DETERMINANTS OF FARM SUCCESSION PLAN AMONG CATTLE FARMERS IN KEBBI STATE, NIGERIA

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ABSTRACT

The study assessed the determinants of farm succession plan among aged cattle farmers in Kebbi State of Nigeria with a view to establishing the potential of continuity and sustainability of generational cattle rearing for enhancing rural livelihoods. The study described the socioeconomic characteristics of respondents; investigated the cattle rearing activities in which the respondents are involved and their level of involvement; and investigated how respondents plan for succession and determined the factors influencing respondents' succession plan. A Multistage sampling procedure was employed to select 240 respondents. Analyses were done using descriptive (frequency count, percentages, mean and standard deviation) and inferential statistics, (such as Pearsons' product moment correlation). The mean age of respondents was 67.1 years with 77 per cent literacy in Arabic and Hausa languages. About 98 per cent indicated that they have already identified a successor for the farm with a succession plan. Many (95%) of the respondents are willing to retire, with low involvement in cattle rearing activities. The mean for succession was 13.96 and 90.8 per cent of the respondents had involved their identified successor into their succession plan process. There was a significant relationship between their flock size (r=0.140), age (r=0.162), experience (r=0.162: p=0.012) and respondents' succession plan. The major determinants of farm succession plan were; age, income, flock size, household size, level of education, years of experience and favourable attitude towards succession There was a high consideration for succession plan among cattle rearers, and it was recommended that issues of farm succession plan be strategically integrated into cattle rearing policies at all levels of government.

Keywords: Farm succession plan, Involvement, Cattle farmers, livelihoods

INTRODUCTION

Agriculture was the major driver of Nigeria's economy before the advent of oil exploration in 1956. Until recently the sector was the leading employer, employing about 75% of the rural population (Onlinenigeria, 2016). It has significantly contributed to the overall country's gross domestic products (GDP) with about 40%, which on the other hand, contributed to about 88% of non-oil revenues. About 85% of the shares are from crop production, with 10% from livestock industry, 4% from aquaculture and 1% from forestry (Onlinenigeria, 2016).

According to Federal Ministry of Agriculture and Rural Development (2016) Nigeria has 13 million cattle, 35 million goats, 22 million sheep and 80-120 million poultry birds. The cattle production industry has become a security threat; this is because of over dependence of its value chain on a network of nomadic herdsmen with most of these animals entering a brief fattening period before slaughtering and processing. The supply chain has been facing serious constraints, ranging from inefficiency to high security threat, as these animals' roam from place to place in search of pasture causing a great friction between herdsmen and land owners (FMARD, 2016).

The United Nations estimated that about 10% of the global population of over 962 million people are over 60 years of age; these figures are expected to rise by 2050 (United Nations, 2017). Ageing is the constant increase in number of elderly persons of a country over time. It is a socio-economic constraint in Africa and about two-third of these senior citizens live in third world countries, where there are hardly formal plans for the support of aged people. This makes them to stay longer in business or jobs without a plan to transfer to the future generation.

Nigeria is one of the fastest economies in Africa that is not left out of the multiplier effect of ageing, which diminishes the capacity of its people to work and earn. This is more felt in the agricultural sector (Fasina and Inegbedion, 2014). They also argued that the sector is the most important sector of the economy, in terms of job creation, food security, and fibre and foreign exchange earnings. Productivity determinant in this sector is age. As the elderly farmer continues to work on his farm at a rate at which the law of diminishing returns sets in, there is an inverse relationship between the age of the farmer and his productivity (Fasina and Inegbedion 2014).

The cattle rearing industry in Nigeria is a vital subsector in the agricultural sector and one

which requires huge amount of initial capital to setup. The possession of capital is unarguably accumulated over the years and could mean that the aged cattle farmers by virtue of their long years of involvement would have accumulated the required capital. This category of farmers would have become psychologically and emotionally attached to their business, as it would have taken much of their physical and mental efforts in the course of business pursuit. These cattle farmers are thus faced with a dilemma as they grow older as to the decision on what happens to their farm investment and who takes over them and hence, the available options for them after their exit from active rearing. Previous literatures consulted led much emphasis on farm succession plans for instance Fasina and Inegbedion (2014) studied farm succession plans among poultry farmers in Ogun State. Stephanie (2005) looked at farmer retirement and transition planning in Virginia, her concern was how prepared Virginia farmers were about retirement, but not much has been done on determinants of farm succession plan among aged cattle farmers in Kebbi State. It is in view of this, the study seeks answers to the following questions;

1. What are the socio economic characteristics of the aged cattle farmers in the study area?
2. What are the cattle rearing activities the aged farmers are involved in?
3. What are their levels of involvement on cattle farming?
4. How the aged cattle farmers plan for succession?
5. What are the factors influencing their succession plan?

