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ANALYSIS OF GENDER KNOWLEDGE, ATTITUDE AND PRACTICES ON WHEAT FARMING IN JIGAWA STATE, NIGERIA

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ABSTRACT
The study analyzed gender knowledge, attitude and practices on wheat farming in Jigawa State, Nigeria. Multi-stage sampling procedure was used to select 352 men and 151 women making a total of 503 respondents. Data were collected through the use of structured questionnaire, analyzed using frequency distribution, percentages, mean scores, standard deviation, and Probit analysis. The result revealed that the majority (70%) of the respondents were male. Meanwhile, 55.4% male respondents had a household size between 6-10 persons. Majority (64.2%) of the female respondents had a farm size between 0.5-1.0 hectares and 80.8% of them obtained their farmland through inheritance. About 67.5% of the male respondents had 6-10 years of wheat farming experience. About, 68% of the male respondents had 1000 kg and above of wheat yield per hectare. About 69% of the male respondents had access to extension services and therefore had high knowledge on critical irrigation stage for wheat with a mean score of 1.59. The coefficient of age, gender, marital status, education level, farming experience and access to farm inputs were positively related to knowledge, attitude and practices (KAP) at $P \leq 0.01$. Men and women participated in wheat farming, except that, on average male respondents had a higher knowledge and extensively practices wheat farming than the women, as a result of men's better access to extension services, larger farm size, among other things. Extension agent should be intensifying educational campaigns for attitudinal change, through regular trainings to ensure knowledge gets into farmers' hand and fields, and encourage the women to be more inclusive in wheat farming.

Keywords: Knowledge, Attitude, Practice, Wheat Farming, Jigawa State.

INTRODUCTION
Wheat (*Triticum aestivum*) is one of the most important staple food crops that grow best in the temperate region of the world, with great source of fiber, vitamins and minerals (Drucza and Peveri, 2018). The largest producer of wheat in the world is China, with 134.3 million metric tons (MMT), followed by India, 98.5 MMT, Russia 85.9 MMT and United States of America 47.3 MMT. Africa produces 27 MT and sub-Saharan Africa (SSA) produced a total of 7.5MMT (Food and Agriculture Organization Corporate Statistical Data (FAOSTAT, 2019).

Nigeria's total local wheat is cultivated in an area of about 11,820 hectares with a 3.13 yields per hectares totaling wheat production at 36,943.8 MT, out of which Kano state accounted for 17.6%, trailed by Jigawa 15.8%, Kebbi 12.0%, Borno 4.2%, Adamawa 3.7% and Zamfara 1.8% (Proshare, 2020). According to the National Bureau of Statistics (NBS, 2020), Nigeria's total wheat imports in 2021 amount to 324.7 billion Naira, and yearly demand stands between 4.5 and 5.0 MMT, making Nigeria's local wheat production grossly insufficient to meet demand. However, if more wheat is produced locally, Nigeria might be able to save billions of dollars in imports.

Advancement in knowledge has resulted to increased productivity and famers have adopted various cultivation practices, yet the wheat crop yield realized on famers field are considerably low. Hence, understanding gaps in knowledge, attitude and practices (KAP) of men and women regarding new technologies in wheat farming is paramount to increase yield and as Rufaida *et al.* (2018), established that bridging of knowledge gap can bridge yield gaps.

There is sufficient potential to increase wheat production, if knowledge gap between farmers and access to extension services with regard to wheat farming is reoriented and critically looked at, as such extension delivery system of knowledge intensive technologies and use of quality seeds can help in tackling lower wheat production problems, keeping in view the understanding of KAP of farmers greatly affect extend of participation. There are considerable studies on gender roles on wheat production and Analysis of wheat value chain in Jigawa State by Dina *et al.* (2016) and Baba (2018). However, the previous research has not addressed apparent knowledge, attitudes and practices on wheat production processing and marketing in the study area. Therefore, this study was designed to fill the gap in exploring some basic information concerning knowledge, attitude and practices in wheat farming in the study area.
The study broadly analyzed gender knowledge, attitude and practices on wheat farming in Jigawa State, Nigeria. The specific objectives were to:

i. Describe the socio-economic characteristic of the respondents;
ii. Determined the level of gender knowledge, attitude and practices in wheat farming;
iii. Examined the factors influencing knowledge, attitude and practices in wheat farming; and
iv. Describe the constraints to wheat farming in the study area

