Youth Enterprise Fund's (YEF) Effects on Cabbage Youth Farmers' Productivity in Eswatini

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ABSTRACT

Over the past years, the government of Eswatini has come up with a number of interventions to provide financial assistance to smallholder farmers, including start-up funds for youth, to ensure food security and independence within the country. Despite the efforts, vegetable production in Eswatini has remained low over the years, leading to increasing importation of vegetables from mainly South Africa to meet the national demand. Youth Enterprise Fund is among government's interventions to stimulate increased productivity of agriculture produce, including vegetable, as an alternative for import substitution. This study was aimed at assessing the cabbage productivity of the youth farmers benefiting from the Youth Enterprise Fund program in Eswatini. A Sample of 80 farmers were interviewed using a structured questionnaire. The results of this study indicated that the majority of farmers are females and most of the beneficiary farmers are single, while the majority of the non-beneficiary farmers are married. Farmers from both groups had 6-10 household members, attained high school education, had agricultural training and advisory services during their farming period. Study revealed that there was a mean difference between cabbage yield of 173 cabbage heads/ha between beneficiary farmers and non-beneficiary farmer, although the difference was statistically insignificant. Logistic regression results indicate that the determinants of choosing to participate in the YEF program were age, household size, land size, fertilizer amount and labour. Multiple linear regressions were used to determine the factors affecting cabbage production. The findings of the study indicate that determinants of cabbage production among YEF beneficiaries were gender, land size, farming experience and fertilizer amount, while determinants of cabbage production for non-beneficiaries were gender, level of education, farm size, farming experience and fertilizer amount. The results suggest that the YEF program has a positive effect on cabbage productivity among youth farmers, and is recommended that the government continue increasing the number of beneficiaries, and the youth farmers are encouraged to join. To attract youth farmers to join the program there is a need to improve on access to land, access to fertilizer and access to more labour-saving technologies, in addition to trainings provided by YEF-program.

Keywords: Productivity, Cabbage smallholder farmers, Youth Enterprise Fund

I INTRODUCTION

The main vegetables currently grown in Eswatini include cabbage, carrot, onion and tomato [1]. Diversification from grain crops to high-value crops like vegetables has emerged as an important strategy for agricultural development, for improving the agricultural income, for providing more employment, and also for youth empowerment [2]. The total consumption of fresh vegetables in Eswatini is estimated at about 40,000 tons per year and this translates into 40 kg per capita consumption per year. Individuals with more purchasing power consume above the annual per capita of 40 kg compared to poor people especially in rural areas. Vegetables are an important part of a healthy diet. Vegetables are an excellent source of vitamins, especially Niacin, Riboflavin, Thiamine and Vitamin A and C. Vegetables also supply minerals, calcium and iron. Most vegetables do not have many calories. Given the increasing demand for vegetables as people get more conscious about the health, it is viewed as a potential enterprise that can employ the more people, including the youth, for improved livelihoods.

Vegetable production is dynamic and plays an important economic and dietary role in the lives of many people in Eswatini and worldwide. However, vegetable production has remained low over the years despite all the interventions made by Government. According to Masuku and Xaba (2013), Eswatini is still importing vegetables from the neighboring country South Africa [4-5]. Through the implementation of agricultural credits from the Youth Enterprise Fund, the Government attempts to stimulate agriculture production amongst smallholder vegetable farmers in order to improve their businesses and assist in income and assets accumulation. The problem faced by smallholder farmers in the rural areas is limited access to microfinance services and lack of collateral security required by financial institutions which results in the farmer being unable to access credit, hence, productivity tends to be low. This has caused a major import of vegetables in the country and smallholder farmers producing cabbages are declining and the output fails to meet demand.

In an effort to contribute to the reduction of youth unemployment in the country, the Government of Eswatini established the Youth Enterprise Fund in February 2008 under the Ministry of Sports, Culture and Youth Affairs. The Youth Enterprise Fund is a business support mechanism established for youth between the ages of 18 – 35 years aimed at contributing to the reduction of youth unemployment through the provision of business capital for qualifying individuals, associations and companies. It has been established through the Finance and Audit Act, 1967, Act no: 18 of 1967. The Youth Enterprise Fund Regulations, 2009, provide guidance on how the Fund should be established and administered. It is a government parasternal classified under Category A of the Public Enterprise Act. It is administered by a multi-sectoral Board of Directors. Its day to day business is run by a secretariat comprising of 3 office bearers. The loan applications are assessed by an intermediary institution upon receiving the forms from the secretariat and presented to the Board of Directors for approval. The Youth Enterprise Fund aims to curb youth unemployment through achieving the following objectives: empowering the youth

to engage in economic and commercial enterprise through the initiation and ownership of small and large businesses in different spheres; empowering the youth to be self-employed and to create wealth through the employment of others; facilitating the provision of skills development for loan recipients and youth at Tinkhundla centres; exposing the youth to business environments through internship opportunities; providing mentorship to youth owned enterprise; providing seed capital without the need for collateral to the youth; financing the growth of existing youth enterprises; and, facilitating the establishment of national youth entrepreneurship award schemes [3].

