CROP PRODUCTION CAPACITY IN AFRICA

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Contents

1. Introduction

The purpose of this article is to examine issues related to crop production capacity in Africa. Specific topics to be discussed include demand for food, the historical role of production in domestic food supplies, production trends, resource constraints, and input usage.

Africa has the highest population growth rates in the world, which in addition to high rates of urbanization, is expected to put pressure on food demand in the next decade. The continent can be divided into two sub-regions: North Africa and Sub-Saharan Africa. North African relies on imports for about 50% of its grain consumption needs.

Conversely, domestic production is by far the most important contributor to food consumption in SSA.

Sub-Saharan Africa's agricultural productivity—as measured by output relative to agricultural land area—has accelerated over time. However, on a per capita basis, it has declined. Historically, most of the gains in crop production were due to changes in area planted. While additional land was available to be brought into food production, area expansion for most countries meant bringing into production marginal land with lower productivity and more uncertain rainfall, implying lower and more variable crop yields.

Comparison of yield levels and growth between Asia, Africa, and Latin America reveals a wide disparity, suggesting a large potential for greater food production through yield improvement. Yields have been constrained by lack of water, plant disease, and negligible fertilizer use (see Figure 1).

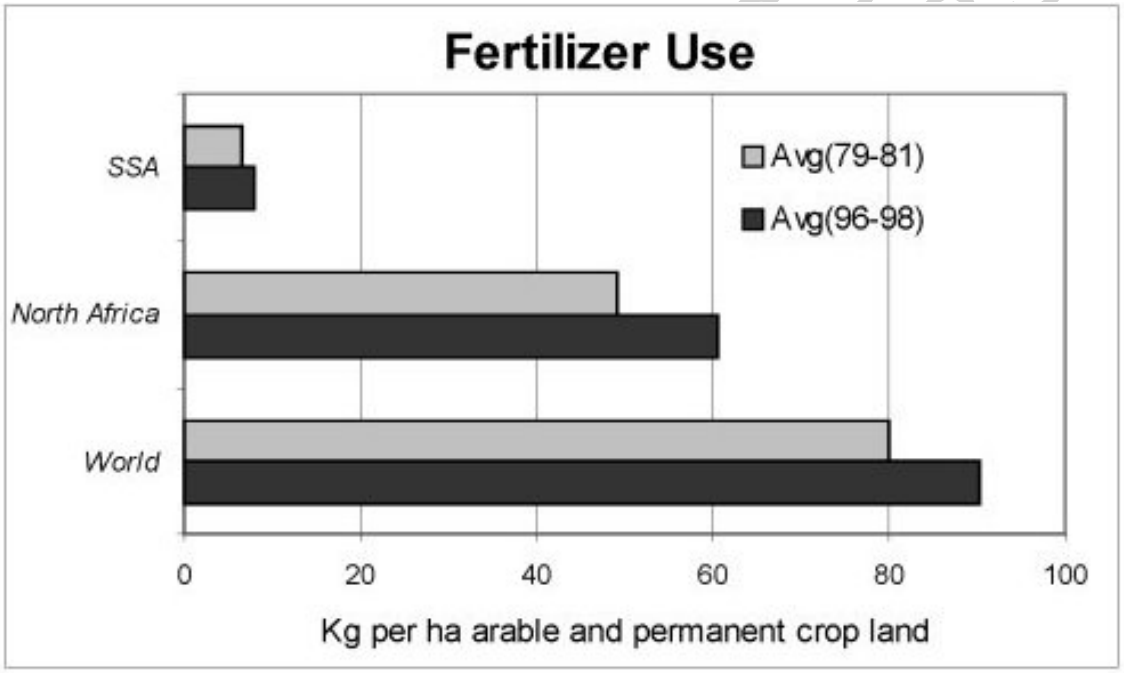

Figure 1. Fertilizer use per hectare in sub-Saharan Africa, North Africa and the world

2. Past Trends in Demand

Africa's food demand patterns reflect changes in its principal determinants: population, urbanization, income growth and distribution, and commodity prices. Government policies influence all of these factors.

