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## MANAGEMENT OF LARGE FARMS IN RUSSIA - SITUATION AND NECESSARY ADJUSTMENTS FROM A WESTERN POINT OF VIEW

Clemens Fuchs

Fachhochschule Neubrandenburg, Germany

### ABSTRACT

*After working for one year in a Russian-German project for „Restructuring Large Agricultural Firms in the Region of Vladimir“, the author has made an in-depth analysis of the current economic situation of farms in Russia. The goal of the project is to develop approaches to restructuring farms, to build up an extension service and to give advice on regional agricultural policy. Accordingly, a series of adjustments in the management of the pilot farms involved in the project was developed. Areas of suggested change in farm management include reconsidering the legal form of the enterprises, evaluating competence and responsibility of the leaders and improving information flow and communication between the owners and farm workers. The economic situation for Russian farms has got so difficult that fundamental adjustment to the new market economy is inevitable. Therefore technical and management improvements are necessary, and deconcentration and decentralization of the farms is imperative. The cost of these restructuring efforts must be borne by the farms themselves, which makes the whole process even more difficult. This makes great demands on the managers of the farms.*

### INTRODUCTION AND OBJECTIVES

The economy of the Russian Federation is at present involved in a difficult transition process. The Russian agricultural sector is affected as well: it too must make the change to a market economy. Since 1992, most of the former collective farms and state farms have been privatized. Because this transition process is taking place under extremely difficult conditions, most of the agricultural firms are facing increasing organizational and economic problems. To overcome these difficulties, western nations are offering international aid in the form of loans and advice. The German government is also supporting the transition process in Russia by carefully defined projects. This paper is based on a year's experience gained working on the Russian-German project „Restructuring Large Agricultural Firms in the Region of Vladimir“. The objective of the paper is to describe the situation and to indicate necessary adjustments in the management of large farms in Russia.

## CURRENT SITUATION OF THE AGRICULTURAL SECTOR IN RUSSIA

### Farm structure

The goal of the privatization of the collective and state owned farms initiated in 1992 has been to increase the motivation of the employees by allowing them to share in the property and estate. This was done to increase the efficiency of agricultural production. At the same time, foundation of new family farms and production in the household and garden units was encouraged. The changes in farm structure is shown in Table 1.

Table 1: Changes in the structure of agricultural firms in Russia

Legal form	Numbers in 1991 (average size in hectare)	Numbers in 1994 (average size in hectare)	Numbers in 1995
Farms of unchanged legal form	ca. 28.000 (ca. 7.500 hectare)	8.373 (5.281 hectare)	Sowchosen: 3.593 Kolchosen: 6.025
Closed joint-stock company		11.492	12.862
Agricultural cooperatives		1.861	2.227
Farmer cooperations		936	751
Open joint-stock company		172	320
Other forms		2.273	1.893
Farms belonging to other industries		424	528
All large farms together		24.344 (ca. 8.000 hectare)	30.521
Family farms		279.200 (36,2 hectare)	-
Household and garden units		16.600.000 (0,34 hectare)	-
Collective gardens		22.400.000 (0,08 hectare)	-

- no information; Source: Kirsch (1996), Russian Agricultural Ministry, Moscow (1996)

At the beginning of privatization in 1992, the number of family farms increased rapidly due to the availability of state subsidies such as loans. After the first founding wave, stagnation occurred. Due to economic problems, many family farms decreased production or went out of business. Therefore, the overall structure of the Russian farming sector is determined by the large farms, which cultivate nearly 90 % of available arable land. Most of these large firms have changed their legal form and are now called joint-stock companies, limited companies, or cooperatives.

Except for the changes on the sign on the farm gate, little has changed in the organization and in the management of the farm. The new owners do not feel responsible, be-

cause they do not have the right to dispose of their property freely. The objective of privatization - to increase motivation and efficiency of production - has not been realized. Drastically altered price relationships, decreased state subsidies and problems in the availability of materials as well as marketing problems have lead to increasing organizational and economic difficulties. The agricultural sector of Russia is facing an acute crisis, which has lead to a severe drop in production of 27 % between 1990 and 1994. The self-sufficiency quotient for cereals has fallen to 76 %, for meat to 80 % and for milk to 90 %. The indirect imports of cereals in the form of processed products makes the situation even worse than these figures indicate.