According to Swaziland Youth Enterprise Fund (2011), YEF representatives collect the forms from the constituencies to the YEF offices where they are recorded and sent to Imbita women`s finance trust which is the YEF intermediary. The entry point for all loan service is the YEF intermediary, Imbita Women`s Finance Trust. Credit officers conduct site visits to all selected potential beneficiaries to access their business environment and all necessary conditions for a business to succeed. Loans of up to E100, 000 are provided to individuals, companies and association. An individual is given a loan amount of up to E20, 000. Companies are given a loan amount of up to E50, 000 and associations are given loan amount of up to E100, 0000 at an interest of 8% per annum. Loans of up to E5, 000 are approved at the government intermediary offices. For loans from E5, 000 to E 100, 000, Imbita Women`s Finance Trust writes its comments which are then transferred to the YEF board. Based on all the documents and their judgment, the board makes a final decision. After necessary evaluation, the loan is approved and disbursed by credit officers. Applicants who qualify for the loan are then informed through letter of approval issued by Imbita and distributed by the YEF office to the various constituencies [3]. This study then aims at assessing the effect of credit, particularly from the Youth Enterprise Fund on the productivity of smallholder cabbage producers in the Manzini region of Eswatini.

II LITERATURE REVIEW

Vegetable production in Eswatini is seasonal and farmers, especially on SNL, produce maize in summer and vegetables in winter, with the most commonly produced vegetables in the country being tomato, cabbage, carrot and onion, others include beetroot, lettuce, potato, green pepper, cauliflower, Brussels sprouts and broccoli. The bulk of locally produced vegetables are sold within the country, but they can be sold outside the country if produced throughout the year and in significant quantities [1]. According to Sifundza (2013), most farmers are semi commercially oriented poor, not organized, lack inputs and skills to enable them to satisfy the dynamic market requirement such as supermarkets, and are often exploited by the middlemen [6]. A number of farmers, in collaboration with development agencies and the government, have come together to form producer groups to get around their constraints and meet the conditions in the market. This is done in response to the changing consumption patterns and market opportunities caused by the growing demand of the vegetables in the urban areas.

The type of farmers that are found in rural areas are small scale farmers and low income earners. They lack technology, credit facilities and are poorly educated, yet they are significant participants in the production and marketing of vegetables [7]. The consumption of vegetables in Eswatini has been increasing over the years and the country is blessed with fertile soils which favor vegetable production [8]. Climatic conditions are important for crop production. The climatic conditions in Swaziland are favorable to produce a wide range of vegetables and water for irrigation is enough, though additional developments are still necessary [8].

In Eswatini green cabbages are the most common, and are mostly produced for consumption, and marketed through the National Agricultural Marketing Board. Cabbage consists of ninety percent water and is an excellent source of minerals, Vitamin A, B, and C, and roughage. On another note, cabbages are currently the country's most produced vegetable and the Manzini region is an ideal place for the production of cabbages because of its cool weather conditions; the optimum temperature for cabbage production range from 15 to 20 degrees Celsius and growing period for winter cabbage is approximately 120 days and summer cabbage takes 80 days. A good general recommendation for fertilization is Nitrogen of 150 to 200kg per ha, 70 to 90 incorporated pre-plant and top dress the balance using LAN, Phosphorus of 50kg per ha incorporated pre-plant and soil types (medium to heavy with good water holding capacity) and PH levels (6 – 6.8). The ideal plant population per ha would be 30,000 – 35,000 plants per ha and would produce large and heavy heads with an average mass of 2.5– 3kg. The most popular spacing for cabbage production is 50cm in the row and 60 cm between rows. During the dry winter months, irrigation is essential and the key for a good cabbage crop. The NAMBoard, 2009 annual report stated that from 16, 000 to 25, 000 cabbages are planted per ha; most plantings are of 20, 000 plants per ha. The in-row spacing ranges from 400 mm to 600 mm, and from 900 mm to 1100 mm between rows, depending on the system of culture used and the cultivar grown. During the period 2005 to 2009, a total of 310 cabbage farmers were involved in the production of cabbages under a total area of 154.8 ha. The average returns were 83 332 per ha, cost of production was 18 481 emalangeni and total contribution to gross domestic product was 64852 by 2009 [1].

