

**The readiness of communal wool farmers to comply with
sustainability standards in the Eastern Cape province,
South Africa**



By
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DECLARATION OF ORIGINALITY

I, Zosuliwe Kala, hereby declare that this dissertation, which I submit for the degree of M.Sc. Agric (Agricultural Economics) at the University of Pretoria, is my own work, and that it has not been previously submitted by me for a degree at this or any other institution of higher learning.

Signature.....

Zosuliwe Kala

Date.....

Approved by Dr Danie Jordaan

Signature.....

Date.....

DEDICATION

This Master's Dissertation is dedicated to my daughter, Amyoli Kala, for being patient with me when she needed me the most. My mom, Khayakazi Gxumisa, for always believing in me, and my sister, Vuyokazi Kala, for her continuous support, and to all those who believed in my academic career and journeyed with me to this far, for their endless love, advice, words of encouragement, patience and willingness to support me to achieve this great goal.

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Ndithi ndibamba ngazo zozibibini, ndisithi Maz'enethole sizwe sakuthi.

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ABSTRACT

There are consumers today who see wool garments in store and are concerned about how the garment was produced and whether the animal was harmed during the wool production process. Some might question whether the production used environmentally friendly processes, and whether the materials were responsibly sourced. Basically, their question is, “Am I buying a garment that meets my eco-conscious sustainability standards?” Globalisation has over past decades resulted in the continued internationalisation of production processes. Many enterprises provide intermediate inputs to a final good, thus fragmenting and dispersing production across countries. For numerous reasons, these complex production networks have increased the relevance of standards: producers and businesses strive for greater transparency in production by certifying and labelling products, as well as services, that meet social and environmental criteria, allowing consumers to make better-informed decisions. As a result, wool sustainability standards have been developed to satisfy and appeal to end consumers.

The global wool production and sustainable standards demand that wool production should adhere to the best animal welfare standards and best land management practices. However, as standards rapidly grow to regulate billion-dollar market segments and scale up to satisfy the expectations of mainstream market channels, communal wool producers find it difficult to keep up with high sustainability standard requirements because of a lack of resources. Accordingly, requirements for compliance with such standards act as a barrier for Eastern Cape communal farmers to participate in trade and, more pertinently leads to a degree of exclusion of Eastern Cape communal wool farmers from global, sustainable supply chains. For this reason, this

study endeavoured, as a point of departure, to understand the readiness of Eastern Cape communal wool farmers to comply with sustainability standards. This study is premised on the three objectives: (I) to map and describe the South African wool supply chain and the role that communal wool farmers play in the chain; (II) to map global and national sustainability standards, their principles, and criteria; (III) to determine the extent to which the production practices of communal wool farmers are aligned with sustainability standards.

This study used qualitative methodologies to understand the readiness of Eastern Cape communal wool farmers to comply with sustainability standards. The research was carried out in South Africa's Eastern Cape province. The focus was to ascertain which current production practices are already aligned with sustainability standards requirements and which are not, and to recommend interventions to support communal wool farmers for compliance with sustainability standards. A total of 50 communal wool farmers were randomly selected, mainly to understand their current production practices. The data was analysed using descriptive analysis, and a rubric method was developed to assess the production practices of communal farmers in relation to the Responsible Wool Standard (RWS).

The literature reviewed in this study states that Eastern Cape is the largest producing region of wool and has a large number of communal wool farmers contributing approximately 10% of the national clip per annum. Therefore, it is important to make sure that these farmers are included in the sustainable production chains. Farmers were assessed based on Responsible Wool Standard, as it is the most recognised sustainability standard in the wool industry, internationally. The study showed that Eastern Cape communal wool farmers have the potential to comply with RWS, but not on a large scale. In the RWS, the prohibition against conducting mulesing procedures is a critical requirement that farmers are expected to adhere to. Eastern Cape communal farmers were found to have a tremendous advantage regarding this standard because they are already operating in an environment where mulesing is not practised. The study findings also revealed that farmers scored high on requirements related to Social Welfare. At the same time, this study also showed that farmers are unable to meet requirements related to land management, as they do not have access to private land ownership, which results in over-grazing and soil degradation of communal land. In addition, other practices, such as kraaling (*An enclosure for livestock*), lack of access to shearing sheds and high costs of vaccination and feeding, place farmers in a very disadvantaged position for complying with RWS. On the other hand, although this study shows that not practising mulesing is the farmers'

biggest strength when it comes to animal welfare requirements, they nevertheless need more support from the government and the industry on other issues such as feeding, medication and vaccination costs, housing, and building more shearing sheds. Considering the abovementioned findings, the study recommends that the wool industry should produce sustainable guidelines that are specific to communal farmers, build more shearing sheds for the farmers, and assist the farmers by subsidizing the high costs of feeds and medication. Furthermore, developers should collaborate with the wool industry to develop digital apps to assist farmers with recording the health of their animals so that they could quickly get the advice they need, as soon as they report something wrong about an animal, and also for farmers to maintain five freedoms of animal welfare. Lastly, assistance should be given regarding land management requirements, since the study revealed that farmers do not have access to private land ownership. Because of this, communal farmers cannot control overgrazing and as a result, proper inspections of their animals cannot be done. The wool industry should also assist the communal farmers regarding general awareness on grazing and veld management in order to update communal farmers on land management requirements.

Keywords: *Sustainability, Sustainability standards, Wool, Communal farmers*

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LIST OF ACRONYMS

ARC	Agricultural Research Council
CWSA	Cape Wools SA
CMW	Cape Mohair and Wools
CDS	Centre for Development Support
DAFF	Department of Agriculture, Forestry, and Fisheries
IWTO	International Wool Textile Organisation
NWGA	National Wool Growers Association
RWS	Responsible Wool Standard
SAWAMBA	South African Wool and Mohair Buyers' Association

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CHAPTER 1: INTRODUCTION

1.1 Background

South Africa is amongst the major producers of wool and has a significant impact in the global wool value chain. However, its influence has diminished extensively over the last three decades, despite the country once being the sixth largest producer of wool in the world (de Beer, 2018). Currently, South Africa ranks as the 11th largest producer of wool, globally, while Australia and China dominate the global wool industry (ITC, 2020). Although South Africa is no longer one of the larger wool producers, it still produces high-quality wool and is still one of the major exporters of wool. In 2020/21, South Africa was the third most significant exporter of wool in the world, and exported wool valued at R4,5 billion (Cape Wools SA, 2020). Recently, there has been high demand for South African grown wool, partly because of the declining wool production in Australia. Australian wool production has declined because of persistent dry conditions in the major producing areas, followed by a decline in the numbers of sheep being shorn yearly. In addition to that, South Africa's wool does not involve the taint of mulesing in the production process and it is therefore in high demand in a consumer market where environmental sustainability, animal health and safety are of growing importance (NWAG, 2020).

Consumer demand for sustainable products has steadily increased, which includes consumers' concerns about textile production and supply chain sustainability practices (Goswami, 2014). Sustainability standards have spread to Global Value Chain (GVC) activities in companies and sectors in which customers take social, ethical, and environmental issues into consideration when making purchasing decisions (Nadvi and Wältring, 2004). For many years, emphasis has been placed on labour rights and ethical trade issues; however, we have seen concerted efforts in looking beyond the origins of fibres (such as wool, cotton and cashmere) and focusing on sustainable production (Sneddon, et al., 2010). Companies have started to see the necessity for ensuring product quality, profitability and good reputation, as consumer knowledge of the environment and social issues grows (Goswami, 2014). As a result, there is a large drive, globally, to maintain transparency and sustainability along value chains, and the goal of participants in supply chains must be to create supply chains that are sustainable and traceable,

from the farm to the consumers (Gardner, et al., 2019). Therefore, in the context of the wool value chain, consumers are interested to know whether woollen products are derived through a responsible production process (Cape Wools SA, 2020). Furthermore, consumers are now more concerned with knowing about the ethics of production and whether the production process adheres to sustainability standards. To ensure that trust is established with the consumer, sustainability is required across the entire chain, and this requires being able to trace the source of the products, back to the farm (Cape Wools SA, 2020). However, as the study continues, it is worth noting that, while sustainability is not dependent on traceability, traceability is inextricably linked to sustainability and serves as a foundation for sustainability and for making a responsible claim to sustainability (Garcia, et al., 2019). Traceability is a vital tool for recording, verifying, and communicating product information, whereas sustainability is the ability to produce optimally without compromising future production (UN Global Compact Office, 2014). Therefore, Chapter 2 will discuss in detail the benefits of traceability to sustainability.

1.2 Problem Statement

The global wool production and sustainable standards demand that wool production adheres to the best animal welfare standards and best land management practices (Sneddon, et al., 2010). As a result, customer demand for sustainable products has steadily increased, along with their interest in learning about sustainable textile production and supply chains (Goswami, 2014). Furthermore, rising public concern about agricultural production quality, safety and practices, along with increasingly globalised commodity chains, has resulted in a higher demand for goods produced in accordance with sustainability standards (Agata, 2019). Sustainability standards are known for their influence in encouraging sustainable development and providing farmers with incentives in the form of premiums and better markets (Potts et al., 2014). Sustainability standards have grown in popularity to the point where certified goods, which demonstrate conformity with sustainability standards, are outperforming traditional product markets. As a result, customer demand for items with sustainability credentials will be the future of all businesses (Gardner, et al., 2019). However, as standards rapidly grow into billion-dollar segments and scale up to satisfy the expectations of mainstream market channels, it becomes more necessary to assess their true effects (Potts et al., 2014). This is especially true for producers who are presented with an increasing number of options, but lack the knowledge or data to make informed decisions (Goswami, 2014).

According to Cape Wools SA (2020), South African communal wool farmers lack objective information about what it necessary to comply with social, economic and environmental sustainability standard requirements. Moreover, communal wool producers in South Africa find it difficult to meet sustainability standards, especially if there is no continuous upgrading mechanism in place (Cape Wools SA, 2020). Furthermore, compliance with standards creates a barrier to trade for Eastern Cape communal farmers, and more importantly, it leads to the exclusion of Eastern communal wool farmers from worldwide sustainable supply chains. Therefore, the market for safe and traceable products excludes Eastern Cape communal wool producers who lack the resources to comply with increasingly strict standards.

It was against this background that this dissertation found a point of departure, which is to assess the readiness of Eastern Cape wool farmers to comply with sustainability standards. A few studies were done on drivers and constraints for adopting sustainability standards (Sommer, 2017; Cary et al., 2001; and Sassenrath et al.,2010). However, up to the present, not much has been done to evaluate the extent to which communal wool farmers in the Eastern Cape comply with sustainability standard requirements.

1.3 RESEARCH QUESTIONS

The research questions for this study are:

- a) How do farmers participate in the South African wool supply chain?
- b) What are the prominent global and national sustainability standards in the wool sector, their principles, and criteria?
- c) How are the wool farmers' production practices aligned with current sustainability standard requirements?

1.4 Research Objectives

The overarching objective of this dissertation is to assess the Eastern Cape communal wool farmers' compliance with sustainability standards. To achieve this goal, this dissertation will look into addressing the following specific objectives:

- a. To provide an overview of the South African wool industry
- b. To Identify and compare the prominent global and national sustainability standards, together with their principles and criteria.

- c. To determine the extent to which the production practices of communal wool farmers are aligned with sustainability standards.

1.5 Overview of the Study

The study is divided into seven chapters. Chapter 2 is the literature review, which provides an overview of sustainability standards, the different types of sustainability standards, the constraints and drivers for implementation of sustainability standards, and lastly, the contribution of traceability to sustainability standards. Chapter 3 presents the methodology of the study and describes the study area and methodological approaches used. Chapter 4 maps the wool supply chain, communal wool farmers' production, and their marketing channels. Chapter 5 presents current global and national standards, their principles and criteria. Chapter 6 shows the results regarding the extent to which the production practices of Eastern Cape communal wool farmers are aligned with sustainability standard requirements. Lastly, Chapter 7 sets out the discussions, conclusions, and recommendations arising from this study.

CHAPTER 2:

LITERATURE REVIEW ON SUSTAINABILITY IN WOOL INDUSTRY

2.1 Introduction

Chapter 2 presents a literature review on sustainability, covering various definitions of sustainability, discussing the pillars of sustainability, understanding sustainability standards and their role, and lastly, discusses the contribution of traceability to sustainability.

2.2 Sustainability Defined

The ability to continue to engage in long-term processes and activities while continuing to use natural resources is referred to as sustainability. Therefore, sustainability is “the ability to exist and develop in future without depleting natural resources” (Caratas et al., 2021). Brown et al. (1987) state that “sustainability” depends highly on the context in which it is used, implying that its meaning changes depending on the circumstances. Regarding that, we believe a relevant definition should be developed under a specific application. The Brundtland Commission (1987) defined sustainability as “the production of products that meet the requirements of the present without jeopardizing future generations’ ability to fulfil their own needs”. According to Remmen et al. (2007), the definition of sustainability should include the three elements of sustainability: “environmental”, “economic”, and “social”, together referred to as the “*triple bottom line*” (3BL). Therefore, the scope of this research is covered by the definition in Beni-Eli (2018) which states that sustainability is “a dynamic equilibrium in the process of interaction between a population and the carrying capacity of its environment such that the population develops to express its full potential without producing irreversible adverse effects on the carrying capacity of the environment upon which it depends”.

Sustainability has become a critical component of supply chain strategy, particularly in sensitive industries such as fashion (Smith, 2003). Moretto et al. (2018) state that the fashion industry has been put into the spotlight by the recent global environmental and social scandals, and has been accused of employing unsatisfactory pay and working conditions for their employees, mistreating animals, and creating environmentally unfriendly collections, based on heavy polluting industries. As a result, the fashion industry has received much attention recently from numerous non-profit organisations that have launched several campaigns (such as Greenpeace’s well-known Detox Campaign in 2011) to update the public about the negative

aspects of this industry, which has a revenue of approximately 171 billion euros per year (Moretto et al., 2018). Furthermore, Moretto et al. (2018) indicated that tanning, for instance, has a high environmental impact in terms of consumption of water. Furthermore, cotton harvesting for yarn production exploits local populations in plantations (Pedersen et al., 2016), and approximately 8000 synthetic chemicals are used to turn raw materials into textiles, necessitating stringent controls to protect consumer and environmental health. As a result, fast-fashion giants such as Zara and H&M have expanded their sustainable lines, integrating the need to satisfy sustainable ideals with the desire for style. Similarly, luxury brands such as Kering and LVMH have embarked on new paths leading to sustainability (De Angelis, 2017). Luján-Ornelas et al., (2020) states that strategies and policies adopted decades ago to encourage sustainable development have put pressure on industrial sectors to protect the environment and demonstrate social responsibility. Consequently, assessing the sustainability performance of the industrial sectors becomes a critical component of properly meeting sustainability standards (Bi, 2011).

2.3 Pillars of Sustainability

Many livestock farming techniques have focused on the topic of sustainability. Sustainability considerations, such as “Economic viability, limiting hazards, conserving natural resources, maintaining biological productivity, and social acceptability are all important in livestock farming systems” (Atanga et al., 2013). Environmental Protection, Economic Development, and Social Development are the three pillars of sustainability established by the United Nations (UN, 1992). These pillars can be used to assess the long-term viability of agricultural systems (Wrzaszcz and Prandecki, 2015). The following subsection gives an explanation of what each pillar signifies in a larger context.

2.3.1 Environmental pillar of sustainability

The environmental pillar is built on a commitment to safeguard the environment by decreasing risks and assessing the environmental consequences of producers’ actions. As a result, the environmental pillar relates to environmental legislation, regulations, and other policy measures. Ecosystem management, biodiversity preservation, air and water pollution, solid waste management, and the conservation of natural resources, wildlife, and endangered species are among environmental challenges (Atanga et al., 2013).

2.3.2 Social Pillar of sustainability

In general terms, the social pillar refers to public policies that promote social issues. These social issues concern human well-being and encompass topics such as healthcare, education, housing, and employment. They aim to ensure that people have access to social services, that they are aware of their rights, and that they have a voice in the development of social policies and programmes, both locally and nationally (Navarro-Galera, 2017).

2.3.3 Economic Pillar of sustainability

The economic pillar covers a wide range of topics, including trade and investment, as well as job creation and private sector development. Economic policymaking considers both local and worldwide trends and assets, and employs a variety of tools, such as public–private partnerships, tax policy, national and international financing, trade, and employment policies (Wrzaszcz and Prandecki, 2015).

2.4 Understanding Sustainability Standards and Their Role

Questions are frequently asked by consumers about how a garment was produced, including whether an animal was harmed, whether the methods used were environmentally friendly, and whether the materials used were sourced responsibly. Basically, their question is, “am I buying a garment that meets sustainability standards that are environmentally conscious?” This increases the importance of compliance with sustainability standards, which is why, when one goes shopping for clothes in a store or online, it will be seen that more and more garments have tags with one or more certification logos on them. These various tags tell consumers that an item of clothing has been certified to be particularly environmentally friendly, or that workers have been paid well, or that no animals suffered to produce the product. These certifications allow consumers to easily make an informed purchasing decision, taking the social, economic, and environmental impacts into consideration (Core Merino, 2021).