In the transformation process most farms are facing the same difficulties. Problems most commonly cited include: lack of capital, unfavourable price relations, financial obligations of processing firms and unmotivated workers. Most firms do not have access to the capital market. Due to problems in liquidity a lot of firms have reduced acquisition of production increasing equipment, are in arrears with payrolls and have stopped investment. In the example, the decrease in investment is shown for the region of Vladimir, an area comprising nearly 800.000 hectare of agricultural land (Table 2). Investment in machinery in 1995 was only 10% of the sum spent in 1990. The same tendency can be observed in the rest of Russia.

Table 2: Development of the investments of agricultural firms in the region of Vladimir (number of machines)

	Year					
	1990	1991	1992	1993	1994	1995
Tractors	1478	1077	497	185	214	115
Cars	1379	1036	534	69	165	150
Combines for cereals	244	314	63		46	17
Combines for potatoes	62	92			11	7
Chaffcutter	154	97	7	6	29	14

Source: Administration of the region Vladimir.

Since the introduction of the market economy the relationship between prices for materials necessary for production and those realized from farm products has changed drastically, often to the disadvantage of the farmer. The owners, managers and farm workers have become resigned to the deteriorating situation, and no longer seek ways to overcome their difficulties. The consequences are the reduced acquisition of production materials and decreased animal stocks. In plant production almost no fertilizer and pesti-

cides are used any more. In forage farms there is not enough machine capacity to produce satisfying quality and quantity of silage to feed the cattle. The yields in cereals and in milk have dropped (Table 3).

Table 3: Development of the yields in cereals and in milk production in Russia

	86-90	1990	1991	1992	1993	1994	1995	1996
Cereal yield dt/hectare	15,9	-	14,4	17,2	16,3	14,4	11,6	ca. 13 - 16,7
Milk yield kg/cow and year	-	2781	2569	2247	2252	2029	2007	-

- no information. Source: Administration of the region Vladimir.

Reduced efficiency due to low levels of production results in high per unit costs, even though farms are normally quite large: usually thousands of hectares. The tendency is toward still lower production levels. Economically, this is difficult to comprehend, because price relationships have changed in favour of agriculture. Some products already command world market prices and more. Nevertheless, the productivity of the firms is not increasing due to a number of underlying causes:

- The firms are not profit but still output oriented, for example a larger number of cows is more important than a high milk yield or the area planted more than the yield achieved.
- In the management of the firms the hierarchy is too diversified, and the director has too little freedom of movement. Furthermore, there are firms in which the specialists (agronomy, animal production, engineering etc. ) are not in responsible positions and therefore can not participate in the decisions necessary to overcome the crisis. Management is unable to exercise its controlling function sufficiently. On the one hand, this is due to the physical size of the firms and the lack in transport capacity. On the other hand by the lack of information about technical and economic alternatives and the insufficient qualification of individuals.
- The control and budget system of the firms has low significance for decision making in the enterprise.
- The production technique is obsolete and can not renewed fast.
- The firms themselves are not active in marketing.

- Property rights, usufruct and employee-employer relationships are partly not clear and not sufficiently flexible.

- Social, civil and municipal tasks burden the farms with additional costs.

In the individual enterprises the difficulties vary. The firms in better economic shape still have positive gross margins and show some profit. An example for such a firm is in Table 4, where a profit of 654 mill. Rubles is assumed.

