Int. j. adv. multidisc. res. stud. 2023; 3(2):324-330

Received: 25-01-2023
Accepted: 05-03-2023

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Gender Issues in Crop Technology Development, Transfer and Utilization in Anambra State of Nigeria

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Abstract

Crop technology is the improved crop production techniques gained through scientific knowledge, genetic modification, invented or reinvented machinery and equipment. Crop technologies play essential roles in increasing crop productivity under appropriate transfer conditions. Crop technology is thus a component in sustainable food and nutrient securities, rural livelihoods enhancement, innovative agricultural business and agroforestry development; if various crop groups are adequately captured in policy decisions. This study of the gender issues in crop technologies development, transfer and production situations in Anambra State, Nigeria seeks to advance our knowledge of the spread of: research, extension services and production of various crop species as ways to address income generation, and food security challenges. Data were collected via survey questionnaire and a set of interview schedule and two in-depth interviews. A total of 90 respondents comprising 30 crop farmers, 30 researchers and 30 extension agents. The respondents were selected through a multi-stage sampling process. Data collected were analysed using descriptive statistics. The study inter alia found that: most of the stakeholders in crop technology development and transfer were in their active age range of 31 to 50 years; production of roots and tuber crops were given greater attention by the Researchers (76.1%), Farmers (96.6%) and Extension agents (63.3%) and that lack of fund is their common problem. The study reveals that efforts to increase research, transfer and production of improved cultivars of different crop groups including legumes and mush rooms to meet sustainable development goals should be directed towards increasing the stakeholders' fund and motivations.

Keywords: Gender Issues, Crop, Agricultural Development Project (ADP), Nigeria

1. Introduction

Modern agricultural technologies (MAT) are recognized to play important roles in increasing agricultural productivities (Byerlee and Jackson, 2009; Kumar, 2021) [6, 15]. This is the why a number of African countries were reported to have started to employ MAT in production of non-traditional agricultural products (NTAP) in efforts to identify new agricultural markets, diversify their income sources and products' export opportunities (Markelova and Mwangi, 2010) [17]. Agriculture is endowed with the potential to drive economic growth of each of the countries that has farmers' increasing productivities and market linkages. In the past years, crops and animal technologies were developed in various research institutes and centres. Regrettably, it is revealed that those technologies have so far contributed little in increasing small scale farmers' agricultural productivities (Fuglie *et al*, 2020) [12]. Several reasons have been given as the cause of the later and they include lack of farmers awareness of the technologies (Enibe, 2019) [9], lack of farmers access of the technologies, and inadequate communication of the technologies to farmers (Byerlee and Jacson, 2009) [6], farmers poor involvement in the technologies development process (Shuttz *et al*, 2014). For the later, some researchers such as Werner and Tingley (2015) [28] recommended team research efforts with a reason that it will result in development of more appropriate technologies. Another reason is that it provides feedback opportunity and adjustment of the technologies to suit farmers' criteria, facilities and socio-economic conditions (Obiora and Madukwe, 2013) [21].

Crop research institutes and institutions have been established in Nigeria as a way to tackle the problems. Such institutions and institutes include International Institute of Tropical agriculture, National Farming Research Network, National Root Research Institute (NRCRI) and several faculties of agriculture in various universities. The Visitors and management of those institutions knowing that technologies do not normally go too far beyond their places of development made efforts and localized the institutions with various mandates. Those institutes and research centres have in the past been making efforts in

line with their mandates including Agricultural Development Project (ADP) initiated in 1970 by Nigerian government to extend advisory or extension services to the farmers and rural dwellers.

Studies reveal that the traditional mechanism for transferring technologies in many developing countries no more keep up to the rural dwellers needs (Institute for Agricultural Research IAR, 2005). This seems to have been swept under the Capet and it may be one of the why the global challenges of rural poverty, food insecurity, and climate change (CC) effects are persisting. In evidence, about 821 million people are reported to be food insecure or experiencing acute hunger in the world (FAO, 2017) [10]. Highest of the food insecurity and poverty prevalence were noted to be in sub-Saharan Africa (Abu, 2012; FAO.2013 [11]; FAO, 2017 [10]; Otekunrin *et al*, 2019 [25]). In Nigeria alone, 91.78 million people are revealed to be living in extreme poverty (Otekunrin *et al*, 2019) [25]. Low income and high prices of nutritious food crops (NFC) were reported to be some of the reasons of the food insecurity situations (Chukwuone and Okeke, 2012; Okeke *et al*, 2008) [7, 22]. Some of such NFC rich in protein and with high prices which might help small scale farmers increase their income, instead, they were reported to be neglected in production. This results to their lower output (Chukwuone and Okeke, 2012) [7] and people's protein deficient diets (Idrisa, Ogunbameru, and Amaza, 2010) [13]. Some other problems might also be found amidst stakeholders in crop technology development and transfer. Such may include discriminatory spread of technologies among major crop sectors in different regions and agricultural zones. In consideration of the high food insecurity in the world, the United Nation (UN) set up Sustainable Development Goals 2 (SDG 2) and called on member countries to support the programme in efforts to improved nutrition, end hunger and achieve FS, by 2030 (Otekunrin *et al*, 2019) [25].