Sustainability standards can be defined as “a collection of criteria defining excellent social and environmental practices in an industry or production process,” (ISEAL,2017). Producers, businesses, governments, financial institutions and consumers all use them. According to a G20 Insights study, sustainability requirements improve social and environmental sustainability (Navarro-Galera, 2017). This is attributable to the fact that they raise the awareness of customers as to what items are deemed safe to buy, while also alerting them that the product

was produced in a socially acceptable manner, taking into account environmental, labour, and human rights issues. Therefore, sustainability standards support sustainable manufacturing methods and may lead to the establishment of new business prospects, such as entry to new markets where Small and Medium Enterprises (SMEs) are required to engage in sustainability standards (Blumenschein et al., 2017).

The International Organization for Standardization (ISO) defines ‘standards’ the following way:

“Standards are documented agreements containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions, to ensure that materials, products, processes, and services are fit for their purpose”.

The purpose of standards is to assure product safety, improve product quality, offer consumers with information and transparency, and to facilitate trade and product compatibility. ISO again describes ‘certification’ as:

“a procedure by which a third-party give written assurance that a product, process, or service is in conformity with certain standards
(<https://www.iso.org/standards.html>)”.

Nadvi and Wältring (2004) divide standards into four categories:

- Intergovernmental standards, which are controlled by international declarations and agreements;
- Private standards, which are usually referred to as multi-stakeholder programmes or Voluntary Sustainability Standards (VSS);
- Industry codes; and
- Individual company codes, which are also related to Corporate Social Responsibility (CSR) initiatives.

The standards categories mentioned above can be mandated or optional, with the majority starting off with a voluntary status. Should laws then tied to them, they become mandatory after that. Standards can be organised according to important characteristics to gain an overview of the complicated standards ecosystem. Nadvi and Wältring (2004) give the most thorough and comprehensive typology of standards. Their classification system divides standards into seven categories, as shown in Table 2.1.

Table 2.1: Standards Typology

Scope	Function	Geographical reach	Key drivers	Forms	Coverage	Regulatory implications
“Process standards, Product standards”	“Social, labour, Environmental, Quality, Safety, Ethical”	National, Regional, International	“Public, Private”	“Management Standards, Company codes, Labels”	“Generic, Sector Specific, firm/value chain specific”	“Legally Mandatory, Necessary for competition, Voluntary”

Source: Nadvi and Wältring (2004)

The distinction between public and private standards is highlighted by Henson and Humphrey (2009), as shown in Table 2.2 below. Brandi (2020) states that national governments, intergovernmental organisations, and international initiatives establish public standards, whereas private standards are established by individual businesses, industry associations, and private multi-stakeholder initiatives, as well as civil society organisations. Standards are further divided into legally binding prerequisites (mandatory) and voluntary standards, (see Table 2.2; Henson and Humphrey, 2009).

Table 2.2: Categories of Standards

	Public	Private
Mandatory	Regulations <ul style="list-style-type: none"> • Example: Emission Standards (e.g. Euro 6, US Clean Air Act) • Origin: National Governments, National Standard-Setting Bodies. 	Legally Mandated Private Standards <ul style="list-style-type: none"> • Example: ISO 9000 in EU Directive on CE marking • Origin: VSS & National Governments
Voluntary	Public Voluntary Standards <ul style="list-style-type: none"> • Example: ILO MNE (Multinational Enterprise) Declaration • Origin: National Standard-Setting Bodies, Intergovernmental Organisations, International Initiatives, etc. 	Private Voluntary Standards <ul style="list-style-type: none"> • Example: VSS (e.g. Fairtrade, FSC (Forest Stewardship Council), Global GAP), CSR, ISO 26000, etc. • Origin: Industry Associations, CSR of individual firms, Multi-stakeholder Initiatives of Civil Society/Firms, etc

Source: Based on Henson and Humphrey (2009)

Private standards arose primarily in response to globalisation. Standardisation has become necessary because of the continued internationalisation and fragmentation of manufacturing processes. The German Development Institute [d-i-e] (2016) states that initially, “private

standards were about the compatibility and quality of intermediaries and final goods, hence standards were primarily concerned with the product and its characteristics”.

The ISO 26000 standard on social responsibility in 2010 highlighted the general advancement of private standards that had begun in the late 1990s. The production process was gradually embraced by private standards to account for the effects on workers, the local community, and the environment. The German Development Institute [d-i-e] further states that these Voluntary Sustainability Standards (VSS) define sustainability practices and conduct third-party certification or verification audits of participating producers and firms. According to Garbely (2022), VSS are built on the assumption that all players should adhere to the standard; in other words, VSS are applicable to all markets and apply across national borders.

The following are the most widely used standards and certifications in the textile industry:

- The world’s leading processing standard for organic textile is the Global Organic Textile Standard (GOTS). It covers the entire supply chain, from raw materials to finished goods, and includes environmental and social criteria. GOTS certification is available for textiles that contain at least 70% organic fibres (The Global Organic Textile Standard was published in 2016.)
- The Fair Wear Foundation (FWF) is a non-profit organisation dedicated to verifying and improving the working conditions of garment workers in 11 Asian, European and African manufacturing countries. Members of FWF embark on a journey of incremental improvements that lead to long-term solutions (Fair Wear Foundation, 2019.)
- The global network of organisations, businesses, and individuals dedicated to fair trade is called the World Fair Trade Organization (WFTO). The WFTO Fair Trade Standard is composed from the International Labour Organization’s (ILO) ten Fair Trade Principles and Conventions (Wageningen Academic Publishers, 2019).
- While the ISO develops international standards such as ISO 14001, the actual certification process is handled by third parties (International Organization for Standardization, 2019). ISO 14001 lays out the requirements for an organisation’s environmental management system and aids in environmental responsibility management. There are no specific environmental performance criteria mentioned (International Organization for Standardization, 2019.). The SA8000 certificate from

Social Accountability International (SAI) verifies compliance with social standards throughout the entire production chain (Social Accountability International, 2019).

2.4.1 Standard Adoption Drivers and Constraints

Figure 2.1 depicts a general idea of the factors found in the literature that drive or constrain SMEs in adopting sustainability standards. The figure highlights reasons that may motivate the adoption of sustainability practices and also highlights reasons that may hinder such adoption where circles overlap. Furthermore, driving factors, which include direct motivations for sustainability compliance, are distinguished from facilitating factors, which are elements of an enabling environment that indirectly incentivise but facilitate the adoption of standards.

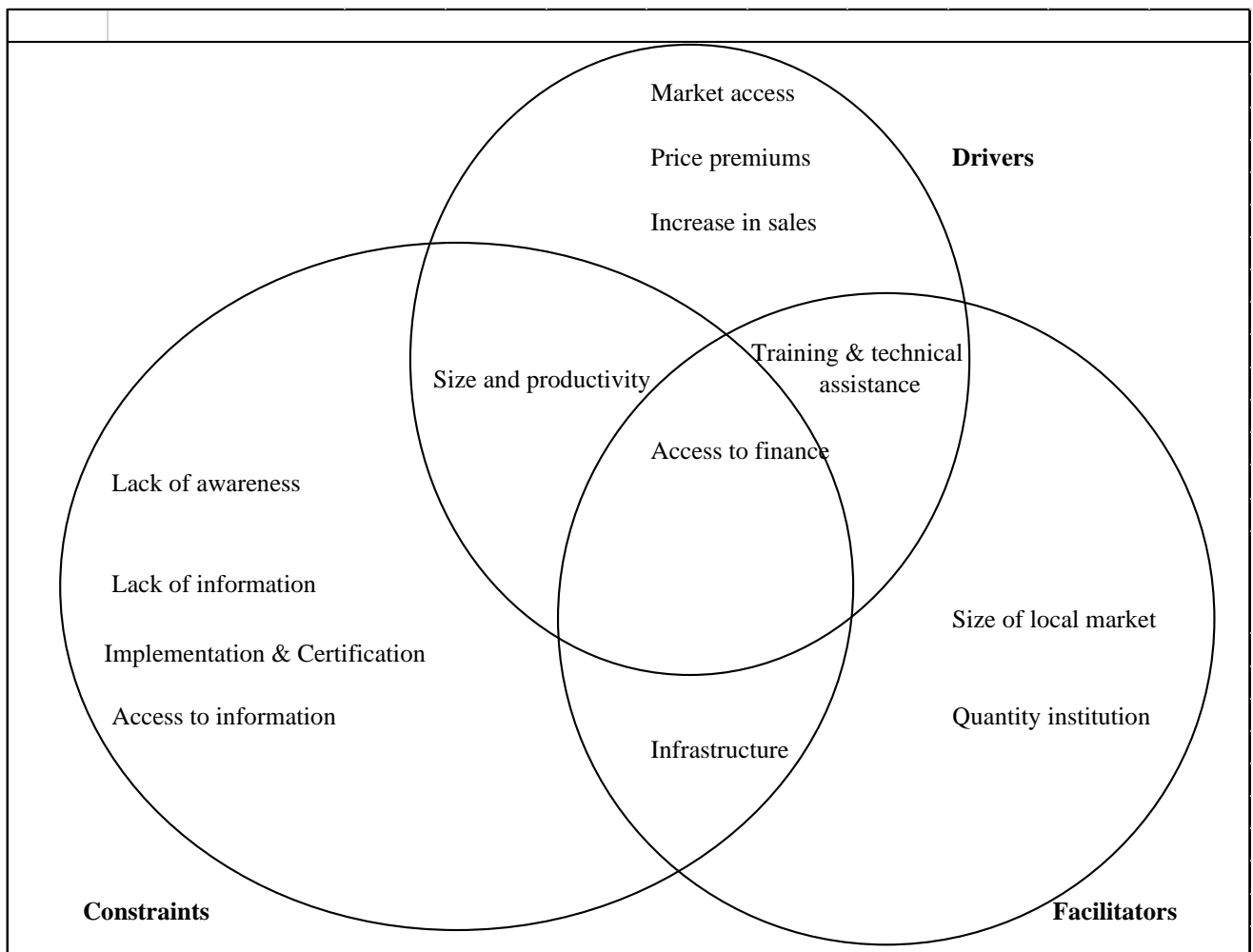


Figure 2.1: Standard adoption driver and constraints

Source: Sommer (2017)

The market for sustainable products has exploded in the last 15 years. Agriculture production that meets standards has increased by 41%, compared with 2% growth in comparable to typical commodity markets, resulting in high-level market penetration (Potts et al., 2014). As a result, economic incentives, such as access to markets, sales, price premiums, increased productivity, and financial accessibility, are common drivers of standard adoption (Sommer, 2017). The efforts of global leaders, such as H&M, Mars, Nestle, Unilever, Mondelez, and IKEA, are committed to sourcing 100% of specific supplies that are produced sustainably, thus ensuring continued growth (Potts et al., 2014). The German Development Institute [d-i-e], (2016) states that suppliers should implement sustainability practices so to access profitable markets, which promises (possible) price premiums.

The economic reason for implementing standards is to increase sales (International Organization for Standardization, 2014). An increase in sales quantities could be explained by assessments of the sales markets that are more optimistic as a result of better relationships with buyers, and access to global value chains and lucrative markets. The adoption of standards is linked with changes in production technology and processes that promise efficiency gains. Collaboration with large corporations and integration in global value chains encourage the distribution of skills and knowledge at the management and production levels, thus increasing the productivity and competitiveness of small and growing businesses. Productivity increases are frequently stimulated by technical assistance and capacity.

Technical assistance and building supplier capacity are frequently used to accelerate productivity gains (ITC and EUI, 2016). Products produced in accordance with standards are targeted at high-value market segments, which will command higher prices. However, higher final-product prices may or may not result in price premiums for producers in the supply chain, according to the evidence in the literature. It is widely assumed that standards lead to higher prices and revenues throughout the value chain (von Hagen & Alvarez, 2011). Indeed, in some cases, small growing business have received higher prices (Kersting and Wollni, 2012), which encourages them to adopt sustainability standards. However, it has been noted that the structure and governance of a value chain may disproportionately assign supplementary revenues to processors and retailers, putting into question the presence of significant price premiums for upstream producers (von Hagen and Alvarez, 2011). Certain standards schemes and sustainability-oriented firms make compliance with sustainability standards more alluring by providing additional funding to help with implementation and certification costs (UNFSS,

2016). Because small businesses frequently face a systemic financing disparity, this incentive could be a major motivator for adopting sustainability standards. The majority of the barriers are closely related to the additional costs that small businesses face when adopting standards. In addition to that, many small businesses and potential suppliers are uninformed about sustainability requirements (Brandi et al., 2015). Thus, before deciding whether to implement a standard, businesses must spend time and resources gathering and analysing relevant data (ITC, 2016).

The lack of transparency in the contents of standards, requirements, and methods of verification impose further transaction costs on small and medium businesses (ITC, 2016). Standards around the globe occasionally do not take into account a particular local environment and its technical conditions, which might indicate that the norms, standards and regulations in those standards would be inapplicable in that local situation. The local NGOs or applicants in such localities must expend significant resources to address such interoperability issues (Schouten et al., 2016). However, the constraints and drivers for implementing sustainability standards in small, growing and medium businesses are frequently incompatible with other standards.

Sustainability-focused, small growing businesses might face a variety of standards from different financial institutions, buyers, and other business partners, each with their own set of requirements. Furthermore, small businesses are subjected to parallel procedures for implementation, documentation, and multiple certifications because of a lack of harmonisation, which drives up compliance costs (UNFSS, 2016). In addition to compelling the adaptation of production processes and technology, the enactment of standards frequently necessitates new investments and, in some cases, can even increase operating costs that are attributable to the use of production methods that are more expensive (ITC, 2016). Moreover, certification entails incurring administrative costs that are attributable to documentation requirements, costs for verification, and audits by the third party. As a result, implementation and certification costs can be described as fixed costs, making these costs prohibitively high for smaller businesses (Holzapfel and Wollni, 2014). To deal with incremental costs, small-scale producers can make use of group certification to handle costs related to certification and implementation (FAO, 2014). Another way to save money is for producers and buyers to divide costs among themselves. In 36% of cases, this is used to cover implementation costs, and in 45% of the cases for certification (ITC, 2016). Finally, the political and economic environment may impede the spread of standards adoption. International standards organisations tactically decide

which nations to keep their offices in, and consequently standards may differ in terms of their visibility and presence across different nations (IOS, 2014).

As standards readiness is sturdily associated with logistics performance, GDP, quality of institutions, and WTO membership (EUI, 2016), growing and emerging countries are systematically underserved; that is, low levels of facilitating factors afflict these economies. Even when standards are implemented in emerging and developing countries, the lack of testing facility infrastructure frequently inhibits or considerably increases certification costs and time (ITC, 2016). Furthermore, the limited local market size limits the size of a firm and productivity. As a result, small growing businesses are neither large nor productive enough to afford standardisation and certification (ITC, 2016). If legislative regulation or enforcement of labour and environmental issues is taxed, the gap in terms of implemented standards and associated costs between firms conforming to voluntary sustainability standards and non-compliant competitors is enormous. As a result, when compared with noncompliant national competitors, standards-compliant small businesses face a greater burden and cost disadvantage (UNFSS, 2016).

2.5 Traceability benefits to Sustainability

Kumar (2017) describes traceability as “*the ability to verify the history, location, or application of an item through documented recorded identification*”. According to Agrawal & Pal (2019), traceability is a connection that links various elements of product information. In this perspective, traceability incorporates the entire sector in terms of information. Because the textile industry is disintegrated, with several manufacturers, suppliers and many stakeholders, sustainability may not be achieved through the sequestered efforts of a single actor, but rather through the collaborative participation of all. Therefore, the impact of traceability on each pillar of sustainability is discussed in the subsections below.

2.5.1 Ecological Pillar

This pillar is perhaps the major notable sustainability element. Because the textile industry is a sector that is driven by customers, their consumer demand impels the industry to shape their strategies accordingly (Wigley et al., 2012). Furthermore, the preferences of customers for products that are produced in an eco-friendly manner serve to act as an incentive for the

garments that are produced sustainably. Eco-labels are extensively utilised to depict the ecological data about a product.

Kumar (2017) state that the ecological attributes of a textile product are divided into three classifications, namely “*raw materials and manufacturing phase*”, “*use phase*”, and “*post-use phase*”. The first phase hinges on the chemicals used, the degree of water consumption, and raw materials and energy resources depletion (electricity or other fuels used), all through the “*raw materials and manufacturing phase*”. The second phase comprises the energy used in the process of “*use phase*”, such as drying, ironing and washing, while the third phase incorporates the impacts stemming from the disposal of a product, together with recycling and incineration. Consequently, it is problematic to communicate the comprehensive ecological information by using a basic eco-label. In this light, traceability is a tool that could potentially aid in the communication of product-related information and, as a result, increase trust by allowing information to be traced back to its source (Henninger, 2015).

It is seen that many brands have recognised traceability as a competitive advantage and have implemented plans to provide consumers with detailed traceability information. For instance, Rapanui Clothing (2016) provides complete traceability information related to “*manufacturing, energy use, carbon footprint, and how the end-users can reduce the carbon footprints during use-phase of the products*”. In the same way, the Clothing Traceability Project is a programme that endeavours to link players in the textile supply chain, from the fibre producers to the manufacturers of refined clothing, to create an innate insight into the impacts of the clothing life cycle (Clothing Traceability, 2017).

2.5.2 Societal Pillar

Consumers recognise the ecological part of sustainability; however, the societal aspect is at the heart of recent issues that have been widely criticised. Instances concerning the absence of social accountability have been scrutinised throughout the years (Hethorn and Ulasewicz, 2008). Kumar (2017) state that analogous elucidations of the lack of sustainable supply chain management have been crafted throughout the decades by several brands. The essential underpinning of the societal issue lies in the structure and the impervious supply network of the textile sector. Retailers are repeatedly coping with high levels of competition, which drives them to offer better-quality products at lower prices (Shih and Agrafiotis, 2015). The retailer or brand owner acts as a “*supply-chain captain*”, propelling the whole sector, and so instigates

the demand/order for the upstream suppliers, thereby establishing an upper hand in the multiple-actor supply network (Lam and Postle, 2006).

