

The role of the agricultural sector in mitigating the impact of HIV/AIDS in Sub-Saharan Africa

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Abstract

This article discusses the impacts of HIV/AIDS on agriculture in Sub-Saharan Africa and the actual and potential role of the agricultural sector in the fight against this disease. It is argued that the agricultural sector has an important role to play in reducing the spread and impacts of HIV/AIDS, in particular in the areas of poverty reduction, ensuring food and nutrition security, enhancing the use of antiretroviral drugs, and advancing gender equality. The failure of the agricultural sector to respond actively to HIV/AIDS is attributed to a lack of capacity and political will as well as to a lack of empirical data to guide agricultural policy-makers.

Additional keywords: agricultural labour force, mainstreaming, mitigation

Introduction

More than 25 million people have died of AIDS since the first case was reported in 1981. In 2007, an estimated 33.2 million people worldwide were living with HIV and an estimated 2.1 million people died because of AIDS. Almost 68% of all people living with HIV live in Sub-Saharan Africa. Southern Africa is the epicentre of the global epidemic: nearly one in three people infected with HIV worldwide lives in southern Africa and of all infected children under 15 years about 43% live in this sub-region. The global epidemic is concentrated among younger adults, especially young women; in Sub-Saharan Africa in 2007, 61% of the adults with HIV were women (Anon., 2007). The high HIV prevalence rates and total adult deaths do not represent the true impacts of the pandemic, as a far higher percentage of non-infected people are affected indirectly by the presence of the disease through the burden of caring for the chronically ill and AIDS orphans.

HIV/AIDS affects all facets of human life and it is generally acknowledged that the epidemic undermines achieving the Millennium Development Goals. It is thus crucial that all sectors examine their actual and potential roles in combating HIV/AIDS

(Kadiyala & Gillespie, 2003), including the agricultural sector. Agriculture is central to the livelihoods of the majority of the people affected by HIV/AIDS around the world. In the most affected countries an estimated 80% of the people with AIDS reside in rural areas and depend on the agricultural sector for their living (Anon., 2003a). In these countries the agricultural sector is affected by high poverty levels, declining use of improved farm inputs and lack of support services (Drimie & Gandure, 2005). This article reviews the existing literature on HIV/AIDS impacts on agriculture at different levels in Sub-Saharan Africa and discusses the actual and potential role of the agricultural sector.

The impacts of HIV/AIDS on the agricultural sector

Micro-level impacts

HIV/AIDS affects the household through its impacts on the household asset portfolio and its social networks, which are essential to produce, purchase or access food. Impacts include reduction of the household labour force, loss of farm and non-farm income and distress sale of assets. Studies have shown that as a consequence of labour constraints due to sickness and death, rural households reduce the area under crops, shift to less labour-intensive crops and pay less attention to activities such as weeding (see also Barnett & Blaikie, 1992; Rugalema, 1999; Topouzis, 2000; Haddad & Gillespie, 2001; Anon., 2003b; 2004a; Larson *et al.*, 2004; Mather *et al.*, 2004; Müller, 2004; Yamano & Jayne, 2004). Small-holder agriculture in Sub-Saharan Africa is particularly vulnerable as it relies almost exclusively on family labour, especially that of women. The impact of reduced household labour depends largely on the type of farming system. Farming systems that are characterized by a high seasonal demand for labour, specialized tasks by age and sex, a limited ability to exchange labour for capital, and increasing returns to scale of labour are most vulnerable to the impacts of HIV/AIDS (Gillespie, 1989; Gillespie & Kadiyala, 2005).

In addition to causing labour constraints, HIV/AIDS progressively affects the ability of households to invest in agriculture and purchase productive assets such as oxen, ploughs, and fertilizers (Jayne *et al.*, 2004). Furthermore, many households are forced to cash their savings and to sell their food crops, livestock or even farm implements in order to cover medical care and funeral expenses. HIV/AIDS also undermines the implementation of national agricultural policies, as affected households may no longer be able to cultivate certain cash crops or participate in formal co-operatives that are promoted by the government (Jayne *et al.*, 2004). A study by FAO in Uganda (Anon., 2003b) shows that the government's policy to increase maize production worked well for unaffected households, but that households affected by HIV/AIDS reportedly only reduced the amount of land cultivated of both cash and food crops.