There are various factors that can affect productivity either directly or indirectly. Vegetable production provides an opportunity for intensive production and increases smallholder farmer's participation in the market. Bezabih and Hadera (2007) identified pest, drought, shortage of fertilizer, and price of fuel for pumping water as the major obstacles of vegetable production in Eastern Ethiopia [9]. They reported that insufficient knowledge in product sorting, grading, packing, and traditional transportation affect the quality of produce taken to the market. Researchers showed that the amount of seed, fertilizer and the frequency of irrigation were contributing significantly in productivity to a certain level as the coefficient in squared terms was negative and also stated that productivity is increased by the gender of the farmer (male), educational attainment, contact with extension agents, membership of cooperative societies and access to credit (measures of social capital), all for similar reasons. Singh (2017) added that the amount of land available, high quality seeds, quantity and the amount spent on fertilizer, quantity

and the amount spent on agrochemicals like pesticides and herbicides, planting materials and mechanization (the use of a tractor) are all important factors of productivity in Eswatini[10].

Mangwe et al. (2020) founded that the size of the farm and amount of seed was significantly affect the productivity and consistency in vegetable supply. The study was done in Eswatini using logistic regression analysis [11]. Resource productivity analysis also indicated that seed was over-used, while land and herbicide were underutilized. Maximization of seed, size of land and amount of herbicide, respectively, could increase efficiency. The farm management practices are component of sustainable agriculture production. In relation to available resources, the population is increasing, and thus, the land for agricultural production becomes limited in the developing countries. The SADC report stated that there was no big problem in some localities, instead their problem was poor management (shifting, cultivation), which has evolved over many centuries. Traditional shifting cultivation practices must follow the old traditional farming to restore soil fertility.

Bezabih and Hadera (2007) examined the utilization of low-level agricultural technologies, risks related to natural occurrences such as storms and disease outbreak to be the major sources of the decline in productivity [9]. Furthermore, rapid population growth, the size of land allocated to each household has reduced resulting to a decrease in production. As a result, farmers are adopting intensive production as a means of promoting agro- enterprise development in order to maximize land productivity. Mamba (2015) conducted a study to investigate the socio-economic factors influencing the profitability of vegetable production in Swaziland. Primary data were collected using a structured questionnaire and personal interviews from 63 vegetable farmers in different areas which include Lubulini, Moyeni, Mconcwane, and Ndzevane [12]. Data were analysed using descriptive statistics (means, Frequency, percentages and standard deviation) multiple regression and enterprise budget. Results showed that farming experience, years of education and extension contact had a positive and significant influence on the profitability of vegetables production.

Xaba (2013) conducted a study aimed to identify factors affecting productivity and profitability of vegetable production [13]. A two-stage sampling technique was used to collect data from 100 vegetable farmers. Descriptive and inferential statistics were employed for data analysis. Multiple linear regression analysis was used to identify determinants of profitability of vegetables. Gross margins per hectare were used as a proxy for profitability as it measures relative profitability. The results showed that the factors that significantly affected productivity of vegetable farmers were access to credit, selling price, fertilizer quantity, distance to market and gender of the farmer. For example, the selling price of carrot had a positive relationship with the productivity of vegetable farmers, suggesting that when the selling price of carrot increase by one unit, all else equal, the quantity of carrot produced would increase by 0.417 kilograms. The determinants of profitability of vegetable production were level of education, land under vegetable production and type of marketing agency.

G. B. Tesfay (2010) carried a study examine the determining factors on smallholder vegetable producers' adoption decision to use the new agricultural technology or not, and to interpret the smallholder's response to this new technology adoption decision in relation to the determining factors, this thesis involves the robust logit model estimation, and elasticity after logit model estimation [14]. To see the impact of the project intervention in the pilot learning Wereda and the trend of vegetable production starting 2004 to 2009 in the area, Heckman treatment effect model and descriptive statistics are estimated (used) respectively. In the robust logit estimation, the study found that education level of the respondent, water sources accessibility, household land holding size, access to credit and households with no experience to employ man labor to their farm activity revealed positive effect while age of the household head, distance of the farm area from the local market (Alamata) and the practice of renting in land for producing vegetable output revealed negative effect on new agricultural technology adoption decisions. The Heckman treatment effect estimation robust our principal hypothesis where our principal hypothesis is project participation has positive effect on the profitability of the project participant and in return this profitability can affect the utility of the smallholder positively which is basically assumed as impact of the project. Besides, membership of any association or farmers' cooperatives, farmer's future output market price expectation, being married or coupled and male sex variables indicates positive effect on profitability of the smallholder vegetable producer.

