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Factors Influencing Adoption of Groundnut Production Technologies Among Women Farmers in Gassol Local Government Area, Taraba State

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Abstract

The various groundnut production technologies considered were pesticides, processing and packaging, tillage, storage, improved seeds, seed treatment, weeding, transportation, spacing and planting date, fertilizer application and harvesting. Constraints include inadequate fund (2.7), followed by high cost of farm inputs (2.6) and inadequate storage facilities (2.6) were found to alter the adoption of groundnut production technologies among women farmers. Government should help link women farmers with improved groundnut production technologies (improved seeds, farm tools and machine, pesticides, and storage facilities) in order to attain a peak groundnut production in the state at large.

Introduction

Groundnut (*Arachis hypogaea L.*), a species in the family Leguminosae, is an annual legume. It is known by many local names, including peanut, earthnut, monkey-nut and goobers (Ayodele, 2019). It was originated from South America, but is now widely cultivated throughout the tropical, sub-tropical and temperate countries, and in Africa, Asia, North and South America. Optimum mean daily temperature to good growth is 30°C and growth ceases at 15°C and cool temperature delay flowering. Between 500 - 600mm of water reasonably distributed through the growing season allows a good production. Groundnut does well on sandy – loam soil, with pH range of 5-7 and soil should be rich in calcium and phosphorus which are essential for pod formation. It has the bunch, erect and creeping type (Daniel and Elizabeth, 2014).

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The multiple uses of the groundnut plant make it an important food and cash crop for domestic consumption and export in many developing countries. Globally, 50% of total groundnut production is used for oil extraction, 37% for Confectionary use and 12% for seed (Taru *et al.*, 2010).

The role of agricultural technologies and innovations in alleviating and reducing poverty and contributing to economic development has been well documented (Oyewole and Ojeleye, 2015). The benefits from adopting new technologies and innovations are viewed directly through productivity increases that can translate into higher farm incomes and food security. Indirect benefits can accrue to other farmers and consumers through lower food prices, increased in food availability, accessibility and consumption and potentially non-farm employment (Ndjeunga *et al.*, 2013).

The role of women in agricultural production in Nigeria can never be over emphasized. Various researches conducted on the contribution of women to agricultural development in the country. Women make essential contributions to the agricultural and rural economies in all developing countries. Their roles vary considerably between and within regions and are changing rapidly in many parts of the world, where economic and social forces are transforming the agricultural sector. Rural women often manage complex households and pursue multiple livelihood strategies. Their activities typically include producing agricultural crops, tending animals, processing and preparing food, working for wages in agricultural or other rural enterprises, collecting fuel and water, engaging in trade and marketing, caring for family members and maintaining their homes (Jiriko, 2015).

Women produce between 60 – 80 percent of the food in most developing countries and are responsible for half of the world's food production. In sub – Sahara, for example, women play a crucial role in many aspects of crop production. Women specialize in weeding, transplanting, post-harvest work and in some areas land preparation (Jiriko, 2015). In Nigeria, the leading producing states include Niger, Kano, Jigawa, Zamfara, Kebbi, Sokoto, Katsina, Kaduna, Adamawa, Yobe, Borno, Taraba, Plateau, Nasarawa, Bauchi, and Gombe States (NAERL, 2011).

The contribution of the women ranges from such tasks as land clearing, land tilling, planting, weeding, fertilizer/manure application to harvesting, food processing, threshing, winnowing, milling, transportation and marketing as well as the management of livestock (Ayodele, 2019).

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Adoption is a process whereby a person assumes the parenting of another, usually a child, from that person's biological or legal parent or parents, legal adoptions permanently transfers all rights and responsibilities, along with filiation, from the biological parent or parents.

