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AGRICULTURAL ECONOMICS
AND AGRARIAN DEVELOPMENT IN HUNGARY

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RESEARCH INSTITUTE FOR AGRICULTURAL ECONOMICS

General Director
JÁNOS MÁRTON, Ph.D.
candidate of Agricultural Sciences

Authors

László CSETE, Ph.D.
Scientific Director

Ferenc FEKETE, Ph.D.
Professor of Economics

Pál ROMÁNY, Ph.D.
Minister of Agriculture and Food

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Editorial office

Library of the Research Institute for
Agricultural Economics

H-1355 Budapest 55., IX., Zsil utca 3/5

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PREFACE

Since 1962 our Bulletin-series /in English and Russian languages/ - according to the original aims and the traditions developed in the sixties and the seventies - have the honourable task to provide information on important scientific findings of our research activities in agricultural economics for international professional circles, our foreign colleagues. Our experience shows to those publications in Bulletin-series is paid an intensive attention by foreign readers which are connected to the important events of agricultural economics, the conferences drawing syntheses of research findings of previous periods, the meetings offering free exchange of scientific views and results, and giving floor for constructive discussions.

Therefore it is our honourable duty to provide publication opportunity for Hungarian lectures prepared for the 17th International Conference of Agricultural Economists, only in narrower professional, scientific circles and the publication of which along with the other national contribution will presumably require a longer period. The authors of the present lectures - the Minister for Agriculture and Food, the Professor of Karl Marx University of Economics and the Scientific Director of the Research Institute for Agricultural Economics - delivered different scientific and practical issues, nevertheless their interpretations are governed by a common thought, i.e. the strive for an investigation of our agricultural development in the spirit of scientific responsibility.

László CSETE, Ph.D.

ENTERPRISAL SYSTEM OF AGRICULTURAL PRODUCTION
IN HUNGARY

1. Natural endowments for the agricultural production

Hungary extending over 93.000 km² and having 10.5 million inhabitants is situated almost in the heart of Europe, lying in equal distance from the equator and the North Pole on the area between 45°48' - 48°35' of north latitude and 16°05' - 22°58' of east longitude. Budapest, the Hungarian capital waiting for foreign guests has more than 2 million inhabitants. The city is rich in mineral waters and is situated along the banks of river Danube, dividing the country into two parts, in a picturesque environs with several sights and famous cousine.

In Hungary the climate is continental under the influence of three climatic areas, i.e. Continental climate with warm summer and cold winter; Oceanic one with cool summer, mild wet winter and in summer for weeks due to descending aerodynamics rainless warm weather characteristic feature of Mediterranean region. The climate of the country evolves from the mixing of these effects.

In some regions within the country, the average temperature of many years is between 9,8 C° and 11,4 C°, in a long period the number of rainy days per year amounts 123-130, the number of sunny hours is between 1916 and 2068, there are 72-109 wintry days, the average volume of rainfall is 565-715 millimetres, the rainfall volume of vegetation period /from April to September/ fluctuates between 320 and 423 millimetres.

The ecological endowments are diversified, which affect the quality of agricultural products advantageously and they attract the tourists and the agricultural experts visiting the country. Above the high-quality ploughland still quicksand, sodic soil surfaces, erosive sloping areas are found or under Mediterranean-like climate there are more cool areas. Moist regions and arid lowland plains alternate each other, the cultivated regions are interlarded by primeval junipers, indigenous yew-tree forests and relic species of glacial flora and fauna.

On 72,3 per cent of the area of the country agricultural production is carried out, the forests represent 16,9 per cent while reeds and fish ponds have a share of 0,7 per cent. Only 10,1 per cent is covered by ha-

bitation settlements, highways and roads, railways and other infrastructural areas.

The endowments are favourable for the agricultural production. Major details in this respects are as follows:

- the share of cultivated as well as the plain, high-quality ploughland in the total area of the country is very remarkable,
- there is a number of such specific /monopolistic in character/ croplands, which cannot be found on the territory of other foreign countries,
- the number of sunny hours is relatively high, this fact results in the tastes, colour and inner structure of the products,
- in the case of some products the production traditions are especially rich,
- the country is located at north and south boundaries of production zone of several important crops, hence, the crops produced north and south of Hungary by chance in more favorable natural conditions can be produced in our country still with good results; this increases the elasticity of the agricultural production.

In Hungary the determination of present and by the turn of the century expected ecological potentials of agriculture per region comes to an end at present, which will indicate not only the possibilities and the limits, the volume of crop and animal products can be produced, but it also will raise questions concerning the development of enterprisal system in agriculture and food industry.