Producing the market calls for production resources that include land, labour force and capital. Poor access to these assets affects the way in which smallholder farmers can benefit from opportunities in agricultural markets, and especially in terms of the volume of products traded and the quality of those products (Bienabe et al., 2004). Small-scale farmers lack consistency in terms of producing for the markets due to insufficient access to production resources [15]. Ndabenhle et al. (2020), in their study of technical constraints to smallholder farmers and their implications for market access, collected data based on the equipment used by small scale farmers, access to market information, market distance, asset values and the demographic and socio economic variables, concluded that that access to information, total asset ownership, income and extension and farming type are the most important factors that influence market access by small scale farmers. Equipment use, public infrastructure and market distance did not seem to be the important factors affecting market access [11]. Road conditions to the public stores, road conditions to the local fresh produce market, road conditions to family and friends, distance to the output market, percent of the produce to the market were some of the factors that affected small scale farmers in accessing markets. Transaction costs also result from information inefficiencies and institutional problems such as the absence of formal markets [16]. Transaction costs include the costs of information, negotiation, monitoring, co-ordination, and enforcement of contracts. There is no doubt that high transaction costs tend to discourage commercialization. Smallholder farmers are located in remote areas and are geographically dispersed and far away from lucrative markets. Distance to the market, together with poor infrastructure and poor access to assets and information results in high business costs. Since smallholders are poor, they find it

difficult to compete in lucrative markets due to the high transaction costs. Traders with higher social capital are better able to enter more capital-intensive marketing activities such as wholesaling and long-distance transport, whereas traders with poor social networks face major barriers to entry into the more lucrative market segments [10-11]. Minimizing transaction costs is the key to improving access to high-value markets in developing countries, because high transaction costs will make it difficult for poor smallholder enterprises to market their produce. For smallholder farmers to be integrated into the agricultural supply chain, greater effort is needed to reduce transaction costs and improve efficiencies along the agricultural value chain.

In some other findings reported that producers to create better market access for local foods they need to provide additional market services and develop trust-based relationships with their buyers. In Uganda, farmers also face complex of constraints that limit their participation and benefit from agricultural market chains. Suggestions were made that the Government, civil society and all development agencies should mobilize and support farmers to form production and marketing organizations. Government should use integrated approach to marketing; increase investment in road construction and maintenance, establish market and trade centers in all rural areas and fight corruption at all levels. Most small-scale farmers have no means of transport to carry their produce to markets. Transportation problems result in loss of quality and late delivery, which in turn lead to lower prices, and this is regarded as the greatest problem faced by emerging farmers [17-18].

The most topical issue faced by vegetable production in almost all areas of the world is the availability of water. Insufficient research in issues such as the development of drought tolerant crops, dealing with increased salinity, and the use of low quality water. Lack of agricultural price information from local regional, national markets and the absence of government policies were create enabling environment for vegetable producers. Both soil born and foliar diseases are serious challenges in vegetables, more especially during summer [1][7][19-20]. Much of this Swazi Nation Land is officially owned by the monarchy or aristocracy, and is made available under terms which limit productivity and discourage commercial farming [21] and NAMBoard also indicate challenges faced by farmers including crop pests, torrential rains, shortage of tractors to land preparation and insufficient extension services; lack of transport to reach market and inability to store fresh produce at the homestead; limited variety of fresh vegetables available at time to attract farmers, lack of reliable product information, lack of water for irrigation in the dry season, lack of suitable variety for production in summer, and shortage of cash to buy inputs [8][20].

Effects of the credit on smallholder vegetable production:

The Innovations in Poverty Reduction in Zambia in a study they conducted on June, 2013 reported that households that took up the loan could produce mere tons of maize and produce maize flour than before when they had no loan. To repay the loans, households brought maize for repayment to a central point in each village in June. Over the next two planting seasons,

researchers compared the in-kind maize loans with cash loans and tested the impact on farmers' labor allocation and crop yields. Regardless of loan type, borrowers were able to repay with either maize or cash. In order to measure how the effect of receiving loans persisted over time, some villages were not given loans during the second year of the full study. There was high take-up of the loans, and villages where loans were offered saw an increase in farm productivity, food consumption, a decline in the number of households engaging in casual day labor, and an increase in wages for those who did engage in casual labor. The impacts were larger in villages where all eligible households could take out a loan.

Masuku et al, (2014) conducted a study to assess the influence of credit on the technical efficiency of smallholder vegetable farmers in Swaziland [22]. The results of the study revealed that credit had a negative effect on technical efficiency of cabbage and green pepper farmers, while it had a positive effect on the technical efficiency of tomato, and beetroot farmers. The technical efficiency of tomatoes and cabbage farmers was affected by age, education level, farming experience and access to credit while beetroot and green pepper was affected by farmer's age, and off-farm income. The authors further stated that access to credit is regarded as an important intervention for improving the incomes of the rural population, mainly by mobilizing resources to more productive uses.