HIV/AIDS and the commercial sector

The AIDS epidemic also has adverse effects on the commercial agricultural sector because of increased health and funeral expenses, lower efficiency and higher staff turnover (Anon., 2001). Fox *et al.* (2004) carried out a study on the productivity and attendance of

tea-estate workers in western Kenya who died or retired between 1997 and 2002 due to HIV/AIDS-related causes. They found that HIV-positive individuals plucked four to eight kilograms less tea leaves per day during the 18 months prior to their death. Furthermore, workers with AIDS took significantly more days of leave than other pluckers, and individuals who stopped working due to HIV/AIDS-related causes earned 16% less in the two years before terminating their job. Agricultural estates and companies are faced with HIV/AIDS-related rising costs, such as expenses for replacing sick workers, paid sick leave and productivity losses (Gillespie & Kadiyala, 2005). Rugalema *et al.* (1999) found an increase of 1.15 million US\$ in medical expenditures incurred by agricultural companies in Kenya between 1989 and 1995 due to HIV/AIDS. Research conducted by Boston University (Anon., 2005) argues that the impact of HIV/AIDS-related expenses in Kenya is higher for large agricultural companies where the average cost per employee lost to AIDS ranges from 1 to 3 years' annual salary. Small agricultural companies have lower HIV/AIDS-related expenses, as only few provide employee benefits and training.

The commercial agricultural sector is not only impacted by the AIDS epidemic, it may also put workers at risk of HIV infection. Rugalema *et al.* (1999) reported that estate housing is often overcrowded and not suited for families. The absence of recreation facilities leads to boredom and alcohol and drugs abuse. Hence, casual and commercial sex is common on and in the immediate surrounding of the estates. Furthermore, the low salaries paid to female employees on agricultural estates can force women to seek additional work in the form of transactional sex.

HIV/AIDS and the weakening of rural institutions

HIV/AIDS dwindles already weak rural institutions in their capacity to deliver services, as staff are increasingly absent due to HIV/AIDS-related sickness and attendance of funerals, and because funds are being diverted from operational activities to medical expenses, funeral payouts and training of new staff (Anon., 2003a). It was estimated that in Namibia in 1998, extension staff spent over 10% of their time attending funerals and that in 1998 in Malawi 16% of the staff of the Ministry of Agriculture and Irrigation were infected and 60% had lost one or more close relatives to AIDS (Topouzis, 2003). Alleyne *et al.* (2001) (in: Gillespie & Kadiyala, 2005) reported that in Zambia, because of HIV/AIDS, 104 out of the 155 interviewed government agricultural extension workers had lost at least one colleague in the three years preceding the study. HIV/AIDS further impacts the agricultural ministries through the deaths of high-qualified staff for whom it is difficult to find replacements (Topouzis, 2003). Especially staff who travel extensively for their work, such as extension workers, professionals who frequently attend conferences and workshops as well as drivers are at risk of contracting the virus as they spend long periods away from their families with the attained risk of having unprotected sex with multiple partners (Topouzis, 2003).

Macro-level impacts

The agricultural sector is the leading sector of the economy in many countries in Sub-Saharan Africa and contributes significantly to the GDP and export earnings. Further-

more, as many poor people in rural areas depend on agriculture for their livelihood, the impacts of HIV/AIDS on the agricultural sector are of special concern. At macro level, the impacts of the epidemic on the agricultural sector are (presently) unclear, especially if using a standard per caput GDP rate as a measure of HIV/AIDS impacts (Gillespie, 2006). However, a study by British parliamentarians and the Royal African Society reports that HIV/AIDS reduces the Sub-Saharan African annual GDP growth rate, to which agriculture contributes significantly, by 0.8% and up to 2.6% for countries with a prevalence rate over 20% (Anon., 2004b). Overall, macro-level indicators often fail to spot the combined effects of changes at the micro level. Impacts at the micro level, like the additional burden on women, the pressure put by HIV/AIDS on social networks, and the psychological impact of HIV/AIDS on orphans, are econometrically invisible (Gillespie, 2006).

HIV/AIDS and the labour debate

Much of the HIV/AIDS-impacts debate focuses on the loss of household labour and its effects on agricultural production. In many developing countries, especially in Sub-Saharan Africa, household labour is crucial for agricultural production. African agriculture is highly labour-dependent, and illness, care taking and death (including funeral attendance) reduce agricultural production through delayed or negligent planting, harvesting or crop maintenance activities (Muelder, 2004). The severity of this impact is dependent on the labour requirements of a particular farming system and the extent to which a household can reduce or substitute labour.

The FAO (Anon., 2003a) estimates that by 2020, the AIDS epidemic will have claimed more than one-fifth of the agricultural labour force in most of southern Africa. Table 1 shows estimated and projected cumulative losses to the total labour force as a result of HIV/AIDS for ten strongly affected African countries.

