

An Analysis of Youth Migration and Its Impact on Agriculture in Western Kenya and Northern Tanzania

Empowering the Leaders of Today



Christina Allen

2018 World Food Prize Borlaug-Ruan Intern

Burke, Virginia

International Center for Insect Ecology and Physiology

Mbita Point, Kenya

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1. Acknowledgements

I am eternally grateful for the opportunity to intern at the International Center of Insect Physiology and Ecology. Through this experience, I improved my ability to adapt to unforeseen circumstances, enhanced my verbal communication skills, as well as learned how to form and maintain meaningful cross-cultural relationships. Before coming to Kenya, I had no idea how difficult it would be to surmount some cultural differences. I always possessed the mentality that people are more alike than different. While I still believe this, I learned in Kenya that I had to first recognize difference in order to connect over commonality.

In addition, conducting research in Africa taught me the importance of letting go of my preconceptions so that I could have a learning experience that was not bound by what I thought I knew about eastern Africa. I initially struggled with this concept because I often quickly come to conclusions. But, once I realized its importance, I was able to be completely open to the great deal of practical knowledge that was shared with me.

This internship would not be possible without Norman Borlaug, the father of the Green Revolution and founder of the World Food Prize, so I would like to thank him first and foremost for his dedication to improving the lives of people globally by fighting for a food secure planet. He is constantly an inspiration to my work, and his dedication to engaging youth in agriculture has truly changed my life for the better. I would also like to thank John Ruan, Sr. and his family for sponsoring the internship program and ensuring that the World Food Prize continues to flourish. In addition, I would like to express my gratitude to Ambassador Quinn for his

leadership of the World Food Prize and commitment to ensuring that we had a great experience during our internship.

I want to offer a special thank you to Crystal Harris for her endless dedication to coordinating this unforgettable internship and for always being there to answer each and every question that I had.

This opportunity would not be possible without the cooperation of the *icipe* and its staff, so I would like to extend my thanks to the Director General of *icipe*, Dr. Segenet Kelemu for hosting us. In addition, I am extremely grateful to Professor Zeyaur Khan, Charles Midega and Jimmy Pittchar, for your supervision and guidance throughout the research process. I would like to express my deepest gratitude to Matilda Ouma for being a mentor, translator, temporary mother, and for taking every opportunity to immerse me in Kenyan culture. I would also like to thank Aloice Ndiege and Eunice Mumbo for assisting me throughout the research process. I am very appreciative of the *icipe* drivers, especially Salim Juma for carting me around Kenya and Tanzania, allowing me to experience the beauty of the two countries. Next, I would like to thank the hospitality at the *icipe* Guest House, specifically Motari Totari and Michael Obondo for keeping us well fed and comfortable.

I thank all of my family and friends for supporting me on this adventure. I want to thank my father, George Allen, for always encouraging me to take every opportunity availed to me. Thank you to my sister, Chloe, for always being there to talk to. I would also like to thank my mother, Colleen Allen, for letting me travel across the world for two months. I know I was farther away than you would have liked, but it is your example that inspires me to pursue opportunities like this. Finally, I would like to thank God for being there with me at every step of

my adventure. Thank you again to everyone who has supported me in this amazing journey 7,365 miles from home and for inspiring the next generation of hunger fighters.

2. Abstract

Youth rural-urban migration in Kenya and Tanzania is increasingly becoming more prevalent. When youth migrate from rural to urban areas, they may become less engaged in agriculture which endangers the food security in their communities. This study explores the desire of youth to migrate along with the “push” and “pull” factors that influence their migration in order to develop strategies that will provide more opportunity for youth in agriculture. A “push” factor is something that encourages urban migration and a “pull” factor is something that discourages migration. It was found that 56% of youth interviewed wanted to migrate, but even though they would migrate, most would not completely detach from farming. Participants also indicated that subsidizing farm equipment and inputs, availing capital, creating market opportunity, and providing relevant training on farm practices would be the most helpful in retaining and empowering youth farmers.

3. Introduction

1. The International Center for Insect Physiology and Ecology

“The idea was actually very simple, get the very best people and then if you have more money, put buildings and equipment around them.” – Thomas Risley Odhiambo

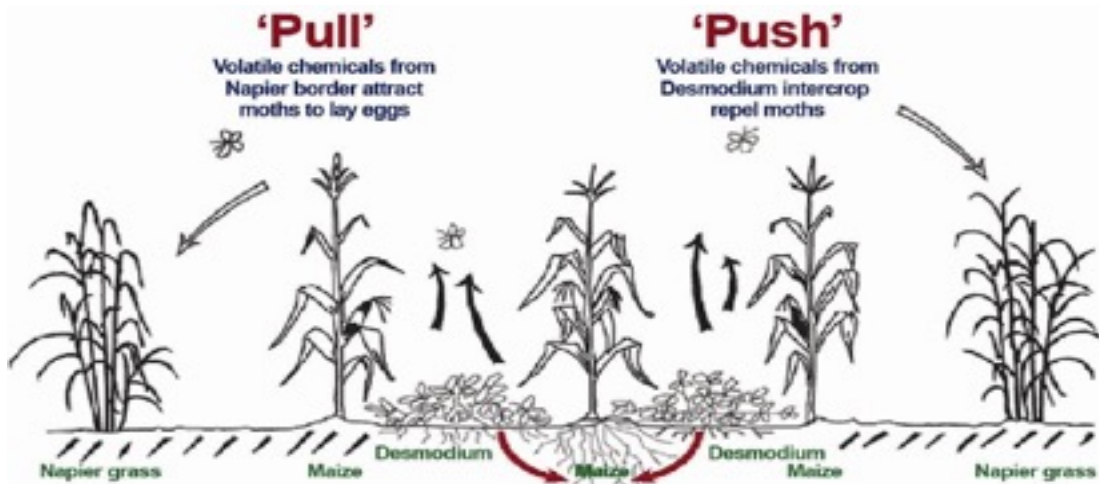
The International Center for Insect Physiology and Ecology (*icipe*) is a multi-national research center based in Nairobi, Kenya. Founded in 1970 by Kenyan scientist Thomas Odhiambo and American scientist Carl Djerassi, *icipe* focusses on how entomology research can

be used to “alleviate poverty, ensure food security, and improve the overall health status of people in the tropics”. *icipe* focusses on entomology in the context of the 4-H research areas: human health, animal health, plant health, and environmental health.

Founded in 1977, the Thomas Odhiambo Campus, located in Mbita Point, Kenya, is home to the ‘Push-Pull’ program as well as several malaria research projects. Every year, 50-70 interns from Kenya and other continents come to this campus to conduct research in entomology, plant health, social science, etc. in world-class facilities with world-renowned researchers.

2. Push-Pull Technology

This project was conducted as part of the Push-Pull program at *icipe*. Push-Pull is a technology that was developed for cereal crops which include maize, sorghum, millet and rice (Push-Pull Technology, www.push-pull.net). The technology addresses striga weed and stemborer infestations as well as poor soil fertility. The technology works by intercropping desmodium plants with the cereal plants which repels or “pushes” stemborers away from the cereal crop. On the perimeter of the field, Napier grass is planted in order to attract or “pull” the stemborers away from the cereal plot. In addition, desmodium combats striga by initiating germination and then terminating growth. Desmodium also is a nitrogen fixing plant and can improve soil fertility which increases yields. In addition to these benefits, Napier and desmodium can be used as fodder particularly for cows to boost milk production. A climate-smart version of



t h i s

technology has been developed that replaces Napier grass with bracharia and Silverleaf desmodium with Greenleaf desmodium that has allowed farmers to adapt to the ever-changing climate in sub-Saharan Africa.

Figure 1; Source: www.push-pull.net

3. Youth Rural-Urban Migration in Kenya and Tanzania

Kenya and Tanzania are seeing a growing trend of migration to urban areas with yearly urbanization rates of 4.26% and 5.22% respectively (CIA World Factbook). More and more rural youth are looking to cities for employment opportunities, as many do not see a future for themselves in agriculture. Youth who want to start farming lack the capital to buy inputs, equipment, and sometimes even land. Youth who have ventured into farming are met with crop failure due to new pests such as stemborers, striga weeds, and fall armyworm as well as climate change that brings prolonged drought and flooding. In the face of these challenges, youth are forced to adapt, and for many of them this means migrating to an urban centers/cities.

