



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

SECOND EUROPEAN CONFERENCE OF AGRICULTURAL ECONOMISTS

DIJON, SEPTEMBER 1978

EUROPEAN AGRICULTURE IN AN INTEGRATING ECONOMY

INTEGRATION OF CMEA COUNTRIES IN THE FIELD OF AGRICULTURE

by

V. NAZARENKO

National Institute for Economic and
Technical Research and Information
in Agriculture

3^a Orlikov per.
MOSCOW USSR

Integration of CMEA Countries in the Field of Agriculture

The Council for Mutual Economic Assistance was established in 1949 at the meeting of representatives of the People's Republic of Bulgaria, Hungarian People's Republic, Polish People's Republic, Socialist Republic of Roumania, USSR and Czechoslovak Socialist Republic. German Democratic Republic became a CMEA member in 1950, Mongolian People's Republic - in 1962, Cuba - in 1972 and Socialist Republic of Viet-Nam joined the CMEA in 1978.

Socialist Federal Republic of Jugoslaviya participates in CMEA activities, Korean People's Democratic Republic takes part in the CMEA work having the status of an observer. Agreements about co-operation with CMEA countries have been recently signed by Finland, Iran and Mexico.

Council for Mutual Economic Assistance is the principal and the most universal international organization of socialist countries. It is the first and the most important link in the organizational structure of the economic integration management as a whole and agro-industrial integration in particular.

The Council's Executive Committee with the Council's Secretariate, is subordinate to CMEA sessions. The CMEA Executive Committee has the Council's Committee on cooperation in the field of planning activities, Council's Committee on scientific and technical cooperation and the Council's Committee on cooperation in the field of material and technical supply.

Permanent branch commissions established within the CMEA framework are focussing their activities on planning - coordination objectives.

Among numerous permanent Commissions the Permanent Agricultural Commission has been established too.

The CMEA countries made it their aim to unite and direct their efforts in order to provide the planned development of the people's economy, acceleration of the economic and technical progress, permanent increase of labour performance and the steady rise of the well-being of the people.

The Comprehensive Program for further deepening and perfecting the cooperation and development of socialist economic integration of the CMEA countries which was approved at the XXV-th CMEA session (July, 1971) is of great international importance because it outlines the course of the further accelerated development of the socialist economy. The Comprehensive Program specially stresses the interconnection of the coordination of plans and of the joint planning. The Program puts forward fundamental principles of the economic integration of these countries, covering the field of agriculture as well.

Basing on common economic objectives within the CMEA framework there are gradually forming new cooperation guidelines in the agricultural production too, stimulating the formation of the economic mechanism of the cooperation, the fundamental element of which comes to the planning-coordination activity.

According to the Comprehensive Program the cooperation in the field of the planning activity and especially the coordination of plans is the main method of the organization of the cooperation and the deepening of the international socialist division of labour.

The Comprehensive Program makes provision for the working out of prognoses of the development of the demand and production of numerous products of agriculture and food industry for the period till 1985 to make use of them as principal criteria for the elaboration of measures aimed at the coordination of perspective plans of the development of these branches, extension of the cooperation, increase of the mutual supply of agricultural products.

The long-term purposeful programs of the cooperation (LPFC) in the field of energy, fuel and raw material, agriculture and food industry, machine building for the period till 1990 were approved at the current XXXII-th meeting of the session of the Council for Mutual Economic Assistance held from the 27-th to the 29-th of June, 1978 in Bucharest.

The programs approved by the session were worked out in accordance with the decisions of communist and workers' parties of the CMEA countries and are a new important step to the implementation of the Comprehensive Program for the further deepening and perfecting the cooperation and development of socialist economic integration of the CMEA countries.

The long-term purposeful program of the cooperation in the field of agriculture and food industry makes provision for

the working out of cooperated measures aimed at the intensive development of the production of grain, animal products and other principal agricultural products in each CMEA country, strengthening of the feed and fodder base, development of the production of protein feeds.

The more efficient use of favourable natural conditions of the CMEA countries enabled them to make provisions for the extension of the production and mutual supplies of a number of agricultural and food industry products.

