

INDIGENOUS KNOWLEDGE IN LIVESTOCK MANAGEMENT IN AFRICA: A SHORT REVIEW

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Abstract

This review discusses practices, some of which have been validated by scientific methods or at least proven to be partially effective and those that have not been tested. The paper revealed how such indigenous practices affect livestock management, health-care and production system. Some unique advantages inherent in such practices were also highlighted. It is recommended that these techniques, particularly those connected with animal health be further validated and refined through formal scientific procedures.

Key Words: Indigenous knowledge, livestock management, healthcare production system.

INTRODUCTION

Many rural communities keep some form of livestock and all have developed strategies to keep their animals healthy and disease-free. These practices include many effective remedies and techniques that are unique, culturally adapted, locally available and often cheaper than conventional methods (Mathias-Mundy, 1989). Indigenous practices relating to breeding, mating, stock management and replacement, forages fed or grazed and their nutritional value, methods of feeding and seasonality of feeding systems, etc are well-known (Slaybaugh, 1990). This paper reviews some of these indigenous strategies as they influence livestock production system, management innovations and healthcare.

System of Production

The system of livestock production in Sub-Saharan Africa is largely extensive and generally characterised by minimum inputs from producers. The animals, except cattle and rabbits, scavenge around compounds, farms and households for food. There is no major investment other than occasional grain feed and household wastes (Adegbola, 1990). Further, the indigenous method of livestock production is independent of foreign exchange fluctuations. All the materials required can be sourced locally. Although productivity is low, this production system has been noted to be highly sustainable and environment-friendly (Cashman, 1989). However, this mode of production is in sharp contrast to the intensive method of livestock production as in Europe and North America where vaccines, feed

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ingredients and other major inputs are required. Thus, when there is an unfavourable foreign exchange situation as is the case in many developing countries, this mode of production is seriously affected and may collapse (Sonaiya, 1990).

The livestock industry in Europe is beginning to adopt the free range system as practised by resource-poor farmers in developing countries (Barton-Gade 1984). In recent years, there have been changes in consumer perception of the quality of animal products such as meat, milk and eggs, particularly in Europe and North America (Ambler and Wood, 1990). Consumers have become much more concerned about the health aspect of animal products. They have also expressed concern over possible residues of additives in meat, eggs and milk and the health implication of such residues. According to Preston and Morgueitio (1992), consumer preference for "naturally" produced food can be partially interpreted as an expression of dissatisfaction with a production system that uses excess of additives such as vaccines, antibiotics and hormones in livestock raising and chemicals in crop production.

Concurrent with this development, Barton-Gade (1984) noted that in some European countries, the following criteria have been introduced as measures for raising the quality of animal products: (a) no growth promoters of any kind are allowed; (b) an increasing emphasis on outdoor rearing or access to outside at all stages from birth to slaughter. According to Ambler and Wood (1990), there is a small but growing market prepared to pay a premium of 10% over average market prices for products of animals raised under these specified natural conditions.

Similarly, ANRPD (1997) reported that industrial poultry keepers in Switzerland are showing increasing interest in the free range system. According to the estimates of the Swiss Poultry Breeding School, 20% of the 2 million industrial laying hens are on the free range and the market is willing to pay for the higher cost of production incurred under this production system. The report concluded that the free range system is the most natural and livestock-friendly form of poultry husbandry. Interestingly, the conditions specified above are similar to the indigenous mode of production where animals are raised under natural conditions without drugs and feed additives.

EFFECTIVE INDIGENOUS PRACTICES

Effective indigenous practices by resource-poor farmers cover feeding, breeding, pregnancy diagnosis, care of the stocks during pre-natal and post-natal conditions, etc. Local herdsmen are known to assist a great deal during dystocia. Several authors (Adamantidis, 1956 and Ba, 1982) noted that some African pastoralists have mastered obstetrics using similar techniques to those in modern veterinary medicine and are able to carry out an operation such as embryotomy. Other pastoralists know certain herbs such as *Chenopodium Opulifolium* which when taken by the expectant dam facilitate delivery (Desouter, 1982). Ohta (1987) reported that stock owners actually help dam particularly during dystocia, by pulling the offspring out. They also ensure that dams lick the new-born offspring and suckle them too. In the case of asphyxiated kids or prolonged delivery after dystocia, Fulani herdsmen have a number of techniques for restoring normal breathing

(Ba, 1982). They have been observed to hang the young animal up with its hind legs. After this, the animal is placed under a shade and given a cold shower or the belly is pressed rhythmically upon, so as to stimulate breathing after which the animal is allowed to suckle colostrum. Ba (1982) also reported that where the dam is noted to have produced a lot of milk, the suckling on colostrum must proceed in stages, according to increasing size of the stomach. The herdsmen are aware that too much milk may lead to fatal indigestion. However, if the dam did not produce a lot of milk, her young is allowed free access to the dam.

For poor milk producers, *Ficus maclaudi* is given to the dam to increase the production of milk. Studies conducted by Schunk de Goldfiem (cited by Curasson, 1938) observed that cows fed with this plant produced 25% more milk than untreated groups. Sindiga (1994) also reported that Maasai herders know all the grasses on the range. They can distinguish between those that are good for increasing milk and those that fatten livestock and improve their condition.

