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RECENT TRENDS IN SOVIET AND EAST EUROPEAN AGRICULTURE:  
A BRIEF OVERVIEW

Note by the Economic Affairs Directorate

Attached for consideration by the members of the Economic Committee and capitals is a paper prepared by the Economic Affairs Directorate on recent trends in Soviet and East European agriculture.

2. The paper comprises an overview of major issues and trends in Soviet and East European agriculture and an Annex analysing in greater depth some of the more critical issues examined in the overview.

3. It has been circulated NATO-wide to facilitate preliminary examination by those experts attending the meeting planned for 13th-14th December, 1978, and will serve as one of the basis for discussion during this meeting.

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This document includes: 1 Annex

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RECENT TRENDS IN SOVIET AND EAST EUROPEAN AGRICULTURE:  
A BRIEF OVERVIEW

A. USSR

1. Agriculture still occupies a salient place in the Soviet economy, generating around one-sixth of NMP, absorbing over 25% of total investment in the current Plan period (USA: approximately 5% of gross investment) and - including allied industries - still employing at least 30% of total manpower.

2. Since 1965, a huge programme of land improvement, material incentives, mechanization and chemicalization has been under way: in the last Five-Year Plan period new fixed investment increased at an average annual rate of over 9.5%, almost two-thirds more quickly than investment in the rest of the economy, and, judging from the decisions at the July 1978 Central Committee, the farm sector will continue to maintain its priority ranking among resource claimants for the foreseeable future. However, until 1990 the average annual growth rate in farm investment is scheduled at some 3.5% only; hence the vital need for a boost in labour and capital productivity if increased output is to be assured.

3. Continuing high growth rates of mineral fertilizer production are vital if agricultural targets are to be met more regularly, since 55% of the planned increases in production of grain during the current Plan period are to derive from higher yields. Unfortunately, even with the gradual help derived from the imports of phosphates from Spanish Morocco, the chemicalization programme is unlikely to prove fully effective before the end of the present Plan period and, therefore, it will have little sustained effect on grain yields until 1980. Planned growth in the livestock sector during the current period is to be slower than during the previous Plan period because of continuing problems associated with the feed base. The higher demand for meat and dairy products, brought about partly by higher incomes, will certainly not be met before 1980; this means that the Soviet planners will have to boost animal production substantially during the 11th Five-Year Plan (1981-85), although it seems clear that meat and meat products will continue in short supply as household incomes rise.

4. Despite the recent announcement by Soviet Prime Minister Kosygin that this year's grain harvest will be over 230 million tonnes gross, a figure upgraded by Brezhnev to 235 million tonnes - the highest yield in Soviet history and over 50 million tonnes above the average annual harvest during the previous Five-Year Plan period - reports suggest a higher than usual moisture content, so that the net usable harvest

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may be substantially lower, perhaps by as much as 20-25%. This reduction will be exacerbated by the continuing problems of inadequate drying and storage facilities, deficiencies in transportation, etc. The nation's farm sector as a whole is plagued cyclically with poor performance brought about, of course, by environmental conditions, but caused partly by inefficient, overcentralized policy decisions which, given the nature of the system, are perhaps inevitable.

5. Consequently, this year's encouraging harvest news does not automatically imply that Soviet planners can anticipate a regular, rapid growth of agricultural output. Indeed, because of chronic neglect and ineffective reclamation to date, it would appear that the land area under cultivation will continue to decrease along with the rate of growth of capital formation in the farm sector. Similarly, the shortage of skilled agricultural manpower is admitted by the Soviet planners to be a matter of concern. These factors, coupled with higher consumer demand, will oblige the Soviet Union to continue its substantial imports of grain and animal feed from the West, probably until well into the 1990s.

B. EASTERN EUROPE

6. The agricultural sectors in Eastern Europe are more notable for their differences than for their similarities: for instance, agricultural output ranges from 21% as a share of national income in Bulgaria to only 7% in Czechoslovakia; labour as a percentage of the whole work force from 36% in Romania to only 7% in the GDR; total investment is somewhat less diverse, ranging from 11% in the GDR to 15% in Poland and Bulgaria. The private sector also shows wide variations with, on the one hand, Poland primarily operating a system of private agriculture (80% of all output) and, on the other hand, the rest of Eastern Europe practising "socialized" agriculture; the private sector, for example, accounts for only 8% of the total arable area in Bulgaria and Romania. Nevertheless, after years of decline, the rehabilitation of the private sector throughout much of the bloc is making a comeback and governments are even helping the private farmer overcome supply difficulties.