III RESEARCH METHODOLOGY

This study was conducted in the Manzini region of Eswatini which is located in the center-west of the country. It has a humid subtropical climate with hot, rainy summers and mild, dry winters which make it suitable for vegetable production all year round. The residents in this region are engaged in cabbage production as their main source of livelihood. The study used primary data and made use of descriptive statistics and quantitative research design. The primary data was obtained from cross sectional survey of cabbage farmers in the study area. The study areas were purposively selected according to the concentration of cabbage farmers. The study was based on 40 cabbage farmers who were assisted by Microfinance Unit and got credit from YEF, and 40 farmers who did not get the credit from YEF. These 40 farmers were selected randomly from all the farmers who got credit from the YEF. The convenience method of sampling was used to get the 40 farmers who did not get the credit from the same study areas. Quantitative and qualitative techniques were used in this study. Primary data was collected using well structured, self-designed and pre-tested questionnaires which were administered through face-to-face interviews with farmers and the collected information was captured in a computer. The study used descriptive statistics, binary logit regression and a multiple linear regression model in analyzing data. Descriptive statistics includes means, percentages, standard deviation and frequencies through SPSS. The binary logistic regression was used to analyze the factors that affect the participation of the farmers to the YEF credit and the multiple linear regression model was employed to analyze factors affecting cabbage output [23-26].

Empirical Model:

$$\text{Ln}(Pi/1-Px) = \boldsymbol{\beta}_0 + \boldsymbol{\beta}_1 X_1 + \boldsymbol{\beta}_2 X_2 + \boldsymbol{\beta}_3 X_3 + \boldsymbol{\beta}_4 X_4 + \boldsymbol{\beta}_5 X_5 + \boldsymbol{\beta}_6 X_6 + \boldsymbol{\beta}_7 X_7 + \boldsymbol{\beta}_8 X_8 + \boldsymbol{\beta}_9 X_9 + \boldsymbol{\beta}_{10} X_{10} + e_i$$

Definition of terms for the regression model; Y = Ln (Pi/1-Px) participation by farmers to the YEF credit; β_0= Intercept; $\boldsymbol{\beta}_1$ to $\boldsymbol{\beta}_{10}$ =Parameters to be estimated; Xi = explanatory variables; e_i = random error term. Empirically; **Y=** participation by farmers to the YEF credit. It is a dummy variable where 1= participation of farmer in the YEF credit and 0= non-participation of the farmer in the YEF credit; β_0=constant; β_1 to β_{10}=coefficient of independent variables; X_1=Farmers age (Years); X_2= Farmers Gender (0=Male, 1=Female); X_3=Faming Experience (Years); X_4=Education level (Years); X_5=Household number (Number); X_6=Agricultural training (Yes =0, No = 1); X_7= Fertilizer usage (kilograms); X_8= Land size (hectares); X_9= Pest and disease control (Yes =0, No =1); X_{10}= Access to labor (Family labor =0, Hired labor =1) .

The same variable where used to estimate the factors affecting the output of smallholder cabbage farmers: where Y = the number of cabbage heads produced per hectare.

IV RESULTS AND DISCUSSIONS

Socio-economic characteristics of the respondents:

The results in Table 1 reveal that the Manzini region was dominated by female farmers. From the 80 farmers cross-examined, 46 of them were females of which 22 of them were beneficiaries of the Youth Enterprise Fund, and 24 were non-beneficiaries. The results also show that 34 of the respondents were males; 18 of them were beneficiaries and 16 were non beneficiaries. This supports the literature that microfinance supports mostly women as they have been proven to be more conscious about credit and caring for their families, as compared to most men. The most prevalent age group of the beneficiaries is ranging between the ages of 20-30 with a percentage of 55%; while, the prevalent age group among the non-beneficiaries ranges from 41-50 with a percentage of 35%. This means that the distribution of farmers according to age is uneven. Table 1 also illustrates moderate literacy rates of the farmers as a majority of the farmers attained high school education. The results revealed that there were 29 respondents who attained high school education in both groups. Schooling has been shown to provide external benefits by increasing farm outputs. Dlamini et al. (2012) concluded that low literacy rates among maize farmers leads to poor technical and economic efficiencies [27]. Further results in Table 1 show that from the 80 farmers cross-examined, 44 of them were single, and 27 out of 44 were beneficiaries of the YEF and 17 were non-beneficiaries of the fund. They also reveal that 28 of the farmers were married where 20 of them are beneficiaries and 8 are not; additionally, 8 farmers were divorced where 5 of them are beneficiaries of the fund and only 3 are non-beneficiaries. According to the results, the majority of the farmers in the Manzini region were single and, that may be because of the fact that majority of the sampled farmers are the youth.