To decrease the global hunger index (GHI), unemployment and sustainable agricultural development, there is the need to understand the current gender issues of the researchers, farmers and the technology transfer agents in different agricultural zones or areas and as it affects various crop sectors. This raises the following research questions: Who are the crop farmers, researchers and transfer agents in the study area? How are the crop technologies spread in the research institutes and among the crop groups? Do the stakeholders in crop technology development and transfer differ in their major problems?

The broad objective of the study was to analyse the gender issues in crop technologies development, transfer and utilization in Anambra State of Nigeria**.** The specific objectives are to: Examine the socio-economic characteristics of the respondents; Assess the spread of crop technologies among various crop groups in the study area; Identify and compare the problems of the stakeholders in crop technology development transfer and utilization in the study area.

The specific objectives were to: examine the socio-economic characteristics of the respondents, assess the spread of crop technologies, and examine the respondents' problems in crop technology development, transfer and utilization in the study area.

2. Materials and Methods

2.1 Study Area

The study was conducted in Anambra state of Nigeria. Anambra State situates between latitude 5°381 N to 6°471N and longitude 6°361 to 7°211. The State has boundary with Enugu State in the East, Delta State in the west, Kogi State in the North, River Niger and Imo State in the South. The state has 21 Local Government Areas (LGA), four agricultural zones named Aguata, Anambra, Awka, and Onitsha, 2 functional public universities and a substation public crop research institute.

2.2 Data Collection

Data were collected from secondary and primary sources. Secondary data were sourced from Books, Journals, Thesis and other print media information sources. Primary data were collected using two sets of questionnaire and interview schedule. The two sets of questionnaire were used to collect information from the crop researchers and the extension agents while the interview schedule was utilized in collecting appropriate information from the farmers. Primary data were purposively collected from the researchers at the National Root Crop Research Institute (NRCRI), Igbariam sub centre; Crop Scientists in the Department of Crop Science/Horticulture at Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus and from farmers in two circles of two agricultural zones in the State. Anambra and Awka Agricultural zones were purposively selected because of four major reasons. First, one of the zones (Anambra) contains a National Crop Research Institute at Igbariam. Second, the two zones also contain the public universities with Faculties of Agriculture where Crop Researchers were found. Third, one of the two zones (Anambra) contains the remains of the Farm Settlement established by the Easter Nigeria government of the 1960s headed by M. I. Okpala. Finally, one the two zones (Awka) contains the Headquarters of the Anambra State Agricultural development programme (ADP) from where reliable agricultural information in the zones were obtained and from where the extension and crop research information were easily collected from the Extension Agents and crop researchers.

Respondents were requested to reveal their socio-economic characteristics such as age, religion, sex, marital status, educational qualification, household size, experimental farm size, years of experience, annual income and membership of professional organization. On the spread of crop technologies, the researchers were requested to reveal the crop group (species) their research dwells on, the farmers were requested to reveal the major crop groups they have adopted their technologies while the extension agents were requested to reveal the crop group their extension or advisory services concentrated on. This was aimed at understanding if crop research and extension services are in favour of any particular group and if there is the need for increased attention to other important crop sectors as one of the desired approaches to fight food insecurity and reduce global hunger index (GHI). The major crop groups investigated were Root and Tubers, Tree Crops and Citruses, Vegetable Crops, Musa Species and Shrubs, Mushrooms, Cereals, Legumes, and others. For the

problems, the respondents were requested to reveal the problems they encountered in crop technology development, transfer and utilization.