2. Enterprises of food production in Hungary

The enterprises within the overall food production may follow the most different production activities under the quite diverse natural and economic conditions. Thus enterprises were established for the production of agricultural produces, the food industrial activities, the services, the marketing of means of production and materials /such as for example mineral fertilizers, seeds, chemicals, machinery, etc./. In many cases the agricultural and food industrial enterprises deal also with the manufacturing of machines and other means of production for the sake of the development of food production. Production activities and services going beyond the boundaries of food production is not unimportant in several enterprises.

The enterprises differ from each other not only in ultimate object and environs of their activities but they are also quite different in their size. The different sizes expressed in terms of gross and net value of output or natural indicators /such as capacities, area, animal space/ change between rather wide frontiers.

Whole process of food production and supply organically adapt themselves to comprehensive system of the national economy. The different branches of the national economy /and their enterprises/ are - in direct or indirect ways - participants of the process of food production and reproduction. Non-food producing enterprises of the national economy play a decisive role first of all in assuring the means necessary for the food production /reproduction/, in addition they play essential /though changing/ role in every stage of food production.

Proportions among the stage of reproduction process of food supply change in the course of the development. The formation of the proportions among the manufacturing and the supply of means of production, the agricultural production, the food processing and the marketing can be characterized by the value added of production, the number of employees or other indicators. The more developed the food production, the more greater the proportion of the supply of means of production as well as the food processing and marketing within the food economy as a whole, and the smaller the share of agricultural production even with growing volume of output. The example of countries with developed food production clearly shows that the intensive development of food industries and of supply of means of production is necessary from the point of view of agriculture.

Though they cannot be regarded as enterprise-like organizations, but because of their economic importance and for the sake of completeness of view we may mention here also that the number of household farms of members of agricultural producers' cooperatives amounted 781.944 and that of auxiliary farms above 0.6 hectare was 120.000 in 1977.

The institutions financed by the state budget play an increasing role in the food production. These institutions become more and more a factor in scientific-technical development, spreading of new varieties /breeds/ and production processes, continuous control of production and training of exports. We can also say these institutions are important components of infrastructure of agricultural production. The excellently acting network of these institutions is characteristic feature of countries with developed agriculture. The developmental, service, authority, etc. activities of these institutions and their overall functioning have to be modernized according to the level of economic development in Hungary. Nowa-

days, when the enterprisal frames and the other conditions of the modern food production have already been created, the difficult task of agrarian economists is to solve the problems involved in integrated, coordinated functioning of enterprisal system and its planned, proportional development.

3. Structure of agricultural holdings

In the course of democratic transformations beginning with the land reform and other social changes of great importance - in the framework of which large peasant masses was given land in 1945 - as a result of rapid changes and development today 5,4 per cent of total area of the country represents personal and private ownership, 30,8 per cent of it is the share of state ownership, while 63,8 per cent is in the use of cooperatives.

The large-scale system of agriculture had been formed.

The structure of Hungarian agriculture is multisectoral. The state farms laid the foundation of large-scale farming on the former private large holdings and due to war events deserted lands after World War II, and since that time they have been pioneers of technical, technological, and organizational development, they carry out praiseworthy innovational activities and increase their commodity production year by year, while with respect to labour productivity these farms serve as a model of large-scale farming.

The agricultural producers' cooperatives had achieved epochal results in the past thirty years. Their production reached a level which ensures the balanced and high level meeting the food demands of the population and contributes to the covering the industrial needs for agricultural raw materials and to the implementation of export tasks of food production. The average yields of these cooperatives beset the world level in many fields, their technical standard also stands the test of international comparison and the material conditions and the social welfare of the cooperative peasantry are practically the same as those of wage and salary earners.

Meanwhile the standard of living, the cultural niveau, the general culture and the professional skill of rural population as well as the appearance of rural settlements have changed considerably. Adapting themselves to large-scale farms in an organic manner and in the framework of the integration in many respects there exist hundred and hundred thousands small-scale farms. The specializing commodity production of the small-scale farming as well as the products produced for own family con-

sumption are of specific character having specified quality so this production colours /diversifies/ the consumption and the domestic commodity supply and even it has some exports, too. Above this small-scale production the appearance of each region is coloured also by different week-end rest, holiday and hobby parcels.

4. Results of the enterprisal system and its tasks

The enterprises of the food production - through specialized foreign trade organizations - export 450 kinds of agricultural and food industrial products to 100 countries. One part of the products in question can also be produced in other countries, but we produce specific Hungarian products, too. The basis for all this can be found in the social-economic changes taking place in Hungary during the past three decades and of course also in the facts that since 1961 the agricultural production has almost doubled, the food industrial production has increased more than 2,5-fold while exports have grown six-fold.

Among 28 European countries the agricultural production of Hungary stands on the places 12.-14., the place of agrarian exports has been between 10.-13. and concerning the per capita exports the country occupies the places 4.-5.

