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USSR Report

AGRICULTURE

(FOUO 1/80)

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DEVELOPMENT OF AGRICULTURE IN SIBERIA

Moscow VOPROSY EKONOMIKI in Russian No 8, Aug 79 pp 75-84

[Article by N. Kopach and Yu. Novoselov (Novosibirsk)]

[Text] The components of the country's agroindustrial complex are regional formations which include the Siberian APK [agroindustrial complex], to which a number of peculiarities are inherent. The most important is that agriculture is united with industry within the new territorial-production complexes being formed. Experience in actualizing major national economic programs to develop the Siberian TPK [territorial-production complex] has shown that successes in utilizing the natural riches of the new regions can be achieved only given the balanced development of all branches comprising the territorial-production complexes. Lag in even what would seem to be secondary branches leads to difficulties and to large nonproductive expenditures in the branches of primary specialization. One example of underestimation of this principle is the lag in developing branches of the food complex of several Siberian TPK's. Development of the food base must not lag, but must outstrip development of other branches of a complex. Otherwise, difficulties arise in attracting and securing manpower and additional expenditures are required to transport agricultural produce hundreds and thousands of kilometers, on replacing full-value products with canned goods, and so on.

Territorial-production complexes are a specific link of the country's agroindustrial complex which is not included in the traditional organizational forms of agroindustrial integration. On the one hand, the TPK's include branches unrelated to agriculture in any functional-technological way, and on the other, the specifics of utilizing a region in a new way demand the organizational-economic interlinking of these branches. Territorial-production complexes should therefore be viewed as relatively isolated formations comprising the food unit of the APK's. The combining of agriculture and industrial branches not associated functionally-technologically with it in the TPK's determines the necessity of resolving more effectively and fully the tasks of providing workers of a given complex with food.

In our country, much experience has been accumulated in producing agricultural output on the subsidiary farms of industrial enterprises. Such forms

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of providing the population with agricultural produce have been widely used in the construction of a number of large industrial projects. This type of agricultural enterprise should, in our opinion, be viewed as an element of the production infrastructure of the basic TPK branch and one without which production cannot be developed normally. They must be created in parallel with basic production enterprises and the expenditures included in the overall construction cost and in the prime cost of the industrial output produced. Such forms of combining industry and agriculture necessitate the accelerated development of basic production (industrial utilization of the region) in the absence of an agricultural base.

At the same time, agricultural enterprises linked directly to industrial production have higher technical and economic indicators, which probably results from the greater availability of equipment for these farms, often at the expense of basic production resources. As an example of the organization of such "food shops," we can cite the work experience of "Shaimskiy" and "Surgutskiy" sovkhozes, belonging to the Glavtyumen'neftegaz and situated in northern Tyumenskaya Oblast. These farms have a developed material and technical base: the fixed assets of "Shaimskiy" sovkhoz exceed five million rubles and those of "Surgutskiy" sovkhoz -- 6.5 million rubles. In 1977, "Shaimskiy" sovkhoz produced 2,000 quintals of open-ground vegetables, 2,656 quintals of sheltered-ground vegetables, more than 11,000 quintals of milk and dairy products, 1,091 quintals of live-weight-livestock and poultry and about 4.7 million eggs and delivered them to oilfield workers. Hothouses are being used to good effect. Nearly 22 kg of vegetables has been obtained per square meter of winter hothouse. In 1977, the milk yield averaged 2,852 kilograms per cow (which exceeds the corresponding indicator for a majority of oblasts and krays of Siberia). The indicators for "Surgutskiy" sovkhoz are similar.

However, such forms of agricultural production organization have still not received the proper scientific substantiation and are therefore not always anticipated when planning basic (industrial) enterprises. Moreover, the attitude that such production is of secondary importance leads to a reluctance among workers in industrial departments to concern themselves with it. For example, when construction of the Baykal-Amur Trunk Line was unfolding, agronomists recommended that construction of dairy farms and hothouse combines be begun near Tynda, Neryungri, Severobaykal'sk and other population centers. At that time, it seemed a simple task. Now, when more than 30,000 children have been born on the BAM route, problems of providing them with full-value food products, and especially whole milk, have become critical.

Speaking during his trip to Siberian and Far Eastern cities in 1978, L. I. Brezhnev said: "Industrial regions must have an agricultural base and must provide themselves with both stockraising products and vegetables." At present, Siberian agriculture lags substantially behind its industry in terms of rates of development. As compared with 1965, the total amount of industrial output in Western Siberia in 1975 had increased 129 percent, including 386 percent in Tyumenskaya Oblast and 139 percent in Eastern Siberia. Gross

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agricultural output (in comparable 1973 prices) in the public sector had increased an average of only 16 percent during the 1971-1975 period as compared with the preceding five-year period in Western Siberia, including 12 percent in Tyumenskaya Oblast and 14 percent in Eastern Siberia. In other words, for each percentage point increment in industrial output, agricultural output increased only 0.12 percent in Western Siberia, including 0.03 percent in Tyumenskaya Oblast and 0.10 percent in Eastern Siberia. In 1976, the gross agricultural production volume for Siberia did not exceed the average annual level of the Ninth Five-Year Plan.