Household size is the measure of the human capital that can be supplied by individual households. Household members act as a plentiful resource for farm labour; however, Dlamini et al. (2012) concluded that high household members deplete resources made for farming thus reducing farm productivity [27]. The results in Table 1 indicated that the majority of the respondents had household size ranging from 6-10 members with beneficiaries accounting for 55% and non-beneficiaries accounting for 45%. Table 1 showed that among the beneficiaries the majority of the farmers had farming experience of 1-5 years which constitute 47.5% of the respondents. The reasons for this is that the YEF targets the youth which has just finished school and are still new in the farming sector. Among the non-beneficiaries the majority of the farmers had over 10 years of farming experience and they constitute 50% of the respondents.

About 62.5% of the beneficiaries and 57.5% of the non-beneficiaries had income sources from outside the cabbage farming, and it is evident that majority of farmers have other sources of income except from vegetable production and they diversified to other agricultural activities like maize farming. Only 40% of all the respondents (37.5% beneficiaries and 42.5% non-beneficiaries) do not receive income from other sources and this scenario may be caused by other factors affecting vegetable production. Dlamini et al. (2012) concluded that there is a need to equip farmers with necessary production skills as low vegetable productivity is a food security indicator [27]. There were 49 (26 beneficiaries and 23 non-beneficiaries) farmers who used the agricultural training and extension services which impart information and provide crucial resources and knowledge to farmers, especially the uneducated farmers; 39 farmers (14 beneficiaries and 17 non-beneficiaries) were not making use of extension services or extension services do not reach them, so extension services, training from government, parastatal and NGOs can improve farmers' productivity.

Table 1: Socio-economic characteristics of sample farmers

Socio Demographic	**YEF-Beneficiaries**	**Non-YEF-Beneficiaries**	**Total**
Gender			
Male	18 (45.0)	16 (40.0)	34 (42.5)
Female	22 (55.0)	24 (60.0)	46 (57.5)
Age			
20-30	22 (55.0)	13 (32.5)	35 (43.8)
31-40	18 (45.0)	13 (32.5)	31 (38.7)
41-50	00	14 (35.0)	14 (17.5)
Mean (Std. Dev.)	29.2 (4.7)	37.8 (10.4)	
Level of Education			
Primary	03 (07.5)	09 (22.5)	12 (15.0)
High School	29 (72.5)	26 (65.0)	55 (68.7)
Tertiary Level	08 (20.0)	05 (12.5)	13 (16.3)
Marital Status			
Single	27 (67.5)	17 (42.5)	44 (55.0)

Married	08 920.0)	20 50.0)	28 (35.0)
Others	05 (12.5)	03 (07.5)	08 (10.0)
Household Size			
01-05	14 (35.0)	15 (37.5)	29 (36.2)
06-10	22 (55.0)	18 (45.0)	40 (50.0)
More than 10	04 (10.0)	07 (17.5)	11 (13.8)
Mean (Std. Dev.)	7.9 (2.6)	6.3 (2.3)	
Farm Size (Hac.)			
0.5-2.0	09 (22.5)	08 (20.0)	17 (21.2)
2.0-4.0	27 (67.5)	26 (65.0)	53 (66.3)
4.0-6.0	03 (07.5)	05 (12.5)	08 (10.0)
6.0 and above	01 (02.5)	01 (02.5)	02 (02.5)
Mean (Std. Dev.)	2.88 (1.26)	3.02 (1.31)	2.95 (1.29)
Farming Experience			
01-05	19 (47.5)	08 (20.0)	27 (33.7)
06-10	15 (37.5)	12 (30.0)	27 (33.7)
More than 10	06 (15.0)	20 (50.0)	26 (32.5)
Mean (Std. Dev.)	9.0 (3.4)	8.7 (4.2)	
Off-farm Income			
Yes	25 (62.5)	23 (57.5)	48 (60.0)
No	15 (37.5)	17 (42.5)	32 (40.0)
Ag. Training & Advisory Services			
Yes	26 (65.0)	23 (57.5)	49 (61.3)
No	14 (35.0)	17 (42.5)	31 (38.7)

Source: Own survey 2020

Farmers' Cabbage Productivity

This result compares the means of the cabbage farmers benefiting from the YEF and non-beneficiaries. The productivity of the farmers was measured as the average yield produced per hectare as productivity is known as output per unit of input used. The results showed that both groups had a small mean difference and an average standard deviation which indicates that there was an average variation in the productivity of the farmers. The farmers who are beneficiaries of the YEF credit had a higher mean yield of 2791 cabbages while the non-beneficiaries had a mean yield of 2618 cabbages. Coefficient of variation was slightly high (19.24%) in YEF beneficiaries in comparison to Non YEF beneficiaries (16.39%). The mean difference was 173 cabbages and the t-value was 1.596. Based on the P-value results, the researchers accept the null hypothesis which states that there is no significant difference between the means.

