JPRS 83984

27 July 1983

USSR Report

AGRICULTURE

No. 1393

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MAJOR CROP PROGRESS AND WEATHER REPORTING

OVERVIEW OF SPRING FIELD WORK IN CHIMKENT OBLAST

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 6 Apr 83 p 1

/Article by Yu. Livinskiy, Chimkent/

/Text/ Spring arrived early this year in southern Kazakhstan. However the warm sunny days are still being replaced at times by sharp coldsnaps and frequent rainfall. This is inhibiting the carrying out of field operations. The farmers are countering the caprices of nature with persistence, determination and high professional expertise. Just as soon as the inclement weather disappears and favorable weather prevails, they move all of their equipment out onto the fields without delay.

"As a result of a high work tempo" stated the chief agronomist of the oblast's agricultural administration Ye. Dunayev, "we have already sown our early grain crops on an area that is almost three times larger than that for this same date last year. At the present time, the sowing of spring crops is coming to a close; sowings remain to be carried out only on mountainous tracts."

In particular, the machine operators in Sayramskiy, Chardarinskiy and Bugunskiy Rayons have distinghished themselves out on the spring fields. They surpassed their planned tasks to a considerable degree and achieved high quality in their work.

Work is proceeding at full speed out on the vegetable plantations. The field crop growers in Lengerskiy and Tyul'kubasskiy Rayons were the first to cope with their planned tasks for the planting of garden crops. The farms in Sayramskiy Rayon have the largest vegetable areas and here too the work is being carried out rapidly. The field crop growers at the kolkhozes imeni Lenin, Pobeda, Mankent and others are already completing their planting of vegetable crops.

The farmers in Pakhtaaral'skiy, Saryagachskiy, Kelesskiy and a number of other rayons have already commenced sowing their corn. This year the area on which this crop is to be grown will be increased by 16,000 hectares and total 77,000, of which amount 50,000 hectares will be used for the production of grain. In almost all areas the corn will be cultivated using the industrial technology. The masters of the plantations for this crop promise to obtain no less than 55 quintals of grain from each hectare.

The oblast's rice and cotton growers, who are presently carrying out moisture retention work, are prepared to commence their sowing operations. In short, this is a very busy period for the farmers in southern Kazakhstan. They are fully resolved to carry out all field work as rapidly as possible and in a high quality manner and to establish a strong foundation for the harvest.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

CORN SOWING PLANS, OPERATIONS IN TALDY-KURGAN OBLAST

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 22 Apr 83 p 1

/Article by G. Belotserkovskiy, Panfilovskiy Rayon, Taldy-Kurgan Oblast: "Group Method"/

/Excerpts/ The corn growers in the Dzharkent Valley have moved their sowing units out onto the sun-warmed plantations. This year the plantations have been expanded to 34,000 hectares. The sowings of the early ripening Zherebkovskiy hybrid, which lends itself very well to machine harvesting, have been increased considerably. Last year it was tested on all of the farms in Panfilovskiy Rayon. The results were outstanding: manual labor was reduced by 50 percent. Large areas are being made available at the Kolkhoz 40 Let Oktyabrya for the early ripening R-20 hybrid, which was developed by Bulgarian plant breeders. Seed has been received from Yugoslavia for the new NSK-606 variety, which ripens 1-2 weeks earlier than the well known ZPSK hybrid.

The large-group method of equipment usage is being employed in all areas in carrying out the field work. The industrial technology for corn cultivation has been mastered successfully in the rayon. Today it was introduced on a large portion of the areas. As a result of the all-round mechanization of technological processes and the use of herbicides, the labor-consuming manual weeding of the plantings has been eliminated and fewer inter-rod cultivations are being carried out. All of these factors have served to lower the production cost of the grain.

And the introduction of intensive varieties and hybrids of corn has had a positive effect on the growth in cropping power. During 2 years of the 11th Five-Year Plan the average yield of dry grain in the rayon amounted to almost 60 quintals per hectare.

The sowing of corn in Panfilovskiy Rayon will continue up until the beginning of June in Panfilovskiy Rayon. The field work schedule was literally arranged by hours. The corn growers are aware that their future success is dependent upon the schedules and quality of the spring field work. And their final goal is the same -- to obtain a maximum harvest.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

EARLY SPRING SOWING OPERATIONS IN CHIMKENT OBLAST

Moscow PRAVDA in Russian 20 Mar 83 p 1

/Article by V. Torskiy, Chimkent Oblast/

/Excerpts/ The grain growers in Chimkent Oblast are sowing their wheat and barley. More than 1,200 sowing units, formed into all-round mechanized detachments, have joined in the work. A competition has been launched among them for carrying out the sowing work during the best agrotechnical periods.

In striving to multiply their contribution to the country's food program, the oblast's farmers have outlined high goals for themselves. For the third year of the five-year plan, they have resolved to raise considerably the cropping power of the cereal grain crops and to obtain hundreds of thousands of additional tons of grain without expanding the areas under crops.

Early March sowings make it possible for the seedlings to take root in a fine manner prior to the onset of a dry period and to endure drought conditions better during the ear-forming period.

Corn occupies a considerable area in the structure of the area under crops. Its plantations are being converted over to irrigation. Success has been achieved in building a network of small reservoirs. In Kzylkumskiy, Turkestanskiy and a number of other rayons, lands which were earlier included in a crop rotation plan and also old fallow lands are being included in an irrigated crop rotation plan. However, these lands could be considerably larger if elements of strong-willed decisions were not intertwined in the organization of this important work. Here is one such example. The Oblast Executive Committee called for the development in Saryagachskiy Rayon of 421 hectares of long-fallow land for the cultivation of corn for grain. It was even indicated on which farms this corn was to be grown. And when the planners arrived there, no land whatsoever was available.

Spring this year was both early and overcast in the southern part of Kazakhstan. Heavy clouds dropped a drizzling rain and damp snow on the land. And just as soon as white fleecy clouds began flowing across the sky and rays of the generous and warm southern sun peeped through them, the steppe became alive with the rumbling of motors as the seed for barley and wheat was placed in well moistened soil. The grain growers are striving to utilize more completely the climatic characteristics of the spring period for increasing their yields

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MAJOR CROP PROGRESS AND WEATHER REPORTING

SPRING FIELD WORK PLANS FOR CHIMKENT OBLAST

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 18 Feb 83 p 1

/Article by Yu. Livinskiy, Chimkent Oblast/

/Excerpts/ This year the field work in southern Kazakhstan commenced earlier than usual. At the present time, work is being carried out at a rapid tempo on the winter crop fields in connection with applying a top dressing and harrowing the seedlings and on the spring crop fields -- plowing and tilling the land, with spring sowing operations increasing in tempo.

The farms in Leninskiy Rayon -- one of the largest suppliers of commodity grain in the oblast -- were among the first to commence sowing their early grain crops. Despite the severe drought conditions of last year, the rayon's farms succeeded in completing the two-year task for selling grain to the state. Today the farmers are devoting a maximum amount of effort to establishing a strong foundation for the harvest of the third year of the five-year plan.

"Our chief concern involves the tempo and quality of the work" stated the 1st secretary of the rayon party committee T. Zhumanov, "Plans have been prepared on all of the farms which call for the sowing of the spring grain crops to be completed in 5-6 days. Towards this end, the large-group method of labor organization is being employed in all areas.

Replying in the form of action to the decisions handed down during the May (1982) Plenum of the CPSU Central Committee, the rayon's farmers plan this year to surpass the planned cropping power for each hectare by 3.5 quintals and to exceed to a considerable degree the tasks for selling grain to the state. Towards this end, 1,500 hectares of irrigated land along the Keles and Uyasu Rivers are being developed in the rayon. It is expected that each such hectare will furnish no less than 50 quintals of grain.

A great amount of concern is being displayed for strengthening the feed base. Immediately following the grain crops, approximately 13,000 hectares will be sown in alfalfa, sophora, corn and soybeans. The farmers intend to complete the entire volume of field work in a rapid and high quality manner.

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BRIEFS

RICE SOWING COMMENCES--Chimkent--The Chimkent farmers have commenced sowing their rice. All of the mechanized complexes have been supplied with new equipment: plows for the double-layer replowing of autumn plowed land and disk units. /Text/ /Moscow IZVESTIYA in Russian 18 Apr 83 p 1/ 7026

AIRBORNE ASSISTANCE--A network of local airfields is making it possible for pilots in the southern part of Chimkent Oblast to commence applying a top dressing to the crops during the best agrotechnical periods. Up until this year, they were invariably late in carrying out this important campaign: it was not always possible for the aircraft to take off from the dirt strips owing to inclement weather and thus tractors had to be used out on the fields. As a result, the fertilizer was applied later to ground that had already become dry. This lowered the effectiveness of the fertilizer to a considerable degree: the farmers suffered shortfalls amounting to hundreds of poods of grain. Today asphalt runways have been installed at almost every farm and thus the aviators are no longer being held back by wet conditions. This year a considerable expansion will take place in the network of airfields for agricultural aviation in the more important farming regions of Kazakhstan. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 15 Feb 83 p 1/ 7026

BARLEY, WHEAT SOWINGS--Chimkent--The oblast's kolkhozes and sovkhozes have commenced sowing their early grain crops. The machine operators in the Golodnaya Steppe and Kelesskaya Valley are now planting their barley and wheat seed in the soil. The pre-sowing cultivation of arable land has also commenced in the Turkestan Steppe and foothills regions. More than 800 units have been moved out onto the fields. The plans call for the spring grain crop fields to be sown in just 1 week's time. Special attention is being given to shortening the sowing periods on irrigated tracts. A gain in time will make it possible, following the harvesting of the grain crops, to use the arable land for the sowing of forage crops -- corn, beets, rape and perennial grasses. The rayon agroindustrial associations are exerting a positive effect on the status of the work. In Chardarinskiy Rayon, subunits of land reclamation and water management, Sel'khozkhimiya and Goskomsel'khoztekhnika are actively participating in the pre-sowing cultivation and fertilization of the arable land. This is making it possible to make better plans for the irrigated tracts. At the same time, the tending of the winter crops, which occupy four fifths of the grain fields, has commenced. They are being harrowed and supplied with a top dressing. Use is being made of the agricultural methods employed at the Pobeda Kolkhoz in Lengerskiy Rayon which, by combining a

dosage of organic and mineral fertilizers under non-irrigation conditions, raised the cropping power to 40 quintals per hectare. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 18 Feb 83 p 1/ 7026

