	53,8	44,5	34,5	32,2	25,3	22,1	22,2	18,6	20,9	19,9
PHP	46,2	54,7	64,5	66,7	73,4	76,8	76,3	79,6	77,0	77,9
PFF	-	0,8	1,0	1,1	1,3	1,1	1,5	1,8	2,1	2,2

- The share of family farms in livestock production has been increasing. In the production of meat it reached 59.4%, milk - 52.2%, wool - 62.4% (Table 17)

Table 17. The share of various types of agricultural enterprises in livestock production.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Beef cattle and poultry (sold)											
LE	75,2	70,1	64,7	60,0	55,4	50,1	46,9	43,2	41,5	38,7	40,6
PHP	24,8	29,7	34,5	39,5	43,2	48,3	51,4	55,0	56,9	59,5	57,4
PFF	-	0,2	1,1	1,2	1,4	1,6	1,7	1,8	1,6	1,8	2,0
Gross milk yield											
LE	76,2	73,9	68,1	64,2	60,0	57,1	53,1	51,4	50,1	48,6	47,8
PHP	23,8	26,0	31,4	34,7	38,7	41,4	45,4	47,0	48,3	49,7	50,5
PFF	-	0,1	0,52	1,1	1,3	1,5	1,5	1,6	1,6	1,7	1,7
Eggs production											
LE	78,4	77,8	73,8	72,7	70,9	69,4	68,4	69,3	69,5	70,1	70,8
PHP	21,6	22,2	26,1	27,1	28,8	30,2	31,2	30,4	30,1	29,5	28,8
PFF	-	-	0,1	0,2	0,3	0,4	0,4	0,3	0,4	0,4	0,4
Wool production											
LE	75,5	71,7	67,0	62,8	60,2	52,7	49,3	44,0	40,0	37,6	…
PHP	24,5	28,2	32,2	35,4	37,1	42,8	46,1	51,3	55,0	56,9	…
PFF	-	0,1	0,8	1,8	2,7	4,5	4,6	4,7	5,0	5,5	…

The changes in the agrarian structure are explained by the following reasons:

- Family farms adapt to the market quicker than collective farms;
- Collective farms reduced their production, number of employees; many dismissed employees or part-time engaged in the collective farm, work on their private household plots, which gives them the main income;
- Family farms had to keep up and increase their production, as they did not have money for buying agricultural products for their personal needs;
- Private household plots are not levied with the tax, which is why the actual revenue per cost unit is higher here, especially for labour consuming products. Furthermore, the goods produced at the collective farms very often are not sold, but given to the owners of the private household plots.

Prevalence of personal interests over collective interests leads to the collapse of collective farms. The only measure, which can stop this process, is transference of these enterprises into private farms.

The comparative analysis of family farms and farm enterprises in Russia and other countries allow the following conclusions:

- Family farms and farm enterprises coexist in modern agriculture;

- There are two contradictory tendencies in the agriculture of Russia. Personal interests of the farmers lead to strengthening family farms as the main source of agricultural products and income for a village family. The interests of the directors and most of the specialists of the agricultural enterprises, interested in practicing their professions (agronomist, zoo technician, engineer, machine-operator, milkmaid) contribute to developing large farm enterprises;
- The agrarian reforms of 1990s increased the role of the family farms in Russia and decreased the role of farm enterprises. The share of family farms in the gross output of agricultural goods, meat, milk and wool doubled. In the USA, on the contrary, during the last decades the role of private and family farms decreased, whereas the role of farm enterprises increased. It is proved by the fact that the share of farm enterprises in the sales revenue, agricultural land, fixed assets and hired labour expenses increased;
- In Russia large private enterprises are set up on the basis of former collective farms and state farms. However, the number of shareholders (participants) in such enterprises remains very large, and the production efficiency - low.

12. 8.2. Classification of the agrarian structures in the regions

In all the regions of the RF the agrarian structure at the beginning of the 90s of the XX century was approximately the same. The changes in the agrarian structure during the reform period were similar too: the share of the collective farms in the output value of the agricultural products decreased and the share of the family farms (private family farms and subsidiary household plots) increased. However, the changes took place with different speed. As a result, the agrarian structures of the regions became different.

By convention, we can distinguish three types of the agrarian structure of the regions:

- corporate (farm enterprises)
- family
- mixed

The first type includes the subjects of the RF, where the share of farm enterprises in the gross output exceeds 50%; the second type - the share of family farms exceeds 75%; the third type - the rest regions (the share of farm enterprises - 20-50% and family farms - 50 - 70%).

