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Educating Farmers: The Key to Ethiopia's Future

Have you ever been to a place so different from your home that you had trouble believing what you were seeing? When I visited Ethiopia, I had trouble believing many things that I saw as I traveled through parts of the country. Things were so different there than they were in my home town. Their way of life, culture, people, education, and agriculture were all foreign. I traveled to Ethiopia as part of a four person team from my church to observe schools that had been built by Light of Hope Ministries, an organization that builds schools in rural parts of Ethiopia. They use these schools as a way to spread Christianity and to teach literacy skills. My youth group raised funds to partner with Light of Hope Ministries. While I was in the country, I was able to meet the people of Ethiopia, be immersed in their culture, and observe their way of life. I traveled through many parts of Ethiopia, and was able to observe both rural and urban settings. I saw first hand the impact that the lagging agricultural system has had on the country and the poverty that has resulted. But, I also witnessed that the people of Ethiopia are willing to do whatever it takes to dig themselves out of poverty. Ethiopia is a country in need of a solution for their agricultural concerns. Forty-four percent of Ethiopians are undernourished while 38% of the country's children are underweight for their age (World Food Programme 6). Ethiopia is ranked 170th out of 177 countries on the Human Development scale, a measure of how well a group of people is achieving a level of desirable health and well-being (World Food Programme 3). Per capita, agricultural production on the continent of Africa has declined throughout the past 45 years (Haggblade, Hazell, & Gabre-Madhin 4). Eighty-five percent of Ethiopia's population is employed in agriculture and approximately 45% of their gross domestic product is connected to agriculture (Abduke & Legesse 6). Without an increase in agricultural productivity, Ethiopia's economy cannot grow (Haggblade et al. 5).

Whether Ethiopians work on their own farm producing crops to feed their families or whether they work on another farm to earn money, most of them depend on agriculture to survive. The country is made up of 12 million small scale farmers (IFAD). Half of these farmers have one hectare, which is approximately 2.4 acres, or less of land, on which they may live, raise livestock, and grow crops. A third of these small scale farmers cultivate less than half a hectare (IFAD). With most farmers cultivating small parcels of land that produce low yields per hectare, families in Ethiopia are struggling to survive living on their own land. While these farmers cultivate small parcels of land, the variety of cereal grains produced is numerous. The most commonly produced grain is teff (Encyclopedia of the Nations). Other important grains include corn and barley (Biru). Ethiopians also grow sorghum, wheat, millet, peas, beans, lentils, and oilseed, too. Ethiopian families eat a variety of these grains, if they are available to them.

A visit to the Kokosa district in Ethiopia revealed average families consisting of between six and 10 members. Many had both a mother and father in the home with very limited education. Most were likely to be illiterate and their understanding of basic nutrition was also very limited. The average salary was less than \$50 per month, United States equivalent (Biru). Some were employed in their villages, working on farms. Many were not employed and depended on their land for survival. The main food staples for a Kokosan family were enset and vegetables that grew plentifully in the area. They also drank locally grown coffee. Currently, the ability to improve agricultural productivity in the Kokosa region would be limited because of a lack of education, technology, and limited opportunities for collaboration with other farmers. Opportunities for employment outside of the farm would also be limited due to a lack of infrastructure in these rural areas.

Because food and money are scarce throughout the country, Ethiopian people eat whatever they have available to them. That may include cereals, meat, fruits, and vegetables grown on their land or available at road side stands. In many southern regions, including Kokosa, they eat a banana like plant called enset, also known as false banana plant. The roots of this plant are ground down and then eaten. False banana plant was offered to our group several times throughout our visit to Kokosa. It had a very distinct taste and was not appetizing to our group's American taste buds. For the people of Kokosa, growing enset can be difficult due to difficult circumstances in their region.

Some major barriers exist that prevent improvements in agriculture production that could increase the quality and quantity of available food, such as enset. Severe droughts have occurred frequently over the past few decades causing damage to farm land (Schuler). Without the knowledge of good practices to survive Ethiopia's frequent droughts, farmers will not be able to increase or even maintain their current production. The effects of these droughts are further complicated by the fact that the people of Ethiopia lack the knowledge to resolve conflicts that arise as a result of these droughts and other social issues such as civil conflicts that have occurred in the country. These civil conflicts have caused a destruction of farm land and a shortage of farm labor (Encyclopedia of the Nations). A lack of general education is another significant barrier.