EARLIER THAN USUAL--Taldy-Kurgan, 30 Mar--Spring field work in Taldy-Kurgan Oblast has commenced 2 weeks earlier than usual. The machine operators on many farms have already completed sowing their early grain crops and are preparing the soil for corn, soybeans and peas. This year the area to be used for these crops is being expanded to almost 100,000 hectares. The moisture supplies in the soil are low owing to the fact that only a small amount of snow fell during the winter. In order to compensate for this shortage, the machine operators have commenced water supply irrigation operations. The majority of the brigades and teams are carrying out their spring field work on the basis of collective contracts. /by V. Shingarev/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 31 Mar 83 p 3/ 7026

MASS SOWING OF GRAIN CROPS--Taldy-Kurgan, 5 Apr--The mass sowing of grain crops has commenced on fields throughout the oblast. The farmers in Kirovskiy, Kerbulakskiy, Karatal'skiy and other rayons are performing in an efficient manner as they take advantage of each good hour of time. /by M. Davidovich/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 6 Apr 83 p 1/ 7026

MAXIMUM USE OF LAND--Taldy-Kurgan--This year, many of the oblast's tracts which are occupied by winter wheat will provide two crops. The sowing of alfalfa on them has been completed. Following a harvest of grain in June, the farmers will obtain no less than one and a half to two tons of high-vitamin hay per hectare. The oblast's kolkhozes and sovkhozes are undertaking measures aimed at making maximum use of the arable land. They have planted their entire increase in perennial grass plantings following winter grain crops. Low-productivity annual grass tracts they have planted in soybeans and corn for succulent feed, as a result of which the area employed for these valuable crops is being expanded by almost 20 percent compared to last year. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 8 Apr 83 p 1/ 7026

HIGH-VITAMIN HAY--Taldy-Kurgan--This year, many irrigated tracts in the Kazakhstan Semirech'ye region are occupied by winter wheat. The sowing of alfalfa has been completed on them. The tracts will be given a generous amount of water following the grain harvest in June. As a result, each hectare of winter crop field will furnish additionally approximately one and a half to two tons of high-vitamin hay. /Text/ /Kishinev SOVETSKAYA MOLDAVIYA in Russian 13 Apr 83 p 1/ 7026

CORN VALLEY--Panfilov, Taldy kurgan Oblast--"A maximum return from each irrigated hectare" -- such is the slogan of the corn growers of the intermontane Panfilov Valley as they begin establishing their plantations. The seed is being placed in the soil in the initial thousands of hectares of arable land, all of which have been supplied with a generous amount of water from the mountain rivers of the Dzhungarskiy Alatau Ridge region. This method raises the yields by 10-15 percent. In recent years the dry plain region has been transformed into a corn valley: the country's largest irrigated zone, one which specializes in the production

of hybrid seed, has been created here. Individual brigades are growing as much seed as is required for the largest virgin land oblast for the cultivation of plantations for feed purposes. Based upon the plowing up of 2,000 hectares of torrid virgin land, the decision has been made to increase the corn sowings to 36,000 hectares for the very first time. "Acting upon the initiative displayed by the RAPO /rayon agroindustrial association/ Council, corrections have been introduced into the structure of the area under crops" stated the 1st secretary of the Panfilovskiy Rayon Party Committee S.K. Bespayev, "The cultivation of new and intensive varieties of corn has been expanded, including the Zherebkovskiy variety which furnishes generous yields of full-weight ears and, a point which is of special importance, is suitable for combine harvesting. The conversion of the teams over to collective contracts is being accelerated. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 26 Apr 83 p 1/ 7026

HYBRID CORN SEED--Taldy-Kurgan, 28 Apr--Panfilovskiy Rayon is one of the largest suppliers of hybrid corn seed in Kazakhstan. In 1982, 59 quintals of dry grain per hectare were obtained from an area of 34,000 hectares. Twelve million poods were added to the state's granaries, with 40 percent of this amount being hybrid seed. This year the rayon's corn fields are being expanded by one and a half thousand hectares. The corn growers have resolved to surpass the level already achieved. The efforts of the farmers were directed towards this goal during the preparatory period. All of the sowing equipment was prepared in a timely manner. The mass sowing of corn is underway at the present time. In order to augment the supply of moisture in the soil, the sowing is being carried out only after water supply irrigation has been implemented. Organic and mineral fertilizers are being applied to the soil. The technology is being observed in a strict manner. The majority of the brigades are growing their corn according to the industrial technology and with use being made of collective contracts. /by V. Shingarev/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 29 Apr 83 p 1/ 7026

MASS SOWING OF RICE--Taldy-Kurgan, 1 May--"A maximum yield from each check plot" -- such is the slogan of the farmers in the Karatal Valley as they commence their mass sowing of rice. This year all of the farms have introduced the zonal system of farming in the interest of raising the productivity of their plantations. Simultaneously and without plowing up new tracts, they increased the size of the check plots thus increasing the area under crops. This measure made it possible to eliminate hundreds of divider ridges and to plant rice in the fertile soil of the "strips" thus made available. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 2 May 83 p 1/ 7026

CSO: 1824/383

LIVESTOCK FEED PROCUREMENT

AGRICULTURE MINISTER ADDRESSES VASKHNIL ON FEED

PM230916 Moscow SELSKAYA ZHIZN in Russian 22 Jun 83 p 2

[I. Gorlanov report: "V. I. Lenin All-Union Academy of Agricultural Sciences Session"]

[Text] A session of the V. I. Lenin All-Union Academy of Agricultural Sciences [VASKHNIL] opened yesterday. Its participants discussed problems in ensuring increased fodder production and rational feed utilization in the light of the implementation of the USSR Food Program. USSR Agriculture Minister V. K. Mesyats delivered a report on ways to intensify feed production and on tasks facing agricultural science. VASKHNIL President P. P. Vavilov spoke on the basic avenues of scientific research in feed production and enhanced efficiency in fodder utilization.

Taking part in the session are V. A. Karlov, chief of the CPSU Central Committee Agriculture and Food Industry Section; L. I. Khitrun, chairman of the USSR State Committee for the Supply of Production Equipment for Agriculture; V. I. Konotop, first secretary of Moscow CPSU Obkom, and other executives of the CPSU Central Committee, the USSR Council of Ministers, and a number of ministries and departments.

An account of the session's proceedings will be published soon in a subsequent issue of this paper.

CSO: 1824/453

LIVESTOCK FEED PROCUREMENT

FEED PROCUREMENT PROGRESS REVIEWED

Glinka on Haymaking

PM161040 Moscow SELSKAYA ZHIZN in Russian 11 Jun 83 p 1

[Article by animal expert M. Glinka in the column "Agricultural Review": "Haymaking"]

[Text] People in Mari ASSR are well acquainted with the initiative by the leading collectives--the Kommunizm kolkhoz in Gornomariyskiy Rayon, the Gorkiy and Shoybulakskiy sovkhozes and Mariyskiy sovkhoz-technical school--which decided to procure at least 3 tons of fodder per cow this year. Farms in the autonomous republic responded to their appeal and launched competition for exemplary organization of fodder procurements and carrying out of the first cut as quickly as possible to be able to clear the second harvest at the end of June and beginning of July, obtaining at least 30-40 quintals of hay per hectare. The result is that the republic is number one in the Volga-Vyatka region in terms of its grass cutting rate.

This year conditions in many parts of the country will enable farmers to get one or two cuts more than usual and considerably increase hay and haylage procurement. But to achieve this it is necessary to cut the grass in good time, without the slightest delay. The USSR Central Statistical Administration reported that by 6 June the first cut of sown and natural grasses had been carried out on 10 million hectares, which is 80 percent more than by the same date last year. Fodder procurement is accelerating rapidly in Belorussia, the Ukraine, Lithuania, Samarkand Oblast in Uzbekistan, Chimkent and Turgay oblasts in Kazakhstan, and a number of RSFSR oblasts. However, this should not inspire complacency. In fact, in most places this season growth is 15-20 days behind schedule compared with last year. And if one applies this criterion to haymaking organization, one has to confess that in a number of places the work rate is unsatisfactory.

In Belorussia, where 871,000 hectares of grass have already been cut compared with 156,000 last year, there are many contrasting examples. Whereas in Minsk, Grodno and Brest Oblasts farmers have cleared 43.3-46.9 percent of the area to be harvested, the figure for Vitebsk Oblast is 28.3 percent.

In the RSFSR the first cut has been carried out on 3.1 million hectares, including 2,088,000 hectares for hay and haylage--exactly twice as much as

last year. At the same time, mass haymaking is slow to get under way in a number of places. On farms in Tatar ASSR 4 percent of the grass has been cut. The grass has waited too long for cutting on many farms in Kirov, Tambov, Ulyanovsk, and Kostroma Oblasts and in Bashkir ASSR.

The end of the spring and beginning of the summer is a time of changeable weather. By no means always does it favor haymaking. And it is hardly correct for a specialist to urge farmers to use just one technique of procuring grass, for example preparing just hay. If one adopts this approach one may lose the harvest and, anyway, the fodder procurement rate is bound to drop. The winner in difficult weather conditions, is the one who handles his equipment adroitly, procuring hay, haylage, and silage, depending on the possibilities and making wide use of such methods as active ventilation and chemical preservation.

