

ANALYSIS OF GENDER DIFFERENTIALS IN SWEET POTATOES 1 PRODUCTION

2 OUTPUT IN OSUN STATE

3

*14 Olagunju, F.I; **Fakayode, S .B, **Babatunde, R.O and *Ogunwole-
Olapade, F

5

6 *Department of Agricultural Economics, Ladoke Akintola University of
Technology,
7 Ogbomoso.

8 **Department of Agricultural Economics and Farm Management, University of
Ilorin,
9 Ilorin

Correspondence Author: e-mail-olagfunk@yahoo.com

10

13 ABSTRACT

14 The research investigated the determinants of gender differentials in the output of
male and
15 female sweet potatoes farmers in the study area. Specifically, the study examined
the socio
16 economic characteristics of the sweet potatoes farmers, the sweet potatoes farming
activities
17 done by the genders, the efficiency estimates of the farmers and factors that
determine gender
18 outputs in the study area. The survey was undertaken using a well structured
questionnaire.

19

20 Sixteen (16) sweet potatoes producers were randomly selected from the provided
list with equal
21 number of male and female sweet potatoes producers to arrive at a total sample of
eighty (80) **state clearly how you arrived at the 80 respondents**
22 respondents. The data analyses were carried out with descriptive statistics and
Cobb-Douglas
23 production function. Land clearing, preparation and ridging was **(were)** found to
be done by 90%,
24 87.5% and 93.8% of the male and 12.5%, 35.0% and 10.0% of the females,
respectively. The
25 analysis of the mean output in kg per hectare of the male and female sweet
potatoes farmers
26 shows the difference in the mean output.

27

28 The efficiency distribution shows that male operate at the efficiency range lower
than that of the
29 females. The study reveals that women are more interested and committed in
sweet potatoes
30 production. Farm size, quantity of input, depreciation, age, education, farming
experience and
other factors were found to affect output of all the respondents. It is therefore 31
pertinent that
32 policy makers should pay attention to the female sweet potatoes farmers as they
are found to be
33 more productive.

34

35 **Key words:** Gender, Efficiency, Sweet potatoes.

36

INTRODUCTION

58 Food which is a basic necessity of every human being is scarce in its provision;
and the
59 provision of such food is a source of concern to both man and woman (Ajayi and
Laogun, 2005).
60 Household food security is very important as the women and the men have
different but
61 complimentary roles and responsibilities in securing nutritional well-being for all
members of the
62 household and the community (Spriggs, 2005). Complementary roles are evident
in all activities
63 revolving around sweet potatoes (*Ipomoea batatas*)*italicize botanical names*
production especially across all the states in
64 Nigeria. Sweet potato is a creeper of the *convolvilaceae* family. It originated from
Central America
65 and is widely grown as important staple food in most parts of the world.
66 Presently, Nigeria is the number one producer of sweet potato in Africa with annual
output of
67 3.46 million metric tons (FAO, 2006), and globally the second largest producer after
China. The crop
68 is grown for both human and animal consumption. It is the only crop among the root
and tuber crops
69 that has a positive per capita annual rate of increase in production in sub-Saharan
Africa (Tewe *et. al*,
70 2003). Sweet potato is efficient in the production of carbohydrate, minerals, vitamins
and cash per
71 unit area and per unit time (Getahurn and Terete, 2007).
72 Gender participation is a term that describes the roles and activities of men and
women
73 according to traditions and beliefs of a particular culture. (Buckland, 1993). In
most developing
74 countries men and women participate in traditional agriculture performing
different roles. These
75 roles are gender specific, complimentary and reciprocal in natural activities like
bush clearing,
76 land preparation, harvesting, processing and marketing (Brearley, 2001). Tewe
(2003) reported
77 that if the contribution of men and women are taken into account equitably when
allocating
78 productive resources, agricultural production can be on the increase, women gives
(*check*) certain food
79 crops such as cassava, sweet potatoes, maize, yam, melon etc. and are also
responsible for
80 weeding, harvesting, transporting processing, storage and marketing of their
crops.
81 The problem of declining crop productivity in Nigeria is not expected given
various
82 interventions by government and this have raised reactions among the scholars
and practitioners.

