



Written Testimony of Dr. Thomas Jayne

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“American Investment in Global Food Security”

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Mr. Chairman, Ranking Member Peterson, members of the Committee, thank you for holding this hearing today on the Next Farm Bill and the Future of International Food Aid and Agricultural Development. I appreciate the opportunity to provide testimony on US Agricultural Development efforts and its potential to sustainably promote food security, rising living standards, the development of markets and trade, and more stable and secure nations in developing regions around the world.

I am Thomas Jayne, University Foundation Professor of Agricultural, Food, and Resource Economics at Michigan State University and Co-Director of the *Alliance for African Partnership*. Much of my statement today will reflect policy recommendations which appear in a brief that I co-authored, in work that the Farm Journal Foundation commissioned and released earlier this year, on the subject of human and institutional capacity-building for African agriculture and its benefits to the United States. Two other policy briefs were also commissioned and released by the Foundation earlier this year on the topics of agricultural research and agricultural trade technical assistance. These papers were commissioned to provide recommendations on how US agriculture can more effectively improve living standards in developing areas while simultaneously benefitting US agriculture and agribusiness more generally. Fundamentally, I believe that these three briefs demonstrate the great value that US investments in agricultural development provide to the American people, and that US Agricultural Development and Research investments should continue to be fully funded.

In this written testimony, I will first provide evidence that agricultural growth in Africa accelerates broad economic growth and represents a win-win for both Africans and Americans, especially US farmers and agribusiness. Second, I argue that in order to capitalize on these win-wins for the US and for Africa, US development assistance needs to emphasize the sustainable development of African agricultural institutions – the same types of organizations that US farmers benefited from so greatly in our own country. Third, I provide some specific recommendations to enable US development assistance to effectively achieve these win-win outcomes.

Promoting agricultural development in Africa is in the US national interest.

US investments in development builds markets and trade, contributes to rising living standards, promotes stability, and creates win-wins for host countries and US interests. According to USAID, 43 of the top 50 consumer nations of American agricultural products were once US foreign aid recipients. One of these countries, Indonesia, has gone from being the largest recipient of USDA food assistance just ten years ago, to becoming the United States' ninth-largest export market for agricultural, fish and forest products. In fiscal year 2010, the United States exported \$2.3 billion worth of agricultural goods to Indonesia, a six-fold increase over the course of a decade. Similarly, South Korea, once a major US aid recipient is the 6th largest importer of US agricultural products in 2016, importing US corn, meat, and other commodities (USDA).

Africa is going to be the next big growth market for US agriculture and agribusiness. This is because of the region's rapid population growth, income growth, and urbanization. Roughly 70% of Africans are currently engaged in agriculture. But this statistic is declining swiftly as the region develops. Success in promoting agricultural productivity will provide millions of African farmers with more income, which they spend in the local economy, raising the demand for goods and services in the non-farm economy. In this way, and just as it has in Europe and the USA over the past 150 years and more recently in Asia, agricultural productivity growth generates new jobs and new investment in agribusiness and in the broader economy, contributing to a transformed and diversified economy in which the majority of people live in urban areas and are in non-farm jobs.

The data presented in the tables in the Annex shows the following: (1) because of rapid population growth, food imports into Africa are almost certain to continue to rise dramatically; this will especially be the case with continued strong economic growth, as this causes more rapid urbanization and transition of the labor force from farming to non-farm activities; (2) the rate of economic growth in Africa will continue to be tied to the performance of its agricultural sector; and (3) strong agricultural growth in Africa and the broader income growth that it generates, will accelerate the rate of food imports, and most of the main food imported into Africa are crops exported by North American agribusiness. With the exception of South Africa, the region's agricultural exports (mainly tea, cocoa, coffee, cotton, tropical fruits, and cut flowers) generally do not compete with US farmers.

To summarize so far:

1. Agricultural productivity growth is at the heart of Africa's economic transformation. With nearly 75 percent of poor people in developing countries living in rural areas, growth in the agriculture sector has been found by the World Bank, on average, to be at least twice as effective in reducing poverty as growth in other sectors. Over the past 15 years, African governments that have effectively promoted farm productivity growth have enjoyed faster rates of poverty reduction, higher rates of labor productivity in the non-farm segments of

the economy, and a more rapid exit of the labor force out of farming. Because the economies of most African countries still depend largely on the performance of agriculture, public investments in agricultural productivity growth will be an important component of an effective youth employment strategy. Young people between 15 and 34 years of age account for roughly 60 percent of Africa's labor force. Often considered more of a burden than a benefit, Africa's youthful workforce could open up a wide range of economic opportunities in farming, in the downstream stages of agri-food systems and in the broader non-farm economy, with the right mix of policies and public investments toward agriculture.