All the technical facilities farms possess must operate as efficiently as possible. The technique of haylage making is interesting in this respect. Its advantages lie not only in higher nutrient yield per hectare compared with hay or silage, but primarily in the lower labor-intensiveness, the possibility of fully mechanizing all operations, and less dependence on the weather. Of course, haylage can only be made if the farm has the requisite equipment and substantial and properly lined storage facilities. The grass harvest is big everywhere, it is important therefore to organize such operations as turning the swathes. Not all farmers are aware of the significance of this operation. Without it, it is impossible to dry the grass out completely or sun-dry it to the required moisture level.

Recently farmers in many places have been laying in trenches chopped hay with a higher moisture content. Scientists are [word indistinct] about this method. This is basically haylage making--laying in overdried haylage, not hay. There is only one difference between these techniques: material laid down as haylage has a 50-percent moisture content and that laid down as "hay" has a 23-25 percent moisture content. The new chopped hay procurement technique has all the advantages of haylage making, except one--the loss of nutrients is greater than in the case of haylage. The loss increases in the fields during the longer drying process and in storage, since when tamping the drier material it is hard, more often than not impossible, to expel all the air. Of course, if need be, when a farm is short of hay storage space and the weather will not permit the hay to be dried to the standard 17-18 percent moisture level, this method can be used. In any case, it is necessary to observe the procedures very strictly, to keep track of the actual moisture content (on the basis of laboratory analysis) and make the relevant adjustments when converting the quantity of procured fodder into fodder units.

Feed Crop Harvest Overview

PM011150 Moscow PRAVDA in Russian 30 Jun 83 First Edition p 1

["Harvest Watch: Agricultural Review" prepared by USSR Ministry of Agriculture specialists: "When the Grasses Ripen"]

[Text] The harvest is underway in the south of the country. In other regions the tending of sowings continues. The range of vegetables on the store counters is becoming more varied. Hothouse cucumbers and tomatoes are giving way to produce from the fields and truck farms. Orchard growers are dispatching sweet and sour cherries and apricots. Workers in the agroindustrial complex are filled with the desire to grow a good crop, gather it in without losses, and make a worthy contribution to the implementation of the CPSU Central Committee June (1983) Plenum decisions and the country's Food Program.

Fodder procurement is among the priority tasks in the countryside. Grasses have done well nearly everywhere. They have ripened earlier than usual. According to the USSR Central Statistical Administration, by 27 June sown and natural grasses had been cut on an area of 28.3 million hectares on kolkhozes and sovkhozes, which is considerably more compared with the same period in the previous season. Some 20 million tons of hay and 28.5 million tons of haylage have been procured. Stocks of these now exceed last year's by 9.2 million and 9.3 million tons respectively.

On the farms of Lithuania, the Ukraine, Belorussia, and Uzbekistan, grasses have been cut from 75-90 percent of the area. In the RSFSR fodder procurement workers in Voronezh and Belgorod Oblasts are ahead--here more than half the required hay has already been laid in.

What ensures the success of leading collectives? First and foremost the specialization of fodder production, wide utilization of progressive labor methods, and shock work by machine operators. More than 76,000 harvesting and transport complexes, detachments, teams, and units are now operating in the fields and meadows. A considerable number of them have gone over to the collective contract system. On the Bashkir 6-letiye Soyuza SSR Sovkhoz, for instance, nonregulated units have succeeded in obtaining 180 quintals of greenstuff from each hectare of perennial grasses and laying in 1,762 tons of haylage and 425 tons of hay. On Zhitomir Oblast's Lenin Kolkhoz, in Popelnyanskiy Rayon, three detachments have procured 1.5 tons of hay per cow. The rayon already has 13,000 tons of hay, where the target is 12,700 tons.

Many kolkhozes and sovkhozes have acted as initiators of the quest to create a fodder reserve sufficient for 18 months to 2 years. Workers on Grodno Oblast's progress kolkhoz are harvesting greenstuff around the clock. Working in two shifts, L. Konon and S. Tsybulskiy are each cutting 500 tons or more of grass. In Ivano-Frankovsk Oblast the unit led by A. Markovskiy of the Les Martovich kolkhoz in Gorodenkovskiy Rayon has distinguished itself, fulfilling 1.5-2 norms daily.

There are many such examples. But mention must also be made of the large unutilized reserves. Not all kolkhozes and sovkhozes have successfully taken account of the peculiarities of this year's season. The grasses have ripened long since, but many farms in, say, Yaroslavl Oblast only began haymaking in mid-June. Only 13 percent of the meadows allocated have been harvested there. Kolkhozes and sovkhozes in Smolensk, Ulyanovsk, Vladimir, Tambov, and a number of other oblasts are dragging out the fodder procurement.

It is well known that the machine operators' output depends largely on the condition of machinery and skill in using it. Unfortunately a considerable quantity of machines on the farms have not yet been brought out into the meadows. In Georgia and Kalmykia 5-10 percent of tractor mowers, pickup balers, and mower-pulverizers are idle, while in Irkutsk and Chita Oblasts the figure is nearly one-third. Here much of the blame rests with kolkhoz and sovkhoz leaders and specialists who failed to ensure timely preparation of the machines. But many machines are idle, in particular, because associations of the State Committee for the Supply of Production Equipment for Agriculture and Industrial Enterprises have not fully supplied the farms' requirements for spare parts. Rayon and oblast agroindustrial association councils must demand efficient fulfillment of duties from the partners. All machinery in the countryside must work to full capacity.

Many of the country's farms are obtaining high-grade haylage, silage, and hay. But this rule is not kept everywhere. On the Chernskiy sovkhoz in Tula Oblast, alfalfa cut from 65 hectares lay in the swathes for nearly a week. The picture was the same at Moldavia's Skynteya specialized fodder production association.

A major role in improving fodder quality belongs to progressive techniques. With field drying of grasses, particularly in unstable weather conditions, nutrient losses sometimes reach 40-50 percent. Active ventilation and pressing of hay reduces these losses by half. Nonetheless leading methods of harvesting fodder crops are being introduced only slowly, although the pickup balers and ventilation installations available on farms could lay in a great deal of this fodder.

The laboratories of kolkhozes, sovkhozes, and agrochemical and veterinary services watch over fodder quality. There are some 14,000 such laboratories in the country. With correct organization, laboratories can monitor the preparation of the main bulk of the forage in good time. But in Mogilev, Vitebsk, and a number of other oblasts, this work is not efficiently organized everywhere. The results of analyses often reach the farms late and are not always utilized in order to eliminate shortcomings in fodder procurement techniques.

Many city dwellers work alongside rural inhabitants in the haymaking. They give the farms great assistance. In order to make this assistance even more effective, every kolkhoz and sovkhoz should take care to create favorable conditions for work and normal leisure for envoys from cities and industrial centers.

The grasses cry out to be turned into haystacks. But the mowers do not always come to the meadows. Sometimes thousands of hectares of untouched grasses are left for the snow. This has often happened in Vologda, Novgorod, Pskov, Kalinin, and a number of other oblasts. To prevent this from happening this year, it is necessary to mobilize all forces for hay procurement. Where forces are lacking, we think that neighbors--near and far--should be invited to help so as to make fuller use of the gifts of the meadows through joint efforts, in accordance with the principles of mutual advantage and reasonable cooperation. The republican and oblast councils, economic organs, and agroindustrial associations concerned must pay attention to this potential and resolve this question jointly. After all, it is better to secure highly nutritious fodder now than to go to the ends of the earth in search of straw later.

The haymaking is in full swing. It will result in abundant forage reserves for those who display the greatest efficiency and thrifty sense in the use of available resources.

CSO: 1824/452

LIVESTOCK FEED PROCUREMENT

STATUS OF HAYMAKING REPORTED

LD222350 Moscow Domestic Service in Russian 1800 GMT 22 Jun 83

[Text] At kolkhozes and sovkhozes in the country grasses have now been gathered on a quarter of hay-mowing land. The USSR Central Statistical Administration reported this today. As is noted by Comrade Bessarabov, deputy chief of the Fodders, Meadows and Pastures Main Administration of the USSR Ministry of Agriculture, the first cutting of grasses is being carried out at the highest rates by the fodder-procuring teams and units of Ukraine, Belorussia, Lithuania and Krasnodar Kray. At the moment 14.5 million metric tons of hay have been prepared in the country, about 20 percent of the quantity planned for. Kolkhozes and sovkhozes of Uzbekistan have fulfilled the plan for the preparation of haylage.

However, in many regions of the Russian federation far from all opportunities are being used to procure fodder at an early date, when grasses have the highest nutritional value. Thus farms of Kuybyshev Oblast are noticeably lagging behind their neighbors in laying-in haylage. Only 16 percent of the planned-for hay has been put into storage in Kaluga Oblast, while in Moscow Oblast, for example, almost a half has been laid in.

CSO; 1824/451

MODELS OF FOOD COMPLEX PROPORTIONALITY PROPOSED

Moscow VESTNIK SEL'SKOKHOZYAYSTVENNOY NAUKI in Russian No 5, May 83 (manuscript received 16 Jan 83) pp 41-50

[Article by V. D. Goncharov, candidate of economic sciences, VNIESKh [All-Union Scientific Research Institute of Agricultural Economics], and S. I. Mozokhin, candidate of economic sciences, TsENII [Central Scientific Research Economics Institute of RSFSR Gosplan]: "Problems of Proportional Development of the Food Complex"]

[Text] In the present stage of development of the country's productive forces formation of the food complex is a qualitatively new stage in the social division of labor and an objective necessity in development of the productive forces in the stage of mature socialism. Transformation of the country's economy into a single national economic complex and the high degree of specialization of the branches of the food complex signify a transition from traditional relations among its branches to creation of a single and unified food complex.