The enterprisal system of food production - mentioned earlier - is composed of 133 state farms /some of them have 150-200 years' history/, 1369 cooperatives, 13 agricultural, food industrial and wood working industrial combines, then different inter-enterprisal cooperations /such as associations, production systems, agro-industrial unions/, small-scale producers, 198 food industrial enterprises or factories as well as supplying, service and other enterprises, finally institutions financed by the state budget, etc.

Agriculture and the food industry represent an organic part of Hungarian national economy which is expressed not only in the food supply of population and in their maximal contribution to the increase of national income, but also in the fact that the agriculture is more and more greater consumer of the products of the domestic industry and of different services.

The further increase of production results already achieved as well as the enforcement of requirement coming from the changes of Hungarian position in the world economy set the agriculture and the food industry great tasks mainly in the field of the utilization of ecological possibilities and the choose of direction of scientific-technical development and of its priorities.

In the centre of planned development managed and controlled by economic means /regulators/ stand the improvement of the quality of products and of the rentability and occasionally the assuring the extraordinary quality. This task has to be implemented in the conditions of decreasing agricultural land and labour force. The upward trend of production costs has been problematic which in the modern, industry-like agriculture derives from the use of energy, machinery of industrial origin, different means of production and materials, the construction of new buildings, the more rapid transport of increasing volume of products, the improvement of the degree of procession and the increasing package and storage outlays.

The proportion of irrigated, meliorated areas with regulation of water-ways as well as of hothouse production increases further, the fight against the invasion of viruses, funguses, insects and the hail-prevention becomes more effective, the genetical potentials expand and the material-technical conditions of processing, package, storage and transport improve further in order to make better the quality and inner structure of products and to reach a more secure production as well as to increase the level of agrarian culture. Nevertheless, the human factors - training of specialists, agricultural and other engineers, researchers and managers as well as the better organization of labour-time utilization - come also to the front.

5. Plant sizes in the agricultural enterprises

In the case of the production organized in large-scale farms the income can be increased mostly by the reduction of fixed unit cost. Economic efficiency is promoted first of all not by the enlargement of areal size of cooperatives and state farms, but by increase of production units' size or plants' size within the enterprises.

As a goal that could be determined the plant sizes should reach in every activity the economically reasonable minimal extent in the given technical, technological and organizational conditions and should not surpass the maximal ones. This can be determined in such a way that we draw the relations of size and prime cost in a system of axes and so we mark the plant sizes around the minimal prime cost or optimal plant size.

The plant size generally fluctuates between the following sowing areas: corn 650-800 hectares; wheat 600-2000 hectares, sugar beet 80-300 hectares; potatoes 80-200 hectares, wood strawberry and early vegetables 20-25 hectares; apple and grape 100-120 hectares.

In the animal husbandry, dairy unit with 400-600 cows can generally be regarded as reasonably sized. In cattle fattening units with 2000 output capacity achieved good results. In the pig breeding plant sizes with 360-420 sows and 7000-8000 fattened pigs proved to be favourable. Our domestic conditions give reasons for unit with 800-100 milch-ewes and 1500-2000 fattened lamb. In roast chicken and egg production quite large sizes were formed in the Hungarian practice. The minimal size has 40.000-50.000 brood-hens a 300.000-500.000 chickens.

The concentration made a rapid progress in those farms, in which the formation to production sizes being around the optimal level adjusting itself to local production conditions was successful in every branch and on these bases independent organizational frames were created within which every characteristic feature and basic principle of organizations prevail. That is the organization of optimal size has its determined and unified aims, it is interested in the realization of aims in monetary and moral sense, the functions of management and of execution are determined and separated, it possesses means and conditions for the realization of aims, it acts in geographically determined zone, its relations /subordination, superordination, coordination/ are determined unambiguously.

The organizational frames formed in such a way make possible the consequent enforcement of the principle of rational farming, the obtaining a greater income as against the situation in the traditionally formed organizational units.

The production and labour processes can be organized in an industry-like manner in the units of optimal size, the characteristics of which are the proportionality among the factors of production and the optimal timing of inputs. The satisfaction of needs of industry-like process organization are as follows: the proportionality /quantitative proportions among the factors of production/, the coordination /harmony in the timing/, the continuity /less and less off-time between the operations/, the rhythmizing /adjusting to the work rhythm of means of largest capacity/.

6. Deepening of specialization in the agricultural enterprises

Two production structure solutions serve the intensive development with good results in Hungary: on the one hand the enterprises producing several products and on the other hand the specialized ones producing one or two products.