2. Africa's economic growth is in the United States' economic and national security interests, for the following reasons:
 - Sub-Saharan Africa imports roughly \$45 billion of food products annually – 7 times more than it did in 2000. The region's food imports will continue to rise rapidly, especially if the region continues to develop as it has recently. By 2050, sub-Saharan Africa will contain 2.1 billion people—23 percent of the world's population compared to 12 percent today. Rapidly rising population and incomes in Africa will increase the demand for a safe, affordable, and sustainable global food supply. US farmers and agribusiness can help themselves by helping Africa to meet its rapidly growing food needs, by investing in the region's agri-food systems, and by supporting a sustainable and efficient global food system.
 - Data from USDA's Foreign Agricultural Service confirms that sub-Saharan Africa is one of the fastest-growing regions for U.S. agricultural exports. Looking forward, middle class growth in Sub-Saharan Africa is expected to grow by more than 80 percent by 2022, and will lead all regions, except South Asia, in growth of food sales, which are expected to increase by nearly 60 percent over the next decade. 2016 export figures from USDA show that Nigeria is now the third-largest U.S. wheat market, Angola is the four-largest broiler meat market, and Ghana ranks as one of the top 10 US rice markets.
 - In addition to creating US export opportunities, sustainable agricultural development in Africa also promotes political and economic stability in the region, contributing to US national security. It is increasingly understood that effective US development assistance programs will avert the need for subsequent and more costly military and disaster response expenditures. Ultimately, a country that can ensure adequate food for its people is more likely to be politically stable. Retired military leaders in the US agree. On 27 February 2017, 120 retired three and four-star US military generals and admirals sent a letter to Congressional leadership to share their "strong conviction that elevating and strengthening diplomacy and development alongside defence are critical to keeping America safe."

Toward more effective US Development Assistance Programs

While the evidence is clear that promoting agricultural growth in Africa is in the US national interest, the realization of these win-wins will require that US development assistance is actually effective in promoting agricultural growth. US development assistance must therefore be as effective as it can possibly be to have its desired effects. Fortunately, there is plenty of evidence to guide us. Those who oversee development programs need to recognize how dramatically the socio-economic and political landscape in Africa has changed over the last several decades. There are at least three major differences to be taken into account:

- First, many more Africans today possess job expertise related to agri-food systems, both in the public and private sectors, than 25 years ago. Many were educated internationally, possess valuable technical skills, and can operate effectively in their countries given superior knowledge of local culture and connections with centers of local power. Many are eloquent spokespersons and advocates for African agriculture and are capable of influencing their own governments' investments and policies. An effective US strategy toward African agricultural development will engage African professionals more than in the past.
- Second, African governments increasingly insist that international support be guided to build their own public R&D, extension, and policy analysis institutes. They increasingly disapprove of, and are frustrated by, foreign development funds setting up parallel channels that compete with the mandates of their own public agricultural institutions.
- The US (and westernized countries more generally) are now facing greater competition from very different forms of development assistance, namely from China. China is today investing major economic, political and social capital into Africa to build markets for Chinese business. And it is starting to pay dividends. Each year, China trains over 1,000 prominent Africans in Mandarin, many of whom subsequently travel to China to obtain advanced graduate degrees in various subjects. Upon their return to Africa, these Chinese-trained professionals assume high-level positions in African governments and the private sector, and may look favourably at future alliances and business ventures with Chinese firms, much as US-trained African professionals did in the 1970s and 1980s before their numbers were sharply curtailed starting around 1990. See https://en.wikipedia.org/wiki/Confucius_Institute and <https://en.wikipedia.org/wiki/Hanban> to get an appreciation of the extensive ways in which Chinese educational and development organizations are influencing the political and economic environment in a rapidly growing and developing region that constitutes potentially valuable growth markets for US business.

STRENGTHENING THE US APPROACH: A new model of Technical Assistance

How can US agricultural development assistance more effectively help achieve Africa's agricultural development vision? We know what institutions have helped U.S. agriculture become among the strongest such sectors in the world over the past 150 years— national agricultural research and extension systems (e.g., USDA, extension service), policy institutes and think tanks (e.g., ERS, foundations, institutes), science-based land grant universities producing and extending new technologies and know-how to farmers, agricultural training colleges and vocational schools. Strengthening those same types of institutions in Africa can help to sustainably launch their agricultural sectors as well.