The 1975 gross grain harvest for all categories of Siberian farms was seven percent less than in 1970, the potato harvest -- 11 percent less, and the vegetable harvest -- 13 percent more. Milk production in 1970-1975 increased only four percent in Western Siberia, including five percent in Tyumenskaya Oblast and nine percent in Eastern Siberia. Meat production increased nine percent for Siberia as a whole. During the current five-year plan, higher rates of development have been achieved in agriculture in connection with the increase in capital investment in the branch. However, its overall lag has not yet been overcome. The industrial mastering of many regions of Siberia has thus far not been accompanied by analogous development of agricultural production, which has led to interruptions in the supply of certain types of food products to the population.

Therefore, the development of agriculture within the system of territorial-production complexes being formed has taken on important significance under the conditions which have evolved. Actualization of this task is associated with the necessity of solving a number of problems. First, natural riches are often worked in sparsely inhabited, remote regions of Siberia where agriculture is at best sporadic and is often nonexistent. Under these conditions, the land must be surveyed and mastered from scratch, which is considerably more expensive than in regions with developed agriculture. Construction of a single dairy complex in such regions requires the creation of a corresponding nonproduction infrastructure and the allocation of additional capital investments. Second, these regions generally lack rural construction organizations, so finding a contractor involves great difficulties. Agricultural organs do not always willingly allocate capital investments and material-technical means to develop the food base of new TPK's, thinking that the traditionally agricultural regions also have quite a few unsolved problems and also lack capital investment, fertilizer, equipment and other resources. Third, providing agricultural enterprises with manpower is a difficult problem when organizing new sovkhozes in sparsely inhabited regions, and the available skilled workers (tractor drivers, other drivers) are moving to construction and industrial enterprises where wages are higher.

In order to overcome the indicated difficulties, it is appropriate to view the food complex as an integral part of TPK's at all stages of mastering new regions. The ways of forming the food base must be determined early, in the stages of preplanning research and plan development and approval. The planning of capital investments, supplying material and technical resources and

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manpower, etc., must be done within the framework of a unified, comprehensive program of TPK development. When the Neryungrinskiy coal deposit was mastered, for example, institutes of the Siberian division of the VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin] prepared proposals on organizing the food base here simultaneously with the development of documentation on building the coal mine, enriching factory and the Neryungrinskaya GRES (soil research was done, land suitable for agricultural use was revealed, and the size of production facilities was determined). On orders from the USSR Ministry of Coal Industry, planning institutes developed plans for an 800-head dairy complex using the latest technology and means of mechanization and plans for a hothouse combine. The Ministry of Coal Industry is currently building a cow barn for 200 head and a sheet-plastic hothouse, and the necessary capital investments for other agricultural facilities have been allocated.

Such experience in organizing the food base within a single national economic program has demonstrated a number of advantages. First, the use of construction organizations building basic industrial projects provides an opportunity for doing without a special construction base (reinforced concrete plants, quarries, and so on) or small contracting organizations. The use of industrial structures, as demonstrated by the experience of planning the Neryungrinskiy dairy complex, enables us to implement the most progressive architectural-planning resolutions and to introduce leading technology and the comprehensive mechanization and automation of production processes.

Second, the problem of labor resources use is solved. In this case, a single wage factor can be established for workers in both industry and agriculture, since agricultural enterprises are put on an equal footing with the corresponding shops of industrial combines. Family members not employed at the coal mines, quarries, metallurgical combines or other industrial facilities can work on the farms and hothouses. During "peak" periods (harvesting, feed procurement and others), it becomes possible to attract industrial enterprise workers, in a planned manner, to performing agricultural jobs. The procurement and marketing of agricultural output is considerably simplified.

Third, the effectiveness of the entire complex of TPK branches is evaluated more fully and objectively. Experience has shown that if expenditures on creating the food base are not considered when building industrial enterprises, their output prime cost and production profitability indicators are distorted, and those indicators are important to the economic stimulation of their development and expansion, to planning prices for branch end products, and for selecting optimum production siting variants within the region and within the TPK.

In actualizing the indicated proposals, it is appropriate that the technical and economic substantiation for large industrial enterprises and complexes include a section on organizing the food base, just as there are sections on providing enterprises with electric power, water, and so forth. Prospecting is currently being done to develop lumbering and wood-processing industry in

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the northern regions of Buryatskaya ASSR and in Irkutskaya, Chitinskaya and other oblasts, to develop the Molodezhnyy chrysotile-asbestos deposit, the Kholodnenskiy complex ore deposit and the Udokanskiy copper deposit. The plans for these industrial centers must anticipate the creation of a food base for them. Similar work should also be done for several TPK's and industrial centers which have already been developed (Bratsk--Ust'-Ilinskiy and others) but for which appropriate decisions were not made earlier on developing agriculture.