2.1. Population

The population of Africa's 54 countries totaled roughly 780 million in the year 2000. The continent can be divided into two parts: North Africa (NA) and Sub-Sahara Africa (SSA). North Africa consists of 5 countries (Algeria, Egypt, Libya, Morocco, and Tunisia) with a population of 140 million. SSA's population totaled around 640 million

in 2000. The continent has the highest population growth rates in the world. The population is young, with about 40% of the people under 15 years of age. Most of the people live in the rural areas, particularly in SSA, but the urbanization growth rate exceeds 4% per year, more than 1 percentage point higher than the population growth rate. The high rate of population and urbanization growth is expected to put pressure on food demand in the next decade.

The high population growth rate in Africa resulted from sharp mortality declines in the 1950s due to improved health services. Rapid population growth occurred in industrial countries between 1890 and 1920, and was supported by strong income growth and improvements in education and health.

Their experience also shows that high population growth, when accompanied by appropriate and adequate investments in agricultural technology and supportive government policies, can have a positive impact on agricultural development. In Africa, however, fertility rates have remained high, incomes have stagnated, and low education levels have persisted.

Now, after a long period of dealing with the burden of growing populations, the continent is facing a decline in population growth rates. The problem, however, is that the decline is not a natural progression of development, but a result of the rapid spread of HIV/AIDS. The disease has major implications for the economies and agricultural sectors of Africa.

The two most severely affected regions are southern and eastern Africa. In seven countries in southern Africa—Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia, and Zimbabwe—more than 20% of adults are living with AIDS. In most eastern African countries, the rate of HIV prevalence is more than 10%. In these countries, life expectancy is projected to decline to 30 to 40 years instead of 60 to 70 years (an estimate used prior to the spread of HIV/AIDS).

According to a UN report, about 55% of all HIV infections in Sub-Saharan Africa are among women. Peak HIV prevalence among women occurs at age 25, that is 10 to15 years earlier than for men, thus changing the structure of the population. This also means that the most productive age cohort, 15-45, is dying the fastest from AIDS. This age cohort comprises nearly 50% of the population in highly AIDS affected countries.

HIV prevalence among the relatively educated as well as the high-income urban population is as high or higher than among the low-income and rural groups. In Rwanda, Congo, and Zambia, the level of HIV infection in the highest socioeconomic strata is 2 to 4 times higher than among those in the lowest category.

2.2. Income

Income levels, growth, and distribution also determine patterns of food consumption. Income growth in the region is the lowest in the world and has declined on a per capita basis. Average per capita income for the continent was $770 in 1980, declining to $679 in 1997. The average per capita income for the NA countries was more than double the

average, $1505 in 1997. In SSA, the average income was $503 in 1997, and after excluding Nigeria and South Africa, it declines to $321. Per capita incomes (GNP) range from $100 in Ethiopia to $3240 in Botswana (South Africa's per capita income was $3,160). In 1997, per capita incomes were less than $500 in 33 countries. Therefore, for a majority of the countries, purchasing power is extremely limited.

Income distribution is skewed with the low-income group having a disproportionately small share of the region's total income. Income distribution data are limited, as is information on consumption patterns by income group. Yet some generalizations can be made: the top 20% of the population in Africa has more than 40% of the income, while the bottom 20% has less than 10%. Given the low income of many African countries, the middle 40% does not constitute a middle income group as in developed countries. In other words, absolute poverty may extend into the middle 40% of the population.

Low and declining incomes and skewed distribution mean that large numbers of people are nutritionally vulnerable. Given the income characteristics, the shift away from grain consumption—the trend in wealthier countries—is not imminent in Africa. For perhaps the poorest 40% of the population, home-produced commodities such as root crops, corn, sorghum, and millet will remain the principal foods consumed.

A recent study shows that under increasingly difficult economic conditions facing African farmers, cassava has become a major source of food for the rapidly growing population. In fact, in 65 and 73% of the villages studied in Nigeria and Ghana, cassava production has expanded, replacing other crops. Cassava is a nutritionally inferior food because of its low protein, vitamin, and mineral content. This type of diet must be supplemented with grains, vegetables, and livestock products in order to avoid higher rates of malnutrition.

In the early 1980s, to compensate for inadequate purchasing power, heavy government intervention and large transfers characterized consumer policies in the African countries. These subsidies, however, benefited mainly the urban consumers, as rural consumers relied mainly on subsistence farming.