Building agricultural institutions all over the world has entailed three components: talented people with technical skills, facilities (lab equipment, budgets for field trials and other recurrent costs) and operations management.

Of all types of agricultural expenditures, spending on research and development is among the most crucial to growth, yet most African agricultural research systems are woefully underfunded. Their weaknesses constrain the pace of agricultural productivity growth in the region. Asian farmers benefit from the fact that their governments spend over eight times more annually on agricultural R&D on average than African governments. Not surprisingly, the pace of agricultural productivity growth in Asia has eclipsed that of Africa over the last several decades.

And because the benefits of most agricultural R&D investments accrue broadly and cannot be captured by firms investing in them, there is a strong role for sustained support for public R&D. Enhancing the capacity of African public agricultural R&D and extension systems should be a priority area for US assistance.

Unfortunately, little progress has been made over the past several decades in creating African universities and scientific crop and livestock institutes capable of developing improved technologies appropriate for the wide range of African farming conditions. Similarly, little progress has been made to rehabilitate weak national agricultural extension systems. US development assistance has typically addressed these weaknesses by providing grants to international organizations, private development-oriented companies, and international universities, developing alternative modes of technology transfer and extension. A key challenge for US development assistance will be to find cost-effective ways of building the capacity of local institutions—those providing R&D, extension, education, policy analysis, and dissemination—to support agricultural productivity growth and broader economic transformation in the region. To do so, it is necessary to identify the parts of US assistance that are working well, those that aren't, and find ways to improve outcomes.

US development assistance can better leverage the expertise of US Agriculture in this process. The United States has one of the most dynamic and productive agricultural systems in the world. Historians and economists point to the land-grant university system, the US Cooperative Extension Service, the USDA and its Economic Research Service (ERS), and other public agricultural institutions as major drivers of US agricultural growth. The United States is capable

of providing needed leadership and expertise to support the development of strong agricultural institutions in Africa – a precondition for the region’s sustainable development.

Bottom line: We propose that the main thrust of a new approach be to shift the role of US institutions from providing the technologies, services, and answers to equipping African organizations to do so themselves. Over the span of the next one or two decades, this will be the most effective and cost-saving approach to achieving win-win outcomes for African and US interests.

How to develop mutually beneficial partnerships between US development partners and local agricultural organizations

If we are looking to transform Agricultural Development to generate better results, with fewer financial resources, helping African institutions more directly to do more will allow US dollars to go farther. Grantees raise revenues through overhead rates on the grant and enhance preeminent capacity in particular thematic areas. Overhead charges may account for as much as 50 percent of the total value of US grants to some grantees, such as international organizations, universities, NGOs, and private for-profit companies and interests may not align with the grantor’s interest in building capacity to phase out over time.

As a result, capacity building assistance is often less effective than it could be. International universities play an important ‘public goods’ role in producing policy-relevant knowledge and new technologies that can be successfully adapted in developing countries and by discovering emerging trends that shape public discussions on important topics in African agriculture. Continuing this type of work is crucial but should be done in a way that engages local African institutions in the process as equal partners.

US capacity building programs must also consider how to make long-term individual capacity building more cost-effective. The training of scientists with master’s and doctoral degrees at major land-grant universities in the United States costs at least \$65,000 per year when relocation costs, living costs, and overheads are counted. The total cost is five times that of producing MSc graduates through the African Economic Research Consortium’s Collaborative Masters in Agricultural Economics and Extension sandwich program at the University of Pretoria, which may serve as a model for experimentation and replication in other fields. This program allows graduate students from developing countries to get classroom training at the University of Pretoria, but conduct field research for their theses in their home countries under the joint supervision of local and international professors. Where regional demand is sufficient, US universities may also consider providing affordable graduate-level training at overseas campuses in collaboration with one or more African universities.

Stop bypassing local African policy institutes and universities

Few African-led policy institutes or universities have been centerpieces of long-term US capacity building support. Despite some notable successes in recent years whereby US development assistance has built the capacity of local policy research institutes, progress has generally been very limited. The perception that these institutions are weak has effectively sidelined them in policy-oriented grant-making processes. Instead, significant grants intended to assist in developing agricultural policy, monitoring and data generation capacity have been allocated to international organizations that provide important services to local organizations, such as ministries of agriculture, but that devote a small fraction of their budgets to helping African organizations deliver such services themselves.