Measures are planned to be carried out for the further mechanization and chemization of agricultural production, for the development of the material and technical base of food industry.

Possibilities of cooperation will be used more widely for the development of promising varieties of farm crops and high - productive breeds of farm animals, for the working out of up-to-date technological processes in food industry.

The CMEA countries occupy the dominant place in the world agricultural production. There are only 9.3 per cent of the world population in these countries but they produce about $\frac{1}{3}$ of the world agricultural produce, including $\frac{1}{5}$ of the world grain and meat output, about $\frac{1}{3}$ of the world milk production, about $\frac{1}{2}$ of the world sugar beet and potato output.

At initial stages the cooperation of the CMEA countries in the field of agriculture was limited and rather unstable, being connected either with rendering help to overcome

temporary difficulties of the post-war restoration of agriculture and elemental calamities or with the socialist reconstruction of agriculture.

After the transition of agriculture of the CMEA countries to the socialist path their bilateral relations became closer, and their cooperation was able to cover the wider scientific-technical sphere, agricultural science, exchange with varieties of plants and breeds of animals. The foundation was laid down for the development of the multilateral branch cooperation.

All these accomplishments put forward the necessity to create within the CMEA framework a corresponding international agricultural organ which would be able to actively stimulate, first of all by the coordination of plans of the development of agriculture, the extension and the deepening of mutual economic relations, organization of economic and scientific-technical cooperation in agriculture, acceleration of the technical progress and the increase of the labour performance in this branch of the material production.

Such organ was embodied into the Permanent Agricultural Commission (CMEA PC) established in 1956 in conformity with the decision of the VII-th session of the Council for Mutual Economic Assistance. The CMEA PC is authorized (within its competence) to adopt recommendations and decisions as well as to introduce its proposals to the consideration of CMEA sessions or the CMEA Executive Committee, covering the wide range of problems aimed at the increase of the efficiency of agricultural production.

The Commission's important function consists of the working out, together with the CMEA secretariate and basing on recommendations and decisions of the Council's organs, of draft multilateral agreements on economic and scientific-technical cooperation of the CMEA countries in the field of agriculture and forestry.

During the period of its activity the Commission made a great contribution to the organization, strengthening and further development of the multilateral cooperation of the CMEA countries in the field of agriculture.

For example, it was already in 1958-1959 that the Commission commenced its work on the coordination of separate projects comprising animal breeding, plant breeding and so on. Activities were implemented for the coordination of plans for 1976-1980 and for the more remote period too.

The production of chemicals for plant protection practices became an object of the multilateral coordination of plans of the CMEA countries. The agreement on the specialization and cooperation of the production of plant protection compounds became a part of the Coordinated Plan of multilateral integration measures (CPMIM) of the CMEA countries for 1976-1980 approved by the XXIX-th CMEA session (1975).

By 1980-1985 the CMEA countries will closely approach to the stage of the complex mechanization of principal operations in crop farming.

For instance, by 1985, as a result of the introduction of progressive systems of machines for the cultivation of grain crops, the consumption of labour (counted per 1 hectare) for

soil tillage and sowing will decrease by 2-2.5 times and for the application of fertilizers - by 3 times as compared with 1970. During this period the labour consumption for the harvesting of grain and its delivery to grain - handling installations will decrease by 60-70 per cent. The complete mechanization of the after-harvest treatment of grain by 1980 will enable the CMEA countries to decrease the labour consumption for this operation by 8-10 times and money costs - by 3.5 times. The level of the mechanization of operations will sharply rise in the production of feeding crops, sugar beet, potato. As a result of it by 1985 the labour consumption for the conservation of one ton of silage, hay or grass meal will decrease by 40-55 per cent as compared with 1971.