MATERIALS AND METHODS

The Study Area

The study area was Jigawa State, Nigeria situated between Latitudes 11.00°N and 13.00°N of the Equator and Longitudes 8.00°E and 10.15°E of the Greenwich Meridian. The State occupies a land area of 23,287.0 square kilometers, about 2.2 million hectares (NPC 2006). The population of the study area was 4,361,002, projected to 6,323,452.9 people based on 3.2% growth rate (National Population Commission [NPC], 2021). The State has a distinct geographical outlook; a vast fertile arable land where wheat production is cut across the geographical ecological zones, which in turn determine the cropping pattern and productivity of wheat crop. The cold Harmattan wind blowing from the north during the wheat-growing season (November to February), decreases the temperature during night to a considerable level and lowers the surface temperature of wheat soil below 4^{o}c, this favours wheat production. In addition, the area provides favourable conditions to almost all tropical crops, and livestock with over 80% of the population engaged in subsistence farming and animal husbandry (Jigawa State Ministry of Agriculture, 2020), thus constituting one of its highly prized natural resources.

Sampling Procedure

A multi-stage sampling procedure was employed in the selection of respondents. In the first stage twelve Local Government Areas (LGAs) were purposively selected based on comparative advantage in wheat production in the area. In the second stage three communities were selected using simple random sampling procedure from each of the LGAs to give a total of 36 communities. In the third stage 503 respondents were selected proportionately and randomly, from a list obtained from reconnaissance survey in the study area. Finally, using stratified sampling method, 70% and 30% were randomly selected to arrive at 352 men and 151 women wheat farmers.

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Analytical Technique

Descriptive and Inferential statistics were used for the analysis of data. Descriptive statistics such as, frequency distribution percentage, mean and standard deviation were used to describe the socio-economic characteristic of the respondents, the level of gender knowledge, attitude and practices in wheat farming and the constraints to wheat farming in the study area. Probit regression technique was used as the inferential statistics.

Measurement of Knowledge, Attitude and Practice

The level of knowledge, attitude and practice of farmers in wheat farming were measured using a teacher-made test. The set of test items for knowledge include a set of questions related to wheat production processing and marketing. The scoring pattern include '2' for correct answer, (good knowledge), '1' for moderately correct answer and '0' for wrong (incorrect) response. The respondent's answers were evaluated and their knowledge scores was calculated considering the Liker type rating scale. The farmer's attitude towards wheat farming were measured using a summated rating (Likert type) scale, response against both positive and negative statement were measured by adding the total scores obtained from 13 items in the scale, attributing 1 score for strongly agree, 2 score for agree, 3 score for undecided 4 score for disagree and 5 score for strongly disagree and vise-versa. Practice level on wheat farming were determined through considering the extensive involvement of farmers in 16 different activities that were related to wheat farming. Extensive practice skill was measured by performance test. Response of the respondents were recorded on whether they have utilized the practices extensively or not, which was scored using 4-point Likert type rating scale of highly extensive=4, extensive=3 moderate=2 and low=1

Decision Rule:

1. Knowledge: any response above 2.0 is High, below 1 is Low (poor).
2. Attitude: any response from 3.0 and above is accepted (Agree) whether positive or negative and any number below 3.0 is rejected (Disagree).
3. Practice: any practicing farmer with mean score above 4.0 belong to 'Highly Extensive', 3.99 belong to Extensive practice, 2.99 belong to 'moderately extensive' and below 1.99 = Low practice (not extensive).

The Probit model used in the study is specified as:

Knowledge $(Y_1) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12} + e$ …(1)

Attitude $(Y_2) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12} + e$ …(2)

Practice $(Y3) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} + \beta_{12}X_{12} + e$ …(3)

where;

Knowledge (Y_1) = (number of knowledges in wheat farming activities),
Attitude (Y_2) = (Number of positive attitudes statement toward wheat farming)
Practice (Y_3) = (Number of practices on wheat farming),
X_1 = The age of the respondents was measured in years.
X_2 = Dummy, the gender of the respondents measured as either male = 1 or female = 0.
X_3 = Dummy, the marital status of the respondents was measured as; married =1, 0= otherwise.
X_4 = Household size; measured as the total number of people living in the family.
X_5 = Labour

