

V. IMPACT ON AGRICULTURE

The great majority of the population in the countries most affected by HIV/AIDS live in rural areas. In many African countries, farming and other rural occupations provide a livelihood for more than 70 per cent of the population. Hence, it is to be expected that the HIV/AIDS epidemic will cause serious damage to the agriculture sector in those countries, especially in countries that rely heavily on manpower for production. The present chapter explores the issues related to the impact of HIV/AIDS on agriculture. First, a conceptual framework for analysis of the impact of HIV/AIDS on agriculture is presented, based on previous work by the Food and Agriculture Organization of the United Nations (FAO), followed by a presentation of the evidence available on the impact of HIV/AIDS on agriculture.

A. CONCEPTUAL FRAMEWORK FOR THE IMPACT OF HIV/AIDS ON AGRICULTURE

HIV/AIDS can affect agriculture in many ways (figure 10):

- Absenteeism caused by HIV-related illnesses and the loss of labour from AIDS-related deaths may lead to the reduction of the area of land under cultivation and to declining yields resulting in reduced food production and food insecurity.
- The loss of labour may also lead to declines in crop variety and to changes in cropping systems, particularly a change from more labour-intensive systems to less intensive systems. Livestock production may become less intensive, and weeding and pruning may be curtailed. A shift away from labour-intensive crops may result in a less varied and less nutritious diet.
- The reduction in labour supply through the loss of workers to HIV/AIDS at crucial periods of planting and harvesting

could significantly reduce the size of the harvest, affecting food production.

- Loss of knowledge about traditional farming methods and loss of assets will occur as members of rural households are struck by the disease and are not able to pass on their know-how to subsequent generations.
- Loss or reduction of remittances is likely to occur in areas where agricultural workers send money home while working abroad. When the workers become sick, they can no longer earn money to send home.

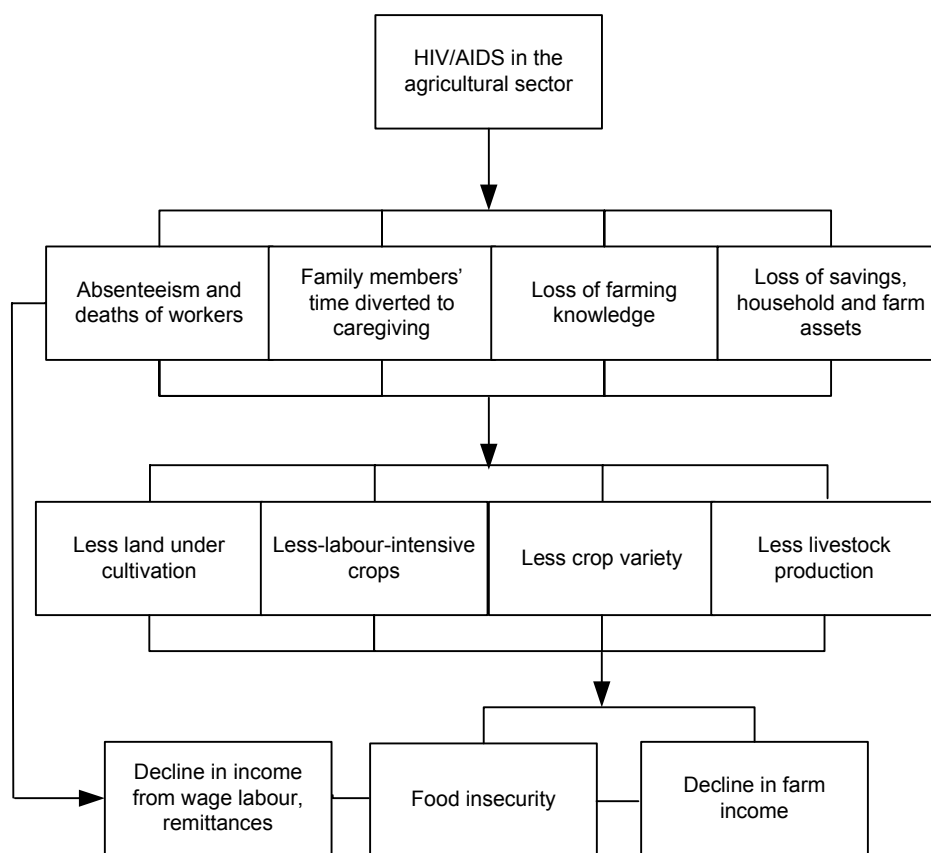
Consequently, the important impacts of the HIV/AIDS epidemic on agriculture are food insecurity caused by the reduction of production, and loss of income from household members employed in the sector.

