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Camel (*Camelus dromedarius*) production in Northern Nigeria: An appeal to the Nigerian Institute of Animal Science (NIAS)

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Abstract

Camel production is known in supplying protein to man such as meat and milk, agricultural practices, transportation of goods in tones from one place to another, camel racing among others. However, its production and acceptability is low. Thus, a study was aimed at exploring the potentials of one humped camel production and its importance to the rural dwellers in the arid and semi–arid zones of Nigeria. However, Nigerian Institute of Animal Science (NIAS) would be in the right position considering its mandate on repositioning animal science practices to integrate camel production into modern practices for optimum utilization. The hardy nature of camels made it to survive where other breeds of livestock such as cattle, sheep and goat may not survive or their production potentials may be low. However, camel production does not need much capital to invest due to its hardy nature and simplicity. Modern ways of improving animal production if applied on camel will boost the production potentials.

Key words: Camel production, Northern Nigeria, NIAS, potentials

Introduction

Camel (*Camelus dromedarius*) is important livestock species uniquely adapted to hot arid environments. Dromedary camels (*Camelus dramedarius*) inhabit arid and semi-arid areas of Africa, south–west Asia and India (Mason, 1979), and areas characterized by sparse seasonal variations and unpredictable food and water supplies. They are particularly well adapted to deserts and are better suited to these areas than are cattle, sheep and goats (Mcknight, 1999 and Wilson, 1984). Approximately, 15 million camels in this region represent over 70% of the African and two thirds of the world's camel population (Schwartz 1992). With increasing human population pressure and declining per capita production of food in Africa, there is an urgent need to develop previously marginal resources, such as the semi-arid and arid rangelands, and to optimize their utilization through appropriate livestock production systems of which camel production is certainly the most suitable one (Schwartz 1992). Despite all its ecological advantages, the camel will continue to loose importance, unless solutions are found for turning camel breeding into an activity profitable enough to sustain livelihoods. The camel represents something of an orphan commodity that neither animal scientists and veterinarians nor wildlife conservationists feel responsible for (Abbas *et al.*, 2000). This situation has to change. Furthermore, the stigma that has come to be associated with camel breeding as a backward activity has to be removed (Wilson, 1994). Unless young people perceive camel breeding as a livelihood option that generates a certain minimum income, there is no way that the camel can be saved, except in a zoo (Kohler-Rollefson, 2004). Camels are remarkable animals that have evolved with

a ruminant like digestive system to enable them to survive on low quality and fibrous feeds. Being browsers, camels are able to select high quality diets, which they can efficiently digest Banerjee, (2007). Camels are the most capable animals in utilizing marginal areas because they can survive under harsh environmental conditions. For the people residing in the arid and semiarid areas, camels provide important sources of subsistence and income (Abbas *et al.,* 2000 and Wilson 1998 and 1994).

Economic prospects of camels:

Most of the studies have termed the camel as an animal of great socio-economic importance in large tracts of the third world. Two-thirds of the world's camels are in Africa. Of these, over 140,000 thousand camels constitute a giant milking herd in Northern Nigeria. The camel plays vital socio-economic roles and supports the survival of millions of people in the semi-dry and arid zones of Asia and Africa. In Nigeria, the inhabitants of Northern Borno, Yobe, Jigawa, Katsina, Zamfara and Sokoto states are in the tradition of keeping camels many years ago. However, keeping camels contribute to the economy and nutritional status of the pastoralists in the areas. Neighbouring states like Kano consume camel meat in large quantity on daily basis Ghude and Maigandi, (2011).

Productivity

Dromedary camels, which are indigenous to the Arabian Peninsula and adapted to the hot and dry desert conditions, produce many times and more milk per day. Once the calf suckles and milk-let down initiated, as soon herder milks, a reasonable quantity will be obtained. Therefore, camels are far better suited than cattle and small ruminants for animal husbandry in desert areas FAO, (2003). Unlike sheep and goats, which clear the entire vegetation cover down to the soil surface, camels, take only a few bites from shrubs or trees and then move on Kohler-Rollefson, (1991). Camels are true browsers and plant species grown in those areas of Northern Nigeria are suitable as camels' feed whereby camel produce meat and milk after optimum utilization of the browses Ghude *et al.,* (2013).

Milk production

Total world milk production from camels increased from 4.8 to 5.1 million tons during the period 1993–2002 (FAO, 2003). It is widely admitted that dromedary camels produce more milk of high nutritional quality and for a longer period of time than other species in an environment that may be rightly termed as hostile in terms of extreme temperature, drought and lack of pasture (Wilson, 1998). However, Yagil and Etzion (1980) observed that camel has the ability to produce milk of good composition and quantity for human consumption even when water is severely restricted. Also, camel milk is considered as an important part of the life of desert dwellers providing them a source of protein and energy Yagil and Etzion, (1980). In a full lactation period, the yield may vary between 2,750–3,000 liters on an average of twice milking daily (TMD) and above. In general, the daily yield may vary between 5–10 liters depending on the breed, location and management Maefield and Tinson, (1997). However, Ghude, (2017) reported that with no feed supplementation during wet season in Northern Nigeria, camel cow across parities produces an average of 1–3 liters of milk under pastoral production system while adopting once milking daily (OMD). Camel milk is always an important basic food in the arid regions of Africa and growing countries. It may be used alone as single food for children and elderly people El–Ziny and Al–Turki, (2013). It is highly

nutritious and delicious, low in fat, lactose and cholesterol while rich in protein, lactoferrin, insulin, minerals as sodium, potassium, magnesium, iron, iodine and vitamins as vitamin C, B2 and B12 (Maefield and Tinson, 1997; Tefera and Gebreah, 2004; Lora *et al*., 2005 and El–Ziny and Al–Turki, 2013).

