Assessment of Adoption Status of Management Practices for West African Dwarf Goat Production in Southwestern Nigeria

Simisola Mercy Odeyinka[1]* & D.O. Torimiro[1]

Keywords: Adoption- Discontinuance- West Africa Dwarf Goat- Nigeria

Summary

This study was conducted in the Obafemi Awolowo University Rural Development Project communities in Southwestern Nigeria to investigate the adoption status of West African Dwarf Goat (WADG) management practices among the seventy (70) project participants purposively considered for the study. A structured interview was used to elicit quantitative data which was subjected to descriptive statistics. Qualitative data were also collected using focus group discussion (FGD), key informants interviews and on-the-spot assessment, which were conducted in seven rural communities. The study revealed, among others, that the farmers adopted the WADG management practices introduced to them at one point in time or the other during the project implementation, from which they derived a lot of socio-economic benefits. However, over 50 percent of the participants were no more involved in goat rearing since the project has stopped. Reasons attributed to this vary from community to community. Management practices like regular feeding (cut and carry system) and washing were claimed to be labour intensive and a little bit difficult. All (100%) respondents overwhelmingly expressed their desire for continuation and sustainability of the services provided by the project.

Résumé

Evaluation du statut d'adoption des pratiques de gestion de la production de la chèvre naine ouest-africaine dans le sud-ouest du Nigeria

Cette étude a été réalisée dans le cadre du projet de Développement communautaire de l'Université Obafemi Awolowo dans le sud-ouest du Nigeria. Le but de l'étude était d'examiner le statut d'adoption des pratiques de gestion de la chèvre naine ouest-africaine. Soixante-dix participants (70) au projet ont été sélectionnés de manière aléatoire pour faire l'objet d'une enquête. Des questionnaires détaillés ont été utilisés pour collecter des données quantitatives. Ces données ont été analysées en employant la statistique descriptive. Des données qualitatives ont également été collectées au sein de sept communautés rurales à l'aide de discussions au sein de focus-groupes, d'interviews avec des personnes influentes ainsi que de l'évaluation sur terrain. L'étude a montré, entre autres, que les paysans avaient adopté à un moment donné, les pratiques de gestion de la chèvre naine ouest africaine qui leur avaient été enseignées au cours du déroulement du projet. Il est apparu que ces nouvelles pratiques leur avaient procuré d'énormes avantages socio-économiques. Néanmoins, cinquante pour cent (50%) des personnes enquêtées ne pratiquaient plus l'élevage de chèvres depuis la fin du projet. Les raisons évoquées variaient d'une communauté à l'autre. Des pratiques de gestion telles que l'alimentation régulière (le système de cut & carry) ainsi que le lavage des animaux étaient jugées trop exigeantes en main-d'oeuvre et donc un peu plus difficiles à appliquer. Cependant, la totalité (100%) des personnes interviewées a exprimé le désir de voir le projet continuer vu les services rendus à la communauté.

Introduction

Goat occupies an important place in the rural economy of the humid tropical environment of West Africa. The West African Dwarf is the adapted goat breed among the rural dwellers, which form the vast majority of people in the tropics. The animal contributes significantly to the socio-economic lives of the rural

[1]Department of Agricultural Extension and Rural Sociology, Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife, Nigeria.
*Corresponding author: Department of Animal Science, Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife, Nigeria. E-mail: smodeyinka@yahoo.co.uk or sodeyink@oauife.edu.ng Tel no: +234 8037252130