Table 4: Farm organization and planning for a medium enterprise

	Initial situation		Planning	
	Yield	Size	Yield	Size
Area		2700 hectare		2700 hectare
Workers		192 persons		99 persons
Winter cereals	22 dt/hectare	40 hectare	40 dt/hectare	428 hectare
Summer cereals	22 dt/hectare	702 hectare	40 dt/hectare	800 hectare
Potatoes	140 dt/hectare	100 hectare	250 dt/hectare	100 hectare
Corn silage	250 dt/hectare	99 hectare	500 dt/hectare	189 hectare
Hay/silage	1 cut	1200 hectare	2 cuttings	129 hectare
Pasture		509 hectare		856 hectare
Heifers		330 head		270 head
Cows	3000 kg milk/cow	696 head	3500 kg milk/cow	540 head
Gross margin		1.654 mill. Ruble		3.656 mill. Ruble
- fixed costs		1.000 mill. Ruble		1.000 mill. Ruble
Calculated profit		654 mill. Ruble		2.656 mill. Ruble
Difference		0		+2002 mill. Ruble

Source: Own calculations

The economic situation of a poor firm is described in table 5. Indicators for the crisis of the firm are liquidity shortage, growing debts, declining inputs, delayed investments, telephone and electrical services cut. Declining yields in plant and animal production as well as reduced acreage and animal stocks can be noted. On the average only 10 dt/hectare in winter cereal production and 16 dt/hectare in the summer cereal production was harvested. The yields for potatoes are 60 dt/hectare and the milk yield has dropped to nearly 2.000 kg/cow and year. The gross margins have gone to negative values. The economic consequences of this situation should be the immediately stop of all production processes with higher variable costs than revenues. Only new and improved and therefore profitable production activities should be continued.

Table 5: Farm organization and planing for a poor enterprise (number of cows fixed)

	Initial situation		Planing	
	Yield	Size	Yield	Size
Area		4.974 hectare		4.974 hectare
Workers		206 persons		75 persons
Winter cereals	10,4 dt/hectare	135 hectare	35 dt/hectare	705 hectare
Summer cereals	16 dt/hectare	770 hectare	35 dt/hectare	613 hectare
Potatoes	60 dt/hectare	22 hectare	250 dt/hectare	0 hectare
Corn silage	250 dt/hectare	131 hectare	500 dt/hectare	195 hectare
Hay/silage	1 cut	1.190 hectare	2 cuttings	
Pasture		634 hectare		634 hectare
Heifers		493 head		200 head
Cows	2000 kg milk/cow	504 head	3500 kg milk/cow	400 head
Gross margin		-1.311 mill. Ruble		3.239 mill. Ruble
- fixed costs		1.506 mill. Ruble		1.506 mill. Ruble
Calculated profit		-2.817 mill. Ruble		1.733 mill. Ruble
Difference		0		+4.550 mill. Ruble

Source: Own calculations

The second farm faces a severe crises, which can only be counteracted by a reorganization of the firm. In the short term this restructuring will bring significant social pressure for the management, the workers and the owners of the firm. Therefore a social plan is necessary to ease the burden. For the majority of the workers there will be no great change in their activities which are already concentrated on their own household and subsistence production. Only a third of those presently employed on paper could continue to be employed by the new organization and restructured firm. The work remaining would represent a real chance for income for many families in the village.

#### NECESSARY ADJUSTMENTS

The way to improve liquidity and profitability can be calculated using a farm model to determine the optimal production program and the optimal input intensity. For this purpose several planning calculations have been carried out. Precondition for an improved economic situation is an increase in the natural yields of plant and animal production which could be reached by a higher input level and by a positive working attitude of the management and the workers. Besides the reduction of costs and expenditures, the concentration of the limited capital on the competitive branches and the partial reallocation

of financial resources, firm direction and control of the activities is necessary. Such serious changes call for strong management, with wide-ranging powers delegated by the owner of the firm. In nearly all cases, this requires changes in the organizational structure. The top level of management should be limited to number 3 to 5 persons. Experience in large farms (several thousands of hectares) in other countries show that such structures can be efficient. The planning calculations show which preconditions in production techniques, in the production program and in financing are necessary. The planning was done at the beginning of 1996 and was intended to show the outlook for the entire year. The assumptions are that there are sufficient workers and capacities in buildings and machinery available. Necessary expenditures for overhaul, restoration and maintenance are considered. Substitute investments should start in the following year at the earliest, after the required capital has been accumulated or loans have been made available for agricultural production under improved conditions.