7. The main preoccupation throughout Eastern Europe has been an all-out effort towards self-sufficiency by improving fodder and grain supplies in order to increase livestock population and meat production and reduce grain imports. This has led to a growing reliance on imports of feed, mainly from North and South America (e.g. Argentina and Brazil). The average annual cost of such imports for CMEA countries combined has risen from under \$½ billion in 1966-70 to a current annual Plan (1976-80) level of about \$3 billion. The



drain on hard currency reserves caused by the need for such large-scale imports is a common East European problem, with Poland and the GDR the worst affected. An equally pressing issue is the growing difficulty which East Europe has of increasing its agricultural exports to the West due to EEC restrictions. Three countries (Hungary, Poland and Bulgaria) are reportedly very much dependent upon Western market conditions (with 20-35% of their trade in agricultural products). Only Czechoslovakia is less involved in agricultural exports and therefore less insistent on EEC quota changes.

8. Declining profitability of agricultural enterprises and falling returns on investment are other problems in East Europe. The arbitrary improvement of farm profitability by increasing state procurement prices poses in turn the alternatives for the planners of increasing retail prices or increasing subsidies. In addition, the rapidly rising real income of both the rural and urban population through increased pensions, bonuses and so forth has led to a swelling of purchasing power and this, in turn, has put great pressure on available quality food supplies. Retail food price increases in Hungary and Czechoslovakia, as well as the recent establishment in Poland of special food shops selling quality meat at very high prices, has allowed governments more room for manoeuvre in the dilemma of balancing food supplies and increasing public demand.

9. Agriculture in lesser developed Eastern European nations such as Romania and Bulgaria suffers because of the inefficiency of the transportation system, the construction industries and the unexpected steep costs incurred by the new agro-industrial complexes; this cost factor delays the modernization and building of storage, and planned conversion to intensive animal rearing. Inevitably, these countries are more affected by spoilage and wastage of agricultural inputs and outputs. The GDR, Czechoslovakia and Hungary, on the other hand, are better equipped and more efficient in these respects. In Poland, most private farms are too small and under-capitalized to be suitable for the introduction of modern agricultural methods and machinery. In many such farms, agriculture is still carried out by traditional methods and yields are very low; however, government efforts to form them into co-operatives or to buy out the farmers have met with some resistance.

10. Nevertheless, certain common problems persist. In recent years, there has been disappointingly slow growth in overall agricultural production, which has been below target in the current Five-Year Plan (1976-80):

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	<u>1976</u>	<u>1977</u>	<u>1978</u> <u>est.</u>	<u>1976-80</u> <u>FYP</u>
Overall COMECON average	1.2	2.1 (exc. GDR)	5.6	21.2 (3.9% yr.)

In addition, capital outlays on agriculture are rising more slowly than in the last Five-Year Plan and supplies of industrial goods like fertilizer and machinery have been lower than planned. According to recent estimates, it appears that the overall East European 1976-80 targets in grain production, oil seed, sugar beet and meat production will not be met due to the last two poor harvests, as well as to an inadequate amount of investment. In this latter aspect, the GDR and Romania have far more ambitious 1980 targets than their present outlays would warrant. Large US agricultural exports to East Europe are, therefore, likely to continue through 1980(1).

11. Intensive methods of agricultural production demand large numbers of technically trained and skilled agricultural workers. But, in all the countries, skilled agricultural labour is in short supply and will become more so because of adverse population changes and migratory trends. The return to favour of the private plot in all East European countries, except Czechoslovakia and the GDR, may also hinder a technological boost to labour supply as small farmers are far less likely to be innovative. The situation is exacerbated by the growing problem of alcoholism, which results in high levels of absenteeism and extreme inefficiency.

12. Certain aspects have improved considerably, especially the tractor park. Romania, however, is still lagging behind in tractor supplies (e.g. 1973-1976: 10.4 as against 23.3 for Bulgaria per 1,000 ha). Consumption of fertilizers is also expected to improve by 1980 when some of East Europe's imported turnkey chemical plants are fully on-stream. Transport of fertilizer to the farms and moving agricultural produce from the rural areas to the towns and processing plants is, however, particularly complicated in rural areas of Bulgaria and Romania, where poor management, inefficient labour and pilferage on a large scale lead to massive losses of grain as well as of machinery spares and other scarce goods.