The task of transforming African agriculture should therefore shift to encouraging leadership from African experts and organizations, even as both international and local players remain involved. It is not an either/or issue but one of achieving the appropriate balance, with dynamic, cooperative partnerships as the foundational principle. Effective US assistance will also recognize that collective action is required to address many types of challenges, such as climate change, sustainable agricultural intensification, and promoting free and fair trade. Currently, development assistance tends to side-step many collective action problems by creating parallel organizations and systems that can be sustained only as long as donor projects remain funded.

The US Congress should consider an approach that more effectively encourages relevant US agencies to recognize the long-term nature of capacity building work in key agricultural institutions in developing countries, and give them the authority to provide appropriate funding and oversight frameworks. It is crucial that US efforts also involve significant investment on the part of the national governments in Africa--they must have 'skin in the game', to leverage US investments, ensure sustainability and bolster national agri-food systems to maintain progress once donor funds are no longer available.

As a response to the global food crisis in 2007–9, several members of the 111th US Congress introduced legislation that would have created a US global food security strategy that included the establishment of a Higher Education Collaboration for Technology, Agriculture, Research, and Extension (HECTARE) Program designed to develop and sustain the education, research, and institutional support for a developing country's agricultural science and education sector. The bill was not enacted into law.

Global leaders committed themselves to addressing global US assistance at a G-8 Summit in L'Aquila Italy in 2009. The United States responded by establishing the Feed the Future program. While comprehensive in a number of areas such as support for women and smallholder farmers, market development, and access to seeds, a strong higher education and human and institutional capacity program is absent.

A single HECTARE-type program has been established, and that one, Innovative Agricultural Research Initiative (iAGRI) is funded at the USAID Mission level in Tanzania. Ohio State leads a consortium of six US universities—Michigan State, Virginia Tech, University of Florida,

Tuskegee, Iowa State—working to build both human and institutional capacity at Tanzania’s Sokoine University. The iAGRI program has been very successful in helping the Tanzanian agricultural sector, and represents an example worth emulating.

Recommendations to consider in the Farm Bill:

- Capitalize on USDA’s extensive knowledge and technical expertise to enhance capacity within (1) local agricultural extension systems working with millions of farmers; working from a local institutional base and (2) policy analysis units in developing nations, especially on SPS technical regulations, trade facilitation, and overcoming barriers to markets. USDA should undertake to develop monitoring and evaluation techniques that are more suitable for the long-term investments and payoffs that are characteristic of institution-building efforts. For instance;
 - The current Farmer-to-Farmer program could be augmented to address intuitional capacity building needs in the areas they are serving, from a local institutional base.
 - Congress could also give USAID the flexibility to offer USDA extension personnel and other agricultural specialists long-term assignments to work with counterpart institutions in Africa. This approach might allow USDA to apply its domestic extension experience internationally to strengthen counterpart African public sector extension systems.
- Expand the Innovative Agricultural Research Initiative (iAGRI) program model established at the University of Sokoine in Tanzania to a multi-country pilot to scale up teaching, research, and extension programs that address organizational development challenges by providing management training and matching local organizations with sister organizations in the US, at a fraction of the cost of training in the US. The iAGRI project represents a unique combination of fostering a range of agricultural institutions within Tanzania, and similar efforts should be encouraged elsewhere in SubSaharan Africa. In addition to costing a fraction of what a US based model costs, the host African institutions provide resources, further leveraging US dollars and building sustainability.
- Open the Cochran Fellows program to training government officials and private sector employees charged with overseeing SPS standards-setting testing and certification of food and agricultural products, with the aim of bringing those efforts up to international standards.
- Bolster funding and flexibility for USDA’s Foreign Agricultural Service, both to expand coverage of agricultural attaché offices in developing countries and to increase the level of expertise in existing offices, in order to better assist US agribusiness firms operating

within developing countries and those development activities requiring agricultural expertise, especially as they relate to trade.

