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ECONOMIC COMMITTEE

RECENT TRENDS IN SOVIET AND EAST EUROPEAN
AGRICULTURE

Addendum to Working Paper AC/127-WP/592 dated 8th December, 1978

Attached for the attention of members and experts to the reinforced meeting on 13th-14th December, 1978, is the final part of the contribution by the Soviet Affairs Section to the study on recent trends in Soviet and East European agriculture.

2. The document analyses in greater depth some of the salient issues affecting agricultural performance in Eastern Europe and is intended as a guideline for discussion during the meeting.

This document consists of 29 pages

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N A T O C O N F I D E N T I A L

BULGARIA

1. Quality of Land

Bulgaria has few reserves of agricultural land left. The area of cultivated land is declining and fell by 3% between 1960 and 1974. On the plains south of the Danube, grain cultivation is important. Bulgarian farmers have a good reputation as market gardeners and this type of farming is found extensively in the main valleys and basins of the centre and the south.

2. Climatic Conditions

Erratic - storms, flooding, drought. Out of every five years at least one or two will be very poor for agriculture.

3. Decision Making Process

Agriculture was fundamentally reorganized in the 1971-75 Five-Year Plan, the effects of which will be seen in 1976-80. In 1970, the 795 cooperatives and 156 state farms were replaced by a nationwide network of 143 enormous farms (average size 24,290 ha., employing 1.1 million people, or an average of 6,479), designated agro-industrial complexes (AICs), 9 industrial-agrarian complexes (IACs) in the sugar and sugar beet sections, and 4 "scientific productional complexes" (SPCs) in viticulture (meat processing, vegetable and fruit canning, sugar refining, cigarette and wine making) with the aim of creating totally self-sufficient and self-financing enterprises. Poor agricultural performance in 1978, plus the slow adjustment of managers and workers to the 1978 reform programme set out by the government to encourage more "flexible planning" and make the AICs more efficient have led to considerable disorganization of production. This has created major re-shuffles in the top agricultural leadership, including the dismissal of the Party Secretary for Agriculture.

4. Quality of Farm Inputs

Bulgarian Five-Year Plans are always optimistic and forecast a regular aggregate 20% increase in agricultural production. Given that the 1977 result (-6.3%) was far below the Plan, it is more likely a Five-Year Plan rate will be 15-17% instead of the projected 20%. Similarly, planners wish to increase chemical fertilizers to 230 kg per ha., although the actual figure in 1975 was 143 kg. Great hopes are placed on the AICs and the IACs in spite of their lack of conspicuous success so far. The food processing industry is doing reasonably well as a result of receiving a large share of industrial investment over this Five-Year Plan in order to improve the canning section, raise the volume of refrigerated storage and increase automation. The 1976-80 growth rate target of 40% was hurt by the -0.7% rate last year due to the poor harvest. Nevertheless, agriculture as a whole received only about 16% of total investment in the 1971-75 period, not enough to solve

the problems facing this sector.

In line with a rapidly expanding chemical industry, capacity for ammonia, urea, nitrogen and phosphate fertilizer is being increased by 80% in tonnage terms during the current Plan. It appears, though, fertilizer application has not increased greatly as most of the produce is destined for export.

Product	1970	1980 Planned
Ammonia	788.2	1,500
Nitrogen fertilizer	286.8	716
Urea	314.8	500
Phosphate fertilizer	147.6	450

Source: Eastwest Markets, 18th September, 1978

5. Particular Problems in the Agricultural Sector

The present Plan places more emphasis on equipment for fodder processing, technological systems for the industrial cultivation of tobacco, vegetables, grapes and fruit and small-scale equipment for private plots. The chronic shortage of fodder has plagued Bulgarian agriculture for years and resulted in a decrease in numbers of pigs in 1977. Problems still persist in the quality of fodder, its collection and storage, transportation and delivery. An additional problem has been the generally rising agricultural production costs, especially in the least mechanized lines of production. This has squeezed profits and retarded investment in the sector.

6. Transportation/Distribution Network

Transportation of goods to the USSR will be greatly enhanced by the new Varna-Odessa ferry service (which can carry 115 rail cars), thus by-passing the time-consuming and tedious transit journey across Romania. Elsewhere, in Bulgaria the transport sector is receiving a greater share of capital investment to overcome the acute transport shortage, especially during harvest. An important goal is to link up district villages with distribution centres for agricultural produce. By 1980 over 70% of the road network will be asphalted; this will contribute to the growing trade in agricultural goods by truck with Turkey and Iran.

7. Skilled Labour Supply

The labour shortage is the result of a small increase of population of working age (15-64), now one of the lowest in CMEA. Only 9% of the agricultural labour force is in the 16-25 year old age group (22% in industry) and 30% are over 55 (8.6% in industry). During the harvest season there is a particularly severe manpower shortage and some 150,000 extra people are mobilized to participate in harvest brigades. This problem may

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remain serious until more women are attracted into the labour force. Recent forecasts indicate the percentage of the work force in agriculture will continue to fall from 26.2% in 1976 to 18% in 1985(1). Nevertheless, it should be noted that in the last decade, labour productivity in agriculture has been rising and this has had the effect of averting a real labour crisis on the farm. It remains to be seen whether the projected supply of new machinery and the introduction of advanced technology will be able to overcome any future shortages.

8. Rural Living Conditions

The percentage of active population in agriculture has dropped from 35.2% in 1970 to 26.2% in 1976, and partially reflects both the lower social and physical standards of living in the countryside. Per capita ownership of cars, TVs, appliances, in addition to educational attainment is far lower at rural level. Nor has the government embarked on a scheme, as has been the case in Poland, Hungary, the GDR and Czechoslovakia, to narrow the gap significantly. For the most part the peasant will have to accept the low levels for at least another Five-Year Plan.

9. The Socialized Farm System Itself, Compared with Private Farming

In an effort to revive flagging agricultural production the government has launched a major effort to encourage production, especially of livestock, on personal plots. The plots in 1973 accounted for 12.8% of arable land yet accounted for a disproportion of total output.

<u>Item</u>	<u>Total % by private plots</u> (1974)
Cattle	19.3
Pigs	20
Sheep	38.7
Goats	99
Poultry	45
Meat	32
Milk	22
Eggs	47

These figures are bound to increase as state procurement prices are raised, and more incentives as well as capital and equipment are made available to the private sector.

10. Prospects

Bulgaria shares the same common agricultural difficulties as the rest of Eastern Europe: unavailable Western or poorly designed Bulgarian modern machinery, a continuing shortage of fodder, inadequate amounts of fertilizers and crop

(1) H. Vogel, "Les Tendances Demographiques en Bulgarie", Revue d'Etudes Comparatives Est-Ouest, ix, 2 (1978), 100

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protection, incomplete irrigated schemes, poor procurement organization and erroneous concentration and specialization.