The main driver of youth rural-urban migration is perceived employment opportunity in urban areas. In Kenya, between 2016 and 2017, employment grew by 5.6%, with the creation of new jobs in cities (Economic Survey, 2018). Meanwhile, wage employment in the Agriculture

Forestry, and Fishing Sector declined by 1.6% (Economic Survey, 2018). According to the 2009 Kenyan census, youth are also more affected by unemployment. Youth unemployment is 15.8% for 15-19 year old youth and 13.1% for 20-24 year old youth as compared to the overall rate of 8.6% (International Organization for Migration). Western Kenya has already seen significant out-migration as portrayed in the 2009 census. Thirteen percent of all out-migration taking place in the country in 2009 came from Western Kenya (International Organization for Migration).

In Tanzania, urban migration is even more rapid with approximately 33.8% of its population living in urban areas as compared to Kenya's 27% (CIA World Factbook). In Tanzania, many attribute urban migration to rapid population growth that places a strain on resources in rural areas (Wenban-Smith).

Youth rural-urban migration is an important issue to address because when youth migrate, they may detach from farming. This leaves the farm work primarily to older populations that may not be able to handle the workload. Migration also limits the sustainability of farming because if there are more youth in urban areas, urban populations will become overdependent on rural populations for food. Agriculture is the backbone of many East African economies, making up approximately 25% of Kenya's GDP and 50% of their export revenue (World Bank). With the inevitable population boom, it is pertinent that youth maintain an interest in farming so that they can ensure that themselves and their children will be food secure.

This study explored the following overarching questions:

- I. Do Kenyan and Tanzanian youth have the motivation to migrate from rural to urban areas?
- II. What are the social "push" and "pull" factors that motivate youth to migrate?

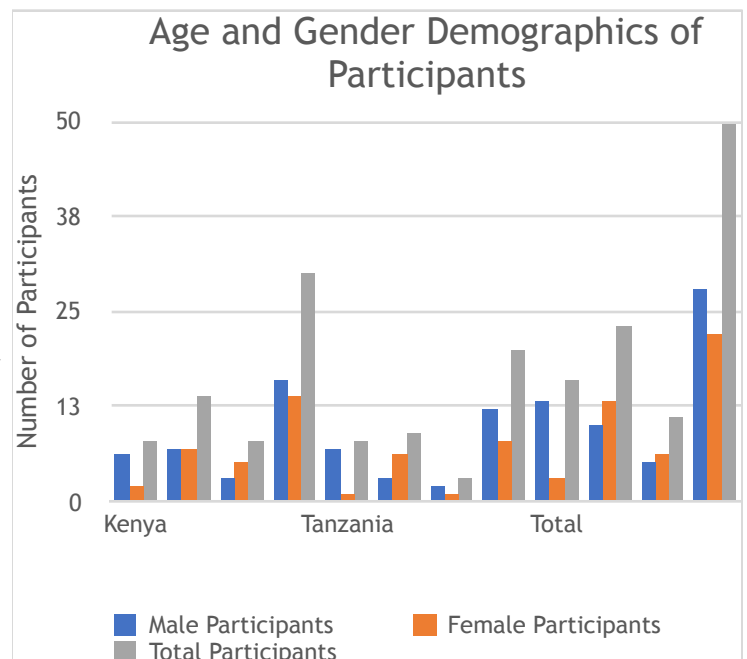
- III. What are Kenyan and Tanzanian youth perceptions of farming and agriculture?
- IV. How do youth think youth rural-urban migration will affect farming in their community?
- V. Where do youth want to migrate?
- VI. What do youth believe the government should do to keep youth engaged in farming?

All of these questions were explored in order to gain a better understanding of youth migration in western Kenya and northern Tanzania so that strategies can be developed that create opportunities for youth to be more successful in agriculture.

4. Methodology

1. Demographics

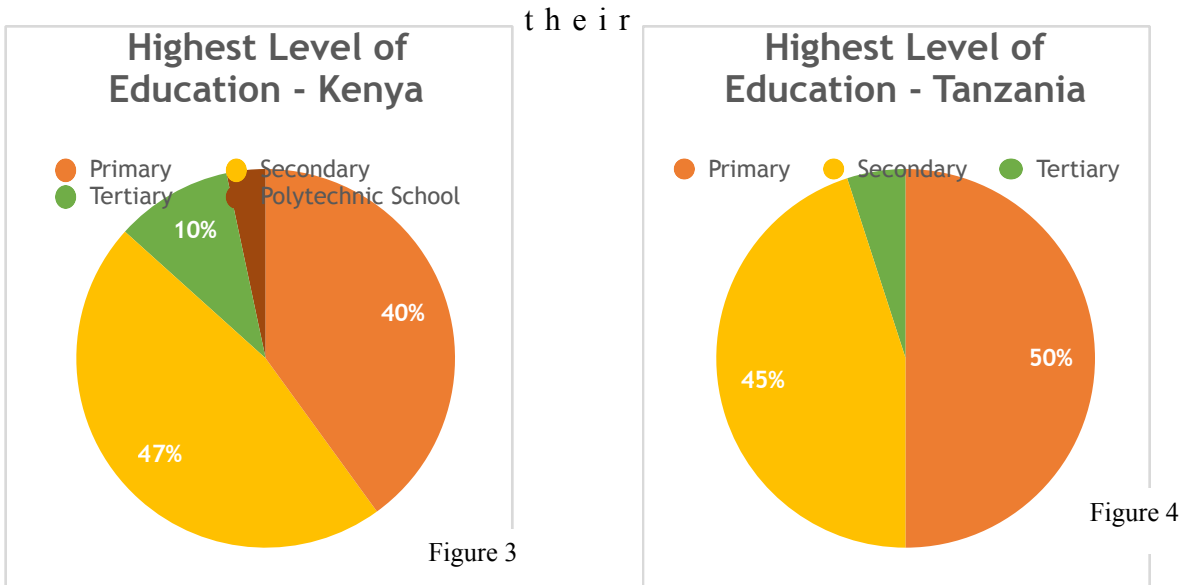
The study included fifty (50) respondents. Data was taken from thirty (30) respondents who lived in western Kenya and twenty (20) who lived in northern Tanzania. Specifically, participants came from Migori County, Homa Bay County, and Siaya County in Kenya. In Tanzania, participants lived in the Misungwi, Sengerema, Bunda, and Tarime districts. There were twenty-two female respondents and twenty-eight male respondents with ages



ranging from sixteen to thirty years old.

Of the participants, twenty-two were married, twenty-six were single, and two were widowed. The average household size in Kenya was 5.30 and 5.76 in Tanzania. All participants completed some level of formal education. In Kenya, the highest level of education completed for 40% of the sample was Primary, 47% completed Secondary, 10% completed College, and 3% of the sample completed Polytechnic School. In Tanzania, 50% completed up to Primary, 45% completed Secondary, 5% completed College, and no one attended Polytechnic School. It must also be kept in mind that many of the participants also expressed that they would like to continue

Figure 2



education.

On average, in Kenya, 5.68 acres of land were farmed amongst participants while 4.25 acres of land were used for farming in Tanzania. Out of the participants, 24 practiced Push-Pull farming while 26 did not. A greater proportion of farmers practiced Push-Pull technology in Kenya than in Tanzania, with 60% of participants practicing in Kenya and 30% of participants

practicing in Tanzania. The difference in implementation is due to the fact that the technology was created in Kenya and dissemination efforts are based there.

2. Regional Profiles

Surveys were conducted in multiple counties and districts to provide a diverse subset of responses because each region faced different farming challenges and had different motivations for migration.

