CONSTRAINTS TO ADOPTION OF ARTIFICIAL INSEMINATION TECHNIQUES IN LIVESTOCK PRODUCTION IN BAUCHI LGA

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ABSTRACT

Constraints to adoption of artificial insemination techniques by livestock owners in Bauchi LGA were investigated using some randomly selected respondents. Of the constraints considered, the most important among the village livestock owners was lack of artificial insemination facilities (84.3%) while the least was the free-range system of animal husbandry (18.9%). Conversely, some respondents considered the greatest constraint to be the lack of well-defined breeding objectives (66.7%). While personal dislike was the least (0.0%) considered constraint, others included unavailability of cryogenics (66.7%), shortage of trained artificial insemination personnel (66.7%), lack of organisation to monitor the promotion and control of animal breeding (60.0%), the extensive system of animal husbandry (60.0%), etc. It can therefore be concluded that most livestock owners are prepared to use artificial insemination techniques in their breeding programmes if objectives are well defined and adequate artificial insemination facilities are made available and affordable. However, it is necessary that infrastructural facilities be developed in an integrated manner with essential manpower, financial input and built-in educational and training programmes, for bringing about the attitudinal change in the potential adopters of AI.

Key words: Artificial insemination, adoption, constraints.

INTRODUCTION

Artificial Insemination (AI) is a vital tool for the rapid improvement of livestock allowing for maximum use of the best sires on numerous dams. It is one of the animal production technologies that augment

production and returns from livestock at a faster rate and enhance cross breeding programmes. The benefits of this technology are, however, derived only when it is readily available to the livestock owner and is effectively utilized by him. Though the technology has been accepted and practiced in the developed countries for a long time, in developing countries in the tropics. AI has come into serious conflict with environmental, cultural and geographical conditions that adversely affect production (Futmayr, 1979). There is limited literature on the constraints associated with AI in Nigeria and virtually none on the constraints as perceived by the livestock owners *per se*.

This study was undertaken with the aim of studying the constraints in the adoption of AI techniques in livestock production in Bauchi LGA as perceived by the livestock owners. The outcome would be of immense importance in policy making regarding the technologies to be employed in our quest for improved livestock production.

MATERIALS AND METHODS

Location and Climate

The location and climate of Bauchi have been described (Garba, 1991). Bauchi lies between longitude $10^{\circ} 10'N$ $10^{\circ} 33'N$; latitude $9^{\circ} 40'E$ and $10^{\circ} 13'E$ and on an altitude of 690.2m above sea level. Its estimated land area is 33540.70Km with a population size of over 4m people. The mean annual rainfall is 905.37mm with a temperature range of $11^{\circ}C$ - $40^{\circ}C$. Mean monthly hours of sunshine is highest in December (300.0hours) and lowest in August (150.1hours). August records the highest relative humidity (66.5%) and February records the lowest (16.5%).

Vegetation and Soils

Akwuchi (1990) described the vegetation as open Savannah woodland with trees up to 6m or more. Trees exist in isolatory form or in clusters with spaces in-between occupied by a herb layer of non-woody species up to 3m high. In most parts, the vegetation has been reduced to acacia shrubs due to cultivation and burning effects. Grasses in such areas often reach a height of 3.15m or more. Garba (1991) reported that the grasses are generally brown and have a low nutritive value during the dry season, but during the rainy season there is lush pasture which has high nutritive value.

The soil, is fertile, and has its origin from the sandy parent material. Due to their susceptibility to erosion and drought, there has been limitation to the maximum utilization of the soils for crop production (Agboola, 1979).

Data Collection

Data for this study were obtained through the use of structured questionnaires. Respondents were briefed on the significance of AI before administration of the questionnaires. Two enumerators and the researcher assisted the respondents in filling the questionnaire. The study was conducted from January, 1993 to March, 1993. Data were collected from eight selected villages (Bauchi metropolis, Bayara, Tirwun, Miri, Kangere, Gubi, Wuntin Dada and Yelwa) in Bauchi Local Government Area.

Sampling Techniques

The livestock owners were stratified into 4 categories on the basis of the size of ownership. Twenty-five livestock owners within the four categories were randomly issued questionnaires in the eight selected villages of Bauchi LGA. Fifteen other questionnaires were issued to staff of agricultural establishments and farm managers within the metropolis and outskirts of the town, respectively. In order to enhance the objectives of the study, information on age distribution, educational levels, livestock ownership (size), awareness of AI (whether heard or never heard of AI prior to the study); appendix 1, were also collected.

The data were summarized using frequencies and percentages which were then analysed by rank order statistics.

RESULTS

Constraints perceived by livestock owners in using AI:

Table 1 depicts the constraints perceived by livestock owners in using AI. The constraints, ranked order varied between free-range system of animal husbandry and absence of AI facilities; I and XX; being 18.35% and 84.29% respectively. Absence of AI facilities is the most (84.29%) pressing constraint while free-range system of animal husbandry is the least (18.85%) constraint.

Constraints perceived by Agric. workers, and Livestock Scientists in adoption of AI:

Table 2 shows the constraints perceived by Ministry of Agriculture workers, veterinarians and livestock/poultry scientists in adoption of AI. The constraints, ranked order varied between personal dislike and poorly defined objectives of breeding I and VII; being 0.0% and 66.7% respectively. The most (66.7%) considered constraint was objectives for breeding not well defined and the least (0.0%) is personal dislike.