The HIV/AIDS epidemic may also affect the traditional coping mechanisms that are often found in rural areas. Traditionally, local residents have joined together to offer assistance to those in need during periods of shock or crisis. Indeed, community-based initiatives have become one of the outstanding features of the epidemic and a key coping mechanism for mitigating the impact of HIV/AIDS (UNAIDS, 2002). However, as the number of HIV/AIDS cases increases, the need for assistance may overwhelm the support system, and traditional coping mechanisms may begin to break down.

B. EMPIRICAL EVIDENCE OF THE IMPACT OF HIV/AIDS ON AGRICULTURE

Many of the studies assessing the impact of HIV/AIDS on agriculture have been conducted under the auspices of the Food and Agriculture Organization. Of the AIDS impact studies conducted so far, the majority have dealt with the rural world, that is, agriculture and livestock.

Figure 10. Conceptual framework for the impact of the HIV/AIDS epidemic on agriculture



Source: United Nations, Department of Economic and Social Affairs, Population Division.

1. *Impact on food security and changes in cropping patterns*

One of the main impacts of HIV/AIDS on agriculture is its impact on food security. For example, a survey carried out in 1997 in Zimbabwe, a country with an adult prevalence rate of more than 25 per cent, estimated production loss in AIDS-affected households. The survey, conducted by the Zimbabwe Farmers' Union, found that agricultural output declined by nearly 50 per cent in the households affected by AIDS (Kwaramba, 1997). Maize production by smallholder farmers, and commercial farms declined by 61 per cent as a result of illness and deaths from AIDS (table 14). Those production losses could result from a number of factors, including shifting production patterns. However, according to Kwaramba, at that

time the Zimbabwe data did not indicate a dramatic switch from cash to subsistence crops.

TABLE 14. REDUCTION IN OUTPUT IN AIDS-AFFECTED HOUSEHOLDS, ZIMBABWE

<i>Crop</i>	<i>Production loss (Percentage)</i>
Maize.....	61
Cotton.....	47
Vegetables.....	49
Ground nuts.....	37
Cattle.....	29

Source: Kwaramba, *The Socio-economic Impact of HIV/AIDS on Communal Agricultural Production Systems in Zimbabwe* (Harare, Zimbabwe Farmer's Union and Friederich Ebert Stiftung, 1997).

By contrast, in Côte d'Ivoire, a 1997 study found that switching to food crops rather than cash crops led to a drop in production by two thirds of previous levels (Black-Michaud, 1997). In addition, reduced remittances resulting from illnesses or deaths of migrant workers were found in Burkina Faso, whose nationals migrate to Côte d'Ivoire as seasonal agricultural workers.

In a study conducted in Burkina Faso in 1997, it was found that in two villages, Sanguié and Boulkiemdé, shifting work patterns and an overall reduction in food production had occurred as a result of the HIV/AIDS epidemic. The same study found that net revenues from agricultural production had decreased by 25 to 50 per cent (FAO, 1997). The Government of Swaziland also reported a 54 per cent drop in agricultural production in households where at least one adult member died from AIDS (*Wall Street Journal*, 9 July 2003).