Dr. Simisola Mercy Odeyinka and Dr. D. O. Torimiro are both members of Academic staff in the Department of Animal Science and Department of Agricultural Extension & Rural Sociology of the Faculty of Agriculture, respectively.
Received on 29.09.04 and accepted for publication on 12.09.05

dwellers. It also serves as source of meat, milk, leather and some other cultural occupational services, most especially among the people in the rural areas who have adopted the rearing of goats as part of their ways of life. Livestock keeping around the homestead is usually practised in this tropical zone. Such livestock subsist on household/ kitchen wastes, scavenging and bush grazing. Given this situation, productivity is low, disease incidence is high, parasite burden is heavy and the contribution of livestock to household earnings is small. Also in this zone, animal protein consumption is very low resulting in high infantile mortality and morbidity, low adult productivity and short life expectancy (3, 4). In general, these animals receive little or no attention and as a consequence labour costs are negligible (22). For goats to continue in playing vital roles in the rural dwellers' economic advancement, the need for improved management practices was argued (1). These practices according to Mathias-Mundy (13) include effective remedies and techniques that are unique, culturally adapted, locally available and often cheaper than conventional practices.

Efforts have been exerted by many research institutes in the improvement of animal productivity through research in cattle, pig, poultry, and sheep production, with very little attention being paid to goat until recently. Goats have been despised by the rural dwellers because of the destruction that they cause to crops on the field, during processing and in storage. Besides the innate mischief and destructive capacity of goats, they are difficult to confine. This is more so for the West African Dwarf goat with its compact body and short legs. However, these hardy animals are adapted to the humid tropical environment and research had to be developed to modify the traditional husbandry system to exploit the potential of the environment for herbage productivity, adaptability and high reproductive efficiency of the breed.

Against the afore-mentioned background, the attention of a team of scientists made up of nutritionists, veterinarians, reproductive physiologists, agronomists, economists and extension specialists was drawn to the need for developing a management package for the West African Dwarf goat. These scientists drawn from the Obafemi Awolowo University, Ile-Ife, Nigeria and the National Agricultural University, Wageningen, the Netherlands were engaged in a project on the "Management of the West African Dwarf goat in the Humid Tropics" in the former institution's Teaching and Research Farm between 1981 and 1993, with the cooperation of the International Livestock Centre for Africa (ILCA). At the Obafemi Awolowo University, a package that was simple, adaptable and based on locally available materials was developed (See box 1). Specifically, the objectives of the West Africa Dwarf Goat Production project based in the University were to: study the management and economics of the production of the West African Dwarf Goat in the Humid Tropics, develop research facilities, disseminate research findings and train scientists (young graduates and students inclusive).

The management package was first tested with a few pilot farmers in 7 research villages: Akeredolu, Isoya, Laadin and Iyanfoworogi in the humid forest zone and Awo, Aro and Ojo in the transition zone, that is, from humid forest to Savannah zone. The pilot units were visited fortnightly to monitor their performance and to advise them when necessary. On such occasions, all animals were weighed and checked physically and changes in flock composition were recorded. The project team assisted with the yearly Pestes des Petits Ruminants (PPR) vaccination, quarterly washing to control ecto-parasites and quarterly deworming against endo-parasites. The advantages and disadvantages of *Gliricidia sepium* and *Leucaena leucocephala* as sources of protein-rich fodder (15, 17) were discussed with interested rural dwellers during a village meeting and in individual discussions (6).

The study was, therefore, designed to investigate the post-project implementation adoption status of the WADG management practices by the project participants, the benefits derived as a result of their participation, reasons for discontinuance and to offer suggestions for sustaining the services provided by the project.

Box 1. Management Package for West Africa Dwarf Goat Production

1. Complete confinement of the animals.
2. Improved nutrition through the use of browse – *Leucaena leucocephala* and *Gliricidia sepium* -supplemented with salt lick.
3. Vaccination against PPR and ecthyma and dipping against mange and lice.
4. Control of occasional health problems such as diarrhea, gaseous lymphadenitis and pneumonia.

Source: West Africa Dwarf Goat Project, Obafemi Awolowo University, Ile-Ife.

