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STATE POLICY OF THE PEOPLE'S REPUBLIC OF BULGARIA
ON THE INDUSTRIALIZATION OF AGRICULTURE ^{1/}

by

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The development of the productive forces at the present stage is characterized by rapid and constant updating of the machinery and technology in all sectors of material production. Scientific and technological progress is penetrating particularly rapidly in agriculture and the latter is now in a period of accelerated industrialization.

The industrialization of agriculture is nowadays one of the big problems of the world's economic development. This is due to the fact that agriculture ensures the food supplies to the population. However, until recently, scientific and technological progress was slow in penetrating it and as a result this branch was lagging behind the others and was unable to keep up with the population's food needs. What is needed to solve this major problem is to pay greater attention to it and to provide all the necessary scientific, technological, economic and organizational prerequisites. The exchange of experience and scientific and technological aid between individual countries plays an important role in this respect. In this sense Bulgaria's experience may very well be of interest to many other countries.

It should be pointed out, first and foremost, that the state policy of the People's Republic of Bulgaria has been and is aimed at the simultaneous and complex solution of all the basic social, economic and technological problems to guarantee a rapid and highly effective industrialization of agriculture.

More specifically, the policy of the People's Republic of Bulgaria has been and is aimed at the practical solution of the following basic tasks related to the industrialization of agriculture.

1. Setting up big agricultural enterprises (cooperative and state farms) and their consistent integration with a view to turning them into large agro-industrial complexes and ensuring organic links between agriculture and the food industry.
2. Boosting the production of machines, fertilizers, chemicals and other agricultural means of production.
3. A decisive improvement in the territorial distribution of agricultural production so as to increase its specialization and concentration, two key factors for its industrialization.
4. A rapid growth of the energy base, the mechanization and automation of agriculture, expansion of land improvement projects and the use of chemicals and introduction of new crop varieties and livestock breeds of high productivity to meet the requirements of industrial methods of production.
5. Development and inculcation of advanced industrial methods of production.
6. Stepping up the progress of agricultural science and the training of skilled cadres with higher and semi-higher special education, and increasing the occupational skills of workers, cooperative farmers and farm machine operators.
7. Improving the development and urbanization of population centres, transport, communications and living conditions in the villages.
8. Larger capital investments in agriculture and the industries manufacturing agricultural means of production and processing agricultural produce.
9. Rapid and all-round expansion of economic, scientific and technological cooperation with the Soviet Union and the other socialist countries in the field of agriculture.
10. Most rational utilization of world experience in agriculture and its application, adapted to suit Bulgaria's specific conditions.

This complex approach has made it possible for Bulgarian agriculture, once extensive and unprofitable, to embark on the road of rapid industrialization and to increase its effectivity. In this way the main problems in agriculture have been solved within a

short period of time. In turn, this has led to a decisive rise in the volume of agricultural production and has enabled the country to meet its needs for agricultural produce to feed the population, for industrial processing and export.

How is the state policy of the People's Republic of Bulgaria in tackling the main tasks for the industrialization of agriculture being translated into reality?

1. The socialist transformation of Bulgarian agriculture - the main prerequisite for its industrialization.

The chief prerequisite for the industrialization of agriculture is the adequate solution of the agrarian problem through the transformation of small private holdings into large and economically powerful cooperative and state farms.

The agrarian problem has always been one of the most complicated theoretical, political and socio-economic problems. On its effective solution depend the development of farming and the destinies of millions of peasants. It is still one of the most pressing problems of our time. The new measures taken by the socialist countries to solve it have been among the most significant phenomena in the development of the world since 1917.

From the viewpoint of the industrialization of agriculture, the advantages of big cooperative and state farms are the following:

- large-scale land concentration which makes it possible to use up-to-date and highly productive machinery and carry out large-scale land improvement and other projects which are impossible for petty private agriculture;

- the big cooperative and state farms are economically stronger than small private holdings and can allocate funds for the purchase of agricultural machinery and the construction of big livestock farms employing industrial methods of production, for the purchase of animals of highly productive breeds, select seeds, chemical preparations, etc. This provides a real basis for the introduction of the latest achievements of science and technology and for turning agriculture from a primitive and ineffective into an industrialized and highly profitable sector of the national economy;

- the setting up of big cooperative and state farms has proved to be to the most appropriate way of achieving a rapid and radical solution to the social and economic problems of the rural areas, for raising the incomes of peasants, for the alleviation of farm work and raising labour productivity and for increasing the material interest of the producers in the industrialization of agricultural production.