A study in the United Republic of Tanzania showed that a woman whose husband was sick was likely to spend 45 per cent less time on agriculture than if the husband were healthy. In Kagera, a survey showed that, on average, adults in households that experienced a death spent five hours less on farming during the previous week than those without a death (Mutangadura, 2000).

In Kenya, a study found that the commercial agricultural sector was facing a severe social and economic crisis caused by HIV/AIDS (Rugalema, 1999). The loss of skilled and experienced labour to the epidemic is a serious concern. However, it was difficult to quantify the impact of the epidemic in terms of increasing costs.

In Namibia, worker-deficient households cultivate less land and have fewer cattle and less non-farm-related cash income (Mutangadura and Mukurazita, 1999).

2. Absenteeism and loss of labour

In countries or areas heavily affected by the HIV/AIDS epidemic, the time required to care for the sick and seek medical assistance often had an impact on time available for agricultural produc-

tion. The outcome might be less timely farming practices, resulting in reduced yields and, over time, a general decline in household welfare.

A study conducted in Ethiopia showed the reduction in agricultural labour time as a result of HIV/AIDS: the number of hours per week in agriculture fell from 33.6 hours in non-afflicted households to between 11 and 16 hours in afflicted households (Black-Michaud, 1997).

AIDS is expected to have a greater impact in the future. According to estimates by FAO, between 1985 and 2000, in the 27 most affected countries in Africa, 7 million agricultural workers died from AIDS, and 16 million more deaths were likely to occur in the following two decades. In 12 countries, including the 10 most affected African countries, labour force decreases ranging from 10 to 26 percent are anticipated (table 15). Namibia is expected to suffer the most in terms of loss of labour force by 2020 (26 per cent of its labour force), followed by Botswana.

Another feature of the HIV/AIDS epidemic is that its impact may be observable only when the epidemic reaches the mortality stage of AIDS, with people dying in large numbers. It is therefore important to design measures that allow the prediction of the impact of the epidemic in the future as well as in the present. A study conducted by the United States Department of Agriculture addressed that concern by projecting the impact of AIDS on production (Shapouri and Rosen, 2001). The study found that in the most affected countries in Africa, slow growth in agricultural productivity and the overall economy resulted in growing food insecurity, with a substantial gap between production and needs projected for 2010 in many countries (table 16). Food insecurity is measured by the nutrition gap, which represents the difference between projected food supplies and the amount of food needed to meet per capita nutrition standards at the national level (United States Department of Agriculture, 2001). In Kenya, for example, grain production in 2010 is projected to be 12.1 per cent less than the amount needed (table 16). Increasing reliance on imported grain and food aid will be necessary to meet nutrition requirements (Shapouri and Rosen, 2001).

TABLE 15. ESTIMATED AND PROJECTED LOSS OF LABOUR FORCE IN 2000 AND 2020
(Percentage)

<i>Country</i>	<i>2000</i>	<i>2020</i>
Namibia.....	3.0	26.0
Botswana.....	6.6	23.2
Zimbabwe.....	9.6	22.7
Mozambique.....	2.3	20.0
South Africa.....	3.9	19.9
Kenya.....	3.9	16.8
Malawi.....	5.8	13.8
Uganda.....	12.8	13.7
United Republic of Tanzania.....	5.8	12.7
Central African Republic.....	6.3	12.6
Côte d'Ivoire.....	5.6	11.4
Cameroon.....	2.9	10.7

Source: FAO, "The impact of AIDS on food security", paper presented at the twenty-seventh session of the Committee on World Food Security, Rome, 28 May – 1 June 2001.

TABLE 16. GRAIN MARKET PERFORMANCE FOR SELECTED AFRICAN COUNTRIES

	<i>Annual production growth</i>		<i>Projected nutrition gap^a</i>
	<i>1980-1999</i>	<i>1989-1999</i>	<i>2010</i>
	<i>Percentage</i>		
Eastern Africa			
Kenya.....	0.44	-1.04	12.1
Uganda.....	2.18	1.29	0.0
United Republic of Tanzania.....	2.03	0.00	33.6
Southern Africa			
Malawi.....	1.83	4.14	18.1
Zambia.....	-1.22	-3.63	69.9
Zimbabwe.....	-1.06	-0.10	2.4

Source: Based on S. Shapouri and S. Rosen, "Toll on agriculture from HIV/AIDS in sub-Saharan Africa", *Agriculture Information Bulletin*, No. 765-9 (June, 2001).