Most people in the country have had very limited formal education and literacy rates are very low. Only 35% of Ethiopians are literate (Schuler). Another issue is that only 15% of Ethiopia's cultivatable land is being utilized (Vidal). Poor infrastructure and a lack of good roads to access educational opportunities and markets also create concerns for rural farmers (Davis, et al.). One of Ethiopia's greatest concerns is extreme population growth. Ethiopians will have to "run faster" to keep pace with food demands due to increased population (Haggblade et al. 12). A great need exists for birth control education. Ethiopians lack the knowledge of both pregnancy prevention and the effects of population growth on their society. A lack of sufficient government agriculture policies and agricultural technologies also contribute to a lack of growth in agricultural productivity.

Education in any form is very limited in Ethiopia. This paper will further discuss the need to invest in education and extension services for improved implementation of agricultural research and technology. Without proper education, Ethiopians face a lifetime of challenges that prevent them from effectively living out their lives. That lack of education creates an illiterate society that cannot prosper. Without basic education, and more specifically an education of good farming practices, Ethiopians will not be able to improve their crop production, which will prevent them from increasing the food available to their families and also frequently, their income. Improving education and the transfer of knowledge to farmers increases productivity (Mellor & Dorosh 6). The ability to use surplus to sell or trade would allow farmers to contribute to the local economy as well as to provide for their own families. It also would create the potential for spill-overs such as cheaper food and an increased economy (Davis, et al.).

The present status of agriculture production on the continent of Africa shows a decline over the past 45 years (Haggblade et al. 4). In the 1990s, yearly growth of cultivatable ground grew by 5.8% but that growth declined to 3.1% in 2009. Some believe a contributing factor to that decline is the effect of global warming in recent years. The good news is that recent trends in the education of farmers show a potential for growth, and in turn, an increase in production. Applying knowledge and technology to increase agricultural output per hectare would require fewer farmers. This would allow people the opportunity to find jobs outside of agriculture, which would also stimulate other parts of Ethiopia's economy.

The present status of farmer education in Ethiopia was reported by Mellor and Dorosh. They stated that smallholder farmers do not have access to agricultural education and that the lack of knowledge leads to

environmental concerns in addition to low productivity (3). They stated that undereducated farmers are known to disrupt wetlands and other land intended for uses other than farming when they attempted to increase production without necessary knowledge (Schuler). The land was degraded and future production compromised. Women farmers were particularly disadvantaged and undereducated. According to the World Food Programme, 50% of Ethiopia's agricultural workforce is women (5), and the literacy rate among those women is only 26.6% (6). Access to education, however, is beginning to increase. Haggblade, Hazell, and Gabre-Madhin reported that the government of Ethiopia recently placed a high priority on expanding and training of extension service staff to better meet the education needs of Ethiopian farmers (24). Davis and her fellow researchers also reported an increase in the availability of farmer field schools. These schools could be the solution to the lack of knowledge among Ethiopian farmers.

Farmer field schools assist farmers in problem-solving and transfer technology, and teach the farmers to become more involved in gaining knowledge about agriculture and information systems (Davis, et al.). Farmer field schools are currently in place in at least 78 countries. Davis's team reported on the success of these schools in Kenya, Uganda, and Tanzania. Many lessons could be learned from the success of these schools. Kenya alone organized 1,000 schools and graduated 30,000 farmers from the program. This study defined the schools as "schools without walls." Learning was done in an informal setting within their own environment. The study showed that the schools were especially beneficial to women with low literacy rates and farmers with medium-size land holdings. The study also showed that farmers who completed farmer field schools from the three countries combined increased their income by 61%.

Farmer field schools have also been established throughout Ethiopia, but these schools are relatively new to the country (Abduke & Legesse 10). The first school in Ethiopia was held in 1999 and was reported to have been successful. Participants increased self-reliance and collaboration among farmers. The focus of that first school was pest management. Another school was held that focused on land and water management. As future schools are held improvements should be made. Future schools should include the need to more adequately address the diversity of agro-ecologies and farming systems that exist in Ethiopia (Abduke & Legesse 6). Schools should also partner with local extension services, agricultural research centers, agricultural colleges, and other agricultural organizations. Collaboration among these organizations could lead to a more comprehensive plan to help farmers succeed. More schools should be held to reach more farmers, particularly in the extreme rural areas.