13. There is also the wide range of problems caused by the fluctuating climate. Drought periods in Eastern Europe are longer and more pronounced, rains heavier and of longer duration and severe freezing winter weather extends over unusually wide areas. Anti-drought measures such as irrigation and drainage are possible only at a very high cost and in selected areas.

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(1) T. Vankai, Progress and Outlook for East European Agriculture, 1975-80, Washington 1978. Quoted in East-West Markets, 13th November, 1978, page 9

Plants more resistant to drought, heat, cold and other weather damage can be produced from improved seeds, but often produce lower yields or other disadvantages.

14. Future Trends

Despite the above-mentioned problems, the East Europeans have made significant progress over the last ten years in the farm sector. All this has been due largely to very substantial inputs rather than to any improvement in factor productivity. The need to offset the declining agricultural labour force with more agro-technology will increase considerably the demand for skilled labour to operate it. In the medium and long term, more investment is needed to improve rural facilities and general living standards, especially in Bulgaria, Romania and Poland, in order to induce skilled young workers to remain on the farms. A continuing high level of investment will also be needed for irrigation and other land improvements to compensate for loss of agricultural land to urban expansion, mining and industrial developments. Within the bloc itself, the process towards agricultural integration has been consistently supported by all states simply because the CMEA Council supports the contradictory doctrine of the right of each country to "take maximal advantage of its natural and climatic considerations for satisfying its own needs in agricultural products". While integrated planning has been put to one side, progress has been more pronounced in scientific and technical co-operation including some success in introducing high-yielding GDR and Soviet grain varieties and integration of agricultural machinery industries and soil improvement machinery. In short, CMEA combined activities are essentially aimed at practical measures which may be seen as preparatory to integration proper.

15. Rising consumer demand throughout the East European area, especially for livestock products, will increase the need for supplies of maize and soya meal for animal feed. Since, for climatic reasons, it will be impossible to attain self-sufficiency in these crops except in very limited southern locations, Western import requirements for them will continue to be high, especially in Poland, the GDR and Czechoslovakia.

16. In conclusion, if a "league rating" were to be made of the most efficient agricultural producer in East Europe, based upon a number of factors (agriculture's share in total investment, consumption of fertilizer/hectare, number of tractors per 1,000 hectares, yields per hectare, output per hectare), Hungary would appear to be the most efficient. It does not appear that the country with a very large segment of private agriculture (Poland in particular) is more distinctly efficient than those with predominantly socialized agriculture.

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As for individual countries, the highest farm output per capita level in the 1971-75 period was achieved in Hungary, with 89% of the US level, followed by Bulgaria with 80%, Poland with 78%, East Germany with 70%, Czechoslovakia with 65% and, at the bottom, Romania and Yugoslavia with 59% and 57% respectively. If we refer to the accepted norm (80% of US output per capita equals self-sufficiency), only Hungary would seem to have about 10-12% of her output available for export while concurrently providing adequate food supplies for domestic use. Bulgaria and Poland seem to be just about self-sufficient, while East Germany, Czechoslovakia and Romania would be considered to have 13-28% shortfalls in domestic output if they were to maintain roughly the US food consumption level(1).

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(1) East European Economies Post-Helsinki, page 323



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Both in the Soviet Union and Eastern Europe a number of factors continue to act as constraints on raising productivity and efficiency, although, of course, these factors will vary in their impact according to the individual CMEA member. Essentially, the most critical issues affecting the farm sector would appear to be:

USSR

1. Quality of Land

Approximately 27% of the total land area only is usable for agricultural activity, of which about one-third is arable. Climatic factors (see 2.) inhibit the development of farming in the remaining areas. Prime soils accounting for around 60% of arable land lie in a zone from the Western Ukraine eastward. However, even the best soils frequently need additional nutrients or moisture. While drought resistant crop varieties are being increasingly introduced, irrigation remains the main solution rather than dry farming in the southern regions. This approach is reportedly expensive (estimated at between 6,000-10,000 rubles per hectare) and has led, moreover, to soil deterioration in some areas. The cultivated area is likely to decline over the next decade with gains in land reclamation being more than offset by losses due to abandoned marginal land, erosion, urban sprawl and industrial encroachment.