Kumar (2017) describes traceability as the ability to trace the history of the product through documenting records of identification. As a result, product information can be retrieved. A traceability number is used to uniquely identify a product, and it can be used to retrieve product-related information for each product. For example, “All American Clothing Co. provides a traceability number with their jeans which allow consumers to trace the history of the jeans back to the cotton field” (Goswami, 2014). This permits customers to decide on the sustainability aspect of the garment.

2.5.3 Economic Pillar

A sustainable and long-lasting system requires a strong economic pillar. Harwood (1990) defines economic sustainability as “*a system that can endlessly develop towards greater benefit for people, greater efficiency of resource use, and balance with the environment that is friendly to people and other species*”. In today’s world of fierce global competition, economic sustainability is essential. Furthermore, several players are small-scale businesses in the textile supply chain that rely on financial viability to continue operating.

Against this background, a considerable body of study has previously investigated the impacts of traceability in the economic sustainability of supply chains. Kumar et al. (2017) depict the impact of traceability on economic sustainability from both negative and positive perspectives. While the positive aspect of traceability is related to direct financial gains, the cost of implementation is related to the negative aspect of traceability. In addition, Kumar et al. (2017) state that cost and benefit are key important economic features linked to traceability. **Cost** “*signifies to the expenses that a buyer or the retailer bears in case of external quality failure*”. **Benefit** “*implies the additional economic incentives that the traceability adoption offers to an organization*”.

Furthermore, traceability mainly benefits an organisation that has data beyond their business scope, which assists them with improved control and understanding of the supply chain. This encompasses “*the benefits associated with enhanced inventory management, reduced stock levels, better demand–production balance, and more visibility of supplies in the supply chain*” (Gobbi and Massa, 2015). Kwok and Wu (2009) state that goods can be effectively tracked and also traced through the use of traceability data within the supply chain, which improves the

responsiveness of players in the supply chain, cuts down lead-times for production, and promotes the aforementioned benefits. Furthermore, traceability gives the end user a clear vision of how the supply chain works and increases the buying confidence of the customers in the product, which in the long run helps different brands to build their reputation with regard to transparency.

Intriguingly, some customers take traceability to be the same as certification, which might possibly complement the abovementioned relationship between the retailer and end-user (Ubilava and Foster, 2009). Moreover, the problem of product recalls is widely known. Corbellini et al. (2006) state that, while counterfeiting has a direct, financial impact on brands, brand reputation is another factor that has a long-term impact. On top of to the final product, counterfeiting is linked to resources used in the middle of a manufacturing process, making the identification and control of counterfeit products more difficult to achieve (Agrawal and Pal, 2019). In this light, academics and experts have recognised the importance of traceability in product authentication, which assists end-users in distinguishing between genuine and counterfeit goods (Kumar et al., 2017).

2.6 Conclusion

The literature reviewed by this study indicated that sustainability standards can function as effective mechanisms for connecting small growing industries and farmers to markets for high-value products, while also encouraging socially and environmentally acceptable production and trading patterns (Sellare et al., 2020). Much research has examined the extent to which certification under sustainability standards could lead to the benefit of farmers. Observational research has been carried out in a number of African, Asian, and Latin American countries, although the outcomes are mixed. Numerous studies have found that farmers who produce according to sustainability standards have a high chance of receiving higher prices and profits (Bacon, 2005; Chiputwa 2016; Tran and Goto, 2019; Jena et al., 2012; Mitiku, 2017). On the other hand, some studies have found minor to no positive effects (Beuchelt, 2011; Qaim, 2015; Akoyi, 2018; Chiputwa 2016).

CHAPTER 3: RESEARCH METHODS

3.1 Introduction

The goal of this research is to assess the readiness of Eastern Cape communal wool farmers to comply with sustainability standards. This chapter describes the analytical framework, research design tools and settings to give a summary of how the research was carried out. This chapter will also include a description of the area in which the study was conducted, describe the five-step process that was followed in this study, discuss the sampling procedure used, together with research design and data collection instruments, and lastly, describe the data analysis method.

3.2 Analytical Framework

This study followed a five-step process to assess the readiness of Eastern Cape communal wool farmers to comply with sustainability standards. The five steps are detailed below.

Step 1 – Provide an overview of the South African wool industry

The study consulted various literature to present an overview of the South African wool industry. This is significant for this study as it will show the role that communal wool farmers play in the entire chain, as well as the importance of making sure that they are included in the sustainability chains.

Step 2 – Identify relevant sustainability standards and map them out to check their criteria, principles and requirements:

In Step 2, general consultation with stakeholders, such as Cape Wools SA, and NWGA, was conducted to identify or ascertain the relevant sustainability standards in the wool industry. Thereafter, the information derived from consultations was used to map out the sustainability standard requirements, together with their principles and criteria.

Step 3 – Identify the production practices of Eastern Cape communal wool farmers:

This information was used in Step 4 below to ascertain the extent to which the production practices of communal wool farmers were already aligned with sustainability standard requirements mentioned in Step 2. To obtain information about the production practices of communal wool farmers, this study used semi-structured questionnaires and interviewed 50

communal wool farmers. Eastern Cape communal wool farmers were selected through using a simple random sampling procedure. The questionnaire utilised “open-ended and closed-ended” questions. The questionnaire is attached in Annexure A below.

Step 4 – Assessment of the production practices of farmers in relation to sustainability standards:

The study used the Responsible Wool Standard (RWS) for this assessment, as the RWS is the most established standard in the sector. The rubric method was used to assess the performance of farmers in relation to RWS. Variables used in this assessment were Animal welfare, Land management and social welfare requirements obtained in step 2, scored against communal wool farmer’s production practices obtained in step 3 i.e., *shearing, breeding, grazing, mulesing, kraaling, feeding and vaccination* to determine the alignment. The Faculty of Innovation Centre at the “University of Texas at Austin defines rubric as a scoring guide used to evaluate performance of a product, or a project. It has three parts: 1) performance criteria; 2) rating scale; and 3) indicators” (University of Texas at Austin, Faculty of Innovation Centre, 2017).

These rubrics are typically used to assess the extent to which students meet learning objectives, instead of looking at their performance in comparison with their peers. (University of North Carolina at Chapel Hill, 2017). Although rubrics are most popular for assessing students’ performances, this study adapted the same method to assess the performance of farmers in relation to compliance with RWS. Therefore, the rubric method fits perfectly well with what this study is trying to achieve. For this study, the rubric was developed through using guidance from the University of Texas at Austin.

Development of a rubric:

In the previous section, we mentioned that a rubric consists of three elements, and a detailed discussion of each element is now set out below (adapted from University of Texas at Austin, Faculty of Innovation Centre, 2017).

a) Step 1: List performance criteria

This involves determining the elements or criteria that will be used to evaluate the work. The features, dimensions or traits that need to be measured will be categorised. This will provide an example and definition to explain what each trait means.

b) Step 2: Determine the level of performance and Rating Scale

This step involves choosing words or phrases that would describe the ambit of each level of performance, ensuring that they are distinct enough to demonstrate real differences. A performance level needs to correspond with the relevant criterion. Performance levels define *“the degree to which a goal has been met, and they are frequently referred to as adjectives to describe the levels of performance”* (University of Texas at Austin, Faculty of Innovation Centre, 2017). Thereafter, a start is made by probing how many points would adequately describe the range of performance it is expected to see in whole of the students’ work. The ranges of performance in numerical value will be determined by the scores. Scores are a system of numbers or values that are used to rate each criterion, and they are frequently used in conjunction with performance levels.

c) Step 3: Identify Performance Indicators

The performance indicators are meant to allow rubric users to make performance-based evaluations with a high level of consistency, because each criterion’s performance is explicitly defined within the indicators. Lastly, a summary is given on the scoring of performance levels to give a clear picture of where improvements are needed. This study followed all the steps above to develop a rubric to assess the compliance of communal wool farmers with RWS.

Step 5: The information gathered above was used to propose strategies to enhance the compliance by communal farmers with sustainability standards. Framework used by this study based on the above steps to assess farmers’ readiness to comply with sustainability standards.

3.3 Study Area

This research was conducted in the Eastern Cape Province of South Africa. The Eastern Cape was chosen as the study area because it is one of the provinces with the largest populations of communal wool farmers. In addition to that, the Eastern Cape province, as a whole, produces 35% of South Africa’s wool production, having generated R1.2 bn in income from exporting 13.5 million kilograms of wool during the 2019/2020 season (Cape Wool SA, 2020). The population of the Eastern Cape is approximately 13 million people. According to STATS SA (2016), the Eastern Cape has a higher proportion of agricultural households, at 27%, as compared with other provinces. Accordingly, the focus of this research was placed on communal farmers.

The racial groups in this province are determined by their own language and race, and the predominant sector is comprised of Xhosa speaking people, at 94% of the population. The Eastern Cape population has a variety of diversified livelihood strategies, which vary primarily from agriculture, to non-farm income activities, remittances, social grants, informal trading (hawking) and non-labour activities. As a result, unemployment prevails in the region.

3.4 Sampling Procedure

“Sampling is the process of selecting a few respondents from a population of interest, so by studying the sample, we may fairly generalise our results back to the population from which they were chosen” (Kumar, 2019). There are two types of sampling approaches that are used in social science research, namely non-probability and probability sampling (Latham, 2007). The probability sampling method was chosen for this study. *“The reason for using probability sampling is that, in probability sampling, all the elements in the population of interest have an equal opportunity of being included in the sample”*. On the other hand, in non-probability sampling, the elements are selected on the basis of their availability instead of sampling from the entire population, and the disadvantage is that the sampling could be biased and inaccurate.

The study then purposefully sampled 50 communal farmers who are participating in wool production. A simple random sampling method, a probability sampling procedure, was utilised to select the respondents from across the different parts of the Eastern Cape. The head of the Eastern Cape Communal Wool Growers Association (ECCWGA) provided a list of all farmers in the area. From the total population of 20000 communal wool farmers, 50 farmers were randomly selected from the population to partake in this study. The reason behind surveying 50 farmers was due to the financial constraints and the fact that the study was conducted during the Covid-19 pandemic which made it difficult to survey a huge population. Furthermore, for a population size of 20000, a total of 52 or more measurable/surveys are needed to have a confidence level of 85% that the real value is within +- 10% of the measurable/surveyed value. This sample size was also used because the study consumes much time per participant to elicit the required information, as the communal farmers are assumed to have low levels of education and because the respondents might have been involved in other commitments.

3.5 Research Design

“Qualitative research involves collection of narrative data in a natural setting to gain insights into phenomena of interest. Qualitative research relies on data obtained by the researcher from first-hand observation, interviews, questionnaires, focus groups, participant-observation, recordings made in natural settings, documents, case studies, and artifacts” (Kumar, 2019). Qualitative research includes collecting verbal data that gives insights into the opinions and the experiences of a research participant. Qualitative research is more subjective (Taylor and Littleton, 2006). On the other hand, quantitative research involves gathering information in numeric form that can be readily manipulated through statistical methods of data analysis. Qualitative research is different from quantitative research because it uses more structured instruments to collect data, while the results provide fewer details on behaviour, attitude, and motivation (Mhlongo and O’Neill, 2013).

This study seeks to understand the extent to which the production practices of Eastern Cape communal wool farmers are aligned with sustainability standards. As a result, a qualitative research approach was an effective method for this study because it allowed for a thorough examination of the production practices of farmers and their compliance with sustainability standards. According to Taylor and Littleton (2006), “Qualitative research gathers a variety of subjective ideas from the population of interest and makes sense of the ideas through examining patterns and themes. However, qualitative research has several strengths and has limitations”. One of the limitations of using a qualitative approach is that the quality of the evidence found is reliant on the research. This study also employed a cross-sectional design in such a way that the data was collected and interpreted only once because of the limited amount of time available to plan the conduct of the study and because of limited resources, including money. Within the time planned, the data had to be collected, coded, analysed and a report written. This is different from longitudinal design, as studies of this form involve a series of years to a decade, at least (Cherry, 2020).

3.6 Data Collection Instruments

A data collection instrument is an important tool that is used to obtain sufficient information to meet a study’s objectives (Fossey et al., 2002). This study relied on primary data, and secondary data was used to complement the primary data. Primary data was obtained through using

interviewer-administered questionnaires in semi-structured interviews (See Annexure A), which are suitable and appropriate tools to use in qualitative research. The semi-structured questionnaire strategy was used to reduce the problem of misinterpretation and misunderstanding of some words or questions. The study also made sure that all questions were answered, without respondents leaving out the difficult ones.

Moreover, the study developed a semi-structured questionnaire mainly to capture details of the production practices conducted by communal wool farmers to assess the extent to which their production practices are aligned with the RWS standards requirements. The questionnaire collected information on demographics (age, gender, level of education, income etc.) and on the communal wool farmers' production practices (land holdings, shearing practices, grazing, herding, etc.). The questions were translated into Xhosa during the interviews to make the respondents feel more at ease when responding to the questions. Secondary data was obtained from consultations with industry institutions (NAMC, Cape Wools SA and NWGA) and from journals, newsletters and articles, mainly for historical details regarding wool, mapping of the wool supply chain, and relevant sustainability standards that are currently in place, as well as their principles and criteria.

3.7 Data Analysis

Questionnaires were used to collect primary data for this study. Based on the data gathered, a database in the form of MS Excel spreadsheets was created. The collected data was analysed through descriptive statistics, using tables, figures and sometimes mean values where appropriate. This data was then used to assess the communal wool farmers' production practices in relation to sustainability standards. To conduct this analysis, the study used the rubric method, as mentioned above, to check the performance of communal wool farmers in relation to RWS. This approach allowed the study to identify where farmers are the strongest in compliance with RWS and where they are weakest, and to propose solutions to enhance the farmers' compliance with the sustainability standard.

3.8 Conclusion

The goal of this chapter was to give details of the analytical framework that was designed for answering the study objectives. The chapter described the approach used during the study, as well as the method applied in collecting data. The following chapter will look at the South African wool supply chain to gain a better understanding of role players in the chain.

CHAPTER 4:

OVERVIEW OF THE SOUTH AFRICAN WOOL INDUSTRY

4.1 Introduction

This chapter begins by detailing an overview of the wool industry, looking at the status of production and trade in the country. This is done to gain a better understating of how the industry performs. However, the main focus of this section is to provide an overview of the wool industry and review the wool supply chain, as this can assist in learning more about how a product is produced, where, by whom, and where does it go (Kashmanian, 2017).

It is crucial to remember that the study's context is specifically interested in the producers' perspectives; therefore, more-detailed discussions will be focused at the farm level, looking at the current production practices and marketing channels of communal wool farmers, and as well as their record keeping at the farm and shearing shed levels. In this way, we will be able to ascertain the importance of including these farmers in sustainable supply chains. Including these producers in ethical supply chains is critical for rural communities to maintain their livelihoods, increase agricultural productivity, avoid social and environmental impacts, and ensure stable commodity supplies. Furthermore, this chapter is also important because, in the broader scheme of things and in order to make claims about the sustainability of production, we need to first understand which players are involved in the supply chain, what roles they play, and the current status of their production.

4.2 South African Wool Industry

South Africa has about 20 million wool sheep, with communal farmers owning 4 million of them (NWGA, 2020). South Africa has about 8000 commercial and 45000 communal wool producers, and as a result, the country produces 2–3 percent of wool produced globally and about 12% of the apparel wool, globally (Cape Wools SA, 2020). Moreover, South Africa produces roughly 45 million kg of wool per annum, with communal farmers contributing 13% of the national clip, at just over 4 million kg of wool, annually (de Beer, 2018). The communal farmers' wool production per sheep averages at around 4.5 kg, whereas communal farmers produce 2 to 3 kg per sheep, which is significantly less than commercial farmers' wool production of 4 to 5 kg per sheep, over the period of 12 months (Makapela, 2008).

Figure 4.1 below depicts the wool production in South Africa between the 2009/2010 and 2019/2020 production seasons. The figure further illustrates that, between the 2009/2010 and 2019/2020 seasons, there were a few fluctuations in South African wool production. The reason for the fluctuations may have been caused by the nature of breeding stock within the country and drought conditions. Thus, between 2012/2013 and 2015/2016, there was a steady increase in South African wool production.

The graph in Figure 4.1 shows that South Africa’s wool production attained a peak in the 2016/2017 production season, at approximately 53 million kg per annum. However, in the 2018/2019 production season, South African wool production declined to 43 million kg per annum, a reduction of 9.5% from the previous season. The reduction could also be attributed to the increase in stock theft and predation, especially among communal farmers (Scholtz and Bester, 2010). Approximately R1,4 billion was lost due to predation and over R750 million worth of sheep through theft in 2016 (AgriSETA, 2018). There was an increase of 2.9% in stock theft in 2018/2019 as compared with the previous farming season (de Beer, 2018).

