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SUMMARY

China's production target of 400 million metric tons of foodgrains by 1985 called for a growth rate of 3.5 percent per year for 1976-85, well above the 1952-78 average of 2.5 percent. Because of stagnation in 1976 and 1977, the prospects of reaching the target seemed remote, but recovery and rapid growth in 1978 and 1979 have restored the prospect of target fulfillment.

Emphasis on the technological transformation of agriculture has waxed and waned over the last two decades, reflecting major policy changes. China's coordinated and consistent commitment to technological change in agriculture began in 1962. Before then development strategy had centered on the expansion of the industrial producers' goods sector, national security, and organizational reform of rural and urban areas. In the early 1960s production and delivery of inputs to agriculture increased rapidly but stagnated in the closing years of the decade.

Renewed commitments to agriculture were made in the early 1970s and again in 1978. In particular, the latest recommitment features significantly more favorable terms of trade for agricultural producers, increased production of industrial inputs to the farm sector, greater investment in rural infrastructure, and higher incentives for local areas. State funds budgeted for agriculture were increased from about one-tenth of the total in 1966-78 to 14 percent in 1979 and are scheduled to increase to 18 percent for 1980-82. If this planned allocation and the input supply program are carried out, China should be able to maintain a growth rate of 3.0-3.5 percent in foodgrain production over the 1979-85 period. When weather conditions in 1978, a number of technical developments, and the implications of various 1979 policy changes for resource allocation, allocative efficiency, distribution, and incentives are considered, a mean rate closer to 3.5 percent or more appears quite possible. This would provide enough grain for both quantitative and qualitative improvements in the diet.

Direct consumption of foodgrains by the Chinese is among the highest in the world,

but per capita total caloric consumption is no more than average among developing countries. Despite increased grain production, however, average grain consumption per capita in 1977 was about the same as in 1957 as the population grew by 300-350 million, and grain feeding of livestock increased.

Although strong efforts are being made to reduce population growth, about 43 million tons will be required by 1985 to maintain consumption at recent levels. Even if population control is successful, the large number of children who will become adults by 1985 will increase requirements.

Per capita consumption rates vary considerably by income group, with the lower 20 percent consuming far less than higher-income groups. In some areas consumption is little above subsistence levels. Current policy indicates that an additional 7-8 million tons will be made available more or less directly to those in the two lowest income quintiles, but perhaps 20-33 million would be needed to bring their consumption up to the national average level.

Livestock targets adopted in December 1978 call for 30 percent increases in numbers of cattle, sheep, and pigs, and a doubling of meat output by 1985. In 1977 per capita consumption of meat, mostly pork, was estimated to be 7.5 kilograms per year. The government plans to increase the small herd of dairy cattle and to utilize northern grassland for beef. But the target for cattle may be either of minor quantitative importance or quite difficult to achieve, depending on the current definition of cattle. The sheep and goat target, on the other hand, will probably be exceeded. But most of the targeted increase in meat must come from hogs. Hog stock in the People's Republic has been fed unusually large amounts of nongrain feed in the past, but the present trend is toward higher grain/feed ratios.

Conditions in early 1980 suggest that no less than an additional 5 million metric tons of grain would have to be supplied—mostly to hogs—to meet the livestock targets. This is likely to be met. Achieving the meat target, however, would require 6-19 million

metric tons more.

In addition to the grain needed for population growth (43 million metric tons), direct distribution to lower-income groups (7 million), and the minimum for increased livestock (5 million) in 1985, current policy indicates that stockpiling requirements will be up 2 million metric tons, while industrial use, food processing, and brewing may use an extra 6 million. The total of 63 million metric tons is well below the 95-million-metric-ton increase called for by the 1985 target and seems likely to be attained.

For the most part, additional supply will be divided between more direct human consumption and more feed for heavier animals, since there remains active unsatisfied demand for both meat and grain. Wealthier provinces seem to have reached a point at which much smaller proportions of increments in production are devoted to direct consumption. But at the national average level of around 200 kilograms per capita of processed grain, there is no evidence of slackening direct demand.

The People's Republic has long been important in international grain trade, with regular rice exports since the mid-1950s and large wheat imports since the early 1960s. The late 1970s marked a major increase in the latter. Further growth is possible, but a measured decline seems more likely. The probability of a large rise seems quite small.

Imports allow China to leave more grain in rural areas, particularly in the north where adverse weather has resulted in more erratic output. Imports allow urban stocks to be larger and make feed available for the new suburban hog and poultry farms. China is also in the market for soybean imports to meet increased demands for food, vegetable oils, and possibly animal feed.

Improving the quality and quantity of industrial inputs to agriculture is a major plank of the current agricultural policy. Standardization and quality control are being emphasized for manufacture and repair of machinery. The new fertilizer plants built by American, Japanese, and European firms are turning out higher quality products, and the operation of local plants is also being improved. The power industry is stressing increased efficiency and higher utilization of capacity.