A high level of social division of labor results in the emergence of many types of production activity, and close economic relations among them are mandatory. Any specialized labor, when it figures as a part of social production, has relations imposed by continuation of the production process and by exchange of activity with other types of labor. "Exchange ...," K. Marx wrote, "establishes a relation between the spheres which are already different and transforms them into branches of overall social production more or less dependent on one another" (K. Marx and F. Engels, "Sochineniy" [Works], Vol 23, p 364). Under the impact of scientific-technical progress agriculture not only augments ever more vigorously the production of foodstuffs, but is transformed into an interested partner of the food industry.

The country's food complex comprises the sum total of interrelated and interdependent branches of physical production and a number of production operations in the service sphere which are united by the common goal of socialist society--satisfying the needs of the population for foodstuffs with minimum labor, physical and financial inputs. The sectors of the economy have a differing degree of participation and different roles in the food complex. For instance, according to the data of the intersector balance of production and distribution, agriculture accounts for 46.4 percent of the physical inputs in

production of foodstuffs, the food industry 36.7 percent, the trade sector 9.9 percent, and other sectors of the economy 7 percent [1]. For all practical purposes the agriculture and the food industry account for the bulk of inputs in the food complex.

The functional purpose of the food complex and the ultimate goals of its development also determine to a considerable degree the configuration of subdivisions in its makeup. All the branches making up the food complex fall into three groups or spheres depending on their functional purpose and the order of sequence in production of foodstuffs [2]. The first sphere consists of those branches producing means of production for the food complex and rendering it production services: tractor and agricultural machinebuilding, machinebuilding for animal husbandry and fodder production, machinebuilding for the food industry and trade sector, production of manufactured fertilizers and chemicals for plant pest and disease control, material and technical supply (performed by enterprises and organizations of USSR Goskomselkhoztekhnika [State Committee for Supply of Production Equipment for Agriculture]), reclamation or agricultural construction, and the microbiological and mixed feed industry. The second sphere consists of the branches of cropping and animal husbandry, fishing and pisciculture. The third sphere consists of the branches for procurement, processing and storage of the product and for getting it to the consumer.

Formation of the country's unified food complex involves a large range of very important planning problems, one of which is the proportionality and balance of all the components which make it up. The principal indicators reflecting the proportionality and balance among the branches of physical production and the nonproduction sphere of the food complex should embrace all branches included in the complex regardless of their departmental subordination and all the labor, financial and physical resources committed to its development.

To be balanced with respect to its internal content the complex must display balance of effective public demand with commodity turnover, of commodity turnover with commodity resources, of the intended volumes of production and new construction with labor resources, of physical resources with capital investments, of the needs of production with available raw materials and fuel and energy, and so on. The food complex can develop effectively only if there is reliable proportionality and balance among its interdependent branches and on the basis of optimum use of labor resources, physical resources and capital investments at the point of highest satisfaction of the needs of the public for foodstuffs. This is obvious since balance of the food complex with respect to needs and resources could be achieved at differing levels of its effectiveness. For precisely that reason substantiation of the proportionality and balance of the elements of the food complex with respect to needs and resources must start with the overall level and lines of development of the country's productive forces, the socioeconomic development of the national economy and the maximum possible satisfaction of the needs of the public for the end products of the branches of the food complex. By virtue of the fact that there are many participants in carrying out the country's Food Program, their activities must be strictly coordinated. This requires not only a great deal of organizational activity, but also clear and close monitoring of the

work being done by all participants in the food complex. Only then can proportionality and balance be realistically achieved with respect to all lines of its practical activity.

Proportionality among the spheres and forms of economic activity of the food complex (see the diagram, Figure 1) includes proportionality of production of means of production, fuel and energy, fertilizers, chemicals for plant pest and disease control, and so on, with agriculture (I--II); of production of equipment with the branches of the processing industry (I--III); of industrial processing with agricultural production (II--III); of procurement, transport and agricultural construction with agriculture (IV--II); of the trade sector and food service industry with the food industry and the production of agricultural products ready for use (V-III, II).

It is unthinkable for the food complex to be effective and to have good end results unless there are connections between the branches of industry and those of agriculture. Agriculture has a constant need for highly productive grain combines and silage harvesters, manufactured fertilizers, chemicals for plant pest and disease control, building materials, equipment, and so on. In a number of cases the equipment must be manufactured in regional modifications because of the peculiarities of performing agricultural operations and the climatic conditions in the regions. Specific types of manufactured fertilizers and chemicals for plant pest and disease control are required depending on regional conditions and soil quality and fertility. At the same time in planning practice, even when the volumes of work are correctly balanced, balance and proportionality among the branches of the food complex are disrupted along this line. The output of highly productive agricultural equipment proves to be inadequate, equipment adapted for extreme and specific conditions is not available in the necessary amounts, and in a number of regions there is a shortage of particular kinds of fertilizers.

The drop in the shift coefficient of operation of tractors and other agricultural equipment is also standing in the way of higher efficiency in the use of physical and technical resources in agriculture. The shift coefficient of the operation of tractors, for example, dropped from 1.2 in 1965 to 1.1-1.05 in 1979. According to data of USSR CSA [Central Statistical Administration], about half of work time related to use of equipment is lost for organizational reasons [4]. There is a tendency toward a rise in the coefficient of retirement of tractors and other agricultural machines such as tractor plows, cultivators, grain planters, and grain-harvesting combines.

In a number of regions of the country the persistent disproportion between nitrogen and phosphorus fertilizers has not been corrected. The ratio of nitrogen to phosphorus in these fertilizers is 10:6, whereas the optimum would be 10:9. All of this is not contributing to the effective functioning of the food complex and is resulting in large losses of agricultural products even in the actual stage of their production. Because of the inadequate technical supply and low quality of machines, principal agricultural operations take 2-3-fold more time than the optimum, and as a result the country's farms are falling short in their output by billions of rubles [3].

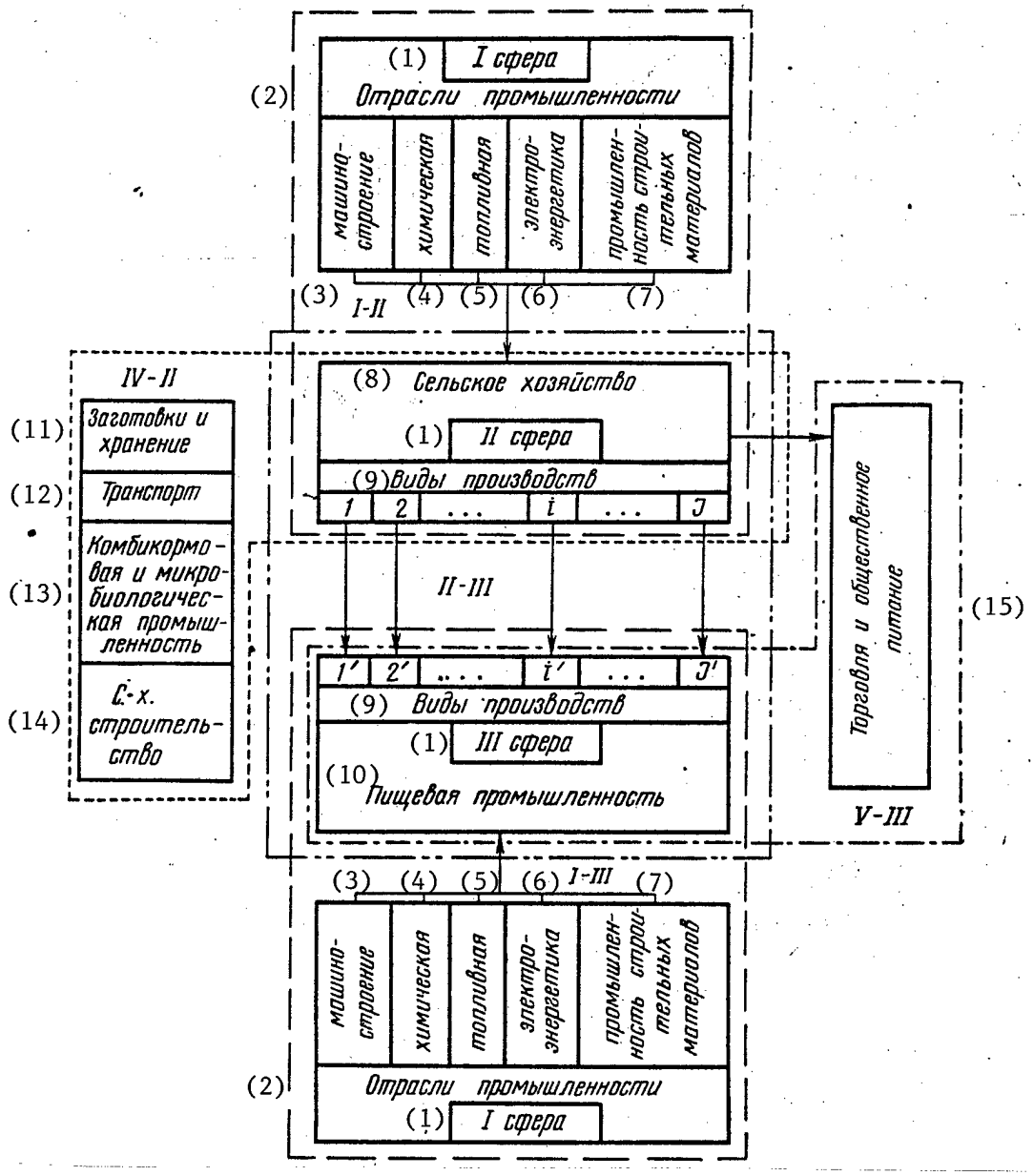

Figure 1. Zones of linkage and proportionality of the components of the food complex.