X_6 =Educational status measured as the number of years spent in school.
X_7 = Major occupation (dummy, 1 farming; 2 otherwise)
X_8 = Farming experience; the number of years the farmer has been in wheat farming.
X_9 = Farm size; the size of the farmland in hectares.
X_{10} = Access to inputs (access = 1 otherwise = 0)
X_{11} = Access to extension services, dummy, (1, access; 0, no access)
X_{12} = Membership of association (Dummy 1 for members, 0 otherwise)
β_o = Constant
β_1 - β_{12} = regression coefficient
e = error term.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

The result in Table 1 shows the distribution of respondents by socio-economic characteristics. It revealed that the majority (70%) of wheat farmers were male, while 30% were female. This means that, male respondents participate in wheat farming more than their female counterparts. This could be related to the dominant cultural views of labour in some part of the study areas which do not see farm work as a woman task. Table 1 further revealed that 58.3% of the female respondents had attained primary level of education. This implies that most of the respondents attempted formal education therefore had moderate level of education which can equip them with knowledge that could enhance their wheat farming practices in the area. This conforms with Adejoh *et al. (*2017) in a study factor influencing gender accessibility to productive resources in Niger State, found low (19% and 30%) male and female rice farmers with one form of education or the other. The result in Table 1 reveals a mean household size of 6.2 and 5.7 persons. This implies that wheat farmers in the study area had reasonable household members that can help in supplying bulk of farming operations. Habte *et al*. (2016) also found family size range of 5.5-6.7persons in wheat value chain in Ethiopia.

The result on farm size revealed that majority (64.0%) female had farm size between 0.5-1.0 hectares. This indicates that the respondents were small scale farmers. Nevertheless, they may still utilize their knowledge positively to increase yield with good management practices. The result in Table 1 revealed that 65.1% male and 80.8% female respondents obtained their farmland through inheritance. This shows that the respondents depend on inherited farmland for their wheat farming, which could be fragmented between other family members. The results of wheat farmers yield show Table 1 shows that majority (57%) of the female respondents had 700 kg of wheat yield per hectare, indicating that male had higher yield than the female, this could be that, the male farmers utilized the knowledge acquired from extension contact, and for the female it could be as a result of shortage of land holding which could possibly affect their practices. The result (Table 1) further revealed that majority (72.8%) female respondents earned ₦101,000-150,000. This implies that the wheat farmers especially the female in the study area are low level income earners and small scaled. This could be due to subsistence level and small scaled nature of wheat production from most of the wheat farmers in the study area and not necessarily their level of knowledge attitude or practices. Kagbu (2017) in entrepreneurial competency of women farmers found mean annual income below ₦208,759.38.

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Table 1: Socio-economic Characteristics of the Respondents

Variables	Men (n = 352)		Women (n = 151)		Mean	
	Frequency	%	Frequency	%	Men	Women
Gender						
Men	352	70				
Women	151	30				
Educational level						
Primary education	106	30.1	88	58.3		
Secondary education	118	33.5	24	15.9		
No formal education	19	5.4	15	9.9		
Tertiary education	76	21.6	10	6.6		
Others	33	9.4	14	9.3		
Household size						
1-5	142	40.3	85	56.3		
6-10	195	55.4	50	33.1	6.2	5.7
11-15	12	3.4	15	9.9		
16 and above years	3	0.9	1	0.7		
Farm size (ha)						
0.5-1.0	153	43.5	97	64.2		
1.5-2.0	172	48.9	50	33.1	1.4	1.1
2.5-3.0	24	6.8	4	3		
3.5-4.0	3	0.9	0	0		
Source of farm land						
Inheritance	229	65.1	122	80.8		
Purchased	45	12.8	6	4.0		
Hired/rented	73	20.7	15	9.9		
Others (communal)	5	1.4	8	5.3		
Farming experience						
1-5	126	35.8	102	67.5		
6-10	193	54.8	35	23.2	5.7	5.3
11-15	29	8.2	9	6.0		
16 and above years	4	1.2	5	3.3		
Source of extension services						
Ministry of Agriculture	65	18.5	30	19.9		
JARDA	241	68.5	66	43.7		
Research institutes	23	6.5	28	18.5		
University	13	3.7	7	4.6		
NGO's	10	2.8	20	13.2		

Source: Field survey, 2021

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Table 1: Socio-economic Characteristics of the Respondents **Cont'd.**