The growth rates of supply of various nonlabor inputs to farm production have been revived to levels equalling or surpassing those of the rapid-growth period for grain

output in the first half of the 1970s. The prospects for effective nutrient delivery seem particularly good, not only because of large increases in the amounts of fertilizers with higher nutrient content, but because these fertilizers are more stable. Present utilization rates of organic manures are unknown, but may be declining owing to the large labor requirements involved. Hog manure is the most important and effective natural fertilizer. Its availability (as opposed to the rate of utilization) is likely to increase more rapidly than during the 1970s. The quality of conditions on China's irrigated lands has improved substantially during the past 20 years, injecting ambiguity into any constructed "irrigated acreage" series. Planned increases call for a growth rate of 3.6 percent per year, which is high but not unprecedented in the People's Republic. The plans for growth of both irrigated area and chemical fertilizer supply seem to be consistent with production of 400 million metric tons of grain by 1985. The extent to which these plans are likely to be fulfilled is also apt to be consistent with that target.

The effects on the trend of foodgrain production growth of influences other than the supply of the nonlabor agricultural input stream are more difficult to assess. An exception is weather. 1978 was still a poor weather year, though production soared over that of even worse 1977. Yet average weather, in spite of China's improved facility for dealing with weather changes, might have resulted in an increase of as much as 10 million metric tons.

It may be concluded that changes in policy emphasis affecting prices, budget allocation, and the manner of rural administration should bring about an increase in work and investment incentives by sharply altering immediate and long-term returns in the farm sector and providing greater peasant participation in decisionmaking. It is far from clear that the bulk of additional effort so generated will be devoted to foodgrain production, but there are a number of reasons for suspecting that net impact on the latter will not be negative.

For nonlabor inputs the policy changes should improve the efficiency of resource allocation both among and within collective units in a manner that favors grain production. Considering the quality and quantity of land retired from grain production in 1979, it does not appear that the negative impact on output was large. Even if such

changes represented a trend, the resultant production loss through 1985 will probably be covered by reclamation. A measured retrenchment in cropping intensity is also implied. But so far such changes are still hotly debated, and in some instances the retrenchment will have a positive impact on output as well as on profits.

"Commandism," as unpopular as it may have been, represented a means of easing key infrastructural problems that constrained growth. Despite state and provincial assistance to poorer brigades at an unprecedented level and revision of oppressive policies contributing to their impoverishment, the net effect of the current policy changes will particularly favor the areas that have grown rapidly in the 1970s.

The incentive to expand production thereby provided is no doubt crucial, but it should be recalled that distributional issues are intense political topics in China and have often been near the heart of growth-stalling popular turmoil. The causes of the disturbances have been complex. Broad current participation in income growth may ensure against an immediate outbreak, but future difficulties cannot be ruled out. Also, the possibility of an eventual administrative shift back toward policies more closely associated with the Cultural Revolution cannot be discounted.

The prospects for growth of production caused by the available seed technology also seem reasonably good. The outlook for expansion by use of single-cross hybrid maize and semidwarf wheat still looks strong. Even the slow growth of rice production, which may have even accelerated in the 1970s, will be bolstered by the present proliferation of male-sterile hybrids as growth from conventional rice hybrids becomes exhausted in more and more regions. Toward the end of the current planning period, growth in stagnant tuber yields is likely to begin responding to increased emphasis on appropriate field management of this crop and to virus-free seed stock.

It appears that the seed technological

prospects for expanding production in the first half of the 1980s are at least as favorable as they have been in the 1970s, although eventual exhaustion of growth from semidwarf wheat and hybrid maize will ultimately present a problem. The net impact of several other developments will favor farm production in the first half of the 1980s. What effect the purportedly greater peasant autonomy in production and the current administration's relative de-emphasis of grain will have on foodgrain output is unclear. The material gathered to date, however, suggests that it may even be positive or at least not significantly negative.

If the input supply plans (and the extent to which they seem likely to be fulfilled) suggest foodgrain output growth in the annual range (from a 1978 base) of 3.0-3.5 percent, then consideration of 1978 weather conditions, changes in allocational efficiency, incentives, and technological prospects would tend to argue for growth averaging in the upper end of that range or even above it. At the implied production level of 380-400 million tons, demand is likely to completely absorb available supply. Domestic consumption of such volumes will result in both a qualitative and quantitative improvement in Chinese diets. It should be noted, however, that expected growth of these rates through 1985 does not at all imply that such rates will be maintained in future periods. The present outlook for supply growth is particularly favorable. But rapid growth beyond 1985 may depend upon more problematic contingencies, such as continued allocational emphasis on agriculture and foodgrains, long-term water diversion plans, further breakthroughs in seed technology, resolution of economy-wide energy supply constraints, and preservation of political and social stability. A major shift in the composition of domestic demand for grain in China may also occur in the post-1985 decade. Important future research and data development would help ascertain the nature, timing, and extent of such a crucial shift.