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**POSTHARVEST INSTITUTE**

**POSTHARVEST INSTITUTE FOR PERISHABLES**

**FOLLOW-UP TRAINING OF BUSINESS MANAGEMENT COURSE  
FOR 12 RUSSIAN BUSINESS MANAGERS**

**Contract No. PIO/P 110-0012-1-366930**

**for**

**USAID/NIS Task Force**

**Prepared by**

**Roy Bosley, Potato Processing and Business Specialist  
Bob McGee, Potato Storage Specialist  
Taras Ogiichuk, Translator and Country Specialist**

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## **I. Executive Summary**

The purpose of the trip to Russia was follow-up to the Business Management Course held at the University of Idaho and conducted by the Postharvest Institute for Perishables in September 1993. Twelve Russians attended the course. Roy Bosley, Bob McGee and translator Taras Ogiichuk interacted with the twelve Russian participants during the period of November 8 through 29th.

All participants seemed well pleased with the knowledge gained and some participants were already making long range plans to implement some of the points learned. It was impressed upon the participants that the United States cannot bring all of Russia to the U.S. for training. They were urged to teach the knowledge that was learned in the United States to other Russians.

A team of three persons representing the Postharvest Institute for Perishables (PIP) spent three weeks in Russia visiting the twelve participants at the PIP training course. The team traveled from the Moscow area, to Nizhni Novgorod, Dzerzhisk, Orel and Gus-Khrustal'nyy regions.

The objective, as mentioned, was to follow up and re-enforce the business training that was provided and to answer any questions the participants might have. Most were very interested to learn more about potato storage, handling of potatoes, and potato processing. The team did its best in the limited time available to provide additional insights to overcome some of their individual problems. The team also attempted to provide ideas and suggestions on how to develop the basic business plans and to better understand what they, as business managers, might be able to do with limited sources of finances.

The team had several meetings with Russian Potato Concern (RPC) to assist this private organization in better understanding how to proceed to advance the privatization of state farms into businesses, and the mechanics and focus needed to develop business plans. It appears that RPC has made progress in assisting agribusinesses (including some of the participants to the training course) to privatize and become members of their association. It also appears they recognize that the first phase of its program has been completed, and they are ready to proceed into the second phase. This will tie many of the smaller private farmers to the privatized collective farms to share farm inputs and machinery and to form distribution centers which will market agricultural products grown on both small and large farms.

Perhaps the single most significant factor that blocks the process of accelerated privatization is lack of capital for long term growth and company expansion. In addition, short term working capital is extremely expensive (250 to 300 percent interest) with this huge rate comes wild escalation of inflation. After talking to personnel at the World Bank in Moscow, it does not seem that large amounts of investment capital inputs will be

available soon. Russia continues to experience huge cash outflows and until financial conditions are put into place within the country, few lenders will come forward to make investments.

More training should be organized in-country to reduce costs and accommodate more participants. Model demonstration projects in various sectors might be the way to proceed.

Consultants McGee and Bosley will continue to provide cost quotations for upgrading potato storage and potato processing facilities.

There is a need for PIP to make available a person or team to teach Russian business managers the specifics of preparing business plans. This was partially covered in the Business Management course. It was evident that business managers do not generally understand the principles on how to design a plan tailored for their particular facilities.

There is a need to establish model demonstration agribusiness projects in Russia to allow more Russians to obtain hands-on work experience in managing these facilities; with potatoes this would include business management, harvesting and handling with few losses, storing and controlling storage environment to improve quality and feasible processing operations.

## **II. Visits to Business Managers Facilities**

### **Joint Stock Co. Moskovretskoe Ltd., Moscow President & Gen. Director, Yury Krykov**

The facility & company business is a very large fresh produce storage warehouse for the City of Moscow. It is situated on 32 ha of land and was originally established in 1928. The facility stores potatoes, carrots, beets, onions, garlic and apples. Mr. Krykov has been President and General Director for 12 of the past 14, years having started as head of engineering and then to president.

Originally a state owned facility, this joint stock company was later turned into a leased facility and in 1991 it was sold for 42 million roubles to the present joint stock company shareholders. Three people, including Mr. Krykov, own 40 percent of the stock, the balance is owned by the employees. It is a private and closed company and no one from the outside may buy any shares of stock. The value of the company was set at 1980 prices, and is currently valued at 45 billion roubles. The original debt is to be paid back over three years; the first debt payment was made in November 1992. Four months later Mr. Krykov called a meeting of the shareholders and they voted to pay off the remaining debt--hence there is no outstanding debt. It is important to note the company does not own the land--they have a 50 year free lease instead (no one in Russia up to this point had been allowed to own land).

In the first nine months of 1993 the company generated 263 million roubles of net profit to the shareholders. In addition, the company has retained earnings of some 600 million roubles for upgrading refrigeration, construction of a new produce receiving area and the purchase of 30 new trucks. In August '93 Mr. Krykov arranged a 400 million rouble working capital loan at 85 percent interest (exchange rate: US\$1 to 1220 roubles) from the Moscow City Government, (Loans are usually for 250 to 300 percent interest). The City of Moscow charges the company only about one third the amount other firms or organizations would pay for utilities. As a payback, the City of Moscow established, at the outset of ownership, a three year period in which the facility would have to stock designated amounts of specified perishables and at moderate prices so Russians could afford to buy.

It appears that in spite of these handicaps, by contrast, the business has made considerable profits. This is particularly interesting considering that last year the Moscow City Government ordered the facility to store 25,000 tons of potatoes; and of this amount, they were only able to sell 8,000 tons. The remainder, 17,000 tons had to be converted into potato starch. In 1992 the city government ordered too many onions to be stored and 50 percent were not utilized.