^aAs a percentage of grain production.

Outside of Africa, very few studies of the impact of HIV/AIDS on agriculture are currently available. This may be a result of the lower HIV prevalence in Asia and Latin America and the lower percentage of employment in the agricultural sector, which may lead to a lower impact. Nonetheless, it is still important to conduct studies in those regions to investigate the likely impact of HIV/AIDS on agriculture and the ways in which

the social and physical environment may contribute to lessening the impact. For example, a study conducted in Thailand reached the conclusion that one third of the rural families affected by AIDS experienced a halving of their agriculture output (UNAIDS, 2000c).

Another study in Thailand of the impact of AIDS on rural families showed that the agricul-

Box. Key points on the socio-economic impact of HIV/AIDS on agriculture and rural development

The following factors should be borne in mind when analysing the impact of AIDS in rural areas:

- What distinguishes HIV/AIDS from other fatal diseases is that (a) **it primarily affects the most productive age group of men and women between 15 and 49 years**—the main breadwinners and heads of households raising families and supporting the elderly—and **their children**; (b) its full impact is revealed only gradually (given a median survival period of around 9 years in developing countries); and (c) there is no cure while drugs that can prolong life are not available to the large majority of infected people in developing countries.
- **The stigma attached to HIV/AIDS** is a distinguishing characteristic of the epidemic with adverse consequences for response measures. As a result of this stigma, it is more difficult to address HIV/AIDS than other diseases.
- **Countries in Southern and Eastern Africa** have increasing urban-to-rural equalization of HIV prevalence. Moreover, given the predominantly rural composition of many of these countries, in terms of absolute numbers, the number of people living with HIV/AIDS may be higher in rural than in urban areas.
- **The impact of HIV/AIDS is cross-sectoral and systemic.** Agriculture is a dynamic, integrated and interdependent system of productive and other components operating through a network of interrelated subsectors, institutions and rural households with linkages at every level of activity. The efficiency and effectiveness of each subsector, institution and household depends, to a large extent, on the capacity in other parts of the system. If this capacity is eroded through HIV, then the system's ability to function will be diminished.
- **The impact of HIV/AIDS on agricultural production systems and rural livelihoods** must be disaggregated into its spatial and temporal dimensions. Geographic and ethnic factors, gender, age, agro-ecological conditions and livelihood strategies play a role on the impact of HIV/AIDS on agricultural production and livelihood systems.
- **HIV/AIDS disproportionately affects sectors that are highly labour-intensive** or have large numbers of mobile or migratory workers, including agriculture, transportation and mining.
- The magnitude of the epidemic is such that one can no longer categorize households as afflicted, affected and unaffected. **Nearly all households within a community are likely to be directly or indirectly impacted by the epidemic.**
- It has been argued that **those rural people whose activities are not counted by standard measurements of economic performance and productivity are among the most vulnerable to the impact of HIV/AIDS.** The effects of the epidemic on the resources, time and labour of those working in subsistence agriculture, in rural households (particularly women) and in the informal sector are for the most part invisible in quantitative terms.
- **The cost of HIV/AIDS is largely borne by rural communities.** Many HIV-infected urban dwellers return to their village of origin when they fall ill. Rural households (particularly women) provide most of the care for AIDS patients. In addition, food, medical care costs and funeral expenses are primarily borne by rural families.
- **The burden of the socio-economic impact of HIV/AIDS disproportionately affects rural women.** Widows tend to become poorer as they lose access to land, property, inputs, credit and support services. HIV/AIDS stigmatization compounds their situation further, as assistance from the extended family and the community—their only safety net—is often severed. Widowers tend to remarry soon after losing their wives, thus cushioning their families from AIDS impacts.
- **The impact of HIV/AIDS on children is severe** as widespread orphanhood and fosterage are bringing the coping mechanisms of many extended families to the breaking point. Withdrawal from school, a decrease in food intake, a decline in inherited assets and less attention from caretakers are among the adverse effects of the epidemic on children.