Variables	Men (n = 352)		Women (n = 151)		Mean	
	Frequency	%	Frequency	%	Men	Women
Frequency of extension contact						
None	16	4.5	78	51.7		
Twice in a year	114	32.4	10	6.6		
Forth nightly	58	16.5	5	3.3		
Monthly	53	15.1	1	0.7		
Weekly	26	7.4	7	4.6		
Quarterly	11	3.1	1	0.7		
Annually	74	21.0	49	32.5		
Yield (kg/ha**)**						
above 1,000	113	32.1	2	1.3		
1,000	125	35.5	11	7.3		
700	83	23.6	86	57.0		
Others (less than 700)	31	8.8	52	34.4		
Income (₦)						
Less than 100,000	76	21.6	28	18.5		
101,000 - 150,000	117	33.2	110	72.8		
151,000 - 200,000	56	15.9	5	3.3	**M = ₦ 166,443.2**	
201,000 - 250,000	48	13.6	5	3.3		
251,000 - 300,000	23	6.5	2	1.3	**F = ₦ 124,579.5**	
Above 301,000	32	9.1	1	0.7		
Total	**352**	**100.0**	**151**	**100.0**		

Source: Field survey, 2021

Knowledge level on Wheat Farming by Gender

Table 2 revealed that male and female wheat farmers had medium knowledge on wheat farming technologies thus; knowledge on recommended fungicides ($\bar{x}$ = 1.61, SD = 0.97), Required spacing ($\bar{x}$ = 1.59 and SD 0.78), critical irrigation stages ($\bar{x}$ = 1.59, SD = 0.86), recommended fertilizer dose ($\bar{x}$ = 1.53, SD = 0.73) and wheat grain marketing with $\bar{x}$ = 1.55, SD = 0.99). value addition for better pricing with (mean score of 1.61, SD = 1.22 and mean = 1.55, SD = 0.99), respectively. This is contrary with the findings of Famuyiwa *et al*. (2017) who reported that male and female respondents had very low knowledge of cocoa certification process.

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Table 2: Level of knowledge in wheat farming by gender

	Male (n = 352)			Female (n = 151)		
Variable	**Mean**	**S. D**	**Level**	**Mean**	**S. D**	**Level**
Knowledge of conducive weather for planting	1.50	0.66	*	1.43	0.66	*
Knowledge on recommended variety	1.45	0.69	*	1.32	0.83	*
Knowledge on suitable soil type	1.48	0.66	*	1.35	0.78	*
Knowledge on methods of wheat sowing	1.51	0.75	*	1.11	0.94	*
Knowledge on recommended seed rate	1.43	0.85	*	1.24	0.75	*
Knowledge on required spacing	1.59	0.78	*	1.44	0.84	*
Knowledge on critical irrigation stages	1.59	0.86	*	1.36	0.95	*
Knowledge on recommended fertilizer dose	1.53	0.73	*	1.26	0.76	*
Knowledge on recommended fungicides	1.61	0.97	*	1.37	0.86	*
Knowledge on disease symptoms	1.25	0.68	*	1.02	0.77	*
Knowledge on type of pest that sucks wheat plants	1.29	0.98	*	1.37	0.92	*
Knowledge on processing of wheat grains	1.23	0.66	*	1.61	1.22	*
Knowledge on wheat grain preservation	1.38	0.76	*	1.37	1.37	*
Knowledge on value addition for better pricing of wheat	1.45	0.71	*	1.55	0.99	*
Knowledge on wheat grain marketing	1.55	0.99	*	1.33	0.70	*
Knowledge on determining wheat price	1.35	0.70	*	1.17	0.76	*
Knowledge on government role in wheat marketing	1.15	0.71	*	1.04	0.78	*

*Medium knowledge
Source: Field survey, 2021.

Level of Attitude to Wheat Farming by the Farmers

The result on Table 3 reveals that both the male and female respondents agree to strongly agree with the attitude statement which states; gender knowledge influences participation on wheat farming ($\bar{x}$ = 4.05 and SD = 3.88) (SA). wheat production is men occupation ($\bar{x}$ = 3.74 and SD = 3.68), Wheat production and management technology is important ($\bar{x}$ = 3.48), high yielding varieties do not encourage wheat cultivation ($\bar{x}$ = 3.45 and SD = 3.13), inadequate modern wheat farming technique deteriorate wheat quality ($\bar{x}$ = 3.81 and SD = 3.45), insect pest infestation are not high during seed production (mean = 3.76 and SD = 3.49). Both men and women Disagree (DA) on the statement that women are not allowed to participate in wheat production with ($\bar{x}$ = 2.80 and SD = 2.74).