During the meeting with Russian Potato Concern (PIP's collaborative organization in Russia) it was learned that this Joint Stock Company purchased considerable tonnages of food products from Poland, and this seems to be a sore point in Moscow with Russian Potato Concern. The team had been informed that Poland sells better produce at cheaper prices than purchasing from local oblasts or other NIS countries. Polish firms require one third advance in cash and the balance upon delivery. While the team was at the Joint Stock Company, four Russian freight cars were being unloaded. (The building in the complex will hold 16 freight cars inside.) A Polish Embassy official was at the scene observing and keeping track of amounts and conditions of arriving produce. The Polish person was representing Rolmpex, the Polish State owned produce marketing company. Two years ago the Joint Stock Company purchased onions from Kyrgyzstan having to pay full price in advance. These onions were received in very bad condition and had to be discarded.

The Joint Stock Company does sales volume of 40,000 tons per year with a capability of 84,000 tons maximum. 1993 sales were US\$ 5 million. The team was told that the company does 400 to 450 million roubles per month in actual sales, and receive another 200 million roubles per month in outside services (leasing space to others, and assisting others to sell merchandise). The company would like to set up a US \$1,000,000 credit line loan with the Polish government, and borrow at 20 percent interest per year. This would save them approximately US \$1,900,000 per year in profit. Mr. Kryukov indicated it is quite easy to convert roubles to dollars and pay only a 0.3 percent service charge.

The following issues were discussed in a meeting between the Joint Stock Company personnel and PIP consultants.

- (1) What were the company's main problems: two were mentioned, a) having to deal with the Moscow City Government and its demands on what and how much to purchase and store, and from whom the company can purchase; and b) the economic constraints of having to deal with the over supply of produce that has to be dumped.
- (2) What are the J.S. Co's short and near term plans? a) to maintain the business as a profitable enterprise; b) keeping the "mafia" or illegal elements out; c) utilizing excess space of the company and keeping the facilities in a good state of repair/maintenance.
- (3) What are long term plans of the company? This question was not answered.
- (4) Do future plans call for processing of foods? The company has been making starch out of the lesser quality potatoes but this was found to be too costly with water pollution problems. The general director really doesn't feel that they will move into food processing.
- (5) What about storage losses? Overall the pure losses generally run about 5 to 10 percent, but considering the entire production of some items that must be dumped due to over supply, the annual loss is 20 percent.
- (6) Describe what kind of produce quality consumers received? This wasn't answered directly, but as the team toured the facility, there was evidence of poor quality carrots being packaged along with good ones.
- (7) What size of packs for sale? There was evidence of poly bags of carrots at about 1 kg and red beets in plastic net bags of approximately 1 kg. No direct answer was given as to the various sizes.
- (8) Describe what needs to be done to provide better value? The issue of the very coarse type of carrots being sold was discussed. Much of the Russian foods are of older varieties and somewhat outdated by Western standards. The director defended the present system saying that the Russian farmers haven't the money or means to acquire the new technology.
- (9) What distribution channels exist? They formerly had 33 state stores that were directly tied to the joint stock company. It seems now that these stores do not have to purchase from any particular facility. The company continues to service some of the needs of the state store. If smaller "jobbers" or wholesalers want to purchase they can phone in an order and come and pick it up. The company can arrange a truck to deliver, complete with security guard.

With the team's questions, discussions were initiated with the General Director on various aspects of marketing, storing, processing, etc.

Misc topics discussed:

- 1) Controlled storage of apples- the company has tried in past but the apples received had too much bruising and it doesn't pay to use controlled atmosphere storage on these lower quality apples.
- 2) April and May are the best months for potato sales as many small growers come to purchase fresh potatoes from the warehouses to plant their small plots. In June the prices are highest for fresh potatoes. Prices are good from January through April since most of the smaller farmers have depleted their stocks.
- 3) The team discussed "one stop shopping" and Mr. Krykov, the General Director, realizes in time this is something the company will need to consider. For the present however, the company will do what they do best and this is store and market fresh produce.
- 4) The team and the General Director discussed economic problems the company has in dealing with farmers. For example, the company may purchase 80 percent of the crop for a value of 100 roubles per kg; yet their costs will rise due to maintaining the refrigerated facilities and other fixed costs. The farmer however, will have made his profits and covered his fixed costs and sell the balance later in the open markets at 100 roubles per kg. The joint stock company has to increase prices to 150 to 200 roubles/kg; making it difficult to compete.

**Malino Joint Stock Company, Moscow**  
**Mr. Sergei N. Lupechin, General Director**

This is a Joint Stock Company of storage, processing and marketing of fruits, vegetables and potatoes.

It took two years for the facility to get its papers for privatizing. The company paid 16 million roubles for the facility's assets. The overview of the assets include five storage and distribution centers for produce and other foods. Four of these storage centers (stores) are located in and around the city of Moscow. The fifth is located some 90 km south and east of Moscow. The team visited two of the city stores and the one situated outside of Moscow.

The main long term storage facility at this Joint Stock Company for produce is the one located outside of Moscow. The other four serve as short term storage and

warehousing of stocks for delivery into Moscow. There are some 800 people working for the company; 300 in the four city stores, the other 500 at the outlying facility. They are actually responsible for more than 800 people as the company takes responsibility for the welfare of their total families as well. The outside storage facility is similar to a small city, and the company is responsible for housing, hot water for heat, other necessities such as day-care centers and most of the needs required to sustain the work force.

The company is not profitable overall; the four stores in Moscow do show a profit, but the outlying facility is a negative cash entity, and consequently there are no profits. The company is 51 percent owned by the employees, and the other 49 percent is owned by others (the employees can and do own additional shares in the 49 percent portion). It is not a closed company--anyone can purchase stock. The company has short term credit financing (3 billion roubles--U.S. \$3 million) at 85 percent interest. The credit can have disastrous consequences--at the end of their fiscal year, the loan and interest must be paid up or the company will be bankrupt. This is a worrisome situation for the management since the company is not profitable and appeared to be short of financing with few funds to pay for fuel to generate heat and hot water at the outlying facility.