It is predicted that the epidemic will increasingly rob the agricultural sector of adult labour that can no longer contribute to agricultural production, off-farm income generation, and domestic activities (Jayne *et al.*, 2004). However, there is controversy regarding the overall labour impact of HIV/AIDS (De Waal & Tumushabe, 2003). Demographers predict a largely unchanged absolute labour force, even in countries with high prevalence rates, because population growth in the absence of HIV/AIDS would have resulted in much larger populations in the coming decades (Jayne *et al.*, 2006). Furthermore, the work of Jayne *et al.*, based on different empirical household-level studies from eastern and southern Africa, suggests that the loss of labour following the death of an adult is likely to be compensated by attracting a new or former-resident adult.

Wiggins *et al.* (2005) argue that households impacted by HIV/AIDS may face labour constraints, but that there will not be an overall labour shortage, even in countries with very high HIV-prevalence rates. They argue that the rural and agricultural labour force will increase over the next 25 years, although not as quickly as previously thought. The studies of both Jayne *et al.* (2006) and Wiggins *et al.* (2005) indicate that labour constraints will occur at household level but not at the level of the rural economy or agricultural sector as a whole. However, these generalizations ignore key imbalances in the agricultural labour supply. For example, an area highly impacted by HIV/AIDS will contain

Table 1. Estimated and projected cumulative labour force losses as a result of HIV/AIDS in selected countries in southern Africa.

Country	Estimated losses as a proportion of the total labour force until 2005	Predicted losses as a proportion of the total labour force until 2010
	----- (%) -----	-----
Botswana	13.3	26.4
Kenya	9.2	14.2
Lesotho	13.8	24.1
Malawi	13.1	18.4
Mozambique	6.6	11.1
Namibia	10.5	18.5
South Africa	9.2	18.2
Swaziland	15.7	26.2
Tanzania	6.3	8.8
Zimbabwe	22.8	32.7

Source: International Labour Organization (Anon., 2004c).

fewer mature adults and more adolescents who are likely to contribute less to the overall agricultural labour force. Moreover, because HIV/AIDS tends to cluster at household and community levels, some rural areas will face labour shortages whereas other ones will be relatively less affected (De Waal & Tumushabe, 2003). This disparity in impacts can lead to increased exploitation of labour of the most vulnerable, such as benefiting from cheap labour provided by orphans or widows.

HIV/AIDS and the role of the agricultural sector

At the beginning, the AIDS epidemic was primarily defined as a health problem. Funds mobilized to combat HIV/AIDS have therefore been almost entirely spent on biomedical issues and prevention (Collins & Rau, 2000). The HIV/AIDS arena has been widely perceived as being the mandate of the Ministry of Health. Hence, it is not surprising that other ministries, such as the Ministry of Agriculture, are reluctant to enter.

However, the agricultural sector has a clear role to play in preventing the spread of HIV, caring for people living with AIDS, and alleviating the socio-economic impacts of the epidemic. An important role of the agricultural sector in reducing the spread and impacts of HIV/AIDS is to contribute to poverty alleviation in rural areas (Wiegiers, 2004; Jayne *et al.*, 2006). Poverty is a key factor in exposing people to the risk of HIV infection. It exacerbates HIV transmission through transactional sex and inferior health care. Rural poverty combined with limited employment opportunities in rural areas puts households at risk by forcing their members to search for employment at commercial farms or in urban areas. The subsequent long separation from the family increases the likelihood

that migrants engage in casual and unprotected sex. Furthermore, poverty-linked malnutrition contributes to an earlier onset of AIDS and increases the likelihood of opportunistic infections. Moreover, poverty affects the ability of households to withstand the socio-economic stress caused by the disease.

Agriculture is crucial to poverty reduction, as it is the economic heart of many poor countries. It is the most likely source of significant economic growth and growth in agriculture mostly benefits the poor. According to the UK Department for International Development (Anon., 2003c), research has shown that a 1% increase in agricultural yields corresponds with a reduction of the percentage of people living on less than 1 US\$ a day with 0.6 to 1.2%. This implies that substantial resources should be allocated to the agricultural sector in order to increase the likelihood that agricultural policies can achieve their original objectives despite HIV/AIDS (Gillespie & Kadiyala, 2005). It also entails a responsibility for the sector to assist affected rural households to recover and achieve a degree of self-sufficiency (Anon., 2003a). For these households, conventional agricultural programmes might be less effective, especially those that are labour-intensive and entail a relatively long period to realize a return on investment, as affected households face severe labour and capital constraints and are in need of quick financial support.

