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ASSESSMENT OF THE USE OF AGRICULTURAL AND NON-FARM INCOME GENERATING SKILLS AMONG WOMEN FARMERS IN KADUNA STATE, NIGERIA

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ABSTRACT

Despite women's contributions to agriculture and rural development in Nigeria, there are constraints militating against their use of skills for effective participation in agricultural and income generating activities. This paper assessed use of agricultural and non-farm income generating skills among women farmers in Kaduna State, Nigeria. Data were collected from purposively selected 160 women farmers that were exposed to agricultural and income generating skills development across three Senatorial Zones of Kaduna State. Data were analyzed using descriptive statistics, basically frequency, percentages and weighted means. Results reveal that 91.3% of women farmers were between the ages of 26-45 years; 95.0% had 1-7 years of experience; 98.8% were members of an association, while only 28.8% had extension contact. Common agricultural skills acquired were sheep and goat rearing (78.8%), local chicken production (75.0%) and post-harvest processing and marketing (52.5%). Other income generating skills were Jelly (vasellin) making (97.5%), soap/detergent (94.8%) and condiments/spices (51.3%). Weighted mean scores of women perceived satisfaction in the use of agricultural and income generating skills showed Jelly making (1st), Soap/detergent making (2nd), local chicken production (3rd), sheep/goat production (4th) and condiment/spices processing (5th) to be satisfactory. Ranked constraints of women in the use of skills revealed chemical spoilage (1st), pest/disease outbreak (2nd), high cost of materials (3rd), inadequate capital (4th) and poor product packaging (5th). Conclusion was that through their participation in income generating activities, women farmers in Kaduna State were actively contributing to their economic needs, those of their families and communities from farm and non-farm incomes. It was recommended that extension services and financial support be provided to women farmers.

Keywords: Agriculture, Income generation, Women Farmers, Nigeria.

INTRODUCTION

Issues of women's participation in agriculture and rural development sector has dominated the interests of researchers and donor agencies across the globe because of the role women play in enhancing household livelihood activities. Fundamentally, it is believed that agricultural development must address gender issues in order to achieve significant impact in the reduction of hunger and poverty. This can be achieved if opportunities for women to participate in income generating activities, learning and decision-making processes continue to increase (Bill and Melinda Gates Foundation, 2008). Studies revealed that African women perform about 90% of the work of hoeing and weeding, processing of food crops; about 80% provide household water and fuel; 95% of the work of marketing food crops; about 80% of the work of food storage and transportation from the farm to the village; and 60% of harvesting (Quisumbing, Lynn, Hillary, Lawrence and Christies, 1995; Ademilua, Adeeko, Gbotoso, Akomolafe and Ishola, 2017). According to Lambrou and Piana (2006), women are faced with various roles in society including productive and reproductive engagements. Productive roles are those that women perform for generating income towards enhancing households' livelihood.

In Nigeria, despite the contributions of women to national agricultural production which enhances agricultural development, there are constraints militating against their use of skills for effective participation in agricultural and income generating activities. Studies have shown that in the effort to ensure household food supply and income, a substantial burden fall on women. Women particularly are responsible for processing, storing and preparing of family food (Olayiwole, 1984; Adewale, 2015). Rural women also fetch water and firewood for family use, in addition to being engaged as farm laborers as well as waged labors in other income generating activities. Furthermore, women are responsible for livestock and fisheries production, food processing and marketing to generate a substantial proportion and sometimes even all of their family needs. According to Auta (2004), women in Nigeria produce, process and market about 80% of food, run 70% of all small-scale enterprises and about 30% of all smallholder households are sustained by them. Besides working on farms, women in Nigeria as elsewhere in West Africa actively participate in non-agricultural activities such as crafts, tie and dye, weaving and spinning, food processing, retail trade and other home-based informal activities (Lawson, 2008). Thus, according to CTA (2014a), empowering and investing in rural women has been shown to



significantly increase productivity, reduce hunger and malnutrition and improve rural livelihoods for everyone. However, women in Nigeria today are excluded from certain occupational categories due to formal barriers such as lack of education, technical training, labor laws and trading customs and informal barriers such as traditional customs and religious practices, difficulty in combining domestic and other related farm and income generating activities. These barriers continue to hinder women entry into such important occupational categories (Lawson, 2008; Adewale, 2015). Furthermore, CTA (2014b) reported that because of cultural attitudes, discrimination and a lack of recognition for their role in food production, women enjoy limited to no benefits from extension and training in new crop varieties and technologies. Other studies have also stressed that extension and advisory services provision in the agricultural sector has been more often biased against rural women farmers as they often lack access and control over productive resources and technologies that are affordable and appropriate to their needs. Though the benefits of improving conditions for women are many, it is particularly believed that increasing their share of household income has broad benefits for improved rural livelihoods. The general objective of this paper was to assess the use of agricultural and income generating skills among women farmers. Specifically, the paper aimed to:

1. describe the socio-economic characteristics of women farmers;
2. identify the types of agricultural and income generating skills acquired;
3. ascertain the level of women farmers' satisfaction with the use of acquired skills and
4. identify constraints encountered by women farmers in the use of agricultural and income generating skills.