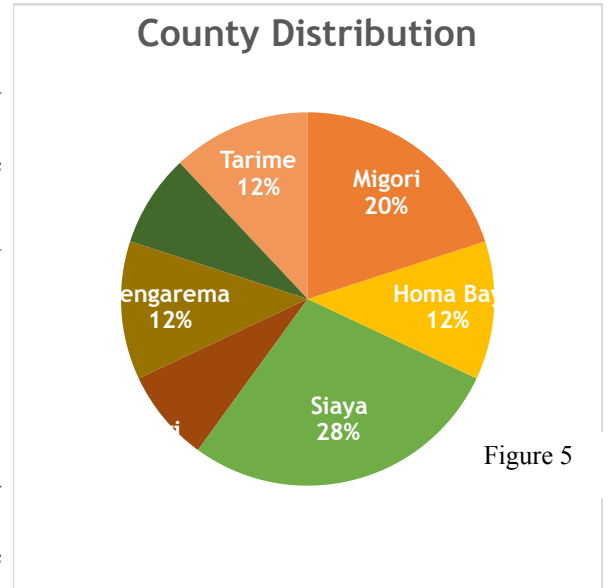
2.1. Migori County, Kenya

Migori County is located in south-western Kenya along the Kenyan-Tanzanian border. Interviews were

specifically conducted in Rongo and Awendo sub-counties. The average temperature is 21.2 °C (Climate-Data.org). Migori County has a very hilly landscape with many trees, and receives approximately 1369 mm of rainfall in a year (Climate-Data.org). In this area, the staple crops are maize and cassava. Sugar cane is the main cash crop. One of the primary problems that farmers face in this area is too much rainfall that leaches the nutrients from the soil. Many of the respondents practiced Push-Pull farming.

2.2. Homa Bay County, Kenya

Homa Bay County is located in western Kenya, north of Migori County. The participants specifically lived in Mbita sub-county. The average temperature there is 22.5 °C (Climate-Data.org). Mbita is located along the lakeshore, and the two primary problems that are facing



farmers are destruction by wildlife and irrigation. Specifically, hippos that live in Lake Victoria eat farmers' crops. Also, farmers lack necessary irrigation equipment to account for the unpredictable rainfall. Many farmers are forced to turn to fishing because it can be very difficult to farm in this area. Push-Pull technology is therefore not very widely adopted amongst the respondents.

Figure 6: A youth farmer on the shores of Lake Victoria in Mbita, Homabay County, Kenya

2.3. Siaya County, Kenya

Siaya County is located across the lake from Mbita in western Kenya. The main crop grown is maize. Many respondents also had multiple fruit trees. The average temperature there is 21.7 °C and the average annual rainfall is 1572mm (Climate-Data.org). In Siaya, farmers also struggle with heavy rainfall that leaches nutrients from the soil. Many of the respondents practiced Push-Pull farming.

2.4. Misungwi District, Tanzania

The Misingwi District is located in north western Tanzania, outside of Mwanza. The average temperature in this area is 23 °C with average rainfall of 901 mm (Climate- Data.org). The main crops are cassava and maize. The farmers in this area struggle with extreme drought and climate unpredictability which results in crop failure. Push-Pull is not yet widely adopted by youth in this area.

2.5. Sengerema District, Tanzania

The Sengerema District is located across the lake from the Misungwi District. Farmers in this area primarily grow maize and rice, but many of the youth farmers operate farms with primarily fruits and vegetables that they found particularly profitable. The average temperature is

22.3 °C and average rainfall is 1059 (Climate-Data.org). The youth expressed that pest infestation was the most devastating issue for farmers in the area as well as high start-up costs that often prevented youth from being fully engaged in farming. Push-Pull is not widely adopted by youth in this area.

2.6. Bunda District, Tanzania

The Bunda District is located about 110 miles north of Misungwi along Lake Victoria. The average temperature is 22.4 °C and farmers receive about 963 mm of rainfall yearly. Maize, sorghum, and finger millet are the main crops in this district. Despite being in close proximity to the lake, the region suffers significantly from climate change and drought. Even a climate-smart push-pull field in the area was devastated due to the lack of water. Push-Pull is not widely adopted by youth in this area.

2.7. Tarime District, Tanzania

The Tarime District of Tanzania is located along the Kenyan-Tanzanian border. Many of the residents have very close ties to Kenya. Maize is the primary crop grown amongst those interviewed. The average temperature is 21.1 °C with average rainfall of 1368 mm yearly. The youth in this area did not struggle as much with drought, but were more so concerned about obtaining the proper resources to successfully farm and expand their efforts.

*There is a vast difference between the soil in Tanzania and Kenya. In Kenya, there is very dark, rich top soil, but in Tanzania, the soil is very sandy and rocky which often makes it more difficult to farm.

3. Apparatus and Materials/ Procedure

3.1. Individual Interviews

Individual interviews were conducted in both Kenya and Tanzania to capture the unique perspective of each youth participant and their views of farming and rural-urban migration. The same questionnaire was used for all respondents, but some questions were only answered by those to whom they applied (see Appendix 1).

The questionnaire used was drafted based on preliminary informal conversations with youth farmers in Homa Bay County about their perceptions of farming and youth migration. The conversations helped to rule out unnecessary questions as well as brought to light important



ideas that needed to be explored further. After the initial conversations, the questionnaire was edited

Interviewing two youth women while they wash dishes in Tanzania (Figure 7)

and used to interview all fifty respondents. Many of the questions were left open-ended in order to accurately portray the detail and diversity of the responses.

The questionnaire was administered face-to-face in either English, Dholuo, or Kiswahili depending on the participant's proficiency in each language. In order to participate in the survey, a participant had to fall between the ages of sixteen and thirty years old. It was also important that both males and females be interviewed in addition to both Push-Pull and Non-Push-Pull farmers to offer points of comparison. It was not important that equal numbers of male and female as well as Push-Pull and Non-Push-Pull participants be obtained, but more so, that each perspective was represented.

3.2. Focus Group Discussion

The second tool used was focus group discussions. A focus group discussion brings together a group of participants that meet the experiment criteria to discuss certain questions from the individual questionnaire as a group. Having participants in a group setting offers a point of comparison to the individual interviews that can help confirm or triangulate findings from the individual surveys.

There were three focus groups conducted and are as follows:

1. Secondary School Student Focus Group in Awendo, Kenya (Ages 13 - 25; 19 Participants)
2. University Student icipe Intern Focus Group Mbita, Kenya (Ages 18-30 ; 18 Participants)
3. Youth Farmers Focus Group in Sengerema, Tanzania (Ages 15-20 ; 35 People)

The focus groups were assembled with the help of community leaders who identified participants that met the age criteria. Gender was taken into consideration, but equal representation was not achieved.

All of the focus groups followed a very similar prompt, but some of the questions asked were informed by group dynamics (see questionnaires in Appendix 2). The focus groups were led by 1-2 individuals, depending on the English proficiency



Sengerema District Focus Group Discussion (Figure 8)

of the group, and responses were recorded on a large poster paper that was visible to all of the participants so that they could follow along easily.

It was also very important that the focus groups were conducted in a setting that was very comfortable to the participants. So, the discussions took place in the communities of participants. Two were hosted at a Push-Pull Technology Farmer Teacher's home, and the *icipe* intern focus group discussion was held on *icipe*'s campus. The location was very important because it allows participants to feel more at ease and willing to answer questions because they are in a familiar setting.

One of the main challenges of the focus group discussions was achieving gender diversity. In all of the focus groups conducted, there were more male participants than female participants. The dominance of males in numbers often discouraged females from voicing their opinion during the conversation, even when encouraged to do so. It was more difficult to find women to participate in the focus groups because of their many responsibilities at home and on the farm. They could not as often afford to take time out of their daily schedule of activities like the men in the community could. This was a substantial problem in the Awendo and Sengerema focus groups, but in the *icipe* intern group, female participants were not as hesitant to voice their opinion and that data set is very representative of both gender perspectives.

In the future, it would be best to host a focus group solely for women that is led by women, because the participants may feel more compelled to express their thoughts. In addition, a strategy should be developed to make participating in a focus group discussion more accommodating to women. For example, hosting a focus group after church may allow for more women to attend since they would already be in one place and may not have as many

commitments on Sunday afternoons. It is especially important that their perspective be heard because, according to the World Bank, in 2015, female farmers made up about 40% of farmers in Sub-Saharan Africa (Help Women Farmers 'Get to Equal').