The data given in Table 18 shows that the mixed type of the agrarian structure prevailed in 1998. Farm enterprises prevailed only in 9 regions. But even in these regions family farms gave 46.9% of the agricultural products.

Table 18. Classification of the regions according to the type of the agrarian structure (1998)

	Total RF	**Including regions with various types of the agrarian structure**		
		Corporative	**Family**	**Mixed**
Number of regions	76	9	13	55

%	100	11,7	16,9	71,4
Gross output value of the enterprises of all categories, billion rubles in virtual prices	304	49	19	236
%	100	16,0	6,4	77,6
Gross output, %				
Agricultural enterprises	39,2	53,1	21,0	37,1
Private household plots	58,6	45,1	75,4	60,8
PFF	2,2	1,8	3,6	2,1

13 regions have the agrarian structure with the explicit prevalence of the family farms. The share of farm enterprises in these regions was rather small (21%) and the share of family farms - 79%. In Ingooshetia the share of family farms in the gross output of the agricultural products was 92.6%, i.e. collective farms did not play any significant role in agriculture.

Even in the regions with the mixed agrarian type family farms produce two thirds of the agricultural goods.

14. LARGE AGRO FIRMS AND FAMILY FARMS: NECESSITY AND WAYS OF INTERACTION

Close cooperation between collective and private household plots is traditional for Russia. Part of the work on private household plots is done with the use of machines, owned by collective farms. For example, for the main agricultural crop of the private household plot (PHP) - potatoes, it is necessary to perform the following work: to dig the land, to make furrows, to hill up and to dig the potatoes out.

The role of collective farms is even more significant for livestock production on private household plots. As a rule, the owners of private household plots buy young animals (piglets, calves, chickens) in the collective farm. The collective farms assist in haymaking and hay transportation. They provide their employees or sell to them at preferential prices grain and grain wastes, used for livestock and poultry on the private household plots.

Collective farms also assist in the realization of the livestock production. Their role is particularly important in milk collection, transportation and sale.

Many Russian scientists and politicians share the opinion that there is a direct dependency between the efficiency of collective farms and private household plots: the more efficient is the collective farm, the more effective is the private household plot. The assistance, provided by the collective farms to the private household plots is a necessary condition for private household plots efficiency.

However, there is a contrary view as well: private family farms have existed for many centuries, they existed before collective farms were set up, they still exist in the regions, where there are no collective farms any more. That means that there is no direct dependency between these types of farms. Moreover, in order to operate efficiently large farm enterprises must build their relationship with the owners of private household plots

on the commercial basis. Otherwise, private household plots will ruin collective farms and misappropriate their resources.

Further development of agriculture in Russia will obviously require cooperation between firms-integrators (their role can be fulfilled by the largest and most profitable farm enterprises) and family farms on the contractual basis.

The use of contractual basis by firms-integrators gives them a number of advantages: part of the costs, connected with additional investments for building construction, machinery purchase works and ecological purposes can be imposed on the partners. Besides, it saves current expenses, as the family farm bears responsibility for resources expenditure, animal safety etc. Distributed production reduces the probability of epidemic and diseases of animals and poultry, additional losses from animal plague and expenses for medication and treatment.

Family farms are interested in cooperation as much as firms-integrators. Such cooperation provides family farms with:

- The best breeds of cattle and poultry, varieties and hybrids of plants. Firms-integrators usually have selection centers, subdivisions for cattle breeding and seed growing. As a result, they can supply the best cattle breeds and sorts of plants to family farms;
- The best forage, fertilizer, etc. As the firm-integrator produces mixed fodder or makes large orders of fertilizer, it can provide farmers with high-quality resources;
- Observance of the technological requirements. The farmer, working under the contract and under the supervision of the firm-integrator, is obliged to observe all technological requirements and can observe them, as he has been trained by the firm-integrator and systematically receives consultations;
- The guaranteed delivery of young animals and other resources under the contract;
- The guaranteed sale of products and payment. In accordance with the contracts, the firm-integrator accepts all the goods, produced under the labour contract, or production and sales contracts;
- Large marketable surplus. Due to the cooperation with the firm-integrator, the family farm specializes on a certain part of the general technological process. Highly specific specialization and receipt of the most important resources from the firm-integrator enables the family farm to have a rather large commodity output (to fatten up several thousand pigs, grow several tens of thousands of broilers, etc.)