The dramatic drop in production in 1977 (-6.3%) has shaken planners considerably. A continuation of slow growth rate is of concern to Bulgaria as agricultural production is crucial in raising the standard of living and in foreign trade. Expansion of agricultural exports would give it the means to pay for its raw materials and energy imports. On the other hand, shortfalls have a marked impact on industrial production in the following year; the main task of agriculture will be to increase grain production, improve the livestock industry and increase productivity. The Plan output calls for 5% increase, but preliminary reports indicate this target will not be met, thus reducing even more the chances of achieving the 1976-80 general average of 3.7% in agricultural output.

11. Agricultural Trade

Although agriculture accounts for about 17.6% of the country's national income (in 1976), it plays a key role in the export sector representing (in 1976) 37.8% of overall exports and is the main source of hard currency exports. The most important exports are: wine, tobacco/cigarettes (almost 30% of agricultural exports) and livestock products (live animals/meat). The USSR remains the best customer (and is now in an even stronger position with the November 1978 inauguration of the Odessa-Varna Black Sea ferry service), followed by various other bloc countries. Exports to Western Europe are hindered by distance and EEC restrictions. Overall, as a result of agriculture's poor performance in the last two years, Bulgaria has become a net farm importer; this has adversely affected the targets for consumption of foodstuffs.

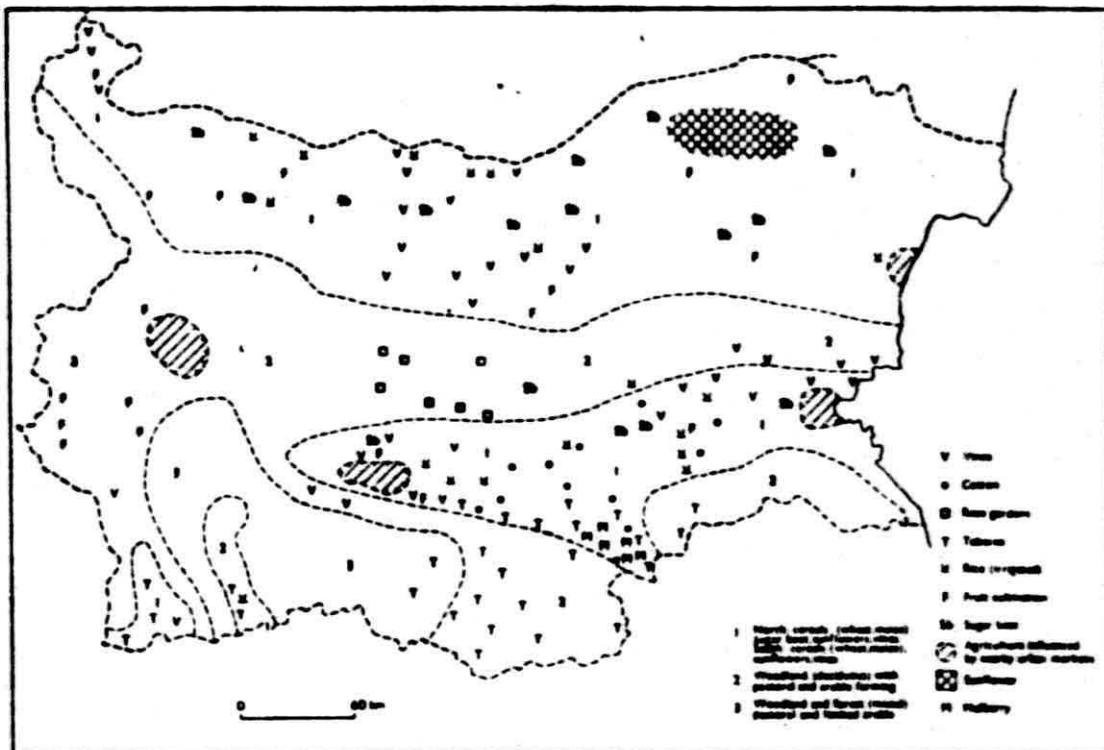


Figure 10.4. On the plains south of the Danube, grain cultivation is important, but Bulgarian farmers have a long reputation for their skill as market gardeners and such farming is found extensively in the main valleys and basins of the centre and the south.

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CZECHOSLOVAKIA

1. Quality of Land

The most fertile soils are found in northern Bohemia, Moravia, and southern Slovakia; the soils of the hilly regions and the Carpathians are thin and unsuitable for cultivation. Around 55% of the total land area is devoted to agriculture, and just under two-fifths of the total land area, or 70% of the agricultural land area, is cultivated. The remaining principal uses of agricultural land area are pasturage (25%) vineyards (1%), and hop-growing (0.2%). Grain crops are grown on 55.5% of the sown area, of which about half is devoted to bread grains.

Approximately 8% of the sown area is fertile black earth; 70% of the cultivated soils are brown forest and podzols; 17% of the farmed area is on skeletal soils unsuited to farming, but much has been done to improve the soil quality. Drainage has been improved in central and southern Bohemia and central Slovakia; there is considerable irrigation in southern Moravia and the lowlands of Slovakia, although drought is still a problem. Much land has been reclaimed after open-pit mining operations.

One-third of Czechoslovakia's total land area is forested, making it one of Europe's most wooded countries. In 1976, Czechoslovakia's forests produced 17.6 million cubic metres of wood and 1% of national income.

2. Climatic Conditions

Czechoslovakia has a continental climate. In the western region, temperatures average just below freezing in January and around 20°C in July. There is generally copious rainfall, especially in the higher regions and in the East, where precipitation averages 55 inches annually. The lowlands in the Danubian and Moravian plains have hot, sometimes dry summers and an average of 20-24 inches of rain annually.

Drought in 1976 and heavy rains in 1977 necessitated the import of nearly 5 million tonnes of feedgrains, further adding to balance of payments difficulties.

3. Decision Making

Production plans are generally established at the level of the individual farms (cooperative, state, and private) in coordination with government agencies. Within planning guidelines, decisions are taken by voting in the cooperatives, which are directed by district agricultural administrators. Czechoslovakia's cooperative farms have shown a pronounced tendency to merge into larger units since the beginning of the decade; this they do in order to avoid other government-imposed integration schemes, sometimes having distinct tax

disadvantages. They thus decreased in number from 6,200 farms averaging 638 ha. in 1971 to 1,959 farms averaging 2,183 ha. in 1977, and occupying 61% of the country's agricultural land (as opposed to 56% in 1971).

Partly as a result of this trend, Czechoslovakia's farm units are among the least horizontally integrated in Eastern Europe. There are two types of integrative mechanism: the cooperative association, which has no independent legal planning status; and the joint agricultural enterprise, which, like its member farms, is a legal entity, and so is answerable to planning directives. Most of Czechoslovakia's cooperative farms belong to the some 400 cooperative associations, some one-third of which administer the joint use of machinery. Very few (around one-twentieth) of the cooperative associations engage in so-called complex cooperation, favoured by the government, which involves mutual field cultivation and crop rotation among farms.