Key:
1. Sphere ...
2. Branches of industry
3. Machinebuilding
4. Chemical
5. Fuel
6. Electric power
7. Building materials industry
8. Agriculture
9. Types of production operations
10. Food industry
11. Procurements and storage
12. Transport
13. Mixed feed and microbiological industry
14. Agricultural construction
15. Trade sector and food service industry

Proportionality in the development of branches in these two spheres of activity demands that the required technical supply, full mechanization and automation of all laborious agricultural operations be ensured on the basis of balance calculations in accordance with the intended volumes of agricultural production and that the interrelated set of soil and crop practices be brought into conformity with the scale of agricultural production.

Proportionality and planned linkage of the volume of production of the most important agricultural product with the volume of their processing at enterprises of the food industry are especially important to the effective functioning of the food complex. But there are still disproportions in location of state procurements of farm products and the production capacities for processing them. We have been feeling a shortage of production capacities for meat production in UkSSR, LaSSR, LiSSR, MSSR and BSSR. At the same time in a number of oblasts, krays and autonomous republics of RSFSR state purchases of livestock and poultry have been lagging behind production capacities for meat production. Because of the shortage of production capacities about a third of the livestock is being processed at technically outdated enterprises and outside industrial enterprises, which results in sizable losses.

The balance of production and processing of agricultural products must be based on a system of balance computations of raw materials for industrial processing and of resources for public consumption. The calculation of raw materials available for industrial processing must take into account both primary and secondary processing of farm products. The balance computations for raw materials for the food industry make it possible to correctly substantiate the volumes of production of the processing industry and bring them into conformity with the production of the most important agricultural products. The performance of the food complex in terms of its end result and its efficiency depend on proportionality and balance of branches in these spheres.

Development of the food complex also requires proportionality between branches engaged in processing farm products and branches which deliver technical devices and equipment to them. Shortages in deliveries of highly productive equipment to the food industry often result in underutilization of the production capacities of enterprises, deterioration of the quality of the finished product, and overconsumption and losses of the raw materials coming from agriculture. The balance between the need for and production of equipment for the branches of the food industry must be structured so as to take into account reconstruction and retooling of enterprises and new construction. The need for and production of technical equipment, linked with respect to quantity and qualitative characteristics, serve as a guarantee of the effectiveness of the entire food complex.

An equally important task is to achieve balance between the volume of production of various agricultural products and the system for their procurement, transportation and storage. The losses that occur of farm products which have been raised are explained by the inadequate number of elevators, vegetable- and potato-storage facilities and refrigerated storage. Although capital investments to build elevators are returned in 3 or 4 years, the plan for their activation has not been fulfilled for several years now. It is important to

bring into conformity with the volume of production of agricultural raw materials and products not only plans for purchases, freight traffic and the capacity of storage facilities, but their qualitative characteristics as well. Care must be taken so that they meet the established norms, which will eliminate losses in intermediate stages--in the delivery and storage of the product. Development of a food complex that is fully balanced in all elements, and especially of its regional food subcomplexes, will enhance the scientific soundness of the plan and will make it possible to use the labor, physical and financial resources allocated for these purposes more effectively.

The balance of the trade sector and food service industry with the rates and volumes of production of foodstuffs in the sphere of agriculture and the food processing industry is important to the functioning of the food complex. Failure to observe proportionality between them causes difficulties in selling the finished product and results in losses in the distribution sphere.

Every year the state allocates very large funds for construction of stores and other enterprises in the trade sector. As a consequence the number of food stores increased from 87,100 in 1965 to 104,100 in 1980. This has appreciably diminished the load on trade enterprises and reduced the radius of the area served. But the number of enterprises of the trade network and storage capacities still fall short of the norms. This is particularly felt in AzSSR, KiSSR, TaSSR, Omsk and Novosibirsk Oblasts, Altay Kray and Udmurt ASSR. In spite of the inadequate number of trade enterprises, funds for their construction are not being fully put to use in all places. This was the reason, for example, why the plans assigned for the growth of salesfloor area are not being fulfilled in Voronezh, Kuybyshev, Ulyanovsk and Magadan Oblasts [5]. Elimination of the shortage of sales outlets and food service enterprises helps toward establishing a normal schedule convenient for the public in the sale of foodstuffs, prompt delivery of products to the consumer, reduction of losses and preservation of quality, and ultimately fuller and more prompt satisfaction of the needs of the public for foodstuffs.

Within the food complex there is a lag in development of production and deliveries for the mixed feed industry of raw materials containing protein of animal and plant origin manufactured from the scrap and waste of the food industry. The mixed feed industry is experiencing a shortage of meat-bone meal, fodder yeasts, fishmeal, oilcake and oilseed meal, powdered defatted milk, so that a portion of the forage grain remains unprocessed and is fed to livestock in unprepared form. Yet potential exists for increasing deliveries of these raw materials. For instance, bones, which are a valuable raw material for the mixed feed industry, are not being used wisely: every year more than 34 percent of them go for the production of glue and fertilizers. According to our calculations, if fuller use were made of the scrap and waste of the meat industry and if the transition was made to a new technology for their processing, it would be possible in coming years to produce an additional amount of about 300,000 tons of dry feeds per year.

The food complex is an inseparable organic part of the country's unified national economic complex. Its organization is based on interrelations of sectoral and regional planning, so that the interests of the national economy, of

sectors and of regions are combined in its planning and functioning. The target-program method of study and the systems and comprehensive approach must be laid down as the foundation for substantiating the food complex.

The target program method presupposes that the entire national economy is viewed as a single complicated organism consisting of a large number of economic entities at various levels. The national economic complex and food complex have in turn a multilevel hierarchical structure whose quantitative and qualitative content differs from the sum of the elements making it up. The reason for this is that each economic entity of the complexes influences in its own way the end results of the activity of all the units which are part of them. The peculiarity of the systems approach is that the economic entity, which is viewed in the context of the unified national economic complex or food complex, cannot be studied by analogy with its isolated development and location, since the effectiveness of entities and also the direction and level of their prospective development depend on the effectiveness of the entire national economy and of the food complex.

In the shaping of the food complex and in evaluation of its economic effectiveness one must start from the following basic principles. The national economy and the food complex which is an integral part of it must be viewed as complicated, but unified, complexes consisting of a set of interrelated branches and economic entities, with their peculiarities in the forms of the organization and location of production. The unified national economic complex and the food complex within it are organized multilevel hierarchical structures. The practical activity of each economic entity in the unified national economic complex and food complex exerts an influence on the development and location of all other elements making them up. Each of them is something more than the same entity viewed in isolation. Formation of the complex must be based on the effectiveness of the regional division of labor, based on the interests of the national economy. In other words, one of the conditions for building the food complex must be scientifically sound location of the productive forces over the territory of the country.

The food complex must be viewed as a dynamic and developing system realizing both long-range and strategic goals as well as short-term and tactical goals on the basis of balanced and proportional economic development. The formation of the complex must be purposive, must be adjusted in development and location to resources and to performance of the economic, social and political tasks of social production. In its most general form this signifies that the food complex, as a part of the whole, is based on the results of optimum location of the productive forces over the territory of the country. As a practical matter it makes the effectiveness of creating the complex dependent, first, on the general level of development of social production, and second, on the regional division of labor in economic regions and TPK's [regional industrial complex]. Since the regional organization of production is a part of the unified system of the social organization of production, formation of the complex and its economic efficiency must be subordinated to the principal goal of social production, and its development and location are improved from the standpoint of the effectiveness of the entire national economy. The scientific foundations of creating the complex are in turn an integral part of the theory of development and location of the productive forces.

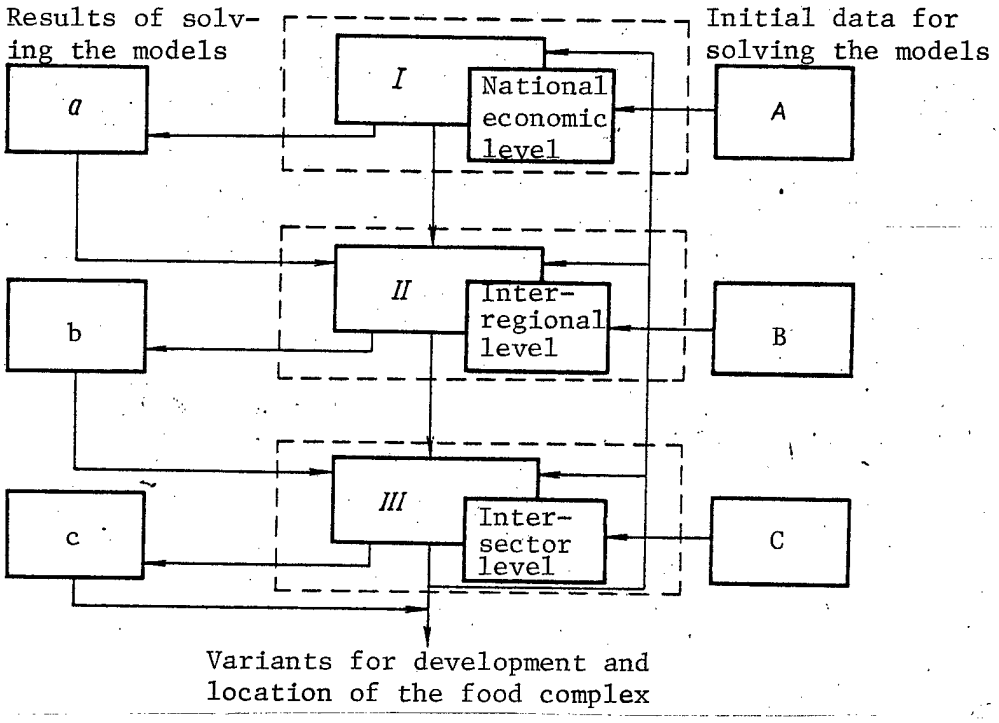

Figure 2. Basic levels and systems of models used in working out and evaluating the effectiveness of the food complex (realization of the systems approach): I--model of development of the sectors of the economy and models of the location of the branches of industry and the branches of agriculture (interregional, zonal and interbranch); II--interregional, intraregional and branch models of location of the branches of industry and the branches of agriculture; III--models of formation of regional industrial complexes and branch and interbranch complexes of industry and agriculture; A--standard indicators of the consumption of the products of the branch i in the product of the branch j, capital investments in the national economy and labor resources for the country; B--capital investments and labor resources for development of the branches, standard rates of consumption of resources; C--overall level of development of the TPK and of its units, composition and relative proportions of branches, adequacy of the supply of resources, the production and social infrastructure, transportation and the construction capability; a--rates and proportions of development of interrelated branches of the food complex in the country, in economic regions and in zones; b--rates and proportions of interrelated production operations in the food complex within regions, zones and regional industrial complexes; c--rates, proportions and the branch structure of the food complex in industrial centers, oblasts and subregions of the TPK.