Numerous studies, including (Getacher, Mesfin, & Gebre-Egziabher, 2013; Teklewold, Kassie, Shiferaw, & Köhlin, 2013) argued that the effective way to improve agricultural productivity is through adoption of improved technologies. In addition to productivity improvement, technology adoption can lower per unit cost of production, increase the supply of food, and raise incomes of adopting producers. It can also improve nutritional status and reduces risks of crop failure (Hagos, Jayasinghe, Awulachew, Loulseged, & Yilma, 2012). Increasing adoption rates of productivity enhancing technologies is, therefore, essential for boosting crop production and improves the welfare of the rural community (Musa, 2016).

Limitations in groundnut production ranges from land availability, labour, fund, availability of appropriate fertilizer dosage, disease control, post harvest challenges, proper storage to marketing. Groundnut is put into use in several ways; it is processed for oil, paste and cake. Groundnut is a cash crop provides income and livelihoods to the farmers. It also contributes to nutrition of farm families through consumption of energy and protein rich groundnut kernel and provides nutritious fodder (haulms) to livestock. Groundnut based plummy nut, a ready use therapeutic food.

The study investigated the factors influencing adoption of groundnut production technologies among women farmers, while the specific objectives are;

- i. identify the various groundnut production technologies adopted by women farmers;
- ii. determined the factor influencing women farmers adoption of groundnut production technologies
- iii. identify the constraints experienced by the women farmers in the adoption of groundnut production technologies.

Methodology

The study covered women groundnut farmers who registered with the extension service under Gassol Local Government Area of Taraba State, Nigeria. A multi-stage

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purposive sampling procedure was used in this study. The respondents were purposively selected due to high activities of groundnut production by women farmers. In the first stage five wards/villages out of eleven from the study area were purposively selected due to the high intensity of groundnut production which are Yerima, Mararraban Gassol, Tutare , Dan anacha and sabon gida while in the second stage 20 women groundnut farmers were randomly selected from the five wards. Both structured questionnaires and oral interview sessions were employed to seek for information on factors influencing adoption of groundnut production technologies. Some of the variables measured are Age, level of education, marital status, type of cropping system, farm size, experience (in years) of groundnut farming, access to credit and extension services. Data collected are summarized and submitted to descriptive statistics (frequency distribution tables and percentages). The responses were categorized in accordance to a four point Likert-type scale (High, Low and not at all). The categories were assigned scores of 3, 2 and 1, respectively.

The decision rule that served as basis for acceptance or rejection was determined thus; Decision rule (DR) of 3- point rating scale = $(3 + 2 + 1)/3 = 2.0$

The rating scale was used to determine the problem encountered by the farmers in the study area. A 3 point rating scale was used as follows very severe 3, severe 2, not severe 1.

To determine the cutoff point, a class interval of 0.05 was used to determine the upper limit of the mean.

The upper limit $2.0 + 0.05 = 2.05$

The lower limit $2.0 - 0.05 = 1.95$

Therefore, responses with mean score \bar{X} up to the above 2.00 were regarded as good while those mean score \bar{X} below 1.95 were regarded as not so strong or good.

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Results and Discussions

Groundnut Production Technologies Adopted by Women Farmers

Table 1 indicates the various groundnut production technologies, considering pesticides, processing and packaging, land preparation, storage, improved seeds, seeds treatment, seed rate, mechanized farming, spacing and planting, and harvesting. The findings shows that 97.7% adopt pesticides technologies, which is ranked as the highest groundnut production technologies adopted in the study area, followed by groundnut processing and packaging (96.6%), tillage (95.5%), storage (94.3%), improved seeds (86.4%), weeding practices (63.6%), sowing of seed (51.1%), spacing and planting date (48.9), and harvesting technologies respectively.