METHODOLOGY

The study was conducted in Kaduna State, Nigeria, which lies between latitude 11° 32' and 09° 02' north of the Equator and longitude 08° 50' and 06° 15' east of the prime meridian (Kaduna State Statistics Year Book, 1996). The State is made up of twenty-three (23) Local Government Areas (LGAs) delineated into three Senatorial zones with a population of about 6,113,503 million people in 2006 (NPC, 2006) and 470,000 farm families (APMEU and NAERLS, 1999). Based on these figures, the 2017 population was projected at about 8,471,559 people comprising of 644,013 farm families. The study population was women farmers who were exposed to agricultural and other income generating skill trainings across the three senatorial zones of Kaduna State by IITA/SARD-SC and NAERLS/WAAPP Projects. A multi-stage sampling procedure was adopted. The first stage

used purposive selection of three Local Government Areas (LGAs) in three Zones of Kaduna Agricultural Development Project (KADP) namely: Giwa LGA from Maigana Zone, Birnin Gwari LGA from Birnin Gwari Zone and Jama'a LGA from Samaru Kataf Zone. These LGAs were selected because of their prominence in both farm and non-farm income generating activities and also the presence of skills training centers targeted at women. In the second stage, a total of 318 women farmers that had received both farm and non-farm income generating skill trainings were identified: Giwa LGA (160), Birnin Gwari LGA (60) and Jama'a LGA (98). Fifty percent (160) of the identified women farmers in each LGA were selected as samples for data collection using simple random sampling method. Structured questionnaire was administered through oral interview for data collection between the months of February and May 2017. Data were analyzed using frequencies, percentages and weighted mean scores. Women perception was measured using a 3-point Likert scale. Weighted mean score was calculated for each skill and compared with a standard mean score of 2.0. Thus, any skill with a weighted mean score equal or greater than 2.0 was accepted as satisfactory and hence a basis for the ranking of skills.

Operationalization of variables

Age: It was the chronological age of the respondents in completed number of years at the time of investigation. **Marital status:** Respondents were required to indicate if they are single, married, divorced or widowed. **Household size:** It was the total number of persons living in a household at the time of investigation. **Educational level:** It was the extent of formal education undergone by a respondent, captured as: No formal education, Qur'anic, Primary, Secondary and Tertiary education. **Primary occupation:** This is a respondents major livelihood activity, captured as farming, trading, civil servant and others (sewing, knitting). **Experience:** It was the number of years completed for farming or non-farm enterprises as at the time of research. This was measured in years of active participation in such activities. **Membership of association:** This was a respondent's membership of social groups as indicated by Yes or No. **Extension contact:** This indicates whether has any form of access to extension workers after receiving skill training as indicated by Yes or No. **Farm income generating skills:** This was captured as the skills in farming activities that women participate in which generate or earn income for them. **Non-farm generating skills:** These are the activities that the women carryout independent of their routine farm work that provide opportunities for additional income.

RESULTS AND DISCUSSION

Socioeconomic characteristics

The socioeconomic profile of sampled women farmers (Tables 1a and b) reveals that majority (91.3%) were within the age bracket of 26-45 years. This implies that most women were in their more active ages. Age is thought to be associated with accumulation of skills, experience and assets thereby allowing women farmers to diversify into remunerative farm and non-farm activities (Suleiman, Olanrewaju and Abdul., 2015). Most (85.0%) of the sampled respondents were married. Since society bestows on married persons certain level of respect and responsibility, it is expected that most of the women farmers were responsible people in their communities. Nwakwasi, Nnadi, Matthews-Njoku, Adesope, Ifanyi-Obi and Njoku (2012), in an assessment of rural women's awareness of climate change reported that about 97% were married. Education and training help to unlock the natural talents and inherent enterprising qualities of individuals and enhance their abilities to understand and evaluate new production techniques (Nwaru, 2007). Women in the study area generally had low educational level as only 25.0% of them had either primary or secondary education and none had tertiary education compared to 68.8% that had Quranic education. This is in contrast with Nwakwasi et al., (2012) who reported about 72.0% of rural women to have attained both primary and secondary education. Abdulsalam, Yaro and Aloba (2010) observed that farmers' level of education is an important factor in determining their abilities to understand policies and programmes that affect farming and acceptance/adoption of agricultural innovations among other things. Lambrou and Piana (2006) observed that ability to adapt to change at the household level depends among other factors on low dependency ratio. Similarly, it has been argued that household size is associated with increased consumption expenditure which in turn reduces money that could be used for production purposes (Yildirim, 2011). In terms of household size, 72.5% of the women farmers had between 6-15 persons. This is in contrast with Ajah (2013), who reported that women farmers had household sizes of 4-6 persons; and Suleiman et al. (2015) who found out