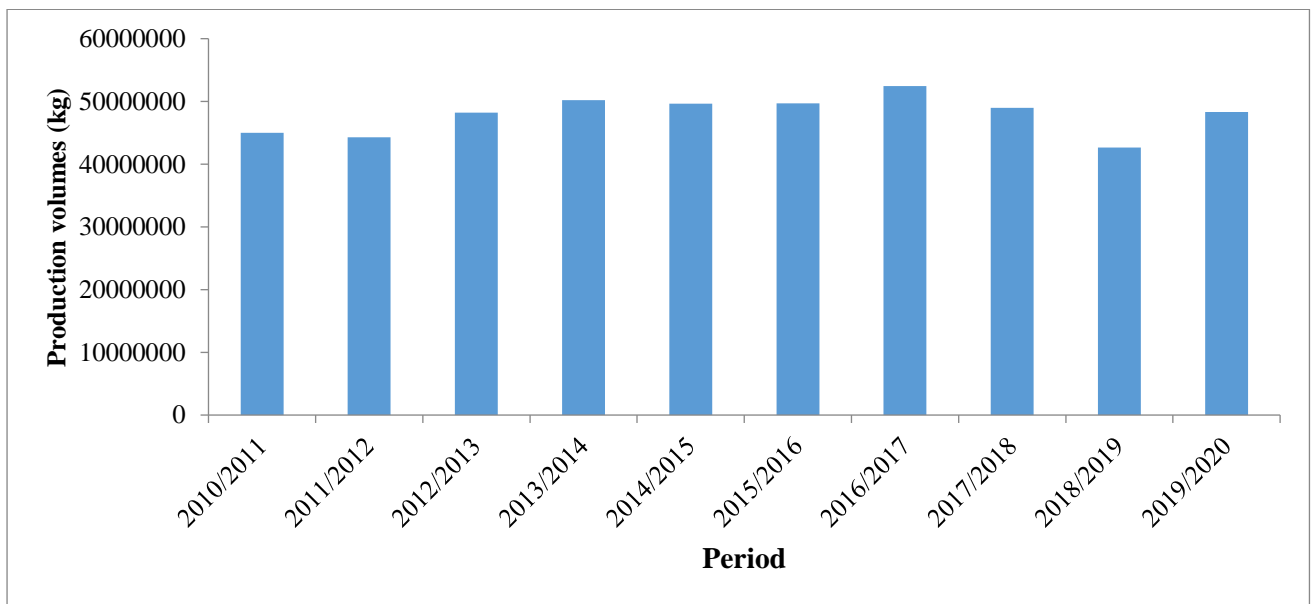


Figure 4.1: Production per Season

Source: Cape Wools SA (2020)

4.2.1 Wool production by region

In most parts of South Africa, wool is produced under extensive, semi-extensive, or intensive farming conditions. It is produced across all provinces in South Africa, and currently the Eastern Cape (35%) and Free State (23%) provinces are South Africa’s largest wool-producing

areas, constituting 58% of the country’s wool production, followed by the Western Cape (17%), Northern Cape (11%), Mpumalanga (5%), and KwaZulu-Natal (2%). It is important to keep in mind that more than 30% of all South Africa’s sheep are located in the Eastern Cape and Free State; hence, these provinces remain the top wool producers in South Africa among all the nine provinces (DAFF, 2016).

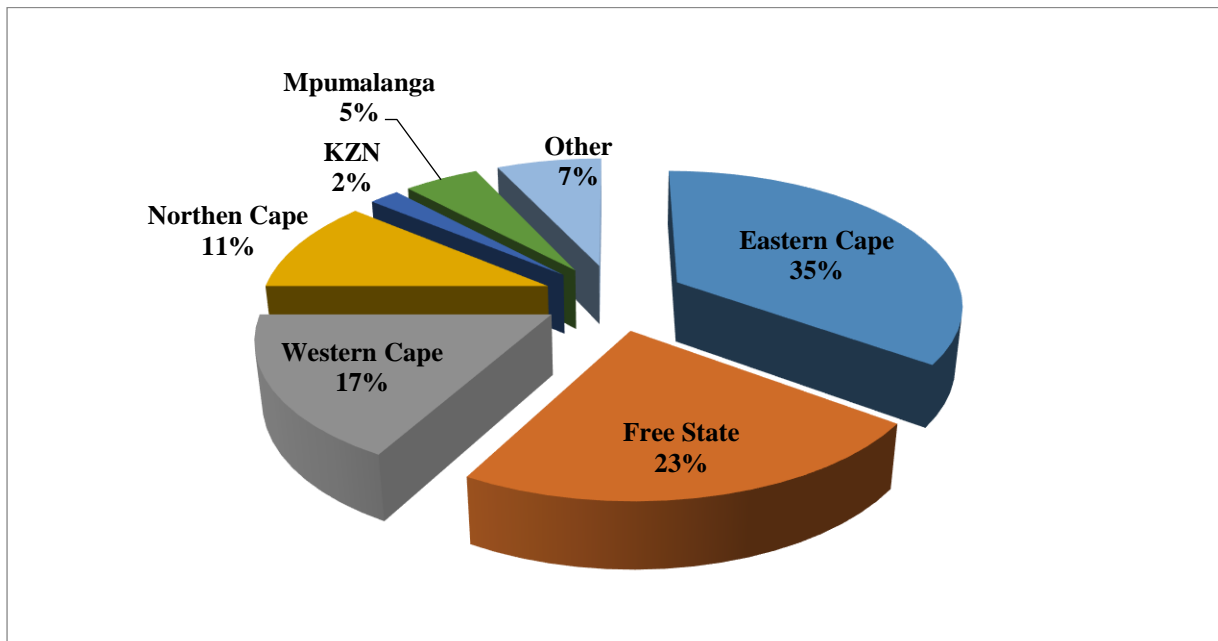


Figure 4.2: Production by Province 2019/2020

Source: Cape Wools (2020)

4.3 Wool Trade

Auctions or private contracts are used to trade wool, with the majority of the national clip being sold through auctions (DAFF, 2018). Wool auctions are held weekly during the wool-selling season, which runs from August to the June the following year, and are managed by the South African Wool Exchange, which is based in Port Elizabeth (de Beer, 2018), which is now called ‘Gqeberha’. However, to maintain synchronisation with the working papers produced for this study, the previous name of ‘Port Elizabeth’ will be retained in this dissertation. The main wool brokers in South Africa are Cape Mohair and Wool (CMW) and BKB Pty Ltd (DAFF, 2016) Their functions are to facilitate the buying and selling of raw wool from individual farmers or farm organisations to processors (DAFF, 2018).

4.3.1 South African wool exports

South African export data indicates that China is the main export market for South African wool, accounting for 74% in the 2019/2020 export season (Figure 4.3 below). However, in the 2018/2019 exports season, the exports to China decreased drastically, by 44%, as compared with the previous season because of the outbreak of foot and mouth disease at the beginning of 2019. Moreover, at the beginning of the 2019/2020 farming season, wool exports increased and then dropped rapidly because of trade restrictions and regulation imposed as a consequence of the Covid-19 pandemic (Cape Wools SA, 2020).

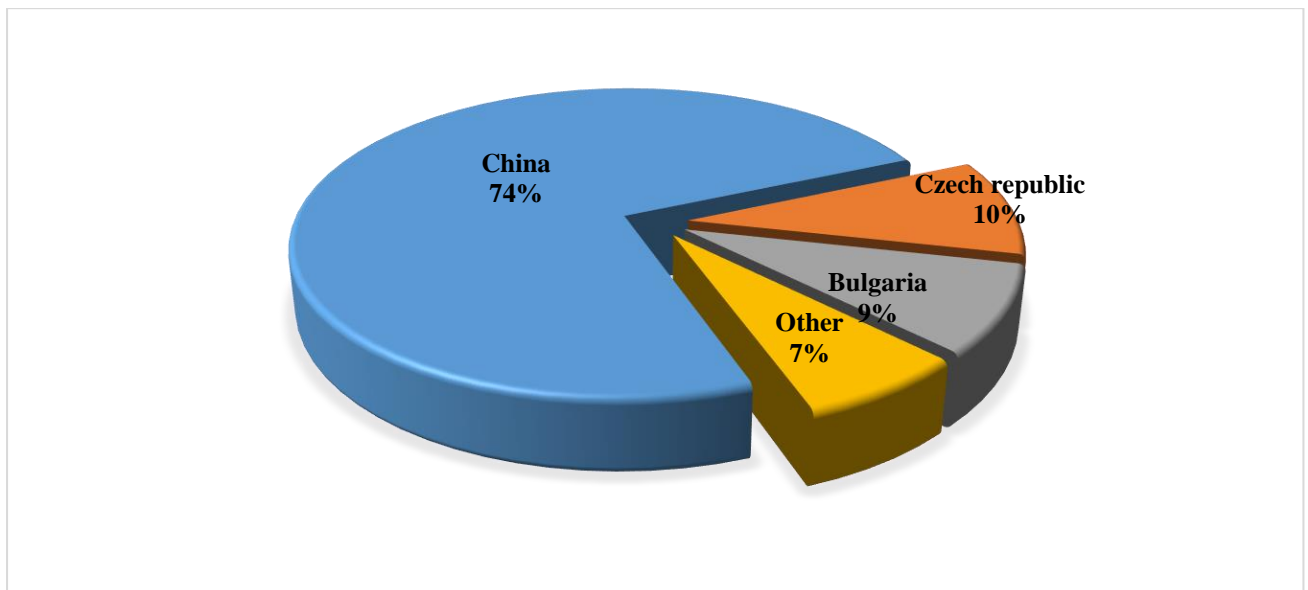


Figure 4.3: Export destinations for South African wool in 2019/2020

Source: Cape Wools SA (2020)

4.4 South African Wool Supply Chain

Wool supply chains are typically time-consuming, multifaceted chains with various role players and ample opportunities. In this section, we look at the characteristics of a general wool supply chain, followed by a review of where communal wool farmers fit into the entire chain and of their marketing channels, and will conclude by giving a synopsis of their record-keeping processes maintained at the farm and shearing shed levels.

4.4.1 Characteristics of a Wool Supply Chain

Figure 4.4 below illustrates the traditional way in which the wool supply chain has functioned and mainly continues to function today. The supply chain is divided into eight stages or links,

as shown in the Figure 4.4: wool producers, wool brokers, wool buyers & traders, top makers, spinners & weavers, clothing manufacturers, retailers, and consumers. The wool supply chain can have different marketing channels, depending on the position of each player in the chain. These marketing channels will be detailed below.

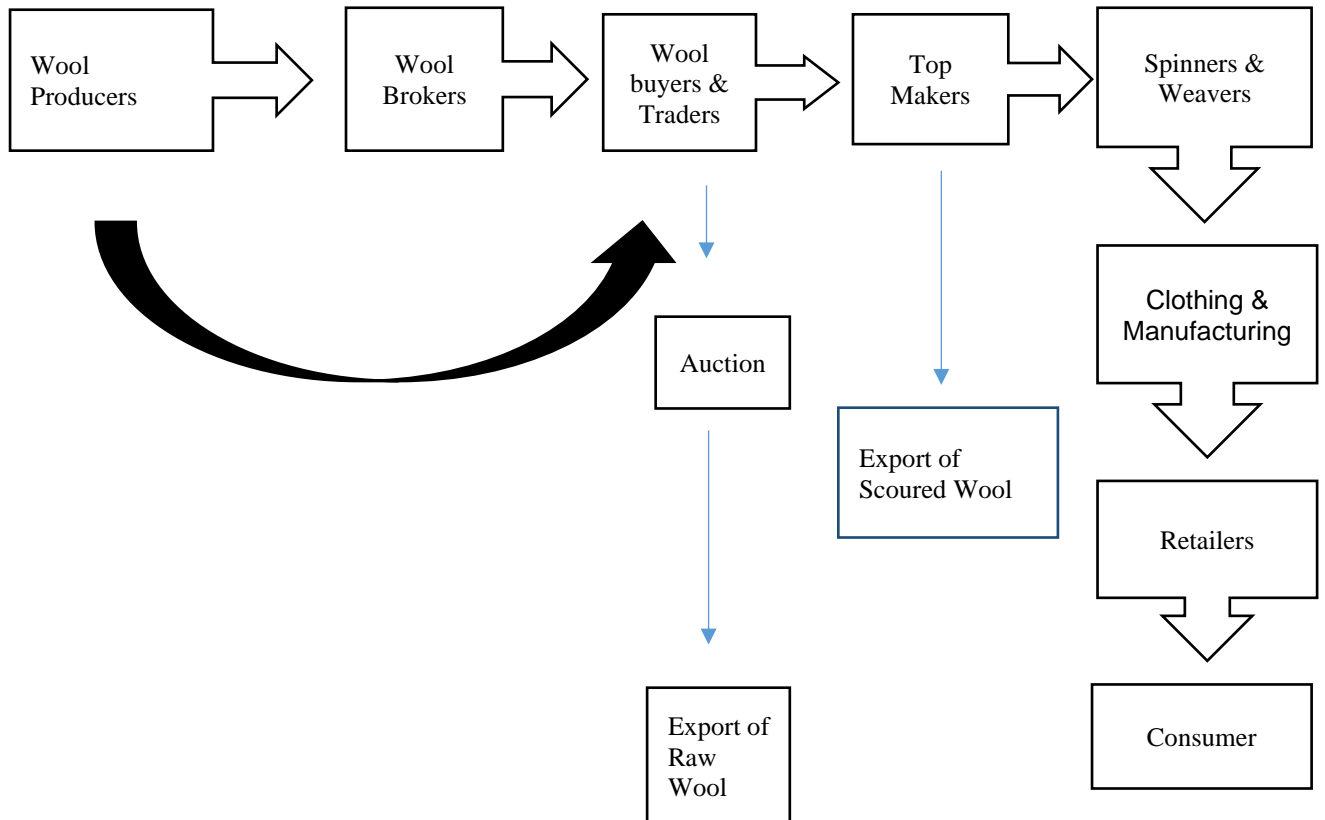


Figure 4.4: General wool supply chain
 Source: DAFF (2018)

i) Wool producers

As seen in the Figure 4.4 above, wool production starts at the producer level. Wool is produced by communal and commercial farmers in South Africa. However, this section focuses more on a detailed overview of communal wool farmers, since the specific focus of this dissertation is on communal wool farmers. According to Cape Wool SA (2020), Eastern Cape is the largest producing region of wool and has a large number of communal wool farmers contributing approximately 10% of the national clip per annum. This shows that Eastern Cape communal wool farmers play a significant role in the nation’s wool production and therefore it is most critical to ensure that these farmers are involved in the sustainable chains. Therefore, adopting sustainability standards could provide another mechanism that the farmers need to take seriously to improve their wool yield and quality.

Figure 4.5 below shows the marketing channels for communal wool farmers. Usually, communal wool farmers have very limited channels available and sell their wool through brokers. Communal farmers shear their sheep in a communal shearing shed where they class, sort and bale their wool. Thereafter, wool is pressed into bales between 120 kg to 200 kg in weight (de Beer, 2018). Wool brokers collect the wool at the shearing shed for sales at auctions. However, shearing sheds are not always reachable by some communal farmers; hence, these farmers shear their sheep at their homes and the brokers collect their wool at their respective homes. All the communal farmers' wool is sold at auction in Port Elizabeth for exports.