In accordance with the Commission's recommendations the agreements between ministries of agriculture of the CMEA countries were signed about the scientific-technical cooperation making provision for establishing international coordination centres of these countries on different problems of agriculture. Particularly, in Prague such centres are established on the mechanization, electrification and automatization of production processes as well as on the elaboration and introduction of mathematical methods and electronic-computer technics in agriculture; in Poznan (Poland) - the centre on the discovery of new types of pesticides, elaboration of biological and other plant protection methods and the study of the effect of plant protection practices ^{on} the environment; in Odessa - the coordination centre on the elaboration of theoretical fundamentals of

plant breeding and seed production and the breeding of high - yielding varieties and hybrids of farm crops; in Dummerdorf (German Democratic Republic) - the centre on the study of fundamental biological problems of animal breeding and so on. All these centres were formed recently (in 1971-1974), nevertheless they have already won the high reputation.

The objective necessity of the closer cooperation of agriculture with industry, of the interbranch cooperation and integration manifests itself in establishing, within the CMEA framework, not only branch agencies but interbranch working groups as well.

Cooperation in the field of plant breeding

Among numerous problems of the cooperation in the field of crop farming the problems of plant breeding and seed production were considered to be of the primary importance.

In 1959 the recommendation of the PAC of the CMEA was made commencing the practice of international variety trials of farm crops. The main purpose of these trials - to select high-yielding varieties with the indication of zones for their cultivation. The trials comprise the most productive varieties developed by scientists of separate countries.

As a whole during the period of 1961-1974 the international variety trials, carried out on the planned basis, included a great number of new varieties and hybrids of farm crops, among them varieties and hybrids of wheat, corn, potato, pea, sugar beet, sunflower, vegetables and perennial plantations. For example, in 1974 more than 560 experiments

were carried out in all CMEA countries participating in the international variety trials of farm crops.

Results of the international variety trials of farm crops were used in order to include numerous varieties into the national state variety trials and to release them for the cultivation in separate countries. Only during 1971-1973 the Soviet Union received above 5 thousand samples of seeds of new varieties from the CMEA countries and sent 12 thousand samples developed in the USSR to these countries.

The implementation of the international experiments and the evaluation of commercially valuable properties of hundreds of varieties and hybrids allowed to introduce in 1976 307 varieties into the agricultural production of the CMEA countries for growing them in certain agricultural zones.

The development of the cooperation in the field of plant breeding and seed production enabled the countries as early as the beginning of the 60's to come from irregular exchanges of seeds and planting material mainly for research purposes to the system of regular mutual supplies primarily aimed at the satisfaction of production needs of the countries of the socialist community.

The mutual exchange of varietal seeds and planting material enabled the CMEA countries to sow such seeds and planting material on the acreage exceeding 13.0 million hectares of arable lands. During this period the most wide-spread in the CMEA countries proved: oats developed in the German Democratic Republic, winter rye of the Poland's breeding, spring barley of the

Czechoslovakia's breeding as well as sunflower and winter wheat varieties developed by the USSR plant breeders. In accordance with it in some countries the acreage sown with varietal seeds from other CMEA countries exceeded the half of farm lands occupied by corresponding crops, in some cases imported varieties entirely replacing native ones. For example, Soviet sunflower varieties are cultivated in Hungary on 80 per cent of the acreage and in Bulgaria - on the whole country's acreage allotted to this crop; winter wheat of the Soviet breeding occupied 88 per cent of the whole arable acreage under this crop in Bulgaria, 74 per cent in Hungary, 64 - in German Democratic Republic, 15 per cent in Poland, 87 - in Roumania and 77 per cent in Czechoslovakia. In Mongolia almost all arable lands are occupied ^{with} ~~by~~ varieties of the USSR breeding, in German Democratic Republic winter rye of the Poland's breeding averages 70 per cent of the rye acreage cultivated in this country.

As a whole during the observed period the CMEA countries introduced about 70 Soviet varieties of farm crops grown on more than 7 million hectares of arable lands in these countries.

In its turn the USSR allotted extensive commercial acreages to varieties from other CMEA countries.

Great attention is paid in the USSR to the cultivation of spring barley bred in Czechoslovakia. The Soviet Union bought in Jugoslaviya a great bulk of seeds of high-yielding corn hybrids which provide average yields at the level of 60-80 centners per hectare.