The traditional farming regions of Siberia also require accelerated development. In order to provide the region's population with balanced nutrition, problems of producing stockraising output, especially meat, and vegetables are currently taking on very great urgency. Beef comprises 52.4 percent of the meat produced and pork 31 percent. With extensive opportunities for using industrial technologies and natural fodder resources, these branches will occupy a central place in the region's stockraising in the long term as well. In this regard, if the number of head of cattle stabilizes (production growth occurring through increased productiveness of the livestock), then the number of head of swine and poultry will increase.

The problem of providing livestock with feed is of decisive importance to the development of all branches of stockraising. The production of fodder on plowed land can be increased only on the basis of raising grain and feed crop yields by acclimatizing high-yield varieties, using organic and mineral fertilizers, carefully following agrotechnical requirements, and developing irrigation farming. These measures are long-term in nature and are associated with increased capital investment, expanded deliveries of material and technical resources, and increased personnel skill.

Less capital-intensive variants must simultaneously be actualized as well. They include radical and superficial improvement in natural forage land, and foremost hayfields, of which there is 10 million hectares in Siberia. This is a significant reserve for increasing fodder production. Its full use is especially important in connection with the fact that the proportion of fodder crops in the sown area structure cannot be increased practically, and the resources allocated to intensify feed production are also limited.

Hayfield yields (presently 5-6 q/ha) can be increased to 8-9 q/ha, and in regions with favorable moisture conditions -- to 12-13 q/ha. In order to bring this reserve into play, all natural forage land must be surveyed, perennial grass seed production must be organized, specialized labor collectives (links, detachments) must be created on the basis of interfarm cooperation, and reclamation organizations must be attracted to this work. A comprehensive program of hayfield and pasture improvement must be developed and implemented.

There are quite a few other reserves for strengthening the fodder base. The most accessible now is the use of straw as feed. Even in years of unfavorable weather, 3-5 q/ha of straw can be obtained. However, a significant portion of the straw is presently being burned or being left in piles to perish.

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For example, in 1976, only 15,000 of the 4.2 million quintals of straw gathered on sovkhozes of the Novosibirskaya Oblast agriculture administration was pressed. In some years, farms of several oblasts of Eastern Siberia have been forced to import straw hundreds and thousands of kilometers, while they burn straw in years with favorable weather conditions. In 1976, sovkhozes of the Novosibirskaya Oblast agriculture production administration purchased 277,000 quintals of straw. It is more efficient to feed livestock pellets and cakes made from straw and various supplements than to feed livestock straw in any other form. The cakes are easily assimilated; when stored, they lose less nutrients than when straw is stored in stacks or piles. However, the production of straw cakes is being set up extremely slowly.

Losses of feed and nutrients during harvesting, transporting and storage are considerable. For example, nutrient losses reach 40 percent when fodder is ensilaged in barrows, which was widely practiced until recently on the kolkhozes and sovkhozes, but losses are reduced two-fold or more when fodder is ensilaged in lined trenches covered by sheet plastic. Expenditures on these measures are recompensed in 2-3 years. However, this progressive ensilage method cannot always be used due to the lack of sufficient sheet plastic, and as a result, farms have been forced to permit enormous losses of succulent feed.

Nutrient yields can be increased substantially by harvesting grain forage crops without threshing. According to data from the Buryatskiy comprehensive scientific research department of the Siberian Division of the VASKhNIL, the average yield of fodder units per hectare without threshing in 1976-1977 was 1.5-fold higher than the harvesting for grain and straw, and the digestible protein yield was 1.9- to 2.1-fold higher. Harvesting without threshing, 40.5 quintals of fodder units was harvested per hectare of a pea and fescue mix and up to 41 quintals of oat fodder units. However, this method has also not found broad dissemination in those regions for which it was developed.

Science and practice have accumulated considerable experience in increasing feed production, increasing feed crop yields, and reducing losses in feed procurement and storage. Target programs for strengthening the fodder base for each sovkhoz, kolkhoz, rayon and oblast must be developed on the basis of existing recommendations. The actualization of such programs, supported by appropriate resources and organizational-economic measures, will lead to rapid growth in the production of meat, milk, eggs and other stock-raising output. Ordynskiy Rayon in Novosibirskaya Oblast, where such work has been done for many years now, is an example. As a result, all rayon farms provide all the feed for their own livestock; even in years with the least-favorable weather, and the rayon among the oblast leaders in terms of livestock productivity. It is important to note that it is not individual farms which have achieved good results, but the rayon as a whole. In 1978, some 3,000 kg of milk was obtained from each cow on forage and the market weight of cattle was 450 kg.

Another important direction in increasing the production of stockraising output is its intensification. However, there are a number of specific aspects

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here. In particular, the traditional characteristics of the very concept of intensifying stockraising branches (amount of capital investment, assets, level of mechanization, and so on) cannot be considered to have been exhausted. If productiveness remains unchanged and weight gains do not increase, even in the most perfect complex, one cannot consider such production intensive.