Another key role of the agricultural sector in the fight against HIV/AIDS is that of enhancing food and nutrition security. The AIDS epidemic has impacted seriously the ability of rural households to access sufficient and nutritious food by reducing household food production, decreasing its food purchasing power, depleting household assets and exhausting social networks (Barnett & Whiteside, 2002). Food shortage renders people vulnerable to adopting risky survival strategies like transactional sex. Furthermore, proper nutrition for people living with AIDS helps to strengthen their immune system more effectively, manage opportunistic infections and respond to medical treatment, and it contributes to slowing the progression of the disease (Castleman *et al.*, 2003). The role of the agricultural sector would thus be to enhance access to a variety of nutritionally adequate foods and to provide targeted and temporary relief support for vulnerable and affected households that can no longer provide sufficient food by their own means. The sector could support nutritional management of HIV/AIDS-related illnesses by helping infected individuals and their households to maintain optimal food intake.

The agricultural sector can also contribute to the dissemination and proper use of antiretroviral (ARV) drugs. As a result of years of legal action and civil society activism, the coverage of antiretroviral treatment (ART) in Sub-Saharan Africa is increasing. According to the World Health Organization (Anon., 2006) more than 800,000 people (or 17% of the people in need) received ART by the end of 2005; an increase of 15% compared with the end of 2003. ARVs reduce viral loads and may improve the nutritional status of people with AIDS, but can also lead to further nutritional needs and dietary constraints. For example, some ARVs are to be taken with food, other ones on an empty stomach and for yet other ones certain foods are contra-indicated. Certain ARVs reduce nutrient absorption and may require specific nutrient-rich foods or nutrient supplementation; and other ones cause side effects that affect the consumption of food, whereas some side effects can be managed by specific food responses (Castleman *et al.*, 2003). In order to ensure efficacious ART, information and technical guidance on proper drug and food management are required. However, for many rural households with AIDS patients,

providing information is not enough, as food insecurity and meagre financial resources limit their capacity to comply with the specific food requirements. For these households, ART needs to be part of an integrated approach that focuses on strengthening food and nutrition security and assistance with food rations and supplements

Last but not least, the agricultural sector has an important role to play in enhancing gender equality, since gender inequality is one of the main driving factors behind the epidemic. It puts women at greater risk of HIV transmission and increases their vulnerability to the impacts of the disease. Women are the backbone of food production systems in most high-impacted countries, although their contribution is undervalued and affected by unsupportive policies. In many parts of Sub-Saharan Africa, men traditionally control and own most of the resources whereas women gain user rights through marriage. Upon the death of their husband women are often denied access or user rights of resources (including land) or lose them to their in-laws through property grabbing. As a consequence, many women are left destitute and survive by selling their body for food or money (Jayne *et al.*, 2004). So land reforms are needed that would allow women to inherit property and formally recognize women's land tenure rights and commitment to their implementation. This would not only reduce the likelihood of women adopting risky behaviour but also allow widows to sustain income and food security and obtain access to credit services.

Status of agricultural sector responses to HIV/AIDS

Since the mid-1990s, governments in high-prevalence countries in Africa began extending AIDS-focused health interventions through government agencies (Gavian *et al.*, 2006). Presently, most countries in southern Africa have adopted national strategic frameworks for HIV/AIDS, though most of these focus more on health and prevention than impact mitigation. As part of such national strategic frameworks, various national line ministries are developing sector-specific strategies. The response from the agricultural sector has been slow, despite the fact that more than two-thirds of the people in the most affected countries depend on agriculture for their livelihoods (Anon., 2003a). In several countries, agricultural ministries have developed workplace policies to educate staff on the disease, provide assistance to HIV-positive staff, and install HIV/AIDS focal points within their organizations. Few countries, however, have accommodated HIV/AIDS within the service provision of the agricultural sector by developing agricultural strategies on HIV/AIDS and/or altering agricultural policies and programmes to take HIV/AIDS into account (see Table 2). Exceptions are the Botswana and Malawi governments, which are implementing agricultural sector strategies for different mitigation areas. In absence of a comprehensive response from the agricultural sector, civil society organizations working in rural areas have taken the forefront.

Much of the failure of the agricultural sector to respond actively to HIV/AIDS has to do with a lack of capacity, a lack of political will and commitment, and financial constraints. HIV/AIDS and its interactions with gender and food security at the household level are still poorly understood by many agricultural staff. Whereas general awareness of HIV/AIDS has increased, this is not the same as having specific knowledge about the relevance of HIV/AIDS for agriculture and the potential role of the sector in the fight

Table 2. Status of accommodating HIV/AIDS within the service provision of Ministries of Agriculture in selected high-impacted countries in southern Africa.

