
HOW TO RAISE THE PRODUCTIVITY OF AFRICA'S SMALL-SCALE FARMERS

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ABSTRACT

Small-scale farmers produce a big chunk of the food grown in Africa and they are also in the majority. They play a vital role in most economies of Africa. These merits notwithstanding, the productivity of most small-scale farmers in Africa is low. They also face peculiar challenges, which must be addressed to boost their productivity. There are also new opportunities that small-scale farmers need to take advantage of. This paper discusses all these issues and conclude with a set of recommendations on how the productivity of small-scale farmers can be raised in Africa.

Keywords: Small-scale farmers, productivity, opportunity, challenges, and Africa.

1. INTRODUCTION

Africa's small-scale farmers produce about 75 to 90 percent of the food consumed in Africa (Food and Agriculture Organization, 2018a). They are mostly subsistence farmers, who cultivate an average of less than 2 hectares per farmer. Small-scale farmers operate under various cropping and livestock production systems. They grow mainly cereals, root and tuber crops, leguminous crops, vegetables and cash crops as well as livestock animals and poultry. They can be found in all the five agro-ecological zones in Africa (arid, semi-arid, sub-humid, humid and highlands). Small-scale farmers constitute an important segment in the economies of Africa as they help in addressing food and nutrition insecurity, unemployment, whilst ensuring social and economic cohesion on the continent. Characteristically, these farmers practice low or no-input farming systems, as they utilize little or no inputs such as fertilizers, improved seeds and animal feeds, medications as well as agro-chemicals such as pesticides and weedicides in the production of various agricultural crops, livestock animals and poultry. Their farming systems therefore align very much with agro-ecology or what researchers describe as "organic by default". As a result of the use of little or no inputs of modern agriculture, their outputs are relatively very low. For example, the yield outputs of maize per hectare in small-holder farming system in Africa is about half of that produced on other continents. The yields of other crops such as rice are even much lower (African Union Commission, 2008). Research undertaken by FAO (2003) has revealed that much of the yield gains achieved in recent decades has been by an increase in the acreage of land cultivated and not in yield outputs. This approach has been found to be reaching its limits. This limitation, notwithstanding, small farmers constitute an important segment in the agricultural sector in Africa. An improvement in the yield productivity of small-scale farmers in Africa is one of the surest route among others, in achieving self-sufficiency in food on the

continent. This need has been recognized long ago, but efforts to address it, has yielded very little fruits.

Africa is yet to achieve self-sufficiency in food. A large chunk of its food is imported from other continents. It is estimated that about 35 to 40 billion US dollars are spent annually in Africa to import food items (Arment, 2020). Some of the food can be conveniently produced on the continent. However, the cost of production is much higher and therefore, it is cheaper in some cases to import food from elsewhere than to grow them in Africa. This is a challenge that can be squarely met with an improvement in the productivity of Africa's small-scale farmers.

In this article, the opportunities and challenges facing small-scale farmers in Africa would be described and an attempt would be made to suggest measures that can be deployed to enhance the productivity of small-scale farmers; as Africa strives to achieve self-sufficiency in food.

2. OPPORTUNITIES FOR SMALL-SCALE FARMERS IN AFRICA

The rising population growth offers a unique opportunity for small-scale farmers to increase their productivity and help meet the increasing demand for food. It has been estimated that Africa's population would increase from the current 1.25 billion to 2.5 billion people by 2050 (The Economist, 2020). With more mouths to feed, it is projected that food production needs to increase by 70 percent to meet the requirements emanating from the growth in population (Food and Agriculture Organization, 2009). Such a projection, has made it imperative for the productivity of small-scale farmers to be increased. With the growth in demand for food, small-scale farmers would have a ready market for their produce. This can then spur them on to produce even more food for the market.

The inherent potential of crops and animals are being enhanced through science and innovation decade after decade. The yield potential of many cultivars of crops and breeds of animals have been improved significantly over the years. Yet, most of these innovations and scientific discoveries coming from the National Agricultural Research Systems (NARS) and the CGIAR centers, hardly reached small-scale farmers. In many instances, the problem is as a result of weak linkages among researchers, extension workers and farmers. If the linkages among actors in the agricultural value chains in Africa can be effectively bridged, the productivity of Africa's small-scale farmers can be enhanced remarkably.

The advancement of information and communication technologies (ICT), internet and other technologies have opened new avenues for the productivity of small-scale farmers to be enhanced. It is now possible in many countries of Africa to share modern farming and animal husbandry methods, techniques and practices as well as market information, including prices of farm produce and weather conditions in real-time with farmers using smart phones. If the deployment and adoption of these technologies grow as expected, it can greatly increase the productivity of small-scale farmers in Africa.