Joint agricultural enterprises, now numbering over 300, are made up of cooperative and state farms and other agriculturally related organizations, and engage in such activities as pig fattening, egg production, cattle fattening, feed drying, and feed mixture production. Approximately half of the enterprises deal purely with farm construction or land improvement projects, or agricultural chemicals. Farms have been reluctant to join the joint agricultural enterprises, especially where the aim is to specialize in crop farming or in land-dependent branches of livestock production. To promote membership in the enterprises, the government as part of a new agricultural tax law on 1st January, 1975, granted five-year tax exemptions to certain types of joint agricultural enterprises.

4. Farm Inputs, Outputs

Agriculture's share in total investment in the period 1971-75 was 10.8%. In 1976, agriculture employed 14% of the labour force and produced nearly 16% of estimated GNP. Czechoslovakia's 7 million hectares of agricultural land give it the lowest amount of farmland per capita of all the CMEA countries.

Total agricultural output increased 36% in the period 1965-76, largely because of the expansion of livestock production. Cattle, grown in the mountainous areas, provide 40% of domestic needs for meat. Swine, presently double their 1948 level, provide half of meat consumed. They are partially fed with an annual 300-400 thousand tonnes of locally produced maize.

Agricultural output has also grown as a result of the introduction of improved seed varieties and the increased use of fertilizers and machinery. Improved Soviet hard wheat varieties are sown on 70% of the wheat-growing areas. In the period 1973-76, 214 kg of nitrogen, phosphate, and potash fertilizer were applied per hectare of agricultural land,

compared to only 176 kg per ha. in Western Europe. In the same period, there were 38.5 tractors per 1,000 ha., or 250.5 tractors per 1,000 farm workers in Czechoslovakia, as compared with 46 and 398 respectively in Western Europe.

Czechoslovakia's principal crops are wheat (10.3m. tonnes harvested in 1977), sugar beets (8.3m. tonnes), and potatoes (3.8m. tonnes). Czechoslovakia is one of the world's largest exporters of beet sugar. The cultivation of potatoes, which takes place mainly in the Bohemian and Moravian uplands, is declining as a result of labour shortages and pests.

5. Storage Capacity and Quantity

Storage capacity is inadequate for current harvest levels, and a considerable expansion of capacity must be effected if the 1976-80 grain production goal of 41-42 quintals per hectare is to be met. In Slovakia, for instance, the Deputy Minister of Agriculture estimated that if the 1978 harvest goal of 18 million tonnes of grain were met, storage capacity would be lacking for 400,000 tonnes of grain. Moreover, there are problems of constructing service facilities rapidly enough to accommodate growing parks of farm machinery.

6. Transportation/Distribution Network

Agricultural commodities are transported primarily by truck and rail. The railway system is strained during harvest time; although it is well-developed, it has undergone hardly any extension since 1945, and little-used rural lines are being closed. Since the transport network is concentrated in the Western part of the country, problems are more critical in Slovakia.

When Czechoslovakia instituted a system of direct livestock purchase by slaughterhouses from agricultural enterprises at the beginning of 1978, it was noted that the weakest point in the system was the obsolescence of the meat industry's truck fleet, which prevented efficient loading. Particularly serious was the lack of large trucks for cattle transportation.

There are also distribution difficulties for milk; hence, butter and cheese are frequently imported.

7. Degree of Labour Productivity

Although agriculture employs around 14% of the total labour force (down from 17% in 1970), a shortage of labour in the agricultural sector has forced the intensive use of machinery. While the farm labour force has been declining, productivity - output per worker - has increased modestly each year since 1965 and accounts for 70% of the increase in value of farm output since that year. Czechoslovak agricultural productivity is the second highest in Eastern Europe (after that of the GDR). Its farm labour productivity is only 45%

that of the rest of the economy, however, primarily because of low levels of capital investment in agriculture.

8. Living Conditions

Farm wages approximate to those in industry: the mean monthly wage in 1976 in agriculture, excluding cooperatives, was 2,310 Czechoslovak crowns (\$400), as compared to 2,425 crowns (\$420) in industry. Cooperative farmers receive higher incomes, primarily as a result of sales from their private plots (averaging about 0.5 ha. per farmer).

Building construction in the agricultural sector has been relatively neglected: in 1976 it accounted for only 3.7% of total building activity, as compared to 27.6% for industry.

9. The Socialized Farm System Compared with Private Farming

Approximately 94% of the agricultural land, but less than half the total number of farming units, are collectivized. Occupying around 6% of the agricultural land area are some 777 thousand private farms and personal plots, 85% of which are smaller than 0.5 ha. Most of these tiny plots are farmed by city-dwellers during weekend stays in their country cottages; private farmers number only 59,000, or 6% of the agricultural labour force, and are found principally in the more rugged regions of Slovakia, where collectivization and the introduction of machinery have proven difficult. The number of private farmers has declined sharply since 1960 when they registered 250,000 and farmed 10% of the agricultural land.

At the beginning of 1977, there were 214 state farms occupying 31% of the agricultural land and employing 25% of the farm labour force, or just over 250,000 persons; the farms' average size was 6,515 hectares. Cooperative farms, on the other hand, numbered 1,959, occupied 63% of the agricultural land, and employed 69% of the total farm labour force of just under 1 million. Although the average size of cooperative farms has grown rapidly since 1970, it is still short of what the government considers an optimal size of around 5,000 ha. Agricultural production has grown in step with increased cooperative size: in the period 1966-70, average cereal output was 27.7 quintals per hectare; in 1973, it was 35 quintals per hectare, and in 1974, 39.

The cooperative system is accepted among Czechoslovak farmers to the extent that the issue of its abandonment in favour of private ownership was never raised in public discussions during the reform era of January 1968-April 1969. On the contrary, public pronouncements during this period urged preserving and improving the collective system. Cooperative farmers have resisted, however, the concentration and specialization in production called for in the 1971 CMEA Comprehensive Programme, perhaps partially because income from the cooperatives is generally divided among members on the basis of the type of work done; specialization might mean a forced decrease in income.

10. Outlook

Total agricultural production is to grow 14-15% in the 1976-80 period, and crop production by 16-17%. Grain output is to reach the level of 41-42 quintals per hectare, in order to give Czechoslovakia self-sufficiency in meeting its grain needs. In view of past unsuccessful Czechoslovak efforts at autarky in the grain sector, and of the continuing relatively low level of capital investment, it seem unlikely that this goal will be met and that imports will continue.