This implies that the respondents agree with the statements, since most of the scores were above the mean of 3.0, this could help them developed positive disposition and understand how knowledge and practice could contribute towards increase participation in wheat farming. With positive attitudes, more access to information on improved techniques about wheat farming would be enhanced and more knowledge and practices will be increase. This study concurs with Hoque *et al.* (2016) who reported that attitude of respondents had improved positively regarding quality seed as it showed agree (A) to strongly agree (SA) against most of the positive attitude statements and disagree (DA) to strongly disagree (SDA) against negative attitude statements.

Table 3: Level of Attitude towards Wheat Farming by Gender

Variables	Men			Women		
	Mean	**Std. dev.**	**Level**	**Mean**	**Std. dev.**	**Level**
Wheat production is men occupation	3.74	1.60	**	3.68	1.70	**
Women are not allowed to participate in wheat production	2.80	1.45	*	2.74	1.64	*
Women participation in wheat production is a trespass on men occupation	3.23	1.52	**	3.34	1.71	**
Wheat production and management technology is important	3.48	1.45	**	3.59	1.62	**
High yielding varieties do not encourage farmers on wheat cultivation	3.45	1.49	**	3.13	1.62	**
Inadequate modern wheat farming technique deteriorate wheat quality	3.81	1.29	**	3.45	1.44	**
Insect pest infestation are not high during seed production	3.76	1.38	**	3.49	1.53	**
High yielding modern variety does not exhaust soil fertility	3.30	1.24	**	2.85	1.50	*
Training on wheat farming is helpful	3.24	1.45	**	3.26	1.62	**
Wheat production is laborious	4.06	1.33	**	3.45	1.56	**
Wheat production is not profitable	3.26	1.44	**	3.13	1.65	**
knowledge influences participation on wheat farming	4.05	1.19	**	3.88	1.42	**
attitudes influence wheat farming participation	3.76	1.28	**	3.74	1.57	**

*Disagree; **Agree
Source: Field survey, 2021.

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Level of Practices in Wheat Farming by Gender

The result on level of practices on wheat farming Table 4 revealed that the male respondents participated highly extensive than their female counter parts in the following practices on wheat farming; land clearing with $\bar{x}$ = 4.43 and standard deviation (S.D) = 1.25); harvesting ($\bar{x}$ = 4.58, S.D=1.45); planting/sowing ($\bar{x}$ = 4.26, S.D = 1.24); irrigation ($\bar{x}$ = 4.35, S.D = 1.31); weeding ($\bar{x}$ = 4.12, S.D = 1.30); plant spacing (mean = 4.17, S.D = 1.25); fertilizer application ($\bar{x}$ = 4.15, S.D = 1.30) and storage indicates ($\bar{x}$ = 4.06, S.D = 1.36). This implies that, the male respondents practice wheat farming activities very extensive, and the female practices was moderately extensive. Highly extensive practices by the respondents can afford them the opportunity to have adequate knowledge and favourable attitude on their level of practices owning to the high responses. This is contrary with Famuyiwa *et al*. (2017) who reported that 93.55% of respondents scored below the mean which show the respondent have not been practicing cocoa certification.

Table 4: Level of Practice towards Wheat Farming by Gender

	Male			Female		
Practices	**Mean**	**Std. dev**	**Level**	**Mean**	**Std. dev**	**Level**
Land clearing	4.43	1.25	***	3.99	1.56	**
Planting/sowing	4.26	1.24	***	4.07	1.66	***
Irrigation	4.35	1.31	***	3.98	1.73	**
Weeding	4.12	1.30	***	3.92	1.71	**
Plant spacing	4.17	1.25	***	3.94	1.72	**
Thinning	3.85	1.38	**	3.84	1.57	**
Soil amendment	4.15	1.30	***	3.81	1.59	**
Disease and insect control	3.70	1.55	**	3.22	1.84	**
Harvesting	4.58	1.45	***	3.69	1.57	**
Drying	3.47	1.40	**	3.21	1.59	**
Grading	3.60	1.41	**	3.84	1.58	**
Storage	4.06	1.36	***	3.57	1.73	**
Processing	3.92	1.21	**	4.15	1.68	***
Value addition	3.47	1.62	**	3.73	1.82	**
Transportation	3.43	1.61	**	1.71	1.19	*
Marketing	3.71	1.52	**	1.57	0.94	*