that 50% of respondents had household sizes ranging from 4-6 persons. However, in assessing the role of household members in Kolanut production in Ekiti State, Nigeria, Akinngbe (2016) reported that about 91% of respondents' households contained between 6-15 persons.

Even though 67.5% of women reported farming as their primary occupation; 73.8% of them had 4-7 years of experience in farming or income generating activities. This implies that more women farmers had accumulated sufficient experiences which assist them in managing decisions for productive purposes. In their examination of gender roles in sustainable Palm Oil production in Imo State, Nigeria; Enwelu, Onyenkwo, Dimelu, and Nwaleji (2016) found out that about 67% of the respondents had experiences ranging between 1-10 years.

Increasing rural women agricultural production and engaging in income generating activities could improve the quality of their livelihoods, thus the need for effective extension and advisory services (Mbo'o-Tchouawou and Colverson, 2014). Only 28.8% of women farmers had access to extension advice (Table 1). This may be due to the near dormant nature of public extension efforts being the main extension delivery system in Kaduna State. It has been reported that female have low access to extension information and technologies and have limited contact with extension; a situation which is more re-enforcing in Northern Nigeria where women cannot meet with male extension agents (Huber and Davis, 2017).

Membership of association enables farmers to solve agricultural problems such as inadequate/lack of capital, access to loans and high illiteracy levels. A total of 98.8% of the sampled respondents reported to be members of one kind of group or another. This implies that membership of groups/associations among women farmers in the study area is strong. In a study of the adoption of post-harvest technologies dissemination via women in agriculture programme in Akwa Ibom State, Nigreja, Umoh, Nkem and Ekanem (2015) reported 90% of respondents being members of associations. Ajah (2013) also reported 54% of women contact farmers were members of associations.

**Table1a: Distribution of women farmers based on socio-economic characteristics (n=160)**

Socioeconomic characteristics	Frequency
Age(years)	
15-25	2.5
26-35	65
36-45	26.3
46-55	5
56 and above	1.3
Marital Status	
Single	5
Married	85
Divorced	3.8
Widowed	6.3
No	1.3
Extension Contact	
Yes	28.8
No	71.3

Field Survey, 2017

Table1b: Distribution of women farmers based on socio-economic characteristics (n=160)

Socioeconomic Characteristics	Frequency
Educational Level	
No formal Education	6.3
Quranic	68.8
Primary	21.3
Secondary	3.8
Tertiary	0
Household Size (Number of persons)	
1-5	21.3
6-10	60
11-15	12.5
16-20	3.75
21-25	2.5
Experience (Years)	
1-3	21.3
4-7	73.3
8-10	5
Primary Occupation	
Farming	67.5
Trading	25
Civil servant	1.3
Others (sewing, knitting)	6.25
Membership of Association	
Yes	98.8
No	1.3

Field Survey, 2017

Acquired agricultural and non-farm income generating skills by women farmers

Table 2 presents the distribution of sampled women based on the agricultural and income generating skills acquired. Women reportedly acquired six agriculture related skills and four income generating skills. A total of 97.5% of women acquired skills in Jelly (Vaseline) making and while 93.8% of the women learnt soap making. Also, 78.8% acquired skills in sheep and goat rearing and while 75.0% did in local chicken production. Other important skills acquired were post-harvest food processing and marketing (53%),

condiments (spices) making (52%) and tie and dye (43%). This indicates that the most important income generating skills acquired in both farm and non-farm activities are mostly jelly/soap making and livestock production. The least skills acquired were in the areas of fish production (7.5%) and petty trading (10%). This finding is in contrast with Shuaibu, Akinola, Yusuf and Udo (2015) who found that the most important income generating activities to be trading (40%) and farming (17%). Ajani and Igbokwe (2012) also reported that women income activities were particularly common in petty trading as a result of low capital to start and operate.