Some breeding and rearing practices include restricting mating and breeding to certain times of the year, particularly during the rainy season. According to Sollod *et al.* (1984), this is done in order to prevent deliveries during the dry season, a time when the quality and availability of forage is usually poor. Such restrictive mating could be achieved by using a penile sheath for the rams and bulls.

HEALTH - CARE

Over the years, livestock farmers in Africa have learnt a great deal about animal diseases/ailments and have explored the potentialities of many medicinal plants in combating diseases of their stocks. Bizimana (1994) listed and discussed thousands of such plants that are used in traditional veterinary practice in Africa. In Nigeria, Nwude and Ibrahim (1980) noted that about 92 of such plants tested revealed biological activities.

Different parts of the plant are utilized and can be prepared in many ways. The mode of preparation according to Chavinduka (1976) however, depends on the active ingredient to be extracted and on the route of administration. Studies by Ibrahim *et al.*, (1984) further revealed that in some cases, the same plant could serve as a cure and as a preventive when given in different doses. In other instances, different plants are used for treatment and as prophylaxis.

In the prevention of some livestock diseases, some rural stock owners actually vaccinate their animals. Bizimana (1994) reported that vaccination is routinely used as a preventive measure against contagious bovine pleuropneumonia, rinderpest and bovine pasteurellosis, ovine pox and contagious caprine pleuropneumonia. This author also explains that before a vaccine is administered, the virulence of the pathogenic agents may be reduced in various ways including sun drying, dilution with water or milk or left to rot.

One of the common plants used in the treatment of poultry diseases such as New Castle Disease (NCD) and Salmonella infection in many rural communities is *Capsicum* sp. (or peppers). Capsaicin, the pungent agent in *Capsicum* sp. has been shown to significantly increase a bird's resistance to *Salmonella enteritidis*. Sam *et al.* (1995) (cited by ANRPD (1995) reported that when fed for 14 days to neonatal leghorn chicks, capsaicin

increased resistance to organ invasion by *S. enteritidis* with no adverse effect on body weight. Broiler chickens also exhibited an increased resistance to organ invasion by *S. enteritidis* with no adverse effect on body weight when fed 20 PPM capsaicin up to 42 days of age.

The use of *Citrus aurantifolium* (Lime juice) in the treatment of NCD by rural poultry keepers is a common practice in South-Western Nigeria. Kucera *et al* (1965) studied the effect of lime extracts on eggs injected with the NCD virus. Embryonated chicken eggs of 9-11 days old were injected with various concentrations of lime balm extracts 3 hours before the injection of NCD virus. After the eggs have been incubated for 48 hours, allantoic fluid was harvested, pooled and tested for hemagglutination and infectivity. According to this report, NCD virus could not be detected in eggs treated 9.6mg of the lime extracts. Another common treatment for the NCD is the use of the juice from the fruit of *Lagenaria vulgaris*. This fruit is cut in to bits and put in about 1.5 litres of water and offered daily to the birds. According to Nwude and Ibrahim (1980), this treatment is also applied in the treatment of coccidiosis. Other curative measures include the use of *Capsicum* spp (Peppers) solely or in conjunction with *Lagenaria vulgaris* and *Citrus aurantifolium* for the treatment of NCD and coccidiosis.

Also, as part of preventive/curative measures against livestock diseases, CIKARD NEWS (1989) reported that farmers in Bukidnon, Philippines have observed that pigs and poultry remain healthier when they raise turtles in their drinking water. They also mix livestock feed with water from the same source. This practice has been observed to minimize incidence of diseases in such flocks. According to the same report, the Magbabaul Foundation based in Philippines has integrated this practise in its own pig raising project. About 15 turtles are kept in the foundations Duroc-Jersey herd. It was reported that the herd has encountered few disease problems.

Many societies have forms of controlling ectoparasites of livestock. In some, small fires are lit beside resting cattle, so that smoke drives insects away (Mathias-Mundy, 1989). The Fulanis wash their cattle with an infusion of *Sesbania aculeata* before traversing a Tse-tse fly belt. Other measures recorded by Max and Weignard (1987) include: (a) nomads avoid an area known to be infested with parasites, (b) in the morning, ticks are collected from the animals and thrown in to the fires burning near the enclosures, (c) burning of pastures known to be infested with parasites, (d) they also put thorns in bushes known to be infested so that cattle cannot roll on them. In the control of ectoparasites in poultry, ash from the burnt leaves of Pawpaw (*Carica papaya*) and/or Tobacco plant (*Nicotiana tabacum* and *N. rustica*) is rubbed on the feathers of chickens to prevent infestation (Nwuda and Ibrahim, 1980). Etuk (1995) studied the efficacy of *Heliotropium indicum* Linn. in the treatment of sarcoptic mange in pigs. He observed that three applications of the fresh herb juice of *H. indicum* was effective for mange treatment in pigs.

The seeds of *Leucaena leucocephala* make an effective dewormer for goats (NFSRN, 1992). A paste is made by pounding 50 to 100 seeds and mixing with about 200 ml of water. This is fed to the goats. Incidentally, *Leucaena leucocephala* is browse that is found in many parts of South-West Nigeria where goats are raised.

CONCLUSION

The observation of McCorkle (1994) that there is a wealth of indigenous knowledge in the Sahelian country side was confirmed in the present review. According to Warren (1995), some of these practices and techniques should be validated and refined and eventually entered into the extensive livestock production practices. This is a major challenge for the indigenous Knowledge Systems Study Groups all over the world.

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