#### **Planning models**

The basis for the planning calculations is a linear programming model. In the model the year is divided into twelve monthly periods to build an adequate picture of the cash flow. Two situations are of interest:

The initial situation: First it is assumed that the firm organization for the year 1996 will be the same as in 1995. In this reference situation all costs incurred are considered.

The planning situation: After discussion of possible improvements in production and reduction in avoidable costs and losses with the farm personnel involved (upper management and specialists), an optimized plan was calculated. The objective was to maximize the financial surplus within the given restrictions.

In the production aspect of the planning model it is assumed that cereal yields could rise to 40 dt/hectare, by fertilizing with 100 kg N/hectare and using pesticides, at least one herbicide. All activities in plant production should be carried out carefully and on time. Appropriate management of corn and pasture should result in even higher yields. To get all work done in time, the costs for machine repair are considered.

Money for all expenditures for fertilizer, fuel, repairs, salaries and so on has to be available when it is needed. Financial resources included the revenues realized from the sale of potatoes and cereal stocks, milk and old cows. With careful spending, liquidity short-



ages should be avoidable in the planning situation. The prices used for planning purposes were discussed and agreed on with the farmers at the beginning of 1996.

### **Planning results**

As a result of the planning, it is evident that the lines of production with high yields are very competitive and should be substituted as soon as possible for the old processes (Table 4 and 5). If the planning scenario were realized in all of the four pilot farms, the negative economic tendency could be stopped and turned around (Table 6).

Table 6: Performance reserves for four pilot farms - comparison of the gross margins of the initial situation and a planning variant (Mill. Ruble/year)

Agricultural firm	initial situation	planing	difference
Farm 1 (ca. 7000 hectare land)	3.777	10.185	+ 6.408
Farm 2 (ca. 2700 hectare land)	1.654	3.656	+ 2.002
Farm 3 (ca. 5000 hectare land)	-1.311	3.239	+ 4.550
Farm 4 (ca. 1600 hectare land)	-879	+174	+1.053

Source: Own calculations.

### **Recommendations for short term increase in productivity**

To reach the positive results calculated above, radical immediate measures are necessary for most of the farms:

- (1) Management has to get in control of the ongoing business of the farm. Cost savings, concentration of available capital on the profitable branches, and increasing yields and revenues up to the economic optimum is necessary.
- (2) Liquidity has to be improved by thrifty spending practices, such as using the farm's own reserves. An example: reduction of herd sizes by shifting the main calving time to the fall. By reallocating stocks and concentrating capital to profitable processes the entire production projected in the planing variant could be financed. Table 7 shows an example for monthly cash-flow planning for one year, where the starting capital is gained from selling potatoes and old cows, because no other loans are available. By the end of the year gross margins should already double compared to a situation without change in the production program.
- (3) Motivated workers are a precondition for efficient production. They have to be paid regularly and on time. A social plan could help to ease hardship cases.

Table 7: Monthly cash-flow-Management for the planing situation of a medium farm with nearly 100 workers, 2700 hectare land and 540 cows; improved average yields: cereals from 22 dt to 40 dt/hectare, milk from 3000 kg to 3500 kg/cow and year (tr = thousand Ruble)