Although Czechoslovakia aims at grain-growing self-sufficiency, it presently cannot cover its domestic grain requirements and so must import. In 1976, a bad harvest year, Czechoslovakia imported some 1.8 billion crowns' (\$320m.) of grains, over two-fifths of it from the West; its principal Eastern suppliers in that year were Hungary, Romania, and Bulgaria. Livestock consume 70% of Czechoslovakia's grain crop.

In sum, Czechoslovak agriculture has made important advances in output and productivity, but still remains under-capitalized and under-mechanized in comparison with the rest of the economy. In addition, a continuing widespread lack of crop specialization prevents the rapid introduction of further farm integration to improve production efficiency.

GERMAN DEMOCRATIC REPUBLIC

1. Quality of Land

There are especially good soils in the Saxon borderlands and the Baltic littoral; the soils in Brandenburg and Mecklenburg also produce yields which compare favourably with those of the rest of the country. The sandy areas of the coastal plains require extensive tillage and fertilization to produce acceptable results. Many slopes in the central highlands are terraced and cultivated.

Less than half the total land area of the GDR is under cultivation. One half of the arable land is used to grow grains, principally wheat (2.7 million tonnes harvested in 1976), rye (1.5 million tonnes), barley (3.5 million tonnes), and oats (0.5 million tonnes). Although there has been rapid progress in expanding yields, they on average are still low compared to those in the FRG. One half of the GDR's farm output is vegetable crops, principally sugar beets (5.1 million tonnes produced in 1976), which are an important export item, and potatoes (6.8 million tonnes). Potato production has declined markedly partly because of the nematode plague, and partly because of a conversion to grain fodder to feed livestock; traditionally, one half of the potato crop was used to feed pigs.

Around 27% of the total land area is forested, from which 8.3 million cubic metres of roundwood were cut in 1976.

2. Climatic Conditions

The GDR has a continental climate with sharp seasonal and regional variations. Its mean January temperature is just around freezing; in July it ranges between 16-20°C. Annual rainfall, except in the wet mountainous areas, ranges between 30-70 cm (12-27 inches).

Water supply is a problem. The ground water table has been adversely affected by extensive open-pit coal mining. In addition, industry takes three-fourths of the water supply, leaving only one-fourth for household and agricultural use. Industrial water use and effluents are a particular problem in the Elbe-Saale basin. Special attention has to be given to agricultural water supply on the dry loessic soils in areas of modest precipitation in the rain shadow of the western hills.

Drought in 1976 forced the GDR to import nearly 2m tonnes of US feedgrains. Because of its policy of rapidly expanding meat production the GDR has had to import considerable amounts of feedgrains, normally from the USSR; however, bad harvests in the Soviet Union in recent years have compelled the GDR to purchase feedgrains from the West at high prices in scarce convertible currency.

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3. Decision Making

Production plans are established at the level of the individual farms (collective, state, and private) in coordination with government agencies, which give final confirmation. A fairly high degree of production specialization on GDR cooperative farms has helped promote the introduction of horizontal integration of units producing similar commodities into cooperation associations. Presently numbering around 1,200, and cultivating about 90% of the country's agricultural land, these associations have raised the average size of crop production unit to 4,200 ha., allowing the use of larger and more complex machinery. Relations among member farms of the associations are governed by mutual contracts; flexibility is maintained by virtue of the fact that the farms are relatively small. Cooperation associations have also developed rapidly in East Germany's livestock sector: there are currently around 400 such enterprises, occupied in milk production, pig and cattle fattening, and poultry and egg production, which have benefitted from special government grants, bonuses, and other incentives, particularly since 1974.

Vertical integration efforts made since the early 1970s to link related production units of one product from origin to final processing have been less successful. Disputes have arisen among the constituent units over pricing, and producers of the primary commodities have complained that in planning arrangement, the industrial processing components and their management predominate.

4. Farm Inputs

Agriculture's share of total GDR investment, 1971-75, was 12.5% - slightly more than the sector's annual contribution to the estimated GNP (9-12%). Agriculture is fairly highly mechanized: the proportion of fixed capital (excluding land) to those employed in agriculture is virtually equal to that in the rest of the labour force; as a result, agricultural productivity - output per worker - is higher than in the rest of Eastern Europe. The degree of mechanization also compares favourably with that of Western Europe: there are 42.1 tractors (15hp) per 1000 ha., or 300.5 tractors per 1000 farm workers in the GDR, compared with 46 and 398, respectively, in Western Europe.

A force making for farm consolidation in the GDR is the fact that the country is increasingly using larger and more complex machinery, often imported from the USSR. Its Soviet-made E512 combines, for instance, need 2000 ha. in order to be economically efficient; the huge Krovez K700 wheel tractor needs 6000 ha. for optimum operations. However, imports of such machinery create problems of spare parts supply.

Soil fertilization exceeds that of Western Europe: 287 kg of nitrogen, phosphate, and potash fertilizers were applied per hectare of agricultural land in the GDR in the

period 1973-76, compared to 176 kg in Western Europe. Use of fertilizer per hectare is higher in the GDR than in the FRG; the GDR calculates that one-half the increase in its grain yields in recent years is attributable to fertilizer application.

Since 1960, investment in livestock production has consistently been higher than that in crop production, in line with a decision to expand meat supplies to improve the consumer food level, and to develop a GDR specialization within CMEA not requiring a large land commitment. As a result, net animal production rose threefold in the period 1950-70, and grew by another 7% between 1970 and 1976; production actually declined in 1976 because of drought-induced slaughtering.

5. Storage Capacity and Quantity

Storage facilities appear to be generally adequate for current levels of grain yields. Disruptions caused by extra drying needed for the 1977 harvest, which had at least a 35% water content, led to temporary over-burdening of some storage capacity.

6. Transportation/Distribution Network

Very little in the way of agricultural commodities other than fertilizer is carried by rail or inland waterway. To accommodate increased adoption of industrial methods in agriculture, the East German government calculates that the road system will have to be expanded by about 18,000 km, at a cost of approximately 3 billion marks (\$1.5 billion), to make areas accessible; in addition, 2--30 thousand km of local connecting roads have to be repaired or rebuilt. Because of increasing specialization and consolidation in agricultural enterprises, the quantity of agricultural commodities to be transported will increase over the next few years to 60 tonnes per hectare of farmland, in comparison to its present level of 40 tonnes. The average distance between transport points will increase from the present 2-3 km to 8-10 km.

The transportation/distribution network for agricultural goods is especially important to the economy as a whole, in that agriculture provides 65% of the primary raw materials used in GDR industry.

7. Degree of Skilled Labour

Agriculture employs approximately 7% of East Germany's workforce, down from 12% in 1960. In some agricultural specialities, such as mechanics or tractor drivers, the decline of the agricultural workforce reflects an actual manpower shortage.