As was the case previously, the Moscow City Government forces them to store excessive tonnage of potatoes and does not purchase the surplus that is not used. In 1992, the company was told to store some 13,000 tons of potatoes, and only 6,000 tons were bought. The remaining 7,000 tons were diverted into starch and animal feed and thus lost money for the company. The City of Moscow is a large customer of all these storage companies. It appears that they all have to store extra food tonnage to avoid having shortages under adverse political and economic situations. These companies, on the other hand, have no other outlet to sell or market their merchandise. It is thought that perhaps in two years or so the Western process of private customers might materialize.

Mr. Loupechin understands that they have an urgent need to re-organize the structure of the company--yet he has just as much urgency to take care of the workers. He is thinking of selling the housing project to the workers, whereas buyers must take care of maintenance and costs associated with operating these facilities. It would not then be the company's responsibility. However, many of the workers feel this is the company's responsibility; hence a "catch 22" situation is apparent.

A description of the three facilities visited are given below:

- The first facility was an above ground metal type building with cold stores. It had several cells with sugar and canned vegetables purchased from other N.I.S. countries. There were onions, beets, and some sacks of potatoes. This facility had on-site rail unloading facilities.

The second facility was a combination below ground and above ground construction. Below surface, women were observed carrying cases of canned

goods to a conveyor that lifted the cases up to the surface where they were placed in trucks for distribution.

The third or outlying facility is a very large complex. Some of the storages appear to be fairly modern and some are older, semi-underground cellars. The team inspected one of the latter facilities filled with Russian potatoes. This storage stored bulk potatoes about two meters in height and was told each stores 2,200 tons per cell. There are forced air systems, and the claim that humidity was controlled up to 90 to 95 percent by adding snow into the storages. They had six people working in the warehouse on a simple fresh pack line. Two women were sorting out small and decayed potatoes. This sorting usually runs about 30 percent. However, personnel claimed the losses are charged back to the farm where potatoes were purchased and the company did not incur the expense. There appeared to be too many persons doing too little work.

**Association "GUEIA" Kievski ORPO, Moscow  
Mr. Alexander G. Bougaenko, Director**

This facility is a former government base storage that is located on the outskirts of Moscow with another storage facility located approximately 64 km from Moscow near a collective farm. This company was privatized in 1991 and formed into the above named company.

This company purchases and stores approximately the following amounts of fruits and vegetables:

Potatoes	3,500 mt
Carrots	500 mt
Onions	500 mt
Red Beets	1,000 mt
Apples	1,000 mt

These fruits and vegetables are purchased locally (Moscow Oblast) as per loading agreement with the government as a condition of the sale of the facility. This agreement is for three years, after which they can purchase and store as they wish.

In addition, this company will purchase under contract from Poland the following vegetables:

Carrots	600 mt
Onions	600 mt

Also, this company imports the following items into Moscow:

<u>Item</u>	<u>Country</u>
Kiwi	Greece
Grapefruit	Cuba and Israel
Lemons	Turkey, Spain and Greece
Apples	Hungary
Bananas	Holland (broker)

As mentioned earlier, under terms of sale, the company must purchase and store a quantity of vegetables as ordered by the Russian government. The government may or may not purchase the entire quantity that the company was required to purchase. For example, the government may order the company to purchase and store 20,000 mt of potatoes. The government may purchase and pay for only 15,000 mt of potatoes, leaving the company with 5,000 mt of potatoes to dispose of elsewhere at their expense/loss! This agreement expires in two years, but now is a burden on the company and cannot improve the overall financial position of the company.

The overall profitability of the company is low on potatoes, carrots, and beets because of government price regulations but is high on the importing of fruits and vegetables. The government does not dictate sale prices of imported goods.

The overall maintenance and condition of the buildings and equipment is good. In the future money will have to be expended to repair and/or update the refrigeration equipment. It was recommended that when the repair or replacement of refrigeration equipment takes place, the company take an in-depth analysis at modernizing the total refrigeration system to be more cost effective and energy efficient, and consider new purchase of buildings/equipment to modernize rather than keep repairing outdated equipment.

**State Farm Orlovsky, near Moscow**  
**Mr. Valaery S. Ginin, Director**

The team visiting the farm consisted of the following people: Dr. Gennadiy Chanov, Russian Potato Concern; Bob McGee, Taras Ogiichuk, and Roy Bosley, PIP. The team was introduced to a number of personnel from the farm, including one participant who attended the Business Management course at PIP (Moscow, ID).

The farm was started in 1969 and was originally planned to provide food for the Soviet Air base (Cosmonaut Training Center) nearby. The farm is situated 41 km due east of Moscow. The farm is in the process of being privatized and had been previously valued

at 22 million roubles. However, the prospective purchasers know that when they get their privatization papers the price will be considerably higher.

The farm has some 1,300 ha of land, and of this, some 500 ha are cultivated. The balance is in forests, pastures, grass/hay lands. They have farm animals of which the numbers are given below:

- 200 milking cows and some 300 young heifer calves;
- 100,000 laying chickens producing eggs;
- 300,000 young chicks and pullets;
- 5 fish ponds that produce carp fish for sales around Moscow.

One facility has 400 employees working on the farm with the total population of the farm at 1,400 persons.

The team visited the seed potato storage warehouse. It is semi-below ground, and has forced air systems, using the triangular slatted air ducts. There are two air systems using axial fans blowing into two air ducts. There was a diverter gate that could be opened to bring in fresh air. At the discharge from the air plenum into the distribution assembly there were installed dampers that could be automatically opened or closed.

The temperature in the storage indicated 2°C. Farm personnel were asked how they could keep the storage area warm if there was insufficient heat coming from the potato piles. They pointed to the ceiling where there were two electrical heaters with fans that could put heated air from the ceiling which would be drawn into the recirculation air. They were asked how many hours per day they operated the fans. The answer was that it depended on the heat of the potatoes. The team was shown tall wooden boxes that were placed in the piles of potatoes which had thermometers in them to be able to measure the temperature.