	Unit	January	February	March	April	May	June	July	August	September	October	November	December	
Starting capital	tr	0												
<b>REVENUE</b>														
Selling potatoes - quantity	dt	5.000	0	0	0	0	0	0	0	25.000	0	0	0	
- price	tr / dt	100	103	106	109	113	45	46	48	49	51	52	54	
- revenue	tr	500.000	0	0	0	0	0	0	0	1.229.318	0	0	0	
Selling cereals	dt	0	0	0	0	0	0	0	48.621	0	0	0	0	
- quantity	tr / dt	54	55	57	59	60	62	45	46	48	49	51	52	
- price	tr	0	0	0	0	0	0	0	0	0	0	0	0	
- revenue	tr	262.555			1.925.402									
- to state order (natural payment for loans)	tr													
Milk production - calvings	Stück	90	90	0	0	0	0	0	0	90	90	90	90	
- milk quantity	t	207	237	220	194	168	142	108	78	95	121	147	173	
- milk price	r/kg	1.200	1.400	1.300	1.000	900	800	750	750	800	900	1.000	1.100	
- milk revenue	tr	248.548	332.260	286.089	194.178	151.459	113.918	80.908	58.253	75.945	108.740	146.712	189.863	
- calve revenues	tr	6.300	6.300	6.300	6.300	6.300	6.300	6.300	6.300	6.300	6.300	6.300	6.300	
- old cows revenue	tr	164.550	8.550	8.550	8.550	8.550	8.550	8.550	8.550	8.550	8.550	8.550	8.550	
<b>SUM OF REVENUE</b>		919.398	347.110	563.494	209.028	166.309	128.768	95.758	1.998.505	1.320.113	123.590	161.562	204.713	
<b>EXPENDITURE</b>														
Salaries	tr	32.702	32.702	32.702	32.702	32.702	32.702	32.702	32.702	32.702	32.702	32.702	32.702	
Feed buy														
- cereals - quantity	dt	376	603	490	126	0	0	0	0	0	0	0	0	
expenditures for cereals	tr	26.292	42.128	34.235	8.793	0	0	0	0	0	0	0	0	
- rape seeds	dt	0	145	148	0	0	0	0	0	0	0	0	0	
expenditures for rape seeds	tr	0	11.144	11.387	0	0	0	0	0	0	0	0	0	
- hay	tr	0	0	0	0	93.940	0	0	0	0	0	0	0	
Nitrogen bought	tr	0	0	254.552	0	168.004	0	0	0	0	0	0	0	
Seeds/pesticides	tr	0	60.000	421.979	411.688	0	0	0	32.576	34.259	0	0	0	
Diesel	tr	31.151	31.151	31.151	31.151	31.151	31.151	31.151	31.151	31.151	31.151	31.151	31.151	
Electric energy	tr	16.833	16.833	16.833	16.833	16.833	16.833	16.833	16.833	16.833	16.833	16.833	16.833	
Gas	tr	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.500	
Machinery reparation	tr	116.126	52.371	31.380	31.380	31.380	58.364	37.203	27.228	27.228	27.228	27.228	27.228	
<b>SUM EXPENDITURES</b>		230.604	253.829	841.720	540.048	381.511	146.550	125.389	147.991	149.674	115.415	115.415	115.415	
Difference: Revenue-Expenditures	tr	688.794	93.281	-278.226	-331.020	-215.202	-17.783	-29.632	1.850.515	1.170.439	8.175	46.148	89.298	
Loans	tr	0	0	0	0	0	0	0	0	0	0	0	0	
Savings	tr	705.837	820.827	567.058	253.789	46.440	29.435	0	1.849.705	3.082.534	3.195.220	3.349.729	3.552.667	
Surplus	tr												3.656.199	
Fixed Costs (Amortization, aso.)	tr												1.000.000	
Calculated profit	tr												2.656.199	

Source: Own calculations.

For the poorer farms additional measures have to be taken:

- (4) There must be a formal resolution of the members to take rehabilitation measures immediately.
- (5) In the case of unfavorable territorial division of the firm, a new apportionment or even a division of the enterprise should be attempted. The farm's size of nearly 8.000 hectares causes a disproportional expenditure for organization and transport, while control of production by the central management is effectively impossible.

Even if the radical immediate measures would work, fundamental reorganization and restructuring of the agricultural firms in Russia are unavoidable in the medium term.