2. Climatic Conditions

The Soviet Union suffers considerably from cyclic fluctuations in climatic conditions; much of the country is too cold except for hardy, early maturing crops and even the best regions have relatively short growing periods with cool daytime temperatures. In the southern areas, there is little rain and much evaporation, whereas in the northern regions, frequently heavy rains lead to an excess of moisture; the latter problem remains largely unresolved because of inefficient drainage. Additionally, many areas experience severe winter cold, but insufficient snowfalls to protect seedlings, thus creating moisture shortages and crop damage. Such environmental constraints explain to some extent the uncertainties in annual output rates.

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3. Decision-Making

Although progress has been made since the late 1950s in allowing more incentive and decision-making at the local farm level, the Soviet agricultural sector is compelled to operate within an elaborate institutional framework comprising party and state organs. At kolkhoz level, for example, the party has the task of overseeing the work of the farm's management board and its chairman; it has, moreover, the right of control over management of day-to-day activities and also is responsible for selection of key personnel. A partial consequence has been modest growth rates at an exorbitant cost as regards capital and other scarce resources, often through grossly inefficient planning and management by party stalwarts. The latest reflection of Brezhnev's determination to boost productivity and modernize agriculture is the agro-industrial complex; it will be interesting to see how much autonomy will be granted to local planners in initiating this new trend towards concentration and specialization.

4. Quality of Farm Inputs

Machinery supplies are still inadequate: few production processes are completely mechanized, and then only regionally, with many areas under-supplied. The farm sector is reported to have only around 50% the number of tractors available to the US farms and under 50% the number of trucks; moreover, as more land is used for farming in the USSR than in the US, availability of such equipment per unit of land area is far less than in the US. Deliveries of tractors, trucks and combine-harvesters over the 11th Five-Year Plan (1981-85) will be only slightly above those planned for the current Plan period; the aggregate value of farm equipment deliveries in the next Five-Year Plan is to rise by 35% against the targeted 45% under the present Plan until 1980. In recent years, the trend in the USSR has been to shift from technical crops towards grain production, and over 50% of projected increases in grain yields in the current Five-Year Plan is predicated on delivery and application of mineral fertilizer. In recent years, levels of fertilizer application have risen substantially, but both in quantitative and nutrient terms, Soviet use of fertilizer remains considerably below that in the West: a recently reported Soviet average application per hectare of ploughed land was 48 kg as against some 85 kg in the US. In the next Five-Year Plan, fertilizer application per hectare should rise following domestic increases in output and the Soviet-Moroccan phosphate accord. However, extrapolated downturns in yields per unit of input for the next Five-Year Plan may offset the impact of increases in fertilizer supplies. Delivery losses remain high, and it is reported that less than one-third of mineral fertilizers supplied can be stored under cover in many areas (see 5.).

5. Storage Capacity and Quality

Investment in storage remains inadequate. The Soviet press frequently carries reports of poor storage facilities for both inputs (e.g. fertilizer) and outputs (e.g. grain), thus leading to a serious spoilage rate. Moreover, in many regions, farm machinery and equipment stands outside owing to lack of sheds. On-farm storage is assessed currently at some 100 mt with some 135 mt at least needed to cope with grain delivered immediately after harvesting. It seems that the storage inadequacies will remain large well into the next Five-Year Plan and will continue to be the cause of serious losses.

6. Transportation/Distribution Network

At the July 1978 Party Plenum, Mr. Brezhnev stressed the need for a more efficient transportation and distribution network, especially to enable the Soviet consumer to have better and more rapid access to farm produce. Much remains to be accomplished as regards the establishment of a network of all-weather roads as truck transportation is used extensively in medium-distance haulage of grain and other farm produce to retail outlets, as well as from the fields to the elevators and barns. Natural-surfaced roads are general in many localities and often become impassable during the rasputitsa (spring flooding period) that frequently plagues harvesting. Recent data suggest that the USSR has some 230 metres of hard-surfaced road per sq.km of land unit(1), i.e. one-fourth of the US level - a figure that may be raised to some 250 m by 1980: it is estimated that on the typical natural-surfaced roads, a Soviet truck makes less than two hauls per day on average, assuming a typical distance to be covered for grain haulage to be around 40-50 km. As regards the consumer, the distribution system from processing through packaging and shipment to the state trade network and the co-operative stores requires greater attention, although urban outlets are far better than rural stores where the choice of produce is often highly unsatisfactory.

