

## COMMENT

# SMALL-SCALE AGRICULTURE IN AFRICA

## The myths and realities

THE COUNTRIES of sub-Saharan Africa had a combined population in 1991 of 500 million and a growth rate above 3% per year. At this rate of population increase, there will be approximately 900 million people to be fed by the year 2010, less than 20 years from now. High rates of population growth combined with little application of improved technology have resulted in declining *per capita* food production and deteriorating nutritional levels. The Food and Agriculture Organisation (FAO) of the United Nations estimates that sub-Saharan Africa will be producing only 75% of the food it requires by the year 2000, unless drastic changes occur in current food production trends.

### APPROPRIATE TECHNOLOGY

Some agricultural professionals contend that small-scale subsistence food producers can be lifted out of poverty without the use of purchased inputs, such as modern crop varieties, fertilizer, and agricultural chemicals. They recommend instead the adoption of so-called "sustainable" technologies that do not require fertilizers and improved varieties. In our experience, many of these new technologies, while sometimes appealing in theory, are rarely adopted by farmers who look to more practical solutions for their problems.

While scientists must continue to strive for new breakthroughs in cereal crop production – such as biological fixation of nitrogen and more durable genetic resistance to insects, pests, and environmental stresses – they must also be practical and responsible in informing political leaders of the truth: that during the next 20 years African farmers must depend on employing technologies already available or well-advanced in the research pipeline.

### RESTORING SOIL FERTILITY

Growing population densities and increased intensity of land use have caused the bush fallows of traditional shifting cultivation to be significantly shortened in many areas, resulting in sharply declining soil productivity. It must be remembered that the staple cereals essentially "mine" the soil, taking up plant nutrients and converting them to grain and fodder. Thus, unless something is done about restoring and maintaining soil fertility, other efforts to improve productivity will be unsuccessful.

The advent of cheap and plentiful fertilizers has been one of the great agricultural breakthroughs of humankind. During the last two decades, chemical

fertilizers have permitted the densely populated nations of Asia, such as China and India, to feed better their burgeoning populations and to lower real food costs. Even in China – which perhaps makes the best use of recycled organic matter, manure, and night soil in the world – huge investments have been made in chemical fertilizers facilities and all Chinese farmers use these products. This lesson must not be lost on Africa, which presently has the



lowest fertilizer-use rate in the world

### INTRODUCING IMPROVED VARIETIES

One of the greatest practical achievements in biological sciences during the 20th Century has been the development of improved varieties of maize, wheat, rice and other crop species which are higher yielding and more resistant to various stresses than the local landraces; some show improved nutritional quality.

Where improved varieties have been developed and proven superior on farmers' fields, they should and must be made available to farmers. For these improved cultivars to reach the farmer, however, seed production and distribution systems are needed to produce the right kinds and amounts of quality seed and deliver them to the farmers on time. Such seed production systems need not be overly sophisticated. Moreover, this activity has rarely been carried out effectively by public organisations and should be left evermore to private sector entrepreneurs.

### MOVING BEYOND HUMAN POWER

Small-scale farmers in Africa must have access to something better and more productive than the cutlass and hoe for cultivation, and their own backs for transportation, if agriculture is to be modernized. Otherwise, farmers in increasing numbers will abandon the land for the squalor of the urban slums in their struggle for a better life. The increased use of animal power-traction (in areas where

the tsetse fly and East Coast fever can be economically controlled) and vehicles for rural transportation must become more central to sub-Saharan Africa's agricultural development strategies. Not only will such advances increase the efficiency of agricultural sectors but they will also spawn new rural industries and services.

### LET FARMERS BE THE JUDGE

Since 1986, Sasakawa Global 2000 and collaborating national institutions have worked with tens of thousands of small-scale farmers in six sub-Saharan countries to demonstrate the value and proper use of fertilizer and improved seed and agronomic practices. These farmers have experienced at first-hand the economic benefits obtainable with the recommended technologies. Their judgments should not be ignored. What has limited adoption has not been an unwillingness to change but rather an inability to obtain the needed inputs. Thus, the benefits of modern agricultural technologies will only reach the small-scale farmer through clear-sighted and consistent government policies for the development of input supply systems.

### SAVING THE ENVIRONMENT

The adoption of science-based agricultural technologies is crucial to slowing – and even reversing – Africa's environmental melt-down. With traditional technology, peasant farmers are caught in a vicious cycle: they are forced to farm increasingly marginal lands in their struggle to feed themselves and to meet other family economic needs. By enabling growers to intensify production on the more favourable lands already under cultivation, improved technology can lessen the pressure on fragile marginal lands.

*Development specialists from first world nations must stop "romanticizing" the virtues of traditional agriculture in the Third World. Moreover, leaders in developing countries must not be duped into believing that future food requirements can be met through continuing reliance on either traditional technologies or on the new complicated and sophisticated "low-input, low-output" technologies that are impractical for the farmer to adopt. Such misguided development strategies will not only cost the rich nations wasted donor aid but could put the future survival of Africa's small-scale farmers and their families in jeopardy.*

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