Guided by these considerations, the government of the People's Republic of Bulgaria carried out a great deal of practical work and within a short period of time set up, with the mass participation of the peasants, cooperative and state farms as the chief basis for the industrialization of agriculture. The subsequent development of the productive forces and the requirements of industrialization called for extending the process of the concentration of agriculture which was materialized in the merger of cooperative farms in 1958-1960 and the formation of agro-industrial complexes as from 1971.

At present Bulgaria has big agricultural enterprises whose dimensions and economic might permit the application of the latest advanced industrial technologies as a basis for boosting the effectivity of agricultural production. In the country these are 163 agro-industrial complexes with an average of 25,000 hectares of arable land.

2. The role of industry in the industrialization of agriculture.

The industrialization of agriculture is only possible provided a well-developed industry is at hand. Prior to the socialist transformation of Bulgaria it had a poorly developed industry. The cooperation and assistance of the Soviet Union and the further expansion of specialization and cooperation with the other member-countries of the

Council for Mutual Economic Assistance in the building and development of Bulgaria's industries have played a decisive role in overcoming the difficulties in the industrialization of the country. This has made possible a parallel development of industry and the new, socialist-type of agriculture.

The specialization and cooperation between the member-countries of the Council for Mutual Economic Assistance in building the economy in general and industry in particular has enabled Bulgaria to develop those branches for which its specific natural and economic conditions are most suitable. Series production by specialized industries which takes into account technological progress in the world created possibilities for meeting the nation's domestic needs for goods and for sales abroad. The planning-based socialist market provides conditions for stability and a rational utilization of production capacities. This has enabled the People's Republic of Bulgaria to emerge as one of the world's largest per capita producers of non-ferrous metals. The engineering, chemical and food industries are developing at priority rates. Our country is now a major producer of electric trucks and hoists whose output in 1975 exceeded 100,000 units, over 90,000 of which were exported. The situation is similar in a number of other key productions such as machines for the food industry, etc.

The development of key industries is essential for the industrialization of agriculture. The production of building materials has made it possible to launch a large-scale construction of production facilities, irrigation systems and homes. The development of the power industry has led to universal electricity supplies in Bulgaria's rural areas and to a rapid increase in electricity consumption for production purposes. However, the machine-building, chemical and food industries are of exceptional importance.

What characterizes the development of the manufacture of agricultural machinery is not only the updating of single machines but also the production of whole systems of machines for complex mechanization of production. Over 680 kinds of machines and equipment, 218 of them in series production, are in operation in our country. Bulgaria is designing and manufacturing its own machines for the needs of market-gardening, tobacco growing, viticulture, fruit growing, fodder production and livestock breeding. From year to year, specialization increases our country's potential as a producer and exporter of a variety of agricultural machines including viticulture tractors, rotary hoes, seedling-planters, combines for picking wine grapes, vegetables and fruits for processing, ensilage combines, tobacco growing and processing machines and other items.

The production of mineral fertilizers, plant protection preparations and other means for the chemization of agriculture has greatly increased and the country is now self-sufficient in nitric phosphate and compound fertilizers.

3. Mechanization and the role of machine and tractor stations in the industrialization of agriculture.

The mechanization of agriculture is one of the key factors for raising labour productivity and the effectivity of production. It has also become an urgent necessity for countries with overpopulated rural areas once they set out on the road to industrialization. The transfer of manpower from rural to urban communities makes impossible simple, let alone expanded, reproduction in agriculture. The adoption of a policy towards a rapid industrialization of the country and collectivization of its agriculture brought to the fore the urgent need for mechanizing agricultural production. Mechanization became a cornerstone of the economic policy of the state.

The first priority was to find the most suitable form of introducing mechanization in agriculture. After the Soviet model, machine and tractor stations were set up in Bul-

garia during the collectivization of agriculture. They were originally conceived as mixed state- and cooperative-run enterprises but the need for mechanization was growing rapidly and the ensuing tasks could not possibly be tackled and solved without substantial rapidity from the state. As a result, the machine and tractor stations eventually became wholly state-run enterprises in which was concentrated the machinery for servicing the cooperative and private farms in a given area.

In setting up the machine and tractor stations the state was guided by the following basic principles and objectives:

- to achieve a maximum degree of mechanization of the production processes in agriculture.