The active exchange of variety seeds reflects the process of specialization and cooperation in this field.

The extension of stands of new high-yielding crops provided the considerable increase of the output of crop farming products. For example, in Czechoslovakia wheat, bred in the USSR, has recently allowed to increase its yields by 3-5 centners per hectare as compared with native varieties. In 1971 native wheat varieties yielded 33.4 centners per hectare while Soviet varieties gave 36.4 centners, in 1972 - 29.1 and 34.3 centners respectively. In 1975, considering these results, the CMEA countries signed the Agreement on the multilateral specialization of the production of varietal seeds and planting material of farm crops which made provision for the specialization of each country in this field.

According to this document the Soviet Union specializes in the production of varietal and hybrid seeds of winter wheat, corn, pea, sunflower, hemp for the primary seed production, varietal seeds of durum wheat, oat and millet; German Democratic Republic - in the production and delivery of spring barley seeds; Poland - sugar beet and winter rye seeds; Roumania - grape cuttings and so on. The adopted specialization gives the CMEA countries a significant economic outcome in this field.

Cooperation in the field of animal farming
and veterinary practices

At the early stages of the CMEA activities the cooperation of the countries in the field of animal farming came mainly to the mutual exchange of information on different branches

and aspects of animal farming and to sending specialists, on the bilateral basis, for the study of the advanced experience, including technology and organization of the pedigree work and the improvement of the veterinary service of animals. However, at later stages it turned to be directed to the implementation of joint efforts aimed at the further intensification of that branch.

In particular, the designing and the selection of the best construction projects was performed to produce animal products by industrial methods; the paths were outlined for the satisfaction of the requirements of the animal farming for feed additives; the possibilities were looked for and found out to satisfy import needs of the CMEA countries in pedigree animals, poultry and semen of highly valuable sires mainly on the basis of mutual supplies.

Among construction projects 23 were recommended for the introduction in the CMEA countries, their authors are: for milk production - Hungary, German Democratic Republic, Roumania and USSR; for beef production - Bulgaria, German Democratic Republic, USSR; for pork production - Bulgaria, Hungary, German Democratic Republic, USSR, Czechoslovakia; for broiler production - Bulgaria, Hungary, German Democratic Republic, USSR and for egg production - USSR and Czechoslovakia.

Mutual deliveries of pedigree animals, poultry and semen of highly valuable bull sires became of great importance within the cooperation framework too. Volumes of the mutual

exchange for these items are constantly growing up.

The CMEA countries received from the USSR cattle, including Krasnaya Stepnaya and Kostromskaya breeds and also sheep of Askaniyskaya, Stavropolskaya, Shubnaya Romanovskaya and other breeds which are in great demand in the international market.

In its turn the USSR imports from German Democratic Republic the high productive black-pied cattle (cows of this breed yield 5-6 thousand kilograms of milk with the butterfat content averaging 4.5 per cent annually) as well as sheep which combine such qualities as high mutton productivity and high yields of the fine-fleece wool. Pedigree swines of the feeder type and chickens prior to 18 weeks of age are imported from Hungary,

The mutual exchange within the community favourably affected the further development of animal farming and the increase of its productivity. At the same time it served as a necessary foundation of the development of the international division of labour and the systematization of the cooperation in this field. In German Democratic Republic, for example, there are great achievements in the development of the pedigree dairy farming, in Hungary - in the field of pedigree swine breeding, in the USSR - in sheep breeding and so on. In conformity to the specialization implemented within the CMEA, German Democratic Republic turned to be the principal supplier of the CMEA countries with highly-valuable pedigree cattle, Hungary - swines, the USSR - sheep and so on. The mutually supplied

purebred animals are efficiently used for the development of the national pedigree animal breeding.