3.3. Personal Observations

Informal, personal observations were also used as a tool to analyze dynamics amongst youth farmers. During the data collection process, observations were made outside of the formal individual interviews conducted as well as the focus group discussion in order to gather more context/insights that would support the findings in the interviews and discussions. Observations were made through conversations with farmers, field staff who were very knowledgeable about the area, and personal thoughts about experiences and encounters throughout the research process. All observations were recorded so they could be called upon when useful.

4. Important Variables

Multiple independent variables were examined in the study in order to characterize their effect on the dependent variable: the willingness of youth to migrate.

The independent variables examined were:

- I. The practice of Push-Pull technology
- II. Perceptions of farming
- III. Personal Characteristics such as: age, gender, marital status, household size, number of children, level of education, intent to pursue further education, land acreage owned or tilled, certainty of land inheritance, level of involvement on the farm, possession of livestock, control over financial decisions, social group involvement, and involvement in off-farm activities.

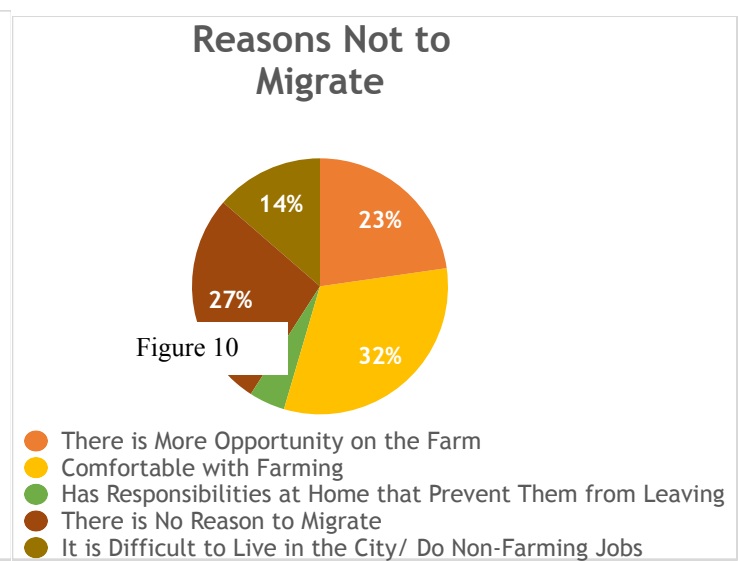
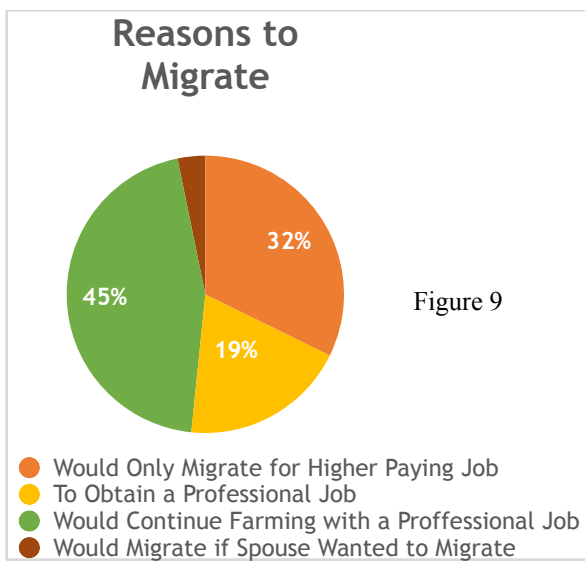
5. Results

1. Willingness of Youth to Migrate

Individual Interviews: Of the fifty youth interviewed, 56% stated that they would migrate to a town for work, while 44% said that they would not migrate for any reason. There were a larger percentage of people who were willing to migrate in Tanzania than Kenya. Seventy percent of Tanzanians interviewed would migrate while 47% of Kenyan youth interviewed would migrate.

While it seems as though a very significant portion of youth would move away from farming, most youth expressed that they would not abandon farming completely if they were to migrate. When asked whether they would migrate, 14 respondents said they would continue farming while holding a professional job. In addition, of the participants that responded that they would migrate, 10 expressed that they would prefer to stay in farming and would only migrate if given a higher paying job opportunity. Of the participants that expressed that they would not migrate for any reason, the primary reasons for staying solely on the farm were that they were comfortable with farming and that there is more economic opportunity on the farm.

Focus Group: The information in the focus group discussion helped to confirm/triangulate some of the motivations behind migration. In all of the focus groups conducted, most of the youth did not want to migrate outside of their communities. In both Kenyan focus groups, it was confirmed that most wanted to have a professional job alongside farming. 63% of participants in the Awendo group and 89% of the *icipe* interns wanted to have a professional job in addition to



farming. In the *icipa* group, 1 person wanted only a professional job and 1 person wanted to farm full time. In the Awendo group, no one wanted only a professional job, and 3 people wanted to do farming alone. In contrast, the vast majority in the Tanzanian group, wanted to do farming alone. While they desired to solely pursue farming, many of them thought they could not be successful practicing it because of increased crop failure primarily due to drought and pests. Thus they were willing to migrate for better opportunities. Across all three groups, the common reason to stay in farming was that it is a source of employment, thus demonstrating that first and foremost youth are drawn to opportunity.

2. “Push” and “Pull” Factors for Migration

Individual Interviews:

Age: Participants who fell in the 16 – 20 and 21 -25 age categories were more likely to indicate that they would migrate than those in the 26 -30 category in both Kenya and Tanzania. In the 16 – 20 age group, 12 respondents would migrate while 4 would not. In the 21 - 25 age category, 15 respondents would migrate and 8 would not. In the 26 – 30 age category, 1 person would migrate while 10 would not. The willingness to migrate decreases as participant age increases, thus age acts as a “push” factor for younger youths and a “pull” factor for older youths.

Gender: Males were much more likely to be willing to migrate than females in both Kenya and Tanzania. Overall, 19 male participants said they would migrate as compared to 9 that would not.

In contrast, for females, 9 would migrate and 13 would not. Gender acts as a “push” factor for males and a “pull” factor for females.

Marital Status and Number of Children: In Kenya and Tanzania, married participants were less likely to migrate than single participants. Seven of the married participants would migrate while the other 15 married participants would not migrate. For single participants, 21 would migrate while 5 would not. In the case of the widowed participants, none would migrate. This demonstrates that being married or widowed is a “pull” factor for youth while being single is a significant “push” factor.

Highest Level of Education Completed: In Kenya, level of education of the participants had a larger effect on the will to migrate than in Tanzania, but in both cases, higher education meant the participant was more likely to migrate¹. In Kenya, of the people who said they would migrate, 7% had a primary education, 71% had a secondary education, and 22% had a tertiary education. Of those who said they would not migrate, 69% had a primary education, 25% had a secondary education, and 6% had a tertiary education. In Tanzania, of those who said they would migrate, 43% had a primary education, 50% had a secondary education, and 7% had a tertiary education. Of those who said they would not migrate 50% had a primary school education and 50% had a secondary education. As demonstrated, having a secondary education acts as a “push” factor for youth.

¹ In the individual interviews, there was not significant representation of people with a tertiary education, but this perspective was represented in the focus group

Certainty of Inheritance: The certainty of inheritance had very different effects on migration in each country. In Kenya, of the participants who were certain they would inherit land, 37% would migrate and 63% would not migrate. On the other hand, in Tanzania, of those certain they would inherit land, 67% would migrate and 33% would not migrate. In this case, certainty of inheritance is a “pull” factor for Kenyan youth but a “push” factor for Tanzanian youth. This phenomenon could be due to the difference in land ownership in Kenya versus Tanzania. In Kenya, land is privately owned, but in Tanzania, due to the Land Act of 1999, all land belongs to the state and residents lease land from the government (Tanzania – Right to Private Ownership). This legislative difference may cause farmers to value land differently in Kenya versus Tanzania, thus affecting the “certainty of inheritance” factor.