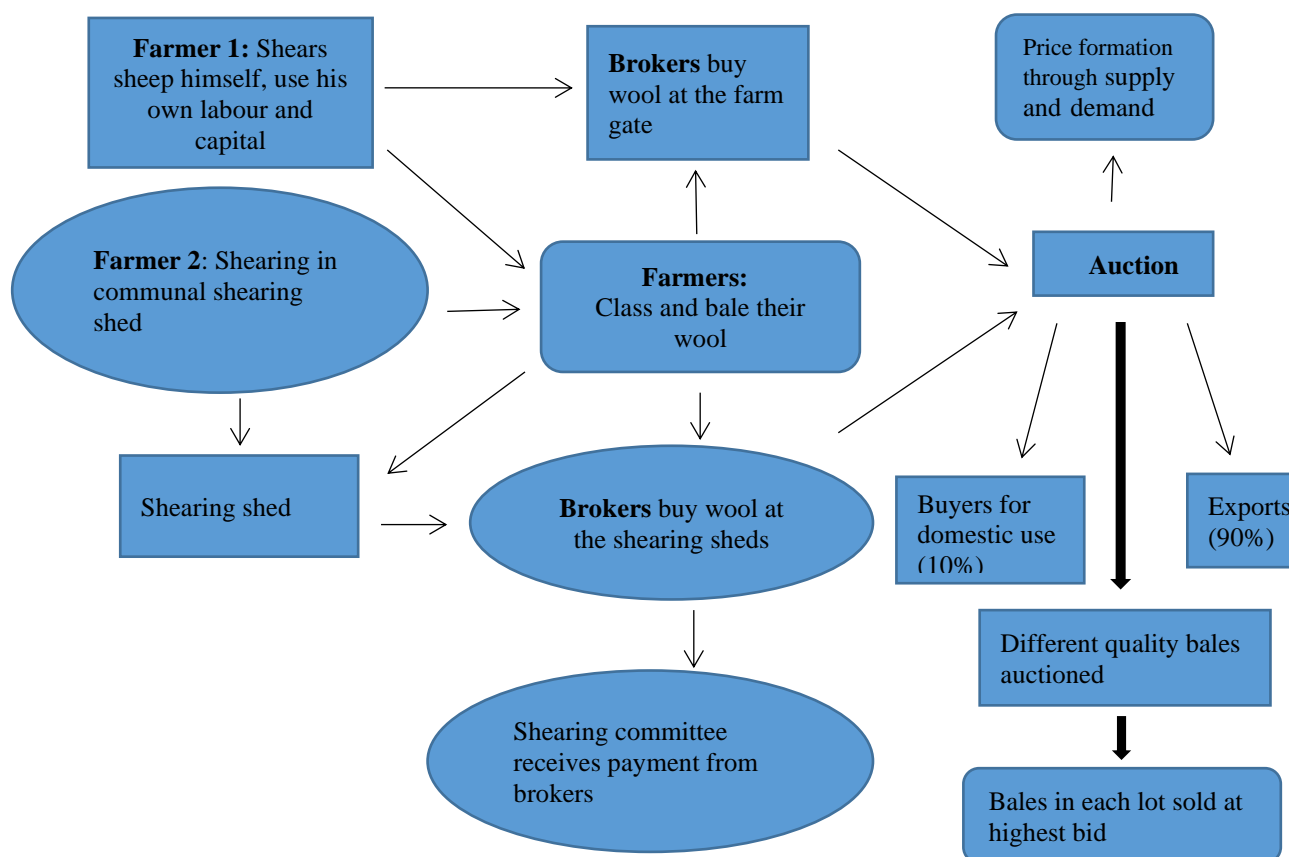


Figure 4.5: Different marketing channels for communal wool farmers

Source: Own data and DAFF (2016)

ii) Wool broking

Wool broking is the second stage in the supply chain. The role of wool brokers is to sell wool at auctions. Furthermore, wool brokers also provide other services, such as wool preparation advice and market information, both verbally and in writing, throughout the year.

iii) Wool exporting

The term “wool exporters” refers to a pool of processing and trading companies that buy wool at auctions. The name comes from the fact that they primarily supply wool to processors in other countries (Bill, 2009). This is the wool that they source at the auctions. Furthermore, they are divided into two groups: those who purchase wool for their own international operations and those who are commission-based agents (NWGA, 2020).

iv) Early-stage processing

The process refers to “*activities that get wool into a state ready for spinning*”(Russell, 2009). This process includes the elimination of all grease, dirt, and vegetable matter from the fleece through “scouring”, “carding” or “carbonising”, and thereafter aligning the fibres into a “sliver” by “top making” (Cottle and Wood, 2012). Scouring involves “*washing the wool using warm water and detergent to remove the dirt and grease*”. After that, it is rinsed and dried before being packed for shipment or sent straight to the carding process. Carding is “a mechanical action that removes vegetable matter (burrs and seeds) and partially aligns the fibres”. Wool that contains a lot of vegetable matter (more than 8% by weight) is carbonised, which is an acid treatment that removes the vegetable matter. While the wool is not destroyed during this process, its use in manufacturing (particularly dyeing) is harmed, and its value is reduced. In preparation for spinning, this procedure cleans up any remaining vegetable matter and aligns the fibres. Throughout all of these processes, the wool is continually blended to ensure a consistent final product (Russell, 2009).

v) Later stage processing

The process refers to “*activities that are not specific to wool and in which wool may well be blended with other fibres*”. Spinning, weaving, dyeing and garment making are examples of these activities. There is a variety of companies involved in this process, ranging from those that specialise in wool to those that are vertically integrated and use a variety of fibres (Cottle and Wood, 2012).

South Africa’s wool supply chain ends at the exporting level, as there are no processing plants in South Africa. Therefore, South Africa exports wool overseas and imports finished products that go to the retailers and then to the consumers (Cottle and Wood, 2012).

4.4.2 Record keeping

Record keeping is an essential tool for good farm management. More often than not, the purpose of record keeping is to facilitate traceability (Escobar, 2015). Accordingly, traceability is a by-product of record keeping. Although traceability is independent of sustainability, traceability can be used to verify claims about the sustainability of materials and products, thus ensuring safe production practices for people and the environment. Therefore, it is important to understand how farmers are keeping their records to ensure an effective traceability system that can assist in verifying sustainable practices (Mwanga et al., 2020). Therefore, this subsection will look at record keeping at the farm and shearing shed levels.

4.4.2.1 Record keeping at a farm level

Animal identification is a feature in many sustainability standards. According to the Animal Identification Act (Act No. 6 of 2002) all cattle, sheep, goats, pigs and ostriches must be marked. The National Register of Animal Identification System requires all farmers to register an identification mark. In terms of small stock, sheep ear markings must be used for identification purposes. Ears can also be notched, tagged, have a transponder/microchip inserted or be hole-punched. According to the current relevant legislation, all lambs must be tattooed at the age of one month (Animal Identification Act, Act 6 of 2002).

4.4.2.2 Record keeping at the shearing shed level

Record keeping at the shearing shed level is very important as it captures details of how animals are treated during the shearing process to minimise all potential stressful effects and of how wool is recorded. Therefore, shearing is one of the critical features for sustainability in the wool industry, as it is the first link in the wool value chain and therefore of critical importance. The shearing season usually begins in late July and goes on to mid-May in the following year and it overlaps with the selling season, which starts from mid-August and goes on to early June in the following year (Cape Wools SA, 2020). The information set out below will provide a detailed overview of recording keeping maintained on a normal shearing day. This information was obtained through interviewing production advisors of NWGA, BKB and other wool farmers who have access to the shearing shed to gain an understanding of the entire process of conducting a normal shearing day to ensure that each farmer's wool is recorded properly.

On the day of shearing, farmers typically gather in a shearing shed with their sheep, and they would decide how many sheep would be sheared on that day. For instance, if they decide to shear 200 sheep per day, they will take 50 sheep for farmer 1 and maybe 30 sheep for farmer 2 until the numbers reach 200. Sheep will be kept in a camp inside the shearing shed. Shearers take all the sheep for farmer 1 and shear them one by one. Sheep are then marked so it is easier to record details according to the Animal Identification Act. Inside the shed, there are duties or responsibilities for each member of the shearing shed team to undertake to ensure that all in-shed procedures conform to the Animal Protection Act and that all required records are kept. Accordingly, there is some form of strict supervision observed during the entire process. The duties undertaken by various persons during the shearing process are described below.

- **Shearers:**

These people are responsible for shearing the sheep; they use either scissors or a shearing machine, depending on the shearing shed.

- **Wound sprayers:**

These people are responsible to treat any wounds where a sheep is cut by mistake during shearing, and they will quickly spray the wound. Sometimes, wound sprayers will also check and count how many sheep are sheared per farmer.

- **Throwers:**

Throwers pick up wool right after it is sheared and throw it on to a sorting table.

- **Sorters:**

These people sort and class wool according to their class/types and separate them according to their quality. For instance, BKS, which is the wool from the back of the sheep, would be mixed with another farmers' BKS wool that is in the same class at the end of the process.

- **Scale checking/weighing:**

After sorting and classing of wool. Wool would be placed in the scanner to check how many kilograms each farmer has per sheep according to the wool classes.

- **Recorder:**

This is the person who records everything. There is a booklet called a 'split sheet', where everything is recorded for each farmer, starting from the type of wool, class, kilograms, bank details, etc. This makes it easier to ascertain after the wool is sold which wool belongs to which farmer, as well as how many kilograms he/she produced, and how much the farmer will be

paid, according to the prevailing price of wool. For example, if the wool was sold at R80/kg, then the calculation would be made according to how many kgs he or she produced. This split sheet is sent with the wool to the broker, and if the broker works with BKB, for example, it will be sent with the bales to BKB.

- **Bales:**

A bale of wool weighs between 120 kg and 180 kg. Wool of the same type from different farmers will be pressed and put in one bale, according to the wool type. A paper tag is attached to the bale, which records the details of that wool. This paper tag also records the producer number for the association or the shearing shed producing the bale, so that when the recorded details are input into the system, it is easy to recognise that wool as belonging to a particular shearing shed. There is also a part on the paper tag where farmers record the type of wool, weight of the bale, and a sequential number for the bale. For instance, bale number 1 from this shearing shed will be written as '1', bale number 2 as '2', and so on in sequence.

- **Brokers:**

After the shearing process, BKB will send a truck to collect the wool from the shearing shed to transport it to their operations in Port Elizabeth (PE). When the wool reaches PE, it will go through the process called confirmation, where they confirm whether the details of each bale are correct. For instance, they would confirm the weight and the quality of each bale. A wool bale is regarded as over-weight if it is above 180 kg and underweight if it is below 120 kg. Samples are taken from each bale to confirm the quality of wool. If, for instance, it is found that the quality of the wool is not the same as that written on the paper tag on the bale, BKB will then have to re-sort the wool to match the stated quality, with the farmer carrying the cost of this re-sorting activity. If everything is fine, the wool will be taken to the producer lot before auction so that the producers can view the bales before auction. After bales are sold on auction, the farmers will be paid according to the price agreed at the auction.

- **Marketing:**

In the process of promoting small-scale farmers to commercial producers, marketing should play a critical role. The market is the institution that should provide farmers with the necessary incentives to increase their incomes. Obviously, this can only happen if farmers have adequate market access. Wool marketing for commercial farmers in the Eastern Cape differs from that experienced by communal farmers. Communal farmers who are not able to operate under shearing sheds tend to have limited marketing opportunities available to them.

4.5 Conclusions

South Africa is among the top wool producers in the world, with over 90% of the country's raw wool clip being exported. Although primary production is thriving locally, the processing industry is nearly extinct. It is important to note that the supply chain of the communal wool farmers ends at the stage of exporting raw wool. It is also concluded that, at the shearing shed level, farmers are able to keep records of the wool sheared per day and this constitutes an effective traceability system. This section has also shown that communal farmers play an important role in the country's total wool production; therefore, it is important to make sure that these farmers are included in a sustainable supply chain to increase the industry's goal of sustainability development. Chapter 5 follows and will discuss the various sustainability standards in the wool industry, together with their principles and criteria.

CHAPTER 5:

PROMINENT SUSTAINABILITY STANDARDS AND THEIR PRINCIPLES AND CRITERIA

5.1 Introduction

Globalisation has brought about an increased interest in global standards. Therefore, this chapter considers various sustainability standards in the wool value chain, together with their principles and standards. The reasons for applying standardisation are primarily to ensure product safety, improve product quality, and provide information, traceability and transparency (IWTO, 2020). In addition, the standards cover a variety of issues, from health and safety standards, to working conditions, quality control processes, to environmental and social concerns. The most important part of standardisation is obtaining certification of compliance with the standard. The ISO defines certification as “the process by which a third party confirms in writing that a product, process, or service complies with a specified standard.” Successful certification can be notified to the end user through a label or symbol that indicates compliance with the IWTO (2020) standard. Standardisation provides farmers with an opportunity to publicise their best practices and provide brands and consumers with the peace of mind that the wool products they buy and sell are worth their value.

5.2 Prominent Sustainability Standards that Operate in the Wool Industry

Traditional wool production is characterised by environmental, social, economic and animal welfare challenges related to sustainability. Given the concerns about natural resource management and farmers’ health, a transition to sustainable agricultural practices is essential for communities directly or indirectly involved in wool (Tourangeau et al., 2020). Sustainability standards have been shown to reveal the inherent benefits of sustainable production and improve socio-economic outcomes, as well as human and environmental health. Sustainability standards aim to address a variety of environmental, production practices, and socio-economic and humanitarian aspects, and are increasingly important in improving the livelihoods of local farmers, according to a variety of studies (UNCTAD, 2021). Some of the key sustainability standards that apply nationally and internationally are listed below.



Sustainable Cape Wool



ZQ Natural Fibre



Responsible Wool

Figure 5.1: Prominent Sustainable Standards

Source: UNCTAD (2021)

5.2.1 Prevalent Standards in the wool industry

The RWS appears to be the most widely adopted sustainability standard, both nationally and internationally, while ZQ Merino fibre appears to be popular, as well. The Sustainable Cape Wool Standard is relatively new, having been introduced in late 2020. Each of the Standards takes a different approach towards compliance and certification, but they all follow the same set of principles and criteria.

5.2.2 Responsible Wool Standards

The Textile Exchange developed the Responsible Wool Standard (RWS) to address both the welfare of sheep and the preservation of the land that they graze on. It is one of the world's most widely adopted wool production standards. The Textile Exchange is a non-profit organisation dedicated to reducing and even reversing the global textile industry's negative environmental and social consequences. The standard guarantees complete supply chain traceability and requires certification at each stage in the supply chain. Furthermore, it allows farmers to demonstrate their best practices to the public, as well as to brands and consumers to notify that the wool products they buy and sell are consistent with their values and were produced in a sustainable manner (Textile Exchange Publications, 2016).

Farmers are expected to meet requirements related to animal welfare in order for them to be certified. These requirements are in support of the Five Freedoms of Animal Welfare, which comprise "*freedom of hunger and theft, freedom of discomfort, freedom of pain and injury,*

freedom of fear and distress, freedom to express normal behaviour". To ensure that all the requirements of the standard are met, RWS make use NSF International as an independent third-party certification body that audits each stage in the supply chain. Certified wool ensures that the product customers buy comes from animals that have been treated ethically. This is accomplished through farm and chain custody audits. Farmers gain a competitive advantage by demonstrating that their operations respect animal welfare and that they adhere to animal and farm management best practices. RWS compliance requires farms to be audited every year according to animal welfare and land management criteria. After the certification is done on the farm wool then moves from the farm through the whole chain. Each value chain site must be audited to the chain of custody requirement in the Textile Exchange Content Claim Standard (CCS) (Textile Exchange Publications, 2016).

5.2.2.1 Principles and criteria of RWS

Animal welfare

Mulesing: "Mulesing is the removal of strips of wool-bearing skin from around the breech (buttocks) of a sheep to prevent the parasitic infection flystrike" and is strictly prohibited.

Nutrition: To maintain normal health and avoid prolonged hunger, thirst, malnutrition or dehydration, animals must have access to sufficient feed and water that is appropriate for their age and needs.

Living Environment: Animals must be kept in an environment that ensures their health, safety, comfort, and normal behaviour.

Animal Management: Animals must be cared for in such a way that they remain healthy and disease-free. Animals that are sick or injured must be treated. Husbandry operations must be carried out in such a way that pain and distress are minimised.

Handling and Transport: Animals must be handled and transported in a way that protects their welfare, both on and off the farm.

Land management

Soil: Farmers must understand what will impact upon the health of their soil and have a strategy to mitigate damage and improve soil health.

Biodiversity and water: Farmers must understand what will impact on the biodiversity of their land and have a strategy to protect and improve it over time.

Fertilisers: Farmers must use the minimum amount of inputs to meet the nutritional needs of their land to maintain its carrying capacity.

Pesticides: Farmers must use the minimum amount of pesticides to achieve adequate control of pest burdens on their farm.

Social welfare

Hiring Practices and Forced Labour: Fair hiring must be done without discrimination or intimidation, and it must be done in a way that directly combats risk factors for forced labour.

Child Labour: Children must not be exposed to dangerous work and instead must participate fully in formal education and can engage in farming outside school hours, learning from their family members.

Working Conditions and Conduct: Create a working environment that is free from abuse, discrimination and harassment.

Health and Safety: Provide workers with safe and healthy working environments.

5.2.2.2 Required certification for the wool supply chain

Wool from certified farms is itself certified with the RWS when it is properly identified and tracked, from farm to final product. Certification ensures that the identity of RWS wool is maintained at all times, from the farm to the finished product. As previously stated, each stage of the supply chain is audited by a certified, third-party certification body. The RWS logo can only be used on products that are made entirely of 100% certified wool (Textile Exchange, 2020). The garment manufacturer or brand is usually the last stage to be certified, although retailers (business-to-consumer) are not required to be certified. Up to the seller in the final business-to-business transaction, subsequent stages of the supply chain are certified to the Content Claim Standard (CCS) requirements. Only shipments of goods accompanied by a transaction certificate (TC) are considered certified, according to the standard (Textile Exchange, 2020).