In the mid-1980s, as government budget constraints grew in most countries, the level of intervention and support fell. Such a trend reflects the realization that consumer subsidies depress local agricultural production, divert resources from industrial investment, and stimulate imports. Countries have shown varying degrees of success in pursuing these policies. Nevertheless, many governments have been forced to remove or reduce subsidies simply because of budgetary considerations.

3. Past Trends in Crop Inputs and Production

The overall slow income growth in the region translates into limited investment in all sectors including the agricultural sector. This factor, coupled with a limited resource base in parts of the region has impeded agricultural productivity (see Figure 2).

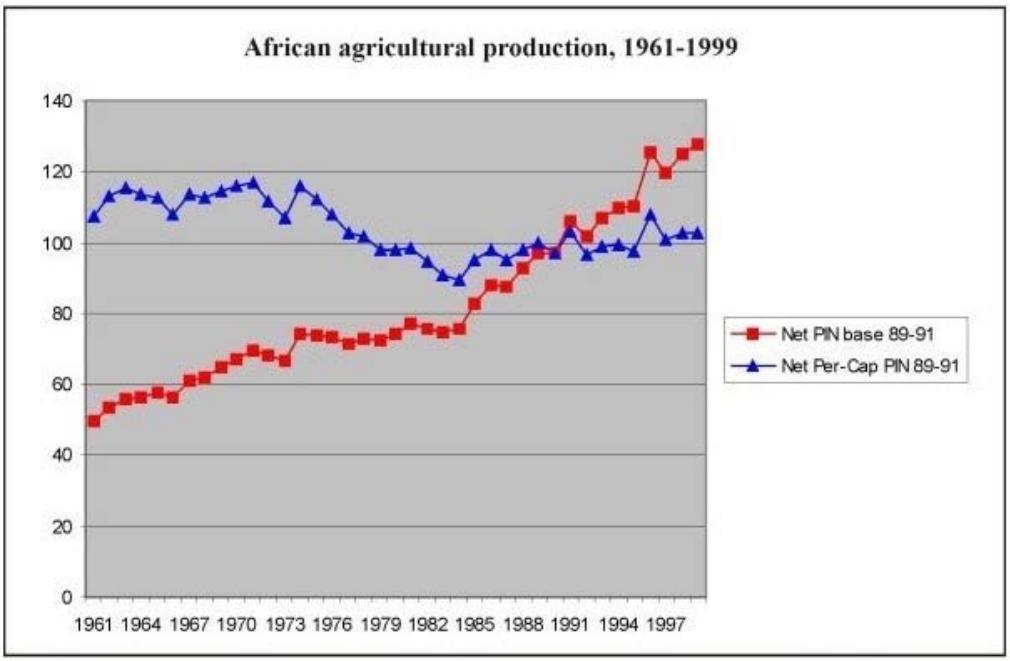

Figure 2. Trends in agricultural production in Africa

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Biographical Sketches

Shahla Shapouri is a senior economist at the Economic Research Service, USDA. She started working in the ERS in 1979 and has a Ph.D. in agricultural economics. She conducts research on issues related to factors affecting food market of low-income food-deficit countries, especially in Sub-Saharan Africa. Her current work includes coordination of ERS research on food security and WTO issues relevant to low-income developing countries. She coordinates the Agency's annual publication of Food Security Assessment report that is mandated by the US Congress and has been distributed widely. She received a Service Award in 1996 for drafting the U.S. position paper for the World Food Summit. Most of her international experience is in Africa and more recently in Central America.

Stacey Rosen is an economist with USDA's Economic Research Service. She has worked with the agency since 1983. She has a master's degree in economics. Her work at ERS focuses principally on food security issues in developing countries. She serves as co-coordinator of the agency's annual global *Food Security Assessment* report that is mandated by Congress.

Johann Kirsten has been with the University of Pretoria in South Africa since 1992 and has served as the head of the Agricultural Economics Department since 1998. Prior to this time with the University, he worked in various capacities with South Africa's Department of Agriculture, from 1987-92. Johann has a Ph.D. in agricultural economics. His most recent work has focused on land reform and the financial climate facing farmers in South Africa.