Table 2 Farmers' Cabbage Productivity

	Mean (E) & Std. Dev.	Mean Difference	CV %	t-value & p-value
YEF-Beneficiaries	2791 (537.0)	173	19.24	1.596 (0.1155)
Non- YEF-Beneficiaries	2618 (429.0)		16.39	

Source: Own survey 2020

The logistic regression model results:

Table 3 shows the results of the logit regression. This was used to determine the factors influencing farmers' participation in the Youth Enterprise Fund credit in the Manzini region. The model has a good fit since the criteria for classification accuracy was satisfied. The classification accuracy computed by SPSS version 20 surpassed the proportional by chance accuracy by a value of more than 25%, supporting the utility of the model. There was also no evidence of numerical errors or problems like multicollinearity in the solution, which is detected by standard errors larger than 2.0 (the check for standard errors larger than 2.0 does not include the standard error of the constant). The model chi-square value was found to be 50.942 and was also statistically significant at 1% ($p<0.01$). The null hypothesis that there is no difference between the model with only a constant and the model with independent variables was rejected. The existence of a relationship between the independent variables and the dependent variable was supported. Five explanatory variables were found to be statistically significant whilst another five were statistically insignificant. The significant variables include: age of the farmers, household size, land size, fertilizer amount and labor. The insignificant variables were: level of education, farming experience, agricultural training, pest and disease control and the amount of cabbages harvested.

Table 3 shows that the probability of the Wald statistics for the variable farmers' age was 0.004 and was statistically significant at 1% ($p< 0.01$). Therefore the null hypothesis that the beta coefficient for the variable farm size would be equal to zero was rejected. The value of exponential beta [Exp (β)] for Farmer`s age was 0.793, which implies that a one unit increase in farmers age decreased the odds of participation by 20.7%.

Table 3: Logit regression model -Cabbage farmers' choice to participate in YEF Program

Variables	β	S.E.	Wald	Sig.	Exp(β)
Age	-.232	.079	8.496	.004	0.793
Gender	.777	.755	1.057	.304	2.174
Household Size	.373	.178	4.384	.036	1.452
Level of Education	.179	.163	1.199	.273	1.196
Land Size	.980	.409	5.740	.017	2.666
Farming Experience	-.055	.099	.309	.578	.946

Fertilizer Amount	-.012	.005	5.430	.020	.988
Agric. Training	-.426	.715	.355	.551	.653
Pest and disease control	-1.080	1.093	.977	.323	.339
Labour	1.574	.723	4.744	.029	4.825
Cabbages Harvested	.002	.001	1.803	.179	1.002
Constant	-.925	4.127	.050	.823	.397

Source: Own survey 2020

(-2 log likelihood = 59.962 Nagelkirk R square = 0.628 Cox and Snell R square =0.471, Chi-square = 50.942)

The probability of the Wald statistics for the variable household size was 0.036, hence statistically significant at 5% ($p<0.05$), so the null hypothesis that the beta coefficient of the variable household size would be zero is rejected. The Exponential beta for household size was 1.452 which indicates that a one unit increase in the household size increased the likelihood of participation on the Youth Enterprise Fund credit by 1.452 units. The probability of the Wald statistics for the variable land size was 0.017 hence statistically significant at 5% ($p<=0.05$) so the null hypothesis that the beta coefficient of the variable, land size, would be zero was rejected. The Exponential beta for farming experience was 2.666 which implies that a one unit increase in the land size for the farmer increased the likelihoods of participation by 2.666 units. The probability of the Wald statistics for the variable fertilizer amount was 0.020 hence statistically significant at 5% ($p<=0.05$) so the null hypothesis that the beta coefficient of the variable, fertilizer amount would be zero was rejected. The Exponential beta for fertilizer amount was 0.988 which implies that a one unit increase in fertilizer amount decreases the odds of participation for the cabbage farmers by 1.2%. The probability of the Wald statistics for the variable labor size was 0.029 hence statistically significant at 5% ($p<0.05$), so the null hypothesis that the beta coefficient of the variable labor would be zero is rejected. The Exponential beta for labor was 4.825 which indicates that a one unit increase in the labor increased the likelihood of participation by farmers on the Youth Enterprise Fund credit by 4.825 units.

Estimating factors affecting cabbage productivity:

Results in Table 4 show that the F-value was 5.492 with a p-value of 0.004 which indicates that the model was moderately significant. The F-values express the significant relationship between the yield per hectare of cabbages produced by the farmers and the explanatory variables. Table 4 also indicates that farmers who benefited from the Youth Enterprise Fund have an R- square value of 0.654, which means that 65% of the dependent variables is explained by the independent variable.