DISCUSSION

All the respondents rear animals. Most people keep animals in Bauchi for one reason or the other. Constraints perceived by livestock owners show that lack of AI facilities is the most (84.3%) pressing while the least (18.9%) considered constraint is the free-range system of animal husbandry. This result is in agreement with the findings of Kunzru *et al.* (1989) who found out the major constraints to adoption of AI in India to be the absence of AI facilities on Sundays and other holidays (95.37%). The result of Osinowo (1983) is contrary to this. He observed the absence of an agency to promote and control animal breeding to be the most pressing constraint to AI practice in Nigeria. This was probably a general constraint as it took the whole country into consideration while this result being reported was based on Bauchi. The least (18.85%) considered constraint was

ADOPTION OF ARTIFICIAL INSEMINATION TECHNIQUES
TABLE 1: CONSTRAINTS PERCEIVED BY LIVESTOCK OWNERS IN THE
ADOPTION OF ARTIFICIAL INSEMINATION TECHNIQUES IN EIGHT (8) SELECTED
VILLAGES OF BAUCHI LGA

Constraints	Livestock Owners (N-191) % Rank Order	
Absence of facilities	84.29	I
Lack of technical knowledge of AI practice	77.49	II
The absence of an agency to promote and control AI	76.44	III
AI facilities not readily available	68.59	IV
Lack of trained AI personnel	65.45	V
Lack of knowledge about usefulness of AI Practice	52.88	VI
Cost involved in AI	48.69	VII
Distance of AI centres from livestock farms	47.12	VIII
Lack of knowledge of the bulls semen to be used	45.55	IX
Lack of time to convey animals to AI centres	41.36	X
AI could result in some harm to the animals	34.55	XI
Detection of animals on heat is difficult	30.37	XII
No time to wait for AI/AI not done on time	27.75	XIII
Preference for natural service	27.23	XIV
Cross-bred calves thro' AI not having market value	25.13	XV
Low chances of conception	24.08	XVI
Religious prohibition	21.99	XVII
Superstition concerning AI (Monstrosities)	20.94	XVIII
Personal dislike	19.89	XIX
Free-range system of livestock husbandry	18.85	XX

TABLE 2: CONSTRAINTS PERCEIVED BY MINISTRY OF AGRICULTURE
WORKERS, VETERINARIANS AND LIVESTOCK/POULTRY SCIENTISTS IN THE
ADOPTION OF AI IN BAUCHI

Constraints	Respondents (N-15) % Rank Order	
Objectives for breeding not well defined	66.67	I
Unavailability of cryogens	66.67	I
Shortage of trained AI personnel	66.67	I
No organisation to monitor animal breeding	60.00	IV
The extensive system of animal husbandry	60.00	IV
Poor adaptation of imported bulls	46.67	VII
Lack of technical knowledge of AI practice	46.67	VII
AI being very expensive	46.67	VII
Communication networks poorly developed	40.00	X
Electricity not steadily supplied	40.00	X
Religious prohibition	26.77	XII
No time to wait for AI/AI not done on time	6.67	XIII
Preference for natural service	6.67	XIII
Conception rate very low	6.67	XIII
AI being harmful to the animals	6.67	XIII
Low market value for offsprings through AI	6.67	XIII
Superstition regarding AI (Monstrosities)	6.67	XIII
Personal dislike	0.00	IXX

the free range system of the fulani animal husbandry as shown on Table 1. AI has been practiced in Bauchi on a small number of animals. This agrees with the result of Voh (1990) who gave the number of animals inseminated in Bauchi to be 30 between 1979-1989. But the fact that 65.4% of rural farmers in the study area never heard of AI prior to the interview, calls for more effort in enlightening farmers on the significance of AI, and indeed the need for an agency to promote, encourage and control AI.

Constraints perceived by Ministry of Agriculture workers, veterinarians and livestock/poultry scientists in the adoption of AI are shown in Table 2. The most (66.67%) considered constraint was that the objectives for breeding were not well defined while personal dislike was the least (0.00%). This is in agreement with the findings reported by Osinowo (1983). The difference in priority of constraints between the rural livestock owners

was that of objectives for breeding not being well defined while personal dislike was the least constraint.

It is therefore concluded that most livestock owners in Bauchi are ready to use AI techniques with breeding programme and objectives well defined as well as adequate AI facilities made available and affordable. However, the generality of the populace needs to be educated more on the significance and practice of AI or infrastructural facilities developed in an integrated manner with essential manpower, financial input and built-in educational and training programmes, for bringing about the attitudinal change in the potential adoptors of AI.

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TABLE 3: DISTRIBUTION OF RESPONDENTS ACCORDING TO AGE, EDUCATIONAL LEVEL, LIVESTOCK SIZE AND WHETHER HEARD OR NOT HEARD OF AI

Respondents, N = 191											
Age (Years)			Educational level			Livestock size			Heard or not heard of AI		
	Freq*	%		Freq.	%		Freq.	%			
Up to 25	30	17.30	Illiterate	11	05.80	Up to 10	69	36.10	Heard	66	34.60
26-33	50	26.20	Quranic	91	47.60	11-20	62	32.50	Not heard	125	65.40
34-41	45	23.60	Primary	28	14.70	21-50	35	17.80			
> 41	63	32.90	Secondary	42	21.90	> 50	26	13.60			
			Tertiary	19	10.00						

*Frequency

(Table 1) and the veterinary and livestock scientists (Table 2) might have well revealed the level of AI awareness in these classes of people in the study area. Constraints considered by both categories of people are equally worthy of all attention, but it seems what is more important is their level of education as far as AI is concerned (Table 3).

CONCLUSION

In the study area, the results showed that the most pressing constraint perceived by the livestock owners was lack of AI facilities while the least considered constraint was the freerange system of animal husbandry. The most considered constraint by Ministry of Agriculture workers, veterinarians and livestock/poultry scientists in adoption of AI

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