Potatoes were piled at two different heights in the two alleys they were using. One was about 1.25 meters high and the other was near 1.5 meters high. They were asked how deep they normally pile potatoes and the team was told usually 3 to 3.5 meters high. This year they had a lot of rain and the late blight was very serious. In a year like this, most farmers would not pile potatoes very deep so that in case the rot from the late blight begins to develop, they could more easily see it and remove the blighted potatoes before the whole warehouse was infected.

The team was shown the potato receiving station the farm uses to bring potatoes in and sort sizes prior to putting them into storage. The farm had some Russian pilers, and the team was shown some modifications that they had done on one of the pilers. The typical Russian piler uses rubber belts 100 percent throughout the conveyor systems. They have no way of removing the dirt that is brought in with the potatoes. To the one piler they have added a short "digger chain" conveyor and this has shown they can remove some of the

dirt. A team member drew out a diagram showing that if they were to put digger chain conveyors on the entire lift section they could remove considerably more dirt and it could be more easily removed from the floor than the present operations. It was encouraging to see that farm personnel recognized that dirt causes problems in storage and they are finding ways to make their systems better.

The team had discussions concerning potato yields and why American potato farmers could obtain yields of 35 to 65 metric tons per ha while Russian producers only get 20 to 25 metric tons at best with overall averages at 10 to 15 mt per ha. Team members indicated to the farm personnel that there are three very important issues that must be present to obtain higher tonnages, these being:

- They must have the right genetic seed stock to begin with. Many of the North American seed cultivars have been developed for high tonnages. Not knowing the Russian cultivars the team could not determine if they had the right cultivars. In addition, seed must be clean and free of virus and other diseases that can cause yield reductions, and the seed needs to be chronologically young;
- There must be fairly high levels of "N,P,K," on the land at proper intervals (4 to 5 applications of N) in a growing season;
- There must be the right moisture in the soils. Soils should always be at 75 to 85 percent available soil moisture.

The team was asked if it knew anything of rapid multiplication systems to develop seed stock. Russian Potato Concern is planning to use Meristem tissue culture. Team members suggested that the farm consider using stem cuttings as this system is less technical and cheaper to operate and maintain. Team members promised to send brochures on Rapid Multiplication procedures for them to consider. Russian Potato Concern has recently received some technical information on hydroponics and seed potato production for mini-tubers. Consultant Bosley indicated he knew a lot about hydroponics and that few commercial operations exist today even though these systems have been around for several decades. These systems are complex, expensive and require considerable amounts of care to keep the environment and the nutrient media free of disease.

**Department of Trade and Service, City of Nizhiny Novgorod**  
**Mr. Serge Saknarov, Director**

Mrs. Tatyana Shagaeva, who attended the PIP Business Management course last September met the team upon arrival in Nizhiny. Mrs. Shagaeva is the base storage manager for the City of Nizhiny Novgorod. There are eight base storages owned by the city of Nizhiny but plans are to start privatization in 1994. It was learned that privatization of

food facilities is much further ahead in Moscow because of the closeness to the central government.

A meeting was held in the office of Mr. Serge Saknarov, Director - Department of Trade and Service, City of Nizhiny Novgorod. He informed the team that upon privatization, the base storages will purchase vegetables only as required with no governmental purchase requirement and no three year commitment to purchase as is done in Moscow. The base storage purchasing requirement is based on past performance. He indicated that the 1993 potato crop was a good crop and there is a surplus of potatoes.

Future plans for the Nizhiny Novgorod base storages:

To remodel existing buildings. They were cautioned to be very careful in making this decision as the cost for remodeling these facilities could approach the cost of a new facility. A careful analysis would have to be done to determine if the expense of remodeling would be cost effective or the construction of a new facility warranted based on various factors such as tax rules and regulations on depreciation, return on investment, etc.

Remodel the existing refrigeration equipment. Here again careful analysis of the cost of remodeling versus the cost of a new facility was suggested to determine the cost effectiveness of such a plan.

Purchase of potato processing equipment. After discussion of frozen, dehydrated potato products and fresh packing of potatoes (table stock), it was determined that the first step would be fresh packing mainly from a capital expenditure and education level.

It was suggested that a fresh pack line with the capacity of five to eight mt per hour packing eight hours per day for 300 days per year would be the appropriate size line to start with. This would require approximately 14,400 mt of potatoes per year to operate this line, three hundred days per year. Consultant Bosley will forward a floor layout of a fresh pack line of this capacity upon his return to the United States for their consideration and planning.

The team was given the yearly average potato size distribution for sizing the fresh pack line and potatoes that would have to go elsewhere such as undersized tubers.

Small Potatoes	30%
Medium Potatoes	55-65%
Large Potatoes	10-15%

The medium and large size potatoes would be fresh packed with the mediums going to the retail pack (grocery stores) and the large size going to institutional outlets, such as restaurants, schools, cafeterias, etc. Small potatoes would be sold to a potato starch manufacturer which the team was informed is located in Nizhiny Novgorod.

Team members were asked what we felt was needed to assist the Russians to have better potato supplies. The answer was that they needed technologies in: seed potato cultivars; farm inputs and farming equipment; harvest and transport equipment; improved handling procedures to avoid the excessive bruising of tubers; improved storages; the need to move quickly into modern potato processing techniques with proven processes and equipment.

The team showed the director graphs depicting the relationships and common patterns between Russia and the United States, and that Russia lags very far behind in potato processing capability and low in consumption of processed potatoes. The team also emphasized that Russians, in total, waste significant fuel-energy when all potatoes are cooked at the same consumer level. If they had dehydrated processed potatoes it would only require a few minutes of energy to heat the water to boiling and then prepare, for example, mashed potatoes. On the other hand, boiling potatoes to prepare mashed potatoes requires boiling them for 45 to 60 minutes.