Table 4: Factors affecting farmer's cabbage productivity

Variables	YEF Beneficiaries			Non YEF Beneficiaries		
	Coefficients	t-Statistic	p-value	Coefficients	t-Statistic	p-value
Constant	570.741	1.108	0.277	2093.195	4.225	0.000
Age	-2.469	0.151	0.881	5.078	1.125	0.270
Gender	220.083	1.975	0.058	307.650	2.976	0.006
Household Size	9.058	0.042	0.967	7.333	0.397	0.717
Level of Education	33.389	1.631	0.114	-76.964	3.542	0.001
Farm Size	132.044	2.036	0.051	-121.296	2.313	0.028
Farming Experience	38.766	1.987	0.056	2.262	3.109	0.004
Fertilizer Amount	2.345	4.233	0.001	38.621	3.002	0.005
Agric. Training	-153.238	1.443	0.160	6.623	0.070	0.945
Pest & Disease Contr.	-58.275	0.363	0.719	102.109	0.848	0.403
Labour	5.102	0.136	0.893	-167.647	1.688	0.102
R-Square	0.654			0.587		
Adjusted R-Squuare	0.535			0.444		
F-value (p-value)	5.492 (0.004)			4.120 (0.018)		

Source: Own survey 2020

Factors influencing productivity of farmers benefiting from YEF program are explained as follows:

The results show that the variable gender is significant with a coefficient of 220.083 meaning that the gender of the respondents increases the output/ha by 220.083 units of cabbages holding other factors constant. In this case the female gender was dominant meaning an increase in women farmers increases the output/ha by 220.083 units. The reason for this is probably due to the fact that women spent a lot of working hours in the fields compared to men. Land size was also found to have a significant impact on the productivity of the cabbage farmers who benefited from the YEF credit with a regression coefficient of 132.044 which is positive. This means that other factors remaining constant, when land size increases by one unit, yield per hectare of cabbages for beneficiary farmers will increase by 132.044 units indicating that this variable is one of the factors affecting the productivity of cabbage production. The farming experience is also positive and significant and it has a coefficient of 38.766 which signifies that when you increase the farming experience by one unit the number of cabbages per hector also increase by 38 units of cabbages holding other factors constant. Another significant variable is the fertilizer amount with a coefficient of 2.345 meaning a unit increases in the amount of fertilizer applied increases the output of cabbage productivity by 2 cabbages holding other factors constant

The model for the non-beneficiaries below shows that the F-value was 4.120 with a p-value of 0.018 which indicates that the model was moderately significant. The table indicates that farmers who did not benefit from the Youth Enterprise Fund has an R- square value of 0.587, which means that 58.7% of the dependent variables is explained by the independent variables Factors influencing productivity of farmers not benefiting from YEF program are explained as follows:

The results show that the variable gender is significant with a coefficient of 220.083 meaning that the gender of the respondents increases the output by 220.083 units of cabbages holding other factors constant. In this case the female gender was dominant meaning an increase in woman farmers increases the output by 220.083 units. The reason for this is probably similar to before. The results of the study show that the level of education is significant and negative with a coefficient of -76.964 meaning that holding other factors constant, a one year increase in the level of education for the farmers who are non-beneficiaries decreases productivity of cabbages by 76 units. The variable land size is significant and negative with a coefficient of -121.296 meaning that holding other factors constant, a one unit increase in the land size for the farmers who are non-beneficiaries decreases productivity of cabbages by 121 units. The farming experience is significant and positive with a coefficient of 2.262 which signifies that when you increase the farming experience by one unit the number of cabbages per hector will also increase by 2 units of cabbages holding other factors constant. Another significant and positive variable is the fertilizer amount with a regression coefficient of 38.621 meaning a unit increases in the amount of fertilizer applied increases the output of cabbage productivity by 38 cabbages holding other factors constant

V CONCLUSION AND RECOMENDATIONS

Based on the results, it can be concluded that there is a difference in the cabbage productivity between beneficiaries and non-beneficiaries from YEP program by 173 heads of cabbage/ha although the difference was not statistically significant. The determinants of choosing to participate in the YEF program were age, household size, land size, fertilizers amount and labour. The determinants of cabbage productivity among YEF beneficiaries were gender, land size farming experience and fertilizer amount while determinants of cabbage productivity for non-beneficiaries were gender, level of education, farm size, farming experience and fertilizer amount. The results suggest that the YEF program has a positive effect on cabbage output/ha among youth and is recommended that the government continue increasing the number of beneficiaries and encouraged the youth to join. To attract youth to join the program there is need to improve on youth access to land, access to fertilizer and access to more labour saving technologies, in addition to trainings provided by YEF-program.

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