The decline in the farm labour force has led to increased inputs of fixed capital; consequently, agricultural productivity has grown rapidly in the past decade, so that it is now the highest in Eastern Europe. It grew 70% in the period

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1965-75; in 1974, for example, it was 70% of that of labour productivity in the rest of the economy (excluding non-productive spheres). Output per farmer is higher on the state farms than on cooperatives, because state farmers generally have more equipment at their disposal and work longer hours.

In the future, both farm productivity and wages will probably tend to stagnate or decline because of the increasing need to divert agricultural investment and wage funds to commodity price subsidies in order to keep food prices low. Agricultural price subsidies amounted to 32 billion marks (\$16 bn) in the period 1971-75.

East Germany's agricultural workforce is highly skilled: for example, in 1970, 57% of agricultural workers had an agro-technical education; by 1980, this figure will increase to 90%.

8. Living Conditions

Living conditions of East German farmers are claimed to approximate those of city-dwellers. Farm wages are at present virtually the same as industrial wage earnings, although, as noted above, future economic developments may tend to change this situation.

9. Socialized Farm System Compared with Private Farming

Approximately 94% of the cultivated land and over 90% of the farms in the GDR are collectivized. In 1974, state farms occupied 7.2% of the arable land and numbered 489 farms averaging 923 ha. each, the smallest state farms in Eastern Europe. The principal type of cooperative farm (Type III) accounted for 82.2% of agricultural land and numbered 5,066 farms averaging 1,021 ha.; an average of 121 farmers worked each farm, or 8.4 ha. per farmer. Private farmers worked less than 6% of the total arable land area.

Socialist agriculture in the GDR has proven less efficient than previous private ownership, largely because of disruptions entailed in collectivization and reorganizations aimed at creating larger production units. Nonetheless, productivity levels and yields have risen dramatically since 1950, paralleling marked growth in the use of fertilizer and machinery, and in agricultural investment.

10. Outlook

Production goals for the period 1976-80 foresee an increase of 13.3% in grain yields and a gain in output of 21%, in order to meet the growing needs of the population and industry. To attain these goals, Western sources have calculated that the GDR must increase its investment in agriculture by 115%, based on past rates of output and investment growth. Since GDR increases in agricultural investment will probably

amount to no more than 30% over the Five-Year period, it seems unlikely that the output goals will be achieved.

Present livestock levels are to be maintained over the current Five-Year period, but there is to be more efficient processing and use of feedgrains. The park of agricultural machinery is to increase by 25%, and there is to be a massive increase in the land area under irrigation, to which end more water reservoirs must be created. Fertilizer use is to grow by 25%, for which nitrogen production is to increase by 32.7%; continuing expansion of fertilizer use implies ever greater dependance on Soviet oil as a base for its manufacture. The expanded park of agricultural machinery also implies increased oil imports, to the detriment of the already severely strained balance of payments.

In sum, it is unlikely that investment and farm wages can be increased sufficiently to achieve all agricultural output goals for the period 1976-80. Further restraints on growth come from rapidly rising prices of raw materials imports, and competing demands for more consumer goods imports. Also, dislocations continue as a result of further efforts toward farm integration. Finally, the vagaries of the weather can still have disastrous consequences for the agricultural sector as was evidenced in 1976.

HUNGARY

1. Quality of Land

Land is, on the whole, fertile; no mountain ranges, large open plains favour wheat and corn. Increased fertilizer application has ameliorated some of the poor land conditions and resultant yield increases have been fairly impressive in the last 15 years, with maize yields equalling those of West European levels.

	Quintals per hectare		1980 Planned
	1966-1970	1976-1980	
Maize	32	48	52
Wheat	24.3	40	44
Rye	11.6	16.2	17
Oats	13.9	20.3	21
Sugar beet	352	380.8	400

Source: New Hungarian Exporter, 28, 1 (1978), p.2

2. Climatic Conditions

No specific data available.

3. Decision Making

The Party's dilemma is how to keep a balance between the concrete economic returns from the successes of the cooperatives, the political desire to maintain control of "proper" socialist democracy and decision-making within them. This is now very important as the more enterprising cooperatives have diversified into agro-industrial processing specialities and handicraft manufacturing.

4. Quality of Farm Inputs

Agriculture is one of the most dynamically expanding sectors of the economy; volume of production rose 12.6% in 1977, and food production was up 9.7% (Plan: 7-8%). Average yields, especially in wheat and maize, have increased by 20-30% since 1960, thanks to determined governmental application to improve quality of seeds and cultivation.

So far, though, agricultural technology has lagged behind production increases (especially on small farms) and future investments will concentrate on establishing food processing plants within large scale agro-units. The agricultural

machine industry is to be reformed in order to improve output quality; foreign production licenses are to increase as Hungary seeks out qualitative technology. Future financial inputs will concentrate more on the cooperatives rather than the small, highly selective, state farms.

5. Storage Capacity and Quality

The government has recognized the need to expand food processing, refrigeration and packing capacities and integrated these activities more closely with appropriate agricultural enterprises.

6. Transportation/Distribution Network

Apparently adequate, but specific data lacking.

7. Labour Conditions

Many of the young are unwilling to remain on the farms, leaving behind, as is the Polish case, the old and the infirm. As a result, the government has tried to introduce, with some success, Western labour-saving machinery as well as to increase the wages of those skilled workers still on the farms. It is still not enough, and an adequate flow of labour to farming in the future will depend on the improvement of rural, social and educational facilities, higher wages for the technically trained, and opportunities for a supplementary income.

8. Rural Living Conditions

Social and economic conditions in the villages (especially welfare) have gradually improved and the social stigma of rural work decreased. In some cases the gap between town and country has not only been closed, but agricultural workers may indeed be receiving too much of the available income; the rural worker often enjoys privileges (better housing, household plots) which add significantly to his income. In 1977, average income increases for agricultural workers was 17.2% as compared with 10.3% for industrial workers.

9. The Socialized Farm System Compared with Private Farming Strengths/Weaknesses

Hungarian agriculture has some 1,470 cooperatives, with 80% of the workers and 151 state farms. Outside the socialist sector there are 800,000 private plots, which accounted for 43 billion forints of output in 1977, including potatoes (70%), maize (40%), eggs (67%), vegetables (35%), and about 50% for pigs, fruit and milk. The state farms normally are favoured over the cooperatives with a higher fixed capital value and fertilizer application per hectare, resulting in higher yields and profits. This disproportionate share is likely to decrease in the future as the cooperatives become more favoured.

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10. Future Prospects

Great efforts will be made to coordinate all private, cooperative and state production into a single agricultural production unit by 2000. This will be unique in Europe if achieved, and it is unclear how the authorities plan to achieve this goal. In the meanwhile, private plots will continue to be accepted by the government. The government is also stepping up fertilizer deliveries as well as technological and know-how transfers (especially from the US, e.g. Babalna Agricultural Combine using US corn production techniques; manufacture in Hungary of John Deere tractors) in order to increase Hungarian farm efficiency.