- Create mechanisms to help land-grant faculty members with agricultural experiment station appointments through funding from the Hatch Act to identify and recruit scientists from universities in developing countries to build local programs of agricultural research, extension and market information dissemination.
- Under the current Peace Corps program, create a one- to two-year agricultural specialization program for recent agriculture graduates and faculty from US institutions in partnership with 4-H or Future Farmers of America (FFA) that focuses on strengthening the capacity of agricultural education and extension in developing countries. AgriCorps is a great private US model that could be authorized and supported.
- As some development agencies and private foundations do, mandate lower overheads on grants to international development partners.
- For grants where the lead grantee is an international partner, consider putting greater oversight and direction on the activities of US partners—universities, NGOs, and private development firms—so that their activities directly target capacity building objectives within the grant. In many cases, this will require more intensive official review of grant budgets to ensure that sufficient grant funds are flowing to recipient organizations and that the effort expended by US university staff is devoted to directly supporting particular objectives of the grant. This could apply across USDA programs to ensure more sustainable outcomes and local ownership.
- Where appropriate, require that substantial shares of total project funds be subcontracted to local African partners (perhaps with a minimum threshold) with oversight of how such funds are allocated.
- In addition to ensuring that US assistance contributes to national plans, Congress should consider requiring that to the extent possible, US development assistance be contingent upon financial or in-kind commitments from the host government to ensure mutual ownership and sustainability.
- USDA may wish to build exit strategies into international programs that aim to graduate over time. To do this, USDA should consider mandating that capacity building efforts with national and local institutions be built into requests for proposals, and include appropriate budget lines with milestones. These aspects should be evaluated to ensure that international development partners support national systems rather than parallel ones, and build the capacity needed to phase down US assistance.

- For instance, the McGovern Dole program was authorized in 2002, and includes flexible funding in support of capacity building to facilitate government ownership and support the eventual phase out of US assistance. To further incentivize capacity building and government ownership, we recommend that the House Agriculture Committee consider report language to incentivize better coordination and grantee support to local institutions by making USDA awards contingent on direct capacity building support with clear goals, budget lines and timelines for the eventual graduation of US assistance and hand over of programs to national partners, where appropriate.
- Consider new models of partnership between US and African universities to reduce the costs of educating the next generation of advanced degree holders in Africa. As indicated above, programs such as iAGRI and the African Economic Research Consortium’s Collaborative Masters in Agricultural Economics and Extension may be models to explore. Where regional demand is sufficient, US universities may also consider partnering with African universities to provide affordable graduate-level training at overseas campuses.

Domestically, US Agriculture needs to maintain its comparative edge. After 150 years of investing in Public Agricultural Research, US farmers are the most productive in the world, but China, Brazil and India are catching up and the three countries outspend the US by \$2.66 for every dollar the US spends. To ensure US agriculture maintains its edge in productivity and innovation, we need ensure that we have adequate funding for agricultural research here at home. On the authorizing side, recommendations to consider under the research title to better leverage R&D resources and expertise could include;

- Giving USDA the flexibility to fund basic and applied research projects that are conducted outside the United States by lowering bureaucratic barriers for USDA (and State Agricultural Experiment Stations (SAESs)) engagement in international R&D by amending Section 1402 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977. This would facilitate more work which is beneficial to both U.S. and foreign producers, such as on plant or animal disease, and could also strengthen the collaborative relationship between USDA and USAID on agricultural research, both in terms of research planning and execution.
- Revisit the basis of the formula funds provided for state agricultural experiment stations, putting more weight on the relative values of agricultural production and nutrition as the bases for cross-state allocation. Combined with more stringent state-matching requirements, moves in this direction could strike a balance between federal versus state funding, in which efficient financing principles would call for financing “local” public goods using “local” taxes. This shift could also spur more emphasis on nutrition.

- Create a commodity check-off program or research assessment aimed specifically at generating funds for agricultural research to be managed outside existing US check-offs programs. To make such a program palatable to grower groups, the government could offer matching funds (up to some predetermined limit), thus splitting the R&D burden between check-off programs and general tax revenues. Including other industries that benefit from agricultural R&D in the scheme (such as input suppliers and food processors) would allow for even more agricultural R&D and, if implemented wisely, substantially correct the persistent underinvestment in agricultural R&D.

Conclusions:

The time has arrived for the United States to invest directly in long-term capacity building of African universities, agricultural training colleges, vocational schools, national crop science research organizations, extension systems, and policy analysis institutes. International private companies, universities, and NGOs have important but increasingly redefined roles that put African institutions in the lead. African governments should show greater financial commitment to building the capacity of public agricultural organizations, and innovative cost-sharing arrangements among foundations, international development agencies, and African governments might provide scope for leveraging greater mutual commitment to the development of African agri-food systems.