Excerpt from D. Topouzis, *Addressing the Impact of HIV/AIDS on Ministries of Agriculture: Focus on Eastern and Southern Africa* (Rome, FAO; and Geneva, UNAIDS, 2003).

tural families and the poorest families in the northern provinces of Thailand, where more AIDS cases were found, were also the most vulnerable to the economic impact on agriculture. The study found that the economic impact of an adult AIDS death was sizeable despite all the coping strategies employed. The least able to cope were the poorest and the least educated agricultural workers (Pitayanon, Kongsin and Janjaroen, 1997).

3. Gender implications

HIV/AIDS frequently has severe consequences for rural widows of AIDS victims. In sub-Saharan Africa and Asia, women contribute to more than half the food production and are usually involved in the most labour-intensive farming activities (UNAIDS, 2002). However, in areas where women are not permitted to inherit property, they may lose access to land and other assets when their husband dies (FAO and UNAIDS, 2003). In some cases, the cultural division of labour makes it impossible for women to assume the farming tasks previously performed by their husbands, and they are forced to abandon farming. Inequality in access to credit, employment, education and information all make women more vulnerable to the negative impacts of HIV/AIDS (Stokes, 2003). Moreover, the stigma of the disease may inhibit widows from seeking community and extended-family support, which are vital safety nets in rural areas.

C. CONCLUSIONS

The evidence with respect to the impact of HIV/AIDS on agriculture remains scattered and incomplete. Most studies cover small areas, and many do not include a control or comparison group of households not affected by HIV/AIDS. Moreover, little is known about the effects of the epidemic over time. Nonetheless, the current evidence demonstrates that HIV/AIDS is having a crushing effect on agricultural production and the economic viability of AIDS-affected households in diverse areas of Africa. HIV/AIDS is also having a serious impact on commercial agricultural enterprises.

The future impact of HIV/AIDS on agriculture will depend, among other things, on finding ways to reduce the amount of labour required, including introducing less labour-intensive methods of production and increasing yields with non-labour inputs. In many of the countries most affected by HIV/AIDS, the agriculture sector was already under stress from desertification and government neglect of the traditional farming sector. The epidemic is intensifying labour shortages, increasing malnutrition and adding to the burden of rural women, especially those who head farm households.

The major findings of the chapter are as follows:

- **The HIV/AIDS epidemic has led to significant reductions in food production in AIDS-affected households.** In two villages in Burkina Faso, for example, revenues from agricultural production declined by 25-50 per cent as a result of AIDS. The Government of Swaziland reported a 54 per cent drop in agricultural production in AIDS-affected households.
- **HIV/AIDS has caused a decline in the supply of labour for food and live-stock production.** The decline is caused by the illness and deaths of people living with AIDS and by the time spent by household members in caring for sick relatives. In the United Republic of Tanzania, for example, a study found that a woman whose husband was sick spent 45 per cent less time on agricultural tasks than a woman whose husband was healthy. Even larger declines have been documented for Ethiopia.
- **HIV/AIDS has caused shifts of production from cash crops to food crops in AIDS-affected households.** The change has resulted in lower household incomes and a lack of funds to buy non-food essentials or non-labour inputs necessary to maintain agricultural yields.

- **The HIV/AIDS epidemic is leading to a loss of knowledge about farming methods and a reduction in skilled and experienced labour.** As docu-

mented, for example, in Kenya, farmers who die of AIDS do not live long enough to pass on their know-how to subsequent generations.