11. Agricultural Trade

Hungary is a net exporter of agricultural produce. Wheat exports in 1978 will at best equal 1977 figures (790,000 tonnes worth 3.6 billion forints), with 1977 exports worth nearly 54.9 billion forints and up 16.1% over 1976 in volume figures. Poultry exports, an increasingly available substitute for red meat, have shown rapid growth not only in Hungary, but throughout all of Eastern Europe. Food and food products account for about 23-25% of Hungarian exports; roughly the same percentage of this is sold to convertible currency countries and 7-8% to LDCs, mainly in North Africa and the Middle East. In all, 25% of Hungary's food and agricultural exports goes to the USSR or forms 60% of all agricultural exports to CMEA. Exports up to 1980 to CMEA will increase by 24% and 45% in the case of Western countries, including an 18% increase in 1978 (over 1977), worth almost \$1 billion.

Prices have been generally higher and though Hungarian wheat in 1977 sold for 20% less due to the drop in world prices, the November 1978 6% devaluation of the forint in most of Western Europe may benefit the importing country if Hungary does not raise its prices. One of the most serious constraints to growth in Hungarian food exports is the EEC Common Agricultural Policy. Until this market is fully opened, Hungarian potential will be only partially fulfilled. As a result, Hungary has been encouraged by recent trade talks with the US, as well as Agriculture Secretary Bergland's May 1978 visit and anticipated lower tariffs and new credit possibilities. Hungary expects to import US soya granules and flour in return for Hungarian tinned foods, wine, cotton and fruits. Future trade increases will depend on improvement of quality. A large percentage of food exports in 1977 (apples, wines, salami) were not up to required standards and some deliveries were not accepted. This situation will have to be remedied, as well as a rigorous improvement in exchange of foreign trade information and marketing procedures, better internal cooperation between domestic supplies and processors (RFE Research, Hungary No.17, 7th July, 1978, p.5; Nepszabadsag, 19th-25th February, 1978, p.6) as well as the need to increase the number of meat processing factories to cope with the available livestock.

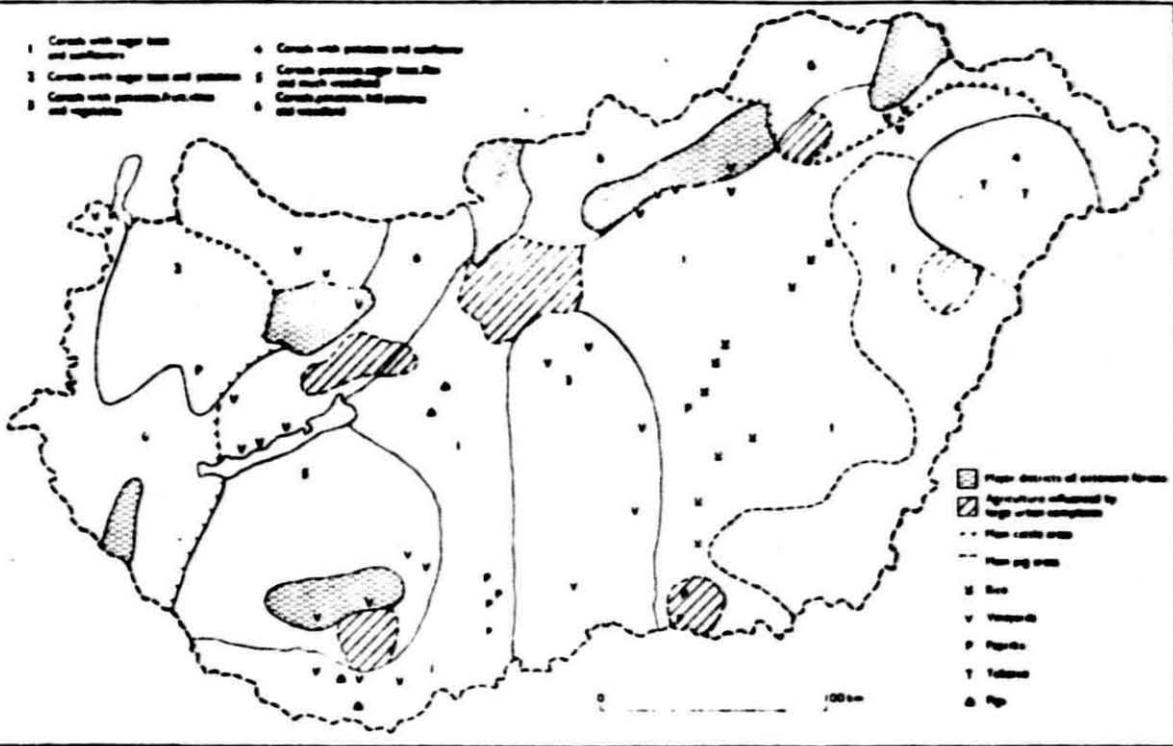


Figure 9.8. Conditions favour cereal cultivation over much of eastern Hungary, where sunflowers are also grown. West of the Danube, the pattern is more diverse, with considerable fruit production.

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POLAND1. Quality of Land

There are few differences between the cropping on the individual peasant farms and the socialized enterprises although cropland is least important in the poorer glacial region of the north in Pomerania, as well as in the sandy lands of the Zcetona Gora area in the Southern mountains. Wheat is most common in the south, occupying over 20% of the arable land in southern Poland, and oats are important along the Pomeranian coast. Land reclamation has centered on the Bay of Danzig and the Notec, Obra and Baryez basins. Rye is now the principal crop in the heavy clay soils of central Poland.

2. Climatic Conditions

Frequent storms, or droughts, unpredictable. Last four harvests have been poor. The fairly low level of mechanization and fragmented land structure hinder counter-measures in the event of poor weather.

3. Decision Making

Not always attuned to needs of private farmer, nor enforceable. The growth rate of free market prices for fodder in 1975-76 was so great that even successive rises in the wholesale prices paid for pigs were unable to stop the decline in the profitability of raising pigs; therefore the pig population fell (see Przeglad Hodarlanj, 1-15 April, 1977). Yet in the 1970s agriculture has not been ignored by the decision-makers prepared to accept status quo of the predominantly private character of Polish farming. They have introduced the abolition of compulsory deliveries and increases in procurement prices. As a result, gross national output rose about 20% or 3.7% annual from 1970-75. Both the disastrous 1975 harvest and a weak agriculture lobby in both the Communist Party and the top economic decision making apparatus contributed to the worsening of the domestic food supply; this led to a drop in the expansion of agricultural exports (in 1975 net agricultural trade was -1.3bn. zl., compared to +284 in 1972) and the 1976 food riots. Much of the problem derives from the fact that the traditional anti-agricultural and anti-peasant bias among the Polish Communist leaders and subsequent atmosphere of mistrust within the farm sector has not diminished markedly since its heyday in the early 1950s.