Practicing Push-Pull: Implementation of Push-Pull technology actually acted as an enabling factor for migration. Those who practiced Push-Pull in both countries were more willing to migrate. Of Push-Pull farmers, 57% would migrate whereas for Non-Push-Pull farmers 43% would migrate in both countries. It must be kept in mind that Push-Pull farming has been correlated with improved economic outcomes which can be a driving factor for farmers to pursue higher education or other opportunities that are often found in more urban areas. Also, many of the Push-Pull farmers who said they would migrate said they would never fully detach themselves from farming.

Financial Control: Control over money greatly influenced the will to migrate in Tanzania. In Kenya, all but two respondents had some say in money use, but in Tanzania, it was more common for youth and women to not have any control over money. Of the 8 people in Tanzania

that had no control over money, 6 would migrate. Having control over money is definitely a “pull” factor for Tanzanian youth.

Social Group Membership: For the purposes of this study, a social group was defined as any community group that focused on farming, banking, and/or women empowerment. Being a member of a social group was not a determining factor for the will to migrate in Kenya, but it was in Tanzania. Of those who said they would migrate in Tanzania, 79% were not members of a social group. So, social groups can act as a “pull” factor for Tanzanian youth.

Having a job other than farming: Having another job in Kenya acted as a “pull” factor while it acted as a “push” factor in Tanzania. Of those who had another job in Kenya, 2 would migrate while 5 would not. In Tanzania, 6 people with other jobs would migrate while 4 people would not. These results could be due to the fact that the Kenyan farmers interviewed are generally more educated than the Tanzanian farmers interviewed and thus are more able to understand and implement technologies that will improve their farming.

Difficulty of supporting oneself on farming alone: In the whole sample, 36 farmers said it was difficult to support themselves on farming alone while 14 said it was not difficult. Of farmers who found it not difficult to support themselves in Kenya, 4 would migrate while 6 would not. On the other hand, in Tanzania, of the farmers who said it was not difficult to support themselves on farming alone, 3 said they would migrate while 1 said they would not. This statistic suggests that there may be other motivating factors in Tanzania that affect migration not investigated in the study. Based on personal observations, a justification for financially stable farmers to want to migrate is that financial stability leads to greater mobility which may allow them to seek higher education and other opportunities in more urban areas.

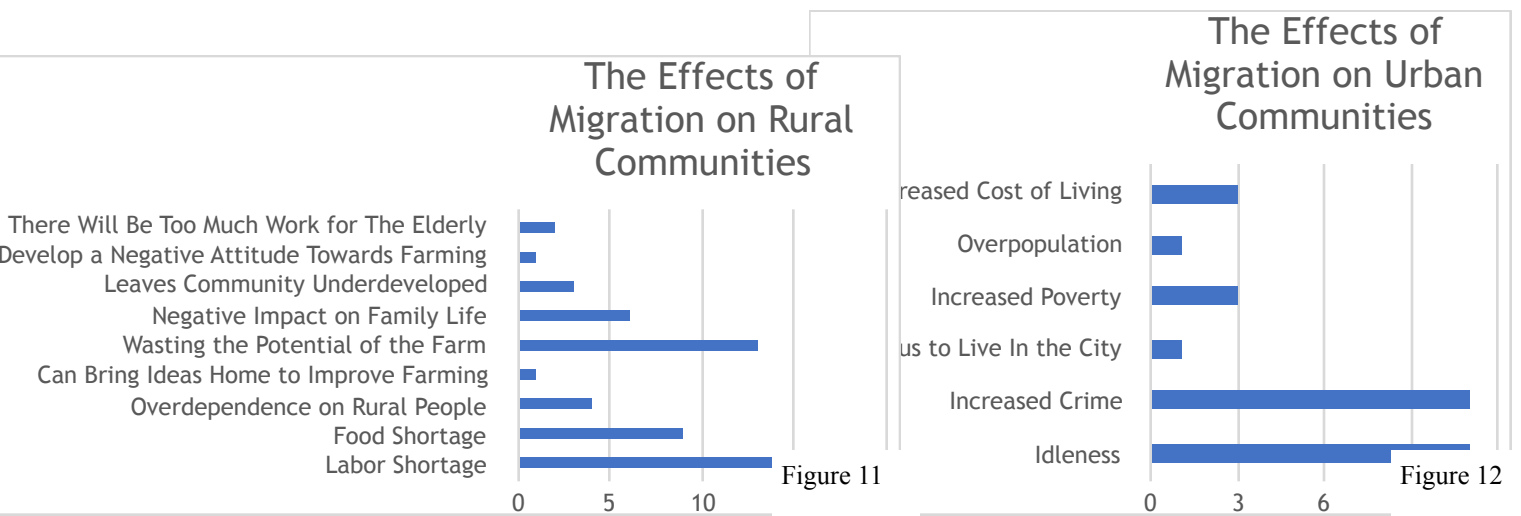
3. Where do Youth Migrate

Through the interviews and focus groups, it was determined that most youth who expressed they would migrate wanted to migrate to a small town that is close to their current village. They stated that this would allow them to continue farming while performing an off-farm job. Those who wanted to go further would still stay within their respective country, but would travel to larger cities such as Nairobi and Mwanza. There were only two participants in the *icipe* intern focus group that expressed they would travel to another country such as Britain or India.

4. Factors that Did Not Affect The Will to Migrate

Household Number, acreage of land owned, livestock ownership, and perception of farming did not have significant effects on the will to migrate. Even though the importance of having large plots of land was expressed by farmers, especially in Tanzania, the amount of land owned did not act as a motivating factor for migration when comparing the acreage of land owned with the will to migrate. In addition, having a positive perception of farming did not significantly affect the will of youth to migrate, as all but two respondents commented that farming is a worthwhile job. Both of the respondents who said it was not worthwhile indicated that they would migrate to an urban area.

5. Effects of Migration on Urban and Rural Communities



Through the individual surveys, youth were asked what effects they thought youth migration would have on urban and rural communities. The three most frequent responses given for effects on the rural community were that there would be a labor shortage on farms, the potential of the farm would be wasted, and there would be a food shortage. In urban communities, youth migration could lead to increased crime, idleness, increased poverty, a higher cost of living for youth, and high dependency ratio.

6. What do Kenyan and Tanzanian Youth Value

Individual Interviews: During the individual interviews, participants were asked how they defined success as well as how they hoped to achieve success. Youth valued being financially stable the most followed by having good housing and a good education. When asked how to they would attain success, the most common response was focus on farming followed by working hard and continuing formal education.

Focus Group Discussion: The *icipe* intern focus group helped to confirm some of the thoughts expressed in the individual interviews regarding the values of youth. The group expressed that being financially stable, having a good job, and having a good quality lifestyle (affordable healthcare and housing) were the most important to them.