2.3 Sampling Method

This study aimed to understand: the socio-economic characteristics of the stakeholders in crop technologies development, transfer and utilization in the study area; whether the technologies are adequately spread or covered the crop groups examined and the major problems of the respondents. Ninety (90) respondents were through a multistage sampling process selected from two agricultural zones of Anambra State. In stage one, two agricultural zones (Ananbra and Awka) were purposively selected from the four agricultural zones in Anambra State. The two zones were purposively selected because they contain the two public universities with faculties of agriculture, a public crop research institute and the Headquarter of the State Agricultural Development Programme (ADP) where crop researchers are likely to be found. In stage two, one Local Government Area (LGA) was purposively selected from each of the two agricultural zones. The LGAs (Anambra East and Awka South) were purposively selected because of the aforementioned reason. In stage three, 30 Extension Agents were randomly selected from the Agricultural Development Programme (ADP) at Amawbia in Awka South LGA; 10 crop researchers were through Snow Ball Sampling Method (SBSM) selected from each of the three public crop research institutions named: National Root Crop Research Institute (NRCRI) at Igbariam in Anambra East LGA, Agricultural Development Programme (ADP) at Awka and Chukwuemeka Odumegwu Ojukwu University (COOU) in Igbariam. SBSM is reported to be a link tracing method which uses the advantage of the social networks of an already identified respondent to offer the research a more extensive set of Potential respondents (Enibe, Nwobodo, Nworji and.Okonkwo 2019) [9]. In Stage four, two circles (Nkwelle and Amawbia were randomly selected from the two agricultural zones. In stage five, fifteen farmers were randomly sampled from each of the two circles. These gave a total of 30 crop researchers, 30 Extension Agents, 30 Farmers and a grand total of 90 respondents as shown in Table 1.

Table 1: Distribution of the respondents used for the survey questionnaire

Institution/Circle	State/ LGA	Community	Kind of Respondents	No. of Respondents
NRCRI	Anambra East	Igariam	Crop Researchers	10
COOU	Anambra East	Igbariam	Crop Researchers	10
ADP	Awka South	Awka	Crop Researchers	10
ADP	Awka South	Amawbia	Ext Agents	30
Circle	Anambra East	Nkwelle	Farmers	15
Circle	Awka South	Amawbia	Farmers	15
Total				90

Source: Field Survey, 2019

Data analysis

Objectives 1, 2, and 3 were analysed using basic descriptive statistics such as percentages and mean score.

3. Results and Discussion

3.1 Socio-Economic Characteristics of the respondents

The socio-economic characteristics of the stakeholders in crop technology development, transfer and utilization described were age, educational level, marital status, household size, farming experience, and farm size.

Table 2 shows that majority of the: farmers (86.2%) were in the age ranges of 41-50 years; Extension agents (76.7%) were in the age range of 31 – 40 years (76.7%) while the Researchers (69.2%) were in the age range of 41 – 50 years. The results indicate that most of the stakeholders in crop innovations, transfer and utilization were in their active age and can improve their respective crop production, extension services and research capacities if given adequate funding and motivations. The result further reveals that the Extension Agents were younger than both the farmers and the researchers, indicating that they were likely to be more energetic than both the farmers and the researchers and can withstand the strain and stress involved in agricultural extension or advisory service roles. The result also shows that smaller proportion of the researchers were within the age range of 21 – 30 and 31 – 40, indicating that the researchers were top heavy, less of fresh researchers and that there is the need to engage more younger researchers for their increased opportunity to gain experience from the older ones before their due retirement ages. A possible reason for the lower number of younger researchers may be poor funding of the education sector as reported by Akasike (2022) [2]. A similar problem was observed on the part of the famers where a negligible proportion of the farmers (3.4%) were in their age range of 31 – 40 years, suggesting that the youths were not adequately attracted to farming or adequately employed in agricultural extension and advisory services.

The implication of the result is that the youths are not adequately represented or motivated in crop technology development, extension activities and in farming. The result agrees with the Nigerian youths who in October, 2020 protested against the government in favour of restructuring of the country and for increased funding of education sector. The result also is in agreement with Osodeke (2022) [24] who *inter alia* demanded in the rollover strike for the revitalization of Nigerian public universities and renegotiation of the working conditions of the Academic Staff Union of Universities (ASUU) members. This is why the 2022 ASUU rollover strike prolonged. It lingered because ASUU knew that if Nigerian academics fail to fight the cause of university education, the fate that befell public secondary and primary education will be the portion of the Nigerian public universities (Mohammad, 2022). If this occurs, it is most likely to result to the denial of many youths of their chances of enjoying university education or reaching their potentials in life. The study further agrees with Enibe, Ndubuisi and Egbe (2020:5) who concluded that "sustainable involvement of youths in agricultural development is a felt need that requires diversified motivation attention".

