Knowledge Sovereignty among African Cattle Herders

Fre, Zeremariam

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Our perception of knowledge and reality is, in part, culturally, socially and ecologically determined, and that applies to a multitude of indigenous, or local/empirical, and exogenous, or scientific/western, knowledge systems, including indigenous pastoralist knowledge systems in the African drylands. Knowledge systems, in general, are based on the observation, assumption and interpretation of complex realities. They can be defined as organised structures and dynamic processes of a cluster of understandings, usually locally specific, or both.

In a world in which the sustainability of industrial agriculture is being seriously questioned, there is growing evidence that bio-cultural knowledge systems and practices offer greater opportunities for environmentally and socially just sustainable food production and food sovereignty. I believe that the solution lies in identifying and exploring new epistemic and practical connections between culturally and politically distinct indigenous and exogenous knowledge systems from a complementarity perspective. Thus, the arguments about sustainable food production and food sovereignty need to be strongly anchored in the knowledge sovereignty of the so-called poor and dispossessed, because the worst dispossession is to not acknowledge such sovereignty.

Indigenous knowledge systems are the strategies communities employ to deal with everyday issues such as food production, health, education and the environment. Kiggundu (2007) distinguishes between indigenous knowledge (IK) and indigenous knowledge systems (IKS). He states that IK is also referred to as folklore, and that IKS refers to the techniques and methods communities use to harness IK.

Indigenous knowledge is notoriously difficult to define; different social scientists choose to frame it slightly differently. ‘[Indigenous knowledge] is the knowledge that is unique to a given culture and provides a basis for local-level decision making in agriculture, health care, food
preparation, education, natural-resource management, and a host of other activities in rural communities’ (Mutandwa 2013). However, in ‘Potatoes and Knowledge’, van der Ploeg (1993, 209) more colourfully describes indigenous knowledge as a kind of ‘art de la localité’. Like experiential knowledge, which can be defined as ‘the power to utilize one’s own system of knowledge to evaluate an integral component of another knowledge system and pronounce it worthy or unworthy of incorporation into one’s repertoire of knowledge and practice’ (Fre 2018), this art de la localité is not only couched in metaphor, but also, as the name suggests, closely tied to location. Andean farmers in South America, as van der Ploeg explains, use words such as dura/suavecita (hard/soft) in reference to how much the soil has been tilled, and fria/caliente (cold/hot) to convey the degree of soil fertility (van der Ploeg 1993). These terms combine with each other and with other terms to create an entire ‘network of meaning’ (Hesse 1983), one which does not simply add metaphor to the farmers’ way of life, but also informs their practical farming activities, such as risk calculation or avoidance and experimentation with cultivars and crossbreeding, thereby allowing them to gain greater control over their environment. This is not to say, however, that indigenous knowledge is entirely of an experiential nature; it does often contain propositional components as well, as will be discussed in later chapters of this book.

For the purpose of this book, I define IK as the sort of knowledge that generally displays the following five aspects:

- it is culturally and regionally embedded, and does not claim to be universal;
- it is interwoven with the labour process;
- it is negotiated and pluralist;
- it is dynamic rather than static; and
- it embodies and employs a number of scientific principles.

Scientific knowledge, while it may not be reliant upon culture or ‘locale’, is also concerned with the labour process; it may be argued that those processes which lead to scientific knowledge can be negotiated, be dynamic and, of course, employ scientific principles. The general perception is that scientific knowledge is a system of knowledge which, at least ostensibly, is based on the scientific method. In contrast to IK, it purports to be universally applicable. It claims to be produced not through a process of negotiation (though it does often involve debate), but rather through a highly canonicised process of observation, hypothesis and
experimentation, and is highly propositional in nature. ‘Indeed, wherever it can, it apparently goes beyond third-personal to impersonal propositional knowledge’ (Chappell 2011).

Both knowledge systems, however, attempt to systematise and understand the world, although they are rooted in very different grounds. While indigenous knowledge tends to be more relational, being woven through a process of labour and negotiation, scientific knowledge tends towards the absolute and universal sovereignty of knowledge. It is also true that while indigenous knowledge will tend to engage with and utilise scientific knowledge through its process of negotiation, scientific knowledge tends to subsume indigenous knowledge under its own paradigm. Such a relationship will never be equal unless indigenous knowledge claims its own sovereignty from a position of relative strength and scientific knowledge opens itself up to alternative perspectives.