Theoretical framework

Acceptance of a new idea or practice is a complex process, which apparently involves a sequel of thoughts and actions (23). Many scholars, (18, 23), among others, who have worked on adoption of a new idea or practice by an individual or groups of people have established that the adoption process is not a snap decision but a mental process on the part of individuals over a period of time. This process, according to NCRSC (14) consists of five stages, viz: awareness, interest, evaluation, trial and adoption. However, Alao (5) based on the Nigeria situation opined that these stages could be fused into three that is, awareness, trial and adoption. Since the major goal of this research is to understand the adoption status and possible discontinuance of the goat management practices among the project participants, theory of adoption and discontinuance was explored. Several authors (2, 5, 11, 12, 18, 21) have either implied or established the existence of discontinuance and its impact on the subsequent diffusion of a product. For instance, Kolawole *et al.* (11) recently categorised discontinuance of use of improved practices by farmers into immediate, gradual and rapid. However, Ekong (8) further identified some non-conventional factors contributive to adoption or discontinuance situation as follows: the role of the agent, community characteristics, inertia, habit, fear, suspicion, anxiety, vested interest, rejection of outsiders, among others. These theoretical foundations are hereby explored in offering explanations to some of the major findings of this study.

Methodological approach

The study was conducted in the seven rural communities (Akeredolu, Laadin, Isoya, Iyanfoworogi, Awo, Ojo and Aro) based in the Obafemi Awolowo University Rural Development Project villages in Osun State, Nigeria. All the surviving rural dwellers who earlier participated in the WADG project in the rural communities were purposively listed for the study.

A pre-tested structured interview was carried out to elicit quantitative information on the participants' selected socio-economic characteristics while enlisting them for the focus group discussion (FGD) sessions. Descriptive statistics such as frequency counts and percentages were used to summarize the quantitative data.

Focus group discussion (FGD) sessions, key informants' interview and on-the-spot assessment, which was conducted by an interdisciplinary team of an Animal Scientist (Female), Agricultural extensionist (Male) and assisted by the Project facilitators (One male and one female) were carried out to facilitate the generation of qualitative data. All the participants in the WADG management project were also listed and constituted into the FGD and key informants interview sessions. The FGD session was organised in each of the seven communities with the average number of participants ranging from 6 to 15.

The interviews were conducted in local language by the Project facilitators who are very conversant with the participants' local language. The sessions were recorded with electronic tape recorders and later translated by the research team (facilitators inclusive) for analysis. Data collected were analysed and presented in line with the principles of FGD analysis (7, 19). The study was conducted between March and June, 2004. The key area investigated in the course of the sessions was shown in the FGD guide in box 2.

Box 2. Focus Group Discussion Guide Questions

1. You are all welcome to this session and we thank you very much for your response to our previous interviews. Since you have participated in the WADG project, would you like to share with us the extent to which you have adopted the management practices introduced to you and the benefits you have derived so far?
2. To be more specific, of what benefits were the training sessions on the management practices to you?
3. Since your participation in the project, could you share your experience in the community on the adoption of the management practices introduced to you?
4. In view of your experiences and testimonies you have given concerning the project, would you be able to continue with the management practices introduced to you?
5. What are your reasons for discontinuing with the practices despite the benefits you have derived?
6. How have the management practices affected your flock size?
7. What suggestions would you give to us on the sustainability of the WADG project?

Table 1
Distribution of respondents by adoption status of the WADG packages

Package	I am aware of it*	I am interested*	I have evaluated it*	I have tried it*	I have adopted it*	I have discontinued with it*
Management Component:						
- Complete confinement of the animals	70 (100.0)	70 (100.0)	70 (100.0)	70(100.0)	70 (100.0)	56 (80.0)
-Semi-controlled breeding	70 (100.0)	70 (100.0)	70 (100.0)	70(100.0)	70 (100.0)	59 (84.0)
Health Component:						
- Vaccination against PPR[1]	70 (100.0)	70 (100.0)	70 (100.0)	70(100.0)	70 (100.0)	70 (100)
- Regular washing against ectoparasites	70 (100.0)	70 (100.0)	70 (100.0)	70(100.0)	70 (100.0)	63 (90)
Nutrition Component:						
-Based on Browse (*Gliridia sepium* and *Leucaena leucocephala*)	70 (100.0)	70 (100.0)	70 (100.0)	70(100.0)	70 (100.0)	49 (70)

*Percentages are in the parentheses; [1]Peste des Petits Ruminants.