The current COVID 19 pandemic has brought to the fore the importance of local small-scale farmers in the food supply chain in the world (Mckinsey & Company, 2020). With many food supply chains, having been disrupted by the pandemic, it has taken local farmers, especially the

small-scale ones in Africa to feed Africans. Furthermore, it has opened up increased market opportunities to them.

The importance of farmers in Africa, including small-scale ones has been recognized by the political leadership in Africa. Consequently, in many African countries, increased financial and material resources are being channeled to the sector, for its growth and development. In many African countries, agriculture constitutes the backbone of the economies and the contribution of farmers, especially small-scale ones, to the sector is being increasingly recognized.

The coming into force of the Continental Africa Free Trade Area has thrown open vast opportunities for market access for small-scale farmers, food exporters and importers in Africa. This free trade area has a population of 1.25 billion people and a combined Gross Domestic Product of over 2 trillion US Dollars (United Nations Economic Commission for Africa (UNECA), 2019), and countless goods and services, including food that can be marketed within it.

3. CHALLENGES FACING SMALL-SCALED FARMERS IN AFRICA

Majority of the small-scale farmers in Africa are poor and they lack the financial resources to purchase improved and better inputs for their farms. The lack of application of modern methods of farming leads to low outputs for many small-scale farmers in Africa. The cycle of low-inputs-leading-to-low-outputs and its attendant poverty is a perennial challenge to many small-scale farmers in Africa that needs to be broken.

The concept of farming as a source of livelihood to small-scale farmers and not as a business venture, from which worthwhile outcomes and returns can be expected, is another challenge Africa is grappling with. This leads to subsistence farming system, with little or no aspiration to increase food production to better their lot. Illiteracy is a key contributor to this negative cognitive inclination. Small-scale farmers in Africa therefore need to be educated to see farming as a venture from which good money can be made.

Most of Africa's soils have been rendered unproductive as a result of decades' of cultivation without the needed replenishment either organically or by application of inorganic fertilizers. The soil microbiome, developed through a collaboration between Ginkgo Bioworks and Bayer, (Joynbio, 2020), as well as an integrated soil fertility management (Tadele, 2017) can help address this challenge.

As a result of the subsistence farming practiced by many small-scale farmers, many cannot meet volume requirements of farm produce demanded from buyers abroad, where better prices can be paid to them. Consequently, many small-scale farmers in Africa are often restricted to their local markets in selling their farm produce.

Lack of or inadequate access to affordable credit facilities and loans has been an age-long problem for small-scale farmers in Africa. Many small-scale farmers require loans or credit facilities but cannot meet the collateral demands of financial institutions. As such, they are denied funds to expand their farms and increase their production.

4. HOW TO INCREASE THE PRODUCTIVITY OF SMALL-SCALED FARMERS IN AFRICA?

To increase the productivity of small-scale farmers in Africa, they must be provided with better farming inputs such as improved seeds, fertilizers, animal feeds, medications, irrigation and mechanization services, agrochemicals and soil microbiomes. For example, modern technology such as the use of soil microbiome, which does not require nitrogen fertilizer application in crops such as maize, wheat and rice as well as grass pasture (Joyntbio, 2020) should be adopted. This technology enables nitrogen to be fixed in the roots of the afore-mentioned crops from the atmosphere. It is an environmentally friendly approach to farming, as water bodies and soil water do not get polluted by fertilizer application. Perhaps, what needs to be tackled is the associated increased nematodic infestations of the roots or rhizomes that fix nitrogen, as pertains in leguminous crops. Furthermore, it renders the adoption of a maize-legume crop rotation system unnecessary, because the maize can fix nitrogen in the soil by itself. Where the country can afford it, these inputs should be given to farmers via smart subsidies or at no cost to them. In the latter situation, it should be made mandatory for all farmers in the country to use the improved farming inputs supplied by the government and or development partners. These inputs should be made available before the farming season commences, so that farmers can adequately prepare their farming fields before the rainy season begins. Farmers should also be taught how to effectively and efficiently use these inputs by agricultural extension service providers. These providers can disseminate information on better farming and husbandry practices to farmers in person, on radio or via SMS on smart phones. Evidence gathered by the Precision Agriculture for Development (PAD) (2014) revealed that in Kenya, advisory services provided to farmers through SMS in the sugar cane sector resulted in 11.5 percent increase relative to the control group that received no messages.

Where it is feasible, the Farmers Field School concept, advocated for by the Food Agriculture Organization of the United Nations can also be introduced (Food and Agriculture Organization, 2018b). Under this system, a group of farmers are trained to farm better, who in turn share the knowledge they have gained to other farmers in their communities.