The cooperation in the animal farming does not develop only along the above mentioned lines. The joint efforts of specialists of the countries of the socialist community allowed to discover and sum up presently used and the most progressive systems of the maintenance of animals and poultry, the most efficient methods of labour management. Different feeding rations and receipts of feeds, technological regimes of their processing and the feeding of animals are worked out and tested. For a number of years the countries are cooperating in the field of the mutual supply of machines and equipment for the mechanization of operations in animal farming, poultry keeping and feed production. For example, in these branches the USSR uses milking apparatus and milkers of the "Impulse" type, self-propelled mowers - crushers, self-propelled field forage choppers, cutters - loaders of the cutlift type produced in German Democratic Republic, tower siloes for haylage, milkers of the pipeline type from Czechoslovakia, mowers-choppers for green feeds and feed grinders from Bulgaria, aggregates for the grass meal processing, milk cooling - storage tanks from Poland. In exchange the CMEA countries receive incubators, cage batteries for poultry from the USSR.

It should be noted ^{that} the transition to industrial methods in the animal farming not only requires the high conformity of technical means and technological regimes to biological properties of animals but at the same time makes animal breeders face new requirements in the field of genetics, puts forward a new

objective - to breed animals more adapted for the efficient use of new technics and technology. All these facts, taken together, mean the appearance of new, more complex objectives of the cooperation in the field of animal breeding, machine building for animal farming and feed production.

The great joint work is carried out in the field of the animal health. The international cooperation in veterinary practices covers a wide range of problems. The agreements were signed on the multilateral international specialization and cooperation in the production of veterinary preparations between Bulgaria, Hungary, Mongolia, Poland and the USSR (March, 1973), on the organization of centres of the study of methods of the control of the most harmful diseases of farm animals and poultry, on the establishment, financing and use of the common CMEA reserve of the AZIYA-I antiaphthous (foot-and-mouth disease) vaccine.

Cooperation in the field of agricultural mechanization

Due to the transition to the industrialization of agriculture cooperation in the field of the mechanization of this branch acquires special importance and becomes more and more many-sided.

The cooperation in the field of mechanization enables the CMEA countries, spending less efforts and resources, to equip their agriculture with improved agricultural machines and implements which are more efficient with regard to their technical-economic characteristics and which conform to the best world models.

The fact that the USSR made his scientific-technical documentation on many models of the agricultural machinery available to fraternal countries stimulated the progress of the agricultural machine building there.

Together with the supply of the technical documentation and production technologies and due to the creation and development of agricultural machine building branches the CMEA countries extended their mutual exchange of mechanical means of production for agriculture.

Presently in separate countries the imported machinery constitutes a considerable part of machines used in agriculture.

Hungary imports about 70 per cent of the agricultural machinery which this country needs. In this country 40 per cent of tractors and 98 per cent of grain combine harvesters are machines built in the USSR. In its turn about 28 per cent of the agricultural machinery produced by Hungary is exported. The Mongolian agriculture is completely equipped with the machinery imported from the USSR. In German Democratic Republic one fourth of all tractors in agriculture and more than one third of machines used for reclamation are delivered by the Soviet Union. The percentage of the imported machinery is high in the agriculture of Czechoslovakia, Cuba.

The multilateral agreement was signed on the specialization and production cooperation in the field of the tractor and agricultural machine building.

Some countries became a kind of "monopolists" in the production of separate types of machinery or systems of machines. For example, Poland, cooperating with the USSR, organized the production of airplanes for the agricultural aviation which preconditioned the country's specialization within the CMEA in this kind of production. Poland is the greatest world producer of them. At the present time, basing on the joint design work of Soviet and Polish aircraft constructors, Poland has mastered the production of entirely new jet airplanes of the M-15 type to satisfy needs of agriculture of the socialist countries.

Another example is furnished by Czechoslovakia which is the principal producer and exporter of hop and which has commenced the manufacture of machines for the cultivation of this crop.

The transition to the wide industrialization of agriculture will undoubtedly increase the dependence of the community's countries on mutual supplies of the agricultural machinery. Some types of machines were stopped to be manufactured because of the extension of the cooperation and mutual exchange.