Results and discussion

All (100%) of the participating rural dwellers that were enrolled in this study were arable/crop farmers and over fifty years of age. Majority (80%) were male goat keepers, although it was observed through the on-the-spot assessment that women were more traditionally involved in goat rearing than the men. The higher percentage of the male participants was as a result of more males adopting the packages. This might not be unconnected with the cultural position of males being the head of the family units with control over the household finance and labour. Females were involved in raising few (two to four) heads of goats (10, 20). About sixty per cent of the participants had low level of education (Primary education certificate holders). All (100%) of them were married with household size between 5 and 10. All (100%) the participants reared goats on part-time basis with flock size ranging from 4 to 28 goats (including the kids). Goat rearing experience varies among the participants, with the average of about 18 years. In consonance with previous findings (10, 16, 20), the foundation stock were either bought or received "in care taking" (i.e. contractual local arrangement between the owner of the goats and the person taking care of the goats). All (100%) the participants indicated that they reared goats for sales or for household consumption and they also engaged in training fellow goat rearers.

The WADG management practices introduced to the farmers, which they all (100%) claimed they had adopted at one point in time or the other during the project implementation, include the following: health component (Animal vaccination against Pestes des Petits Ruminants and regular washing against ecto-parasites); nutrition component (based on browse species *Gliricidia sepium* and *Leucaena Leucocephala*) and management component (housing and semi-controlled breeding) (See table 1). Over seventy percent of the participants claimed that management practices like regular feeding (cut and carry system) and washing are labour intensive and a little bit difficult. It was not practised for too long before they discontinued with it. This further supports the notion of discontinuance with adoption of any practice as expressed by (2, 5, 12, 11, 18, 21) in their various studies. However, the reasons for discontinuance with respect to the practices like regular feeding (cut and carry system) and washing, which they claimed to be labour intensive and a little bit difficult were not listed among the non-conventional factors identified by Ekong (8). This, perhaps, might be due to the fact that more of their available labour was being directed to their primary occupation - arable crop production, which earns them more income/returns (4, 9).
In the course of the FGD sessions all the participants emphatically expressed their appreciation for participating in the WADG project. They saw their participation as a source of blessings in terms of the socio-economic benefits they have derived. It was also revealed in their discussions that the proceeds from sales of their goats have significantly contributed to the financing of their children's education up to a higher level. This is in consonance with the work of Ikwuegbu *et al.* and Jefu *et al.* (9 & 10) who stated that goats are important as liquid assets to meet emergency financial needs especially in the villages where banking facilities are lacking. In a particular community, the project was claimed to have fostered unity among the members (See box 3).

The FGD and interview sessions revealed that many of the participants were no more involved in goat rearing since the project has stopped. Reasons attributed to this vary from community to community. In Awo and Ojo communities, the reason was attributed to the upliftment in their physical environment occasioned by motorable roads constructed across their communities, which have been found to be inimical

Box 3: Views on Benefits Derived

1. "Yes, you can see things yourself! The project has greatly brought many families together and it has generally fostered unity in the entire community. If you could recollect, this community conferred on your project leader (a white man), a paramount chieftaincy title – "Atayese" of Awo community as a token of our appreciation." – The traditional ruler of Awo Community.

2. "What are you talking about; we have benefited a lot from your training sessions. When we were practicing what you taught us, our goats were very healthy and fine" – A participant.

3. "Could you believe that I have trained all my children through the proceeds from the sales of goats? Atimes, some of my children would come from school to request for school fees…. I would quickly look for an interested buyer and the problem would be solved. Look I may not be able to recount all, but others are here to testify"- A very elderly participant.

