

Game Ranching for Meat Production in Marginal African Agricultural Lands

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Abstract: In the next 15 years, Africa must double its food production if it is to keep up with population growth and food shortages. In South Africa, the 20 million head of game animals currently living on private and state owned land could prove to be the answer. Utilizing game animals for meat production offers food security and economic sustainability while maintaining biodiversity. Game ranches operate with lower input costs because native animals are adapted to harsh environmental conditions and possess greater resistance to diseases and parasites. In South Africa, over 10,000 wildlife ranches have transformed 25 million ha of marginal, semi-arid agricultural land into thriving operations with abundant game numbers. A typical commercial game ranch generates an economic output of \$31/ha compared to \$11/ha for conventional livestock farming, thus creating work opportunities for skilled and unskilled workers. In Africa, vast areas of communal lands are used for low profit small livestock production that could be utilized more profitably through game meat production. Currently a lack of training and extension opportunities for Black economic empowerment hamper native people from fully participating in this emerging and profitable industry. The South African Government aims to have 30% of lands under Black ownership by 2014. This highlights the need to provide training in wildlife management, animal production science and ecological principals of sustainable land management to Black students to enable them to participate fully in the transition from traditional livestock farming to more profitable and practical game farming.

Key Words: Africa, Black farmers, Game ranching, Meat production, Wildlife

1. Introduction

It was stated by Oberem (2011) that in the next 15 years Africa must double its food production if it is to keep up with population growth and relieve current food shortages. In most developing countries diets are based on grains or roots (starch) and are often deficient in protein (Bwibo *et al.*, 2003). Animal foods provide essential sources of protein and important micronutrients (Murphy and Allen, 2003). Even small amounts of animal proteins added to a starch-based diet can yield significant improvements in maternal health and early child development (Neumann *et al.*, 2003). In this paper game ranching for meat is examined as a potential sustainable method of protein production that requires lower inputs, has a low carbon footprint and offers greater economic returns than traditional livestock operations. This manuscript will further discuss the efforts in South Africa to make this form of agriculture more attainable for emergent Black farmers.

South Africa alone currently imports R4 (US \$0.6) billion worth of meat each year, which is still not adequate to fulfill the needs of the population (Dry, 2011). Such reliance on imports is unsustainable and more must be done to increase domestic production of affordable meat. Game ranching for meat production offers a practical route to improved food

security and economic sustainability combined with conservation of the biodiversity that drives the lucrative African ecotourism industry (Falkena, 2003; Hoffmann and Cawthorn, 2012). Currently, game ranching is most developed in Southern Africa but is also practiced in East Africa and to a limited extent in West Africa.

In South Africa, over 10,000 wildlife ranches have transformed 25 million ha of marginal agricultural land with limited water availability into thriving land use operations with far greater economic output than from traditional livestock enterprises (Dry, 2012). A typical commercial game ranch generates an economic output of about \$31/ha compared to \$11/ha for conventional livestock farming and creates better paid jobs for a more skilled workforce. According to Dry (2011) game ranching is the fifth largest agricultural sector generating approximately R8 billion annually to the South African economy.

The premise behind game ranching is that game ranches can operate with lower input and management costs because native animals are better adapted to local environmental conditions, including heat and drought, and have greater resistance to diseases, parasites and toxic plants (Ntiamoa-Baidu, 1997). Habitat degradation is a problem throughout many African grazing lands, but game animals can be kept at high stocking density because the mix of browsers and grazers makes optimal use of all vegetation types (Muir,

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1989). Furthermore, game tend to be more mobile than livestock, and are not as tied to watering locations, thus achieving better distribution across landscape which reduces the potential for overgrazing (Muir, 1989; Ntiamoa-Baidu, 1997). Harvesting game animals through hunting is easier and more humane than current collection and transportation of livestock to the abattoir. A further advantage is that game ranching is not limited to meat production but also creates income from ecotourism, photographic safaris, game lodges, trophy hunting, breeding, color variants, curios and stock sales. Vast areas of African communal lands are currently used for low profit, small scale, livestock production. These lands could be better used for game meat production, but at present there is a great lack of training and extension opportunities for Black economic empowerment to enable native people to fully participate in this profitable industry. The South African Government aims to have 30% of land under Black ownership by 2014 and information on the opportunities and ways to change to a more profitable and sustainable form of land use is now crucial. Legislative change is needed to develop a regulated market for game meat to ensure safe, quality game meat and traceability of the product (Dry, 2012). Poaching and bush meat trades that are a danger both to human health and wildlife conservation goals must be limited. Financial assistance or initiatives from both the South African Government and the Game Industry is needed to overcome the considerable start-up costs of game ranching. Training in wildlife management, animal production science and ecological principals of sustainable land management needs to be made available to young and upcoming Black farmers and managers of cooperatives to help them to become part of and build this profitable young industry (Cousins *et al.*, 2008; Hoffman and Bigalke, 1999; Van der Merwe, 2013).

2. Materials and Methods

Game ranching is defined as: “the management of game animals in an extensive area with minimal human intervention in the form of provision of water, supplemental feeding and strategic health care”. Game farming, on the other hand is defined as: “intensive breeding of quality wildlife”. However, both form a well-established industry in South Africa and are the main agricultural land use in the Limpopo, North West and Eastern Cape Provinces. It is important to note that there are very few young and upcoming, or current Black African game ranchers and farmers. Wildlife Ranching South Africa (WRSA) is the sole non-profit organization representing South African game ranchers and is responsible for negotiation with non-governmental and governmental authorities (Dry, 2012).