Cooperation between firms-integrators and family farms can be implemented in the following ways:

Labour contracts. On the basis of the labour contract the firm-integrator hands over young animals (broilers, piglets, etc.) and fodder for their growth; the family farm, using its own facilities grows livestock and poultry and gives them over to the firm-integrator. The cattle and the fodder remain the property of the firm-integrator. The farmer's work is paid for according to the prices for the gain in weight and depending on the fodder conversion ratio.

Rent agreement. The firm-integrator leases out land plots or farms on the terms of joint usage. The situation can be opposite, when the firm-integrator leases land plots or farms, selects on the competitive basis managers (operators) and organizes production basing on the opportunities of the firm.

Product and sales contracts. The firm-integrator makes a contract with the agricultural producers for the purchase of the agricultural products. Thanks to a large number of such contracts and a considerable purchase volume, the firm-integrator can have a significant influence on the market of certain types of products. Besides terms and volume of delivery, in many cases the firm-integrator can also have requirements to the production technology, quality of the products and assortment; and provide the agricultural producers with some resources.

Farm cooperatives and private companies most often act as firms-integrators. For the agriculture in Russia there are two ways for further development:

- Division of large farm enterprises into private family farms and private household plots with further cooperation of family farms. This way will take years.
- Development of large private agricultural firms, which will conclude contracts with private family farms and private household plots. This way can bring its effect more quickly, but Russia has very little practical experience of this approach.

15. MAIN AVENUES OF FURTHER RESEARCH

Further research of this problem shold be focused on the following issues:

- **on large efficient farm enterprises:**

- analysis of the production development factors, defining the ways of successful development;

- the role of large farm enterprises in the financial recovery of the insolvent farms, ways of using their employees, land and other production means;

- cooperation of large farm enterprises with family farms in the role of the firm-integrator.

- **on insolvent farms:**

- analysis of the production development factors, defining the roots of insolvency;

- analysis of the ways for the financial recovery and use of the employees, land and other resources by more effective farms (using certain regions of the RF as an example).

- **on small farm enterprises:**

- determining the number of employees and legal-organizational forms of small farm enterprises, analysis of the production development factors and efficiency of small enterprises;

- monographic description of certain small enterprises in different regions.

- **on private family farms (PFF):**

- analysis of the production development factors of the private family farms in the RF and its regions;

- evaluation of the private family farms efficiency;

- monographic description of certain private family farms (representing subsidiary farms; family farms, using the labour of the head of the farm and members of the family; family farms, using hired labour)

- **on subsidiary farms (private household plots PHP):**

- defining criteria for dividing subsidiary farms into three groups: family farms with full time employment; subsidiary farms and households, in which agricultural production does not play any significant role and which could be excluded from the list of agricultural producers);

- analysis of the production development factors of the subsidiary family farms with full and part-time employment;

- market mechanisms of subsidiary farms integration;

- opportunities of using credit resources by subsidiary farms;

- proposals on interaction of the agro industrial complex with the subsidiary farms of the population.

- **comparative analysis of various organizational types of the agricultural production:**

- analysis of the organizational types from the point of different approaches in business organization, management, resources access, product realization;

- comparative study of the effectiveness of various organizations types, evaluation of effectiveness of using land, labour and capital;

- **development of the agrarian structure**

- detailed classification of the agrarian structures of the regions;

- evaluation of the changes in the agrarian structure in perspective.

- **interaction of agro firms and family farms:**

- description of the ways for cooperation (using specific examples);

- evaluation of the perspective interaction between agro firms and family farms.

- **on the improvement of the agrarian policy:**

- completion of the organizational reforms;

- development of large profitable enterprises and their integration with family farms;

- mechanisms of the financial recovery and reformation for insolvent farms;

- optimization of the agrarian structure.

Comments on Paper by V. Uzun: "Organizational Types of Agricultural Production in Russia"

Zvi Lerman

Uzun discusses the three main organizational forms of Russian farms: the large farm enterprises, the smaller peasant farms, and the very small household plots. My impression is that these three organizational forms in effect constitute a continuum of farm structures according to the following scheme:

	Household plots	Peasant farms	Farm enterprises
	⟶	⟶	⟶
Size	1-10 ha	10-500 ha	500-5,000 ha
Share of ag land	7%	8%	85%
Share of gross product	52%	3%	45%