4. Quality of Farm Inputs

While 1970-78 has witnessed a substantial availability of farm inputs, such standard indicators as average yield per hectare, amount of fertilizer per hectare, or hectares per tractor(1) show Poland still significantly behind several East

(1) Poland is the least mechanized of all CMEA with a tractor power of 69hp per 1,000 ha. (GDR 115, Hungary 95, Czechoslovakia 98, FRG 356).

and West European countries. Capital investment in agriculture in 1975 accounted for only 13.2% of total investment (socialized sector 9.4%, private sector 3.8%) and is lower than in 1970; this deficiency is compounded by the small size of plots (4-5 hectares) which prevents the effective use of modern technology (minimum farm size for successful farming appears to be above 15 hectares).

5. Storage Capacity and Quality

The small Polish farms produce for own consumption. Storage capacity is not so crucial currently, as , in any case, the amount of produce is quickly consumed.

6. Transportation/Distribution Network

Land transport has improved immensely in the last 25 years, as has rural electrification. Port development has increased considerably and foreign trade in food produce and grain has been facilitated. The Trans-Poland highway (Frankfurt-Oder-Brest-USSR) is being improved and upgraded; this will aid in the delivery of goods as well as making Poland the main transit route from West/Central Europe to the USSR. There has been a massive growth in 'bus transport thanks to the comparatively good quality of the road network in the former German territory.

7. Skilled Labour Difficulties

The flight from the land to the city continues unabated. Since 1950, 1.7m have migrated to the cities, leaving the old and poorly educated. On average, only 3.2% of all Polish farmers have a high-school qualification and 4.9% higher training.

The fragmentation of most private holdings discourages mechanization and hence the need for trained skilled labour in the sector as a whole.

8. Rural Living Conditions

An average of 180,000 young people annually migrated from rural to urban areas in 1970-75 with better urban work conditions given as the main reason. This has resulted in the rapid ageing of rural population (40% of the land is owned by peasants 60 years old or over) and has caused declining productivity and increasing fragmentation of land as the number of peasants without heirs increases and the land is sold or given to the state. The average per capita income of peasants (in 1976) was 22% below non-agricultural income, though improving in the last two years by about 2.4%, and, both politically and socially, peasants (despite the recent government extension pension plan and the minimum wage to the countryside) are generally considered second-class citizens by officials and urban dwellers.

9. Socialized Farm System Compared with Private Farming

There are shortages of fodder on private farms and difficulties in buying industrially produced fodder from state stocks - state fodder more often goes to the socialized farms. Land use data show that as of June 1976, 77.7% was in the hands of individuals, with 19.7% run by the state farms and cooperatives, and 1.8% by so-called "agricultural communities". Private farms produce some 80% of the grain, 92% of potatoes, 81% of beets, 76% of cattle, 75% of pigs, and 92% of sheep (Vop. Ekonomiki 7, July 1978 and RFE Research, 24th October, 1977, 117-127). In many instances, though, cooperatives serve mainly as a shield for traditional private enterprises (e.g. handicrafts, private plot activity by members). Private sector employment represents 28% of total employment of which about 90% is in agriculture and generates 81% (in 1975) of the private sector's national income.

10. Future Prospects

Food price levels are expected to rise as the government tries to reduce subsidies and build up rural income levels through higher procurement prices; the government hopes this latter measure will result in greater cereal/meat production. The government will also step up its investment programme for land purchase, technological inputs and greater fertilizer application in order to extend state control over the small and less efficient private farms in an effort to increase food production. Private plots will retain their favoured position and efforts to increase cattle/hog production will continue. Nevertheless, the traditional, deeply-rooted and almost mythical attachment to land is reportedly disappearing in Poland to be replaced by a preference for a 40-hour week in an office or a factory.

11. Agricultural Trade (Exports-Imports)

Poland will continue to import grain. Recent purchases include 800,000 tonnes of wheat/barley from France. In 1977, Poland contracted for three loans totalling \$500m to buy US food stocks. Reports earlier this year indicated Poland wanted some easing of credit terms by an extended repayment period.

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AC/127-WP/592



Figure 9.4. Grain cultivation is widespread in Polish farming – rye in the poorer central and northern areas and wheat on the better soils of the warmer south.

ROMANIA

1. Quality of Land

Agricultural land represents 63% of the country's area, and forests still occupy a large place in the Romanian landscape.

Thousands of hectares

	<u>1938</u>	<u>1970</u>	<u>1976</u>
Arable land	10,092.8	9,736.7	9,760.2
Pastures	2,702.7	3,002.5	3,032.3
Meadows	1,714.2	1,415.9	1,404.3
Vineyards	249.2	346.8	326.9
Fruit crops	247.0	428.4	431.1
Total agricultural land	15,005.9	14,930.3	14,954.8
Forests	6,476.4	6,314.8	6,315.8
Rivers/lakes	839.5	785.2	790.1
Other	1,428.2	1,719.7	1,689.3
<u>Total area</u>	<u>23,750.0</u>	<u>23,750.0</u>	<u>23,750.0</u>

2. Climatic Conditions

Unpredictable weather ranging from severe floods in 1975 to drought conditions in 1976, not to mention the earthquake of March 1977, which destroyed many farm installations.

3. Decision Making

The dominant trend has been towards an "organizational mood", in which the individual contributes as much as possible towards the régime's goals. Creation of various types of inter-cooperative associations in the early 1970s appears to be leading to a form of unequivocal farm centralization. Self-sufficiency is the key and has led to severe restriction of imports and an inability of individual agricultural units to carry on foreign trade.

4. Quality of Farm Inputs

The government plans to increase the income of the entire peasantry 30% by 1980 (1976 preliminary forecast: 18-20% through a guaranteed wage programme), though there will be differences between the various categories in each sector. The government will increase retail sales in rural areas by almost 50%, services (up 20%), housing and the expansion of a pension plan in order to bring the farmers' income and living standards closer to those of industrial workers. Nevertheless for private farmers and cooperative members, incomes will be still well below the average monthly wage in the economy as a whole in 1980 (2,076 lei). Fertilizer use has doubled from

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1970-75 and will increase to 280 kg per ha. by 1980; the area of irrigated land is to double to 3 million ha.: the number of tractors per hectare is increasing (though still low by CMEA standards). The main thrust of planned agricultural investments in the current Plan is directed towards reducing the effect of climate on output - over 50% of investment is being spent on soil conservation, drainage, and flood control. Investment in agriculture as a percentage of total investment is still relatively low, measuring 14% in 1976, and is scheduled to drop to 11.7% in 1980.

5. Storage Capacity and Quality

Storage capacity problems exist, but these are less severe than in other CMEA countries; there is a lack of proper food processing plants.