Table 2 shows that: 51.7% of the farmers were male, 48.3% were female, and 66.7% of the extension agents were female while 69.2% of the researchers were male. The results indicate that the male and female sampled population were fairly represented; the extension agents were gender biased

in favour of the females while the researchers were gender biased in favour of the males. The implication is that while the males were under employed in agricultural extension services, the females were under employed in crop research jobs of the study area. The results reveal the gender insensitivities of the agricultural labour employers, and suggest the need for a reorganized agricultural extension service of the study area with consideration of increased employment of male extension agents and female crop researchers. The study disagrees with Obichukwu (2021) [20] who revealed that the majority (62.7%) of the agricultural extension professionals in Anambra State were male, while the remaining 37.3% were female. The difference is understandable because Obichukwu (2021) [20] worked on the University extension teachers while this study concentrated on the Agricultural Extension Agents working in Anambra State of Nigerian Agricultural Development Programme (ADP). The result agrees with Ragasa, Berhane, Tadesse and Taffesse (2012) [26] who found the need for productivity models that will be stratified by gender and crop species.

Table 2 indicates that the majority of the farmers had primary (34.5%) and senior secondary (31%) education. Table 2 also shows that all (100%) of the Extension Agents and Crop Researchers (86.4%) in the study area had tertiary education. The results indicate that the farmers were educationally positioned to adopt crop technologies developed for extension to them by the Extension Agents. The result agrees with Okoli *et al* (2014) [23] who found that majority (40%) of the farmers had formal education. The result also is in agreement with Koyenican (2011) [14] who found that Extension agents in Oshimili LGA were educated.

Table 2 shows that majority (86.2%) of the farmers were married and had moderate household size of 1 – 5 persons (69%). It also reveals that majority (73%) of the Extension Agents were married and that majority (70%) of them had moderate household size of 1-5 members. The Table further shows that majority (76.9%) of the crop researchers were married and also with moderate household size of 1 – 5 members. The result reveals that greater proportion of the respondents manage moderate families of 1 – 5 persons. This result is in line with Akinnagbe and Ajayi (2010) [5] who found that majority of the crop researchers had household size of 5 members.

Table 2 shows that majority of the: farmers (75.9%) had 11 – 20 years of farming experience, the Extension Agents (63.3%) had 1- 10 years of extension service experience while the majority of the researchers (61.5%) had 11 – 20 years of crop research experience The results indicate that the three stakeholders in crop technology development, transfer and cultivation had adequate experience and can bear the risks involved in their respective roles if given other necessary conditions to scale up their respective roles. Such conditions may include better funding, motivations and conducive environments.

Table 2: Socio-economic Characteristics of the respondents

Characteristics	Farmers' Freq	%	Ext Agents' Freq	%	Researchers Freq	%
Age (Years)						
20 - 30	3	10.3	4	13.3	3	11.5
31 - 40	1	3.4	23	76.7	4	15.4
41 - 50	25	86.2	2	6.7	18	69.2
51 and above					1	3.8
Total	29	100	29	100	26	100
Sex						
Male	15	51.7	10	33.3	18	69.2
Female	14	48.3	20	66.7	8	30.8
Total	29	100	30	100	26	100
Marital Status						
Single	4	13.8	7	23.3		
Married	25	86.2	22	73.3	4	15.4
Divorced			1	3.3	20	76.9
Separated					1	3.8
Widowed					1	3.8
Total	29	100	30	100	26	100
Household Size						
1 – 5	20	69	21	70	20	76.9
6 – 10	7	24.1	8	26.7	6	23.1
11 and above	2	6.9	1	3.3		
Total	**29**	**100**	**30**	**100**	**26**	**100**
Educational Level						
No Formal Education	2	6.9				
Primary Education	10	34.5			2	7.7
Secondary Education	9	31			2	7.7
Tertiary Education	8	27.6	30	100	22	84.6
Total	29	100	30	100	26	100
Years of Experience						
1 – 10	4	13.8	19	63.3	7	26.9
11 – 20	22	75.9	8	26.7	16	61.5
21 – 30	3	10.3	3	10	3	11.6
31 and above						
Total	**29**	**100**	**30**	**100**	**26**	**100**

