

## New Agricultural Operators, Input Markets and Vertical Sector Coordination

*Dmitri N. Rylko*

### Background

During 90-es the Russian and FSU agriculture have undergone dramatic processes of decapitalization, downsizing and fragmentation. All key indicators of agricultural efficiency and productivity have substantially deteriorated. The organizational landscape of the domestic agriculture has also changed significantly. Basically, the three sectors («orders») of agrarian economy have emerged on the ruins of the Soviet agriculture: privatized collective farms, individual (family) farms, and subsistence plots<sup>17</sup>. Due to many reasons, including insufficient structural reform policy, the private farming did not root significantly in Russia. The privatized collective farms and subsistence plots (that are closely linked and interdependent with collective farms) both occupy the largest share in gross agricultural output (about 50 and 45% respectively). In general, both «sectors» have not been adapted to host investments and quite hostile to technological progress.

The Russian agricultural sector has inherited worst reputation in private investment community regarding loss of credit and low return on investment. The agricultural financing has been considered as a highest risk venture finance activity.

However the deeply rooted view on the Russian agricultural sector as «hopelessly stagnating» has to be modified. Russian agriculture has been growing for last 3 years. Thousands of hectares of Russian farmland are being taken from the primary landowners and land possessors by various outside operators. In parallel, some «traditional» agricultural producers modify and extend their farming activities. These phenomena bear the features of both unique and well known approaches to farming, such as vertical integration, custom and contract farming, land leasing, machinery sharing and others. One of the main features of these phenomena is separation of the land and real estate ownership from farming operations. «*New operators*» is a conditional term that we use to identify and describe new players and new functions in the Russian agriculture.

Just for the purposes and convenience of the study, our working «paradigm» is that «new operators» is *the heterogeneous transitional sector* in the domestic agriculture. Several working «hypotheses» should be considered to explain the emergence of this «sector». Among them are:

- *Incomplete and insufficient markets.* Incomplete transitional markets cause market imperfections and stimulate over-reliance on vertical and horizontal integration as a tool to mitigate extremely high transaction costs and risks. It becomes more economical and less risky to produce inside the firm rather than buy from outside. Such a behavior is a peculiar analogue of well-studied developments in the US and

---

<sup>17</sup> Serova (1999), Uzun (2000). There exist various modifications of this basic classification: The collective farms are called corporate farms. They are broken down by official legal status (joint stocks, production coops, etc.), by financial status, and by gross revenues. Some researchers combine individual farms and subsistence plots into a single private farming «order».

West European agriculture in 50-es, 60-es. Incomplete transitional markets also cause unequal competitive conditions among firms and industry branches. Those firms win which have better access to political lobbying groups and administrative power. As a rule, new agricultural entrants possess such a political and administrative power.

- *High entry barriers* in the «traditional» Russian farming sector caused by inefficient and incomplete organizational transformation of the sector. It causes establishing new formats and bypassing by the outside capital «traditional» agricultural facilities.
- *Short term paradoxical results of the financial 1998 crisis*. Sizable import substitution demand on the domestic foods coupled with low key agricultural input prices faced very low supply elasticity on the part of the Russian «traditional» agricultural producers. New entrants and formats are capturing the opportunity. Again, studied phenomena can be viewed as a remote analogue of US «bonanza farming» in late 19-th century and middle 70-es.
- *Long term shifts in opportunity cost of capital* (application of the convergence theory). Due to dramatic long term decapitalization and downsizing the agricultural production apparently decreased to the bottom line. At this point the investments into the sector may be viewed as one of the most attractive long term placements of capital.
- *Influence of foreign investments* (including FDI) in the domestic economy. One should mention that many new farming operators are closely linked with foreign investments, including technology and management transfer.

Above-mentioned «theories» have both causal and functional connections with each other. However, in our view, none of them taken separately can explain emergence of new organizational and functional agricultural formats.

## Materials and methods

We consider that at current stage the series of field studies would be the best and unavoidable approach to tackle the subject. It is both because of subject's novelty and very questionable state of the Russian agricultural statistics. The research method is the combination of empirical analysis, survey (interview and questionnaire) and (micro) case study approaches. The paper is based on the previous author's findings<sup>18</sup>, as well as discusses observations made during the most recent survey. Random sampled group of 16 agricultural production entities from 7 Russian regions (Belgorod, Krasnodar, Rostov, Samara, Saratov, Stavropol, and Voronezh) were interviewed during the period of second half of 2000 and first three months of 2001. The selection criteria for surveyed company were availability of non-agricultural owner or management company and separation of nominal ownership of land and assets from farming operations. Most recent formal investigation allowed confirm, make it more detailed and correct previous preliminary observations.

---

<sup>18</sup> Rylko, (1999)

## **New operators: main findings up-to-date**

### **13. Origin**

Out of 16 investigated companies in the most recent study, 1 was primarily established and partly owned by the commercial bank, 2 were established by input suppliers, 2 represented agricultural producers, 2 were established by non-agribusiness trade and industrial concerns and 9 belonged to agricultural commodity trade and processing companies. Half of entities could also be considered as joint venture of bank, input supplier, processing company, etc.).

About 2/3 of companies was established during the period of 1997-99, another 3 companies were established in 2000, and 2 companies were established before 1997.

While describing main reason for start-ups, the companies gave the following explanations: «we got tired of non-payback by farms and decided to control the whole production chain», «we wanted to receive necessary quantity of inexpensive quality raw material on a timely basis», «we thought that agriculture was a good place to put money in». However there was not a single reason mentioned. One operator expressed what was in mind of others: «We don't see any reason why agriculture in Russia can not be a highly profitable business. You only need new assets, new technology, new management and new people».

### **14. Size and scope of new operators farming**

Altogether 14 out of 16 investigated operators reportedly control (lease or owe) 516 Th ha of arable agricultural land, meadows and pastures. So the average land square directly controlled by the operator exceeds 36 Th ha. Meanwhile the average figure hide dramatic difference in the land size of operations. The agricultural land plots of investigated companies vary from 2 different plots to 2 Th ha each, to the agricultural «holding» company owing 19 collective farms in 2 regions of about 150 Th ha total square. It is in contrast with typical individual farm size of 50-150 ha and typical collective farm size of 4 to 8 Th ha.

In addition to direct land control, more than half of the studied companies provide custom farming service (2 companies are pure custom farming companies) on the approximately 100 Th ha.

One should note the dynamics of the farming operations by new entrants: most of those companies who entered sector two or more years ago managed to double and triple size of land under control.

The investigated companies represent part of group of the biggest and the most noticeable new agricultural players. Meanwhile according to our preliminary estimates, the total size and scope of new operational formats exceeds several million hectares of Russian farmland. The main operational areas are the most productive farmlands in North Caucasus, Central Black Soil and Volga Valley economic regions. We possess more or less detailed information about two leading Russian agricultural production regions which are pioneering in launching new operators formats: Belgorod and Rostov oblasts. According to the regional administration, in Belgorod new formats occupy at least 500 Th. of agricultural land, or ¼ of total farm land. In Rostov only 6 leading agribusiness companies control about 200 Th. of farmland. According to the rough estimates of the

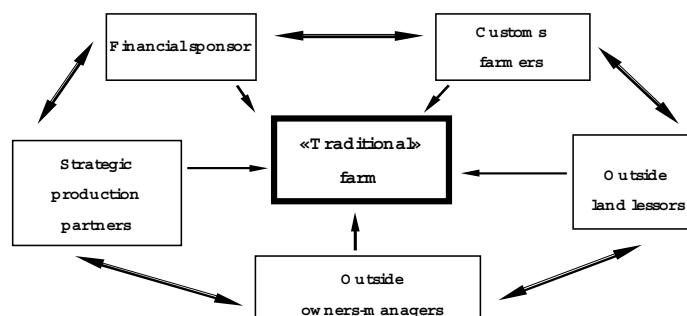
regional Ministry of agriculture, total «taken» farmland amounts to 1 Ml. ha, or 1/9 of total farmland.

### 15. Entry patterns and functions

We distinguish five principal entry patterns for the outside operator in Russia and NIS countries (see the scheme below):

- become financial sponsor of the farm
- enter joint production agreements
- render custom farming services
- lease agricultural land
- acquire farm' non-land or total assets.