Country	Status
Botswana	The Ministry of Agriculture adopted an AIDS strategy in 2002. Priority areas are: staff training on AIDS awareness, counselling, peer educators and the links between food security, nutrition and AIDS; behaviour change in rural communities; supporting poverty relief efforts and implementation of food security programmes particularly as they relate to the empowerment of rural women; support of affected families especially those catering for orphans; enhancing income generation through capacity building; support farmers with AIDS and their families to access funding for income generating projects.
Lesotho	The Ministry of Agriculture has not developed an AIDS strategy.
Malawi	The Ministry of Agriculture has developed a sector-wide AIDS strategy for 2003–2008. Its eight pillars include: (1) gender and AIDS mainstreaming, (2) income generation support to enhance economic empowerment, (3) community-based support, (4) food and nutrition security for vulnerable households, (5) human resource protection, (6) workplace support, (7) AIDS communication, and (8) AIDS action research.
Mozambique	The Ministry of Agriculture has not developed an AIDS strategy.
Namibia	The Ministry of Agriculture has not developed an AIDS strategy.
South Africa	The Ministry of Agriculture has not developed an AIDS strategy.
Swaziland	The Ministry of Agriculture has not developed an AIDS strategy.
Tanzania	The agricultural line ministries developed an agricultural sector AIDS strategy in 2006. However, no budget has been allocated to implement it. The priority areas included in the strategy are: (1) support to orphans, (2) empowering rural widows and female-headed households, (3) labour-saving technologies, (4) increasing available income and assets, (5) improving food and nutrition security, (6) strengthen social community support, (7) preventing property grabbing, (8) staff capacity, and (9) action-oriented impact research.
Zambia	The Ministry of Agriculture has not developed an AIDS strategy.

Sources: adapted from Wiegiers (2004); Anon. (2006a).

against HIV/AIDS. HIV/AIDS is unlikely to be addressed if decision-makers do not clearly understand the linkages or lack the capacity to accommodate these in their work.

Little political support and commitment is also constraining the agricultural sector to contribute to the fight against HIV/AIDS. In general, many of the HIV/AIDS-related activities within ministries of agriculture are carried out by HIV/AIDS focal points that tend to be situated within 'soft' rather than within technical units, like the human resources department in the case of Zambia (Topouzis, 2003). The focal points receive little support and often no budget is allocated for HIV/AIDS. A general lack of empirical data on the depth and extent of the impacts of HIV/AIDS on agriculture has made some politicians doubtful about the need for the agricultural sector to respond to HIV/AIDS impacts (Anon., 2006b). To date, only few empirical studies have been undertaken on the impacts of HIV/AIDS on, for example, the structure of the agricultural sector, different cropping systems, costs of inputs, technological changes, and supply and demand for agricultural products to guide policy-makers (Jayne *et al.*, 2006). Furthermore, many of the impacts noted at the household level are not visible at the macro level. Unless more empirical data on interactions between HIV/AIDS and agriculture become available, agricultural policymakers will continue to be reluctant to respond proactively.

However, lack of data and political commitment are not the sole reasons why the response of the agricultural sector is falling behind that of other sectors. Many agricultural ministries are facing severe financial constraints on implementing even most of the conventional agricultural interventions. HIV/AIDS-related costs of funerals and staff replacement further deplete the scarce funds earmarked for agricultural service provision.

Conclusions

The AIDS epidemic is impacting the agricultural sector at different levels and will continue to do so for the coming years. Given the heavy reliance of the rural poor on agriculture in the most severely affected countries, an active response from the agricultural sector is imperative. Although there is no magic bullet in the fight against the epidemic, the agricultural sector has a crucial role to play in addressing underlying structural causes. To date, the agricultural sector in Sub-Saharan Africa has failed to respond actively to the AIDS epidemic. Besides developing internal workplace policies and appointing low-key HIV/AIDS focal points within ministries of agriculture, few countries have in fact altered their agricultural policies and programmes to accommodate HIV/AIDS. The slow response from the agricultural sector stems primarily from a lack of capacity and political will. There is also a lack of empirical data on HIV/AIDS and agriculture linkages to convince as well to guide agricultural policymakers. This adds to the low political commitment to accommodate HIV/AIDS within the service provision of ministries of agriculture. Moreover, macro-level impacts are unclear and many of the socio-economic impacts witnessed at micro level do not lend themselves to econometric modelling.

In order for the agricultural sector to be at the forefront in reducing the spread and impacts of HIV/AIDS in rural areas, systematic empirical data collection at both micro and macro level should be supported. Furthermore, continuing (re)allocation of resources to the sector is needed to increase the probability that agricultural policies can achieve

their original goals despite HIV/AIDS and to assist affected rural households to recover and achieve a degree of self-sufficiency.

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