***Highly Extensive. **Extensive, *Not Extensive
Source: Field survey, 2021.

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Factors Influencing Gender Knowledge, Attitude and Practices of Wheat Farming

The multiple regression model for knowledge exhibited an R^2 of 0.939, meaning about 93.9% variation in dependent variable (knowledge) were explained by independent variables. An R^2 of 0.824 was recorded in attitude model, implies that 82.4% variation in dependent (attitude) variables was explained by independent variables. More so, an R^2 of 0.844 was found in practice model, this show that about 84.4% of the variation in dependents (practice) variable were explained by the independent variables, these means that the three models fit the data very well. The results in (Table 5) factors influencing knowledge, attitude and practices on wheat farming showed that the coefficient of age, gender, marital status, education level, farming experience and access to farm inputs were all positive and statistically significant at 1% level of probability for knowledge, attitude and practice. Implying that, farmers who are young, can be more inquisitive to acquire new information and knowledge on improved wheat farming techniques. Gender of the farmer influence knowledge, attitude and practices of wheat farming since most of the women farmers in the study area who were involved in wheat farming are farmers by proxy, only few of them were involved in the real wheat farming practice. Male farmers tend to have more knowledge and positive attitude towards wheat farming than the female farmers. Thus, men have enhanced knowledge attitude and practices towards wheat farming more than the women.

Furthermore, the more the farmer is married with family responsibility the more committed he/she is, to acquire knowledge that can benefit them to participate more in wheat farming so as to increase yield. Also, a unit increase in respondents' educational level can led to a corresponding increase in farmers' knowledge level and can creates a favourable mental attitude for increased participation toward wheat farming. This is in tandem with Issa (2017) who reported that, variables such as age, farming experience, level of education and social participation significantly influence farmers' perception of quality and accessibility of agrochemicals in Kaduna and Ondo State Nigeria. The more the farmer had access to sources of farming inputs such as improved seeds, fertilizer, pesticides and fungicides, the more they intensify participation in wheat farming, this can as well enhance their knowledge, attitude and practices on wheat farming.

Farmers with more years of experience in wheat farming will be more exposed to knowledge and favourable attitude for increased yield, and may want to know more about wheat farming technologies. Membership of association was found to be positive at 1% level of significance on knowledge, 5% level on attitude and not significant in practice. The coefficient of household size, farm size and extension services were positive and significant at 5% level of probability for knowledge and attitude. Coefficient of Farm size and extension services were positive and significant at 5% level of probability, respectively, for practice. The positive-signs of the coefficients indicates increased in respondent' knowledge, attitude and practice towards wheat farming. The higher the respondent's access to extension services, the more exposed to knowledge, attitude and practice towards wheat farming. The larger the farmer's farm size the more knowledgeable they tend to be, because they might acquire better knowledge by learning improved wheat production, to avoid diseases and post-harvest loses. Probability of the labour and membership of farmer association increases with the increase in the farm size.

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Table 5: Factors Influencing Knowledge, Attitude and Practice in Wheat Farming

Variable	Knowledge			Attitude			Practice		
	Coefficient	**Std. Error**	**t-value**	**Coefficient**	**Std. Error**	**t-value**	**Coefficient**	**Std. Error**	**t-value**
Age	0.03	0.01	2.6***	0.05	0.02	2.75***	0.30	0.10	2.9***
Gender	0.15	0.03	5.0***	0.16	0.03	5.12***	0.11	0.03	4.8***
Marital status	0.28	0.09	3.3***	0.28	0.09	3.29***	0.27	0.09	3.2***
Total household size	0.07	0.04	1.9**	0.12	0.05	2.35**	0.03	0.06	0.5^{NS}
Labour	0.14	0.06	2.4**	0.19	0.44	0.43^{NS}	0.00	0.02	0.03^{NS}
Educational level	0.09	0.02	3.6***	0.09	0.02	3.6***	0.09	0.02	3.6***
Main occupation	0.02	0.03	0.7^{NS}	0.09	0.04	2.08**	0.02	0.03	0.7^{NS}
Farming experience	0.08	0.01	5.5***	0.08	0.01	5.48***	0.07	0.01	5.5***
Farm size	0.09	0.04	2.3**	0.09	0.04	2.35**	0.09	0.04	2.4**
Access to farm inputs	0.19	0.04	4.3***	0.19	0.05	4.22***	0.19	0.05	4.3***
Access to extension services	0.09	0.04	2.0**	0.12	0.05	2.33**	0.09	0.04	2.0***
Association membership	0.67	0.21	3.1***	0.14	0.07	2.09**	0.05	0.04	1.4^{NS}
Constant	2.68	0.11	25.3***	2.70	0.11	25.2***	2.69	0.11	25.0***
R^2	0.94			0.82			0.84		