**Figure 3. Entry patterns and functions.**



The ownership and control patterns, as well as functions of the «traditional» farms are being eroded and modified by outside operators. *Sponsored farms* occupy the intermediary position between «traditional» and «new» farms. «Sponsors» are wealthy non-agricultural entities. They do not directly control and owe farm assets and do not manage the farm on a daily basis. Sponsors typically bear the farm' financial non-performance risk. Their main function is to provide a guarantee before the creditor or invest in farming activities themselves (see the Table 21 below). The number of sponsored farms has grown after 1998 devaluation. They usually belong to the elite part of the Russian collective or private farms. Another indirect sponsor's function is to assist in transformation of the «traditional» farm into a modern operation. Under *joint production agreements* outside entities don't become owners of farm assets, but participate in farm production decision-making. Under *custom farming*, outside firm provides lacking production functions and partly bears the risks of crop failure and negative agricultural market developments. Under *land lease agreements*, outside firm absorbs production functions and takes the range of agricultural risks relevant and limited to the scope of leased land plot. *Acquisition of the farm* fully makes the firm agricultural producer.

Our study also revealed high degree of interdependence of all above-mentioned entry patterns. Out of 16 companies, 5 provided sponsorship, 11 leased the farmland, 10 provided custom farming service, 4 entered various joint production agreements and 4 acquired the whole farm. Total sum exceeds 16, as several companies were involved into 2 or more types of operations and functions. We did not find any strong connection between the sector origin of the company and type of agricultural entry.

**Table 21. Types of entries and economic functions of new operators**

<b>Types of entries →</b>	<b>Sponsorin g farms</b>	<b>Custom farming</b>	<b>Joint production agreements</b>	<b>Land lease</b>	<b>Acquisition of the farm</b>
<b>Functions ↓</b>					
<b>Farm ownership and control</b>	No	No	No	Through land lease	Yes
<b>Farm finance</b>	Yes	No	Yes, partly	Yes, relevant to leased land	Yes
<b>Inputs supply</b>	No	Yes, short term narrow range	Yes, complex solutions	Yes, relevant to leased land	Yes, long term, wide range
<b>Production services</b>	No	Yes, short term narrow range	Yes, complex solutions	Yes, relevant to leased land	Yes, long term, wide range
<b>Farm management</b>	Participate in strategic decision making	No	Yes, together with farm management	Yes, relevant to leased land	Yes, full range
<b>Marketing of farm products</b>	Strategic agreements with off-takers	Yes, relevant to harvest share	Production contracts. Strategic agreements with off-takers	Production contracts. Strategic agreements with off-takers	In the framework of vertically integrated operation

Below given is the summary of main findings regarding the new entry patterns and functions.

#### 1.1.2. Custom farming and emergence of «custom farms»

In Western meaning custom farming is described as the situation when an owner allows another person (legal entity) to come upon his or her premises to conduct farming operations. Custom farming is sometimes carried out by farm management company or

by an individual who is retained as an independent contractor and paid x dollars per ha to prepare plant, cultivate and harvest. The classical example of custom farming is activities of combine crews in the US that follow the harvest each year from Texas to Canada.

Custom farming must be distinguished from *cropping agreements*. The difference is marginal and is quite difficult to draw. Briefly to say, the croppers lay in between of farm lessee-operator and farm employee. In Russia share cropping agreements become widespread between top management of collective farms and neighboring private farmers, who establish informal agreements to cultivate the collective farm fields without registering formal lease contract. Another widespread practice, observed in South of Russia, is inviting outside crews (mostly Russian Koreans) to cultivate onions, melons and watermelons around still functioning irrigated fields. The type of informal social treaty is being concluded in this case between the top farm management, municipal powers (who mostly control the irrigation systems) and the crew leadership.

Over the recent years custom farming agreements have become very popular and quite wide spread in Russia. Although the very terms custom farming and cropping are not used yet. The relevant activities are usually associated with district *machinery-technological stations (MTS)* which are being established almost elsewhere.

#### **Box 1.**

According to the incomplete survey of Russian Ministry of Agriculture (several major agricultural regions did not provide the Ministry with the relevant data), in the year 2000 about 750 MTSs provided service on 11 M ha of farmland (measured in «conditional hectares») of the total value of about R1 Billion. Some MTSs provide only custom services to the neighboring district farms. Others are granted with the municipal or bankrupt collective farms land on a lease basis. There are strong debates around the later decision at the grassroots level: some managers argue that granting land to MTSs is financially non-viable and equals to establishing another quasi-collective farm and replicating relevant well known problems.

In reality the custom farming activities substantially exceed size and scope of registered MTSs operations. There emerged specialized interregional custom farming companies, which mostly specialize on the harvest services (in our survey there are 2 specialized custom harvesting companies). In between of seasons these companies are engaged in the first handle sales of commodities, which they collected during the season. There are a growing number of agricultural producers that provide custom farming services to their neighbors and even in remote locations. During the season several companies start operations in South of Kuban and finish harvest operations in the North of Central Black Soil region. In the Russian regions neighboring with Ukraine for the last two seasons there occurs an invasion of Ukrainian John Deere grain harvesters (combines are imported according to temporary import scheme). Ukrainian operators prefer to scalp higher yielded Russian fields.

There are both many similarities and fundamental differences between Western and Russian custom farming practices. In the west such a service is usually rendered as complimentary to active commercial farm operations: it is economically viable for many small and middle farms to hire an outside machinery crew just for several crucial field work or harvesting days, rather than to buy such a machinery. Outside service may also

be provided to those owners of farmland, whose main incomes are derived from non-agricultural activities.

According to our study, in Russia custom farming is mostly offered to the second layer of farms: average commercial farms (see the **Box 2**).

*Box 2.*

The commercial farm sector in Russia can be conditionally divided into 3 sectors:

- Relatively highly capitalized and profitable corporate and individual farms (about 5-10% of farms, depending on the region). These farms have relatively good access to state and private finance. They usually don't need and don't like custom farmers;
- Average commercial farms. This sector is biggest (20-60% of farms, depending on the region). They became marginally profitable after 1998 crisis. Most of farms have open banking accounts and have access to subsidized credits to finance working capital requirements. However they have practically no access to the farm machinery market and continue to use outdated Soviet machinery park. These farms are most intensive users of custom farming services.
- Technically and officially bankrupt farms. These farms are targeted by above described land leasees.

Custom farming operator is mostly paid in-kind and therefore must monetize the product on the market. Often the smart operator put a guard around the field during the ripening season. He provides not only his own harvesters, but also the trucks. The crop is delivered directly to the country elevator and then divided into two categories: in-kind payment to operator and field owner's share. These technologies allow operator to protect his share in the crop from both a theft, fraud and claims from other farm's borrowers. Thus, on one hand, to be successful in Russia, custom farming company has to consider and bear more risks and get involved into much deeper relations with customer and perform more functions. On the other hand, there emerge a layer of «*custom farms*», or those farms which rely mostly on the outside services.

It raises the issue of who is real agricultural producer: technically bankrupt farm, or outside operator (such as MTS), that provides most of farming activities and takes care of marketing of farm products a year round. Current legislation does not allow MTS to be registered as agricultural producer and enjoy numerous tax benefits (including profit tax relief). It stimulates development of hidden (from tax authorities) operations.

In Western countries custom farming services are usually priced per square unit of land cultivated or per hour of agricultural machinery work (for example, grain harvester/hour). The later option allows take into account «strong or soft» straw and other factors. In the framework of emerging Russian custom farming practices they use sharecropping approach as the most simplistic. Other companies deploy «*fixed in-kind*»: say, 0.6 tons/ha of wheat if the yield is less than 5 tons/ha and 0.65 tons/ha if the yield is higher than 5 tons/ha. Most advanced custom harvest operators deploy «*fixed in-kind*» combined with sharecropping: the operator takes fixed share of the crop per ha, but not less than a fixed minimum amount. Such an

approach is widespread on small and row grains field operation. Russian sugar beet harvester operators usually use «fixed in-kind» approach.

Unlike the relatively very cheap land lease prices (see below), the custom farming rates in Russia are relatively high. One of the explanations is that in Russia the demand for custom farming services is highly unsaturated and relationship between owner of the land and the outside operator are unbalanced to the benefit of the operator. Another factor is connected with relatively low yields. Because of low yields custom farming companies have to take a substantial share of the harvest to cover the expenses and make profit (if they deploy share-cropping approach).