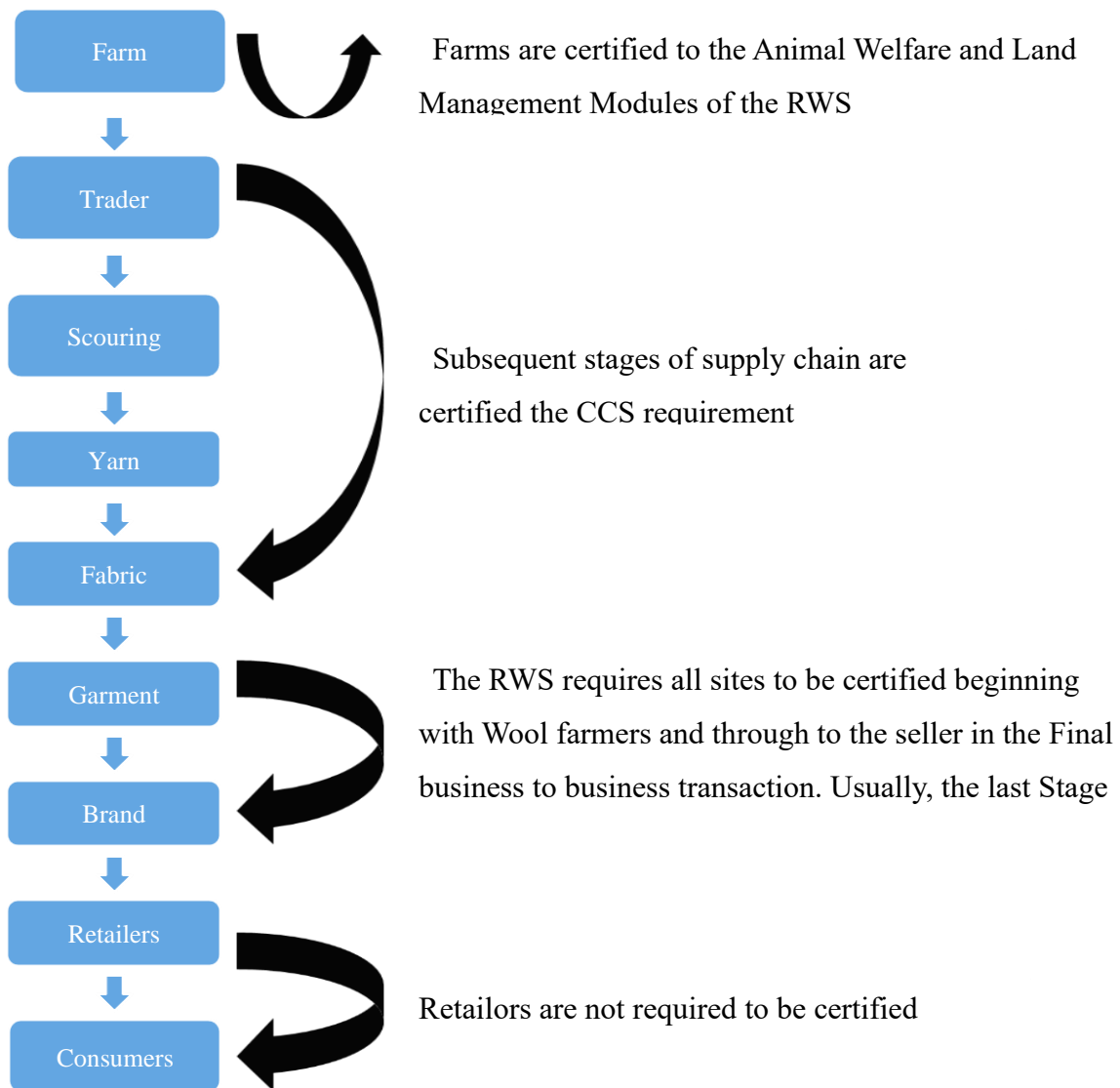


Figure 5.2: Certification of the wool supply chain

Source: Textile Exchange (2020)

5.2.3 Sustainable Cape Wool Standard (SCWS)

Cape Wools SA has developed the national standard for the South African wool industry, called the Sustainable Cape Wool Standard (SCWS). The standard establishes guidelines that can be measured on a farm by means of an assessment. The guidelines are based on the principles contained in various standards, such as the RWS mentioned above. The focus of this standard is placed on the following:

- “Animal Welfare (incl. animal health & disease management, nutrition, and water)”
- “Environment Custody (incl. protection of biodiversity)”
- “Social Ethics and Labour Relations”

- “General Business / Economic Aspects”.

It is important to note that, even with this standard, farms will be audited for animal welfare and environmental custody requirements. Therefore, this subsection will solely focus on animal welfare guidelines (Cape Wool SA, 2020).

5.2.3.1 Animal Welfare

Animal welfare is a representation of core requirements for ethical and profitable wool production. Farmers must consider the five basic standards of animal freedom developed by the OIE (Terrestrial Animal Health Code, 2016):

- “Freedom from hunger, thirst, and malnutrition.”
- “Freedom from discomfort through provision of adequate shelter.”
- “Freedom from pain, injury, and disease.”
- “Freedom from fear and distress.”
- “Freedom to express normal patterns of behaviour.”

(i) On farm assessment

According to Cape Wool SA (2020), on farm assessment, focusing on animal welfare requirements, should be carried out by using an electronic system, with further checks being done at successive stages, with the data being merged into a central database, thus doing away with the duplication of assessments and checks. Cape Wools SA uses the Body Condition Score (BCS) to measure the extent to which farmers maintain good practices of SCWS. “BCS is rated on a scale of 1 to 5, with 1 being emaciated and 5 being extremely fat. Most sheep on farms will have a BCS ranging from 2 to 4. Farmers shall be able to measure the BCS of sheep. If there is evidence of BCS below 2, appropriate action shall be taken to return the animals to good health. Preventative and reactive procedures, when animal health is threatened, is usually in the form of a complex matrix of activities requiring experienced management”. To maintain the good health of animals and prevent any practises that might cause pain or discomfort to animals, farmers are expected to follow the guidelines described below:

a) Mulesing

Mulesing is “the removal of woolled skin adjacent to the anal area to reduce the risk of fly strike. This procedure is prohibited and shall not be practised under any circumstances”.

b) Tail Docking

Tail docking shall be performed using appropriate equipment after the establishment of the lamb/ewe bond, when the lamb is older than 24 hours but not older than 6 weeks. Such equipment must be in good working order and be free of contaminants.

c) Castration

According to Cape Wool SA, 2020 “*Castration shall be made on ram lambs that are not to being kept for breeding purposes, and are between one and six weeks old*”. Capable and skilled staff can perform castration before or after the season for blowfly attack. During the castration period, rubber bands or a castrator clamp (burdizzo) are encouraged to be used. Listed pain relief medication must be readily available for use during castration.

d) Hoof Care

Hoofs should be checked and inspected, and if necessary, trimming should be done with a clean sharp object such as a knife or pruning shears. This procedure should be avoided during times of external stress, high temperatures, or late pregnancy.

e) Horn Care

Removing horns from adult sheep is only permitted if done for specific reasons and only by a veterinarian using the appropriate anaesthesia. Horns can be trimmed back to prevent ingrowing or injury to each other; this can be done by pairing the tip where the horn tissue is lacking of nerves and blood vessels.

f) Ear Marking

Ear markings are strictly used for identification practices. The Animal Identification Act (Act 6 of 2002) – “all lambs must be tattooed at 1 month of age. Ears may also be tagged, notched, hole-punched or have a transponder/microchip inserted”.

g) Shearing

Shearing is known to be the first link in the wool value chain, which makes it extremely important. To reduce the stress associated with shearing, it is closely monitored and managed to ensure that all in-shed procedures comply with the Animal Protection Act, 71 of 1962; strict supervision is required.

- According to the wool industry shearing standards, shearing should be performed by certified, competent and skilled labours

- In preparation for shearing, sheep shall not be deprived food and water for more than 24 hours
- Avoid careless control and unwarranted of sheep
- Well-maintained shearing equipment
- Facilities for shearing should be well maintained, clean, properly ventilated and have ample lighting
- Shorn sheep should be returned to sufficient food and water as quickly as possible
- Shear cuts should be treated right away with appropriate products to reduce pain, discomfort, and infections

h) Animal Health and Disease Management

A bio-secure farming environment is essential for healthy sheep, and management systems must be in place to mitigate potential risks. Healthy sheep are the cornerstone of a profitable and long-term wool farming operation. Sheep shall be kept safe from injury, disease, and pain by using proper management procedures and safeguards. The Animal Disease Act (35 of 1984) states that “some diseases be conveyed to the veterinary authorities, and woolgrowers are therefore legally obliged to do so”. Vaccination against RVD should be done on a regular basis to avoid having to vaccinate during outbreaks. External parasite treatment of sheep using pour-on products or dipping must be well planned and carried out using only registered products, strictly following the prescription.

i) Soils

Preventing soil erosion and not exceeding the farm’s maximum allowable grazing capacity are two ways to demonstrate sustainable use of this natural resource base.

5.2.4 ZQ Merino

The New Zealand Merino Company (NZM) established the ZQ on-farm certification programme in 2007. It was the first of its kind in the world, requiring producers to meet strict standards in animal welfare, environmental integrity, social responsibility, fibre quality and traceability. High-quality fibres come from ZQ Merino accredited farms. Every 3–5 years, accredited farms are audited to ensure animal welfare and fair-trade principles. A forward contract is then used to supply the fibres to brand partners. These forward contracts ensure

price stability for brand partners and producers, as well as investment and innovation in Merino production. The continued accreditation of ZQ Merino is reliant on on-going compliance as determined by third-party auditing. Auditing requires “self-assessments and on-farm auditing, in which sheep, farms, and facilities are visually inspected”. The ZQ accreditation programme requires producers to consider their animals’ five basic freedoms, as outlined in The Animal Welfare Act, 1999, and the Animal Welfare (Sheep and Beef Cattle) Code of Welfare 2010, which includes no mulesing.

5.3 Concluding Remarks

This section has shown that different standards have evolved, globally, in the wool sector over the last years, and farmers will have a variety of standards to choose from. RWS is a globally recognised sustainability standard and prides itself in offering sustainable and traceable wool, from the farm level to the consumer level. The most common thing about these standards is the prohibition of mulesing. Textile brands are demanding non-mulesed wool, and therefore it is of utmost important to make sure that producers’ farming practices are eco-friendly and environmentally friendly.

These standards also have a few other things in common, as all farmers are audited on-site on a yearly basis by a third party before they can be certified, all standards allow for group certification, all standards allow for group certification, and the standard-setting body makes third-party certification logos available to brands and retailers, and the use of these is monitored. The standards also employ the same transparency mechanism, which includes complete supply chain traceability and a chain of custody approach.

The study could not ascertain the costs associated with compliance with each standard, although industry experts have claimed that the costs differ from standard to standard, which might cause a serious problem if farmers wish to move from one standard to the next, because each standard has its own audit processes and uses different third-party certification bodies. In addition, the administration involved in preparations for audit, especially for a new standard, is another foreseen challenge.

However, based on the principles and criteria of these standards, it can be concluded that wool producers, whether individuals or groups, who can demonstrate compliance with the basic requirements of these standards would be able to verify the sustainability of their production and, when appropriate, attract the attention of buyers who supply the value chains for brands.

This compliance benefits the market in general, especially as reliable proof of environmental, animal, and human custodianship has become increasingly important in the industry.

Farmers should ask themselves whether they want to generate a premium on their wool, or whether or not their wool will be worth exporting in the future. Furthermore, farmers' compliance with these standards is very important because it underlines the seriousness of sustainability and traceability of their products, as it will give consumers a measure of equanimity towards the products. In addition, farmers' compliance with these standards gives a guarantee that the product is certified and that no questionable practices were followed during the production processes. This will make it easier for a buyer or a consumer living in China or Europe to find out exactly what is happening on a certified farm in South Africa.

The end goal of these standards is mainly to promote sustainable farming and offer traceable products to the market. However, through interacting with industry experts, it is foreseen that there will be legitimacy challenges in implementing existing standards in the wool industry, especially for communal farmers, notwithstanding that these standards are important and promising instruments. Therefore, in Chapter 6, a more detailed analysis is presented of the specific requirements that communal farmers would find easy or difficult to meet, based on current production practices. The following chapter will use RWS as the basis of its analysis, as it is the most established standard in the sector.

CHAPTER 6:

EASTERN CAPE COMMUNAL WOOL FARMERS' PRODUCTION PRACTICES AND THEIR ALIGNMENT WITH SUSTAINABILITY STANDARDS

6.1 Introduction

This chapter focuses on the production practices of Eastern Cape communal wool farmers and their alignment with sustainability standards. As discussed in Chapter 2, there are number of benefits that farmers can receive by complying with these standards. According to Sommer (2017), sustainability standards are an important tool for increasing market access for producers. Therefore, this chapter seeks to examine the readiness of the communal farmers to comply with sustainability standards. Deeper analysis will focus on the specific requirements that might be easy or difficult to achieve by the communal farmers, in view of their current production practices. The RWS will be used as the basis of this analysis, as it is the most widely established standard in the sector. However, this chapter begins by detailing the socio-economic characteristics of communal wool farmers in the Eastern Cape. This is done mainly to check whether these factors might have an impact on the adoption of these standards. Although the study itself is not an adoption study, it is however important to understand the impact of these factors in the adoption of sustainability standards. Thereafter, the chapter concludes with an assessment of the production practices of the Eastern Cape communal wool farmers and of their alignment with the RWS.

6.2 Socio-Economic Characteristics of Eastern Cape Communal Wool Farmers

This section examines the socio-economic characteristics of Eastern Cape communal farmers to gain an understanding of the extent to which these factors might influence the adoption of the sustainability standard.

(i) Age and household size

Table 6.1 below shows that the age of the household head varied between 28 and 78, with the average age of the household head being 52. The average age of the farmers in the study

suggests that the majority of them were older, with only a few young people participating in farming, which could be attributable to the fact that the majority of the youth may have been employed in the formal sector and view agriculture as being a dirty business (Musemwa et al., 2007). A study conducted by Dmytro et al. (2020) on factors influencing the adoption of sustainable farming practices showed that age was found to influence adoption of sustainable farming. As a result, one of the most important socio-economic factors influencing the adoption of sustainability standards could be the age of the communal farmers in the Eastern Cape (Dmytro et al., 2020).

Table 6.1: Age of farmers

Variable	No	Min	Max	Average
Age	50	28	78	52.1

Source: Survey (2020)

(ii) Gender and level of education

The South African government strongly encourages female participation in farming because it has a positive impact on food security and job creation in the country (FAO, 2011). The gender distribution of communal wool farmers in the Eastern Cape is depicted in Table 6.2 below. Only 12% of the farmers were female, with the remaining 88% being men.

The level of education factor was divided into four categories, namely high school or lower; passed matric; achieved tertiary education; and other. Table 6.2 shows that 48% of the farmers had completed high school or lower and 38% had passed matric, while only 14% had obtained a tertiary qualification. According to the study conducted by Dmytro et al. (2020), education is one of the factors that influence the adoption of sustainable farming practices. As a result, education was considered to be a significant factor that would influence the adoption of sustainability standards.

Table 6.2: Gender and education distributions of respondents

Gender	Frequency	Percent
Female	6	12
Male	44	88
Total	50	100
Level of education		
High school or less	24	48
Passed matric	19	38
Tertiary education	7	14
Total	50	100

Source: Survey (2020)

6.3 Communal Wool Farmers' current production practices

(i) Mulesing

Mulesing refers to “removal of woolled skin adjacent to the anal area to reduce the risk of fly strike” (Cape Wool SA, 2020). This procedure is strictly prohibited in many sustainability standards, including both RWS and SCWS. The General Manager of Cape Wools was interviewed in this study and indicated that the communal wool farmers in the Eastern Cape, and South African wool farmers at large, are operating in a mulesing-free environment. Therefore, South African wool farmers, including communal wool farmers, have a tremendous advantage in adhering to these standards. The world market is looking for non-mulesed wool, and brands are demanding non-mulesed wool. Four Paws and International Animal Welfare Organisation, in its 2017 Report, called for the transitioning away from mulesed sheep wool (Four Paws, 2017). As a result, the Eastern Cape's communal wool farmers have the ability to produce what the world market requires. (Cape Wool SA, 2020).

(ii) Grazing and Herding

The RWS states that the “sustainable use of natural resource base shall be demonstrated through prevention of erosion and not exceeding the maximum grazing capacity of the farm”. Firstly, it is important to note that communal wool farmers do not have enough land to control the grazing capacity of their stock (Nkonki, 2008). Three grazing management systems are conducted in the communal areas throughout the Eastern Cape. These comprise “open access

grazing, grazing controlled by the community, and grazing that take place on private land controlled mainly by the landowner” (Morokong, 2016). All the communal wool farmers of Eastern Cape who were interviewed in this study rely on open-access grazing, where members of the community share grazing areas and there are no clear rules about how to use them. Thus, overgrazing occurs, causing soil degradation and erosion (Orestis, 2015).

However, communal farmers are unwilling to reduce stock numbers to accommodate the carrying capacity of the grazing veld. In the rural areas of the Eastern Cape, and in most of the country, the possession of a large number of animals is a well-recognised status symbol. As a result, all communal farmers strive to increase the stock numbers, without considering the carrying capacity of the grazing land (Mahashi, et al., 2019). Farmers use grazing land without fencing and without carrying out veld management practices, such as the camp system, because of their lack of access to property ownership rights (Makapela, 2008). Fencing and veld management are lacking, according to the farmers, because individuals do not own grazing land and will not invest in its improvement even if the relevant community decides on grazing access. Therefore, it will be a very challenging requirement for farmers to comply with the standard to undertake proper veld management practices.

Table 6.3 below reflects the amount of land that farmers have for themselves, and shows that the communal farmers’ landholdings range from 0.5 hectares to 130 hectares in area, with an average of 8 hectares. Most of the land that the farmers are entitled to use individually comprises homestead land, the occupational right to which is granted by the chief of a farmer’s village. The amount of wool produced by farmers is affected by the size of their grazing land. This indeed confirms that farmers depend on communal land for grazing, and this results in over grazing, as mentioned above. Furthermore, many farmers have 10 years’ of experience in wool farming, on average, with a maximum of 28 years and a minimum of 2 years. This indicates that many of the communal farmers are well educated about sustainable wool production, but they lack the resources to produce sustainably (Nkonki, 2008).

Table 6.3: Farm area in ha

Variable	No	Min	Max	Mean
Land size (ha)	50	0.5	130	8
Farming Experience (years)	50	2	28	9,64

(iii) Vaccination and feeding

RWS requires farmers to take preventative measures against diseases that are common or prevalent in the area where they farm. Farmers must treat their sheep for external parasites with a pour-on product or by dipping, using only registered products. However, farmers highlighted the point that one of the major constraints they face in wool production is the high cost of medicine and vaccines. Maingi and Njoroge (2010), as well as Aphunu et al. (2011), agree that the high cost of medicine is among the major stumbling blocks to livestock production, because farmers do not have sufficient finances to meet the high cost of medicine.