Mechanized operations are performed under a contract for payment. The main clauses of the contract cover the aim of the contracting parties, namely to obtain a definite amount of agricultural produce from a given area of arable land, the mutual obligations of the parties for achieving the ultimate goal, the procedure of accepting the work done by the client farms and its payment and the responsibility of the two parties in failing to fulfil the contract's clauses.

The contract is concluded at a general meeting of the cooperative in the presence of the machine operators who service the cooperative farm and representatives of the machine and tractor station and is then endorsed by the local District People's Council. Thus concluded and endorsed, the contract has an important organizing force for the obtention of high yields from a given area of land, combining in an optimal ratio state and cooperative resources.

At a given stage, all agricultural specialists were concentrated who, besides carrying out mechanized operations, were also responsible for the quality of the latter and for the overall agronomical and zootechnical servicing of the cooperative farms;

- by setting up the machine and tractor stations as state-run enterprises the socialist state carries out the mechanization of production processes in the cooperative farms under economically advantageous terms. The amount of the receipts flowing to the state from the cooperative farms in the form of pay for the work done is much smaller than the state's expenses on the maintenance of the machine and tractor stations. In 1959, for instance, these receipts amounted to only 79.4 per cent. In this way, through the machine and tractor stations the socialist state was subsidizing the cooperative farms. At the same time, the differentiation of the charges made for mechanized operations in accordance with natural conditions was a great alleviation for cooperative farms located in areas with unfavourable production conditions. The remuneration for the services was done in kind after harvesting of the crops. Essentially, this meant additional crediting to the cooperative farms. As a result, mechanization became very accessible and advantageous to them and rapidly overcame conservatism in the peasants way of thinking.

- at a given stage in the development of the cooperative farms the machine and tractor stations ensured the effective use of agricultural machinery. Naturally, the socialist state could have found other ways to stimulate the newly-founded cooperative farms in buying and using their own machines. However, during the initial stage the cooperative farms were rather small and lacked skilled machine operators. The formation of machine and tractor stations as specialized state-run enterprises allowed the use of very productive machinery which no single cooperative farm could possibly use rationally on a round-the-year basis. Also concentrated in the machine and tractor stations were the country's few agricultural engineers and technicians who launched the necessary undertakings to train skilled machine operators and maintenance workers. This was essential, bearing in mind the fact that

agricultural machines and the capital investments for their supply were insufficient, especially during the early years of the existence of the cooperative farms.

The formation of machine and tractor stations as a form of mechanization of agriculture also had some weak points, however. They stem from the fact that production from the land of a single cooperative farm was handled simultaneously by two organizations, the cooperative farm itself and the machine and tractor station. The contradictions that arose between them sometimes had an unfavourable effect on the final production results. The main reason for contradictions was that in some instances the machine and tractor stations tended to increase the volume of work at the expense of its quality, while the cooperative farms neglected their obligations to create the most suitable conditions for a rational use of the machines. To overcome these contradictions the system of remuneration was steadily improved so as to increase to the maximum the interest of the machine and tractor stations and the individual machine operators in improving the quality of mechanized operations. But this was not enough and that is why, when the cooperative farms became big enterprises with a greater degree of economic, organizational and personnel independence, in most parts of the country they bought up at advantageous terms the agricultural machinery from the machine and tractor stations, thus becoming the sole masters of their production. But as such conditions are not at hand in the mountainous regions, the machine and tractor stations there still play a decisive role in the mechanization of agriculture.

At the present stage in the development of agriculture, the bulk of the means of mechanization are offered to the agricultural enterprises through planned sales.

On the basis of past experience, a high degree of technical equipping and mechanization has been achieved. While in the past our agriculture relied exclusively on animal traction and manual labour, in 1973 per 100 hectares of arable land there were 2.6 tractors in 15 h. p. units and 0.43 combines of different types. There were 1.1 grain combines per 100 hectares of cereal crops. The effective energy capacity per 100 hectares was 177 h. p., 172 of them from machines and only 5 from animals, while per person engaged in agricultural production the respective figures were 6.4 and 6.2 h. p.

The technical base thus created has led to a high degree of mechanization of the basic processes in fieldwork and livestock farming. In 1973 the basic operations were almost completely mechanized: ploughing - 99.1 per cent, harrowing - 99.7 per cent, sowing - 99.0 per cent, reaping of cereals except maize - 99.3 per cent, sunflower harvesting - 98.3 per cent, sugar beet harvesting - 79.3 per cent, harvesting grain maize - 91.4 per cent, cotton harvesting - 80 per cent, planting of tobacco seedlings - 31.5 per cent and of vegetables - 41.4 per cent. Almost total mechanization has been achieved in the cultivation of many of the basic crops.