We made a comparative study of current Russian and US custom farming rates (see the table). It demonstrates that for some activities the demand on custom service is so unsaturated that the actual rates (if to convert in-kind into money equivalent) are equal or even higher than in the US. Such situation is now typical for the harvesting operations (see the **Box 3**). «Last year we started harvesting winter wheat by 8 Niva combines with the yields amounting to 3,4 tons per ha – complains one of collective farm managers. - We finished harvest with 4 remaining harvesters (4 were broken) and 1,7 tons per ha yields, because half of crop was already lost on field».

### **Box 3.**

In Western Siberia a major milling company has acquired grain harvesters and started to serve neighboring farms. It charges 30% of the crop harvested in case the producer decides to market the grain independently. But the proportion decreases to 25% in case the farm agrees to channel all its grain harvested through the mill (either in form of sale, or through a tolling agreement). In South of Russia the harvest service proportions look «less extortionate»: from 13% (Russian harvesters) to 25% (Western combines for corn for grain) of operator's share in the crop. One of tricky points is optional deployment of bunker or C&D weight approach.

For other field operations most of farms still prefer to deploy owned inherited Soviet park of tools and machinery and custom rates are much lower.

**Table 22. Custom farming rates, USA and Russia, \$/ha\***

Field works	US		Russia	
	Typical range in rates	Average rate	Typical range of rates	
Deep ploughing	5-40	15	10-14 to 18-22*	Widespread
Disking	4-30	12	5 to 17**	Widespread



Pre-emergence harrowing	2-14	5	4 to 9	Rare
Cultivation	2-20	8	4,5 to 17**	Rare
Hoeing	3-16	8	6 to 14	Rare
Row crop planting	2-26	13	5,5 to 8**	Rare
Minimum tillage drilling (wheat)	4-32	18	5 to 8	Rare
Spraying	2-24	6	4 to 6	Rare
Harvesting row crops (corn, sunseeds), direct combining	14-50	30	Sunseeds: 40 to 60* Corn: 70 to 90*	Widespread
Harvesting wheat, direct combining	8-65	NA	45 to 60	Widespread
Harvesting sugar beet, including topping and lifting	45-130	80	105 to 120	Widespread
Custom farming, small grains (all necessary field operations, from field preparation through harvesting)	31-200	80	100 (minimum till) to 135 (traditional)	Rare
Custom farming, row crops (all necessary field operations, from field preparation through harvesting)	40-240	100	160 (minimum till) to 205 (traditional)	Becoming widespread

\* depending on who provides fuel: custom operator or the farm.

\*\* depending on foreign or domestic equipment, source of fuel and single or double operation.

US - North Dakota; Russia - South of European Russia. Most of Russian tariffs were transferred from crop sharing and in-kind rates.

Source: US: Aakre (1999), Russia: author's estimates based on industry sources.

We suggest that in the future Russian custom farming companies to establish a rate of sharecropping depending on actual yields. For example, if the yield is 5,0 tons the share of the operator would be 15%; 4,0 - 20%; 3,0 - 25%, etc. It will gradually

lead to the same principles of price formation that Western companies use for many years.

The current custom farming practices in Russia are mainly focused at one-phase harvest operations. We believe that in the nearest future multi-phase, including complex sowing operations will become a wide spread custom farming service. It is very advantageous to utilize foreign-made minimum and no till air and precise drills as this technology improves yields and cut fuel costs substantially. For example, introduction of the modern minimum-till seed drill complex in comparison with the traditional Soviet technology cuts a fuel consumption during a whole sowing campaign up to 4 times, improves yields by 10% at least, and, if properly exploited, brings enough cash to pay back after one calendar year. We already observe several agreements not only between custom farming companies and traditional farms, but between custom farming companies and land lease companies on providing seed drill services in sowing campaign.

### 1.1.3. *Joint production or partnership agreements*

Joint production or partnership agreements (dogovory o partnerstve or sovместnoi deyatelnosti) include wide range of arrangements with farms exercised by input suppliers and buyers of agricultural raw materials. They can be considered as modification of *production contracts*, which are well-known in Western agricultural economies. However in Russia such contracts envisage direct participation of the contractor in production process and risk sharing. In the framework of a typical joint production agreement non-agricultural firm provides to the farm industrial inputs, technology, management services. The variety of crop is also fixed. The harvest is typically shared according to the cost of resources provided by farm and outside company, so crop failure risks are shared as well. Such arrangement allows contractor control the raw material production without getting into too costly and demanding land leasing.

Another emerging approach is combining land lease and joint production agreements. The outsiders are leasing the collective farm land and providing purchased inputs (fuel, fertilizers and rarely seeds). The collective farm management is responsible for cultivating the designated crop with owned machinery. In some cases outsider arranges harvesting by custom operator. Such scheme allows second and third layer farms (according to our breakdown mentioned in Box 2) getting access to working capital finance.

One of most disputable areas of joint production agreements is proper evaluation of land as factor of production. The evaluation of

land according to the official «normative» price tends to underestimate this resource to the benefit of the non-agricultural company.

1.1.4. Land lease

We are not in a position to describe all aspects of land market and land lease issues. Our task is to concentrate only on new operators as one of driving forces of developing land market in Russia. As well documented, during state and collective (sovkhozes and kolkhozes) farm sector privatization in Russia (1993-96) the farmland was mostly «privatized», or divided into, so to say, «virtual» land shares among numerous farm employees and pensioners. Altogether, 12 millions of nominal land shareholders emerged in the country<sup>19</sup>. Then the new land «owners» had basically three options: leave the «mother farm» and start farming themselves, lease out the virtual land shares to the «mother farm», or «invest» land share into its charter capital. In most cases, new owners were to lease land, rather than «invest» it back to the newly established collective enterprise.

We consider that introduction of the term «*mother farm*» (materinskoye khoziaystvo - privatized collective farm whose non-land asset owners possess nominal land shares) would be useful. The situation when the land is leased out by nominal land share owners to the «mother farm», may be called as «*internal*», (or pseudo) leasing. Contrary, the situation when the land is leased out to outside operator, may be considered as «*external*» (or real) land lease relationship. We concentrate only on real land lease to outside operator.

Out of 11 investigated operators who entered the land lease agreements, 5 lease land from individual land share owners, 2 use sub-lease and direct lease agreements with the «mother» collective farm and the rest entered mixed types of agreements (including leasing land from municipality), depending on the spot conditions.

The main identified problem and reason for numerous complaints is organizational, economic and cultural complexity of the entire process of farmland lease in post-privatized Russia. The sizable formal land lease agreement usually requires informal chain of approvals of the deal by the rural district authorities, head of «mother» collective farm and dozens and hundreds of individual nominal owners. Then the operators sign numerous individual land lease agreements, or one multiple side framework agreement with nominal landowners. One of key problems is that even if you are to lease a single individual field, you have to deal with all nominal landowners written to the «mother farm». Meanwhile «after several years of solving problems we prefer to enter lease agreement with individual owners», says one of operators in Rostov oblast. «They are finally more reliable and less capricious lessors than collective farms and local authorities». One of explanations is that institutionalized (with farms and authorities) lease agreements are often accompanied by kickbacks, which makes the deals risky and vulnerable.

---

<sup>19</sup> Uzun (1999),

In the framework of general lease treaty most operators get into more specific individual agreements, such as providing firewood and coal to villagers, machinery to plant potato on individual plots, trucks to deliver produce to farmers markets, feed concentrates to feed household livestock and poultry. In one case the operator (daughter firm of huge oil and gas company) provides seasonal gifts to the rural war veterans, transport them to district hospital etc.

Several authors described the difficulties and problems occurring in the process of land ownership rights registration<sup>20</sup>. Our study shows that in 3 cases the new land lease entrants/operators provided legal and organizational support to nominal landowners to register land ownership rights and to receive the official land certificate from local authorities. In 1 case the new operator had to gift personal PCs to the local office of land committee trying to speed up lengthy process of registration. New entrants can not create background without such arrangements to legalize and formally fix their land lease rights.

Thus it is quite obvious that current practice raise entry barriers and increase the total transaction cost of farmland lease in Russia.

In some identified cases, *the land lease rights serve as the mode of payment*. For example, input supplier granted an in-kind fuel commercial credit. The farm agreed to pay back in a form of land lease agreement. In another case the farm paid in a form of land lease agreement for the custom sowing provided by the operator.

The questioned operators try to establish the longest possible land lease arrangements. Among 11 companies, 2 had from 3 to 5 year land lease agreements, 5 had 5-15 year agreement, 2 had 15-25 year agreement and 2 – 25 to 49 year agreement. The agreements are quite simple. Most envisage crop rotation rule and «land preservation methods of agricultural production».