#### **Recommendation in the medium term**

The preceding and individual steps for restructuring farms has been worked out and described in detail by the different projects working with international aid in Russia. The legal and organizational steps are described in detail in different manuals from organizations such as TACIS (European Union, 1995), INTERNATIONAL FINANCE CORPORATION (IFC, a member of the World Bank Group, 1995), Federal Ministry for Agriculture in Germany (internal manual, 1996), and others. The different projects agree on the following restructuring steps:

- (1) Analysis of the economic situation of the enterprise and recognition of the need to restructure.
  - A clear analyses of the current situation of the agricultural firm is required. In most cases only external expertise can deliver a successful analysis, because the (old) budgeting system does not fit marketing conditions.
- (2) Improved communication in the firm.
  - A information campaign and poll of the owner and worker in the firm should aim to create awareness of the problems and also induce interest and motivation in the further prospects of the firm. During the campaign individual persons or groups should be identified who are willing to take responsibility.
- (3) Working out a new concept for the firm's organizational structure.
  - Select an appropriate (new) legal form; in the Russian Federation the judicial regulations for the legal forms of agricultural firms have changed several times in the past years. Compliance is an issue in a lot of firms. In the case of a adaptation it has to be considered that the new legal form and the corresponding statutes and contracts do not hinder management of the firm according to principles of the market economy,

although experience - for example during and after the transition in East Germany - has taught that not the legal form but the personality and personal qualifications of the managers are most important.

- Exclude the social sphere and municipal tasks from the agricultural firm and hand them over to the local community.
- Delegation of powers, tightening of the leadership, renewal of the management and delegation of decisions.
- Reorganisation of the territory and the branches of the firm, if necessary division of the firm.
- Reallocation of the rental and working relationships and clarification of the availability, the use and the payment of the production factor land, capital and labor. Establishment of appropriate motivational systems and incentives (salaries) to take over responsibility. Often it can be noticed that merit pay exists, but the workers have no influence on the inputs or the production process, so the payment system is demotivating and counterproductive.
- Changing and improving of the production processes, optimization of the organization of the firm for buying, production and selling, concentration of capital and man power on profitable branches, efficient controlling, closing non-profitable branches. By realistic evaluation the efficiency of production can only be attained by increasing yields. Marginal value calculations and the knowledge of break-evens give some orientation. Economic education is urgent.
- Reinforcement of marketing activities in buying inputs and selling products.

(4) Realization of the new concepts.

(5) The restructuring process have to be supported by appropriate frame conditions.

As the analysis of the current situation of the farms in Russia has shown, the potential to increase productivity exists. This potential should be used, rather than waiting for help from the outside. Nevertheless, it is widely recognized that changes have to be implemented in two areas: first on the farms themselves and second in the frame conditions (general legal conditions), including above all a functioning legal system so that theft will be prosecuted and outstanding debts and claims recovered. Besides that reliable regulations for the markets of land, labor and capital are necessary. All this will develop step by step according to the political stability of the new democracy in the Russian Federation.

The enterprise itself should not attempt to block restructuring efforts by pleading an unsatisfactory climate for change. Both the changes in the economic climate and in restructuring of the firm should move hand in hand. The responsibility of the management of the firms is to start restructuring process and to keep it moving. An efficient information flow between the owners, the workers, and the managers of the agricultural firms is essential, as it is the workers who have to understand and support the restructuring process, if it is to be successful.

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### Biography

Clemens Fuchs, studied and made his doctoral degree in Agricultural Economics at the University of Hohenheim, Stuttgart. In 1995/96 he worked as team leader in a project for „Restructuring Agricultural Firms in the Region of Vladimir“ in Russia. Since September 1996 he has a position as Professor for Agricultural Economics and Farm Management at the Fachhochschule Neubrandenburg.

### Address

Clemens Fuchs

Private:

Rotdornstraße 9  
17039 Neuendorf  
Tel: 0395 / 566 5010

Fachhochschule Neubrandenburg  
Fachbereich Agrarwirtschaft und Landespflege  
Brodaer Straße 2, 17033 Neubrandenburg  
Postfach 1902, 17009 Neubrandenburg  
Tel: 0395 / 5693-205 (-201), Fax: 0395 / 5693-299  
e-mail: cfuchs@fh-nb.de