However, owing to the high cost of medicine, the farmers who were interviewed indicated that, to overcome this challenge, they have decided to buy the vaccinations and other medications as an association/group, where each farmer contributes a certain amount of money to buy the required vaccines and medication. These farmers would then collectively vaccinate and dip their animals. This strategy helps them to gain access to the medication and vaccinations that they would not be able to afford to buy, individually. Some indicated that brokers, such as BKB, would buy the necessary vaccines and medication on their behalf and then deduct these costs from their wool sales. The vaccines are bought twice a year, or immediately when any disease breaks out. Generally, the required medicine and vaccines are expensive, and the additional transportation costs of delivery, coupled with the farmers' remoteness, contribute to the high medication prices (Kom, 2016).

The same strategy is implemented by the communal farmers when there is need to buy feed or feed supplements. Most farmers indicated that they only buy feed once a year, especially during winter months; otherwise, they rely on grazing their sheep on the natural pastures in the veld. Although feed and vaccination are very costly for these farmers, administering proper vaccinations and feeding will not be a difficult requirement to achieve, as farmers already have strategies in place to feed and vaccinate their animals properly.

(iv) Identification

For identification purposes, RWS requires the use of ear markings. However, no lamb should be tattooed until they are one month old, according to the Animal Identification Act (Act 6 of 2002). Pain relievers and/or topical antiseptic medications should be readily available for use, as needed. Ears can be notched, tagged, or implanted with a transponder or microchip, or, lastly, hole-punched. The popular identification methods used by the communal wool farmers

interviewed in this study are ear notching and ear tagging, with only 5% of farmers using the tattoo method. The farmers who do use tattoos were found to be farmers who had been in the wool industry for a long time. Accordingly, these farmers have a standardisation advantage in this regard because they are already complying with this requirement.

(v) Shearing and shearing sheds

The RWS requires shearing to be supervised and managed to guard against any potentially stressful effects arising (RWS, 2020). This is to make sure that all in-shed procedures are compliant with the Animal Welfare Act (Act 71 of 1962). Throughout the process, strict supervision is required. In the Eastern Cape, there are over 1000 communal shearing sheds, most of which were funded by the Eastern Cape Government, the Wool Trust, and donors through the National Wool Growers Association (NWGA, 2020). These shearing sheds are monitored and controlled by the members of the NWGA, which provides training from time to time, including training for shearing, sorting, classing, and handling of sheep during shearing to reduce stressful effects. Inside the shearing sheds, the NWGA has installed all the necessary equipment, such as classing tables, wool bins and wool presses (NWGA, 2016).

However, these shearing sheds are not accessible to all the communal wool farmers because the sheds are often far away from their homes and grazing areas. Figure 6.1 below indicates that 26% of the surveyed communal wool farmers do not have access to shearing sheds, while 74% indicated that they do have access to a shearing shed. Farmers without access to shearing sheds thus shear their stock in home garages, community halls and rondavels, using limited shearing equipment. It is important to note that the farmers who are able to access shearing sheds are most likely to be in an advantageous position in complying with the shearing requirements of the standard because they have access to all the necessary equipment for shearing. Therefore, these farmers still have an advantage in complying with these standards, although the industry and government should work on building as many shearing sheds as possible, so that all the communal farmers would get an equal chance to gain access to the necessary equipment and training.

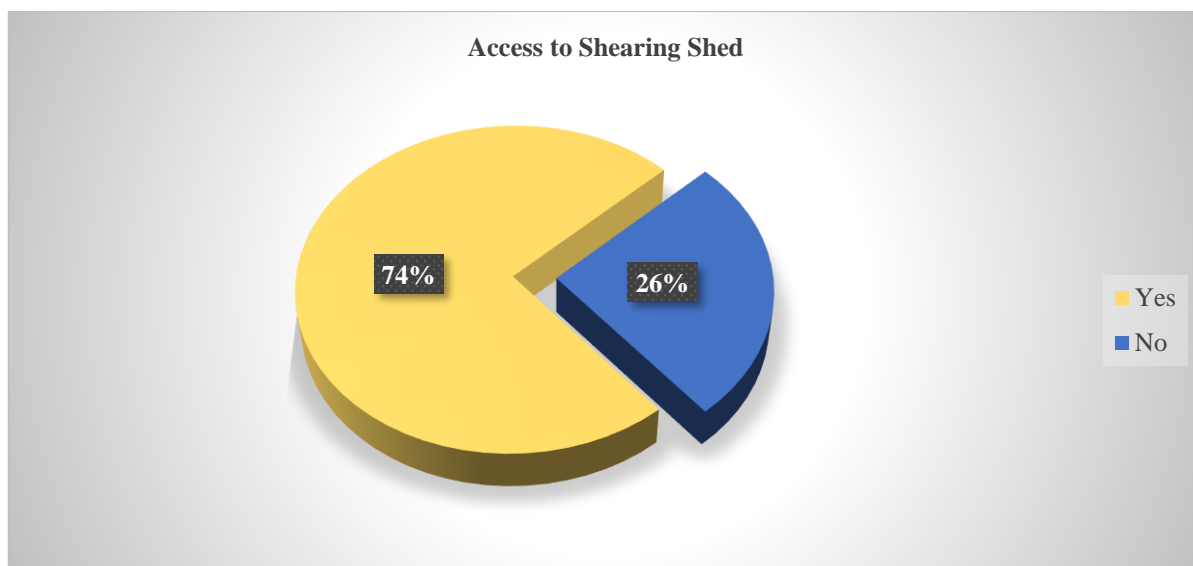


Figure 6.1: Access to shearing sheds

Source: Survey (2020)

(vi) Kraaling and predation

The RWS standard states that animals must be provided with housing to protect them from predators and theft. The Eastern Cape communal farmers use kraaling to protect their livestock from predators. The kraaling of livestock implies that “animals graze during the daytime and return to the kraal at night-time” (Baloyi, 2010). This practice is common in many communal areas of the Eastern Cape and in other territories (Nsoso and Madimabe, 2003). This practice is not always effective, and farmers interviewed in this study stated that kraaling does not entirely protect their animals, as they are still faced with challenges of theft and predation. This means that kraaling can protect their animals to a certain degree, but not entirely.

Therefore, it can be concluded that the RWS requirement related to providing housing to protect animals from theft and predation will be difficult for Eastern Cape communal farmers to achieve. The study conducted by Sikhweni and Hassan (2013) states that the “*black-backed jackal (Canis mesomelas) and the caracal (Caracal caracal) are two important medium-sized predator species among the South African wildlife, and they have a negative impact on the livestock industry in South Africa, especially among sheep and goats*”.

6.4 Assessing the Performance of the Production Practices of Eastern Cape Communal Wool Farmers in relation to RWS

This section endeavours to analyse three principles from the Responsible Wool Standard, as listed below. In Chapter 5, these principles and their requirements were discussed in detail.

The main purpose for this section is to assess the extent to which the production practices of the communal wool farmers comply with RWS requirements. Thereafter, the study will draw a conclusion regarding the areas that they are the strongest in, and those that areas in which the farmers need improvement to be compliant with the RWS.

The three principles are:

- Animal Welfare Criteria
- Land Management Criteria
- Social Welfare Criteria

This dissertation utilised the use of a rubric to assess the alignment of the production practices of the communal wool farmers with RWS requirements. Accordingly, this section examines whether the current production practices of the communal wool farmers are already compliant with RWS, and thereafter assesses the gaps and areas for improvement. This is carried out to verify their performance in relation to RWS requirements. The Faculty Innovation Centre at the University of Texas at Austin defines rubric as a “scoring guide used to evaluate performance of a product, or a project. It has three parts: 1) performance criteria; 2) rating scale; and 3) indicators” (University of Texas at Austin, Faculty of Innovation Centre, 2017).

According to the University of North Carolina (2017), “Rubrics are usually used to examine how well students have met learning outcomes rather than how well they perform compared to their peers”. Although rubrics are most popular for assessing a student’s performance, this study adapted the same method to assess a farmer’s performance in relation to compliance with RWS. Therefore, the rubric method fits perfectly well with what the study is endeavouring to achieve. For this study, the rubric was developed using guidance from the University of Texas at Austin.

6.4.1 Development of a rubric

As mentioned above, the rubric consists of three elements, and a detailed discussion of each element is found below (University of Texas at Austin, Faculty of Innovation Centre, 2017).

d) Step 1, list performance criteria:

Determine the elements or criteria that will be used to evaluate the work. “Identify the trait, feature or dimension which is to be measured and include a definition and example to clarify the meaning of each trait being assessed”.

e) Step 2, determine the level of performance and rating Scale:

Choose words or phrases that will describe what each level of performance looks like, making sure they are distinct enough to show real differences. Performance levels should correspond to the related criterion. Performance levels define the degree to which a goal has been met, and they are frequently referred to as adjectives to describe the levels of performance. Thereafter, start by probing how many points would adequately describe the range of performance you expect to see in whole students’ work. The scores will determine the ranges of performance in numerical value. Scores are a system of numbers or values used to rate each criterion, and they are frequently combined with performance levels.

f) Step 3, Identify Performance Indicators:

The performance indicators are meant to allow rubric users to make performance-based evaluations with a high level of consistency, which is possible to achieve because each criterion’s performance is explicitly defined within the indicators. Lastly, give a summary on the scoring of performance levels to give a clear picture of where improvements are needed.

This study followed all the steps described above to develop a rubric to assess the compliance by communal wool farmers with RWS, and this rubric is found in Table 6.4 below. Furthermore, it is important to note that the outcomes of the rubric scoring for this study was also developed based on the primary data gathered through surveys, interviews, secondary data and observations.

Within each of the three (3) criteria mentioned above, there are specific requirements to be evaluated and rated on a scale of 1 to 6. The score for each aspect is a number based on the scoring key below. For each given rating, a brief rationale is given.

1. Does not exist (E)
2. Fails to meet requirements (D)
3. Somewhat meets requirements (C)

4. Meets requirements (B)
5. Succeeds at meeting requirements (A)
6. Exceeds requirements (A+)
0. Unable to score – Due to not having sufficient information

Table 6.4 below shows the criteria, scores, and rationale for scoring each criterion according to which the communal farmers were assessed. These farmers were assessed based on the Responsible Wool Standards criteria. Furthermore, the scores given are based on the primary data gathered via surveys, interviews, secondary data, and observations.

Table 6.4: Criteria, scores, and rationale for scoring

Criteria	Brief Description	Rating Scale 1–6	Indicators / Rationale for rating
1. Animal Welfare		3	
1.1. Nutrition	To maintain normal health and avoid prolonged hunger, thirst, malnutrition or dehydration, animals must have access to sufficient feed and water that is appropriate for their age and needs.	3	There was a notable indication of animal feeds being expensive and this meant farmers only fed their animals during winter and relied on grazing for the other seasons. If there is a drought, this would have a significant impact on production.
1.1.1. Feeding	To maintain normal health and avoid prolonged hunger, thirst, malnutrition or dehydration, animals must have access to sufficient feed and water that is appropriate for their age and needs.	3	Most farmers indicated that they only buy feed once a year, especially during winter months, otherwise they rely on grazing natural pastures in the veld
1.1.2. Grazing and Herding	“Sustainable use of this natural resource base should be demonstrated through prevention of erosion and not exceeding the maximum grazing capacity of the farm”	2	Having a large number of animals is a well-recognised status symbol in the Eastern Cape rural areas and most parts of the country; hence, all farmers aim at increasing stock numbers without caring about the carrying capacity of the grazing land. Therefore, there is overgrazing that might lead to soil erosion and degradation
1.2. Living Environment	“Animals should be kept in an environment that provides the conditions and facilities needed for health, safety, comfort, and normal behaviour”.	3	Kraaling is largely used to keep animals safe. Various studies have showed that kraaling attracts parasites that infect the wool that is produced (dirty wool that fetches below value)
1.2.1. Shearing Sheds	Shearing should “be monitored and managed to minimise all potentially stressful effects”. Shed facilities shall be “well maintained, clean, well ventilated and have adequate lighting”	3	65% of the surveyed communal wool farmers do not have access to shearing sheds, while only 35% indicated that they did have access to shearing sheds, but not entirely up to standard as they scored the sheds low.

1.3. Animal Management	Animals should be cared for in such a way that they stay healthy and disease-free. Animals that are sick or injured should be treated. Husbandry operations should be carried out in a way that causes the least amount of pain and distress to the animals.	3	Because of kraaling, farmers tend to keep more animals, which in turn affects the animals' comfort, safety, and normal behaviour. Sick or injured animals are treated well, and training has been offered by the Department on the handling of animals.
1.3.1. Medication / Treatment	Farmers should use preventative measures for "diseases which are common or prevalent in the area where the farming operation takes place"	3	Farmers highlighted the point that one of the major constraints they face in wool production is the high cost of medicine and vaccines.
1.3.2. Vaccination		3	Farmers collectively buy the vaccinations and other medication as an association/group where each farmer contributes a certain amount of money to buy vaccinations and medication. These farmers would then vaccinate and dip their animals collectively.
1.3.3. Mulesing	<i>"This method is strictly prohibited and should not be used under any circumstances"</i> .	5	This study indicated that communal wool farmers in the Eastern Cape, and South African wool farmers at large, are operating in a mulesing-free environment.
1.3.4. Identification	Ear markings should be used for identification purposes. According to the current relevant legislation	5	The popular identification method used by the communal wool interviewed in this study are ear notching and ear tagging, while only 5% of farmers use the tattoo methods.
1.3.5. Breeding Practices		3	50% of farmers interviewed indicated that they are involved in breeding practices and 50% indicated that they are not involved in breeding practices because it is expensive.
1.4. Handling / Transport	Animals should be handled and transported in a way that protects their welfare, both on and off the farm, and good human-animal relationships should be in place.	3	This was not observed and the information that was given is not sufficient to allow scoring.
1.4.1. Availability of adequate transport	Animals should be handled and transported in a way that protects their welfare, both on and off the farm, and	3	Transport is available for farmers. Though not adequate, farmers are able to use the services when available.

	good human-animal relationships should be in place.		
1.4.2. Access to roads		3	There is a significant challenge in gaining accessibility to road networks. Poor roads and a lack of roads in some areas render the transport inadequate.
1.5. Management, Plans, and Resources	To protect the welfare of their animals and demonstrate compliance with the relevant RWS, farmers should have a clear strategy and set of protocols.	3	This is a new standard that farmers are still struggling with. Not enough information was available.
1.5.1. Education Level		3	48% of the farmers have a high school or lower qualification, compared with 14% who have tertiary education. This has an impact on the adaptation of traceability in the wool value chain.
1.5.2. Training		3	Training has been rendered to farmers and farm workers. It could be scaled up to improve standards.
2. Land Management		3	
2.1. Livestock-wildlife conflicts	Implementation of measures to minimise livestock-wildlife conflicts.	3	There were reports of predator attacks and this is attributed to the fact that kraaling is the mostly practised form of animal management.
2.2. Pesticides	Control of parasites on animals, using the least amount of pesticides possible, in order to achieve adequate control of the pest burden on their farm.	3	Because the majority of the farmers are low-income earners, they reported having difficulties controlling pests because they do not readily have the income to purchase the pesticides needed.
3. Social Welfare		4	
3.1. Hiring Practices and Forced Labour	The farmer should demonstrate good hiring practices that are free of discrimination and intimidation, and that directly combat the risk of forced labour.	3	Family labour is mostly used by the farmers. Hiring labour other than family is not commonly practised and this is attributed to the fact that most farmers are low-income earners who cannot afford to hire external labour.
3.2. Health and Safety	Workers should work in facilities and environments that are safe and healthy.	4	Workers, the majority of whom are family members, do work in an environment that is safe and healthy.

3.3. Child Labour	Children should be safe from exploitation, not forced to work in hazardous conditions, and able to fully participate in formal education. Children should be able to safely learn about farming from their family members outside of school hours and lessons by participating in age-appropriate activities.	5	<p>No children were engaged in any sort of dangerous labour or exploitation.</p> <p>Children at the farms are engaged in age-appropriate activities as well as going to school.</p> <p>It was observed that some children do take part in some activities purely to learn and to help family.</p>
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Source: Survey (2021)

Figure 6.2 below shows the overall performance of the communal wool farmers in relation to the three above-mentioned principles. Therefore, when these principles are grouped together (Animal Welfare, Land and Management, and Social Welfare), we can note that the Eastern Cape communal farmers scored highly on Social Welfare, which is supported with the high scores on the Child Labour and Health and Safety Standards, as shown in Table 6.4 above.

A score of 4 indicates that the Eastern Cape communal wool farmers meet the requirements in this area. Moreover, the Eastern Cape communal farmers scored 3 on both Animal Welfare and Land Management. This indicates that the Eastern Cape communal farmers meet the requirements, to some degree. The reasons for this are attributable to practices such as kraaling and open-access grazing, which are practised to a high degree in Eastern Cape, as detailed in Table 6.4 above. It was noted that the costs of medicine, feed and vaccinations were a challenge. However, it should be noted that the communal farmers have found ways to mitigate the high costs associated with feed, medicine, vaccinations, and dealing with the pests.