Krylakh's paper provides good observation of the general land lease risks in Russia. It suggests signing longest possible land lease agreements and build-into inflation compensation as risk management tools for both lessors and lessee.<sup>21</sup> As it is seen, operators manage to achieve long-term lease agreements. However it does not mitigate the risks for both parties substantially. The efficient mechanisms of lessors' protection against fraudulent operator's behavior, as well as protection of lessee's long term investments into land must be designed and implemented.

The practice of agricultural municipal land lease, including land lease pricing, is well documented.<sup>22</sup> The private «true lease» arrangements are much less studied yet. *Crop-share* and *cash rent* agreements are two basic land lease types in developed market economies. Surprisingly enough, Russian private agriculture has quickly developed the whole range of adequate solutions for the current complicated situation. They use both crop-share and cash rent agreements, but with Russian specifics. Most agreements are fixed in in-kind. In the developed market economies, sharecropping agreements are typically used when the owner of the land shares some production inputs with the lessee-

---

<sup>20</sup> Uzun (1999)

<sup>21</sup> Kryladykh et al (2000)

<sup>22</sup> Kryladykh et al (2000)

operator. In Russia sharecropping is quite popular in pure land lease agreements with individual nominal landowners. Both sides may believe they are better protected against inflation, theft and unnecessary transaction costs. However there is a great risk that lessee will not utilize land properly or cheat the lessors (we were witnesses of such cases already). Besides crop-share, another popular arrangement is what can be called «*guaranteed kilogram rent*»: rent agreement fixes quantity of specified crop to be delivered to the individual nominal owner by a set date.

In our study in sharecropping agreements the lessors' share varies from 5% (2 operators) to 10% (4 operators) and 15% (1 operator). In 4 cases the lessee pays fixed amount of grains per land share.

The typical range corresponds to \$15 to 32 annual price per one ha of high quality non-irrigated black arable land in South of Russia (if to calculate approximate value of in-kind payment), or about 40-60% of comparable land lease prices in Hungary and 10-15% in the US. Such a low current land price equilibrium is obviously caused first of all by low opportunity cost of the farmland. In many, if not most cases the leased land would have not otherwise be utilized. . This observation is confirmed by the quite paradoxical tendency of growth of lessors' share from least productive to most productive geographic spot locations: in Samara, Belgorod and Saratov lessors typically get 2-10% of crop equivalent, in Rostov – 10%, and in Krasnodar from 10 to 20%. Apparently even the modest demand for land leads to increase of the land lease price (Figure 4). This observation to be confirmed by more in-depth studies.

**Figure 4. Predominant lease rates, 2000\***

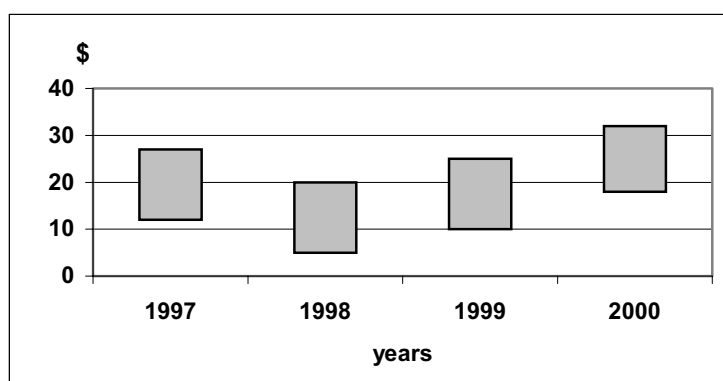


\* Per ha of arable land.

Source: Author's estimates based on converting in-kind payments into \$.

Other important factors of land lease price formation: degradation and diminishing land productivity, relatively low agricultural prices (after devaluation), and, finally, high transaction cost and foggy legal environment. In addition one should mention that after devaluation the price of land in South of Russia tends to grow (Figure 5).

**Figure 5. Range of typical land lease rates\***



\*South of Russia, \$ per ha of high quality black soil arable non-irrigated farmland.

Source: Author's estimates based on converting in-kind payments into \$.

Nevertheless, preliminary study suggests some positive social outcome of new entries. In studied examples, the dollar equivalent per land share ranges from \$60 to about 240, or about 2 to 8 monthly Russian pension installments. The invasion of new operators also supports the development of individual livestock sector. Usually the payment for land lease is made in feed grains: feed wheat or barley. It well suits with the household and subsistence plot economy needs. For investigated companies the range of in-kind feed grain payment was between 35 kilo/ha (Samara, per 20 ha of land share) to 450 kilo/ha (Rostov, per 4 to 7 ha of land share).

In general, our previous two-year old observation is fully confirmed: the quasi-market of agricultural land lease is emerging in Russia, especially in the South of the country, although the transaction costs and risks for both sides remain very high. The previously expressed apprehensions about massive short-term selfish exploitation of Russian land reserves<sup>23</sup> by new entrants are, luckily, not confirmed yet. The operators tend to arrange longest possible lease terms and invest into leased land to achieve long-term economic benefits. The need in consolidation of land assets and establishing more simple and transparent land right registration is very high. The highest priority is launching an efficient legislative mechanisms and enforcement for protection of both lessors and lessee's rights. Current foggy legal and organizational environment provides benefits to biggest land lessees.

Paradoxical indirect result of land lease arrangements by operators is development of subsistence (family) livestock sector (to be further studied).

The well-tested in western economy instruments and forms of land lease by operators must be promoted in the country, including «discrete lease» agreements, etc. We also suggest launching combination of share-crop and guaranteed kilo/ha rent agreements, as it is done by most advanced custom farmers. Such agreements would be probably most adequate for current Russian situation (to be further studied).

<sup>23</sup> See Rylko (1999), Read (2000).

### 1.1.5. Acquisition of the farm

Farm acquisition can be considered as a separate and, in some way, most demanding way of getting into agriculture. Out of 16 investigated operators, 4 already acquired non-land assets of the farms and two of them managed to acquire the land too. In most cases the firm acquires non-land farm assets and in parallel gets into long term lease agreements with nominal land shareowners. So, again, the very term «*farm acquisition*» must be used very carefully in Russian conditions.

The acquisitions take place against the background of unsatisfactory and foggy federal bankruptcy law related to agriculture, as well as perpetual postponements of general farm debt restructuring<sup>24</sup>.

The «target layer» of typical takeover is insolvent technically bankrupt farms, although there are attempts of «hostile takeover» of financially healthy enterprises with good cash flows. Again, the latest takes place because of insufficiencies of the Russian bankruptcy legislation and its applicability to farm sector.

Of course, the key question is what to do with bad debts. There emerged several practical ways of how to solve the problem. Some of the solutions are not fully in line with (foggy) Federal legislation, but are approved and supported by the regional and local authorities.

In some cases outside company takes the farm before formal bankruptcy. Under this scenario, the bad debts are usually paid by the investor or transferred to its account and restructured. In Rostov oblast there were no yet positive examples of efficient bankruptcies of agricultural enterprises (against the background of launching bankruptcy case against dozens of agricultural enterprises). Instead, the takeovers are combined with splitting off the insolvent farm. The numerous nominal owners of non-land farm assets vote for establishing another enterprise and transfer best still functioning assets into new venture. The non-functional assets and debts remain on the balance of «mother farm», so to say. Thus the nominal owners become shareholders of both companies. Then the non-agricultural firm takes new company and puts new management. The local and regional authorities are not against this solution, as instead of bankrupt non-functional entity with arrested banking accounts the functional tax paying entity is established.

Another emerging farm takeover practice is as follows. The company-operator (say, custom farming firm) invites nominal land shareowners of the insolvent farm to establish new company. The landowners contribute the land shares into equity capital.. Through contributing agricultural machinery and intangible assets the sponsor - outside operator - gets a controlling stock of new company and puts his management team. In parallel the joint production or partnership agreement is being signed with the old «mother farm» to be in a position to utilize fuel storage, shelter for new farm machinery, etc. The limitation of such a model is availability of sponsor, as well as unanimous decision to welcome such a friendly takeover on the part of landowners and old farm management.

In Belgorod oblast the most radical solution was catalyzed and strengthened by a special decree of the Governor<sup>25</sup>. According to the Order, all bad farm debts of insolvent

---

<sup>24</sup> See in more detail Yastrebova, Oyen (1999), Stokov et all (2000).