There are strong mutually shared aspirations in the United States and throughout Africa that could be realized through more effective support for African agriculture. US and African governments share core interests in promoting private investment in African food systems in partnership with local firms and in supporting fair agricultural trade and a sustainable global food system. It is increasingly recognized that African agricultural exports in the majority of cases do not compete with US farm interests and are in most instances highly complementary. Rising farm incomes in Africa promote growth multipliers that expand private investment and employment opportunities in African agri-food systems and more broadly in the rest of the economy. Rising incomes in Africa also promote US export interests. Moreover, sustainable agricultural development in Africa promotes political and economic stability in the region. These are the benefits that would emerge from strong partnerships between African governments, the private sector and millions of African farmers and entrepreneurs supported by enlightened US development assistance programs.

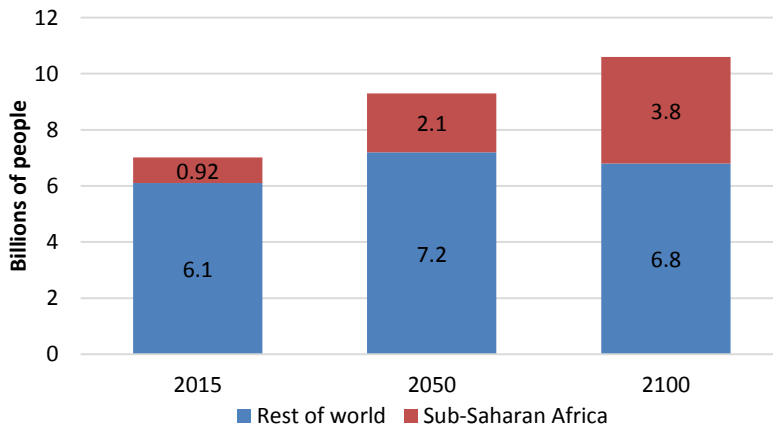
The United States can help the stronger African universities and research institutes to carry out many of the land-grant activities that US universities undertake at home, providing know-how and extension support to farmers and local agri-business firms, and training the next generation of young Africans to contribute to their nations' development. Once enacted, the proposals made here will take time to generate their full impact. This is why there is no time to waste in getting started.

Annex

All three agricultural policy briefs commissioned by the Farm Journal Foundation can be downloaded at the following URL:

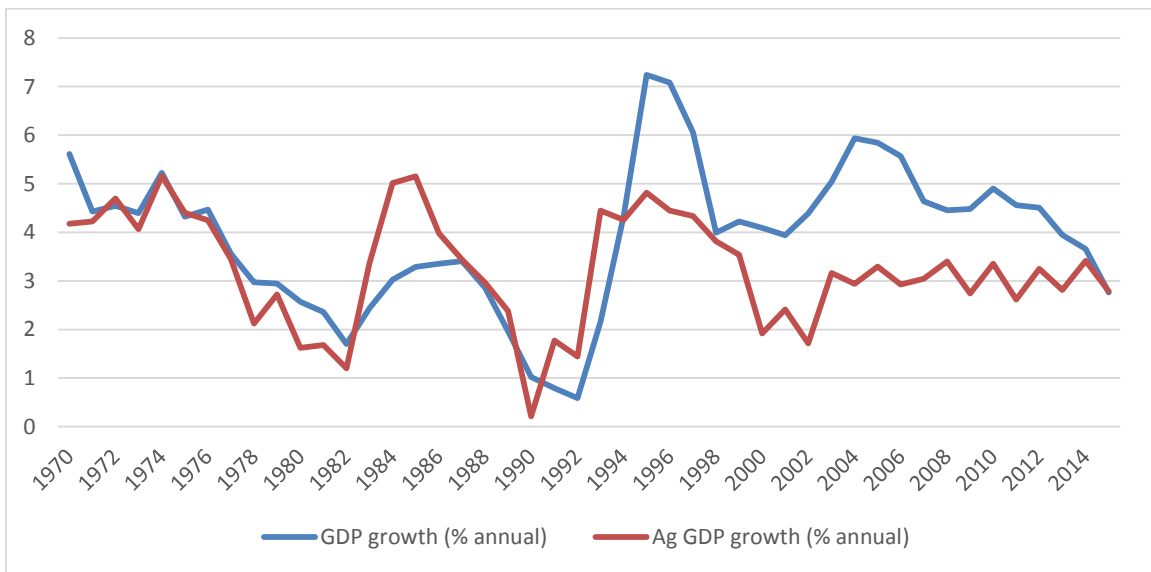
<http://www.farmersfeedingtheworld.org/policy-briefing/>