Hypothesis; There is no significant relationship between aged cattle farmers' succession plan and some selected socioeconomic characteristics.

METHODOLOGY

The study sample was drawn from rural communities in Kebbi State. The state was created on the 27th August 1991 and it's situated between latitudes 10^0 8'N- 13^0 15'N and 3^0 30'E-6^0 02'E. The state is bordered by Sokoto and Zamfara State to the east, Niger to the south, Benin Republic to the west and the Republic of Niger to the north. The state is divided into four agricultural extension zones namely; Argungu, Bunza, Yauri and Zuru zones. Zone one is made of seven Local Government Areas (LGAs), zone two comprises six LGAs, zone three comprises four LGAs and zone four comprises four LGAs making a total of 21 LGAs. The population of aged (60 years and above) cattle farmers in the state is said to be 5125 according to (Kebbi State Cattle Farmers Association, 2017). A multi stage sampling procedure was used to select respondents for the study. At the first stage, in each of the agricultural zones, two LGAs with high concentration of aged (60 years and above) cattle farmers were purposively selected to give a total of eight LGAs. At the second stage, three rural communities were purposively selected from each LGA, making a total of twenty-four rural communities. At the final stage, ten aged cattle farmers were purposively selected from each of the rural communities to give a total of 240 respondents. Data collected were subjected to appropriate descriptive and inferential statistical analysis (such as Pearsons Product Moment Correlation PPMC). The dependent variable (succession plan) was measured on a scale of 0-3, where 0= not at all, 1=rarely, 2=sometimes and 3= always.

RESULTS AND DISCUSSION
Socioeconomic characteristics

Result in Table 1 shows that majority (45.74%) of the aged cattle farmers were 65 years old with mean age of 67.17±5.468 and the implication is that, the cattle farmers are aged. This affirmed the United Nations' estimate of 10% of the global population of over 962 million aged people within 60 years under review , of which these figures are expected to rise by 2050 (United Nations, 2017). This is also an indication that no too many young people are into cattle rearing in Nigeria. This also agrees with Fagorusi (2017) assertion that the average age of Nigerian farmer is 55.5 years.

In addition, majority of the respondents (95.4%) were males, while 4.6 percent were females. This shows that, the male folks have dominated the population of cattle farmers in the study area. This is also gave credence to Agboola, Adekunle and Ogunjimi (2015) who noted that there were more males in vegetable farming than females because it involves time and high energy. Cattle farming also share the same attributes this is because of its capital intensive nature and it also requires high energy. This finding is also in harmony with Mohammed and Abdullquadri (2012) study, that gender inequality is noticed in Nigeria's agricultural sector and this constitutes a bottleneck to agricultural development.

The results also show that majority (100%) of the respondents were Muslim. This implies that modern religion has vastly taken over the communities in the study area and this could be as a result of trade between the Arabs and the presence of Islamic scholars.

Furthermore, majority (84%) of respondents were married. This shows that majority of the respondent were married and still living together.

In addition, majority (57.9%) of the respondents practice monogamous family that is having only one wife. This reveals the reason why

most of the respondents had an identified successor. This is because in polygamous family, the head of the household may find it difficult to identify any successor and this makes it difficult to discuss succession related issues.

The results in Table 1 further revealed that 48.8 percent of the respondents had a household size of about 11-20 members with a mean of 13.04±6.989.The reason for this large household size could be as a result of the value attached to children in the study area, because the respondents believe that, the larger the household size the

higher would be their status in the community. The implication for this large household is it could affect succession plan decision of the aged cattle farmer. This is in contrast with the report of National Bureau of Statistics (2016), which says the average household size in rural areas is 5.9. This also agrees with Mgbokov, Ochiaka, Ugwu and Okorie (2014), who posited that the magnitude of agricultural production has been found to have a direct relationship with household size. Thus, the larger the household size, the more agricultural production.