The interrelationship of the problems in shaping the food complex, of the location of the productive forces and of raising the efficiency of the unified

national economic complex determines the choice of the criterion and the indicators of effectiveness, which reflect the overall goals of development of socialist society. But this means that these criteria must be identical for all the hierarchical levels--enterprises, associations, branches, economic regions, and the country as a whole, that they be devoid of specificity. This is obvious, since each economic entity, as the scale increases, becomes dependent on the ever growing influence of a multitude of economic, social, political and defense factors, so that it is impossible to determine effectiveness unambiguously or to define their system, for example, for the enterprise and the republic.

The system of studies related to development and location of the production complex can be provisionally divided into three levels: the national economic, interregional and interbranch levels. Each of them brings together at the same time the solution of both branch as well as regional problems of planning (Figure 2). There are two reasons why identification of the three levels of study is provisional. First, the tasks related to development and location of the food complex, regardless of their scale and goals, have national economic importance. Second, a clear line cannot be drawn between national economic planning, branch planning and regional planning, which are interdependent and intertwined, which flow one from the other and which are subordinated to a single goal--increasing the effectiveness of all social production, including that of the food complex.

The principal peculiarity of these levels is that each subsequent stage of investigation relies on the results of the previous one. The reason for this is their interrelationship and the sequence in solving the problem that has been raised, beginning with the general and ending with the particular. This sequence and continuity in studies of the development and location of the food complex arise out of the general methodology of analyzing and evaluating the economic development of all its component elements.

The national economic level includes two stages of research. The first has to do with working out the intersector balance of production and distribution of products in the national economy. This balance is used for variant calculations of rates, proportions and the branch structure of development of the food complex on the basis of the principal socioeconomic tasks and lines of development of scientific-technical progress. The second is aimed at identifying the most optimum rates and proportions of the branches of the food complex in economic regions on the basis of those same tasks of national economic planning as in the first stage of the research. Research at the interregional level has to do with development and location of the branches of the food complex in economic regions and within each one of them the location of the subbranches and types of activity of the food complex for the principal TPK's and zones of the regions. This research is performed on the basis of more precise data on rates, proportions, composition and structure of production operations, capital investments and labor resources, their development in these taxonomic units on the scale of the entire country. This research is necessary because production operations are so highly aggregated at the level of the national economy and because of the somewhat different tasks to be solved at the previous levels.

Interbranch analysis of the development and location of the branches of the food complex concentrates within itself the results of all the previous stages and is subordinated only to interbranch problems. Possible disproportions in the development of any unit of the region's food complex, shortages in the supply of equipment, fertilizers, transportation or raw materials, failure to solve rural social problems, and deficiencies in interbranch relations are felt particularly at this level. This is essentially where all the factors determining the effectiveness of shaping the food complex in a comparatively small area come into interaction. And whereas in the previous stages it was possible to avoid the effect of certain conditions influencing the effectiveness of regional organization of the branches and production operations of the food complex, this cannot be done at the local level. The entire logically structured system of research to evaluate the effectiveness of formation of the country's unified food complex actually ends here at the regional level. That is why research pertaining to the regional level is brought to a high degree of detail both from the standpoint of branch planning and also regional planning on the basis of the national economic approach.

The step-by-step drafting of the optimum plan for development and location of the branches of the food complex requires that the model have both information linkage and logical linkage. This linkage is achieved when the results of the optimization computations for certain models serve as input in models of the subsequent levels. Taking into account that the proposed system of models, which is represented in Figure 2, has not yet been solved, but only exploratory research has been conducted, specifically in the Council for Study of the Productive Forces of USSR Gosplan and VNIESKh, we will give fragments of the problems at various levels which we have already solved.

The meat subcomplex has very great importance in the country's food complex. The regional structure of meat production needs to be improved in order to improve its effectiveness. The end product of the subcomplex--meat and grade I meat by-products manufactured at enterprises of the meat industry--must be taken as the basis of the computations. The pricing conditions in effect do not make it possible to use in the computation the reported production cost of meat in the processing industry. Minimum costs of production of the end product was taken, then, as the optimality criterion in solving the optimization problem. Two components are included in the costs of meat production. The first includes costs of production of meat, including its production cost on kolkhozes and sovkhozes in a regional breakdown per ton of the end product. In order to calculate the second component we studied the cost structure of meat production in the meat industry over a number of years with respect to the principal types and determined the costs of processing for the regions of the country. The first component was determined as the average weighted production cost of meat over the 1976-1980 period per unit of the finished product, that is, the costs of the raw material was determined.

Shipping costs to deliver the end product of the subcomplex to areas of consumption were not included in the solution of the optimization problem. The costs of transporting meat are not great by comparison with regional differences in production cost and do not essentially influence the effectiveness of location. Regional differences in production cost per ton of beef were 1,200

rubles in a number of cases, while shipping costs per ton of frozen beef were, for example, 33.3 rubles per 5,000 km. The principal types of raw materials in the meat industry are beef, mutton, pork and poultry meat, and information on them were used.

Solving the problems afforded the possibility of determining the optimum structure of meat by regions of the country in the future. The optimum variant of regional specialization of meat production presupposes expanded production of beef in the Baltic republics and UkSSR, pork in UkSSR, LaSSR, ESSR, in the Southwest, North Caucasus and West Siberian Economic Regions of RSFSR. We should specifically mention the production of poultry meat. According to the calculations, it would be advisable in future to reduce the share of RSFSR in production of poultry meat and at the same time it would be advisable to increase the production of this type of meat in UkSSR.

We will examine the solution of the optimization problem of development and location of enterprises of the food industry within a region by taking the example of enterprises for the processing of cottonseed. The minimum imputed costs of processing and transporting 1 ton of cottonseed to oil and fat enterprises was taken as the optimality criterion in solving the problem.

Prospects for development and location of cotton growing and the cotton ginning industry were taken into account in solving the problem. The model did not include restrictions on the size of transportation flows of cottonseed occurring in particular directions. The calculations were made on a BESM-4 electronic computer in the computer center of the Council for Study of the Productive Forces of USSR Gosplan for two levels of production of cottonseed oil. The first exceeded the volume of processing of technical cottonseed attained in 1980 by 20.8 percent and the second by 33.7 percent. Solving the problem afforced the possibility of determining the most advisable variants for expansion or reconstruction of existing plants and construction of new plants of the oil and fat industry. Optimum location of enterprises for processing cottonseed will reduce the gap between its production and processing. The average radius of shipments was 162 km for the second level of processing, as against 354 km in 1975.

Conclusions

The system of research related to development and location of the production complex can be grouped in three levels: the national economic, the interregional and the intrabranch. Each of them brings together at one and the same time the solution of both branch problems of planning and also regional problems of planning.

Solving the system of models for development and location of the food complex will ensure balanced development of its branches and will increase the effectiveness of its functioning.

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CSO: 1824/405

MILITARY AGRICULTURAL ENTERPRISES PROVIDE FOOD PRODUCTS, LIVESTOCK

Moscow KRASNAYA ZVEZDA in Russian 24 May 83 p 2

[Article by Col Gen I. Isayenko, chief of the Central Food Administration, USSR Ministry of Defense: "A Year of Intense Labor: Fulfilling the Food Program"]

[Text] One year ago the CPSU Central Committee plenum adopted the USSR Food Program. For the Armed Forces, which continued to fulfill their primary task of reliably defending the peaceful labor of the Soviet people, the ensuing period was marked also by work in the interests of further developing agricultural production, better using food rsources, and the struggle by soldiers, workers and employees for economy and savings in the broadest sense of the word. Much was done to strengthen the material and technical base of agricultural enterprises and to improve transportation and storage of food reserves.

The contribution of military sovkhozes to accomplishing the Food Program was marked. It is enough to say that sowed areas alone increased by 6,000 acres, including 1,000 acres on irrigated land. Livestock barns have been built for 28,500 head of cattle and 350,000 poultry. Deliveries of tractors, trucks, other equipment, and mineral fertilizer to farms has increased. The number of storehouses and the extent of convenient railroad spur tracks in the farms has significantly increased.

All this enabled production to be increased over 1981 by 11 percent for potatoes, 13 percent for vegetables, 8 percent for meat and 6 percent for milk.

Today our specialized farms have numerous herds of horned cattle, swine, sheep and poultry, and many of them are also engaged in breeding fish and rabbits. The soldier's table contains more and more hothouse vegetables and greens.

I would especially like to mention the successes in producing agricultural products and in animal husbandry by military state farms in the Kiev, Odessa and Moscow military districts and the Northern and Baltic Sea fleets. Among the leaders in socialist competition were the workers of the Prokhladnoye Military State Farm who in 1982 fulfilled the plan for production of meat by 106 percent, milk by 150 percent, eggs by 103 percent, grain by 119 percent and potatoes by 126 percent. We are proud of the successes of such workers as Severomorets Military State Farm Milkmaid V. Balashova, who milked 4,616kg of milk from each cow; Yevpatoriyskiy Military State Farm Herdsman N. Siminichenko, who achieved a high average daily weight gain by his cattle; and

Il'ichevo Military State Farm Poultry Woman I. Ugleva who obtained 262 eggs from each laying hen, as compared to a planned 225.