However, the mechanized picking of vegetables, grapes, fruits, tobacco and some other crops is a question still awaiting solution. For this reason the seasonal character of production is still a serious problem in agriculture. In some instances the shortage of manpower makes the timely gathering in of bountiful crops impossible, which leads to considerable wastage. To avoid this the state leadership has raised it as a leading principle for the future to design and manufacture or import machines which will make it possible to develop and introduce complete technological lines for every single kind of agricultural produce. In keeping with this principle, the Seventh Five-Year Plan envisages the complete mechanization of all agricultural operations and for the large-scale introduction of automation in production, especially in stock-breeding where industrialization is being carried out through the setting up of large farms on the basis of industrial methods. A vast amount of intensive work is being carried out with this aim in view. The construction of indus-

trialized stock-breeding enterprises has been stepped up. Successful attempts have been made at harvesting fruit and grapes for processing by means of Bulgarian-made combines. Experiments are being made to industrialize the production of basic vegetables by means of groups of machines imported from the socialist and other countries.

The solution of the task of complex mechanization is contingent on a further increase in the supply of power for farm work to bring it up to the level of that of industrial labour. However, a fact that should be borne in mind when making this comparison is that because of the vast scale and rational specialization in production, such key energy sources in our agriculture as tractors are put to use two or three times more a year and a given degree of mechanization is therefore achieved at the expense of much less energy capacity than is the case in the capitalist countries. That is why it has become an increasingly common practice for the capitalist state to ensure the necessary machinery for a given period in science-based quotas, an important factor for its more effective use.

The rapid replacement of the agricultural machinery now in use occupies an important place in the state policy of the People's Republic of Bulgaria in the field of mechanization. As a rule, the intensive equipping of agriculture with machines has kept abreast with the rates of scientific and technological progress in mechanical engineering. In recent years, however, there emerged a considerable disparity between the requirements of large-scale agricultural production for more advanced types of machines and the existing ones. The series manufacture of highly productive machines and their introduction in agriculture has therefore begun. The present Five-year Plan (1976-1980) will be a period of intensive replacement of existing machinery. Most of the tractors will be replaced with new types twice as powerful and twice as fast, while the grain combines with a throughput capacity of 4 kg/sec. will make way for new 6-8 kg/sec. ones. The truck fleet will be updated with the addition of trucks with a bigger loading capacity. The replacement of agricultural machinery will be an important factor for raising the labour productivity and the effectivity of agricultural production.

4. Land improvement and irrigation

Bulgaria lies in a zone of transitional continental climate with a relatively low total precipitation (an annual average of 650 mm), uneven distribution of rainfall during the different seasons and large temperature fluctuations. These climatic conditions allow the cultivation of a large variety of crops but irrigation is needed in order to keep yields up.

Prior to the socialist transformation of agriculture in Bulgaria irrigation was almost non-existent. Only 36,000 hectares or 0.08 per cent of the total of arable land were irrigated.

The government of the People's Republic of Bulgaria attaches prime importance to irrigation and regards it as one of the main ways for raising the intensification and effectivity of agricultural production. The state policy in this field aims at making the maximum use of all the country's water resources to increase the acreage of land under irrigation and satisfy the population's and economy's need for water.

In connection with the increase of the acreage of irrigated land, attention is concentrated on the great opportunities which big agricultural enterprises (agro-industrial complexes, cooperative and state farms) offer for the construction of large modern irrigation facilities. Programmes for studying the country's water resources and their complex utilization have been drawn up for this purpose. An increasing amount of capital investments are earmarked for irrigation projects. Big state organizations have been set up specializing in the prospecting, design and construction of water reservoirs and irrigation systems. Specialists in the construction of hydro-projects and irrigation capable of

coping with sophisticated technical tasks have been trained.

The big irrigation systems are built by the state. A special state organization has been set up for their exploitation and it supplies water to the agricultural enterprises at rock-bottom rates under a plan worked out in advance.

In order to achieve a more rational utilization of the country's water resources, the individual agricultural enterprises also build their own water reservoirs and irrigation systems with funds from their own budgets. The state gives technical aid in the prospecting, design and construction of such projects, supplies building materials and machines and in some instances it also provides credits.