Source: Focus Group Discussion, 2004.

to their animals. Many animals are being lost to road accidents on a daily basis. Road construction is a social enhancement initiative of the local government, which was not intended to bring about the wanton destructions of the community people's property. It has, however, become a very notable factor which has led to the discontinuance of goat rearing by some members of the communities in Awo and Ojo. This is as a result of discontinuing with complete confinement of the goats which was part of the package initially adopted by them.

In Laadin community, the animals were lost to theft; poisoned by the envied neighbours (as a result of their financial gains from goat production); infestation of diseases (especially PPR and ecto-parasites); and so on. However, some participants had to reduce their flock size for lack of encouragement and visitation from the project staff. Consequent upon the participants' inability to continue with the confinement of their animals partly due to financial constraints, unavoidably led to some of the animals destroying crops in their neighborhood (11). This led to the prohibition of goat rearing in Laadin community in order to avoid communal clashes. Some of these reasons

Box 4: Views on discontinuance and project sustainability

1. "Our experience in Laadin community was very bitter. We have stopped rearing goats! On many occasions, our goats were either poisoned or stolen!" – A participant in Laadin community.

2. "During your visitation to our flock, some members of the community, who were not participants were envious of us and you should be able to predict the likely consequences. That is exactly what you have seen!" – A notable participant in Laadin community.

3. "We would have continued to rear goats if not for our recent experience. You could see the newly constructed roads across our community, and as such we lose our goats to road accidents almost on a daily basis. It is as if we should tell the government to come and block the roads" – A participant in Awo community (approved by all others).

4. "Basically, if your team members are still visiting us, as regularly as before, majority of the participants would have continued to rear goats" – A participant in Awo community (approved by all others).

Source: Focus Group Discussion, 2004.

for discontinuance are in agreement with some of the factors necessary for sustainability of adoption of innovation identified by Williams *et al.* (23), among which, are values and goals, norms, compatibility with ideas and beliefs; social nature of community and neighbourhood; contact with extension service; and cost and economic feasibility of practice. Their diverse views are summarized in box 4.

Majority of the participants overwhelmingly expressed their desire for continuation and sustainability of the project. They emphatically expressed their readiness to remobilise and re-group themselves for project activities. Moreso, they indicated their willingness to pay for services that may enhance the sustainability of the project.

Conclusion

The primary intent of the West Africa Dwarf Goat Production project as designed by the research team has been found to be temporarily achieved during the project tenure. However, a post-project assessment showed that the socio-economic gains derived from the project had stopped not long after the termination of the project. The participants are more or less left in their pre-project era, though not without the nostalgia of their experience during the era of their participation. Basically, many of the participants had discontinued with the adoption of most of the practices, which they have initially adopted, partly due to the failure of the project staff to visit them. Perhaps, constant visitation of the staff would have engendered a great deal of encouragement and follow-up initiatives that would have possibly averted some of the precarious situations experienced in some communities. Since the socio-economic benefits derived from the project were still very fresh in the minds of the participants, coupled with most participants' willingness to continue, there is the possibility to sustain the benefits derived from the project if the University is able to continually provide the necessary services that would facilitate the use of the WADG management practices. For this to be realizable, the following suggestions might be helpful:

- Regular visitation of veterinary personnel to the communities.
- Training of trainers workshop to be organized for the farmers.

Acknowledgements

The Authors appreciate the assistance of Mr. J.O. Owolabi and Mrs F.W. Obayomi of the Isoya Rural Development Project of the Obafemi Awolowo University, Ile-Ife, Nigeria during the data collection.

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Simisola Mercy Odeyinka, Nigerian, PhD, Senior Lecturer, Department of Animal Science, Obafemi Awolowo University, Ile-Ife, Nigeria.
D.O. Torimiro, Nigerian, PhD, Senior Lecturer, Department of Agricultural Extension and Rural Sociology, Obafemi Awolowo University, Ile-Ife, Nigeria.