Let us examine several practical aspects of this problem using beef production as an example. The existing system of purchase prices is aimed at having farms sell livestock with high weight gains. In practice, sovkhoses and kolkhozes strive to increase market weights not through intensive fattening, but by increasing fattening time. For sovkhoses of Western Siberia as a whole in 1976-1977, the market weight of young cattle was 341 kg and the fattening time -- 30 months. In several oblasts and krays of Siberia, fattening time exceeds all the allowable norms and is 33 months. This leads to a reduction in the effectiveness of feed use, since young beef add weight faster at an early age. In order to materially interest farms in increasing beef market weight through intensive fattening, rather than by increasing fattening time, it is necessary to change the material incentives system at all levels. In calculations with the farms on livestock, consideration should be given to both weight and age. These standards must be differentiated as a function of breed and natural-economic zone. It might be quite realistic to expect young beef to weigh 460 kg at 21 months of age. Such indicators are being achieved not just by individual production leaders, but by many farms of Siberia. For example, "Krasnoye znamya" kolkhoz in Ordynskiy Rayon, Novosibirskaya Oblast, sells the state young beef weighing 460-480 kg at 20-22 months. In order to obtain a young beef weighing 460 kg at 21 months, an average daily weight gain of about 600-700 grams must be ensured throughout the winter and a gain of 800-900 grams in the summer. The feasibility of this is testified to by the experience of many farms which obtain average daily weight gains of 900-1,000 grams and more. Currently, average daily weight gains on Siberian farms do not exceed 350-400 grams. Consequently, increasing the productiveness of livestock being fattened under Siberian conditions must become the primary direction for increasing meat production.

The extensive way of increasing beef production must not be excluded, but one must decide in each specific instance which direction to give preference to. Increasing the number of head of dairy and meat-dairy breeds is determined by the amount of feed being procured: increasing herd size without considering the status of the fodder base leads to reduced productiveness. However, planning an increase in milk and meat production by increasing herd size without corresponding change in the fodder base is still frequently permitted. At the same time, it is possible to increase meat production by consuming more efficiently those feed resources which cannot be used by dairy cattle. In this instance, it would be expedient to increase the number of head of meat cattle. Now, the proportion of purebred meat cattle in the zone being examined is only 5.2 percent of the total number of cattle. It must be at least 20-25 percent in the future.

Siberia has quite a bit of pasture in mountainous, steppe and other regions suitable for raising meat breeds -- Kalmyk, Kazakh "white-heads," Herefords.

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Breeding them, especially in Chitinskaya Oblast, Buryatskaya and Tuvin'skaya ASSR's, and Krasnoyarskiy Kray, supplements the dairy and meat-dairy herds. An optimum combination of different breeds of cattle creates the possibility of using manpower efficiently, which is of not inconsiderable importance in a region of labor insufficiency. It does not require large capital investment to keep meat cattle: the animals can be kept in lightweight premises and they provide weight gains of 600-800 grams per day.

The development of meat stockraising is currently being retarded by the lack of specialized reproducer farms which could supply sovkhozes and kolkhozes of Siberia with young meat breeds, as well as by the poorly developed network of breeding sovkhozes. It will be impossible to provide all the meat sovkhozes with purebred cattle in the immediate future -- that is a long process. In order to accelerate it, along with expanding the network of breeding sovkhozes, extensive use should be made of the industrial and absorptive crossbreeding of dairy cows with meat bulls. This method is used in Altay'skiy Kray and in Novosibirskaya, Omskaya and other oblasts of Siberia. It has become necessary to develop a target program for developing meat production in Siberia which defines the production levels, number of head of cattle, financial and material means, with the intelligent and full use of the region's rich natural resources.

The question of supplying the region's population with farm products must be resolved with consideration of concrete conditions. Without examining the problem of further increasing grain production (in terms of this type of output, Siberia more than meets its internal requirements, the task now being to increase its role in the national grain balance), let us touch on questions of providing the region with perishables. Even now, potato production exceeds the requirements of Western Siberia by 27 percent and of Eastern Siberia -- by two percent. Experiments by scientific institutions and the work experience of the best farms demonstrate that, given the proper choice of varieties and correct agricultural technology, good potato harvests can be obtained in nearly all regions of Siberia. In the BAM zone (with the exception of Southern Yakutia and Tyndinskiy Rayon in Amurskaya Oblast), potato yields have reached 220-240 q/ha, and in isolated instances 310 q/ha, at research centers of the Siberian Division of the VASKhNIL. In Central Yakutiya, many collectives obtain 180-200 q/ha of potatoes. These indicators can also be achieved in the more favorable southern regions. The difficulty is that farms are provided with insufficient equipment, and especially potato harvesting combines, grading centers and storage facilities. Potato production is also being retarded by the high labor intensiveness of the branch, which is especially perceptible in regions of labor insufficiency. Purchase prices also fail to stimulate an increase in potato production, and individual farms do not recompense production expenditures. The system of marketing potatoes is imperfect and, due to interdepartmental lack of coordination, farms often cannot get what they produce to procurers, although there are interruptions in potato supplies at markets. Consequently, the basic problems in supplying the population with potatoes must be solved organizationally, by creating specialized farms, improving the marketing system, linking sovkhozes to

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specific industrial centers, and also by precisely organizing interblast deliveries and planning efficient transport patterns.