A great deal of attention has been paid in recent years to the mechanization and automation of irrigation. A considerable amount of research and design work is carried out. Irrigation by means of stationary and semi-stationary sprinkling nozzles - locally made or imported from the Soviet Union and elsewhere - is done on an increasing scale. In this way the labour productivity of sprinkler operators is 8- to 10-fold that of conventional gravitational watering.

A considerable amount of work also goes to reclaim land in marshy areas, to regulate river beds and build dykes in flood-endangered areas. In this respect our country has amassed a great deal of experience and has well-trained engineers and technicians.

As a result of this state policy, big dams, cascades and pump stations are being built on the River Danube and elsewhere. The fixed capital in irrigation projects amounts to some 850 million leva and the areas under irrigation to 1.1 million hectares or 23 per cent of the total acreage of arable land which accounts for some 10 per cent of the overall output of plant-growing. The effectivity of capital investments in irrigation is high: they pay for themselves 3-4 years on average.

5. Chemization of agriculture

Chemization is a key factor for increasing soil fertility and for the protection of plants against pests and insects. The state policy on the chemization of agriculture is concentrated in the following main directions: studying the requirements for different kinds of mineral fertilizers and the effectivity of their use, studying the need for plant protection chemicals and their mode of use, mechanization of the fertilizing and plant protection operations, supplying the agricultural enterprises with the necessary quantities of mineral fertilizers and plant protection chemicals and correct organization of fertilizing and plant protection operations.

A big research institute specializing in soil science and yield programming has been set up at the Ministry of Agriculture and the Food Industry. It has a large number of experimental fields in different parts of the country and tackles all questions concerning the use and conservation of land, the raising of soil fertility, etc.

Another research institute at the Ministry of Agriculture and the Food Industry deals with the application of chemicals in plant protection. Its purpose is to study the need for chemicals, their applicability, in what ratios and when they should be used.

The studies of these institutes serve as a basis for working out the country's need for agricultural chemicals. The state has taken on their production and delivery as its obligation. Whereas the use of mineral fertilizers was almost unknown in Bulgaria before the socialist transformation of agriculture, an average of 150 kg of active substance is now introduced per hectare of arable land and it is planned to rise to 250 kg

by 1980. The funds spent on chemicals comprise 7 per cent of the total spending in agriculture.

The state policy on the mechanization of fertilizing and plant protection operations aims at achieving a radical solution of this problem. The operations have been almost entirely mechanized through the use of Bulgarian-made or imported machines.

The chemization of agriculture is effected by means of machines which are often used for simultaneous operations such as soil cultivation, sowing, etc., and by the agricultural aviation service. This has increased productivity and alleviated the work of agricultural workers. The high degree of mechanization of the chemization operations in agriculture and the use of highly productive machines including aircraft has become possible thanks to the creation of large agricultural enterprises and the consistent policy of increasing concentration and specialization of production. Crop-rotation fields of 2,000-4,000 hectares each and vineyard and orchard massifs of 500-2,000 hectares each have been organized in many agricultural enterprises.

Much attention is also being paid to the organization of agricultural chemization work. A special corporation for agro-chemical services has been formed at the Ministry of Agriculture and the Food Industry. Similar enterprises are created at the individual agro-industrial complexes. They are equipped with modern machinery and warehouse facilities and are run by highly qualified specialists.

6. Capital investments in the industrialization of agriculture

The government of the People's Republic of Bulgaria regards the industrialization of agriculture as a part of the overall industrialization of the country. In the pursuit of this goal it has been allocating capital investments for the rapid industrialization of agriculture parallel with the allotment of considerable funds for the speedy development of industry. The policy of our country is aimed at the utilization of both the state's financial resources and the funds of the individual cooperative farms and agro-industrial complexes. The industrialization of Bulgarian agriculture would have been impossible without financial support from the state.

In the first place, the state makes appropriations from its budget to be invested in the construction of industrial enterprises producing machines, mineral fertilizers, chemicals, building materials and other means of agricultural production and of state-owned agricultural enterprises such as state farms, machine and tractor stations, irrigation systems, etc. In short, the state allocates 15-28 per cent of the total volume of capital investments to agriculture.