The director indicated that Russia loses considerable tonnages of potatoes due to poor harvest, poor storage and other wastes. They see the beginning of collaboration with the U.S., which they appreciate, and feel strongly that dialogue must come forth to introduce modern potato processing facilities into Russia. The team informed the director that more demonstration projects in Russia would train more people than bringing them to the U.S.

**City of Nizhiny Novgorod Base Storage Facility, Nizhiny  
Mrs. Tatyana Shagaeva, Director**

This facility is owned by the City of Nizhiny Novgorod. The facilities were built in 1985 and have been reasonably maintained. The storage has potatoes, cabbage, red beets, carrots, and apples. In addition there are canned plums, apricots, and tomato products in the stores.

The team observed a very small potato fresh pack operation which was very simplistic with too many workers for the small amount of production. The "tote bin" dump dropped the chilled potatoes some 1.25-1.50 feet into a hopper that fed the sort table. The potatoes had been put into the storage in September. The team was told by the workers on the pack line that they hand pick decayed potatoes which amounted to about six to eight percent at this time. They store the potatoes in metal slatted boxes, three high in the cells. They have ceiling type forced air ventilation, with fans mounted in the ceiling to remove air from the chamber when they want. Refrigeration coils were located along the walls. They have two

radial piston compressors and what looked like two screw compressors. The engines looked to be in operational order, but the engine room was somewhat unkempt.

The team inquired about the prices paid for potatoes; the '92-93 crop was purchased at 15 roubles per kg, '93-94 crop at 100 to 110 roubles (US\$.0834 to US\$.09) per kg. The facility sells the potatoes at consumer outlets for 150 to 160 roubles per kg.

This operation is not yet privatized; however, the management has discussed possible privatization in 1994.

In total, there are eight similar storages supplying the Nizhiny Novgorod food distribution system. The team asked why Moscow storage units were privatized and they were not. The team was told that the storages in Moscow might think they are privatized, but in reality, the Moscow government still owns them and controls everything they do. In addition, the Nizhiny Novgorod government feels it is still their responsibility to ensure that the right foods and tonnages are put into storage to ensure adequate affordable food for the citizens. If not controlled, the store managers might put bananas and other exotic foods in to capture high profits and not have the basic foods needed for the people.

This facility manager also indicated the Moscow storages receive favorable interest rates to operate at (80 to 85 percent), but she would have to pay 230 percent interest for her operating capital. She also indicated that many of the Moscow operations have been purchasing too much from Poland for too high prices. She claims the Russian potatoes are as good as produced in Poland and for considerably less cost. Furthermore, the manager indicated that Russian potatoes did not have infestations of Colorado Potato Beetle until 1972 and they came into Russia via potatoes from Poland.

She was asked who will be the buyers of the produce held in storage if not the city government. She replied that the city government will continue to purchase but in decreasing amounts. Currently she has day care centers, schools, hospitals, and other privatized customers that purchase produce from these facilities.

The manager mentioned they would like to re-establish sales to Iran, Iraq and other foreign countries, but she doesn't have the fresh pack line to do so in the quantities needed. We questioned how the Russians would be paid, and the answer was counter barter for payment. The team discussed with the director the costs and tonnages of a five to eight mt per hour fresh pack line as well the tonnages and operating days needed. Additional needs would be a single drum dryer to produce potato flakes from the extra big and the small tubers that could not be put into the fresh pack. The small tubers could be sold to starch and alcohol producers in the region.

The team was told that year in and out, the percentages of small potatoes run 30 percent; the large runs 10 to 15 percent; and the mediums 55 to 65 percent.

The director was told that an adequate fresh pack line would probably cost in the range of US\$60,000 delivered and installed. This would not have a lot of fancy things on the line, but it would have the capability to size out the three grades, to wash-brush and sort out the bad, and put the potatoes into the sized bags required. If a flake line were added to the line it would cost probably US\$1-1.5 million.

The director indicated the facility has three priorities:

- remodel the existing storages;
- remodel the existing equipment;
- purchase processing equipment.

The director was given some ideas to consider. This was that while it was admirable to consider remodeling and refurbishing the facilities, it could be more expensive than to build new ones. Power costs 18 roubles per kwh (US\$.015) in Nizhiny. The director was told that if they were to enter into potato processing, considerable planning would be required as to disposal of waste waters and waste solids generated at the facility. She had the idea from having seen some fresh pack operations in America that all one did was to use the water, then let it settle and re-use it. She also thought a company operated a fresh pack line for only four months per year.

**Base Storage Unit, Dzerzhinsk, Russia**  
**Ms. Valentina Eliseeva, Director**

The team traveled to Dzerzhinsk to meet with Ms. Valentina Eliseeva who attended a PIP training course in September 1993. The team met first with the Deputy Mayor of Dzerzhinsk along with his staff. The Deputy Mayor stated that they would like to initiate some type of potato processing. They realized that processing will eventually happen in the future. After the meeting, the team proceeded to the city owned base storage for a tour of the facility. This base storage facility is of the same type of construction as other Russian base storages observed during this trip and in previous trips to Russia. A difference in this facility is that it has ceiling mounted refrigeration evaporators with air blowing through the evaporator as practiced in the U.S. in refrigerated cold storages and freezers. This allows for a more efficient operation of the refrigeration system.

The produce from the base storage is merchandised through state retail outlets (small grocery stores) located in the city. Potatoes were inspected at the base storage and bagged into approximately 15 kg mesh bags for delivery to retail outlets. At retail outlets, potatoes were again inspected and rebagged into approximately two kg poly bags and sold to consumers.

Base storages are owned by the City of Dzerzhinsk and plans are to privatize in the future - no schedule has been set. A long term goal is to establish some form of potato processing.