The problem of providing Siberians with vegetables should be solved somewhat differently. At present, actual vegetable consumption is only 40-44 percent of the norm. And Siberia will not be able to fully meet all its vegetable needs in the distant future, since heat-loving vegetables are not cultivated here and must be brought in from the southern regions of the country. In view of this, long-term programs of economic ties with departments of the corresponding regions must be developed to ensure stable deliveries of vegetables and fruit and to outline the ways in which they are to be transported.

In view of the harsh climatic conditions, vegetable-growing on sheltered ground must be developed at accelerated rates in Siberia. In several regions, hothouse combines are the sole supplier of fresh vegetables (cucumbers and tomatoes). In view of the fact that the scope of hothouse combine construction is enormous and requires large capital investments, the Siberian Division of the VASKhNIL has developed an economical sheet-plastic hothouse plan. It is being tested in Yakutsk, Chul'man and in Kazachinskoye Rayon in Irkutskaya Oblast, and it has demonstrated a number of advantages over existing hothouses. We have obtained 21.8 quintals of cucumbers per square meter in it. It seems appropriate to organize the industrial manufacture of such hothouse structures, the delivery of sheet plastic and the construction of hothouse combines in the near future.

Siberia has available to it great opportunities for developing agricultural production. At present, we are set the task of achieving stable grain yields of 16-18 q/ha on kolkhozes and sovkhozes in the near future. A target program which includes increasing the area sown to high-yield new varieties, improving the seed-growing system, steps to combat soil erosion and mastering crop rotation has been planned and is being implemented. Agrochemical soil research, liming, gypsum application and meliorative tillage of solonchaks are being considerably expanded. In the 10th Five-Year Plan, mineral fertilizer deliveries will increase 1.6-fold over the preceding five-year plan. The plan is to irrigate 388,000 ha of agricultural land, drain 180,000 to 190,000 ha of water-logged land, and undertake other major measures in the 1976-1980 period. All this is only the start of a great deal of work to radically raise the level of Siberian agriculture to that which will meet the requirements of the population for food products.

According to calculations by the Siberian Institute of Agricultural Economics, by 1985, Western Siberia can increase gross grain production 1.5-fold as compared with 1980, potato production 1.4-fold, vegetable production 2.5-fold, including a four-fold increase in vegetable production on sheltered ground. The anticipated growth in meat, milk and egg production is somewhat less.

Territorial comprehensive programs must also be developed along with the actualization of branch programs (to increase the production of grain, potatoes and vegetables, to develop meat stockraising, the hothouse system, and so on). Research has already been done on the BAM zone food base and plans

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are being prepared for developing agriculture in the oil and gas regions (in northern Western Siberia). Intensifying agriculture in the Barguzinskiy basin in Buryatskaya ASSR, the Minusinskiy basin, the Barabinskiy lowlands, the Kulundinskaya Steppe, and utilizing the huge fodder resources of the Ob'-Irtys' and Yenisey floodplains are of important significance. Implementation of these territorial programs can be begun in the 11th Five-Year Plan, so the plans should anticipate corresponding target resources.

In this connection, major tasks face the scientific institutions of Siberia, including the Siberian Division of the VASKhNIL. Agricultural scientists are faced with shifting from the development of proposals on individual problems of intensifying agriculture to the development of comprehensive territorial and branch programs for developing agricultural production in Siberia, programs to be interlinked in terms of schedules, resources and aims. The lack of such programs prevents defining a strategy for shaping territorial-production complexes, and partial resolutions made on individual problems do not guarantee an optimum distribution of resources from the viewpoint of national economic interests.

In order to choose intelligent program variants for developing agricultural production, we should develop and use a system of economic-statistical and optimizational models at the "Siberia - economic region - oblast" levels, which would permit coordinating the levels of agricultural food product production and procurement and the rates and proportions of development of individual branches of agriculture. Such a system of models could serve as a reliable basis for making planning decisions if reliance is placed on a scientifically substantiated aggregate of normatives, concepts and forecasts of change in the amounts and quality of resources, especially those available in minimal amounts (capital investments, manpower). To this end, in our opinion, comprehensive research should be done on the following problems: shaping and developing the region's agroindustrial complex and optimizing its branch composition; shaping territorial-production complexes and developing agriculture in their system; forecasting population size, working out food norms differentiated by zone of Siberia, determining the demand for agricultural products; evaluating the agroclimatic and soil resources of Siberia and the Far East and opportunities for using land for agriculture; developing a general reclamation pattern which includes an appraisal of the reclamation resources of Siberia and the Far East, developing irrigation farming and the sequence and levels of reclamation work; developing regional technologies and progressive systems of production mechanization which give comprehensive consideration to the specifics of its development under Siberian conditions; technical-economic substantiations of agricultural production specialization and concentration on the basis of interfarm cooperation and agroindustrial integration; environmental protection measures.