The material and technical base of the industrialization of agriculture is being built with funds from the individual cooperative farms and agro-industrial complexes and with credits from the National Bank of Bulgaria. It should be pointed out that the ratio between cooperative farm funds and credits has varied during the different stages in the development of the cooperative farms in Bulgaria. Initially the cooperative farms were economically weak and were only able to allocate a small part of their overall income for capital investment. The bulk of capital investments were provided by the National Bank of Bulgaria in the form of credits. Up to 1960 such credits accounted for 40-50 per cent of the total capital investments of the cooperative farms. They have since grown stronger economically and have become able to provide the bulk of capital investments with funds from their own budgets.

In order to step up, assist and stimulate the industrialization of agriculture, the state grants the agricultural enterprises credits at a very low interest rate, only 2 per cent, and in some instances outright grants are given.

The state also gives considerable economic assistance to agriculture by paying for anti-erosion projects, the creation of plantations of perennial plants in the mountainous regions, land reclamation, pasture land improvement, anti-hailstorm facilities, select seeds and seedlings production, breeding, anti-epidemic measures in stock breeding and other purposes.

The capital investments in agriculture are used mainly for the purchase of machinery and vehicles, the supply of productive animals, the creation of plantations of perennial crops, land reclamation and improvement and other projects.

With a view to speeding up the introduction of industrial methods of production in agriculture, capital investments have in recent years been earmarked mainly for the reconstruction and updating of fixed capital in agriculture and for the construction of new projects employing advanced production methods, machines and equipment.

The result of this financial policy of the state has been a rapid growth of industrialization rates in agriculture. The amount of fixed capital per hectare at present is over 1,000 leva. This has paved the way for a drastic rise in the volume and effectivity of agricultural production in Bulgaria.

7. The development of agricultural science

Within a short span of time, from 1948 to 1974, the People's Republic of Bulgaria has achieved a 2.2-fold increase in agricultural production at comparable prices, with 2.6 times fewer people working in agriculture. Agricultural science has played a decisive role in achieving these results. Agronomists make extensive use of the experience and discoveries of other countries, while they themselves tackle many questions concerning the scientific aspects of agricultural production. A network of 56 scientific institutes and experimental stations operate in the country; they specialize in different sectors of agriculture in accordance with the specific natural and economic conditions of their region. Over 1,800 scientific workers are employed in them. In 30 years of people's rule Bulgarian agricultural science, which receives special care from the state, has scored considerable successes.

Of the 484 varieties and hybrids created in Bulgaria to date 284 have been introduced in production. A number of foreign varieties and hybrids of maize, wheat, sunflower, barley and other crops have also been introduced after proving suitable for local conditions. A typical example is the widespread use of the Soviet wheat varieties Bezostaya-1, Avro-ra and Kavkaz and the sunflower varieties Peredovik, Smyana and Mayak, also imported from the USSR.

New industrial methods have been evolved and are now applied in the growing of wheat, maize, sunflower, tobacco, cotton, grapes, vegetables and other crops. The locally selected varieties are close to the world's best. Especially good are the Sadovo-1, Loudogorka, Levent, Roussalka and other winter wheat varieties, the Knezha maize hybrids, the local varieties of cotton, tobacco, etc.

Large-scale soil maps (1:25,000 and 1:400,000) have been drawn up and the reserves of mobile forms of fertilizing elements in the soil have been established. The building and equipping of the Institute of Soil Fertility has been extended with the cooperation of the UN

Food and Agricultural Organization (FAO). As well as in Bulgaria, this institute carries out soil science studies elsewhere, too.

Considerable successes have been scored in the field of plant protection. A search for effective biological methods and means of fighting crop diseases and pests has begun.

Our stock-breeding science has made its contribution to the creation of more productive animal breeds, to livestock nutrition, etc.

Bulgarian veterinary science has also outstanding achievements to its credit.

The science of agrarian economics has successfully tackled a number of key problems of large-scale agricultural production which are of decisive importance for the triumph of the cooperative system and the intensive development of agriculture.

Scientific cooperation with other countries is essential to the success of agricultural science in the People's Republic of Bulgaria.

The help of the Soviet Union in the training of scientific cadres has been invaluable. Joint research is organized on important scientific matters of mutual interest. Joint enterprises such as Agromash (a partnership between the USSR, Bulgaria and Hungary) are set up to coordinate the technological development of the manufacture of farm machinery. An International Centre for Scientific, Technological and Economic Information has been established. Scientific and technological cooperation with France, Denmark and other countries is expanding. Danish and Bulgarian scientists have worked out jointly a breeding programme to raise the productivity of the Bulgarian Red cattle breed.

Bulgarian agricultural science is closely bound up with the intensification and industrialization of agricultural production.