6. Transportation/distribution Network

Transport ties to remote villages and towns are poor and have not been helped by the 1977 earthquake damage. Capital investment in the transport sector was 9.5% of total investment in 1976 (i.e. 14,433 billion lei).

7. Skilled Labour

Agriculture continues to be a source of labour for industry. In the 1971-75 Five-Year Plan, employment fell on average 3.9% a year, although in 1975 37.8% (35.6% in 1976) of the labour force was still in agriculture, the highest percentage in CMEA. Most of the labour force (60%) is over 45 years old and is 60-70% female. Contrary to other countries, Romania is trying to move more people into industry and forecasts that agriculture's share of the labour force will fall to about 27% in 1980 and 13% in 1990.

8. Living Conditions

Social and living conditions are poor in the countryside; higher incomes are the rule in industry and the difference is as much as 50%(1). Since 1973, centrally-determined rates of payments have been established for all farm activities, and in 1976 some guaranteed monthly income, social security benefits, especially more adequate pensions, came into effect.

9. The Socialized Farm System Compared with Private Farming

Romania's agriculture structure is predominantly socialized with 4420 cooperatives, 370 state farms, and 743 motor tractor stations. The cooperatives represent by far the largest unit with almost 80% of the arable land. Nevertheless, the private sector is as important in Romania as in most other CMEA countries. In 1975 private sources provided:

(1) Joint Economic Commission, East European Economies post-Helsinki, Washington 1977, p.935

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<u>Product</u>	<u>% of total output</u>
Cereals	12
Potatoes	50
Vegetables	40
Fruit	50+
Livestock	40

The government has encouraged this sector by reducing taxes and improving state procurement prices. The average monthly income for private farmers has hitherto been considerably lower than for those in state or cooperative enterprises. The dominant feature of Romanian agriculture is the preponderance of state controlled farms and motor tractor stations.

Labour Force

	<u>1970</u>	<u>1975</u>	<u>1976</u>
Total Agricultural Manpower	4,848.6	3,837.4	3,640.8
A. Workers and Employees, of which:	440.1	484.2	516.5
State farms	292.3	251.7	269.9
Motor tractor stations	96.1	126.4	131.5
B. Collective farmers	3,376.2	2,813.2	2,756.1
C. Residual (private)	1,032.3	540.0	368.2

Source: Official Yearbook, 1977, pp. 101, 102, 208, 210 & 211

10. Prospects

Romanian agriculture is still lagging behind that of advanced countries and has made only marginal gains in comparison with the pre-war period. 1977 reflected a negative growth rate of output (-1.3%), and 1978-80 targets appear high and unrealistic. A comparison of the value of production per hectare in different CMEA countries shows that Romania lags appreciably behind Bulgaria and Hungary. The ratio of productivity per labour in agriculture to that in industry turns out to be much lower in Romania than in any other East European country: 22% in 1972, compared to Poland: 30%; Bulgaria: 47%. There may be serious economic consequences. The wage increases for cooperative members will still not be sufficient an incentive for the young to remain in rural areas. The main problem is the need to increase the cereals output which has been insufficient in the past. Yield in 1971-75 was a low 2,500 kg/ha. and costs were high. Also, labour productivity in agriculture has been declining in the last few years, e.g. four times as much labour is used per tonne of Romanian beef compared to figures for USA(1). Yet there are still too many old people

(1) Era socialista, 15/75, 20-22

the land and not enough younger, better trained workers. In addition, not enough work has been done to increase irrigated areas to enable farmers to obtain two crops a year. Available land has decreased by 56,000 hectares in 1965-76, and by 332,000 between 1938 and 1976. There are continual shortages in modern machinery and trucks and fertilizers, and cooperative members still receive on average wages of only 60-70% that earned by the industrial sector or state agricultural enterprises.

11. Agricultural Trade

Romania's export surplus in food products, namely meat, maize, meat, eggs, vegetables and tomatoes, which includes both unprocessed goods directly from agriculture and goods processed by the food industry, grew at an average of 5% from 1966-72, but has decreased in recent years. Export surpluses are now rather small with a general balance of imports and exports.

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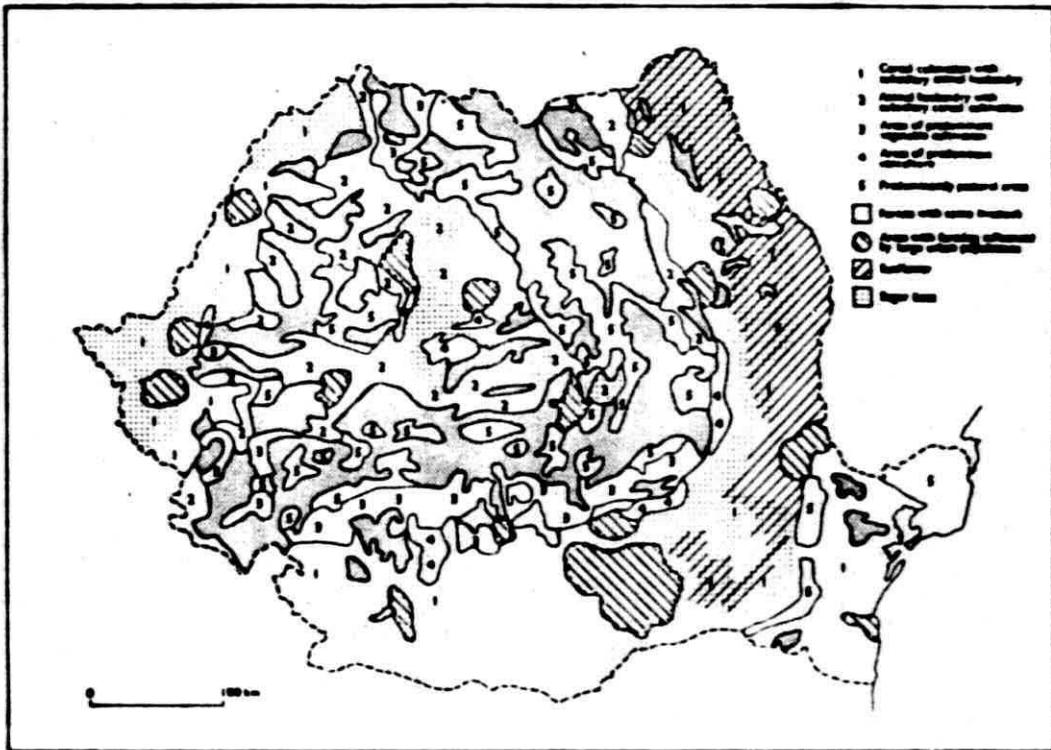


Figure 10.2. Rumania is still an important producer of forest products, notably from Carpathia and the Bihor. Elsewhere, grain growing is important, with large areas well suited by their steppelike regime. Transylvania is agriculturally more diverse.

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