Source: Field Survey, 2019. Key: Freq. =Frequency, Ext = Extension

3.2 Spread of crop technologies among crop sectors and groups

The crop technologies or innovations available in the research institutions in the study area were identified and examined. Table 3 indicates that majority of the farmers (96.6%) reported that their crop technologies were mainly on root and tuber crops. Similarly, Table 3 reveals that majority of the crop researchers (73.1%) dwelt their research activities on root and tuber crops while majority of the extension agents (63.3%) extended mainly roots and tubers crops. The result suggests that only an insignificant proportion of the farmers (3.4%) may have technologies in other crop sectors. The result is understandable because NRCRI mandate is on root and tuber crops and the extension agents offer the farmers mainly the technologies that were made available to them from the research institutes. This is unlike the crop researchers in the other institutions whose mandates were not restricted to only roots and tuber crops.

The result indicates that research, extension services, production and utilization of improved crop species is biased in favour of the roots and tuber crops and against other crop groups such as legumes, leguminous tree crops, citruses, mush room, ornamentals, cereals, vegetable and others. In an in-depth interview, a crop researcher and an agroforestry expert of about 56 years in COOU revealed that lack of fund is withholding him from setting up a mushroom project. The results suggest that important crops of the area that may help to achieve the sustainable development goals 2 might not have been captured in research, extension services and in adequate production level. Good examples of such crops include mushroom and breadfruit. Nzekwe and Amujiri (2013:16) classified breadfruit as an important economic and nutritional crop that strikes the mind and which needs to be conserved.

In addition, Enibe (2019) [9] in a study of the **Farmers' Improved Breadfruit Awareness and Adoption Status in Southeast Nigeria** reported that Breadfruit (*Treculia africana*) is a leguminous food crop that needs national and international conservation attention. Enibe (2019:2) [9] further adduced the following five reason with which he substantiated his argument in favour of the conservation attention need of the crop: "It is a nutritious and underutilized crop species which contains 10%oil, 18% protein, 50% carbohydrate and with several important vitamins and mineral elements; it has been identified and accepted staple food crop in Nigeria and among African consumers in various parts of the world; breadfruit have important socio- cultural values in Southeast Nigeria; the crop has been identified to have great value addition potentials and can be used for production of different products such as weaning food, bread, biscuit and cake; and finally, it offers attractive market niche opportunity due to people's resent awareness of its nutritional values, increasing demand and potentials".

The above reveals the need to encourage crop researchers to tune up their research to contain other neglected and underutilized nutritious crop species of different local areas. This is because they may be offering important nutritional, cultural, economic, environmental or other values and these can help reduce the current high global hunger index (GHI) and also reduce climate change (CC) worries. In evidence of the neglect of such crop species, Chukwuone and Okeke (2012) [7] adduced that some of such nutritious crops that are rich in protein are neglected in cultivation and that this culminates to their low output. Idrisa, Ogunbameru, and Amaza (2010) [13] added that low production of such nutritious crops lead to people's protein deficient diets.

Table 3: Distribution of the crop technologies among crop groups

NRCRI	**Researchers**		**Extension Agents**		**Farmers**	
Crop Groups	Frequency	%	Frequency	%	Frequency	%
Root and Tubers	19	73.1	19	63.3	28	96.6
Tree Crops/Citruses	3	11.5	3	10	0	0
Vegetables/Spices	3	11.5	2	6.7	1	3.4
Musa Species	1	3.8	1	3.3		
Total						
COOU						
Crop Groups	Frequency	%	Frequency	%	Frequency	%
Root and Tubers	19	73.1	19	63.3	28	96.6
Tree Crops/Citruses	3	11.5	3	10	0	0
Vegetables/Spices	3	11.5	2	6.7	1	3.4
Musa Species	1	3.8	1	3.3		
Total						
ADP						
Crop Groups	Frequency	%	Frequency	%	Frequency	%
Root and Tubers	19	73.1	19	63.3	28	96.6
Tree Crops/Citruses	3	11.5	3	10	0	0
Vegetables/Spices	3	11.5	2	6.7	1	3.4
Musa Species	1	3.8	1	3.3		
Cereals						
Total						
Farmers						
Crop Groups	Frequency	%	Frequency	%	Frequency	%
Root and Tubers	19	73.1	19	63.3	28	96.6
Tree Crops/Citruses	3	11.5	3	10	0	0
Vegetables/Spices	3	11.5	2	6.7	1	3.4
Musa Species	1	3.8	1	3.3		
Cereals						
Legumes						
Total						