8. The training of cadres for agriculture

The rapid collectivization of farming in the country in the past was paralleled by an intensive training of managers and specialists for the cooperative and state farms and machine and tractor stations.

On September 9, 1944, Bulgaria had a total of 1,230 agronomists with university education, 865 veterinarians and about 2,600 agronomy technicians with secondary vocational training.

The difficulties of collectivization resulting from the peasants' attachment to private property, the uncertainty accompanying any change and mainly the hostile attitude of the big landowners and the political opponents to collective land ownership could only be overcome by managers and specialists capable of running the new socialist type of agricultural enterprises.

It should be pointed out that the majority of agricultural specialists had a positive attitude to collectivization and took an active part in the reconstruction of agriculture on a socialist basis. But there were not enough of them. For this reason it was the most progressive and most experienced farmers who were appointed cooperative farm managers, team leaders and stockfarm supervisors.

One of the main factors for the education of managerial cadres is cooperative farm democracy expressed in collective decision-making, the right of free expression, everybody's right to elect or be elected, the regular calling of managers to account, their replacement if they fail to perform their duties well, and so on.

Even in the first years of the transformation of agriculture the training of managerial personnel was carried out along two basic lines:

- in-service training (courses, circles, lectures, seminars, etc.).
- off-hours training (at universities, secondary or vocational schools).

In the course of development, the forms in both lines changes, improved and adapted themselves to the needs of the socialist agricultural enterprises.

During the initial period, 6-month, 1-, 2- and 3-year courses were opened for raising the qualification of the managerial personnel of the cooperative and state farms and machine and tractor stations. Cooperative farm managers and deputy managers, directors of state farms and machine and tractor stations, cooperative farm board members and accountants were trained at them.

The training of specialists with higher education was being steadily improved and the number of faculties and students was increased. The country now has four agricultural institutes of higher learning in which a total of 1,200 students are admitted a year, against only one such institute with an annual admission of 80 students before September 9, 1944. Agricultural specialists with university degrees are trained in the following specialties: plant growing, plant protection, vinegrowing and market gardening, zootechnics, veterinary medicine and agro-economics.

The secondary agricultural schools train lower management including team leaders, livestock farm supervisors, production section managers, accountants and others. These schools offer a 4-year course of study. Young people who have completed 8th grade and are not above 16 years of age are eligible for enrollment.

Skilled workers for the different sectors of agriculture are trained at the agricultural vocational schools. Eligible for admission are cooperative farmers between 18 and 30 years of age who may or may not have finished their general education. The course of study is 1 or 2 years.

The higher, secondary and vocational agricultural schools have their own experimental stations with an adequate material and technical base including land, machinery, livestock, warehouses, etc.

After the majority of cooperative farm managers, state farm directors, team leaders and other managerial personnel had passed through the courses and a large number of specialists with university and secondary school education had been trained, the courses were closed down and the number of vocational schools reduced.

In 1967 there was an average of four specialists with higher or secondary education per cooperative farm.

In the past most of the cooperative farm managerial personnel had failed to complete their secondary education, many had only passed through courses and very few had semi-higher or university training. In 1971, 70.6 per cent of all cooperative farm managers were university graduates, 14.2 per cent had special secondary education and 8.6 per cent had graduated from special courses.

The training of cadres for agriculture is now concentrated in higher, secondary and vocational schools. Short course for tractor drivers, combine operators, mechanics and other technical personnel have been set up at the regular schools.

A variety of mass educational forms are used to raise the occupational skills of cooperative farmers and workers on the cooperative and state farms. Two of them deserve special mention:

- courses to study the achievements of top workers;
- special courses for team leaders to study the technology and methods of production in plant growing and livestock breeding.

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As a result of the policy of industrialization, agriculture in the People's Republic of Bulgaria is now developing at high rates. In the past 25 years the amount of fixed capital in agriculture has risen about 5 fold. Despite a 2.6-fold drop in manpower, as a result of higher labour productivity the social product in agriculture has grown 2.2 times over.