The USSR and Bulgaria, which early^{ier} simultaneously produced T54B tractors used in葡萄yards and orchards agreed that Bulgaria should specialize in the production of this model of tractors and will extend it to the level which can satisfy needs of both countries in these machines. Hungary stopped the production of grain combine harvesters which this country produced at the 50's and 60's in a small number (presently the production of combine harvesters of this type is concentrated

in the USSR, Poland and Roumania). Bulgaria stopped producing self-propelled chassis the output of which did not exceed one thousand.

The deepening of the specialization in the agricultural machine building is accompanied with the development of the interstate cooperation in the design and manufacture of machinery.

On fields of the Soviet Union tests were carried out of new self-propelled corn combine harvesters "KSKU-6" created by designers of four countries (Bulgaria, Hungary, USSR and Czechoslovakia) these machines being able to harvest 25 hectares of grain corn during a working shift.

The conveyer line for the processing of grass seeds created by joint efforts of scientists and engineers of the USSR and German Democratic Republic allows to decrease the labour consumption by 6 times and operational costs (calculated per 1 ton of seeds) by 2 times as compared with the formerly used technics.

The sugar beet combine harvester KC-6 jointly designed by the USSR, German Democratic Republic and Bulgaria may be also mentioned as an example of the cooperation in the improvement of the quality of the machinery.

The cooperation in the production of combine harvesters is also being carried out between the Hungarian trust of agricultural machines and the "Fortschritt" enterprise in German Democratic Republic.

The cooperation is growing apace in the production of agricultural machines between the Bulgarian organization "Agromashina" and the "Zbrojovna" enterprise in Czechoslovakia.

Especially developed is the cooperation of the CMEA countries in the production of tractors.

In accordance with the decision of the Permanent Commission the International machinery system (IMS) for the complex mechanization of agriculture and forestry was worked out within the CMEA framework and is being supplemented in conformity to new technical requirements.

The CMEA countries worked out prognoses of the development of the mechanization of agriculture and forestry for the period till 1985.

The establishment of "Agromash" - International organization for the design of the system of machines and the specialization in the production of means of mechanization for vegetable farming, horticulture and grape growing was an important result of the cooperation in the field of mechanization, the necessary premise for its further progress, the organization being presently represented by such countries as Bulgaria, Hungary, German Democratic Republic, USSR and Poland.

Within the "Agromash" system there were worked out, approved by the countries and recommended for the introduction: the progressive technology of the cultivation of tomato, carrot, grape, pepper, the growing of transplants, the cultivation of

cucumbers and green pea. There were designed, tested and approved for the manufacture: machines for tomato harvesting of the USSR design and production; for grape harvesting - designed and produced in Bulgaria, cucumbers and green pea - in Hungary, carrot - in German Democratic Republic, for cropping fruits by shaking - in the USSR and Bulgaria, the set of machines for the preparation and tillage of soil, sowing, planting and cultivation of vegetable crops - designed and manufactured in Hungary and so on.

In the near future the "Agromash" activities will comprise the whole production cycle in its sphere - from research, design and manufacturing to the marketing of the final produce, so it will completely come to the functioning as the international economic organization - a new form of the international cooperation conforming to principal statements of the Comprehensive Program of the socialist economic integration of the CMEA countries.

Cooperation in the field of agricultural chemization

The cooperation in the field of agricultural chemization and primarily in the supply of agriculture with mineral fertilizers, which occupy the principal place among chemical means of the production in this branch, is of special importance for the rise of agriculture in the CMEA countries. Reserves of the raw material for the production of separate kinds of mineral fertilizers in the USSR and German Democratic Republic

significantly exceed domestic needs of these countries. Great reserves of potassium salts are available only in the USSR and German Democratic Republic, these reserves also exceeding their domestic demand (the output of potassium salts in these two countries averages 40 per cent of the world's production). At the same time Hungary, Poland must import deficient amounts of potassium fertilizers mainly from the USSR and German Democratic Republic while Czechoslovakia produces potassium fertilizers, which constitute a small portion of their import, but uses imported raw materials.