<sup>25</sup> See Belgorod Governor Order (1999)







New owner tries to start up the deep restructuring of the farm, including change of management and labor cuts, and heavily invests into both working and fixed assets.

Nevertheless, during recent years non-agricultural corporations are taking the farm assets in one way or another.

#### 1.1.6. Vertical integration

Some farm acquisitions and related innovations resemble what is so well known in the West as *vertical integration* (in formal legal and organizational meaning). However one should warn against too direct parallels, otherwise there is a possibility of term manipulation. One should at least distinguish Russian features of «vertical integration». In the West the company-integrator takes highly specialized commercial farm to gain control over the specific raw commodity flow and other factors of the narrow vertical commodity chain. In Russia the specialized processor or input supplier takes highly diversified collective farm, with complicated multi-crop rotation, which is involved into production of dozens commodities. New owner must take care for all commodities grown, or dramatically modify the shape of the farm, including crop rotation and livestock operations, which requires substantial investments. Second big difference is «hanging» social infrastructure component and numerous informal social responsibilities before villagers (peculiar rural «social treaty»). Finally, comparing to the Western agriculture, the integration processes take different shapes and involve different vertical commodity industries.

### **16. Product specialization and production models**

New operational models are widespread in most liquid and profitable agricultural commodity segments. For studied operators, the most popular crops are sunseeds, milling wheat, corn and sugar beet. There are examples of growing other small grains, specialty crops, vegetables and potato seeds. In livestock sector some slaughters captured feedlots of technically bankrupt collective farms. Dairies get into complicated type of joint production agreements with raw milk producers. Below given are few examples of vertical sector arrangements made by the new operating companies.

#### 1.1.7. Small grains, corn and oilseeds

In Western countries grain and oilseed industries are least integrated branches of the agricultural economy. The current Russian peculiarity is focus of new operational models and integration novelties in grain and oilseed sectors. In our view such concentration can be explained by combination of two factors:

1. Relative comparative advantage of grain and oilseed production over other crops and livestock production,
2. Incomplete market situation and lack of classical risk management tools, associated with functioning of futures market industry.

Part of European, South Ural and even Western Siberia Russia has a substantial comparative advantage over many other world agricultural production regions: one can grow both small grains and corn and oilseeds (sunseeds). It allows extend the production season and utilization of agricultural machinery for a long time. As an example, in South of Russia the grain harvesters can be used from the end of June to the middle of November. The seed drills can be used both for spring and autumn sowing campaigns. That is why even specialized local crushers and millers are getting involved into diversified agricultural production and long season field operations. The preliminary technical analysis shows that Russia possesses short and long-term comparative advantage regarding small grains and sunseeds (to be further studied).

#### 1.1.8. Sugar beets

In sugar beets, each of 5 major Russian processors is trying to launch complex raw material base development projects, although the total agricultural investment is still quite modest. Most widespread approach is establishing MTS by the sugar refineries and getting into the land lease agreements. As an example, one of companies acquired used foreign machinery complex and got into arrangements with major foreign fertilizer, agricultural chemical and seed companies. In the year 2000 the crop was sown around the factory in Kuban kray on the 500 ha. Total investment (fixed and working capital) amounted to \$1,3 M, or \$2,4 Th. per ha. The average yield was 45 tons/ha (clean factory weight). The total operating income amounted to \$300 Th. Inspired with this result, in 2001 the company is developing a similar project by another factory in Central Black Soil region. The plan is to triple total agricultural field by the year 2002.

#### 1.1.9. Dairy

During 90-es the Russian commercial dairy sector has undergone dramatic cut of dairy herd and milk production. Recently the tough competition for raw milk among 4 major processors (3 of which represent leading European brands) has stimulated massive invasion into raw milk production. Major Russian dairy concern managed to purchase farm equipment on deferred payment agreement against the partial guarantee of the foreign equipment manufacturer to the foreign bank. Then the equipment was rented out (5 years rent-to-purchase agreement) to the local collective farms – traditional and most reliable milk suppliers - which agreed to participate in the project. The payment is being exercised in scheduled installments in raw milk. Inspired by promising results, the concern is to replicate the scheme in several other regions.

The World Bank's IFC is developing slightly different scheme. IFC, bank and food manufacturers to lease out the farm equipment to pre-selected reliable raw material suppliers are establishing the separate agribusiness leasing company.

## 17. Organization, management and labor issues

The studied companies deploy wide range of approaches to farm project management and labor issues depending on the positioning in agriculture. Biggest companies, those operators which captured dozens thousands of farm land and invested in the range of farms, try to put together «agricultural holding» companies. This process is just at the beginning of its development. The natural limiting factor is lack of satisfactory domestic holding company legislation, and in particular, double taxation issue. Another barrier is the Presidential Decree of 1992 putting formal limits on the establishment of agricultural holding companies. So in reality all studied «holdings» are informally and formally affiliated entities.

It is typical that the top management of companies don't have any agricultural background and represent what is called «new Russian» strata. Top marketing and finance specialists either urban self-made or have general non-farm education as well. They usually hire technical advisors/specialists with agricultural technology education to suggest what should be done on farm in terms of technological process. At the grass-root level the best available managers are being selected in the village or from the neighboring town.

The farm machinery drivers and technicians are being selected among the most reliable villagers (one operator daily brings combine and tractor drivers from the regional capital, 40 miles away from the farm fields). The custom farming companies often hire urban engineers or technicians to manage the agricultural machinery stations. Our study confirms other authors' concerns about the quality of rural population and extremely scarce availability of what can be called «rural human capital» as one of most important economic growth limiting factors. All 16 companies studied complained about dramatic difficulties with availability of the qualified and reliable work force. There is a very scarce availability of modern farm managers, bookkeepers and economists. Several companies (especially run by the foreign companies) complain about lack of highly qualified agronomists (to be further studied).

The apparent net result of the new operators' invasion is dramatic cut of nominal farm labor (to be further studied).

### Input markets and new operators

Unlike the Russian agricultural marketing system, the organization and performance of domestic agricultural input markets have been quite poorly studied over the last several years, both in terms of collecting empirical data, and analysis.

Briefly to say the state of agricultural input markets in Russia may be characterized as *thin* and *incomplete markets*. Moreover, the term *incomplete market* is not exactly right, as we have been dealing not only with the lack or *limited availability* of key market components, tools and mechanisms, but with often *market-unfriendly* federal and regional government activities. The market incompleteness and deviations from modern input market characteristics can be conditionally grouped into two broad categories:

- Underdevelopment of three crucial market components: *institutional (firm) structure*, *capital markets* and *physical delivery channels*,

- Underdevelopment of supportive market infrastructure.

The modern input market *institutional structure* is characterized by the oligopoly manufacturing industry structure (including full access to international suppliers), developed private dealership/distributorship network and strong end user customer base. None of these components has been readily available in Russia since the early 90-es. The start-up market conditions were characterized by monopolistic structure of domestic enterprises, lack of private dealership/distributorship network and end users without any market experience and credit history.

The experience of developed market economies makes us believe that the agricultural machinery markets are not so much *goods markets*, but *capital markets*. Availability of long term finance and relevant institutions, schemes and tools, is a crucial factor. In the developed countries most of machinery deals are done on deferred payment conditions coinciding with the normative term of equipment utilization. In Russia none of banks or state leasing programs has been able even to consider such a long-term finance even to most trustworthy clients.

The experience of developed market economies makes us also believe that the agricultural input markets are *service markets, oriented at the profit maximization at the users level, along the vertical production chain*. There has been no an efficient agricultural input service and delivery pipelines in Russia.

Besides three crucial components, the domestic input market participants have faced underdevelopment of other supportive market infrastructure elements, directly or indirectly related to input markets, such as:

- secondary finance and liquid markets of used machinery and spare parts,
- market information and product promotion systems (such as carrying out and publishing results of official comparative agricultural machinery testing, etc.),
- ownership and collateral rights protection legislation,
- crop failure risk mitigation tools and instruments (crop insurance and crop disaster payments),
- commodity price forecast and hedging possibility (through futures markets),
- reasonable and transparent government input market regulations.

During 90-es many domestic agribusiness administrators and scientists have constantly complained about the cost-price squeeze and lowering state financial support as the key factors of diminishing input supply and consumption. The preliminary analysis make us believe that above briefly described *incomplete market* situation was of not lesser importance to make the transfer to the market system extremely painful and difficult.