Source: Field Survey, 2019

3.3 Problems of the researchers, Extension Agents and Farmers

Table 4 indicates that lack of finance to scale up crop research activities was found as the major (76.9%) problem of the crop researchers while lack of hazard allowance (43.3%) and lack of mobility (20%) were the major problems of the Extension agents in the study area. Table 4 further shows that lack of finance (51.7%) and lack of motivation (20.7%) from government and or non-governmental organization (NGO) were the major problems of the farmers in the study area. The implication of the result is that lack of finance and motivation were the main and common problems of the three stake holders in crop technology development, transfer and utilization in the study area.

The result on lack of finance agrees with Academic Staff Union of Universities (ASUU) who *inter alia* demand for fund to revitalize public universities (Osodeke, 2022) [24]. The result on fund further agrees with Lar (2020) [16] the Chairman, Nigerian House of Representative Committee on Science and technology who stated that the country had failed to realise the importance of science and technology sector and hence called on the Government to increase annual budget allocation to the science and technology sector. He argued that better funding of the sector through budgeting process will make significant progress in agriculture, space science entrepreneurship, and health and technology development sectors. For the poor funding, the Nigerian Institute of Food Science and Technology (NIFST) urged Nigerian States and Federal Governments to increase their budgetary allocations to agriculture sector from the estimated 2% to 25% of the total budgets as recommended by the Food and Agricultural Organization (Ukeh, 2020) [27].

The result on the lack of hazard allowance as reported by the Extension agents is understandable because Extension agents visit farmers at their farms and even in their homes. In these visits, they take risks in dealing with farm families who have different temperaments, value orientations and religious inclinations. The result suggests that the Extension Agents' job need adequate hazard allowance payment and motivations by the government, NGOs and philanthropists. The result collaborates with Enibe, Ndubuisi and Egbe (2020:5) who reported that Agriculture is "naturally hazardous because it involves farm practices in natural and artificial environments, dealing with climatic conditions and or perishable plants and animals or their products and services". The result further agrees with several authors such as Ajaiyi (2006) [3], Enibe, Ndubuisi and Egbe (2020) who faulted existing Nigerian agricultural policy and called for reoriented government attention and policies to avert the attendant consequences. One of the implicit consequences referred by the authors may be the youth protests as exampled in the October, 2020 Nigerian youths' protests. In the protest, the youths *inter alia* demanded for the country's restructure and allocation of more funds to education sector for provision of better teaching tools, better salaries and putting an end to ASUU strike.

Table 4: Distribution of the respondents according to their problems

Problems	Frequency	Percentage
Limited Research	20	76.9
Lack of equipment	2	7.7
Lack of electricity SS	1	3.8
Poor research Extension linkages on Tech	3	11.5
Total	26	100
Extension Agents		
Poor research-extension farmer linkages	1	3.3
Lack of hazard allowance	13	43.3
Bad roads	1	3.3
Lack of mobility	6	20
Lack of farmers' interest on the technologies	4	13.3
Poor funding of agricultural extension outreaches	2	6.7
Poor farmer extension ratio (Too many farmers)	2	6.7
Total	30	100
Farmers		
Lack of motivation from government/NGOs	6	20.7
Lack of finance	15	51.7
Poor extension services	2	6.9
Limited advertisement of the technologies	2	6.9
High prices of the crop technologies	3	10.3
Preference of the traditional varieties	1	3.3
Total	29	100

Source: Field Survey, 2019

4. Conclusions and Recommendations

Crop technology development, transfer and utilization in Anambra state of Nigeria is biased in favour of roots and tuber crops as indicated by the high percentage of the researchers (73.1%), extension agents (63.3) and famers (96.6) in their respective development, transfer and production/utilization. The study shows that crop technology development, transfer and production in the study area is not in favour of crop sectors such as legumes, leguminous tree crops and mush rooms and that lack of fund and motivation were the major problems of the stakeholders in crop technology development, transfer and utilization. The study recommends that efforts by governments and non-governmental agencies to effectively increase research, transfer and produce improved crop species to meet sustainable development goals should be directed towards increasing the stakeholders' funds and motivations.

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