The farms specialized in production of several products from their production activities and services on the basis of their adjustment to local conditions /agricultural land, climate, soil surface, production

traditions, skill, utilization of long existing, hardly transformable means of production, etc./. The production structure with specialization in several products can equally be found in cooperatives, state farms and their joint undertakings, associations and in agro-industrial unions. Under "several" products we mean actually 4-8 final products but it is the decisive criterium in every case that each activity has to be organized in large-scale sizes, independent farm frames or production units, adjusting themselves them to local conditions.

This kind of production structure spread at a rapid rate in Hungary mainly due to basic features of agricultural production, diverse, heterogeneous conditions of production even in smaller regions, investment decisions of past two decades and union of farms.

The number of farms and organizations specialized in the production of 1-2 final products or in services is rather low as compared with farms mentioned above. Among them we can also find state farms, cooperatives and their joint undertakings and associations. These enterprises organize their production in a system-like manner, hence they are important bearers of transformation of agricultural production into industry-like lines.

Their activities have vertical character, in many cases they cover the research and the development, the material-technical supply of production, the organization of production and the formation of organizational frames, the elaboration of production techniques and their local adoption, the continuous extension service and they occasionally include the marketing, the processing or even the foreign trade activity.

The specialization develops differently in crop production, animal husbandry and agricultural services. There is not difference in the principles of the formation of optimal plant sizes related to the specialization, but the characteristic features of sizes are naturally also different.

In the crop production there were several experiments to form very narrow specialization. These experiments - apart from some cases - were not successful and we do not possess enough experience in this field. The production systems - in the initial period of their development - became specialized in one production line /mostly corn production/, but it proved soon that the farm management rules and relations concerning the branch joining in the past development still hold on the basis of modern, large-capacity technology, too. In essence in the latter case, the key concern is the behavior of fixed costs. For instance, if we regard the corn production carried out in the production system of 700 hectares, the cost of mechanization per one quintal corn is 18.70 forints. If in the

given farm the production of corn on 700 hectares is associated with the production of wheat on 400 hectares, the fixed costs of corn production per one quintal is only 10.70 forints or there is a saving of 8 forints per quintal of corn. It is obvious that fixed mechanization cost per unit of production decreases not only in the case of corn, but also in other production branches. Naturally, other combinations - depending on restricting conditions - differing from the above example can also be implemented in the practice of farming. The essence of every case is that there is a striving after the reduction of specific production costs through the advantages of branch joining.

In the animal production a narrower specialization can be fairly accomplished because the deepening of division of labour is not hindered by rentability of multilateral utilization of technology and by seasonality of production process. The formation of breeding stock, the breeding of young animals, the meat production, the milk production as stages are separate because of diverse skill, keeping, breeding and agricultural land conditions. Quite narrowly specialized enterprises and plants were formed in meat, milk and egg production, which wear the features of industry-like production, are organized in a system-like manner and carry out their production in large sizes.

The activity structure of services is generally narrowly specialized, it is adjusted to a given final product. Its sizes are determining by the output volume of enterprises and plants producing final products, the possibility of reduction of fixed costs, the volume of necessary stocks, etc. The sizes of service enterprises increase quickly, this fact greatly affects the rentability of services.

Let us consider the services for the arable crop production. In the condition of the Hungarian areal sizes of farms the ploughland of 4000 hectares can be regarded as basic unit. /The cropping area of such a basic unit may be composed of wheat of 1200 hectares, corn of 1200 hectares, sunflower of 600 hectares, sugar beet of 400 hectares and lucerne of 600 hectares/. This basic unit requires two complete corn-machine lines as well as specialized machines of individual crops, service-truck, store-houses for products, mineral fertilizers and other chemicals. In order to accomplish the instrumented change of key elements of machines in a profitable way 20 complete machine lines or 10 basic units /40.000 hectares/ are needed. Agro-chemical service combined with machine repairing and airplane use requires the formation of 25 basic units or 100.000 hectares.

If we want to build up modern component part supplying and renewal base in our country, it will be profitable only in the case of 100 complete machine lines, i e. a sowing area of 200.000 hectares. Thus cooperation of 50 basic units or 50 plants has to be coordinated with the service activities. We may assume that these sizes will also rapidly change due to development of forces of production. Hence we have to pay much more attention to the organization of service activities /having relatively much problems in our days/, than before.

Appendix Number of large-scale farms,
their land area and labour productivity

	Cooperative farms		State farms	
	1960	1977	1960	1977
Total number	4507	1425	333	141
Average land area /hectare/	930	3624	2913	7043
Ploughland and orchard per one labourer /hectare/	3.4	6.0	3.8	4.6
Production per one labourer /quintal/head/				
wheat	12.0	71.9	16.3	53.9
corn	11.5	58.5	17.8	45.7
pork	0.7	4.6	2.5	13.4
poultry meat	0.1	3.4	0.3	2.3
beef cattle	0.9	3.3	1.7	2.9