All the European CMEA countries, except the USSR, have no reserves of phosphorus - containing raw materials and the significantly increased production of phosphorus fertilizers in these countries is greatly based on the foreign trade delivery of the raw material from the USSR. Sulphur, which is necessary for the production of phosphorus fertilizers, is concentrated on the territory of Poland and the USSR. After the transition to the new raw material base the natural gas turned to be the main basic product for nitrogenous fertilizers. It means that their production in most CMEA countries depends on the supply of these products from the USSR possessing oil and gas deposits.

The combine enterprise for the excavation of potassium salts in Zilitz (German Democratic Republic), put into the operation in 1974, may serve as an example of the cooperation in this field. Its performance capacity - 900 thousand tons

is more than one fourth of the excavation of potassium salts in the whole country - the third world's producer of them after the USSR and Canada. The USSR, Poland, Czechoslovakia took an active part in the projecting and construction of this combine. Research institutes of the USSR and German Democratic Republic carried out joint studies and prospection surveys, designed the mining equipment. Polish designers projected purifying installations while Polish and Czechoslovakian workers built up the thermal electric power station, laid down sidetracks, adjusted the equipment. As a result of the fruitful cooperation the combine was put into the operation a year earlier than it had been planned. The products of this combine enterprise are used not only in German Democratic Republic but are sent to other CMEA countries - Bulgaria, Hungary, Poland, Czechoslovakia.

Poland and Czechoslovakia invested money in the construction of mines for the excavation of potassium salts in Soligorsk (USSR). The USSR supply, for example, enabled Poland to satisfy about 60 per cent of the country's recent requirements for potassium fertilizers.

It was by joint efforts of Bulgaria, Hungary, USSR and Czechoslovakia that the second stage of the "Phosphorite" combine for the production of granulated ammophos was erected near Kingisepp (USSR).

The International coordination centre on the problems of agricultural chemization established in 1973 in Leipzig (German

Democratic Republic) is to play a great role in the coordination of research on agricultural chemization, in working out certain practical measures in this field in the CMEA countries.

Not only the production of mineral fertilizers is extended on the cooperation basis but the progressive technology of the transportation, storage and application of mineral fertilizers is worked out and introduced too to be used in conformity with the local conditions of each country.

The development of plant protection practices to control pests and diseases is another important trend of the cooperation in the field of chemization. An essential contribution to the solution of these problems was made by the Coordination centre on plant protection problems (Poznan, Poland).

The problem of the decrease of the dependence of the community's countries on the supply of pesticides from capitalist countries is being solved on the multilateral basis too. The Comprehensive Program makes provision for the satisfaction of needs of agriculture of the CMEA countries in mineral fertilizers and plant protection chemicals both by the total volume and by the assortment by 1980-1985.

The Permanent Commission on the chemical industry together with the "Interchim" organization has already worked out the prospect program in this field. While it was compiled the great attention was paid to the assortment of produced preparations. According to this program the assortment of plant protection

compounds, processed within the "Interchim" system, will increase from 76 in 1973 to 138 trade names in 1980, i.e. it will become almost double as compared with 1973. The production of 102 kinds of products will be based on specialization and ~~make~~ mutual supplies of the countries.

In accordance with the necessity of the considerable increase of the production of microbiological products and in addition to plans for the current five-year plan period, the CMEA countries have worked out prospect (for 1980-1990) trends of the development of the microbiological industry which will allow to satisfy more fully the demand for microbiological products.

It is already by 1980 that the construction is planned of works for the production of 300 thousand tons of feeding yeasts from purified oil paraffins and also for the processing of methionine, lysine and vitamins A and E.

The joint production of feeding protein is considered to be of special importance.

Cooperation in the field of reclamation and irrigation

The complex of problems of the development of reclamation as well as measures for their solution which must be and can be carried out by joint efforts of the CMEA countries within the next 10-15 years is outlined by the Comprehensive Program of the socialist economic integration.

The implementation of joint measures aimed at the introduction of scientific-technical achievements, complex mechanization and automatization of the design, construction and

operation of reclamative systems; at the establishment of industrial bases of reclamation; application of new building materials and highly efficient methods of the irrigation and drainage of lands - such are the most important objectives of the integration in the field of reclamation.