***and **Significant at 1%, 5% and NS not significant

Source: Field Survey, 2021.

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Constraints to Wheat Farming

The result (Table 6) shows that high cost of farm implements (86.1%) was ranked 1st, high cost of production inputs and poor access to credit 85.5% each was ranked (2nd) and (3rd), high labour cost 85.2% ranked (4th), low market price of wheat 84.9% (5th), no inputs subsidy by government (6th), poor/low yield (7th) and drudgery in wheat production (8th). The table further depicts the constraints encountered by women in the study area as, insufficient access to land for cultivation 94% was ranked (1st), restriction on social interaction 92.7% ranked (2nd), inadequate information from extension agents 92.1% ranked (3rd), not partaking in decision making on expeditions and savings 90.7% ranked (4th), and lack of involvement in trainings 90.7% was ranked (5th). This implies that inaccessibility to factors of production (land, labour and capital), institutional and socio-cultural factors concomitantly lessen their knowledge, which can affect their level of productivity, as well lead to lack of interest. Moreover, their ability and willingness to participate extensively in wheat farming activities will decrease.

Table 6: Constraints to Wheat Farming

Constraints	Male (n=352)		Female (n=151)	
	F* **%***	**Rank**	**F*** **%***	**Rank**
High cost of farm implements	303 (86.1)	**1st**	122 (80.8)	11th
High cost of production inputs	301 (85.5)	2nd	105 (69.5)	21th
High labour cost	300 (85.2)	4th	120 (79.5)	12th
Poor access to credit	299 (84.9)	5th	123 (81.5)	10th
Low market price of wheat	301 (85.5)	2nd	156 (83.4)	8th
No inputs subsidy by government	291 (82.7)	6th	107 (70.9)	19th
Poor/low yield	290 (82.4)	7th	125 (82.8)	9th
Wheat farming is drudgery	287 (81.5)	8th	118 (78.1)	13th
Insect pest and disease problems	272 (77.3)	9th	117 (77.5)	14th
Insufficient access to land for cultivation	268 (76.4)	10th	142 (94.0)	1st
Non availability of seeds and chemicals	264 (75.0)	11th	107 (70.9)	22th
Restriction of social interaction	249 (71.0)	12th	140 (92.7)	2nd
Lack of involvement into training	249 (70.7)	13th	137 (90.7)	4th
Lack of access to information technology	241 (68.5)	14th	129 (85.4)	7th
High cost of processing	278 (67.6)	15th	132 (87.4)	6th
No profit for the crop	235 (66.8)	16th	109 (72.2)	18th
Inadequate information from extension agents	215 (61.1)	17th	139 (92.1)	3rd
Water shortage	215 (61.1)	17th	114 (75.5)	16th
No reliable market	213 (60.5)	19th	115 (76.2)	15th
Not partaking in decision making on expenditure and savings	142 (40.2)	20th	140 (90.7)	4th

*****Multiple response exists; * Figures in Parentheses are percentages; F* = Frequency (%).
Source: Field survey, 2021

CONCLUSION AND RECOMMENDATIONS

Men and women participated in wheat farming, except that, on average male respondents had a higher knowledge, attitude and practices in wheat farming than the women, as a result of men's better access to extension services, larger farm size, among other things. It was recommended that:

1. Extension agent should be intensifying educational campaigns for attitudinal change, through regular trainings to ensure knowledge gets into farmers' hand and fields, and encourage the women to be more inclusive in wheat farming.
2. Reinforcement of farm input subsidy programme and special incentives from CBN and agricultural schemes for farmers, to finance the expansion of surface irrigation infrastructures for faster expansion of wheat production.

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