Table 2: Distribution of Women farmers based on acquired agricultural and non-farm income generating skills (n=160).

Skill	Percentage*
Crop production	38.8
Post-harvest processing and marketing	52.5
Sheep and Goat rearing	78.8
Local chicken production	75
Fish production	7.5
Soap making	93.8
Jelly making	97.5
Condiments (Spices) making	51.3
Tie and Dye	42.5
Petty trading	10.0

*Multiple responses

Field Survey, 2017

Perceived satisfaction in the use of agricultural and non-farm income generating skills

Table 3 presents a ranking of women perceived satisfaction in the use of agricultural and income generating skills. The result reveals that women were most satisfied with using Jelly (Vaseline) making (1st), Soap making (2nd) and Local chicken production skills. Other important and significant skills used and satisfied with were

Sheep and Goat production (4th) and Condiments (Spices) making (5th). Tie and Dye and Fish production skills were not rated satisfactory implying that women were not satisfied with the use of those skills. Since most of the women’s primary occupation was farming, it implies that women in the study area were more satisfied with using non-farm income generating skills during off-farming seasons.

Table 3: Distribution of women farmers based on perceived satisfaction in the use of agricultural and non-farm income generating skills (n=160).

Skill	Not satisfied	Partially satisfied	Fully satisfied	Weighted Mean Score	Ranking
Soap Making	3.8	10	86.2	2.8*	2nd
Jelly making	1.2	8.8	90	2.9*	1st
Condiments (Spices)	21.1	12.5	66.2	2.5*	5th
Tie and Dye	11.2	30	58.8	1.3	7th
Goat and Sheep production	12.5	12.5	75	2.6*	4th
Local Chicken production	7.5	16.2	76.2	2.7*	3rd
Fish production	41.2	33.8	25	1.8	6th

Mean Score=2.0

* Significant

Field Survey, 2017

Constraints in the use of agricultural and income generating skills by women farmers

Women constraints in the use of agricultural and income generating skills were assessed and ranked (Table 4). The most important constraints were chemical spoilage (1st), pest/disease outbreak (2nd), high cost of materials (3rd), inadequate capital (4th) and poor packaging of products (5th). The least constraints were low patronage and low self-confidence. Ajah (2013) observed that despite women’ involvement in income generating activities both at the farm and

non-farm levels, they have continued to attain low productivity and income; arising from the fact that women are faced with constraints that impede enhancement of their income generating capabilities. Shuaibu, et al. (2015) found inadequate capital (32%) and storage facilities (22%) and poor market (24%) as major constraints reported by women in their study. Onwurafor and Enwelu (2013) also reported limited capital as a constraint to their respondents.



Table 4: Distribution of women farmers based on constraints in the use of agricultural and non-farm income generating skills (n=160)

Constraint	Percentage *	Rank
Chemical Spoilage	35	1
Pest/Disease outbreak	31.3	2
High cost of materials	18.8	3
Inadequate capital	8.8	4
Poor packaging	6.9	5
Theft of livestock/fish	5.0	6
Inadequate/lack of fertilizer	5.0	7
Low self confidence	3.8	8
Low patronage	3.8	8

* Multiple responses

Field Survey, 2017

CONCLUSION

Even though women farmers experienced a number of constraints in the use of agricultural and non-farm income generating skills, the study established that women farmers were perceived to be satisfied in the use of agricultural and income generating skills for five out of the seven skills considered; indicating that women play vital roles in income generating processes both from the farm and non-farm activities. This implies that the participation of women in farm and non-farm income generating activities is indispensable and has a potential to ensure not only the survival of their individual families but for the maintenance of a wider livelihood system. Thus, it can be concluded that women farmers in Kaduna State were actively contributing to their economic needs, those of their families and communities through farm and non-farm incomes.

RECOMMENDATIONS

1. The major constraints of pest/diseases outbreaks and chemical spoilage, requires that Kaduna State Government should recruit and train female extension agents to improve extension and advisory services to women farmers. This will enhance women decision making abilities for addressing production constraints.
2. Since most of the women farmers are organized into groups, it is recommended that government, financial institutions and NGOs provide financial support to these women groups in the form of grants or revolving loans to address the challenges of inadequate capitals and high cost of materials.
3. Participation of women in both farm and non-farm income generating activities is indispensable, government policies towards agricultural development should not only be targeted to producing farmers (especially male farmers). Rather a more holistic policy should be involved that includes the whole value chain.

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