The army and navy has increased the number of military units which completely provide for their own needs for meat and vegetable products. This is especially characteristic of the Moscow, Baltic, Belorussian, Volga and other military districts, where ever more comprehensive subsidiary farms are being developed. On the whole the subsidiary farms of units, institutions, military training institutions and military enterprises during the past year increased production of meat by 14.4 percent and of potatoes and vegetables by 12 percent. Among the factors contributing to this growth first of all should be noted that the land assigned to military units was used much more efficiently. Now it is used not only for hay mowing, but also for growing potatoes, vegetables, grain and fodder. Planting of alfalfa, food beans, peas, and other crops has expanded.

In mobilizing people to successfully fulfill planned targets, we do not forget about the people themselves, about insuring that they live in comfortable apartments and work in modern industrial premises. Therefore, a great deal of work is being carried out on social reconstruction of sovkhoz settlements. Last year alone 18,000 cubic meters of living space were built in military sovkhozes.

The development of private plots of the families of workers and employees also receives attention. They produce 3,000 tons of meat, 18,500 tons of milk, and 7.5 million eggs. In other words, their contribution to improving the food situation is appreciable. Today, many private plots are given needed assistance in obtaining cattle for fattening, veterinary service is provided, and necessary feeds are apportioned.

A year of intense labor is behind us. Realistically assessing our achievements, we see that much still remains to be done to increase the capabilities of military agricultural enterprises and mechanize and automate all production processes. It is also necessary to still further increase sowed areas, cattle herds and laying in of fodder. With respect to this, improving the equipment situation and farming methods in our sovkhozes has made it possible to develop a guaranteed reserve of fodder. Therefore, today the task exists of preparing enough fodder on each farm both for the public herds and for the cattle in private plots of workers and employees.

In some military districts there remain farms which are lagging, and I would especially like to emphasize the need to raise them to the level of the advanced. Improving their work is possible, first of all through better use of the land, fertilizer and equipment. The same thing can be said about the development of private (kitchen) plots. Unfortunately, in a number of military districts there are still units where such plots have not yet been organized.

Analyzing the work of agricultural enterprises and private (kitchen) plots for four months of this year shows that the pace of spring field work is significantly higher than that of the same period last year. For example, sowing of early spring crops was accomplished well and completed in five or six days.

Potato and vegetable planting is being completed. The technology used in caring for the crops is adjusted depending on weather conditions.

The winter period of indoor cattle maintenance and its transfer to summer pastures is being concluded everywhere. I must say that cattle wintering this year was better and more organized. In the sovkhozes alone, horned cattle increased by 2,000 head compared to the same period last year. Meat products increased accordingly.

Fulfilling the instructions of CPSU Central Committee General Secretary Yu. V. Andropov, expressed at the 18 April 1983 CPSU Central Committee Conference, each military sovkhoz and subsidiary farm is presently working to provide the planned harvest, raise cattle and poultry productivity, and increase meat, milk an egg production by 50 percent over the level of the 10th Five-Year Plan. Fulfilling these tasks will be our new contribution to accomplishing the Food Program.

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CSO: 1801/340

ELIMINATING EQUIPMENT DEFICIENCES IN FOOD ENTERPRISES

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 12, Dec 82 pp 29-34

[Article by I. Pudkov, minister of Machinebuilding for Light and Food Industry and Household Appliances: "Branch Tasks in Solving the Food Problem"]

[Text] The May (1982) Plenum of the CPSU Central Committee adopted the Food Program, which was developed in keeping with the decisions of the 26th CPSU Congress and is an important constituent part of the economic strategy for the next decade. It emphasizes that the primary task of machine building enterprises and departments of the agro-industrial complex is in the period up to 1990 basically to complete comprehensive mechanization of farming and animal husbandry and to re-equip food branches of industry, trade and public catering on a modern technical basis.

In his report at the Plenum of the CPSU Central Committee L. I. Brezhnev noted that more and more frequently we are encountering situations where the bottleneck is not production, but transportation, storage and processing of agricultural products and their devlivery to the consumer.

A considerable part of the responsibility for the volumes and quality of processing of agricultural products lies with machine builders. In the system of the Ministry of Machine Building for Light and Food Industry and Household Appliances there is a considerable number of production associations and enterprises that specialize in the output of technological equipment for the aforementioned branches of the national economy. During the past five-year plan the volume of production of this equipment increased 123.8 percent. Additionally, about 290 kinds of new equipment for production branches were assimilated, as were 108 kinds for trade and public catering. At the same time 323 kinds of equipment were modernized and 148 kinds of outdated equipment were removed from production. There was considerable improvement in the quality of equipment produced for the branches under consideration. As a result, the proportion of products for these purposes with the state Emblem of Quality has reached 30 percent.

But most of the technological equipment produced in the branch is made up of individual machines and sets of them, and only 25 percent are complexes and technological lines. There is no doubt that the existing situation reduces the possibility of achieving overall growth of labor productivity for the consumer and more thorough processing of agricultural raw material, reduction of its losses and improvement of the quality and assortment.

In order to eliminate the aforementioned shortcomings and also to improve the planning of the production and delivery of technological equipment to branches of the agro-industrial complex, systems of machines have been developed. Each of the systems is intended for carrying out a complete cycle of technological processes from initial processing of raw material to the output of the final product which is wrapped, packaged and suitable for sale to the consumer. In order to carry out the Food Program, for delivering developed systems of machines to the consumers it will be necessary to assimilate the output of more than 3,400 kinds and type-sizes of equipment. The list of products produced for branches of the agro-industrial complex will thus increase 1.4-fold. It will be necessary to create more than 1,430 new kinds of machines, including 1,190 for the food branches and 240 for trade and public catering.

The Food Program envisions a sharp increase in the production of grain and grain products. It is incumbent on the Ministry of Machine Building for Light and Food Industry and Household Appliances to provide the corresponding branches with technical equipment which is necessary for storing grain and producing flour, groats and other products. More than 60 kinds of equipment will be created for the milling and elevator industry and 30 for the bread-baking industry. There will be a sharp increase in production volumes. Thus the production of milling-elevator and bread-baking equipment and technological lines for producing pasta will be twice as great as under the 10th Five-Year Plan. In order to assimilate new kinds of equipment and sharply increase the volumes of its output, it is necessary to have assistance from the consumer ministries in improving the organization of the process of developing experimental models and conducting initial testing.

Sets of highly productive milling equipment which are capable of processing 500 tons of grain per day and providing for 75 percent of the yield of flour to be of the highest grades, and also systems of machines with high unit capacity for mixed feed plants with a productivity of 1,000 tons a day will be developed for enterprises of the USSR Ministry of Procurements. It is planned to create and assimilate the production of new kinds of recirculation grain drying installations with higher technical and economic indicators than the series-produced driers of the RD type; and also new types of grain bucket chains with a productivity of 500 tons per hour, and chain transporters with a productivity 165 tons per hour.

It is intended to complete the work on creating and producing during the five-year plan lines for producing premixes with a capacity of 3,000 tons per year, whose introduction will make it possible to improve the quality of mixed feeds and the efficiency of their production.

For the bread-baking industry it is intended to produce complete lines for manufacturing round hearth-baked bread and standardized pastry equipment as well as a number of bread-baking stoves with improved technical and economic specifications; to improve work for mechanization in storehouses and expediting sections of grain plants for an extensive assortment of products; and to produce for the confectionary industry machines for producing various kinds of baked goods with a capacity of 3 tons per shift.

Among the most important tasks facing the branch is the creation of sets of technological equipment for the sugar industry which are capable of processing up to 6,000 tons of sugar beets a day. Their application will make it possible to reduce the length of time for processing sugar beets to 100-105 days (instead of 130-135 days at the present time) and correspondingly to reduce losses of sugar while storing the beets.

The Food Program envisions large measures for improving the supply of fruits and vegetable products and potatoes to the population, including as a result of reducing losses of raw material through the introduction of waste-free and resource-saving technologies. In this connection one of the most crucial tasks facing enterprises and organizations of the Ministry of Machine Building for Light and the Food Industry is the creation of a range of equipment for processing fruit and vegetable products and potatoes, second generation lines for aseptic preserving of tomato prodcuts and semi-manufactured puree products, reservoirs for storing them with capacities of up to 300 cubic meters while they are packaged outside the shop (the volume of one-time storage of a product increases 4-5-fold in these installations) and also an entire complex of equipment intended for repacking semi-manufactured products into transportation packaging under aseptic conditions. It will be necessary to develop lines for manufacturing dry mashed potatoes and then, on the basis of this, to create a range of equipment for producing various semi-manufactured potato products: garnish, frozen, cutlets, fritters, chips and so forth.

Under the 11th Five-Year Plan we must complete the creation of a range of lines and sections for producing various kinds of products for children's nutrition on the basis of fruits and vegetables, and the assimilation of series production of lines for preserved vegetable hors d'oeuvres in an amount of 50 tubes a shift and for pumpkin and eggplant caviar--40 tubes per shift, presses for pressing dried vegetables and potatoes into brickettes with a productivity of 200 kilograms per hour, and other technological equipment.

For enterprises and shops for primary processing of livestock it is intended to produce lines for processing hogs with a productivity of 100 head per hour similar to the lines for processing large-horned cattle, lines for brining hides and so forth. Systems of machines will be created to supply and raise the technical level of sausage enterprises and shops; a range of the corresponding mechanized instruments will be created for cutting up carcasses, bleaching hides and boning meat; lines will be created for producing cooked sausage (with a capacity of 750 kilograms per hour), liverwurst (500 kilograms per hour), frankfurthers in synthetic casing (1,000 kilograms per hour), semi-dry sausage (5 tons per shift) and vacuum cutters (with a container holding 350 liters). With their introduction there will be a considerable increase in the degree of mechanization of sausage industries.