**Burevestnik-1 Association Joint Stock Company, Nizhiny Novgorod**  
**Mr. Alexander Salnikov, Director**

The team met with the following members of the former "KUDMA" state farm, now called "Burevestnik-1" Association:

Mr. Alexander Salnikov, Director  
Mr. Alexander Viseman, Deputy Director  
Mr. Sergi Mosseev, Chief Agronomist

This state farm was privatized and formed into a joint stock company with limited liability. The farm consists of approximately 10,000 ha with 5,671 ha of cultivatable land. Of the 5,671 ha, approximately 1,000 is under irrigation. They obtain irrigation water from a nearby river via a pumping station. It is then distributed through a piping system to the cultivated fields through "wheel lines" and then through a Russian designed irrigation system. Wheel lines are used in the U.S. There are other farms nearby that are also irrigated. One farm has approximately 500 ha under irrigation. Another farm has 400-500 ha in irrigation.

The team later learned that the Nizhny Novgorod area has heavy chemical industries located in the area and that the soils in the area are contaminated with acid rain. We were told the Volga River has a Ph (acidity) of 4.8 due to the pollutants. This would not be a good location for a large, long term potato project.

**Orel Base Storage, Orel Russia**  
**Mrs. Ludmilla Mihailova, Director**

The team was met in Orel by Mrs. Ludmilla Mihailova, Director, who had attended the PIP Business Management Course, and Mr. Vladimir Denisov, Commercial Director. We attended a meeting with the Governor of the Orlovskaya Region, Mr. Somionovich and his staff. He assured the team that he and his government will work with us on any potato project in his province. A later meeting was held with Mr. Andreevich, Minister of Agriculture for the region. He gave the team an overview of agriculture in the region and then the name of a large farm that could be utilized for a possible potato processing project which we later visited. The team was informed that there is no contaminated soil in the Orel region due to the Chernobyl fallout, but there is contaminated soil in the Bryansk area. This is an important factor in determining the location of a potato project.

The Orel Base Storage has an underground bulk potato storage with a capacity of 10,000 mt. This potato storage is 13 years old and is in reasonably good condition. The storage manager is operating this potato storage with a continuous air movement up through the potato pile. The potato storage had a good clean odor indicating that the facility is managed properly and the potatoes are in good condition.

The team briefly toured Ludmila's storage base facility. This is one of the best base storages that the team had seen in Russia. The facilities were built in 1978 (15 years old) and the design of the potato receiving and storage section was state of the art at the time. The potato receiving area needs to be replaced or modified as they dump truck loads of potatoes into deep bins causing considerable bruising. The filling of the storage bay takes approximately 30 days running non-stop (16 hrs per day). According to calculations, they received and sorted out very small tubers at a rate of 20 mt per hour.

The potato storage bay is semi-underground. There are air ducts in the floor and sloped sides, and after talking to storage personnel they appeared to have a good grasp of the handling of ventilation. They do not use humidifiers, and this could be one modification that could benefit the operation, especially during the fall at the time of harvest to assist in cooling down the potatoes.

The team asked many questions about potato sizes and potato quality and the best potato to sell for fresh pack. It seemed that some Russian consumers would prefer to have a larger potato for home consumption. However, most Russian potato cultivars do not develop large potatoes. The team had been told that this growing region supplies some of the best potatoes for the Moscow markets, and they usually have no problems to move all the potatoes that are grown. These people would like to have samples of bags and literature used in fresh pack potatoes so they can use as models.

Mrs. Mihailova has expressed a strong desire to have someone assist her to establish some form of potato processing at this base storage operation. A building was built to accommodate potato processing. The director appears to have funding and is anxious to proceed with an American group to collaborate with. The team will be provided floor plans and full details of support at the facility to assist in a better understanding of what might or could be put in place.

Mrs. Mihailova indicated she could provide approximately 20,000 mt of potatoes. A single (16 x 5 ft) drum dryer would require somewhere between 20 to 23,000 mt of fresh potatoes if operated 24 hr per day, 300 days per year.

There are other considerations that should be considered in the design and planning for this proposed processing facility. The storage unit has carrots, beets, peas, cauliflower, broccoli and other vegetables that could either be processed into frozen or dehydrated products. It was mentioned that several years ago the Polish provided frozen vegetables in plastic bags and this was very popular with consumers. Consumers reportedly shop once

a week for food and they have refrigerators and freezers. Frozen food products aren't out of the question for near term consideration.

#### Recommendations for updating the potato storage:

1. Taking into account the age and design of the facility, it is not recommended that any major changes be made to the structure or ventilation system. To initiate any major changes would not be cost justified. In the U.S. to justify major changes, one must take a number of items into consideration, such as the cost of money (interest), tax considerations as depreciation and the remaining life of the facility. In the U.S. a potato storage is considered to have a useful life of 20 years. Some storages go beyond this and are down graded to short term storages (potatoes are removed within two months).
2. It is recommended that the installation of humidification in the air ventilation system be made. This would be accomplished with the installation of portable humidifiers which are low cost. This is important during the pull-down phase after potatoes are placed into storage. At this time, potatoes have a high rate of respiration and require humidity to reduce potato shrink (weight loss). Also, the humidifiers will aid in humidity loss due to motor heat and heat increase from the fan. Heat from the fan and motor can increase the air temperature one to two degrees Celsius which will decrease the amount of humidity in the air stream. The end objective is to maintain 95% relative humidity and higher.

Information and prices on portable humidifiers will be sent to Mrs. Mihailova.

3. The potato infeed system transporting potatoes from the receiving station into the storage has many transfer points. Each time potatoes are transferred there is a drop and any drop over six inches bruises potatoes. It is recommended to reduce the amount of drop and subsequently reduce potato bruising to a minimum at these transfer points. Potato receiving equipment could be replaced with Western style potato equipment which would do a more efficient job at sorting and handling with less labor. Also, with this equipment, the potato storage could be "end loaded".