Branch, zonal and local scientific research institutions of the Siberian Division of the VASKhNIL, institutes of the Siberian Division of the USSR Academy of Sciences, institutes of the Siberian Branch of the USSR Academy of Medical Sciences, and appropriate ministries and departments of the USSR and

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RSFSR must be involved in research on the "Sibir'" agrarian program. Comprehensive research under a single program encompassing all regions of Siberia and the Far East and all the branch and territorial problems as organically interlinked can be carried out given target financing through a single coordinating organization. That function could be entrusted to the presidium of the Siberian Division of the VASKhNIL. All institutes working on this topic, regardless of departmental subordination, must be financed from a single source. Only if this is done can the necessary sections of comprehensive subjects be planned for the joint implementing agencies, can the schedules and amounts of financing be determined, and can resources be maneuvered based on the overall goal of the general program. Initially, we should determine as well the customer to whom the specific research results and proposals will be transmitted and who will have opportunities available to it for implementing them.

Such experience in organizing comprehensive research under a unified program with target financing is available (although not in full) at the Siberian Division of the VASKhNIL (proposals were developed for creating the BAM food zone). In 1975, with the participation of 38 institutes of the Siberian Division of the VASKhNIL and other departments, a coordinated research plan and a network schedule for carrying out the scientific research were drawn up. Various ministries have already allocated more than 300 million rubles for implementing the proposals of the program for shaping the food base in that zone; those funds are being used to develop various agricultural facilities anticipated in the comprehensive program. The research results have been used extensively in planning the development of industrial enterprises and territorial-production complexes.

Thus, the development of agriculture in Siberia includes the resolution of a number of large, complex problems, many of which have no analogs in the practical development of agricultural production in other zones of the country. The can be carried out only through the united efforts of science and practice.

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ACCOUNTING IN VEGETABLE RAISING NEEDS IMPROVEMENT

Moscow UCHET I FINANSY in Russian No 10, Oct 79 pp 16-18

[Article by V. A. Konkin, Chief Accountant, Polyanki Sovkhoz, Likhovitskiy Rayon, Moskovskaya Oblast: "Improving the Accounting of Vegetables"]

[Text] On vegetable-growing sovkhozes, the accounting of the sale of vegetables and the settlements made for their delivery to the procurement organizations is a labor-consuming process.

Taking into consideration the fact that vegetables are usually not stored at the warehouses, but, rather, are shipped direct from the field to the procurement organizations, the entering of them as receipts is inseparably linked with sale.

On large-scale vegetable-growing farms (open soil), when the harvesting is done on large areas and hundreds of workers participate in it, it is impossible to weigh or measure the output when it is accepted from the workers. At that time the vegetable output is weighed only when it is being shipped to the procurement organizations or purchasers, that is, when it is being sold.

The peculiarities of the sale of vegetables consist in the fact that the purchasers are dozens of trade, procurement, and other organizations which are situated 160-200 kilometers away, and, in addition, the vegetables and potatoes are sold during a three-month period only. The sovkhozes make deliveries of vegetables to the procurement organizations, for the most part, with motor transportation that has been lent by several dozen motor management and various organizations in the oblast.

It is difficult for the sovkhoz to adhere to the planned (contract) variety of vegetables, since the natural conditions during some years are, for certain crops, less favorable than for others, or vice versa. Therefore for certain crops the sovkhoz underfulfills the planned harvest, and for others it sometimes achieves a considerable overfulfillment of the plan. As a rule, the contract procurement organizations do not take this excess-plan

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output into consideration, since they have their own difficulties that are linked with the additional processing and storage of the vegetables. They also attempt to use various pretexts to reject the planned output. As one of the reasons for that rejection, they point to the failure to meet the contract deadlines, although a great influence is also exerted upon those deadlines by the natural conditions.

Therefore the sovkhos hands over a considerable part of its output to many noncontractual purchasers in small consignments. If the contractual procurement organization does not accept the output or if there is a long queue there, the driver is forced to carry that output to any trade organization, just so long as he can sell it. Although the sovkhos does indicate in the commodity-transportation invoice the name of the recipient, that does not mean at all that the output was handed over specifically to that recipient.