The Beni-Amer cattle herders

By way of paying tribute to the indigenous pastoral knowledge system of the Beni-Amer, and having worked closely with them, I provide an extensive description of cattle production, husbandry and health management (Chapters 5, 6 and 7). This demonstrates that the Beni-Amer take great care to maintain the general wellbeing of their livestock, as well as paying special attention to the particular needs of the animals they have bred to be adapted to their fragile local ecology, which is described in Chapter 3. The combination of management strategies, herding techniques and animal health care practised by the Beni-Amer constitutes a management regime which is complex and ordered, as will be discussed.

The Beni-Amer, which is Arabic for sons of Amer, live among or are surrounded by several pastoral, agro-pastoral and mixed farming communities in the arid and semi-arid region that is the Horn of Africa. The Beni-Amer of eastern Sudan and western Eritrea maintain important cross-border livestock-based trade ties and other historic-cultural links, which contribute to this regional occupational diversity. To the west of the study area, the Beni-Amer are in close contact with the Rashaida, the Kawahla, the Shukrya and others around the Kassala State in eastern Sudan. In the Gash-Barka region of Eritrea, the Beni-Amer are in close contact with the Nara, Kunama, Hadendowa and Tigrinya-speaking highland Eritreans. They are also in seasonal migratory contact across the Ethiopian border with the Tigray and Begemdr regions of central Ethiopia. To the north and north-east of Eritrea, the Beni-Amer live among the
Hadendowa, the Marya and other groups in north-eastern Sudan and northern Eritrea (Figure 1.1). From the author’s field observations in 2016/17, although the territory of the Beni-Amer is geographically well defined, their cattle breeds are known for their productivity and adaptation across the Horn of Africa. So one could argue that the transnationality of Beni-Amer cattle (often called Barca cattle by other communities) across the sovereign political borders in the Horn of Africa could be a fascinating study in the future.

**Productive potential of the cattle in the study area and the scientific evidence**

The Beni-Amer herders own productive cattle, and so the introduction of exotic breeding does not seem to be among their priorities or to their advantage, as will be explored later. A discussion of different breeds and traditional breeding techniques is particularly important, because much of the livestock development efforts and resources in other arid areas have been spent on exotic breeding (Chambers 1983), rather than on herder-centred integrated programmes. A major assumption was made by planners that traditional breeds and breeding methods were less effective, but these assumptions have been seriously questioned (ILEIA 1987), particularly in relation to the introduction to the tropics of breeds from Europe and other cool climates. I too question the above
assumptions, and I will attempt to prove that the Beni-Amer, under their present conditions, successfully produce and manage productive herds within a fragile ecology which is not entirely under their control.

I argue that poor herd performance is not necessarily genetic, but may have been caused by agricultural encroachment, land and water grabbing, insecurity (war and cattle raiding), lack of animal feed, and lack of institutional support and services. Therefore the factors which may hinder good husbandry among the Beni-Amer are not necessarily the management skills of the pastoralists themselves. Faced with outside pressures, such as land grabs and regional conflicts, ensuring land rights and access to resources may be just as crucial as productive herd management to the development of sustainable pastoralism.

Traditional area of the Bgait/Bulad cattle

Bgait is a collective breed name used to describe the short-horned zebu of the Beni-Amer; these cattle are found across the River Setit in the Eritrean western lowlands, eastern Sudan and along the Ethiopian borders (Mason and Maule 1960). These cattle (the most productive strain of which is known as Bulad) are purpose-bred to fit into the economic and socio-cultural fabric of Beni-Amer society (see Annex 3, ‘Customary law of the Beni-Amer’). Breeding good cattle and attending to their wellbeing is part of the Beni-Amer culture.

The traditional home of the Bulad strain of the Bgait is the Gash and Setit areas of the Eritrean lowlands (see Figure 1.2). Decades of conflicts between Ethiopia and Eritrea (1961 to 1991 and 1998 to 2000) have led to the displacement of people and their herds; this has been exacerbated by persistent drought in the area (Fre 2002). Historical land grabbing in eastern Sudan, and recently in some parts of western Eritrea, is another phenomenon denying cattle owners access to fertile grazing areas, because some of these areas have been taken over for commercial horticulture and agriculture (Fre 2009b) in both countries. According to Sudanese experts, ‘In Gadarif State . . . [i]n recent decades, pastoralism has been in decline because of threats posed by rapid encroachment of mechanized rain-fed agriculture, human population growth and other human activities that force extensive livestock production to shift to areas of increasing marginal primary productivity (Shazali and Ahmed 1999; Sulieman and Elagib 2012)’ (Sulieman and Ahmed 2013, 1).