On the new lines for processing and packing poultry with a productivity of 1,000 head per hour, all processes, including drawing, will be fully mechanized.

For enterprises of the dairy industry it is intended to produce series equipment for producing and bottling sterilized milk under aseptic conditions (with a capacity of 5 tons per hour) and lines for producing curds by the individual method and sour cream (5 tons per hour). It is planned to complete work on

creating automated sets of equipment for manufacturing children's liquid dairy products, including curds, with a productivity of 15 tons of milk per day.

Large jobs regarding new technical equipment will be carried out in the area of secondary processing of dairy raw material. For these purposes series production will be arranged for sets of equipment for separating proteins and fat from the whey with a capacity of 5 tons per hour, and new lines for producing casein cheese and dairy protein concentrates. For the first time in the USSR we are creating a range of vacuum-steam equipment and ultrafiltration installations, separator-cream removers (with a capacity of 25 tons per hour) and lines for producing home made cheese (3.6 tons per hour).

The Food Program has established assignments that envision a rapid growth of the production of vegetable oil and margerine products under the 11th and 12th Five-Year Plans, and has earmarked measures for improving their quality. Under the current five-year plan the demand for these food products should be fully satisfied. The system of machines for the oil and fat industry will include new oil extraction installations for processing seeds, and their series production will begin in 1983. It is intended to conduct work for producing lines for refining oils whose capacities will be 220 tons per shift, a 1.5-fold increase over existing series-produced machines. Moreover, work will be completed on the creation of flowlines with high unit capacities for manufacturing oil by the churning method. Their productivity will reach 3 tons per day, that is, it will triple as compared to existing ones. In order to supply the cheese industry we shall begin to produce lines for manufacturing processed cheese and cheese of the Suguluna type, as well as new types of cheese manufacturing machines and other progressive technical equipment.

It is also planned to assimilate series production of automated lines for producing toilet soap with a capacity of up to 4 tons per hour--twice as much as the presently produced lines; and new MEM-400 soap extraction installations with a productivity of 400 tons per day.

Under the current five-year plan it is intended to produce a system of machines for fast freezing of food products manufactured from meat, milk and fish. They will include: sets of equipment for second meat and fish dishes, Russian ravioli and meatballs with a productivity that is twice as great as that of those presently being produced in series; equipment for dumplings and curd fritters; sets of equipment for packaging fast-frozen fruit and vegetable products, and so forth.

The program especially emphasizes the need to provide for carton packaging of eqipment and wrapping of materials. The branch plans to assimilate lines for bottling liquid food products with a capacity of 48,000 bottles per hour which is twice the level that has been achieved; there will also be new automated systems for packaging butter, margerine and other products with a capacity of up to 200 packages a minute--twice as much as that of equipment now being produced in series.

Under the current five-year plan the list of equipment for packaging such mass bulk products as flour, groats, granulated sugar, salt and so forth will be updated. The productivity of equipment for packaging flour will reach 60-70

packages per minute (as compared to 20-30 at the present time), and for groats and granulated sugar--up to 80-100 (as compared to 50 packages per minute on the automated equipment that is presently being series produced). We shall begin series production of lines for bottling milk which produce 24,000 bottles per hour, and automated lines will be created for manufacturing new disposable paper containers for milk and other liquid products.

The Ministry of Machine Building for Light and Food Industry and Household Appliances has been designated as the head ministry in the USSR for creating equipment for manufacturing packages made out of corrugated and flat cardboard. Work is already being done to produce automated pressing and cutting machines. The program for future work in this area of technology is being prepared at the Shadrinsk printing machine plant. But the capacities of the design, technological and production subdivisions of the plant are clearly inadequate for a comprehensive solution to the problem. Therefore measures are necessary for increasing the number of personnel, primarily designers and technologists, and also constructing and introducing additional production capacities.

It is intended to create and assimilate the production of new kinds of highly efficient equipment for other branches of the food industry as well (for processing grapes with a capacity of 100 tons per hour, lines for manufacturing and packaging cigarettes, and so forth).

In light of the implementation of the Food Program, large tasks are facing commercial machine building. The enterprises of the Soyuztorgmash all-union production association under the 11th Five-Year Plan must assimilate series production of sets of highly productive equipment for culinary and procurement factories, which provide for the preparation of semi-manufactured products and prepared dishes on an industrial basis. The Kiyevtorgmash, Kaliningradtorgmash, Mostorgmash, Belorustorgmash and Marikholodmash production associations and the Dushanbe, Sokulukskiy, Kharkov, Perm and other commercial machine building plants will have to create more than 100 kinds of equipment for fish, vegetable, confectionary and other productions of procurement factories. During the period of 1986-1990 practically all enterprises of the Soyuztorgmash all-union production association must assimilate the output of 70 kinds of batches of equipment for culinary and procurement factories for preparing semi-manufactured products and prepared dishes on an industrial basis, and they must produce 7,000 sets of equipment for storing, heating and distributing prepared products.

Large tasks have been set for the Ministry of Machine Building for Light and Food Industry and Household Appliances in the area of re-equipping fruit and vegetable bases with flowlines for commercial processing and packaging of potatoes, onions, carrots, pickles and other fruit and vegetable products. The Sverdlovsk plant for commercial machine building must provide the production of 1,500 units of technological lines under the 11th Five-Year Plan.

By a decision of the May Plenum of the CPSU Central Committee it was recommended that we extensively create capacities for processing and storing fruit and vegetable products directly on the kolkhozes and sovkhozes so that all of the products they produce will be preserved and processed without additional transportation and will be sold in packaged form. To do this we need small

enterprises. In order to create a material and technical base for them, the branch has been given the task of developing the corresponding system of machines under the current five-year plan.

The fulfillment of the assignments for implementing the USSR Food Program and the assimilation of the output of systems of machines can be provided only with the corresponding development of production capacities and also the material and technical base of scientific research institutes and special design bureaus for food and commercial machine building of the Ministry of Machine Building for Light and Food Industry and Household Appliances. Under the current five-year plan 42 percent of the overall volume of capital investments for the branch went for the development of food and commercial machine building. Taking into account the assimilation of the additional capital investments during 1983-1985, the production capacities of food and commercial machine building will increase by 46 percent.

But successful implementation of these assignments will depend to a considerable degree on the level of fulfillment of the plan for capital construction, especially construction and assembly work. It is necessary to provide for concentration of capital investments on key areas and startup construction projects. Unfortunately, there are cases where the duration of construction of projects is twice the normative time periods and the volumes of incomplete construction are increasing. The plan for the assimilation of capital investments is not being fulfilled for all projects.

There are also serious deficiencies in the work for technological re-equipment of enterprises and associations. The board of the Ministry of Machine Building for Light and Food Industry and Household Appliances has considered and approved the basic areas of the plan for technical re-equipment of enterprises under its jurisdiction, including plants of food and commercial machine building, and has earmarked concrete measures for the 11th Five-Year Plan to eliminate shortcomings, utilize production capacities more efficiently and increase the coefficient of shift work of the equipment. A task has been set to provide for 92 percent of the planned increase in labor productivity under the current five-year plans as a result of technical re-equipment.

In the plan for technical re-equipment a great deal of importance is attached to improving the structure of the stock of equipment and organizing production and administration. Here special attention is devoted to supplying the plants and branches with machine tools with numerical program control. By the end of the five-year plan their number will increase 3-fold, and we shall introduce 40 automated and 190 mechanized flowlines, 39 installations for plasma processing of metal, and 39 installations for ion-vacuum dusting of wear-resistant coverings on parts and instruments. It is planned to increase the proportion of forging and pressing equipment by 25 percent. In sections with monotonous labor which does not require high skill, robots and manipulators will be introduced.

Enterprises of food and trade machine building of the Ministry of Machine Building for Light and Food Industry and Household Appliances have been given the task of accelerating the introduction of resource-saving technologies.

Thus the volumes of progressive kinds of castings is to increase 1.2-fold, and progressive hot stampings--1.3-fold. At the Plavsk machine building plant there will be production capacities for manufacturing parts made out of metal powders.

As a result of the introduction of measures in the plan for technical re-equipment, about 6,700 people will be relieved of manual labor. It is intended to deepen the object specialization at 38 enterprises, to redistribute the manufacture of 42 items, to create 68 comprehensively mechanized shops and sections, and to carry out a number of other measures. As a result of the implementation of these measures, the task is to increase the output of products with profile specialization of enterprises from 75.2 to 78.9 percent, and for the profile of the ministry--from 68.2 to 72 percent; it is also intended to increase intraplant technological specialization of production associations and enterprises.

One should emphasize the role of the development of instrument production. At the present time instrument shops of plants in the branch as a whole and of "food" branches in particular are experiencing great difficulties because of the shortage of high-precision equipment and control-measurement instruments. Now the proportion of output of technological fittings in the overall volume of commercial output of food and commercial machine building of the branch amounts to 2.9 percent, while the normative for machine building is 6-8 percent. Taking into account the numerous kinds of production and the fact that in the future as new equipment is assimilated according to the system of machines, the list of products at each enterprise will increase, it is necessary to develop instrument production in all ways and take measures for more efficient utilization of them.

Implementation of the plans for creating and assimilating new technical equipment will make a significant contribution to increasing the production efficiency of the branches of industry that consume technological equipment which is produced by the Ministry of Machinebuilding for Light and Food Industry and Household Appliances.

Workers of the branch, inspired by the decisions of the 26th Congress and the subsequent Plenums of the CPSU Central Committee, through their labor will make a strong contribution to the successful implementation of the program for the development of the country's economic might, including the Food Program.

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