#### Recommendations for Potato Processing

We inquired about a business plan for processing of potatoes. In reality, they do not have a business plan. They know they want to get into some form of processing but have no real ideas as to what or how to go about it. The director indicated she has been promised to receive eight billion roubles (about US\$6.5 million) to spend on up-grading the

facility and to install processing. She was told that she would have an affirmative answer and possibly the funding in the next four to six weeks.

Concerning the possibilities for potato processing the team proposed a target plan for the director to consider, assuming that the facility could provide 20 to 22,000 mt of storage potatoes:

1. 10 to 15 percent would be sold as fresh potatoes;
2. 65 to 75 percent would be processed as potato flakes;
3. 10 to 15 percent would be small processed into frozen boilers and frozen potato slices;
4. 5 percent would be used as fresh to meet government demands for schools and hospitals.

It was suggested that they consider a small, frozen water blanched process line that would be capable of producing the small frozen boiler potatoes and frozen sliced potatoes. In addition they could also process: carrots; cauliflower; red beets; and possibly frozen berries and fruits.

In addition, the facility might consider establishing a frozen pizza manufacture line. They could have pizza dough made/pre-baked and frozen, add tomato sauce, shredded cheese, salami, tuna or various sliced meats, and then add chopped onions and green peppers to finish out. These pizzas could be finished frozen in the proposed freezer line.

### Retail Stores

The team visited three retail stores that are under the control of Mrs. Mihailova. The team was told that there are about 3,000 small grocery shops in Orel (the number sounds too high). The Orel storage facility only has distribution to three shops. The other two city owned storage facilities each have about three to four shops that they provide produce and canned goods. It was not made clear who provides produce for the majority of the small shops. Apparently they can purchase from whomever they want. The state owned shops visited appeared to be clean and doing a good business. They displayed produce and the other foods in an attractive manner; but the overall selection was small. The team did observe a dry cocoa mix that had been imported from Germany, numerous candy bars and other snack foods and sweets from outside manufacturers. Each of these shops had storage rooms attached in the rear of the store. It would not take much for them to install small scale machines to produce extruded fresh pasta, perhaps manufacture pizza and other prepared foods for sale in the shops. This fact was pointed out, and perhaps they will consider such innovations.

**Joint Stock Company Farm Bogoroditskoye, near Orel**  
**Mr. Vladimir Sclishev, Director**

A visit to the former state collective farm, now privatized in 1993 and renamed "Bogoroditskoye". This farm is now under the direction of Mr. Vladimir Sclishev and there are some 380 employees on the farm. This farm is located approximately 56 km west of Orel on an all weather road. The farm consists of 8,000 ha of land with 6,000 ha under cultivation, growing mainly grains and potatoes along with a dairy cow operation. There is railroad access approximately nine km north of the farm and an all weather road from the farm to Orel and Bryansk located to the west of the farm. This location also give excellent access to Moscow and the Black Sea for exporting products.

There are large ponds located on the property from which water can be secured for irrigation. Also, there is artesian ground water that can be tapped for pumped irrigation. The farm is supplied with ample electricity with a large sub-station located nearby. The farm pays 24 roubles (US\$0.02) per kwh. A natural gas line is presently being installed and Mr. Sclishev will soon have the farm operating on natural gas. He does not know the price of natural gas at the time as he has not signed a contract.

This farm along with five neighboring former collective farms could be utilized for a large potato farming demonstration project. The soil is excellent and there is no soil radiation from the Chernobyl accident.

**Joint Stock Company Farm Russ, Orel**  
**Mr. Aleksey Ivanovich Romanov, Director**

The team met with Mr. Aleksey Ivanovich Romanov, Chairman of the Farm. He informed the team that he would commit 2,500 ha of land on a four year crop rotation to a large potato project with approximately 800 ha per year planted in potatoes. There is a pond (reservoir) from which water for irrigation could be obtained. Also, wells could be drilled with water at 70 to 80 meters in depth.

One problem faced by privatized farms is the government is paying only 40 roubles (US\$0.03) per kg when farm production costs are 75 roubles (US\$0.0625) per kg. The government is paying a low price so the Russian people can better afford to purchase potatoes. With such a low price for potatoes, farms are changing to other crops such as wheat or buckwheat, from which they can better make a profit.

**World Bank office, Moscow**  
**Mr. Wayne Ringlien, Agricultural Economist**

A meeting was held with Mr. Wayne Ringlien, Agricultural Economist, the World Bank, Moscow office and he gave a brief overview of the current financial situation in Russia. The gist of his comments are as follows:

1. There will be no major influx of foreign capital to Russia until the following happens: the economy of Russia stabilizes and inflation is under control; and the capital flight of money going out of Russia is stopped. The Russians are moving approximately 200 billion dollars out of Russia. This capital must come back into the country before the World Bank and other major lending institutions will make loans.
2. The G-7 countries are restructuring debt with the European Investment Bank. Also, they are making investment in regional venture funds.
3. The World Bank through its EDRB has 200 billion dollars for loans and will add four billion more in the next four months.
4. The World Bank has US \$150 million dollars for commercial agricultural loans for agricultural support programs. He commented that there are funds available for seed development. This is to make the government seed regulators, not producers. The government would get out of seed production and put it into the hands of private enterprises. Agricultural information should be supplied to the farmers.

Mr. Ringlien's last comment was that anyone applying for a loan from the World Bank or any other lending institution must submit a solid business plan. So far this has been lacking in Russia.

At the World Bank offices, the team was introduced to Dr. Vera Matusevich, who had worked for the USSR Academy of National Economy, and had been to the U.S. for some time. Dr. Matusevich was very helpful in the limited time we had left at the World Bank offices. She provided numerous printed books published by the World Bank. Some of the books are publications on the agricultural reforms in Russia and some deal with the Russian economic reform. These publications were printed late 1993 and early 1993.