With the existing procedure for making settlements, all these noncontract purchasers do not pay for the vegetables themselves, but, instead, they wait until the sovkhos submits a request for payment authorization. And in order for the sovkhos to be able to submit that request, it must have the acceptance documents in which there is an indication of: to whom the vegetables were turned over, in what quantity, and in what quality. But, as a rule, the motor transport that has been lent from outside the sovkhos does not return to the farm, and therefore, for the next few days after the shipment of the output, the sovkhos does not have the acceptance documents. It is necessary to await the submittal of the bills by the motor-transportation enterprises. Those bills arrive a month later, or sometimes even two or three months later. The receipt of the documents does not end completely even by the end of the year. In addition, these documents do not always satisfy the necessary requirements, since some of them lack appendices providing the authorization to change the quality; others lack the stamp or the countersignature of the acceptance specialist, or it is placed in such a way that one cannot discern the name of the recipient; on other stamps the necessary bank information is missing; etc.

The reckoned weight, which is included in the fulfillment of the plan for the handing over of vegetables to the state, is the weight of the standard and nonstandard output which has been accepted by the procurement organizations, that is, the quantity of output that has been paid for by them.

The weight and quality of the output, as indicated by the sovkhos in the accompanying documents during shipment, frequently do not correspond to the weight and quality of the output as accepted by the procurement organization (purchaser). In the event that there is a discrepancy with regard to the quality of the output, the procurement organization must summons the chairman of the sovkhos, who is granted the right to change it, but frequently the quality of the output is changed by the representative of the State Inspectorate for Quality (GIK). Vegetable shortages during transportation, in our opinion, occur for two reasons: the imprecise

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weighing of the output by the sovkhos as it is being shipped; and pilferages from the railroad cars while in route. The imprecision of weighting is linked with the fact that our station does not have any railroad-car scales. During the shipment of vegetables, the weight of the packaging is determined once a day, and after each unloading there remains in the truck a certain quantity of leaves that have been knocked off, and a certain amount of dirt; the leaves and the dirt gradually accumulate, are included in the gross weight of several trips, and increase the net weight of each trip. But pilferages of output from railroad cars occur through the windows and hatches, without breaking the car seals, whereas the railroad is responsible only for assuring that the seals are intact. Therefore the entering of vegetables as receipts and the writing off of vegetables to be sold (in the debit side of bill No. 46) throughout the year are carried out conventionally on the sovkhos (a definite percentage is taken off the physical weight for waste and shortages).

We made the attempt, in accounting for the vegetables, to employ the following alternative procedures:

1. The entering of receipts is done on the basis of the physical weight of the shipped vegetables, less the established allowance for waste and shortages. We made corresponding entries in the debit side of bill No. 46, "Sale". As a result, the gap between the quantity of sold vegetables and vegetables that were paid for achieves considerable dimensions, and that gap could be eliminated only by writing off the vegetables that are not yet paid for, for the debtors (procurement organizations). However, the sovkhos cannot do this, since, lacking the acceptance documents, the accounting office does not know to whom the vegetables were handed over.
2. The entering of receipts of vegetables and their write-off for sale is done only on the basis of registers appended to the payment authorizations and payment demands. With this alternative procedure, there is no gap between the quantity of entered output, output written off for sale, and output that has been paid for, but no consideration is taken of the vegetables that were shipped to purchasers who temporarily have not been established, and from whom the payment has not been received.

The reporting documentation concerning the turning over of vegetables to the state, which documentation is submitted by the sovkhos during the course of the year to the agencies of the TsSU [Central Statistics Administration], also is conventional. By the end of the year one can frequently note considerable discrepancies in it, which place the leaders of the sovkhos and the rayon in a difficult situation, especially when the plan is being fulfilled with difficulty. Although the handing over of the vegetables ends in October, the sovkhos economists even by the end of the year cannot give with any degree of reliability the precise percentage of plan fulfillment.

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In order to systematize the accounting of the vegetables, the reports concerning the fulfillment of the plan for their sale, and for the purpose of accelerating the turnover rate of the working capital, it would be desirable, in our opinion, to establish a procedure of payment of settlements with the use of payment authorizations, which procedure would be uniform for all procurement organizations and purchasers of agricultural output.

Appendices to the payment authorizations must provide one copy of the registers of the paid commodity-transportation invoices for the accepted agricultural output, and another copy with appended acceptance documents (commodity-transportation invoices with a notation concerning the acceptance of the output by quantity and quality; acceptance documents for the output that has been delivered by rail transport; GIK documents when there has been a change in quality; etc.) must be sent by the sovkhoses to the procurement organizations (purchasers) on the day that the payment authorization is turned over to the branch office of Gosbank.

It is well known that every commodity-transportation invoice must be entered separately in the register, but vegetables that have been unloaded in various months cannot be included in the same register. However, certain procurement organizations, even the contractual ones, include in the register, on a single line, several commodity-transportation invoices at a single time, or append to them the acceptance documents in incomplete volume, or include the commodity-transportation invoices for several months in a single register. Organizations involved in the procurement of grain, milk, meat, eggs, etc. make settlements with the sovkhoses and kolkhoses by means of payment authorizations, just as the fruit and vegetable officers (contractual procurement organizations) do for vegetables. Why, then, shouldn't this procedure of settlements be extended to all other purchasers of fruit and vegetable output?