Table 1: Distribution of aged cattle farmers by personal and demographic characteristics

Variables	Frequency	Percentage	Mean	Standard deviation
Age			67.17	5.46
65	109	45.4		
66-70	74	30.8		
71-75	37	15.4		
≥76	20	8.3		
Sex				
Male	240			
Female	-	-		
Religion				
Islam	240			
Christianity	-			
Others	-			
Marital status				
Married	236	98.3		
Divorced	1	0.4		
Separated	2	0.8		
Widowed	1	0.4		
Family type				
Monogamous	139	57.9		
Polygamous	101	42.1		
Household size			13.04	6.98
≤10	93	38.8		
11-20	117	48.8		
21-30	26	10.8		
31-40	2	0.8		
≥41	2	0.8		
Literacy level				
Non	55	22.9		
Nomadic	42	17.5		
Primary	15	6.3		
Secondary	21	8.8		
Post-secondary	37	15.4		
Quranic	70	29.2		
Years of education			10.92	9.90
≤20	209	85.0		
21-40	32	13.3		
≥41	4	1.7		

Source: Field survey, 2017

The result in Table 1 further disclosed that majority (77.3%) are literates, which is the ability to read and count numbers in one's own language. The possession of education could be the reason why must of the respondents had successors for

their farm. This is in agreement with the findings of Fasina and Inegbedion (2014) who posited that, level of education of respondents have significant influence on farm succession plan.

Furthermore, information in Table 1 revealed that majority (85.0%) had less than or equal to 20 years' of education. The mean years of education was 10.92±10.96. This result infers that, most of the aged cattle farmers were literate and can read, write and count numbers. The number of years aged cattle farmers have spent in pursuing knowledge had significantly influence their succession plan.

Table 2 shows that majority (78.3%) of the respondents practiced extensive system of cattle rearing with mean years of experience and mean income per annum was ₦1,000,375.00+ 5,500,000.00. The implication is that aged cattle farmers rear their cattle by moving from one location to another in search of pasture, they have many years of experience and this is expected because they are old however, they had a small number of animals which invariable yield low returns. The extensive management system practiced also explains why aged cattle farmers had to plan for who will take over them because they had to move long distance with their animals in search of food and water, which requires more energy. This result is in tandem with the report of FMARD (2016) that, animal rearing supply chain has been facing serious constraints, ranging from inefficiency to high security threat, as these animals roam from place to place in search of pasture causing a great friction between herders and farmers.

Table 2: Distribution of aged cattle farmers by socioeconomic characteristics

Variables	Frequency	Percentage	Mean	Standard deviation
Type of cattle farming practiced				
Extensive system	188	78.3		
Intensive system	24	10.0		
semi-intensive	28	11.7		
Years of cattle farming experience			30.62	10.56
≤20	53	22.1		
21-40	152	63.3		
41-60	34	14.2		
≥61	1	0.8		
Flock size			112.32	10.56
≤100	152	63.3		
105-200	52	21.7		
205-300	22	9.2		
305-400	9	3.8		
≥405	5	2.1		
Annual income			1,000,375.00	905,422.22
≤500,000	49	20.4		
500,001-1,500,5000	165	68.8		
1,500,5001-2,500,000	15	6.3		
2,500,5001-3,500,5000	3	1.3		
3,500,5001-4,500,5000	2	0.8		
≥4,500,5000	6	2.5		
Age of the farm			28.37	10.61
≤20	71	29.6		
25-40	146	60.8		
45-60	22	9.2		
≥65	1	0.4		

Source: Field survey, 2017

Aged cattle farmers' involvement in cattle farming activities

The results in Table 3 reveals that the respondents were actively involved in 6 out of 14 cattle rearing activities and these activities were rated above the cattle rearing activities involvement grand mean. In ranking, it was observed that aged farmers were involved in the following rearing activities: marketing of animal product ($\bar{x}$ = 1.13); selection of breed ($\bar{x}$=1.07); parasite control ($\bar{x}$=1.07) and identification of sick animals ($\bar{x}$=1.04) among others. This implies that age and drudgery associated with these activities has affected the kind of activities they were involved on the farm.