The possibility of assisting small-scale farmers in Africa with irrigation facilities, so that they can produce food all-year-round needs to be given urgent consideration. In localities, where there are water bodies to facilitate the provision of irrigation services, such facilities should be provided to small-scale farmers and they should be made to pay for the services either in kind or in cash. Similarly, mechanization services should be made available to small-scale farmers to enable them produce more food for Africa. Farmers in cooperatives and farmers' associations in Africa can be loaned money to purchase agricultural machinery for a group of farmers in a locality or community, so that these services can be offered to them, as and when needed, at a subsidized fee.

The research and extension systems should also be adequately resourced so that they can continue to make available high-yielding, drought or flood-resistant, and disease-resistant varieties or cultivars of crops, soil microbiomes, better breeds of animals, improved agronomic and husbandry practices to farmers. Regular field days should be held, where farmers are

introduced to modern techniques of farming by researchers and extension workers. Joint research planning meetings between research and extension workers on one side and farmers on the other, so that farmers' problems can be made known and addressed through research. The research outputs can then be disseminated to farmers by extension workers. The agricultural extension system in Ethiopia is worth-emulating, where to every farming village, three extension workers for soils, crops and livestock are posted. This approach has consistently produce superior results for the agricultural sector in Ethiopia since its introduction.

The organization of farmers into cooperatives (Mckinsey& Company, 2019) is also worth considering, as it enables farmers to receive or purchase farming inputs in bulk, which can be obtained at reduced prices because of larger volume purchases. These cooperatives can also be an avenue for marketing the farm produce of small-scale farmers locally and abroad. The latter will be possible, because volume requirements of buyers and other market intermediaries of farm produce can be met. This is a marketing system that an individual small-scale farmer cannot enjoy. Generally, market access is a challenge for small-scale farmers in Africa and this needs to be addressed. It should be possible for small-scale farmers to market their farm produce regionally and continentally with the coming into force of the Continental African Free Trade Area. This is a vast area market-wise and should be a good avenue for small-scale farmers to come together using existing farmers' associations at the national, regional and continental levels to market their farm produce. National governments may need to encourage small-scale farmers, by purchasing their farm produce at competitive prices for National School Feeding Programmes for school pupils and patients in the health sector in Africa. The Commodity Exchange system and the Warehouse Receipt system can greatly help small-scale farmers access regional and international markets with their farm produce. The latter system would enable small-scale farmers wait for an opportune time, when market prices are excellent, before they sell their farm produce.

Another concept, very much entrenched in Ghana is where, a nucleus farm (GOPDC, 2020) such as the Ghana Oil Palm Development Corporation (GOPDC) is linked to several individual and small-scale oil palm farmers, who supply the nucleus farm with their oil palm fruits. These fruits, together with that from the company's plantation are then processed at the company's oil palm processing plant for export. The small-scale farmers benefit in the sense that they are introduced to modern methods of oil palm production, including receiving improved oil palm seeds or seedlings and modern agronomic practices from the nucleus farm as well as a channel for selling their oil palm fruits.

Small-scale farmers in Africa are confronted with unacceptably high post-harvest losses. It is estimated that food waste and post-harvest losses cost Africa about four billion US dollars annually (Sheahan and Barrett, 2017). Majority of these losses are from small-scale farmers, who have limited or no proper treatment and storage facilities for their farm produce. Small-scale farmers need to be taught simple and economical ways of storing their farm produce such as the use of locally made cribs. Curtailment of post-harvest losses would not only save small-scale farmers' money, but it would also ensure that they are able to put more food on the market to meet the growing food demands of Africans.

Yet another area that would be required for the growth and sustainable increase in productivity of small-scale farmers, is agro-processing and the establishment of agri-business enterprises. This development would not only create jobs for the teeming African youths, who are jobless, but would also ensure that whatever gains in productivity at the farm level is not made to go waste. Budding entrepreneurs should be encouraged to step in and create the needed agro-processing facilities and agri-business enterprises. It has been noted that this is an area where massive investments should be channeled to grow the economies of African countries, which are agriculture-based. It is also worth emphasizing that the productivity of small-scale farmers in Africa cannot be sustainably enhanced without investment in allied agri-industries.

Provision of affordable loans and credit facilities can greatly help small-scale farmers to purchase much needed farming inputs. This is an area that development partners working in concert with national governments can help address. Small-scale farmers can expand their hectares of land cultivated, if they are provided with cheaper and affordable credit facilities, grants or loans.

5.CONCLUSION

It is abundantly evident from this discourse that small-scale farmers play an important role in the economies of majority of African countries as food providers, livelihoods creator and as a source of foreign currency earnings for Africa. However, these farmers face unique challenges, which if well addressed, would enable them to take advantage of the vast opportunities that currently exist in Africa and the world at large. It is a must that the productivity of these farmers is enhanced, so that they can continue to play greater roles in Africa, as the continent marches forward in its bid to achieve economic emancipation.

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