The introduction of settlements for vegetables only by means of payment authorizations will make it possible to put to an end the payment for vegetables shipped in the previous month until the eighth to tenth day of the next month, and will also make it possible to enter the harvest receipts correctly and completely, and to write off that harvest for sale correctly and completely, prior to the preparation of the monthly balance sheet. With this procedure, the quantitative indices both for debit and credit in bill No. 46, "Sale," will be identical. In addition, this will provide the opportunity for the sovkhos to give correct and prompt reports to the TsSU agencies concerning the fulfillment of the plan for turning over vegetables to the state, since, as of 1 November, the plan fulfillment for the year will be precisely known and there will be a correct reflection of the gross harvest in the report on the harvesting of agricultural crops (Form No. 29-skh). The TsSU agencies will be able to verify easily the reliability of those reports on the basis of the total indicators in the payment registers.

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This procedure of settlements will provide the opportunity for the sovkhoses to organize correctly and promptly the accounting of the quality of the vegetable output that is handed over by every brigade, and will assure the more reliable monitoring of the settlements. When settlements are made by payment authorizations, the monitoring will be carried out when the procurement organizations are preparing the register and when it is verified on the sovkhos. With encashment settlements, the sovkhos worker who formalizes the payment demand can make a mistake in favor of the procurement organization; in this instance, no refusal to accept will ensue, since, on sovkhoses which are not served by RIVS, other accounting workers do not make a check, because of the large work load, especially during the harvesting period.

In addition, the settlements by means of payment authorizations will contribute to a considerable acceleration of the turnover rate of the working capital, since the purchaser who has those documents at the moment of acceptance of the output will not have to make any large expenditures of labor in order to formalize payment for it. Let us consider this question from a different angle. Let us assume that the superior organizations have decided to retain the encashment procedure of settlements for vegetables and have required, by a normative document, all the procurement organizations and purchasers of vegetables to send to the supplier on the next day after the acceptance of the output the appropriate documents, which must contain an indication of the quantity and quality of the accepted output, and also the necessary bank information. Until the supplier receives the documents, formalizes the payment demand, and turns it over to the branch office of Gosbank, and until it arrived as the purchaser's bank, which formalizes the acceptance document (and, with this form of settlements, it is necessary), approximately two weeks go by. But payment by payment authorizations takes only 5-6 days. Consequently the turnover rate of funds with encashment settlements takes twice as long, or even more. In our opinion, it is simpler to draw up immediately the register and the payment authorization than to send the documents, especially since the sovkhos does not always receive promptly the information concerning the prices that have been established for the vegetables.

The correct organization of supplying the sovkhoses with packing materials contributes to the reduction of expenditures for the sale of vegetables, and, consequently, to the increase in profitability.

In our opinion, the existing procedure of supplying the sovkhoses with packing materials needs improvement. Many procurement organizations, when accepting packaged output from the sovkhos, give the driver their own packing materials instead of those that belong to the sovkhos. At such time, the entry "packing materials returned" is placed on the commodity-transportation invoice, and the driver who has received the packing materials writes his signature.

Frequently the procurement organizations release to the sovkhos those packing materials which cannot be used further. As a result, the cost

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of the worn-out packing materials are not written off as expenses involved in procurements and sales, but are included among the production expenses.

The drivers are not responsible for the packing materials. Therefore, when they accept them, in most instances they do not check either the quality or the quantity, and bring back salvageable materials to the sovkhoz. Some of these salvageable materials are lost, since some of the drivers accept them even in the event that they are not going back to the sovkhoz.

Organizing the proper accounting when the packing materials are returned in this manner is difficult, since dozens of motor managements and hundreds of drivers participate in the shipments. Practically speaking, the sovkhoz is unable to locate the drivers who have not turned over the packing materials, or to institute a suit against them. We cannot make any claims to the motor-transport enterprises, since they allocated the transport only for the shipment of vegetables and did not authorize their drivers to transport the packing materials.

During the year the sovkhoz accumulates a large amount of salvageable packing materials. The sovkhoz suffers the loss, although the expenditures for the wear and tear of the packing materials are compensated to the procurement organizations (by the granting of a trade discount to them) and the providing of the sovkhozes with packing materials is their duty.

In addition, this procedure by which the procurement organizations release packing materials to the drivers without the sovkhoz's authorization to receive them is, in our opinion, not a proper one.

In our opinion, the procedure of supplying the sovkhozes with packing materials should be the following: the procurement organizations ship them by rail transport or release them to the sovkhoz's representative who is authorized to receive them, with the authorization necessarily indicating the quantity and quality of the packing materials, and then the packing materials should be delivered to the farm by motor transport.

The procurement organizations accept from the sovkhozes the packed vegetables in their packing. They should make the payment for the accepted packing simultaneously with the payment for the vegetables. After unpacking the accepted output, the procurement organization repairs the packing materials (if necessary), sorts them by categories, and releases them again to the sovkhozes.

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