Nevertheless, during 90-es many positive developments have taken place. Due to general economic reforms and market liberalization the domestic agricultural producers and other market participants got a freedom to integrate into the world agribusiness system. It is well seen on the example of the domestic crop protection industry.

To study the vertical commodity sector we dwell upon three major market components: *institutional structure*, *financial mechanisms* and *delivery (marketing) channels*.

The agricultural chemicals industry is one of key integral components of the modern commercial agricultural production. Because of approximately 4-fold cut of supply in 90-es, the Russian agriculture annually loses hundreds or even billions dollars caused by locust and bugs invasions, various crop diseases, etc.<sup>28</sup>.

The crisis conditions of 90-es caused substantial deterioration of the industry performance. Against the background of cost-price squeeze shock of early 90-es, most of commercial farms shifted to *minimum purchased inputs* production pattern. The udelnaya chemicability of the Russian crop protection industry (the ratio of the cost of pesticides to commercial farm sales) has decreased from ??? in to ??? in the end of 90-es, which is ??? times lower than in the US. Furthermore, among purchased inputs producers tend to cut those items that – they have believed - are of lesser importance. The typical farm purchase priority list is as follows:

- fuel and lubricants,
- seeds,
- custom harvest service,
- «ambulance» agricultural chemicals,
- fertilizers,
- agricultural chemicals, etc.

Most of farms had been cut from banking finance and shifted to the long barter arrangements (agricultural commodity in-kind payments against pre-harvest either in-kind or subsidized banking credits). The production discipline («agrotechnology») had been deteriorated in parallel with hard assets amortization. The farm debt pay back discipline was not traditionally high. In 90-es the farm managers had in mind their own virtual priority lists of pay back: first to private fuel and seed suppliers (otherwise there will be no fuel and no sowing activities next time), second to custom harvest operators, then to the regional government.

In parallel the technology of «beating out» the debts from farms by input suppliers and creditors had been developed. The methods ranged from sending the automatic gun groups to fields by oil and gas companies to arresting all debtor's grain at local elevator by tax police. Thus among the lenders the agricultural chemical industry was shifted to secondary positions.

Another peculiarity of the crop protection industry was connected with its closest relation to foreign input markets. The Russian crop protection industry has traditionally been depended on imported end products (including active and bulky ingredients, bottles,

---

<sup>28</sup> According to the rough estimates, only insufficient treatment against clinch-bugs causes annual incremental losses amounting to \$150-180 million.

packages, labels, etc.), manufactured by the narrow group of leading multinational agrochemical companies, such as Novartis, Monsanto, Dow Chemical, DuPont, Aventis, Zeneco, Sumitomo, etc.. Several Russian chemical plants made narrow number of analogous products, but these products could not compete by quality with imported materials and were abandoned. The «requirements» from the farms on individual pesticides were collected at the district and then regional level and then corrected and confirmed by the central government. By the beginning of 90-es all import was exercised through the single state owned company. The purchases were made either on full prepayment conditions, or on federal government guarantee. The chemicals were delivered in end-user form, ready for on-farm application. Internal domestic delivery was exercised through 5 state owned central licensed wholesale warehouses to regional warehouses by the state crop protection stations and agrochemical service enterprises or collective farms. To facilitate transactions, each foreign company had a small rep office in Russia, run by expatriates. There were no wholly owned Russian firm or joint venture belonging to foreign agrochemical companies.

During 90-es the centralized system of importation has been substantially modified. Between beginning of 90-es and 1998 (financial crisis) following liberalization of domestic markets, foreign companies started to register domestic wholly owned companies to be able to carry out business operations in the country. The network of specialized chemical warehouses had been organized. Instead of single delivery channel at least 5 (conditional) market channels have emerged:

- Centralized (quasi) state purchases,
- Sales to firms, authorized by regional governments,
- Direct sales to the end users,
- Sales through project finance activities,
- Sales through newly emerging private distributors.

*Centralized federal state purchases.* This channel was gradually losing its market share and volumes due to shrinking federal budget allocations. Initially the Agrochimexport (state authorized corporation) was responsible for 100% of importation. The pesticides were distributed through 5 central warehouses that were given a fixed gross margin for their services and could not change the price. In middle 90-es an important novelty was introduced: Russian government placed a tender with foreign suppliers to make the end product in Russia from the intermediary formulations. Several Russian chemical plants were qualified to add value to transform raw material into the end user form. Agrochimexport leadership concluded individual agreements with selected foreign companies, followed by signing license and technical agreements with Russian plants. So the chemical plants became the counterparts of those foreign companies who won the agreements. The responsibility of selling ready pesticides to the domestic customers was shifted to the plants.

Another turning government decision was made under the pressure of domestic chemical and agricultural lobbies. Reflecting emerging difficulties of selling end products from Russian chemical plants, the government launched *agricultural producer subsidy* related to those pesticides that are transformed into end user form in Russia. Outwardly the double purpose of the decision was both to encourage foreign companies to add value in Russia and make pesticides available to a broader range of domestic farms. The product production quota and subsidy level were established so that the wholesale price difference between imported and locally bottled pesticide amounted to about 40%. As the result of this decision, the crop protection market was divided into *two unequal competitive segments*: subsidized and non-subsidized (directly imported) pesticides.

Some foreign companies decided to join this quasi-state program. They managed to achieve relevant agreement with Rosagrochimexport and started delivering in Russia intermediate components for traditional generic or branded products. Others were unable to win competition for participation and were moved to market peripheral. Many established popular on the Russian market product lines did not join the program because firms could not afford to disclose production secrets or it was economically nonviable and risky. Due to budget constraints the feds gradually cut both the number of products allowed for the participation and subsidy. In addition for participating firms diminishing payment discipline on the part of the domestic chemical plants has damaged the attractiveness of the market channel.

In general by the 1998 the share of centralized purchase channel amounted to about 30-40% of the total crop protection market.

*Sales to authorized by regional government firms.* Another noticeable channel was sales to the operators appointed by the regional governments (usually these were private companies, appointed to collect the farm in-kind debt before the federal, regional and municipal governments). The sales were exercised against rather modest prepayments and the rest covered with regional budget or operators' guarantees (in case when the regional operators were well capitalized firms, such as oil and gas providers). In some exceptional cases even district guarantee letters could serve as payment security. Usually no additional security was required. In the framework of this scheme the products were imported, put on the firms' domestic warehouses and channeled to the regions.

*Direct sales to the end users:* biggest and most profitable farms. This channel was quickly gaining an importance before the crisis among all multinational chemical companies functioning on the Russian market. For some firms its market share amounted to 50%. The firms were intensively searching in the regions trying to identify and establish business relationships with strongest and trustworthy collective farms and most capable individual farmers. Neither credit history track, nor credit rank agencies were available. Local banks did not know themselves or were reluctant to provide such an information. As to official farm financials, firms were aware that it did not mean much or could be easily falsified. So firms had to rely on rumors, interviews with neighboring farm

managers and district officials (who played very important liaison role), outward look of farm and intuition. The payment scheme was even less reliable than for regional governments: modest prepayment, and commercial credit terms for the rest of debt. No collateral usually was required, as firms did not believe in the Russian legal system and decided to cut paper work and other transaction costs. «On a simple market only simple solutions can work», managers said. In general the rate of payback was quite satisfactory, but the layer of participating farms was very thin, and transaction cost very high.

*Sales through project finance activities.* Selected foreign agrochemical and agribusiness firms stepped further into pilot project finance arrangements. The reasons for such a decision were different. Some companies did not have the broad spectrum of pesticides covering all farm's seasonal and product line spectrum. Therefore they had to attract potential buyers with something else: complex technology solutions. Other companies badly needed selected high quality raw materials. Another motivation was to break above described («last in line creditor») farm behavior model, becoming a «*single creditor*» for the farm.

Nevertheless, such companies as Monsanto, Cargill, Hydro Agri (Norwegian multinational, involved into fertilizer business) and some others went into project activities. Monsanto launched «*direct to farm*» project, which envisaged delivery on farm of entire minimum till «*technology package*», including field machinery and pesticides. Cargill went into strategic partnership with Monsanto and launched «*farm gate*» project, which besides Monsanto's components envisaged delivery of fertilizers, hybrid seeds and fuel. The projects envisaged agronomic and agrotechnology support.

