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IMPACT OF NATIONAL ANIMAL PRODUCTION RESEARCH INSTITUTE (NAPRI) ON THE DEVELOPMENT OF SMALL HOLDER LIVESTOCK FARMERS IN GIWA LOCAL GOVERNMENT AREA, KADUNA STATE

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ABSTRACT

The paper presents the decreasing trend in productivity level of livestock sub-sector and tries to assess the impact of National Animal Production Research Institute (NAPRI) Programmes for livestock productivity in villages adjoining the research institute. Giwa L.G.A of Kaduna state from north-west zone was purposively selected due to proximity to NAPRI headquarters for easy collection of data. Questionnaires were distributed to farmers across 10 wards of the local government and 301 were retrieved. Giwa (31), Shika (30), D/Mahawayi (30), KAkangi (30), Gangara (30), F/Hauya (30), Galadimawa (30), Kidandan (30), Yakawada (30) and Idosu (30). Information on socio-demographic characteristics of the respondents, perception on importance of the programmes of NAPRI, (livestock system programme), impact on income and living standard as well as problems associated with knowledge transfer in the areas were collected. Data obtained were analyzed by means of descriptive statistics (Mean, Frequencies, Likert type scale) and independent T-test. The result indicated that access to veterinary services (3.54), access to livestock information (3.52) and knowledge of livestock rearing (3.51) with weighted averages higher than 3.5 were ranked as extremely important while perception on impact of the programme revealed increase in capacity to feed the family and income with 2.84 and 2.83 respectively. The independent T-test further indicated that farmers level of income and possession of household items were significant at 1% while capacity to feed the family at 5% which indicated positive significance of the programme. It is therefore, recommended that trainings, and production of teaching materials (Leaf let, Magazines, slides, and films) should consider the use of local languages to reach at farmers for more awareness on improved technology to facilitate its adoption for both agricultural and national development.

Keywords: Impact, small holder livestock farmers, NAPRI programme.

INTRODUCTION

The papers presented at the conference of commercial dairy ranchers association of Nigeria (CODARAN) X-rayed the causes of decreasing trend in productivity level of livestock Subs-sector in Nigeria. According to Kafeero, (2021). Absence of Suitable government policy, poor Support Services, rising ethnic Conflicts, poor yields and extremely low off-take from traditional system in livestock production has been a source of frustration to development initiatives and therefore, the industry is characterized by low output, resulting in huge gaps between demand and supply amounting to SD 3.5 billion (₦1.08 - ₦1.8 trillion) of animal product imports.

He further stressed that, the livestock sector is characterized by low productivity of local breeds and limited value addition, as well as increasing conflicts between pastoralist and crop farmers. Thus, the impact on food and nutrition security, public Safety, which causes a big loss of human lives estimated at USD 14 billion (₦5.04 trillion) annually.

Kalla, (2021), Ikechukwu, (2021) ILRI, (2023) opined that, there is very low average milk and meat yield, for example, the average milk production per cow/ year is 124 litres per lactation period with 3 litres / Cow/day in Nigeria Compared to 25 litres and 40 litres for Europe and America respectively and therefore, these has creating a gap for the importation of 95% to make up the requirement of 1.4 billion litres of milk Consumed in the Country.

A series of attempt to improve productivity locally has an outstanding record of failures. This is as a result of threat in breed segregation, high illiteracy level among Nomads, weak institutional support, ethnic Conflicts, poor animal feed and water which are diffusing from state to state thereby posing a greater challenges to economic growth and diversification in the Country.

Concerted efforts are required to address these Challenges to improve food and nutrition security to meet the sustainable development goals (SDGs). Considering the most likely route to success to be through strong extension services to improve management practices and rise up the genetic potentials of the indigenous breeds to increase productivity. The government in its effort established The National Animal Production and Research institutes (NAPRI) (FMARD,2017).

In 1975 the institute takes on the name National Animal Production Research Institute (NAPRI) functioning administratively under the Ahmadu Bello University, Zaria. The institute has its headquarters located at Shika, Giwa Local Government Area of Kaduna state which lies between Latitude 9 and 12" N, and longitude 6° 0 and 9°E.

The organization has a mission of conducting demand- driven research and training in animal production and dissemination of technologies to animal producers, processors and Marketers in an integrated value-chain system to achieve sustainable employment generation, poverty alleviation and improved Livelihood in Nigeria".

While its vision is that of "Becoming a centre of excellence, in the development and dissemination of innovations and appropriate technologies for Commercial and Competitive Small holder, medium and large scale environmentally friendly animal production systems to ensure animal food security in Nigeria", the Centre is Mandated to Conduct research for:

i. Genetic and reproductive improvements of livestock Species which include:- Cattle, sheep, goats, Swine, poultry, rabbits, donkeys, horses, Camels, etc.
ii. Introduction, selection, propagation and utilization of natural and Sown pastures for Livestock production," and
iii. Development of animal nutrition packages for maintenance and production of all classes of food animal species, guided and informed by the beliefs and Commitment of the institute for Quality research, teaching and extension for development, Institutional integrity in honest service and above all Impactful Community Services as a priority for both agricultural and national development.