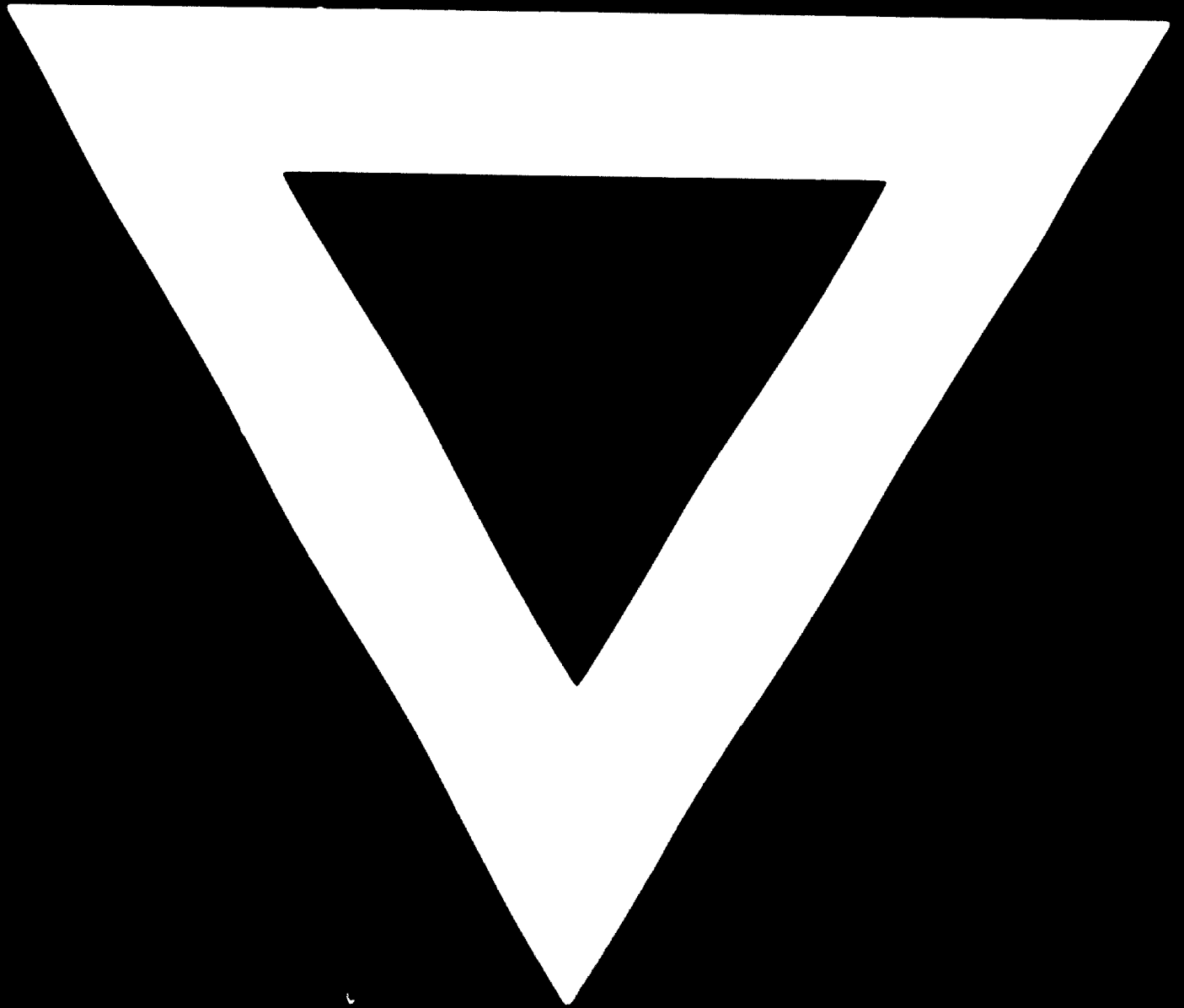
These high development rates in agriculture and the policy of the government of the People's Republic of Bulgaria have led to a drastic improvement in the working and living conditions in the rural areas and to a rise in the living standards of the peasants. Their incomes have gone up by 3.5 times and have been brought up to the level of earnings in the other spheres of material production. The public consumption funds and social gains of the peasants have increased rapidly. All Bulgarian peasants receive free medical care and free education. Maternity hospitals, nurseries and kindergartens have been built for them. Retired peasants receive pensions, while those engaged in production are entitled to annual paid leave. More than 40 holiday houses for peasants have been built in different parts of the country.

The appearance of the Bulgarian villages has been transformed. Housing has been almost completely updated. All villages have electricity supplies and most of them water, too. Cultural clubs, shops, communal services and other facilities have been provided.

As a result of all this, the character and conditions of work and life in the Bulgarian villages are being brought ever closer to those of city dwellers, and agricultural labour is increasingly becoming a variety of industrial work.



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