Meat production

Camel meat (beef) has a similar flavour and texture to that of cattle beef but with comparatively higher moisture content (McKnight, 1999). However, there is a difference in the percentages of protein, water, fat, and ash of meat from various parts of the body. The age of the animal also affects the composition of the meat. Camels younger than five years have less protein, fat, and ash than older camels. Nevertheless, these relatively small differences in protein are comparable with the protein content of beef whether it is from a bull, cow, or steer. Meat, hide and fiber production also increased from 353 thousand tons, respectively in 1993 to 376 thousand tons, respectively in 2002 (FAO, 2003).

Drought

Camels are used in agricultural production; they are perhaps most commonly used as a plough animal. Camels can be used for ploughing lands at 1.5–2.0 hectares of land in 8 hours (Wilson, 1994 and Tukur and Maigandi, 1999). One camel was said to outperform a pair of oxen and can plough more than two hectres in less than 12 hours. However, Wilson, (1994) reported that camels can be used for other utility services such as crushing of sugar cane, threshing of maize and other grains, drawing of water from tube well using Persian wheels, among others. Camels are put on variety of uses in different ways depending upon the soil, climate and rainfall.

Transportation

Elsewhere, many are still engaged in transport of salt, fuel wood, agricultural produce and the rest are involved, sometimes with other animals, in the subsistence of both sedentary and nomadic human groups FAO, (2003). In Northern Nigeria, camels are used in transporting of household goods by pastoralists during migration from one place to another. It is evidently clear that in the remotest areas of extreme North during hot dry season, only camels respond to the burden of transportation while cattle and donkeys are battling to survive.

Arid and semi-arid challenges

Desertification is currently taking place much faster worldwide than ever before. It usually arises from the demands of increasing populations that settle on the land in order to cultivate crops and graze livestock Wilfred *et al.,* (2001). In all the studies conducted, there is no any reported case of land degradation by camels but they convert deserts to fertile land when they spend some period of time on the land. During dry season, camels are tethered within a portion of farmland and rotate periodically in order to fertilize the land before the onset of rainy season. The following year, camels are tethered in another farmland and this practice occurred concurrently. Sedentary camel owners engage mostly in this practice because of crop–livestock integration.

Conclusion

The study showed that there is a need for low cost and simple technologies for livestock and product processing. The development, transfer and adaptation of technologies should focus on improving the

efficiency of feed utilization and increasing animal productivity. Protection of the environment is critically important. True cost of production, including environmental cost must be factored into the cost of production. However, little strategic plan and implementation of packages to enhance camel production will yield a positive result.

Recommendation and appeal to Nigerian Institute of Animal Science

The establishment of the Nigerian Institute of Animal Science (NIAS) by the Government of the Federal Republic of Nigeria in 2007 was aimed at regulating all the practices of animal science in Nigeria. Irrespective of specie or breed, camel production is largely a practice of the sedentary farmers in Northern Nigeria. Today, in Nigeria, there is no established farm that engages in camel production. Camel production has been the practice of rural dwellers. NIAS should notice that camel production despite its enormous contributions, does not need much capital to invest hence the management may not be too intensive. Since camel by its nature can survive on thorny plant species and in an area where there is relatively low rainfall, hot and dry in most of the seasons of the year, as is the case in the extreme Northern part of the country, NIAS should look in to these potentials and respond. Most of the Animal scientists in Nigeria have narrowed their research largely on monogastric and small ruminants, but for the larger animals, they are extremely few. Despite camels are locations–specific, the diversity of Nigeria as a nation will accommodate camel production that will cover husbandry, nutrition, behavior, reproductive physiology, genetic improvement and breeding among others. However, the modern techniques of artificial insemination could be inclusive. These needs should be encouraged by NIAS with the adequate funding to conduct more research on camel reproduction, marketing and development. Among NIAS centers of excellence, camel aspect need to be incorporated, encouraged and adequately funded. Experts and or specialists in camel reproduction, health and diseases control, management and marketing should be invited by NIAS, sponsored and allow them to organize workshops and training in the field of camel production in order to educate the farmers on the modern ways to improve their management practices. NIAS, with the genetic and scientific modifications in animal production practices, research work need to be sponsored by our local and international experts in order to see the possibilities on how to confine camels under intensive system of management and see how they will perform. Also, in the last hundreds of years, camel production practices have been purely traditional. However, little effort by NIAS to improve the management practices will be applauded by the farmers. Meanwhile, curriculum of Animal science should also include Camel production as a course especially for the universities in the Northern part of Nigeria where camels are available. Likewise, NIAS should extend the recommendation to our colleges of agriculture, polytechnics and monotechnics.

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