The area of its area of operation includes: Beef, Biotechnology, Dairy, Equine and Camel, Feeds and Nutrition, Livestock systems, Poultry, Small ruminant research programmes (NAPRI, 2020). Therefore, the research is out to assess the Impact of NAPRI on the development of small-holder livestock farmers in Giwa Local Gov't Area while the specific objectives were to:

i. Describe the Socio-economic characteristics Small-holder livestock farmers in the Giwa Local Gov't Area
ii. Assess small-holder farmer's perception of the effectiveness of NAPRI programme in the area.
iii. Assess the impact of the institute on income and living standard of the neighboring farmers.
iv. To identify the problems associated with technology transfer as a National Mandate with NAPRI

METHODOLOGY

Sample/Sampling procedure

Giwa Local Government Area of Kaduna State from North West zone was purposively selected due to proximity to NAPRI Headquarters. Questionnaires were distributed to farmers across 10 wards of the local government (Giwa, Shika, D/Mahawayi, Kakangi, Gangara, F/Hauya, Galadimawa, Kidandan, Yakawada and Idosu). Information was collected based on the objective of the study; data collected were analyzed by means of descriptive Statistics and independent T-test to portray the farmer's perception and impact of NAPRI programmes.

RESULT AND DISCUSSIONS

Socio-demographic Characteristics of the Respondents

The Socio-demographic parameters Considered in the study were age, marital status, Level of education, experience in livestock farming as well as farming system.

Respondent age ranged between 20-70 years with a mean age. of 45 years (Table 1). However, Majority (29.2%) fell within age bracket of 40-49 years, 21.3%, 17.9% within the 50-59 and 30-39years respectively, Middle age implies active, hence may influence rationale decision/reasoning and managerial capabilities and is considered as an agricultural productive age with Food and agricultural organization (FAO, 2019).

The table further revealed that 81.7% were married with only 16.6% Single. Similarly, marriage forms the basis for family formation and is an indication for Manpower availability for farm work. This agrees with findings with Agbamu, *et al*: (2006) who opined that married farmers due to engagements and responsibilities participate more on programmes For Livelihood improvement than their single Counterpart.

Educational attainment is positive as quite a Majority (41.9/%) has secondary education with up to 14.3% attaining post-Secondary education even though about 33.9% have attained primary education with only 10% with non-formal education. Respondents experience in livestock farming ranged between 5-24 years with a mean year of 13 years; also, majority (53.8%) were practicing Mixed Farming (Livestock and Crops); with a very good percentage (46.2%) for livestock rearing only.

Education and years of experience in related activity were expected to have direct positive relationship with proficiency and can influence adoption of innovation on Livestock farming. This Corroborate the findings with Farinde *et al* (2005) who identified literacy among small-holder farmer as a variable factor that positively influenced use of improved agricultural

inputs/resources thereby facilitating the participation in self-help project.

Table 1 Sampling Frame/Size

Villages	Sample Frame	Sample size
Giwa	50	31
Shika	50	30
D/Mahawayi	50	30
Kakangi	50	30
Gangara	50	30
F/hauya	50	30
Galadimawa	50	30
Kidandan	50	30
Idosu	50	30
Yakawada	50	30
Total	**500**	**301**

Small-holder Farmer's Perception on the Importance of NAPRI Programmes

Table 3 Showed farmers perception on the importance of NAPRI programs ranging from provision of extension advisory services, access to veterinary services, access to livestock information, formation of farmers Cooperatives, linkage to credit facilities, training on Livestock meat and Milk production for agricultural development.

The results presented knowledge sharing of technologies to farmers as productivity enhancement programme. An index of 3.5 was developed, any weighted average above the index indicated extremely important or otherwise of the activity. From the table; Access to veterinary Services, livestock information, sharing of knowledge on livestock rearing is perceived to be extremely important hence has the mean 3.54, 3·52 and 3.51 respectively "While other parameters fell between the average of 3.5 indicating that the activities were considered very important.

The perception of the farmers on the importance attached to NAPRI programmes aimed at agricultural development is positive and farmers are provided the needed technique on how to improve on areas of Meat and milk production and processing, linkage to credit facilities to boost their farming, a reliable clinic to provide veterinary services, enquiries on the production System and new technologies Services emerging from research, this is supported by the research of Abdullahi, (2021) and Ujagah (2014) who asserted that the practices of agriculture is essential for

expansion of employment opportunity, reduction of poverty and income redistribution, speeding up industrialization and easing the pressure of balance payments disequilibrium.