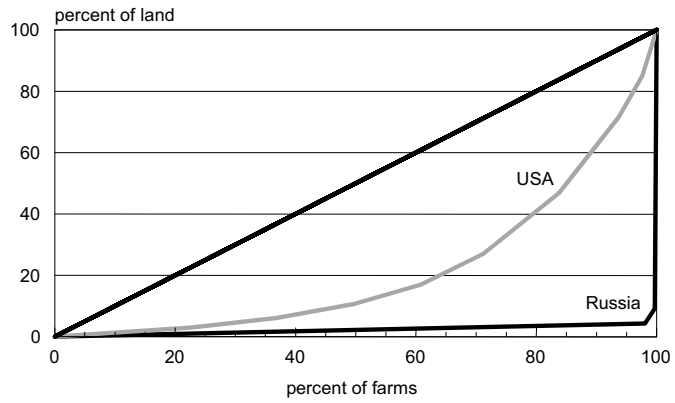
The three types of agricultural producers are usually treated separately in the literature. And yet they have always been and continue to be inseparable buildings blocks of Russian agriculture, with many important interactions between them affecting the overall performance. The BASIS project can make an important contribution to our understanding of the Russian farm sector by treating all these forms within a unified conceptual and analytical framework.

After a decade of transition from plan to market, the thrust of our research in Russian agriculture should be on measuring and evaluating the progress from the starting characteristics of a command economy to the target attributes of market agriculture. In my view, the two most important dimensions for measuring the progress of reform in agriculture are the distribution of land among users and the internal organization of farms. It is by these attributes that socialist agriculture strikingly differed from market agriculture, and they are probably the main culprits responsible for the chronic inefficiency of agriculture in the Soviet era.

Land Distribution Patterns

Typical patterns of farmland distribution in market agriculture and in post-Soviet Russia are shown in Figure 2.

Figure 2. Land Concentration: Russia and USA 1997



The difference in these patterns is striking. After a decade of transition reforms, Russia still basically retains the sharply dual pattern of land distribution that characterized traditional Soviet agriculture: 98% of relatively small farms control less than 15% of land and 2% of large farm enterprises control 85% of land. This is better (by market benchmarks) than in the Soviet era, when 2% of large farm enterprises controlled 98% of land, but it is still far from the market pattern of land concentration observed in the US, Canada, and the European Union. Unfortunately, the curve for Russia in Figure 1 is based on very rough general data, and it is important and relevant to determine the exact land distribution curve for Russia and to compare it to corresponding curves in the past. The dynamics of changing farm structure has been traced in other studies for Poland and Romania, with highly illuminating results concerning the impact of reforms on agriculture.

Internal Organization of Farms

To operationalize the study of changes in internal organization of farms, it is useful to compare the operating decisions of agricultural producers in a market economy to the operating decisions inherited from socialist agriculture. Table 19 presents such a comparison of operating decisions in the two economic systems and it can be used as a checklist for measuring the substantive organizational changes during the transition from collective to market-oriented agriculture.

Table 19. Operating Decisions of Farms in Socialist and Market Economies

Business component	Decisions in a market economy	Decisions in a socialist economy
Sales	Produce in response to consumer demand	Produce to meet centrally imposed targets
Costs	Institute cost controls	Cost-plus accounting
Labor	Adjust labor force to changing	Labor force fixed: workers guaranteed

	production volume/mix	lifetime employment
Purchased inputs	Seek best suppliers, control purchase quantities	Inputs push-delivered at state-fixed prices and in quantities determined by production quotas
Depreciation	Acquire new equipment only if added depreciation is justified by increased volume or by savings in other costs	New equipment deliveries determined by central planning; depreciation treated as an active source of cash
Credit/financial expenses	Borrowing limited by risk of bankruptcy (hard budget constraints)	Credit allocated centrally to cover deficits (soft budget constraints)
Profit	Maximize profit by controlling sales and costs	Profit uncontrollable

These comparisons with market agriculture suggest that to measure the progress of agricultural reforms we should concentrate on the following dimensions of farm operation:

- Organization of production: scale, autonomy of subdivisions in corporate units, labor policy
- Managerial goals and objectives, decision-making processes
- Access to resources: land, labor, purchased inputs, machinery, credit
- Access to channels for sale of farm products

Farm Efficiency

The overriding objective of the transition to market agriculture has always been to improve productivity and efficiency. Which of the different organizational forms in Russian agriculture are more efficient? The summary data presented at the very beginning on farms of different organizational types immediately suggest that individual farms are dramatically more productive (per hectare of land) than farm enterprises. Uzun clearly demonstrates this productivity gap in his paper with specific numbers. These numbers, however, focus on partial productivity—measurement of agricultural output per unit of land. Partial productivity similarly can (and should) be calculated in relation to a unit of labor, although it is much more difficult to estimate the labor inputs of individual farms. The partial measures determine productivity of each of the two inputs separately, while efficiency should properly be measured in relation to the basket of all inputs used. It is only by measuring output per unit of all inputs that we will be able to make a valid comparison between the efficiency of farms of different organizational forms.