In October, 1972 the Permanent Agricultural Commission approved the prognosis of the development of reclamation in the CMEA countries for the period till 1985 and suggestions concerning the possibility of the joint construction of new irrigation systems by interested countries.

The CMEA countries have accumulated a certain experience of the production - economic cooperation in the field of reclamation. It was already in the end of the 60's that the European CMEA countries *joint water economy works in* undertook frontier regions.

For example, since 1969, Poland, USSR, German Democratic Republic and Czechoslovakia extended their cooperation in the construction of hydroreclamative objects. In addition to works aimed at preventing floods in zones of frontier rivers they began to perform more widely the joint construction of water reservoirs, canals, the implementation of other reclamation projects covering the whole agricultural complexes of frontier zones.

The section of the Comprehensive Program of the economic integration of the CMEA countries, which deals with the development of the cooperation in the field of water economy, makes special provision for measures of the multilateral cooperation of fraternal countries in the Danube and Tisa basins.

The cooperation between Poland and the USSR aimed at the regulation of the water regime on vast territories along frontiers of both countries becomes even closer.

At the present time the international group of specialists is formed within the CMEA activities on the organization of automatic irrigation systems. The projects were worked out on the four-sided basis (Bulgaria, USSR, German Democratic Republic and Hungary) of the automatic pumping station and the equipment for the utilization of farmyard manure with irrigation waters; schemes were plotted of the complete automatization of semi-stationary and stationary irrigation systems with the use of the up-to-date mobile and stationary overhead irrigation technics produced in the CMEA countries and so on.

At the present time, within the Permanent Agricultural Commission activities, requirements are worked out for machines and equipment for the cultivation, protection, harvesting, transportation and storage of high-protein feeding crops. The technology of the production of compound feeds was discussed and needs of the countries in essential equipment and machines were summed up. The requirements are defined for technological processes at model plants producing compound feeds, meat and bone meal, for the pelleting and granulation of mixed balanced feeds and constructions for their storage. The meeting of specialists in 1977 approved new technologies for the extraction of the cellular juice from green plants and its processing into high-protein concentrates (the VEPEKS system) and for the treatment of green and dry feeds with powder and

liquid conservation additives in the process of the storage and production of liquid pulp. The "Requirements for storehouses for mineral fertilizers recommended for the use in the CMEA countries at the period after 1980" were worked out and approved.

In 1977 the Agreement was signed on the multilateral international specialization and mutual use of genofunds of the cattle of black-pied breeds.

The first international contest of sheep shearers of the CMEA countries was organized in the USSR in 1977. At the 18-th meeting of the permanent working group on animal farming the documentation on long-term purposeful programs of the cooperation in the field of animal farming was worked out and submitted to the Commission. The International control-test poultry station (ICTPS) continued its work.

The cooperation in the field of veterinary practices was actively implemented basing on the signed agreements.

In the field of mechanization some sections of the International machinery system for the complex mechanization of agriculture (IMS) were revised. The agreement was worked out and signed on the multilateral international specialization and cooperation in manufacturing equipment for the repair and technical service of agricultural machinery.

The third international competition of machine operators - ploughmen of the CMEA countries was held.

In the field of reclamation the Commission activity was aimed at the working out of agrotechnical requirements for

constructions made of polymer materials and technologies of their use in construction.

In the field of forest economy the summary data were compiled on different problems of the forestry management. The work on the problems of specialization and cooperation in the production of forest economy machinery went on.

Problems of the international cooperation of the CMEA countries were also discussed at the last meeting of the session of the Council for Mutual Economic Assistance in June of 1978 in Bucharest.

The current 48-th meeting of the CMEA Permanent Agricultural Commission held from the 10-th to 15-th of July, 1978 in Brno discussed problems of the coordination of plans of the people's economy of the CMEA countries in the field of agriculture for 1981-1985; it also summed up the experience of the CMEA countries in the specialization and concentration of agricultural production on the basis of the interfarm cooperation and agro-industrial integration. It is planned to establish the Scientific-production council for the interfarm cooperation and agro-industrial integration of the CMEA countries as a Commission's permanent working organ.