Table 3: Rank order of aged cattle farmers' involvement in cattle farming activities

Cattle rearing activities	Mean	S.D	Ranking
Marketing of animal products	1.13	1.356	1st
Selection of breed	1.07	1.349	2nd
Parasite control	1.07	1.332	2nd
Identification of sick animals	1.04	1.342	3rd
Give animal water	1.02	1.362	4th
Supplementary feeding	0.96	1.290	5th
Deworming	0.93	1.319	6th
Farm Sanitation	0.91	1.269	7th
Identification	0.87	1.304	8th
Detection of pregnant animal	0.56	1.103	9th
Weaning of calves	0.55	1.111	10th
Milking	0.45	1.033	11th
Creep feeding	0.31	0.807	12th
Castration	0.30	0.893	13th

Source: Field survey, 2017

Overall level of aged cattle farmers' involvement in cattle rearing activities

Result in Table 4 shows that majority (64.6%) of the aged had low involvement in cattle rearing activities. The implication is that the aged cattle farmers in the study area were gradually reducing the amount of work they do, that is from tedious to less tedious. This shows that the aged cattle farmers were ready for succession as most of these activities were done by their successors. Their low involvement in animal rearing activities is as result of age and drudgery associated with these activities.

Table 4: Overall level of aged cattle farmers' involvement in cattle farming activities

Total Involvement Score	Frequency	Percentage	Decision
≤ 14	155	64.6	Low
14.1-28.1	38	15.8	Moderate
28.2-42	47	19.6	High

Source: Field survey, 2017

Succession plan Process of the Aged Cattle farmers

Table 5 reveals that respondents had actively involved their identified successors in almost all the five steps succession plan process. Respondents had involved their identified successors in financial decision on the farm ($\bar{x}$ = 2.91), paying bills ($\bar{x}$= 2.80) make employment decision on the farm ($\bar{x}$ = 2.78), make long term and strategic plans for the farm ($\bar{x}$= 2.76) and successor responsible for technical decision on the farm ($\bar{x}$ = 2.70). It could be observed from the result that the respondents still had much to do as far as technical decision on their farm is concerned.

Table 5: Rank order of the aged cattle rearers succession plan process

Statements	Mean	S.D	Rank
Successors make financial decision on the farm	2.91	2.031	1st
Successor responsible for paying bills	2.80	0.542	2nd
Successor makes employment decision on the farm	2.78	0.595	3rd
Successor makes long term and strategic plans for the farm	2.76	0.583	4th
Successor responsible for technical decision on the farm	2.70	0.73	5th

Grand Mean = 0.79
Source: Field survey, 2017

Overall level of involvement of identified successor into succession process

Table 6 reveals results that majority (90.8%) of the respondents had involved their identified successors into their succession plan process. This implies that after sometime, the successors would take over the farm from the older generation; and which would invariably enhance the livelihood of both farmers.

Table 6: Overall level of involvement of respondent's successor into succession plan process

Total succession score	Frequency	Percentage%	Decision
≤14.66	3	1.3	Low
14.67−29.32	19	7.9	Moderate
29.33−44	218	90.8	High

Mean=13.97, SD=3.218, n= 240
Source: Field Survey, 2017

Principal components of factors influencing aged cattle farmers' succession plan

    The contributions of the highly loaded variables to succession plan consisted of 4 factors. These 4 factors are: educational factor, which accounted for 63.342 percent, followed by socioeconomic factor which also accounted for 53.878 percent. The third factor was experience factor which accounted for 43.588 percent and lastly, demographic factor which accounted for 28.558 percent.

Table 7: Result of principal component analysis showing initial Eigen value of factors influencing succession plan of aged cattle farmers

Factors	Eigen value initial total	Percentage variance%	Cumulative%
Demographic	3.141	28.558	28.558
Experience	1.653	15.030	43.588
Socioeconomic	1.132	10.290	53.878
Educational	1.041	9.464	63.342

Source: Computed from result of factor analysis, 2017

Factor1: Demographic factor

    Table 8 reveals that three variables were found to significantly contribute to succession plan, out of which one of them was positively loaded. These three variable were age (L=0.751), flock size (L=0.694) and attitude (L=0.619). The demographic factors were named based on criterion 4. This implies that age, flock size and attitude may determine the level of experience which could influence succession plan of the aged cattle rearers.