Non-Beni-Amer groups who refer to the Beni-Amer cattle as Barka (referring to the region in which the cattle live) or Aha-Barka (Barka
cattle), or Bgait, recognise the productivity of these cattle and have been buying Bgait cattle for decades, primarily for the purpose of milk production. There are several small dairy businesses around major cities in both Sudan and Eritrea that use the Bgait breed for intensive milk production under improved feeding conditions. Under highland conditions (altitudes above 1500 metres), the Bgait have adapted very well and most small dairies in the Eritrean city of Asmara (altitude 1700 metres) rear crossbred Bgait cattle for milk. A fuller analysis is given in Chapter 5.

**Key elements of pastoral knowledge among the Beni-Amer**

The current research demonstrates, through empirical evidence, that the Beni-Amer knowledge systems, while locally indigenous in context,
embed several elements of exogenous (western) knowledge, which can be summed up as follows:

- The Beni-Amer are knowledgeable about the genealogy of their cattle, and they have a wide range of knowledge about breeding other types of stock and are aware of their use and adaptation.
- They breed with specific objectives such as milkability, walkability, size, coat, colour and character. In other words, Beni-Amer cattle owners have a holistic approach to breeding, which includes aesthetic, genotypic and phenotypic characteristics (character, productivity, adaptation to environment, disease resistance, etc.). Their IKS is therefore resilient and adaptive.
- They are able to manipulate crossbreeding to produce an animal to their specifications (for example, they have bred cattle with wilder traits by crossing Sudanese Dwehin with Eritrean Bgait).
- They control their breeding by using pedigree herds, and, as discussed in Chapter 6, they give cows common breed names, a method that helps them keep a genetic profile. This is a critical practice in non-literate societies where animal profiling is oral, passing from one generation to the other through poetry and storytelling in praise of good breeds.
- The Beni-Amer bull selection is a long process, which involves grooming and virility testing of potentially productive bulls, selecting them for desirable traits while eliminating poor-quality potential bulls. They cull old bulls after about 10 years of service and groom young ones, but they hire out productive bulls to relatives or friends in order to disseminate known productive traits in other herds.
- As part of good management, they limit the number of bulls per herd in the ratio of 1 bull to 60 cows; their herds are composed of approximately 90 per cent females, and may be managed as milking and dry herds.
- They are conscious of the need for and the importance of oestrus (heat) detection in cattle. Some specialised cattle owners among them even use teaser cows to help the bull identify the cows within the herd that are in oestrus.

The above elements constitute a major part of the Beni-Amer breeding system. There may be other aspects open to further research, but the above information forms an adequate, empirical and scientific basis to pursue the argument that Beni-Amer breeding systems show a high level of sound specialisation and resilience.
The Beni-Amer also have a major understanding of animal production principles, most of which are underutilised but remain major technical and perceptual assets to be used in livestock extension and research. My central argument is that the Beni-Amer cattle owners are knowledge-sovereign, but this does not imply that partnership with conventional science is not necessary or beneficial. For example, many herders appreciate the need for veterinary intervention to treat serious diseases such as anthrax, rinderpest and other diseases, which could not be treated through ethno-veterinary intervention.

Pastoral livestock breeds and indigenous systems of production have underlying production and husbandry principles which support pastoralists in breeding a variety of animals that are suited to arid and semi-arid conditions. Cattle breeding and production are skills for which the Beni-Amer are famous, as evidenced by the Bgait cattle, with their high-quality meat and impressive milk yields.

There are several areas of pastoral production and perceptions within the pastoral system that need to be built upon and integrated, rather than destroyed, if livestock extension is to have any appeal to pastoral people. The case of Beni-Amer cattle herders in the study area is a good example of the ability of pastoralists to make a direct contribution to our knowledge of animal production. The introduction of exotic breeds or knowledge that is genetically or perceptually alien to pastoral groups will have little impact on improving such systems unless the indigenous knowledge is properly understood. It is particularly important to understand the cultural and spiritual relationship the Beni-Amer have with their animals and their environment.