WRSA has a history of effectively assisting governmental authorities to establish policies, regulations, and norms and standards applicable to the wildlife industry. WRSA is in addition, committed to the integration of Black farmers into the industry and is currently in the process of initiating such projects. The organization started in 2006 to actively promote changes in health and safety legislation to improve the ability to harvest, process and distribute game meat (Van der Merwe, 2013). To this effect, several auction facilities are available for live sales of game, export-quality game meat abattoirs have been built and plans to introduce mobile game harvesting abattoirs are being put forward.

A workshop with key WRSA stakeholders and Texas A&M AgriLife in May 2012 to discuss collaborative links between the wildlife industry in South Africa and USA, highlighted the desperate need in South Africa for an active Agricultural Extension Service and training opportunities for native people to make more productive use of the extensive Rural Tribal Trust lands.

3. Results and Discussion

Significant barriers still exist in developing a thriving multiracial game ranching community. These include land tenure patterns, the high cost to start up, legislative restrictions on the processing and distribution of game meats, a deficit of trained meat inspectors/examiners and lack of training and ecological knowledge of potential ranch and cooperative trust managers (Dry, 2011, 2012). However, in South Africa there are significant activities afoot to overcome these problems and pave the way for historically disadvantaged farmers to participate in this endeavor.

3.1. Start-up assistance

In Limpopo province in South Africa positive action in helping emerging African farmers to establish sustainable game ranches has been taken with the signing in May 2013 of an agreement between WRSA and the Limpopo Economic Development Environment and Tourism (LEDET). Together LEDET and WRSA pledge to assist emerging game ranchers by providing start up animals including plains game (*e.g.* impala, wildebeest) for meat production to newly established game ranches and also expensive species (*e.g.* sable, roan, buffalo) for breeding programs to more experienced game farmers. LEDET will identify land for emerging game ranchers and identify candidate beneficiaries, while WRSA will mentor emerging game ranchers, help them develop business plans and give them access to WRSA game auctions to market and sell their animals.

3.2. Changes in legislation

In South Africa, commercial game meat production must comply with all the legal requirements in the Meat Safety Act 40 of 2000 (South Africa, 2000). Game animals to be used for meat must be dressed in an approved, registered slaughter facility and inspected by an independent game meat inspector. This requirement is important to ensure meat quality and food safety but it does prevent the commercial use of carcasses of hunted trophy animals, which currently provide 80% of all locally available game meat. Moreover, currently construction of game meat abattoirs is costly and coupled to that the S.A. Government cannot render the inspection service due to lack of manpower and the vast distances to or between game farms (Van der Merwe *et al.*, 2011). To inter alia address such problems, WRSA negotiated with Department of Agriculture, Forestry and Fisheries (DAFF) for a Game Meat Scheme that will enable registered limited throughput game harvesting and slaughter facilities, such as those on ranches, to produce meat for the local market for a period of 5 years while such facilities are being upgraded to the standards set by the Meat Safety Act 40 of 2000 (Van der Merwe, 2013). The Scheme furthermore sets standards for hygiene practices during harvesting, transportation and handling of game meat (Van der Merwe, 2012). Procedures are being established to train meat examiners and other personnel in the correct harvesting and slaughter procedures, as well as systems within the harvesting and slaughter processes to ensure good traceability of game meat produced under the Scheme. The Game Meat Scheme was published for public comments on 28 September 2012. DAFF indicated that by January 2014 the Game Meat Scheme will be promulgated under the Meat Safety Act. WRSA has furthermore proposed that mobile abattoirs, as used by the export market, be allowed for the local market and that such units be registered with DAFF for utilization on different ranches.

3.3. Training and opportunities

The Game Meat Scheme provides access to training for meat inspections and in basic meat hygiene to slaughter staff and emergent farmers (Van der Merwe, 2013). WRSA will provide mentoring for new game ranchers and has active training programs for game rangers, but financial assistance and involvement of other role players are needed (Dry, 2012). This study proposes that a student exchange or internship programs to bring Black South African students to the US to participate in classes on wildlife, range management and meat science. Furthermore, students will experience the American paradigm of wildlife management and the effectiveness of the land-grant Extension Service. Most of the hunters and wildlife viewing tourists in South Africa are American and this

proposed exposure to the American culture will enhance the students' understanding of the expectations of their future clientele. Combined with the opportunity to participate in an internship on a game ranch run by a collaborating member of WRSA, the knowledge and expertise gained in the US and South Africa will ultimately assist and ensure the production of good natural game meat as protein food for future generations in Africa. It is furthermore advised that students should work in pairs to ameliorate the stress and culture shock of international travel and a long period away from traditional African family support. Ultimately the goal is for these students to become leaders in their community and create extension type training courses to empower Black farmers, students and community leaders to run productive game ranches on communal lands.

4. Conclusion

Use of native animals to provide meat and income from marginal agricultural land in Africa has increased greatly since its inception in the 1960s (Carruthers, 2008; Van der Merwe *et al.*, 2011; Dry, 2012). Assistance should now be at hand to transfer this technology to emergent Black African farmers so that they can sustainably produce healthy and natural animal protein to help feed their nation, help their country become independent of imported meat, and ultimately conserve their natural wildlife heritage for future generations.

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