Table 1. Various groundnut production technologies adopted by women farmers

Technologies	Percentage	Ranking
Pesticides	97.7	1 st
Processing and packaging	96.6	2 nd
Tillage	95.5	3 rd
Storage	94.3	4 th
Improved seeds	87.5	5 th
Seed treatment	86.4	6 th
Weeding	63.6	7 th
Sowing of seed	51.1	8 th
Spacing and planting date	48.9	9 th
Harvesting	36.4	10 th

Source: Field Survey, 2019

*Multiple Responses

Factor Influencing Women Farmers Adoption of groundnut production Technologies

The findings from Table 2 identify several factors influencing women adoption to groundnut production technologies considering income, socio-economic and cultural status of the farmers, compatibility and complexity of new technology, language and communication, gender, technical training and information barriers, inadequacies in extension intervention, norms and believes as well as land tenure systems. Based on ranking, the findings clearly showed that 97.7% of the respondents admits that

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income strongly influence farmers adoption of groundnut production technologies, followed by the farmers socio-economic and cultural status (95.5%), compatibility and complexity of technology (86.4%), language and communication (85.2%), gender (73.9%), technical training and information barriers (62.5%), inadequacies in extension intervention (61.4%), norms and beliefs (56.8%) as well as land tenure systems (40.9%). Daniel and Elizabeth (2014) reported that women farmers were aware of the loss that will be incurred as a result of untimely harvest. Knowing its importance, storage recommendations were accorded high level of adoption by large proportion of the respondents. Adoption of technology has proved to be a means of achieving sustainable increase in farm output and in turn higher income which could lead to better living standard of farmers generally. Similarly, Tijjani *et al.*, (2015) reported that adoption of production technology lowers the costs of production per unit, cause productivity gains and more income which in turn reduces poverty among rural farmers, knowing right that agriculture is the largest employer of labor in Nigeria, efforts towards improving agricultural productions such as in implementing innovative technologies is been given priority by the decision makers in the agricultural sectors at local, state and federal levels.

Table 2. Factor influencing women farmers Adoption of groundnut production Technologies

Factors	Percentage	Ranking
Income	97.7	1 st
Socio-economic and cultural status	95.5	2 nd
Compatibility and complexity of new technology	86.4	3 rd
Communication/language	85.2	4 th
Gender	73.9	5 th
Technical training and information	62.5	6 th
Inadequacies in extension intervention	61.4	7 th
Norms and beliefs	56.8	8 th
Land tenure	40.9	9 th

Source: Field Survey, 2019

*Multiple Responses

Constraints to Adoption of Groundnut Production Technologies

The Table 3 shows the constraint affecting the adoption of groundnut production technologies by women groundnut farmers thus includes inadequate funds, high cost farm inputs, high cost of labour, lack of improved seeds, poor price of the product,

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inadequate storage facilities, pest and disease attack, inadequate transportation facilities, unfavorable weather condition, lack of awareness and harvesting problems. The result in table 4, shows that inadequate funds is the most very severe constraints encountered by women groundnut farmers in the study area which ranked first with a means score of (2.7), followed by high cost of of input with a mean score of 2.6, inadequate storage facilities (2.5), high cost of labor (2.4), inadequate transport facilities (2.3), lack of awareness (2.2), poor prices of the products (2.1), lack of improved seeds (1.9), unfavorable weather condition (1.8), as well as harvesting problems (1.6). However, adoption of technologies can only be seen and felt if backed by inputs supply and Government encouragement (Daniel and Elizabeth, 2014).

Table 3. Constraint to groundnut production technologies

Constraints	Mean Score
Inadequate storage facilities	2.5
High cost of farm inputs	2.6
Inadequate fund	2.7
High cost of labor	2.4
Lack of awareness	2.2
Lack of improved seed	1.9
Pest and disease attack	2.3
Inadequate transport facilities	2.6
Poor price of the product	2.1
Unfavorable Weather Condition	1.8
Harvesting Problem	1.6

Source: Field Survey, 2019

Conclusion and Recommendations

Various constraints such as inadequate fund, high cost of farm inputs, and inadequate storage facilities affected adoption of groundnut production technologies among women farmers. Government should assist women farmers with improved groundnut production technologies (improved seeds, farm tools and machine, pesticides, and storage facilities) in order to increased groundnut production in the study area and the state at large.

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