**Joint Stock Company, Farm Russia, Gus-Khrustal'nyy Region**  
**Dr. Stepan Ginin, President**

The team traveled to "Farm Russia" located in the Vladimir region. the team was met by Dr. Stepan Ginin, President and Mr. Alexander Liniakov, Production Manager, who

attended the PIP Business Management Course. The team held a general discussion about the farm and some general plans for the future.

This farm consists of approximately 5,300 ha of cultivable land. Of this, 400 ha are irrigated with another 1,700 ha in dryland. The remaining hectares are used for the production of cattle feed. The water for irrigated land is pumped from wells (120 ha) and a lake (380 ha). There are approximately 500 additional ha that could be irrigated from a river that is located nearby. This land is flat and possibly gravity irrigation could be used.

Discussions continued on the three farms available in the area for a total of 12,000 ha for utilization in a large scale potato project. This would yield 3,000 ha per year for growing of potatoes on a four year crop rotation.

The team was informed that the 1993 potato production cost was US\$0.12 to US\$0.13 per kg without transportation and this price is profitable at 18 mt per ha. The team was informed that the wholesale selling price of potatoes in the Moscow market area is US\$0.09 to US\$0.10 per kg or a loss of US\$0.03 to US\$0.04 per kg to the farm.

The team made a site visit to the new Global Steel storage facility located on the farm. This facility was not completed because the weather turned cold and applicators were unable to foam insulate the building. This will be completed next spring when the weather warms up. Farm personnel said that they have poured the concrete for a second potato storage to be constructed in 1994. This storage will be constructed adjacent to the new storage.

Farm personnel said that they were going to store commercial potatoes and in the future, store seed potatoes. In Idaho, seed potatoes are never stored in commercial storages and commercial potatoes are never stored in seed potato storages. This can lead to the spread of potato diseases to the seed stock. They were urged to be very careful in their decision making in regards to the spread of potato diseases.

### **The Russian Potato Concern (RPC)** **Dr. Yuri Moiseev, President**

The team met with Russian Potato Concern personnel several times during the trip. This private organization is attempting to speed up the privatization process in potato production and handling in Russia.

The RPC believes they have reached the end of Phase I of their program, and now is the time for them to progress to Phase II. Phase I was to assist farms and farmers to privatize, Phase II is to set up an "Association" that will link state farms and joint stock companies to these thousands of private farms. RPC personnel explained their proposal and asked for the team's inputs and suggestions.

The RPC believes that the collective farms have machinery and services that can be sold/rented to small private farmers (growers with 20 ha of land down to less than 0.3 ha plots). Many of these small growers could produce potatoes but they lack farm machinery, potato seed and chemicals as well as working capital. It is the plan that the Association can provide these services and the crops would be promised (100 percent) to the Association. The Association would have a distribution marketing company that would market all the produce grown by the smaller farmers as well as the collective farms.

The RPC plan may have the opportunity to succeed if they can convince smaller farmers to join the Association. The Association will have to develop good promotion and incentives to attract these smaller farmers. Otherwise, the farmers will see little reason to join the Association. Not knowing the full details of the overall plan, it is not possible for the team to further comment on the subject other than to say that they do have a business plan and this is a start.

### **III. Review of the Trip**

A team of three persons representing the Postharvest Institute for Perishables (PIP) spent three weeks visiting the twelve recipients of the PIP Business Management Course. The team travels were in the Moscow area, Nizhniy Novgorod, Dzerzhisk, Orel and Gus-Khrustal'nyy regions. (One recipient from Omsk failed to show up for the scheduled meeting.)

The team's objective was to follow-up and re-enforce the educational training that was provided and to answer any questions they might have. Most persons were very interested to learn more about potato storage, handling of potatoes, and potato processing. The team did its best in the limited time available at each facility to provide additional insights as to how to overcome some of their individual problems. Also the team attempted to provide some ideas and suggestions as to how to put together basic business plans and understand what they might be able to do with limited sources of finances.

In addition, the team had several meetings with Russian Potato Concern (RPC) to assist them in better understanding how to proceed with Russian issues to advance the privatization of state farms and businesses and where should be the main focus and what was needed in preparing business plans. RPC has been involved with some of the managers of the privatized firms who participated in the PIP Business Management Course. It was felt that this organization can be a key to speeding up the privatization process in some agricultural areas. It appears the RPC had made some progress in assisting agribusinesses to privatize and become members of their association. It also appears that personnel recognize that Phase I of their program has been completed, and that they are ready to proceed into Phase II. This will be to tie many of the smaller type private farmers to the privatized collective farms to share farm inputs and machinery and to form distribution centers to be able to market agricultural products grown on small and large farms.

Perhaps the single most factor that blocks the process of privatization and progressing is the lack of capital for long term growth and company building. In addition, short term working capital is extremely expensive (250 to 300 percent interest) along with the wild escalation of inflation. After talking to World Bank personnel in Moscow, it does not seem that investment capital will be coming forth very soon. Russia continues to experience huge cash outflows and until conditions are put into place within Russia, few lenders will come forward to make investments.

Many governments (Italy, Germany, France, the Netherlands, Poland, Korea, Japan) are providing grants to both the private and public sectors in Russia; however, few private investments have come forth, and many that have entered the picture are pulling out.

For countries like the United States, and the USAID projects to supply American trips to the Russians is fine in principle; however, it is very expensive and provides good training to a relatively few of the thousands of Russian privatized farms and agribusinesses that need hands-on training. Perhaps it would be better to spend the money to establish "Model Demonstration Agribusinesses" where many more Russians could obtain this education at considerably less costs.

Mr. McGee and Bosley will continue to follow-up to provide budget quotations to interested businesses for upgrading potato storage facilities so they can consider how to get into potato processing.

There is a recognized need for PIP to make available a person or team to teach Russian business aspirants how to put business plans together. This may have been included in the training course for the 12 participants, however, it is evident that many people in Russia do not understand the principles and how to go about designing a tailored plan for their particular facilities.