Standard techniques for measuring efficiency include total factor productivity (TFP) analysis, production function estimation with dummy variables representing farms of different types, and production frontier analysis (by non-parametric deterministic techniques and by parametric stochastic methods). All these analytical techniques can be adapted to analyze efficiency not only across different organizational forms but also as a function of farm size. Uzun demonstrates that large farm enterprises are more profitable

and more successful than smaller farm enterprises. Do these relationships also hold when instead of absolute sales and profits we analyze productivity and efficiency in terms of output per unit of all inputs? And what about individual farms? Survey results in many transition countries show that larger individual land endowment leads to higher family income. Does this relationship translate into higher efficiency for larger individual farms?

All versions of efficiency analysis require basically the same set of data. Output should represent the total value of production (not sales!) in money units. Basic inputs should include land, labor, livestock, machinery, purchased inputs (seeds, fertilizer, energy, etc.). Most analytical techniques (production function estimation, production frontier analysis) will work with inputs expressed in physical units. Only TFP analysis requires calculating the value of the basket of inputs in money units. This may prove difficult in our setting, but fortunately we can use reported or estimated production costs as a reasonable approximation for the value of all inputs used.

Efficiency analysis across farms of different organizational types should be augmented by examining the relationship of efficiency with the "depth" of changes in internal organization. It will be useful to construct an index of internal organizational changes based on the attributes of Table 1 and to correlate farm efficiency with this farm transformation index. This analysis will shed new light on the importance of farm restructuring for efficiency improvement.

Relationship between Household Plots and Farm Enterprises

Household plots, despite their undisputed contribution to agricultural output, are often at the receiving end of highly derogatory assessments. They are accused of every evil under the sun, from outright theft of resources to parasitic exploitation of the parent farm enterprise. Uzun has told us that, according to some farm managers, up to 20% of production costs represent outflows to household plots. There is no indication what the farm enterprise receives in return for these costs. Based on a 1998 World Bank survey conducted by Maria Amelina in Saratov Oblast, household plots rely on the farm enterprise for 100% of their machinery inputs, 80% of their hay, and 50% of animal feed and piglet stock. All of them pay for these inputs, albeit generally at below-market prices.

The analysis of household plots and farm enterprises in the framework of the BASIS project must pay careful attention to the details of the interaction between these two components of Russian agriculture. Data should be collected to quantify this interaction, i.e., determine in fairly rigorous terms the contribution of the farm enterprise to the profitability of household plots, on the one hand, and the impact of household plots (both as users of inputs and producers of output) on the farm enterprise, on the other.

Surveys in other transition countries clearly demonstrate that the household plot is an extremely important source of income for the rural population. It accounts for more than 50% of total family budget. Our study should clarify this effect in Russia and try to establish the "consolidated profit" in the interacting system of household plots and farm enterprises.

Table 20. Moldova: Rural Household Incomes (lei)

	"Non-commercial" households	"Commercial" households

Net sales income	--	3,650
Value of consumption of own farm products	7,500	7,350
Salaries, pensions, etc.	4,800	4,510
Total family income	12,300	15,510
	$980	$1,240
Family size	3.4	3.2
Plot size	0.8 ha	1.6 ha

Source: World Bank.

Another important finding in many transition countries is that, contrary to popular perception, household plots are not pure subsistence operations. Moreover, households that sell some of their output achieve significantly higher levels of income than households that use their entire output for family consumption. This is demonstrated in Table 20, which is based on the data of a 2000 World Bank survey in Moldova. Increasing the commercialization of household plots may therefore be regarded as an important objective from considerations of rural poverty alleviation and possibly also general agricultural recovery. The BASIS project can make a contribution to these issues by analyzing the determinants of the individual decision to sell. What are the most important factors for a small individual unit to start selling some of its output? Do households need more land, more machinery, more credit, or better access to marketing channels before they generate enough saleable surplus? These topics have not been studied systematically and they are a natural complement to the module that deals with the organization of agricultural producers in Russia.