The results of the pilot projects were mixed. The transaction cost was extremely high. Besides costly farm pre-project due-diligence, firms had to be involved into purchase arrangements and coordinated deliveries of agricultural inputs to each commercial farm, and then taking possession and monetization of harvest. In addition, farms did not keep enough loyalty to the firm: if one of ingredients was cheaper on the market, they immediately jumped on it, so that project integrity was violated. Finally, much expense was associated with protecting collected crop from other creditors, including tax authorities.

*Sales through newly emerging private distributors.* Developed network of distributors/dealers is one of key preconditions for efficient agricultural input delivery system. In developed market economies it is the leading institutional and physical delivery channel. However in Russia it has not initially existent. The privatized domestic delivery chain (regional crop protection stations, etc.) could not serve as the background for private distribution network, as they were staffed with state bureaucrats and technicians and did not possess necessary market motivations. The private distribution network started to emerge only by middle 90-es. Some companies, such as Zeneco and Sumitomo (that had not had long-term roots and substantial lobbying power in Russia), decided to rely on and support the newly emerged private distributors. Others followed such an approach on a slower pace. The distributors were mostly regional companies having been able to establish specialized agrochemical warehouses and obtain all numerous licenses and permissions. The arrangements with distributors were mostly stronger than above mentioned: high or full prepayment. However distributors were given substantial discounts from the list price. Dealing through distributors allowed



agrochemical firms widen the local customer base. The distributors were in a position to make farm due-diligence and take all farms' non-payback risk on themselves.

Thus in general the whole industry was working mostly on non-banking finance arrangements and without secured transactions in place.

The 1998 financial turmoil substantially damaged above described system. There occurred problems with the government paybacks to participating agrochemical companies (because the pesticide prices were fixed in dollars, but farms paid in 4-fold devalued national currency). The same problems caused massive non-paybacks along all quasi-private and private delivery channels. The core agrochemical companies' cumulative bad debts exceeded \$150 million, or equivalent of annual wholesale product value.

The comprehension and adjustments to changes were numerous along the whole vertical chain. Big changes took place in the framework of quasi-state channel. The federal government still runs its producer subsidization program, although the range of participating products was cut and they are limited to so called strategic reserve items. The level of subsidies was differentiated according to special criteria (again, it did not make the price discovery system more efficient). In general the share of the quasi-state channel decreased to estimated 15-20%.

The federal producer subsidy program is being heavily criticized by most of market participants, including even by participating domestic operators. «We may be selected to participate during this year, but they can kick us out in another, says the manager of one of biggest and most successful domestic operator. – everybody must be in equal conditions».

Another important market insufficiency is widespread availability of generics and «gray generic» products. «Gray generics» are those products which are sold without authorization of the license owner, which can be classified as violation of authorship rights. These products are mostly delivered from China and India. End users buy these products because they are much cheaper than branded ones. On the other hand, the net effect of their application is extremely questionable, because of bad or unknown quality and safety parameters.

To cut down the cost the foreign chemical companies are transferring some value adding processes – such as packaging, labeling and non-active ingredient manufacturing – to Russia. Most successful distributors - those who managed to survive during the crisis -

acquired the controlling stock of some domestic chemical factories. Some of the distributors have become quite noticeable players on domestic market and try to develop own delivery system. One company – Dupont – developed modest JV production facility with the Russian partner.

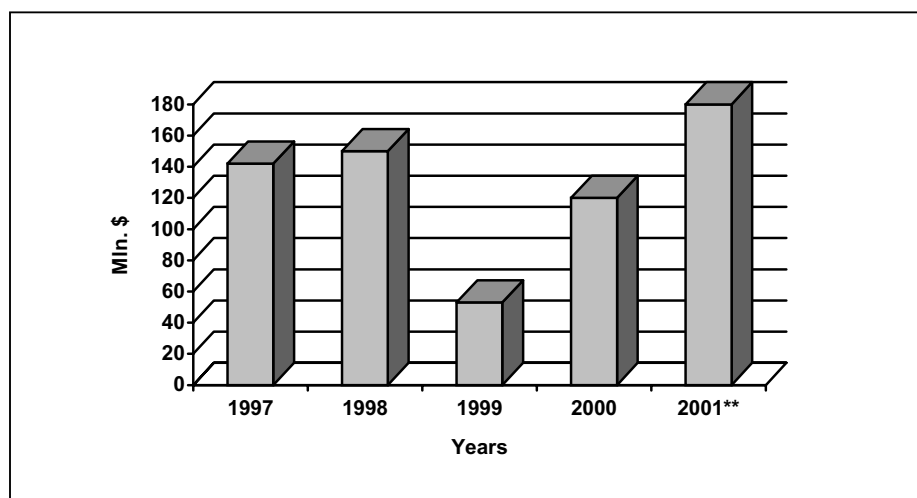
The dramatic adjustment of quasi-private and private channels has taken place. The deliveries against regional and municipal government guarantees were stopped. Costly and lengthy arbitration court procedures started against some regional governments that had further postponed bad debts payback.

The project finance initiatives and direct sales to end users were mostly cancelled. Some companies decided to work with just 1-2 farms per region as «demo farms» where training and pilot pesticide and cultivation method tests could be made and «field days» organized. In exceptional cases the direct sales have been exercised, but against high prepayment and more or less reliable collateral agreement.

The re-comprehension of distributors network role has been made. The distributors are considered as a key and most promising delivery channel, although thin market situation plays as high entry barrier. Many specialized distributors did not stand the crisis. The highly capitalized diversified firms with wide agribusiness activities who are involved into crop protection distributorship are considered as most prospective partners. Many of these companies recently entered agriculture. However it is quite difficult to make them to place reliable (non-farm) collateral. Anyway, the new financial arrangements with distributors envisage quite a high prepayment and high liquid collateral for the rest of value.

The talks with Russian commercial banks were renewed to try to involve them into crop protection activity finance. As we mentioned earlier, traditionally banks have been reluctant to provide agricultural chemicals delivery finance, because pesticides have been the secondary payback priority for farmers. It would be of highest priority to break such an attitude and provide commercial banking support to the emerging domestic distributorship sector.

Finally, after the crisis so called «investors» have become biggest customer companies and crop protection market movers for the moment. The «investors» are the biggest and most capitalized new farm operators.

**Figure 6 Crop Protection Chemical Deliveries to the Russian Agriculture\***

\* First handle wholesale level

\*\* forecast

Source: Industry sources.

### **The role of new operators in developing input markets**

Our most recent study confirms the previously made preliminary observations: new production formats generally attract or closely connected with capital inflow into domestic agriculture. Out of 16 companies studied, all have made substantial investments into agricultural fixed assets during last 3 years. Half of these companies took a possession (owe, use on lease-to-buy, or on deferred payment conditions) of foreign machinery and 5 apply agricultural chemicals. It is much higher proportion of using foreign inputs than for average traditional farm.

Another confirmation of intensive capital inflow can be derived from the official Belgorod oblast data regarding new operators activities there. According to different sources the new integrators contributed from RR450 to RR1 billion (about \$40 million) worth of fixed agricultural assets into equity capital of new enterprises. Altogether they acquired 636 tractors, 290 grain harvesters, 500 cultivators and 6000 units of other agricultural machinery. Among most noticeable investors/contributors are EFCO (successful Russian vegetable oil crushing firm), Rusagro (major Russian sugar refining and agribusiness firm), Starooskolskiy GOK (major Russian metallurgical combine). EFCO managed to combine newly acquired farms with its already existing custom harvesting operations<sup>29</sup>.

<sup>29</sup> Apparently the company managed to achieve some promising results. According to official statistical data, in comparison with previous year, the grain yields on 20 newly acquired farms have increased by 10 to 100% (on neighboring farms the yields remain practically the same). The explanation of this phenomenon could be double fold: a. Improved technological discipline (professional farm managers were sent by EFCO to every farm), b. Less grain was stolen from the field and farm premises.

Against the background of ongoing investments, there occurs variety of economic and technological strategies. Some companies heavily invest in modern technological packages and Western machinery. One of investigated companies recently arranged \$20 Ml. long-term deal with several foreign and domestic suppliers to provide modern crop production machinery for its farms. Other companies prefer to use only Russian or FSU made agricultural machinery, as simple and much cheaper alternative. «The condition of typical local field is very poor. It needs years of intensive treatment to improve the productivity. The yields will remain low for quite a long time. In these conditions the incremental benefit of using foreign combine in comparison with Russian Don-1500 combine (which is 2,5 times cheaper - DR) does not cover much higher price», says one of managers. In most cases firms deploy flexible strategy, using both local and foreign machinery.