Factor2: Experience factor

    Two variables were found to contribute significantly to experience factor out of which all them were positively loaded. These were age of the farm (L=0933) and years of cattle rearing experience (L=0.929). The factor was named based on criterion4. It implies that age of the farm and years of experience could influence the aged cattle farmers' succession plan in the study area.

Table 8: Factor analysis showing variables contributing to extracted factors influencing succession plan of aged cattle farmers

Factors (variables)	L	L^2	$\sum L^2$=X
Factor1 (demographic)			
Age	0.751	0.564	1.387
Flock size	0.694	0.440	
Attitude towards succession	0.619	0.383	
Factor2 (experience)			
Years of experience	0.929	0.863	1.733
Age of the farm	0.933	0.870	
Factor3 (socioeconomic)			
Household size	0.565	0.369	0.991
Annual income	0.789	0.662	
Factor4 (educational)			
Years of education	-0.608	0.369	1.187
Years in the community	0.818	0.669	

Source: field survey, 2017
L=loading for factor
L^2= Square of factor loading
X=Latent root for the factor

Factor3: Socioeconomic factor
Two variables were also found to significantly contribute to socioeconomic factors, out of which all of them were positively loaded. These socioeconomic factors were annual income (L=0.789) and household size (L=0.565). The factor was named based on criterion 2. It implies that annual income and household size of the aged cattle rearers could influence their succession plan.

Factor4: Educational factor
Two other variables were found to contribute significantly to educational factor, out of which only one of them was positively loaded. This educational factor was numbers of years spent in the community (L=0.818). The factor was named based on criterion 3. It implies that number of years spent in the community by the aged cattle rearers could greatly influence their succession plan.

Conclusively, the aged cattle rearers with reasonable number of years, experience, flock size, good annual income, and years spent in the community and favourable attitude towards succession would have good succession plan.

Correlation between socioeconomic characteristics of respondents and succession plan
Result in Table 9 shows that at p≤0.05 there were positive and significant relationships between respondents age (r=0.162), years of experience in cattle rearing (r=0.162), flock size (r=0.142) and their succession plan. This implies that as age of the respondents increases, they tend to plan for succession and as their years of experience increase, their flock size also increases, by so doing they tend to see the need for succession planning.

Table 9: Correlation analysis showing the relationship between the respondents' succession plan and some selected socioeconomic characteristics

Socioeconomic variable	r=value	Coefficient of determination	p=value	Decision
Age	0.162*	0.026	0.012	S
Household size	-0.094	0.883	0.147	NS
Years of education	0.023	0.000	0.718	NS
Experience	0.162*	0.026	0.012	S
Flock size	0.140*	0.019	0.030	S
Years spent in the community	-0.016	0.000	0.804	NS
Annual income	-0.070	0.004	0.282	NS
Age of the farm	0.119	0.014	0.066	NS

*Correlation is significant at 0.05 level (2 tailed)
**Correlation is significant at 0.01 level (2 tailed)
Source: Field Survey, 2017

CONCLUSIONS AND RECOMMENDATIONS
The study concludes that there was high consideration for farm succession among aged cattle farmers due to involvement of their identified successors into the succession plan process and the aged cattle farmers had a low involvement in cattle farming activities, it could be due to drudgery associated with such activities and also a result of age. However, factors such as age, flock size, favourable attitude towards succession planning, years of cattle farming experience, age of the farm, annual income, household size, years of education, and number of years spent in the community were the major determinants of farm succession among aged cattle farmers in Kebbi State. Therefore study recommends the following; Going by the age of the farmers (67 years and above) there is a need to encourage new entrance into agricultural profession most especially the youth. There is also the need to invest more into cattle farming because it is more sustainable in terms of employment and income generation. There is should be retirement benefits for aged farmers across the country, this would encourage youth to take up farming as a business rather than seeing farming as an occupation for older generation.

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