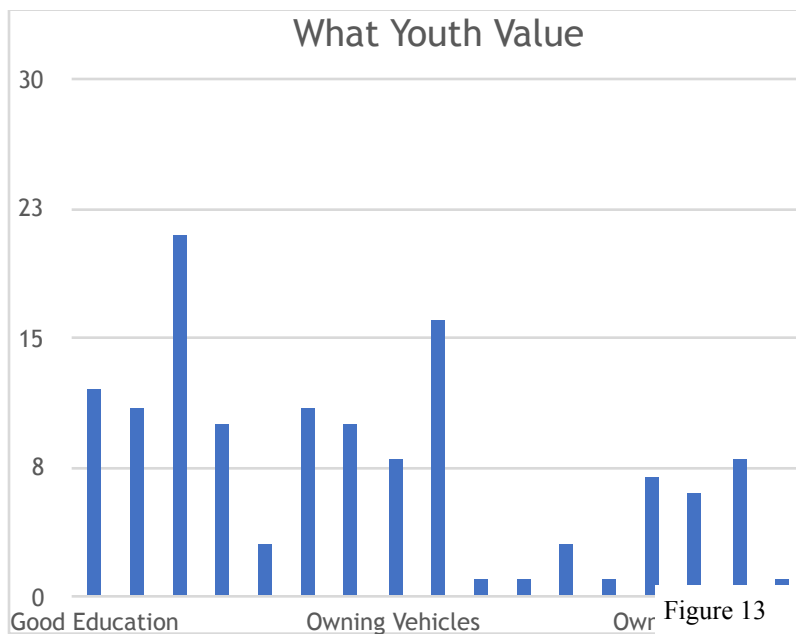


Figure 13

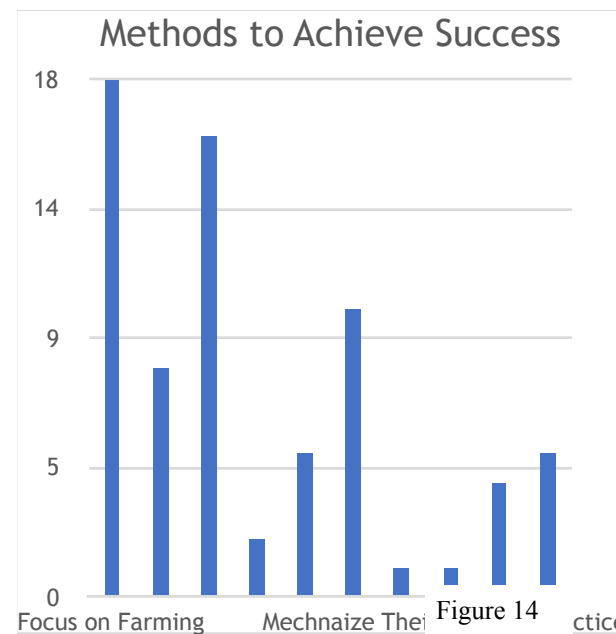


Figure 14

ctice

7. Perceptions of Farming

Individual Interviews: As expressed previously, the majority of respondents thought that farming was a worthwhile job. In addition, all respondents said that agriculture could secure a successful future for youth, citing its capability of providing basic needs (source of livelihood).

Focus Group: In the focus group discussions, the positive perception of farming was maintained, but the difficulties that youth have with farming were more clearly expressed.

Kenyan and Tanzanian youth like farming because it offers employment, is a source of income, and is a source of food, but they insisted that pests, unpredictable weather, and the high costs of inputs must be addressed. Many of the youth said that new technologies such as Push-Pull could help to alleviate these problem in the future. A concern that was more specific to the youth in Tanzania was land size. It was very important to youth throughout Tanzania to have larger farms in order to consider themselves successful.

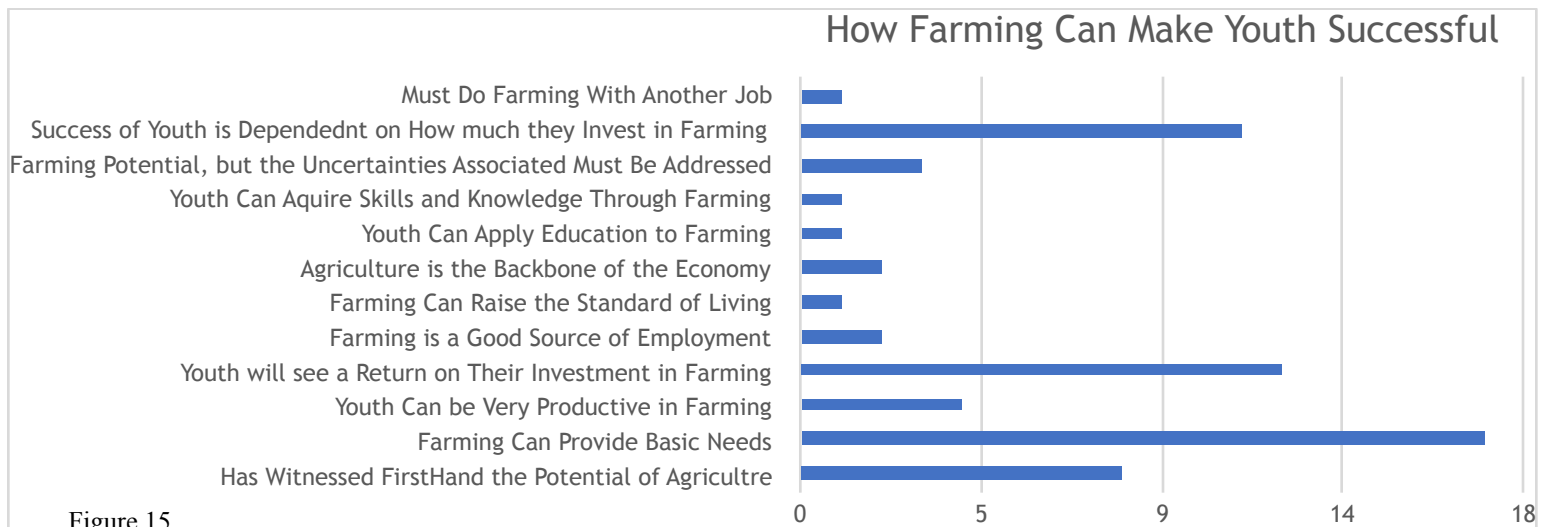


Figure 15

6. Government Involvement in Youth Agriculture

Individual Interviews: During the individual interviews, participants were asked whether they were aware of government programs for youth farmers. Out of the 50 participants 32 said they

did not know about government programs while 18 did know about them. In general women knew more about government programs than men.

In addition, participants were asked what the government should do to encourage youth to stay in agriculture. The three most common responses were that the government should subsidize inputs, provide relevant training, and supply initial capital through loans, credits, and grants. A problem that was more relevant in Tanzania as well as Homa Bay County, Kenya was irrigation. Thus, youth in these areas asked for irrigation infrastructure and kits.

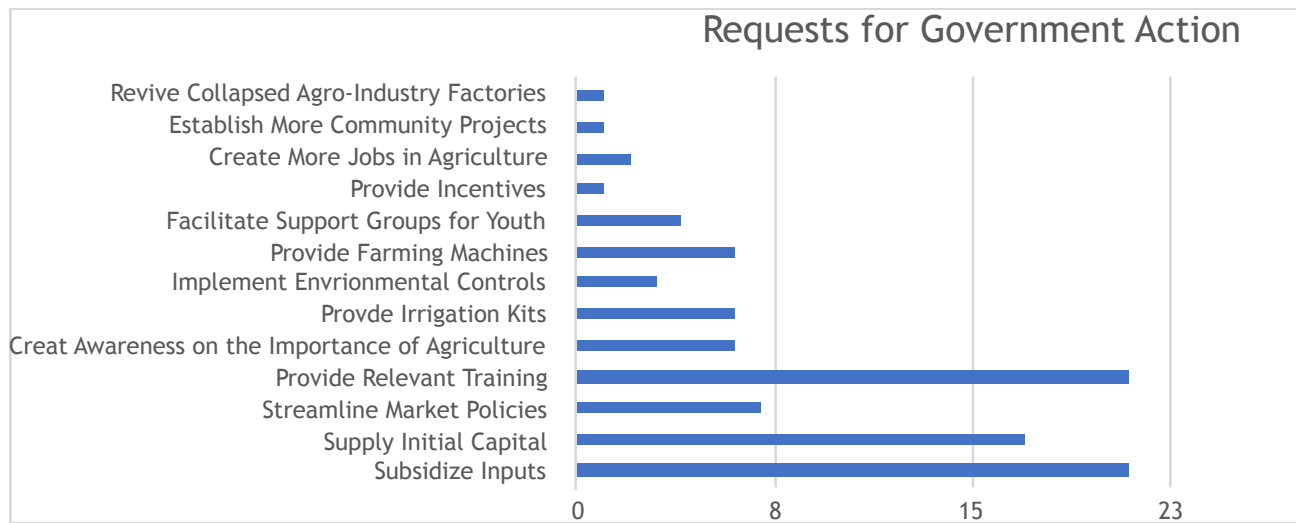


Figure 16

Focus Group s group confirmed many of the points made in the individual interviews.