Another concern to be addressed is the limited supply of experienced facilitators (Abduke & Legesse 9). A comprehensive approach to training facilitators is critical to the success of farmer field schools. For the facilitators to be most successful, they should be local Ethiopian farmers. Learner states that "the most effective food security strategies come from those closest to the problems – not governments or instruction from thousands of miles away". This model has been successfully implemented in the Light of Hope primary schools being established throughout rural villages in Ethiopia. Light of Hope carefully chooses native Ethiopians to be teachers, and then they provide the training necessary for these local people to become teachers. The same model could be effective for training farmers as well. Farmers would listen to and respect a local person rather than an outsider from another country. These teacher farmers could travel around to different villages and teach in multiple areas. These teachers should also be involved in Ethiopian extension services to provide a collaborative effort.

The goal of these expanded schools would be to better prepare farmers to increase their productivity through a proactive approach, helping farmers plan for the future, rather than implementing a reactive

strategy as problems arise. This would include topics such as strategies on how to use research and technology to solve their water scarcity problems. Fodder production is another important topic. Many

farmers currently raise animals but do not have good practices in place to maximize their productivity. Increasing the quality and supply of fodder leads to an increase in milk production and also calf growth (Goedenavond). Land management including crop rotation, manure application, scheduled irrigation, and the application of fertilizers are also critical components to cover within the improved farmer field schools. Farmers need to learn these agricultural practices to ensure the land stays in prime farming condition. The proactive philosophy would also include contingency planning, to help prepare farmers to respond to difficult situations that continually arise (IFAD).

Targeting medium scale farmers who have enough land and farming resources to make an impact on the production would be most beneficial to Ethiopia's economy (Mellor & Dorosh 26). Families with small landholdings have not responded well to attempts to increase productivity in the past due to a lack of land and capital. These families would benefit most from employment away from their farms (6). However, Davis reported that poor and less educated farmers were shown to benefit from participating more than those with more education. Women participants are likely to benefit greatly as evidenced by the existing farmer field schools in Uganda (Davis, et al.). However, getting women to participate was difficult. Women in Ethiopia don't have the same rights as men. Women are not viewed as intelligent and able beings. Their duties consist of taking care of their families, gathering wood, gathering water, and other laborious jobs. Ethiopia does not see potential in women. Ethiopia does not understand that women could help solve their decline in agricultural production. For this reason, it would be beneficial to have separate classes for men and women. This way the women would be able to learn without being limited by social pressure.

The decline of agricultural production in Ethiopia is a complex issue. In addition to the need for education, many other factors exist that contribute to the growing problem. Investments need to be made in several areas in order for education to be effective. Investing in training facilitators is key to the success of these schools. Research is another key investment. The study of each farming region and its specific needs and potential crops will be essential to developing the right approach for the schools. Equipping the farmers with the right technologies for their areas is also critical; however, Mellor and Dorosh believe that cereal yields could be doubled using current technologies with proper education and use of fertilizers (21).

The collaboration of other organizations is essential to the success of farmer field schools. Research centers could provide the expertise on varieties of seeds that are appropriate for each growing region. They could also provide information on new methods of farming as well as information on other problems that have caused a decline in production. As farmers learn new practices, The World Bank could provide assistance to farmers seeking new technologies to implement their new practices. Cooperation and coordination with government extension services is also essential and currently part of the government's agriculture strategy (Mellor & Dorosh 22). Farmer field schools could function within the capacity of extension services that are already in place.

Ethiopians depend on agriculture to survive. Many Ethiopian families live off their farms. Others depend on employment in agriculture to provide for their families. The majority of Ethiopia's economy is linked to agriculture. The decline in agricultural production is symbolic of the decline of the Ethiopian economy. The decline in production needs to be reversed for Ethiopia to have a prosperous future. A strong hope for a bright future exists in Ethiopia as rural families anticipate the difference that education will make for their families through Light of Hope schools being established in their villages. They realize that education is the key to improving their way of life. Farmers can have that same hope through farmer field

schools. By improving knowledge of agricultural practices, production will increase. When production increases, food costs decrease which makes food more affordable for all Ethiopians while raising the

income of farmers (Uphaus). The solution to Ethiopia's agricultural concerns starts with a broad availability of improved farmer field schools. Education is the key to improving Ethiopia's economy and life styles. Farmer field schools need to be created. These schools need to have teachers who are local Ethiopian citizens who have been trained not only on current problems specific to the location, but also who have a holistic view of agriculture, the potential for the Ethiopian economy, and the need for its citizens to move forward.

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