83 Farmers output still fall below 60 percent and to enhance this, then, the means of production (i.e. 84 technology) should be improved as well as other factors that support the farmers output should 85 be given adequate consideration (Ebong, *et al.* 2011; Anyanwu and Zaka, 2011). 86 Gender inequality remains a problem that has characterized the Nigerian agricultural 87 climate. In Southern part of Nigeria women are meant to do most of farm work and have ownership of the farms while in the Northern (part) men do most of the farm work 88 and ownership of 89 farms. Given that gender roles are culture specific, it was revealed that in the middle belt region 90 of Nigeria women make ridges and mounds while in the eastern part of the country that is 91 certainly a job for men (Walabai, 2005). Gender responsibilities and difference have not been 92 adequately considered by policy makers and extension workers in many developing countries. 93 Gender differences tend to have a lot to do with farming responsibilities as it influences the 94 farming activities performed. Farming incentive distribution tends to be done in gender 95 insensitive manner (Jacoby, 1992). Policy makers and administrators work with baseless 96 assumption that women play supportive role to the men who are the actual farmers (Abdulai and 97 Regmi, 2000). 98 Women farmers like their male counterpart, needs all the necessary training and support 99 to enhance their output (Olagunju and Ogunniyi, 2003). The transformation of traditional or 100 peasant sweet potatoes farming of which women are the life blood is very important to increase 101 their output. Hence the study analyzes the gender differentials in the output of sweet potatoes' 102 farmers in Osun State, Nigeria. The major objective of this study is to analyze the socio103 economic characteristics of the respondents, ascertain various activities performed by male and 104 female sweet potatoes farmers, analyze the mean output of the male and female sweet potatoes 105 farmers in the study area, examine the differences in the efficiencies of male and female sweet 106 potatoes farmers and to determine the factors affecting the output of the male and female sweet 107 potatoes farmers.

108 **METHODOLOGY**

109 A multi-stage sampling technique was used in selecting respondents for the study. Osun 110 state was selected purposively based on the dominance of sweet potatoes farmers in the area than

111 other States. A sample of five (5) Osun State Agricultural Development Programme (ADP)
112 zones was purposively chosen so as to concentrate on the sweet potato farmers. The listing of
113 the sweet potato farmers in the chosen zone was done with the assistance of the OSADEP Staffs.
114 Sixteen (16) sweet potatoes producers were randomly selected from the provided list with equal
115 number of male and female sweet potatoes producers to arrive at a total sample of eighty (80)
116 respondents. A structured questionnaire was developed based on the objectives of the study to
117 collect information from the respondents. Cross-sectional data were collected from these
samples in 2010/2011 cropping season. The data analyses were carried out 118 with descriptive
119 statistics and Cobb-Douglas production function.

120

121 **RESULTS AND DISCUSSIONS**

122 The result of the socio-economics characteristics of the respondents in Table 1, shows
123 that the mean age of the female sweet potatoes farmers (53.90) are more than the mean age of
124 their counterparts (52.60) with the youngest age of 22 years and the oldest of 74 years. It was
125 discovered that about 85% of the farmers are within the age range of 41 and 75 years while 15 %
126 are below 41 years. This result indicates that most of the farmers are still in their productive
127 years. It was also noticed that most of the young adults are not actively involved in the
128 production of sweet potatoes in the study area which might be due to rural urban drift. This
129 situation is most common with the male farmers than their female counterparts with the aim of
130 getting more lucrative jobs in cities rather than farming in the villages. This result has policy
131 implication. Nigeria has been recognized to have high rural-urban dichotomy. The number of
132 rural inhabitants that migrate to cities with hope of overcoming powerlessness consistent with
133 rural life is unprecedented (Adewumi, 2008). Majority of the male farmers had spent an average
134 of 10 and half years in school while the female farmers had only spent an average of 4 years in
135 school. The result implied that majority of these sweet potatoes farmers did not have the quality
136 education necessary for efficient performance in their chosen farming career and also a reflection
137 of quality of labour. This may therefore be responsible for low level of innovation and

138 technology adoption by the farmers and possibly failures of keeping good records.

139 The average family size for male and female sweet potatoes farmers are 7 and 6
140 respectively. It is believed that production increases if there are more members of
the household
141 within the productive age of 18-40. Family size is an important source of family
labour since it
142 implies a reduction in the cost of hired labour. The mean years of experience for
the two
143 categories are high enough to categorize them as being expert in the production
of sweet potatoes
144 in the study area. This result implies that the farmers were experienced and not
just amateurs.

145 The average land size cultivated by male and female sweet potatoes farmers are
2.6ha and 2.0ha
146 respectively. About 65% of the respondents cultivated below this average, which
implies that
147 they grow sweet potatoes on small scale, and the likely implication of this is low
productivity.