7. Skilled Labour Difficulties

While there is no shortage of elderly, frequently retired farm manpower, there appears to be a problem recruiting and retaining the younger trained agro-specialists, especially those willing to adapt to the newer technology and chemicalization programmes. Reportedly, the labour turnover in the farm

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(1) OECD concept: a synthetic unit, in which arable and perennial crop land is taken at unity and other farmland at one-fifth of its natural expanse

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sector is primarily among the more skilled segment of the agro-cadres, and key jobs for which large numbers are trained, but which many abandon for work in urban areas include those of mechanics, tractor drivers and combine operators. Over the past twenty years, there has been an average annual net inflow to the urban areas of some 1.5 million persons, and whilst movement away from the land is a frequent phenomenon in the West, it is of special concern to the Soviet planners; the latter are investing very substantially in the belated industrialization of agriculture where higher educated personnel will be much required. This manpower problem is exacerbated by the fact that the rapid outflow of prime age males has led to an increase in the share of female labour in farming, whose educational levels, however, are below those of the males; additionally, lack of child care facilities (see 8.) in the countryside has created a pattern of more part-time than full-time employment among women of child-bearing age.

### 8. Rural Living Conditions

The dilemma of how to attract and keep higher qualified manpower on the farms has resulted in serious efforts by the Soviet planners to provide better housing, kindergartens and family incomes. Although the kolkhozniks, for example, may earn additional funds through sale of privately produced items on the open market, the gap between urban and rural incomes is closing slowly - even average sovkhov wages are reportedly 10-14% below those of industry. No data are available on the quality of rural housing although it is presumably lower than in urban areas: for example, by the end of the last Five-Year Plan, some 20% of state urban housing still lacked running water and mains drainage and 50% hot water - rural housing would possess these facilities even less, although perhaps the more "southern" republics, e.g. Uzbekistan and Turkmenistan, would be more under-privileged than the "northern" republics, such as the RSFSR or Kazakhstan. Although there has been a decline in the number of pre-school children in the rural areas in recent years, there is a great but unsatisfied need for better and more day-care facilities, thus enabling women to become involved more actively in farm output: also, while noticeable improvements have taken place in the retail trade turnover in the countryside as well as in availability of personal services, it is obvious that higher farm productivity will hinge to some extent on improved and more widespread facilities needed to offset irregular hours, seasonality of employment, bad weather and the archaic distribution system.



9. The Socialized Farm System Itself compared with Private Farming

Soviet agricultural performance, whilst graphically improved over the last decade, continues to reflect the constraints imposed by the socialist system applied rigidly by the party in keeping with ideological tenets. Collectivization has led to low morale and below-Plan productivity and the move to amalgamate kolkhozes or convert them to sovkhoses has not produced the expected higher efficiency: the current kolkhoz size averages some 15,000 acres, and the sovkhos size around 49,000 acres of agricultural land; the resulting growth of the individual farm unit has caused many farm operations to become unwieldy and the hierarchy too complex to cope efficiently. Minor reforms have been introduced in farm management over the last decade, but they have had little impact on structure or output. Short of changing the system and operating on the basis of market trends and profitability, as well as encouraging operational autonomy for the farmer, the Soviet planners have apparently little alternative in the medium term to the formula of large inputs in return for relatively modest growth. Despite more favourable overtones from official circles than hitherto, private plots in the USSR remain ideologically undesirable. Nevertheless, although they occupy at best some 3% of the sown area, they contribute an important (though reportedly declining) share of income and output in the farm sector, accounting for some 40% of kolkhoz family incomes and around 25% of total farm output: it is this latter fact that is likely to ensure the private sector a secure existence well into the 1980s.

10. Foreign Trade

Despite the excellent harvest reported for 1978, and policies aimed at reducing farm imports, two commodities - grain, primarily from the West, and sugar from Cuba - are likely to impose a continuing heavy food import bill on the USSR. Well over 50% of the Soviet trade deficit with Western countries over the past few years has been accounted for by foodstuff procurement. This burden has been marginally offset by a boost in raw cotton exports - recent Soviet yields per acre are reportedly 70-80% higher than in the US. Earnings from exports of vegetable oil and oilseed cake/meal have declined drastically compared with their healthy export levels in the late 1960s: indeed, substantial imports of oilseed may be needed over the next few years to increase the quality of animal feed. Whilst the value of imports or exports in any given year rarely exceeds 5% of the Soviet gross agricultural product, the political impact can be substantial especially as regards the consequences of large grain imports from the

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United States. Given Soviet balance of payments constraints, it is likely that medium-term trends will point to more modest food procurement by the USSR from the West, although it will doubtless seize any opportunity offered by weaker Western market prices for foodstuffs, especially butter and meat.

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