There were seven common themes expressed through the focus groups. They are as follows:

1. Subsidize Farm Equipment and Inputs
2. Provide Initial Capital for Youth
3. Provide Relevant Training
4. Streamline Market Structure and Increase Opportunities for Market Engagement
5. Mobilize Resources Through Effective Linkages

6. Address Policy Issues in the following areas: environmental, land tenure, trade, youth job creation in agriculture, compensation policies for agricultural losses, and taxation policies on agricultural products

6. Discussion

This study set out to explore the following objectives:

- I. Do Kenyan and Tanzanian youth have the motivation to migrate from rural to urban areas?
- II. What are the social "push" and "pull" factors that motivate youth to migrate?
- III. What are Kenyan and Tanzanian youth perceptions of farming and agriculture ?
- IV. How do youth think youth rural-urban migration will affect farming in their community.
- V. Where do youth want to migrate?
- VI. What do youth believe the government should do to keep youth engaged in farming?

It was initially hypothesized that the majority of youth would want to migrate and abandon farming completely. This hypothesis was informed by previous development trends experienced in other countries where youth generally moved to cities as their countries industrialized. Through the research conducted, it was determined that this is in fact not the case. While majority of respondents said they would migrate to an urban area, most did not want to completely detach from farming, and many wanted to stay in farming alone if they could be more successful.

When examining the “push” and “pull” factors that impacted the will to migrate, level of education, financial control, social group membership, and age had some of the most significant “push” and “pull” effects on youth migration. A higher level of education indicated that a participant was more likely to migrate, but in most cases, they did not want to leave farming completely. Rather many desired to engage in agribusiness or have a higher salary job that they could invest into expanding their farming efforts or work in another sector of agriculture such as research. In this way, creating more opportunity for youth to go to school will allow the agricultural sector in Kenya to further develop. Financial Control was particularly significant in Tanzania because having a say financially can allow youth to directly reap the benefits from farming. Thus, more education on the importance of financial empowerment could convince youth to remain engaged in farming.

Social group membership definitely helps youth stay engaged in farming. Social groups allow its members to pool resources, labor, knowledge, and money so that each member is better off than if they would be venturing into farming alone. In Tanzania, particularly, social groups were very effective in keeping youth in farming because it allowed them to pool limited resources.

Age is a very important factor to consider when developing strategies to combat migration. Younger youth (ages 16-20 and 21-25) were much more likely to migrate than older youth (25-30). Thus, strategies must target younger youth, many of which are just graduating from secondary school and deciding what they want to do with their lives. It is at this critical point that efforts must be focused to allow youth to stay in agriculture like many of them desire.

From the investigation, it was determined that above all else, youth are drawn towards opportunity. If that opportunity is on the farm, they will be more likely to stay there, but if it is in the city, many were willing to migrate. Thus, if it is desired that youth stay engaged in farming, opportunities in agriculture must be created, and youth must be made aware of these opportunities.

First and foremost, the youth desired access to subsidized farm equipment and inputs. In general, youth lacked the financial capital to invest in the initial start-up costs that farming requires. They requested that the government assist them in purchasing equipment and inputs by either subsidizing the prices or providing them with low interest loans, credits, or even grants. A farmer in Mbita articulated that land is not a problem for many of the youth farmers that he knows, but they lack the resources to successfully cultivate and take advantage of the land's full potential.

While both the Kenyan and Tanzanian governments have programs for youth farmers, 32 of the 50 youth that were interviewed had no knowledge of any government programs for youth. These programs may be there, but they clearly are not reaching the youth in Western Kenya and Northern Tanzania. The study found that women were more likely to know about government programs which may be due to their involvement in social groups that is not as common for men. The government often implements its farming programs through these social groups, so in the future government could encourage more men to become involved in social groups in order to make them more aware of government programs. Youth greatly desire relevant training and suggested that they could receive it if the government were to establish a more effective agriculture extension system. If extension officers were able to avail resources and training to

more farmers, youth can be more successful in farming. In addition, participants also expressed that they desired more agriculture exposure in their primary and secondary schooling. Receiving practical knowledge in a formal school setting will assist with dissemination, and youth will be more equipped to engage in agriculture after they graduate.

Many youth are also looking to turn their subsistence farming into agribusiness. Youth desire to engage in the market, but many expressed that the opportunities are not there or they do not have the knowledge to successfully participate within the free market structure. Market opportunity was particularly a problem in Kenya, as Tanzanian youth expressed that they were currently experiencing an improvement in their market opportunity. In the Awendo County focus group, youth said that much of the market opportunity is in urban centers which could compel youth to migrate. They requested that markets be decentralized so that they can have the same opportunities that are in Nairobi. In Mbita, for example, a participant questioned why a youth should leave Mbita to go to an Omena (fish) factory in Mombasa or Nairobi when the fish come from the lakeshore in western Kenya. If investment is made in the development of processing facilities in rural communities, more opportunity will be created for youth to successfully expand to agribusiness.

In addition, youth must be trained on how to take advantage of market opportunities once they are established because, in a free-market leaning system, the market determines the conditions required for a farmer to participate in it. When a farmer grows a tomato, they must consider whether the market requires that his crops are to sell at the local market (fresh) or whether they will be processed. Will they be exported? Where is the market niche? All of these

factors must be considered, and youth need the knowledge of how to successfully function in the market in order to successfully engage in agribusiness.

The final overarching demand that the youth had for the government was that they form meaningful linkages with NGOs as well as private institutions. Most youth knew of NGOs that were working to help farmers, so they requested that the government encourage NGO efforts to increase the impact of the programs already established. In addition, they asked that the government help youth organize into social groups and support them. Many youth expressed their success participating in community farming groups, but they lacked collateral for acquiring bank loans and credit, so they asked that the government support their efforts to maximize the benefit received from these groups.

While the youth responses focused primarily on what the government could do to help youth, it must be considered what role Push-Pull technology can have in stemming rural-urban migration. In both countries, most Push-Pull farmers said they would migrate, but when asked what they were going to do to ensure their success, the top answers given by Push-Pull farmers who wanted to migrate were that they would continue their formal education and focus on farming. As discussed previously, higher education can be very beneficial to keeping youth engaged in farming. Those who wanted to focus on farming likely have seen the positive benefits of the Push-Pull technology which empowered them to expand their efforts. In both scenarios, Push-Pull is encouraging youth to expand their farming capacities, thus technology dissemination efforts must be continued that specifically target youth. Push-Pull has provided a more prosperous future for thousands of farmers in Africa, and it clearly has the potential to secure success for youth farmers.

In addition to considering how Push-Pull can secure a fruitful future for youth, youth themselves must also recognize how they can ensure their success in agriculture. The participants expressed that pursuing further education and pooling resources amongst themselves could help them realize the full potential of their farming efforts. Many youth were already putting these ideas into practice. For example, resource pooling was extremely helpful for one 18 year-old

farmer who was the sole provider for himself and his mother. His family did not own land, so him and some other youth farmers pooled their resources to collectively lease 2 acres of land to grow rice. Without this, he would have no way to participate in farming and would have to migrate.

On the other hand, another female farmer in Tanzania has shown how successful farming can enable youth to obtain a good education. When she



Matilda (left standing), Anna (middle standing), I (right standing) watching Anna's Grandmother (left sitting), and Anna's mother (right-sitting) process maize at their home (Figure 17)

a plot of land to work that she could retain the profits from. At this young age she was able to turn her small scale farming into agribusiness and put herself through secondary school and university. She continues to successfully manage her land and believes that farming is the root of her current success and will make her successful in the future.

Further study must be conducted on the efficacy of the strategies presented to empower youth farmers. This investigation should also consider how factors such as socioeconomic status will affect these strategies. In addition, the study should be conducted with a larger number of

participants to confirm that the findings still hold true for the broader population, especially groups that were underrepresented in this investigation.