Table 2: Socio Demographic Characteristics of the Respondents

VARIABLES	FREQUENCY	PERCENTAGE (n=301)
Age (Years)		
20 years	17	5.6
20-29	31	10.3
30-39	54	17.9
40-49	88	29.2
50-59	64	21.3
60-69	28	9.3
Above 70 years	19	6.3
Means	45.12	100.0
Marital Status		
Married	246	81.7
Single	50	16.6
Separated	5	1.7
Total	301	100.0
Level of Education		
Non-Formal Education	30	81.7
Primary	102	16.6
Secondary	126	1.7
Post-Secondary	43	14.3
Total	301	100.0
Experience in Livestock		
0-4	39	13.0
4-9	77	25.6
10-15	73	24.3
16-19	35	11.6
20-24	77	25.6
Mean	12.53	100.0
Farming System		
Livestock rearing	139	46.2
Livestock Crops (Mixed Farming)	162	53.8
Total	301	100.0

Source survey 2020

Table 3: Small Holder Farmer's Perception on the Importance of NAPRI Programme

NAPRI Programmes	Weighted sum	Weighted average	Decision
Access to veterinary services	1061	3.54	Extremely important
Access to livestock information	1057	3.52	" "
Sharing of knowledge on livestock rearing	1054	3.51	" "
Training on livestock meat/milk production	1038	3.46	Very important
Extension advisory services	1022	3.41	" "
Linkage with credit facility	1004	3.35	" "
Training on livestock leather processing	1001	3.34	" "
Formation of livestock farmers cooperatives	964	3.21	" "

Impact of the Programmes on Income and Living Standard of the Neighboring Community

Increase in income is an indicator of good standard of living as it influenced the demand for goods and services even for luxuries, In this context, It seeks to provide information on how farmers perceive activities of NAPRI with regard to increase in income, improved Living Condition and possession of Vital House hold infrastructures. For this indicators, and index of 2.8 was developed, any average equal or greater than 2.8 indicate high increase in living condition while less than (2.7) revealed increase possession of household items.

The findings indicated high increased in Capacity to feed the families (2.84) and income generation (2.83) as a result of participation in the programmes, and hence positive changes were observed with excess for the possession of household items. This is supported by the theory of demand and Supply which stated that the higher the income, the higher the demand for goods and Services even for luxuries (Olukosi, 2014) and that of Muhammad, (2020), who opined that, increase in income is a way of reducing the level of poverty in a society.

Table 4a: Perception of Assessment of Income and Living Standard of Neighboring Farmers

Options	**Weighted sum**	**Weighted average**	**Decisions**
Increase in level of income	857	2.83	Highly increased
Capacity to feed family	854	2.84	" "
Possession of household items	837	2.78	Increased

The study showed that the impact of NAPRI programme on smallholder farmers in Giwa was found to impact on their level of income, at 1%, capacity to feed family at 5% and the Possession of Assets at 1%. As such, the NAPRI programmes are very important in changing farmers livelihood as expressed by the study.

Table 4b: Impact on Income and Living Standard of Neighboring Farmers

Impact parameters	Participants		Non-Participants		Mean Difference	t-value	p-value
	weight sum	weight average	weight sum	weight average			
Increase in level of income	857	4.85	458	1.522	0.17850	3.187	0.002***
Capacity to feed family	854	4.39	539	1.791	0.13729	2.451	0.015**
Possession of household items	837	4.38	489	1.625	0.15098	2.696	0.007***

*** = P<0.000 significant at 1% ** = P<0.05 significant at 5%

Problems Associated with NAPRI Technology Transfer

The table: presented the problems associated with the transfer of technology as perceived by the farmers which include Language barriers, lack of teaching aids or facilities, appropriate information (technology) in some areas, poor accessibility and insecurity. The perception statements were also ranked with an index of 2.5 upward indicating serious, very serious (3.0) and extremely serious (3·0-3·5):

All the problems identified were perceived as very serious (3.0 -3.5) and hence can significantly affect the performance on information delivery if not carefully addressed. According to Ibrahim, *et al*, (2016) funding is required by extension agencies to overcome problems associated with technology transfer to the farmers.

Table 5: Problems Associated with NAPRI Technology Transfer

Problems	**Weighted Sum**	**Weighted Average**	**Decision**
Communication Barriers	927	3.08	Very serious
Lack of teaching aids and resources	1048	3.48	“ “
Inappropriate technologies in some areas	936	3.11	“ “
Poor accessibility	954	3.17	“ “
Insecurity	924	3.07	“ “

CONCLUSION

The study concluded that the livestock system programme of NAPRI has impact on smallholder farmers in Giwa local government in their level of income and possession of assets which showed 1% level of significance (Income and possession of asset) with capacity to feed family at 5%. As such, the NAPRI programme is found to be very important in changing farmer's livelihood as expressed by the study.

RECOMMENDATION

The production of teaching materials (Leaf let, Magazines, slides, and films) should consider the use of local languages to reach at farmers for more awareness/trainings on improved technology to facilitate its adoption

Provision of security, infrastructure is inevitable for Smooth operation in areas where farmers can be contacted for information transfer

More research should be conducted on the impact of NAPRI Programme since the institution has the Mandate for National development and advocacy should be intensified to encourage more livestock farmers' participation in the programmes.

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