A fuller evaluation of the Beni-Amer breeding systems is given in Chapter 5, together with an analysis of the pastoral capacity to manage and produce healthy cattle for the domestic and regional markets. The chapter also provides further comparison between traditional and ‘western’ knowledge of breeding, showing the complementarity between the two knowledge systems. The importance of crossbreeding is highlighted, with more detail on how the Beni-Amer manipulate the breeding to achieve specific objectives. A detailed description and analysis of the Beni-Amer herding systems, pastoral technology and management strategies show how the Beni-Amer perceive and practise herding as an important occupation. Herd composition and management, and herding techniques, are described in some detail to show that the Beni-Amer cattle owners indeed have an impressive accumulated knowledge of cattle husbandry.
What motivates the Beni-Amer to move seasonally is discussed in some detail in Chapter 6 to show that their seasonal migration is highly organised and is related to the annual cycle, environmental conditions, animal health and the need to cultivate seasonally. Evidence is also emerging that the traditional patterns of movement may be changing because of more land grabbing, environmental degradation, climate change, sedentarisation and insecurity in some border areas (Fre 2002; Suleiman and Ahmed 2013). Because of the various challenges, many former pastoral communities are adjusting to the new situation by adopting multiple survival strategies. The strategies of this third way (as compared with pure nomadic pastoralism and semi-sedentary pastoralism) are the creation of new livelihood opportunities and the enhancement of household food security, which include creating stronger urban-rural socio-economic linkages. The adaptation mechanisms adopted by these communities have increased rural-urban interaction, enabling former pastoralists to have access to goods and services in nearby towns, as the case study in Kassala demonstrates (Fre and Tsegay 2016, 157–67). For instance, pastoralists are involving themselves in urban and peri-urban agricultural activities, adopting a semi-sedentary form of pastoralism which has fixed homesteads but allows mobility for larger livestock (e.g. camels, cattle) and commercialisation of livestock production. Pastoralists bring livestock, meat, dairy products, hides, artefacts, charcoal, and wood products to sell, and in return they buy a variety of foodstuffs domestic utensils, school materials for their children, farm implements and animal fodder (Fre and Tsegay 2016).

The Beni-Amer herders also have extensive knowledge of endoparasitic diseases, accidentally caused ailments (e.g. injury through infighting or falling), pre- and post-natal disorders, bone fractures and other visible maladies, and their causes and symptoms. Many other diseases are associated with poor husbandry, which is itself caused by poor environment and bad grazing resources. Most diseases are perceived as preventable and only a few are perceived as a ‘divine punishment’; those may include rinderpest, anthrax and other virus-borne diseases, as will be discussed in Chapter 7.

The Beni-Amer suggest several curative and preventive measures which are predominantly traditional. These measures primarily involve hot metal branding, incision by means of a knife blade, bone setting, and salt and medicinal plants. Among the traditional curative tools, the firebrand seems to be by far the most widely used. For example, swellings, fractures, bruises, lameness, foot rot and bites by wild animals are all
treated with fire, with varying degrees of success. Fire is also seen as a means of fighting off fleas and mites, especially among small stock. Environmental (ethno-botanic) cures that involve the use of different ecotypes in different seasons are seen as crucial to disease prevention. These include using light and heavy soil areas, higher/lower ground, purgative waters, and salty ground and vegetation. These practices are discussed in more detail in Chapter 4 and analysed further in Chapter 7.

Before we discuss these pastoral practices in more detail, the next chapter, Chapter 2, looks at the case for indigenous knowledge sovereignty, provides some definitions of indigenous knowledge, and outlines the broader context of the indigenous knowledge versus scientific knowledge discourse, setting out its key debates. It highlights the threats to indigenous knowledge and related knowledge systems, and puts forward ways of advancing the cause of indigenous knowledge systems. It makes the case for basing the integration or hybridisation of indigenous and scientific knowledge on a partnership of trust and dialogue between the two communities, and gives an overview of the key arguments for and against indigenous and scientific knowledge in the fields of food procurement, agriculture, food security and knowledge systems, focusing on their weaknesses and strengths.

Note that this study focuses on the Beni-Amer and their pastoral knowledge. Although other pastoral systems are mentioned, particularly in terms of common challenges, as outlined in Chapter 8 and throughout, the study does not have the scope to provide an in-depth description and comparison of other pastoral practices.

Chapter 2 also explores the following key debates around food production:

- Are indigenous knowledge systems sufficient to address modern food needs?
- Do indigenous knowledge systems perpetuate socio-cultural systems of repression and segregation?
- Are indigenous knowledge methods of food production geographically and culturally suitable, while ‘cookie-cutter’ global scientific methods are not?
- What are the economic and health implications of low-input versus high-input methods?

In the subsequent chapters, I will not only show the potential for cross-fertilisation between knowledge systems, but reveal that, among cattle-owning pastoral people in the Horn of Africa, indigenous knowledge can
also stand alone as a sound science. Comparisons and complementar-
ities between indigenous and scientific knowledge will be described in
the context of the practices of the Beni-Amer and other pastoral com-
munities. A central argument throughout will be the feasibility of hybrid
knowledge systems.

The concluding chapter (Chapter 10) explores how this hybrid-
isation of knowledge can contribute to food sovereignty and a sustain-
able future for the Horn of Africa region – environmentally, socially
and economically, proposes that policy makers should promote this
knowledge through policy, laws and institution building, and highlights
the importance of the knowledge sovereignty of herders such as the
Beni-Amer.