Overall, youth had very positive perceptions of farming, and were aware of the potential consequences of youth rural-urban migration, but these factors do not outweigh the fact that many of them cannot support themselves on farming alone. Community leaders, NGOs, private institutions, and the government need to help youth uncover opportunities in agriculture to keep them engaged. Youth also recognized that they must initiate their success in farming, and thought that by pursuing further education and pooling their resources, they will catalyze their success. In addition, they must recognize the ideas and initiative that youth have already taken to create a successful future in agriculture for themselves. Youth in Kenya and Tanzania are not helpless, but, as a farmer told me, “[they] need someone to recognize and support their efforts. Once this happens [they] can be successful.”

7. Personal Reflection

I am beyond grateful for the opportunity to serve as a Borlaug-Ruan Intern this summer. This internship gave me the chance to learn straight from farmers how they see and interact with agriculture everyday which was invaluable. Working specifically with youth made the experience even more incredible because I was exposed to the growth potential for agriculture in eastern Africa. The fact that the people I interviewed were the same age as me gave me a tangible idea of how we can grow together. The youth I met are going to be



leading and shaping the world right along with me, so being able to see the future for the relationships I established was amazing. I will

never be able to thank the World Food Prize enough for showing me that there is a place for me in agriculture by allowing me to witness first-hand the future of farming in our world.

Figure 18

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[data.org/location/11136/](https://en.climate-data.org/location/11136/)

Talking with Rose, a Homa Bay farmer, about how she manages her sorghum Push-Pull plot

Me with two future Push-Pull farmers

Figure 19

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9. Appendix

8.1 Appendix 1: Individual Interview Survey

An Analysis of Youth Migration and its Impact on Agriculture in Western Kenya and Northern Tanzania

Overarching Sub-Questions:

1. Does push-pull technology influence or motivate youth to stay on the farm or to migrate?

- II. How does gender influence the desire and ability of youth to stay and work on the farm or to migrate?
- III. What locations do youth want to migrate to and what are their motivations?
- IV. What are the social "push" and "pull" factors that motivate youth to migrate or not to migrate?
- V. What are the perceptions of youth about farming and agriculture ?
- VI. How do parents and youth think youth migration will affect farming?

Date of Interview: _____ Name: _____ Age: _____
 Gender (M/F) County: _____ Sub-County: _____ Country: _____
 Telephone Number: _____

Section I: Personal and Household characteristics

- 1. Marital Status: (Married/Single/Widowed) Household size: _____
- 2. Do you have children? (Yes/No) How many? Male _____ Female _____
- 3. Highest Level of Education Completed (Place X in corresponding box)

None	Informal	Primary	Secondary	Tertiary
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- 4. Do you intend to pursue further education? (Yes/No)
 - i. If yes, which? (Circle One)
 - a. Professional Training b. University c. Technical School d. Other
 - ii. If no, why? (Circle One)
 - a. Do not have enough money
 - b. Need to help family with farm
 - c. Did not want or need to go to school
 - d. Other: _____
- 5. How much land do you currently own? (in acres): _____
- 6. How much land have you inherited or will you inherit? (in acres): _____
- 7. What crops do you grow on your farm? _____

- 8. Do you or your family practice push-pull? (Yes/No)
- 9. How much of land is under push-pull? (in acres) _____
- 10. Number of seasons practicing push pull: _____
- 11. Do you own livestock? (Yes/No)

i. If yes, what type and how many? (Record answer in empty boxes)

Type	How Many?	Type	How Many?
Local Cattle		Improved Cattle	
Local Goats		Improved Goats	
Local Sheep		Improved Sheep	

Local Poultry		Improved Poultry	
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12. What tasks are you responsible for? Check all boxes that apply.

Bush Clearing	Weeding	Plowing Field	Planting	Harvesting	Watering Plot
Processing Harvest	Selling Products	Fodder Production	Taking Animals Out to Graze	Milking	Collecting Eggs
Manure Production	Other task (specify)	Other task (specify)	Other task (specify)	Other task (specify)	Other task (specify)

13. Do you control the money gained from your farming and your livestock? (Yes/No)

14. Are you a member of any social group? If so, what is the name and nature of the group?

Section II: Perception of Farming

15. Do you believe farming or keeping livestock is a worthwhile job? (Yes/No)

i. Why? _____

ii. If no, what could make farming more worthwhile? _____

iii. **Ask push-pull farmers:** Do you think push-pull makes farming economically worthwhile for youth? (Yes/No) Please give reasons.

iv. **Ask non-push-pull farmers:** Have you heard of push pull? If yes, do you plan on practicing it in the future?

Section III: Off-Farm Activities

16. Do you have a job other than farming? (Yes/No)

i. Please Specify: _____

ii. If you have another job, why do you have this job? _____

17. Is it difficult to support yourself and/or your family on farming alone? (Yes/No)

i. Why? _____

18. **Only Ask if Responded Yes to Q16 and 17:** If you could make enough money on farming alone, would you seek other employment? (Yes/No)

i. Why? _____

Only Ask The Following Questions if they Wish to Seek Other Employment:

19. Where would you seek these other opportunities? Would you stay in your hometown or go elsewhere? Where would you go and why? _____

20. If you were to move elsewhere, what type of job would you hope to get? _____

21. Do you have the ability to migrate to this place? (Yes/No)
i. Why would it be hard or easy to move? _____

22. If you were to migrate, what would you do with the land that you own or inherited? _____

Ask Everyone the Following Questions:

23. Would you ever migrate for a reason other than to find employment that is not farming? (Yes/No) What is this reason? _____

24. What effect do you think youth migration will have on farming in your family or community as well as in all of Kenya/Uganda? _____

Section V: Future

25. How do you define success? _____

26. What do you think you can personally do to have a successful future? _____

27. Do you think agriculture has a role in securing a successful future for the youth? (Yes/No). Please explain why you think so: _____

28. Do you know about government programs for youth farmers? (Yes/No) What do you know about them? _____

29. What government policy actions need to be taken to encourage youth to do agriculture or to stem rural – urban migration by youth? _____

Thank you for your time.

8.2 Appendix 2: Focus Group Questions

Kenya - Awendo County

1. Are your parents farmers?
2. What crops do you grow on your farm?
3. How many acres of land do you own? (all land owned not just land cultivated)
4. What livestock do you own?
5. Are you responsible for farm activities? (Yes/No)
6. What farm activities are you responsible for?
7. Do you like farming?
8. Do you believe youth should remain involved in farming in Africa?
9. Do you think agriculture has a role in securing a successful future for the youth?
10. Do you want to be a farmer after finishing your education?
11. If yes, will your education help in improving agricultural productivity in Kenya?
12. If no, why?
13. If no, what will you do for your living? What kind of job will you look for?
14. If not what will you do with your land?
15. What government policy actions need to be taken to encourage youth to remain in agriculture?

Icipe Interns

1. Are your parents farmers?
2. What crops do you grow on your farm?
3. How many acres of land do you own? (all land owned not just land cultivated)
4. What livestock do you own?
5. Are you responsible for farm activities? (Yes/No)
6. What farm activities are you responsible for?
7. Do you like farming?
8. Do you believe youth should remain involved in farming in Africa?
9. Do you think agriculture has a role in securing a successful future for the youth?

10. Do you want to be a farmer after finishing your education?
11. If yes, will your education help in improving agricultural productivity in Kenya?
12. If no, why?
13. If no, what will you do for your living? What kind of job will you look for?
14. If not what will you do with your land?
15. What government policy actions need to be taken to encourage youth to remain in agriculture?
16. How do you define success?
17. After graduating, do you want to leave your current community, go back, or go where there is the most opportunity? Why?

Tanzania - Sengerema District

1. Are your parents farmers?
2. What crops do you grow on your farm?
3. How many acres of land do you own? (all land owned not just land cultivated)
4. What livestock do you own?
5. Are you responsible for farm activities? (Yes/No)
6. What farm activities are you responsible for?
7. Do you like farming?
8. Do you believe youth should remain involved in farming in Africa?
9. What is your highest educational attainment?
10. Do you want to be a farmer after finishing your education?
11. Are you aware of any government programs for youth farmers?
12. What government policy actions need to be taken to encourage youth to remain in agriculture?