148 Women generally own less land and the land they have is often of lower quality
than the land
owned by men. According to the Christian and Pinstруп (2008), women in Africa
149 only own 1 per
150 cent of the land and they have to contend with limited access to financial and
technical resources.

151 Majority of the male sweet potatoes farmers 72% were involved in land clearing
152 activities while only 10% of the female respondents were also involved. Land
preparation was
153 done by 70% of the male and 28% of the female respondents. Ridging was done
by 75% of the
154 males and 8% of the females. This is in line with the findings of Tewe (2003) in
the study of
155 trends in Sweet potato Production, Utilization, and Marketing in Nigeria in
which it was revealed
156 that land clearing and preparation for sweet potatoes production was done mostly
by men.

157 Planting was done by 15% of the males and 76% of the females. About 22% and
55 % of male
158 and female respectively participated in weeding. Majority of the males (76%)
were involved in
159 harvesting while 22% of the females were also involved in harvesting. In
marketing activity,
160 27% of the males were involved whereas 62% of the females were into sweet
potatoes produce
161 marketing. The results indicated that the gender participation in marketing
activity of sweet
162 potatoes is still at the rudimentary stage. The result revealed also that majority of
the farmers are
163 peasants and with very few in commercialize operations.

164 The results from Table 3 show that there is need to address the problem of
gender **this section requires the presentation of results only, so i advise you cut the
blue highlightes to conclusion**

165 inequality by directing attention toward resources for women farmers. The
deterioration of
166 conditions for granting credit with the situation of women in the agricultural
sector or the access
167 of credits to women was already complicated. Many women who have had to
rely on personal
168 savings, with all its limitations, for productive investment, could be affected by
the credit crunch
169 due to tightening of it downstream. Women's lack of access to finance is also
due to factors such
170 as lack of collateral, complicated administrative procedures, unsuitable loan sizes
or interest
171 rates, is one of the major factors affecting and limiting the investment and
productive capacity of
172 women workers as well as their ability to finance other basic and strategic needs.
This is likely
173 to affect small traders, work on family farms in exchange for maintenance are
likely to receive
174 less support in the future. The availability of adequate and well-targeted
resources will help
175 women farmers increase their productivity, providing more food for families and
reducing the
176 demand for imports. Examples of ways to help women include expanding their
access to credit
177 and inputs, as well as technical assistance. This strategy has big payoffs. The
analysis revealed
178 from Table 4 shows that there was a higher output of sweet potatoes from female
farmers than
179 male farmers because women are the major producers of sweet potatoes in the
study area. By
these estimates, agricultural productivity would rise if women farmers' access 180 to
inputs, credit
181 and technical assistance were equalized with men's.
182 Women farmers took sweet potatoes farming as a business while the men were
involved
183 either as helpers to the woman or to assist the household consumption. It was
observed that a
184 little number of male took sweet potatoes business as a serious one. This result is
in sharp
185 contrast with the assumption that women only play supportive roles in farming
business (Abdulai
186 and Regmi, 2000). Cooperatives societies have a role to play in alleviating the
problem of
187 agricultural funding, and paving the way towards recovery that is socially and
economically
188 sound and sustainable. Where access to credit is becoming restricted,
cooperatives can continue
189 as providers of financial services. Where public service delivery is jeopardized as
a result of
190 crisis-induced cuts in funding and spending, cooperatives can play a bridging
role as service

191 providers (e.g. health cooperatives), while at the same time providing employment opportunities

192 to women and men.

193 From Table 4, the total output in naira per year for the male and female sweet potato

194 farmers sampled are ₦8, 327,443 and ₦12, 336,472 respectively. The mean output in naira for

195 the male and female sweet potatoes farmers sampled is ₦ 208,186 and ₦ 308,411 respectively.