New non-agricultural entrants have important advantages and much better access to the capital and input markets in comparison with «traditional» farms. First, their agricultural entities are mostly registered as farms so that they enjoy tax and government program privileges and benefits (**Box 4**). Second, some major companies can achieve substantial economy on scale, because of input price discounts on centralized purchases. Finally, they are mostly well capitalized and may provide goods, chattel papers, accounts and other instruments as collateral.

**Box 4.**

The fuel and gas provider controls 9 Th ha farm as 75% owned daughter company. As agricultural enterprise the farm is profit and several others taxes exempt. The owner deploys what can be called a multiple collateral agreements, which includes both on and off-farm collateral (including local fuel reserves). The collateral agreements are used in two ways. First, the company receives from participating commercial bank (recently launched) subsidized rate agricultural working loans in the framework of the federal government program. The annual credit rate is 7% in comparison with 25% Central Bank refinancing rate and 18-20% inflation forecast. In contrast, out of 23 district collective farms only 3 (including above-mentioned) are qualified by the banks to participate in the subsidized rate program.

Second, bank provides longer-term (3 year) guarantees to agricultural machinery suppliers. For above-mentioned fuel and gas provider the guarantee costs 2% in comparison with 5-6% for well-capitalized food processing companies and 8-10% for successful farms.

**Vertical input market innovations**

The activities of private input market participants along the vertical chain are aimed at mitigating high risks and designing mutually beneficial input delivery and utilization schemes appropriate for the remaining incomplete and thin markets situation.

During most recent years many newly emerged dealers/distributors entered agricultural production and became what we call new farm operators. By doing so they have tried to mitigate the risk of farm non-payment, lower transaction cost, and finally, not to miss the farming as newly emerging profitable business.

Most advanced firms develop innovative risk management tools while dealing with independent farms. As an example, one should briefly describe *right-to-harvest agreements*. In Russia such an arrangement was probably for the first time introduced by DreVo OAO, the agricultural and agribusiness joint venture among Louis Dreyfus Vostok, EBRD and Russian partners in Voronezh and Stavropol regions. Right-to-harvest agreement envisages pre-harvest credits with agricultural inputs against a right to harvest the field with creditor's combines. So the harvest is locked-up by the creditor and protected against others creditor claims right on the field. We consider the scheme and the numerous potential modifications as very promising.

Another way of mitigating input and capital market imperfections is developing strategic partnerships with *commodity off-takers*<sup>30</sup>. Off-takers provide a guarantee to purchase a fixed amount of agricultural commodity at minimum guaranteed price. Such a guarantee may be extended to either integrated farming unit, or commercial bank. Our recent study shows that strongest regional farms and most successful agribusiness companies-integrators have been so successful because they got into strategic partnerships with trustworthy commodity *end users* and *foreign traders*. In turn, off-takers are willing to cover part of nonperformance risk of operators. It allows attract domestic and foreign working banking loans to finance necessary field operations. Quite complicated arrangements involving insurance (re-insurance) companies, international surveyors and commercial warehouses are being launched to utilize benefits of commodity collateral. The natural limitation for such arrangements is availability in the region of reputable end user (food processor) or foreign trader.

### Further research priorities

Russian agricultural and agribusiness statistics must be redesigned to reflect the new production patterns and functions. One of interesting attempts to do so in the US is recent study on the US farm typology.<sup>31</sup> Surprisingly, US agricultural economists face resembling problems trying to re-comprehend recent developments in the US farm sector.

Russian agricultural policies must be adjusted to reflect quickly changing institutional structure of domestic commercial agriculture. Farming entities must be re-identified. The term «agricultural operator» is advisable to introduce.

- Specific taxation benefits must be granted to *real* agricultural operators,
- Eligibility of participation in the government subsidization programs must be re-comprehended (as an example, right now

---

<sup>30</sup> See in more detail EBRD study (2000).

<sup>31</sup> Hoppe R., et all (2001). [The US researchers suggest to start up redefining the farm typology as follows: Small family farms \(including Limited-resource farms, Retirement farms, Residential/lifestyle farms, Farming-occupation farms, Lower-sales farms, Higher-sales farms\), Large family farms, Very large family farms, Nonfamily farms. One of key criteria of above-mentioned classification is defining who is the real operator and what is his status on the farm.](#)

- agricultural enterprises with foreign capital are excluded from some government subsidization programs, which is nonsense),
- Lack of reality-check transparent land market legislation and enforcement procedures makes it very risky entries into agriculture for legitimate bona-fide investors and opens the road to «cowboy» type of new entrepreneurs.
    - Lack of efficient agricultural collateral legislation and enforcement is a substantial barrier on the development of private agricultural credit and finance system and prevents launching attractive tools of finance.

Numerous and complicated rural social externalities caused by new developments must be carefully studied.

Right now the tendency of launching huge agricultural operations is observed. Is there «bonanza» or «Russian latifundia» farming inevitable scenario? What should be legal limitations to huge agrarian corporations, owned by both agricultural entities and non-agricultural companies? As it is unavoidable for foreseeable future, what would be the advisable internal corporate organization structure? The issues of *manageability* and what is called «*perpetual stewardship*» are of key importance. What incentive and motivation must be constructed for managers and employees along the vertical decision-making chain? Is it possible to introduce modern farm bookkeeping and accounting technology? How stockholders and landowners can control the company and its operations? Would it be possible to divest and transform the company into classical individual farm operations in time?

More specifically, following issues are to be further studied:

- What new farming formats and functions provide in terms of agricultural technologies, resource allocation, output and productivity.
- Does emergence of new farming players and models improve the liquidity of farm assets. How do they improve access to capital and input markets and what tools are being used.
- How new operators' performance affect general vertical input-output commodity market coordination.
- What new risks, risks structure and risk management tools emerge in the Russian agriculture as the result of massive amateurs invasion.
- What specific vertical sector (in some sectors new models are already widespread, in others they are just emerging) coordination models emerge.
- Why development of new farming models is so different even in neighboring regions.
- How durable and what are the typical life (business) cycles of new farming formats (we already observe some definite signs of life cycle in the «sector»).
- What are the interrelations (obviously, they are numerous) and if there is any “band wagon” effect on the «traditional» farming sector.

One of best possible ways to approach these research topics would be launching a series of case studies for more in-depth investigation of various innovative agricultural production formats.

## References

- AAKRE, D., Custom farming rates on North Dakota farms, NDSU, January 1999.
- HOPPE R., Johnson J., Perry J., Banker D., A new farm typology for a diverse ag sector. ERS USDA, 2000.
- KRYLATYKH, E., Semenova I., Kresnikova N., Strokova O., Rau V., Lebedeva N., Monitoring sotsialno-economiceskikh rezultatov preobrazovaniy zemelnikh otnosheniy v agrarnom sektore Rossiyskoy Federatsii. In: Perekhodnaya agrarnaya ekonomika: problemy, reshenia, modely. VIAPI, Russia, 27-66.
- Postanovleniye Glavy Administratsii Belgorodskoy oblasti ot 14 dekabria 1999 g. N. 710.
- READ, Andrew. Problemy ispolzovaniya selskokhoziaystvennikh zemel v postsovetskoy Rossii.
- RYLKO, D., Operators Farming in Russia. IMEMO working paper, Moscow, October 1999.
- RYLKO, D., 2000. «Operators farming»: a new sector in the Russian agriculture. The Russian economic barometer Vol. IX, N2, pp.11-19.
- SEROVA, E., 1999. The impact of privatization and farm restructuring in Russian agriculture. IET, Russia.
- SEROVA, E., ed. Agroprodovolstvenniy rynek Rossii. Moscow, IET, 2000.
- SEROVA, E., Khramova I. Emerging Supply Chain Management in Russia's Agro-Food Markets, Discussion Paper n. 14, Bonn, July 2000.
- STROKOV S., Korbut A., Saraykin V., Formirovaniye zadolzhennosty selskokhoziaystvennikh predpriyatiy v 90-e gody. In: Nikovovskiye chtenia, 2000., 92-98.
- UZUN V., 2000. Agrarnaya structura Rossii: tipy, rol, razmery i effektivnost khozyaistv. In: Perekhodnaya agrarnaya ekonomika: problemy, reshenia, modely. VIAPI, Russia, 177-216.
- YASTREBOVA, O., Oijen R., 1999. Agricultural Debts: Problems and Solutions. TACIS, Belgium.