Figure 1. Sub-Saharan Africa’s share of world population will rise from 12% to 23% to 35% between 2015 to 2050 to 2100



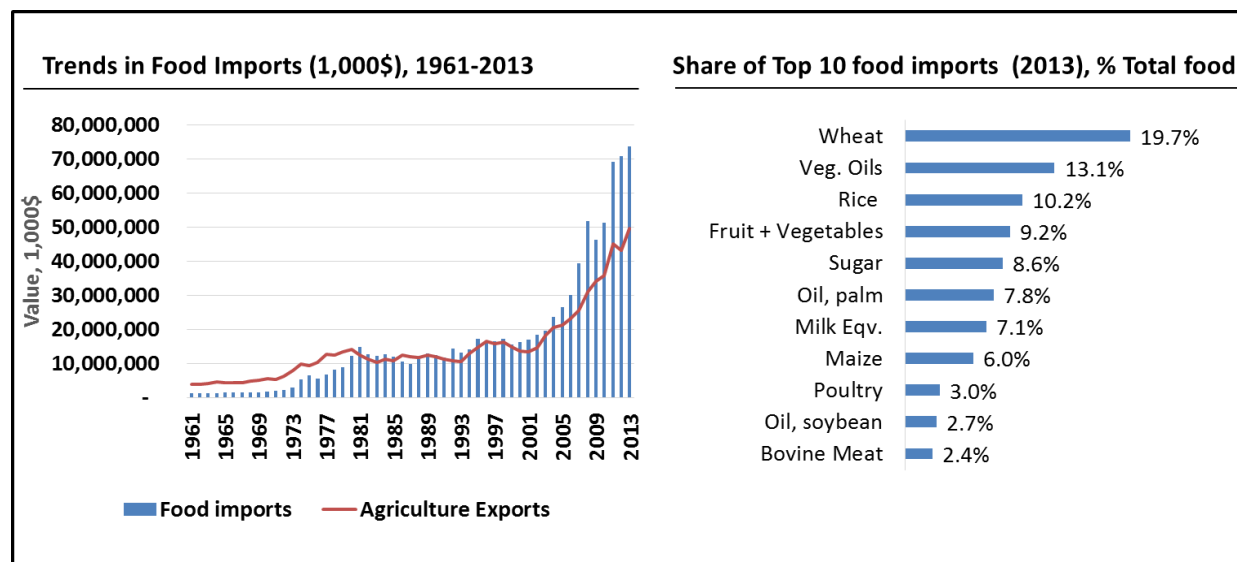
Source: Jayne, et. al., 2017

Figure 2. GDP growth in Sub-Saharan Africa tracks agricultural GDP growth, 1970–2014



Source: ACET, 2017

Figure 3. Value of Food Imports by Sub-Saharan African countries and top commodities imported



Source: ACET, 2017.

Table 1. The top five foods and the top five food imports in Sub-Saharan Africa, by sub-region, 2013

Top five foods	Western Africa	Middle Africa	Eastern Africa	Southern Africa
<i>Consumption</i> Top five foods (by caloric intake)	1. Rice 2. Cassava 3. Vegetable oils 4. Maize 5. Yams	1. Cassava 2. Maize 3. Vegetable oils 4. Wheat 5. Rice	1. Maize 2. Wheat 3. Rice 4. Cassava 5. Pulses	1. Maize 2. Wheat 3. Vegetable oils 4. Sugar 5. Rice
Percent of calories supplied by top five foods (kilocalories per capita per year)	52	50	53	71
<i>Imports</i> Top five food imports (percent of total imports by value)	1. Rice 2. Wheat products 3. Vegetable oils 4. Palm oil 5. Sugar	1. Wheat products 2. Poultry meat 3. Rice 4. Vegetable oils 5. Sugar	1. Wheat products 2. Vegetable oils 3. Sugar 4. Rice 5. Fruits and vegetables	1. Vegetable oils 2. Fruits and vegetables 3. Rice 4. Wheat products 5. Sugar
Top five food imports (percent of total food imports by value)	78	56	74	54
Food imports (percent of total imports by value)	14	12	13	4

Source: FAOSTAT Online, ACET, 2017