196 The Female farmers realized better output than the males, to further substantiate this fact; Table

197 5 shows the productivity estimates of the male sweet potatoes farmer with a minimum value of

198 0.100, mean value of 0.541, and the maximum value of 0.963. The range of the efficiency

199 estimates shows that about 48 percent of the estimates have less than 0.50. The percentage of

200 12.5 and 7.5 of the estimates are within the range of 0.60-0.69 and 0.70-0.79 respectively. Also,

201 7.5 percent and 5.0 percent efficiencies estimates were within the ranges 0.80-0.89 and >0.89

202 respectively for male gender. The distribution refers that majority (48%) of the male sweet

203 potatoes farmers lie within the efficiency rating of <0.50 in contrast with female farmers with

204 high efficiency rating of 38 % within the ranges of 0.7 - 0.79. The productivity efficiency

205 estimates of the female sweet potatoes farmers shows the minimum value of 0.100 and the mean

206 value of 0.796 with a maximum value of 0.963. About 5.0 percent of the farmers have efficiency

207 value of less than 0.50. Also, 12.5%, 37.50%, 25% and 12.5% of the female sweet potatoes

208 farmers had efficiency values with ranges of 0.60-0.69, 0.70-0.79, 0.80-0.89 and >0.89

209 respectively. This distribution inferred that the majority were within the efficiency rating of 0.70-

210 0.79. The result implied that the female farmers are efficient operators in sweet potatoes farming

211 than the males.

212 The result from Table 6 shows that there are minimum likelihood of the estimate of the

213 Cobb-Douglas function for female gender output, the coefficient of farm size, quantity of sweet

214 potatoes vines in Kg, quantity of agrochemical and depreciation of capital. The coefficient of

215 farm size, quantity of sweet Potatoes vines and quantity of agrochemical in Kg were all

216 significant at 1% probability level and were all positively related with sweet potatoes output.

217 This was buttressed by the elasticity values of 4.63, 4.93, and 184 respectively. These values

218 indicated that the household sweet potatoes productivity is still at the second stage of production

219 and increasing the use of any of these inputs will result to greater future productivity among the

220 female sweet potatoes farmers.

221 The efficiency factors affecting the productivity of the female farmers included farming

222 experience, marital status, number of extension visits and household size. Age related negatively

223 with efficiency of productivity but was not significant. The result implied that old age will

224 reduce efficiency. The analysis further shows that, the coefficient of marital status was

225 significant at 1% probability level and has positive relationship with efficiency. That implied that

226 marital status is an incentive in terms of increased labor force to sweet potatoes production in the

227 study area. Also the years of experience was significant at 1% probability level and has positive

228 relationship with efficiency of productivity. This shows that increase in the years of experience

229 increase productivity efficiency. Also number of extension agent visit and household size were

230 also significant at 1% probability level and both had a positive relationship. Thus, the more an

231 extension agent visit the farmer with productive innovations and that is adopted by the farmer the

232 productive and efficient the farmer will be.

233 Table 7 shows that there is minimum likelihood of the estimate of the Cobb-Douglas

234 function for male gender output. The coefficient of farm size and quantity of sweet potatoes vine

235 input available were significant at 1% probability and they were all positively signed. This

236 implied that increase in the availability of farm land and sweet potatoes vine input for the

237 farmers, leads to increase in the farm output. Furthermore, labor (man days) was significant at

238 1% probability and negatively signed. The implication of these results is that increase in labor

239 man days will lead to decrease in productivity because of drudgery.

240 The efficiency factor affecting the productivity included age, education status, marital

241 status, extension visits and household size. Age related negatively with 241 the efficiency of

242 productivity and it is significant at 1% productivity level. The implication is that ageing is in

243 consonance with inefficiency. Educational status, marital status, and number of extension visits

244 and household size related positively with efficiency productivity. The implication is that

245 increase in these factors will result to increase efficiency in productivity of the
male sweet

246 potatoes farmers in the study area.

247

248 **CONCLUSION AND RECOMMENDATIONS**

249 The study has highlighted that there are gender differential(s) in the output of
male and

250 female sweet potatoes farmers in the study area. It was revealed that the female
produced more

251 output than their male counterparts. This implies that the female took sweet
potatoes farming

252 more seriously and did not play a supportive or complimentary role to their male
counterparts.

253 The women were found to be more technically efficient, this may be as a result
of their

254 commitment to sweet potatoes farming.

255 Both the male and female participated in sweet potatoes farming activities. The
males

256 were more involved in sweet potatoes farming activities such as land clearing,
land preparation

257 and ridging while the female were more involved in sweet potatoes farming
activities such as

258 planting, harvesting and marketing.

259 It is therefore, recommended that agricultural extension agencies should intensify
efforts

260 in disseminating improved production technologies especially to the women to
support their

261 efforts in sweet potatoes farming. Government should provide sweet potatoes
farming inputs and

262 ensure that female farmers get a fair share of the inputs. There should be more
investment in

263 sweet potatoes farming since it as a source of self employment especially for
women, as this will

264 help the government in the fight against gender imbalance and shortage of
employment. In order

265 to achieve rural development in Nigeria, which is to increase rural productivity
and income, there

266 is need to enhance the quality of life of women sweet potatoes farmers and meet
the extension

267 service needs of women farmers in sweet potatoes production.

268 Strengthening the role of women in agriculture and ensuring decent work for a
growing

269 number of women is one step to help economies to get back on track. This would
help to reach

270 the goal of halving the share of poor people. The list of possible measures
includes: increasing

271 women's access to farming land and fertilizers, credit, and education; increasing
women's

participation in decision-making; and strengthening women's role within the 272
family. All these

273 measures are crucial to guaranteeing high productivity and improving the
nutritional status of

274 children.

525 REFERENCES

- 526 Abdulai A. and Regmi P. P. (2000): "Estimating labour supply of farm household under non-separability: Empirical evidence from NEPAL" *Journal of Agricultural Economics* 22:309-320
- 529 Adewumi, M.O (2008): "Profitability and Technical Efficiency of Sweet potato Production in Nigeria". *Journal of Rural Development* 31(5): 105-120.
- 531 Ajayi, A. O. and Laogun. E. A. (2005): "Prioritizing the training needs of women farmers for a sustainable agricultural development" *Nigeria Journal of science* 10 (3) pp.159-164
- 534 Anyanwu E and Zaka K. O (2011): "Analysis of Extension service Needs of women cassava farmers in Akinyele local government area of Oyo state, Nigeria". *Continental Agricultural Economics* 5 (1): 1-6
- 537 Brearley, T. (2005): Increasing the autonomy of women as a means to improving community wellbeing and facilitating development: An exploratory study in Papua New Guinea". Report for ACIAR Project ASEM/2001/037 entitled *Improving the Marketing System for Fresh Produce from the Highlands of PNG*.
- 541 Buckland, L (1993): Gender Analysis in Agricultural Production: *IITA Research Guide* Vol. 58. pp 6-14.
- 543 Christian Friis Bach and Per Pinstруп-Andersen (2008): "Agriculture, growth and employment in Africa" Civil Society input to the Africa Commission on Effective Development Cooperation with Africa.
- 546 Ebong, V. O; E. O Effiong; A. J Eshiet and H. Nruka (2011): Resource use efficiency of land owners and tenants in cassava based farms in Akwa ibom state, Nigeria: A comparative analysis. *Agricultural Journal of North America*
- 549 Ezedinma C. I. (2007): Trends in cassava production and commercialization in Nigeria. A Baseline Report (preliminary draft, not for distribution).
- 551 Food and Agricultural Organization (2006): Production year book of the United Nations.
- 552 Getahum, D and Terete, B (2007): Ethiopia national sweet potato recurrent programme: project 12 online [http://www.cigar.Org/food net/projects. Htm](http://www.cigar.Org/food%20net/projects.Htm).
- Jocoby, H, (1992): "Productivity efficiency of men and women and the sexual division of labour in peasant agriculture of Peruvian sierra" *Journal of Development Economics* 37:265-287
- 557 Olagunju, F.I and Ogunniyi, L.T (2003): "The performance and the constraints of women in Agriculture: A case study of Boluwaduro Local Government Area of Osun State, Nigeria" *international journal of Gender and Health Studies*. 1(1): 28-36.
- 560 Spriggs, J. (2005): Towards a research agenda for improving consumer demand and marketing of

561 sweet potato in PNG. A Report to the Australian Centre for International
562 Agricultural Research.
563 Tewe, O.O; Ojeniyi, F.E and Abu, O.A (2003): “Sweetpotato Production,
Utilization, and
564 Marketing in Nigeria”. Social Sciences Department, International Potato Center
565 (CIP), Lima, Peru.
566 Walabai, E. (2005): “Gender Dimensions of Nigeria Agriculture” Washington D.
C: World
567 Bank.

GENERAL COMMENTS

1. AUTHORS NEED TO REPORT HIS RESULTS IN THE PAST TENSE
2. THE REFERENCES ARE PROPERLY DOCUMENTED
3. THE TABLES ARE WELL PRESENTED
4. MINOR REVISIONS REQUIRED
5. I RECOMMEND THAT THE PAPER BE PUBLISHED AFTER THE
MINOR CORRECTIONS

Reviewer Details:

Name:	Erie Gladys Otasowie (Mrs) P.hD
Department, University & Country	Dept. of Agric. Economics and Extension, Ambrose alli University, Ekpoma