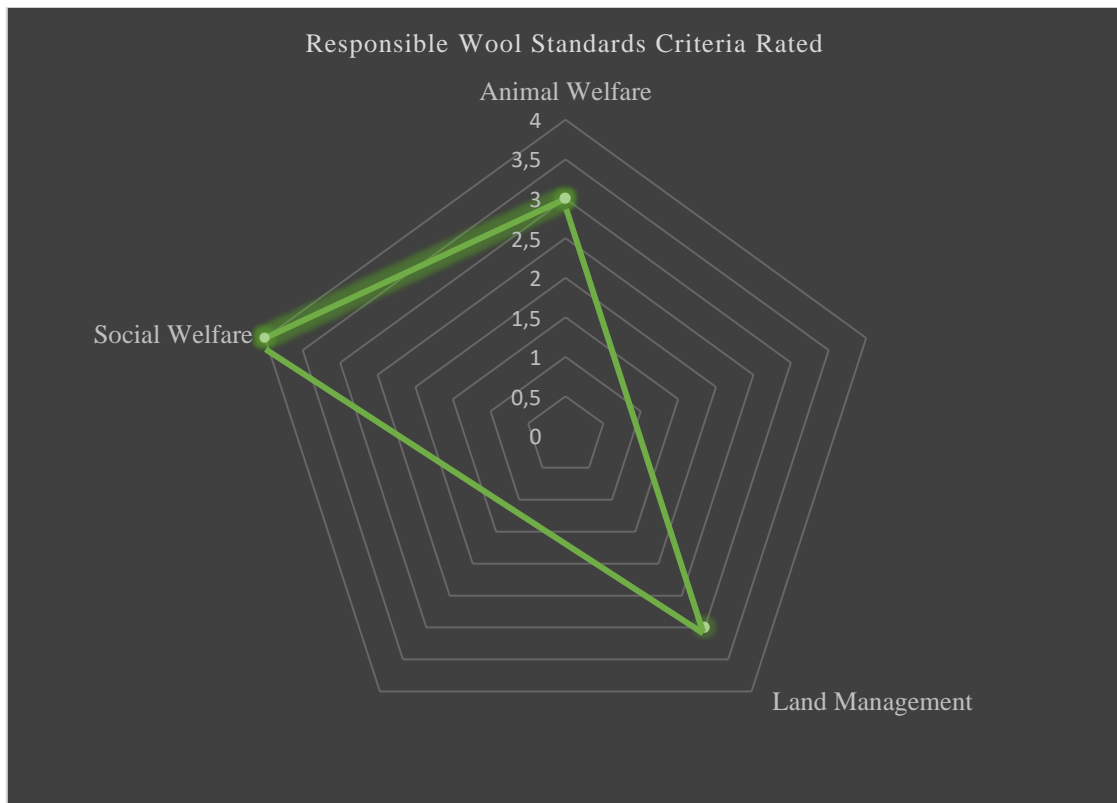


Figure 6.2: Responsible Wool Standards Rated

Source: Survey results (2020)

Figure 6.3 below illustrates a detailed overview of how farmers are performing under each criterion, which is provided to give a whole picture of where farmers excel, without giving any specific order. It can be noted from Figure 6.3 below that the Eastern Cape communal farmers attain a high score of 5 regarding ‘Succeeds at meeting requirements (A) on Child Labour’. This is closely followed by Health and Safety, with a score of 4 (Meets requirements (B)). Management, Plans, and Resources, as well as Handling Transport scored 0 (Zero - Unable to judge – Due to not having sufficient information), and this was mainly because these requirements needed to be observed on site to complement the information that was shared during interviews. The researcher visited these farmers when transportation of their animals was not required. Nutrition, Living Environment, Animal Management, Livestock-wildlife conflicts, Pesticides and Hiring Practices all scored 3 – Somewhat meets requirements (C).

This research was unable, however, to make conclusions on what would allow certification of the communal farmers, since none of the farmers interviewed in this study were RWS certified, which makes it harder to evaluate what would allow their certification and what would not, as there is little evidence.

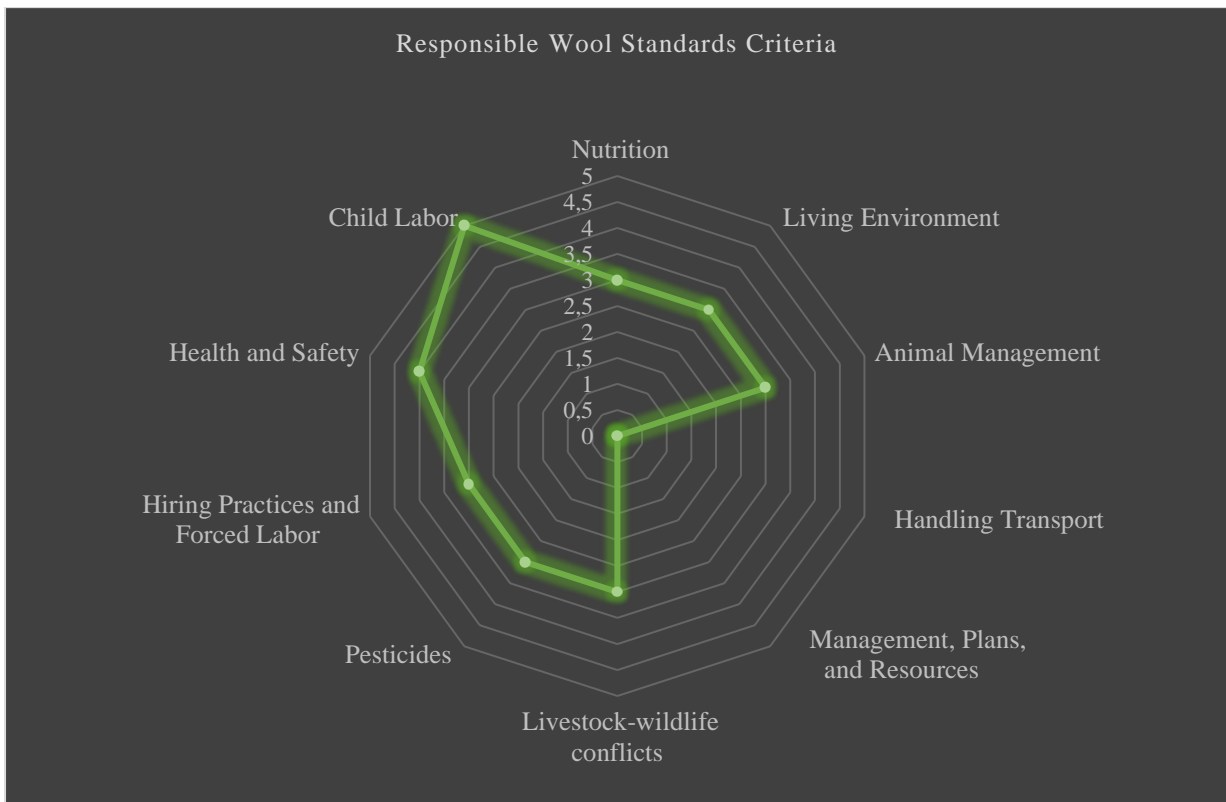


Figure 6.3: Responsible Wool Standards Criteria Rated

6.5 Conclusion

This chapter has shown that the Eastern Cape communal wool farmers have the potential to comply with many sustainability standards, but not on a large scale. For instance, the prohibition against the practice of mulesing is the critical requirement that farmers are expected to adhere to for certification. Therefore, the Eastern Cape communal farmers have a tremendous advantage regarding this aspect of the standards because they are already operating in the mulesing-free environment.

This chapter has also shown that farmers are at their strongest and scored high on requirements related to Social Welfare. However, this study has also shown that farmers are unable to meet requirements related to land management, as they do not have access to land ownership, which results in over grazing and soil degradation. In addition, other practices, such as kraaling, access to a shearing shed, and high costs of vaccination and feed, place farmers at a very disadvantaged position for complying with RWS. On the other hand, although the non-practising of mulesing is the farmers' largest strength when it comes to animal welfare requirements, they need greater support from the government and the industry on other issues such as feeding, medication and vaccination costs, housing, and shearing shed issues. In addition, although farmers mentioned that feeding and vaccination costs are a major problem, they have found ways to deal with the problem in that they buy feed and vaccines as a group, and thus issues such as feed, medication and vaccination costs can be solved at the farm level. Chapter 7 will focus on solutions and recommendations that would enhance the compliance by communal farmers with sustainability standards.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This dissertation assessed and analysed voluntary sustainability standards in the wool industry, as well as their relevance and usefulness to the communal sector. The broader context to this is that “sustainability is something that stretches across the entire chain, and producers will be put under the spotlight more and more to ensure they produce a product in line with market requirements”. Accordingly, adopting sustainability standards is important. However, with the growing number of standards, farmers are becoming increasingly perplexed and agitated by the various options that they are expected to navigate.

The market for safe and sustainable products certainly excludes the Eastern Cape communal wool farmers. Government, together with the industry, needs to assist farmers to achieve compliance with sustainability standards, build more shearing sheds, subsidise farmers with feed and medication, provide more training, and provide farmers with sufficient land. This would improve wool quality and improve farmers’ production practices, which would be aligned with sustainability standards. This dissertation has shown that Eastern Communal wool farmers play a significant role in wool production, and it is therefore important to ensure that these farmers are included in supply chains that are sustainable. The primary goal of this dissertation was to determine whether communal wool farmers in the Eastern Cape are prepared to meet sustainability standards. The goal of this dissertation was achieved through attaining the three core objectives.

7.2 Research Objectives

The three research objectives of this study were:

- a) To map and describe the South African wool supply chain and understand the role of communal wool farmers in the chain.
- b) To map current global and national sustainability standards, as well as their principles and criteria.

c) To determine the extent to which the production practices of communal wool farmers are aligned with, and need to be amended to comply with, sustainability standards.

The first objective was discussed in Chapter 4, which commenced by describing the status of the wool sector in terms of wool production and trade, followed by the general wool supply chain, and then further discussed the role that communal farmers play in the chain and their marketing channels. The second objective was discussed in Chapter 5, which examined various voluntary standards, their principles, and criteria in the wool sector. The third objective was discussed in Chapter 6, where the study examined the performance of the production practices of the communal wool farmers in relation to RWS. This assessment was performed by using a rubric method.

The literature reviewed in this study states that Eastern Cape is the largest producing region of wool and has a large number of communal wool farmers contributing approximately 10% of the national clip per annum. Therefore, it is critical to make sure that these farmers are included in supply chains that are sustainable, which would render the operation of the industry standards as more efficient from the environmental, social and economic points of view.

Furthermore, the study confirmed that there is a growing range of standards in the wool sector, which is attributable to the rising concerns of consumers about sustainability. The most common point in these standards is the prohibition of mulesing, which is the critical requirement that farmers are expected to adhere to. This, then, revealed that the communal farmers do have a potential for complying with these standards, as they are already operating in a mulesing-free environment, which is a critical requirement for certification.

At the same time, this study has shown that communal farmers are faced with challenges in complying with sustainability requirements. These challenges include: land management requirements, as farmers do not have access to land ownership; and other practices such as kraaling, predation management, grazing, access to shearing a shed and high costs of vaccination and feeding. These all place communal farmers at a very disadvantaged position for complying with standards such as the RWS. Some of these issues can be solved at the farm level, as communal farmers have found alternative ways to solve some of the problems related to the high costs of vaccination, feeding and medication.

Overall, the results derived from this study indicate the conclusion that, for the Eastern Cape communal farmers to be ready to comply with sustainability standards, they need to receive

assistance from the government and the industry for aligning their production practices with sustainability standards requirements.

7.3 Study Limitations

This study makes no attempt to verify the claims made regarding the sustainability standards or to carry out any type of audit. This study is in the nature of a mini-dissertation; therefore, it only seeks to assess the readiness of communal farmers to comply with sustainability standards and to propose recommendations to support the compliance by communal farmers with standards. Furthermore, the study does not attempt to conduct a comprehensive impact assessment. Instead, it depends on information and data received from other studies, as well as from stakeholder input. This study commenced and was completed during the period of the COVID-19 pandemic, and therefore it is based on extensive secondary research and telephonic interviews with stakeholders.

7.4 Recommendations on enhancing compliance with voluntary standards at the Farm Level

- The study recommends that the wool industry should produce sustainable guidelines that are specific to communal farmers.
 - The wool industry needs to focus on up-scaling the production practices of smallholder farmers in the Eastern Cape province for compliance with sustainability standards. As a result, the industry will be in a far better position to achieve sustainability.
 - The wool industry should intervene to assist communal farmers with training on predation management, which would assist them in finding other ways to protect their animals from predation.
 - The communal wool farmers will need to become more sensitised to the disadvantages of kraaling and overgrazing, and general awareness and training should be provided by the wool industry.
 - Communal wool farmers need greater support from the government and the industry on other issues such as feeding, medication and vaccination costs, housing, and shearing shed issues

- The study also recommends that the wool industry should have a centralised system for filing audits, such that it reduces administrative costs for farmers when they wish to move from one standard to the next.
- Taking into account the fact that communal farmers do not own farms and do not have access to land, the government should invest in building more numbers of shearing sheds so that shearing sheds can be accessed, even by communal farmers who do not have currently have access to shearing sheds. This would also allow for audits to be done at the shearing sheds when shearing is being done.
- Regarding land management requirements, this study revealed that communal farmers who do not have access to land cannot control overgrazing, which hinders inspections from being done. Accordingly, the industry should implement measures to raise general awareness about over grazing and veld management.
- Regarding animal welfare requirements, the industry should develop digital apps to assist farmers with recording details of the health of their animals so that they could quickly get the advice they need, as soon as they report something wrong about an animal. Furthermore, this development would also help a farmer to begin building a database of biodiversity and sustainability practices.
- Lastly, the industry should, from time to time, conduct strict progress tracking on farms and translate that into proper mentorship in areas that need improvement.

REFERENCES

- Agata G., (2019). Towards Responsible and Sustainable Supply Chains – Innovation, Multi-stakeholder Approach and Governance. *Philosophy of Management* 19:267–295
- AgriSETA., (2018). Fibre Sub-Sector skills plan. AgriSETA.
- Akoyi, K. T., (2018). Walk the talk: private Sustainability Standards in the Uganda Coffee sector. *Journal of Development Studies* 54(10).
- Atanga, N.L., Treydte, A.C. and Birner, R., (2013). Assessing the sustainability of different small-scale livestock production systems in the Afar Region, Ethiopia. *Land*, 2(4), pp.726-755.
- Agrawal K & Pal R., (2019). Traceability in Textile and Clothing Supply Chains: Classifying Implementation Factors and Information Sets via Delphi Study
- Aphunu A, Okoedo DU, and Okojie DU., (2011). Small ruminant production constraints among farmers in ika north-east local government area of Delta State, Nigeria. *Archives of Applied Science Research* 3(2):370- 376
- Bacon, C., (2005). Confronting the Coffee Crisis: Can Fair Trade, Organic, and Specialty Coffees Reduce Small-Scale Farmer Vulnerability in Northern Nicaragua. *World Development* 33(3), 497-511.
- Baloyi, J., (2010). An analysis of constraints facing smallholder farmers in the Agribusiness value chain: A case study of farmers in the Limpopo Province. M Inst Agrar. Department of Agricultural Economics, Extension and Rural Development. Pretoria: University of Pretoria, 1-3.
- Ben-Eli, M., (2018). Sustainability: Definition and five core principles, a systems perspective. *Sustain.Sci.* , 1337-1343.
- Beuchelt, T. D., (2011). Profits and Poverty: Certification’s Troubled Link for Nicaragua’s Organic and Fairtrade Coffee Producers. *Ecological Economics* 70(7), 1316-24.
- Bi, Z., (2011). Revisiting system paradigms from the viewpoint of manufacturing sustainability. *Sustainability*, 3(9), pp.1323-1340.

- Blumenschein, F., Wieland, J., Berger, A., Blankenbach, J., Brandi, C., Dadush, U., Navarro, D., Neligan, A., Jandeisek, I., Johnson, L. and Harms, P., (2017). Fostering the sustainability of global value chains (GVCs).
- Brandi, C., Cabani, T., Hosang, C., Schirmbeck, S., Westermann, L. and Wiese, H., (2015). Sustainability standards for palm oil: challenges for smallholder certification under the RSPO. *The Journal of Environment & Development*, 24(3), pp.292-314.
- Brandi, C., (2021). "The Interaction of Private and Public Governance: The Case of Sustainability Standards for Palm Oil," *The European Journal of Development Research*, Palgrave Macmillan; European Association of Development Research and Training Institutes (EADI), vol. 33(6), pages 1574-1595.
- Brown, B., Hanson, M., Liverman, D., & Merideth, R., (1987). Global sustainability: Toward definition. *Environment Management*, 713-719.
- CapeWools SA., (2020). Sustainable Cape Wool Standard. Port Elizabeth, Eastern Cape: Cape Wools offices.
- Caratas, M.A., Andreea Trandafir, R., Iftene, C., Cerasela Spataru, E. and Gheorghiu, G., (2021). The Impact of Sustainability Disclosure on Companies' Performance In Healthcare Industry. *Transformations in Business & Economics*, 20.
- Chiputwa, B. a., (2016). Sustainability Standards, Gender, and Nutrition among Smallholder Farmers in Uganda. *Journal of Development Studies* 52(9), 1241-57.
- Chiputwa, B. D., (2015). Food Standards, Certification, and Poverty among Coffee Farmers in Uganda. *World Development*, 400-12.
- Commission, B., (1987). *Our Common Future: Report of the World Commission on Environment and Development*; Geneva, Switzerland: Brundtland Commission.
- Corbellini, S., Ferraris, F., and Parvis, M., (2006). A cryptographic system for brand authentication and material traceability in the textile industry. In *2006 IEEE Instrumentation and Measurement Technology Conference Proceedings* (pp. 1331–1335).

- Cottle, D & Wood, E., (2010). Overview of Early-Stage Wool Processing. Available at: <https://www.woolwise.com/wp-content/uploads/2017/07/WOOL-482-582-12-T-01.pdf>
- Core Merino., (2021). Reduce your own environmental impact with wool. Available at: <https://coremerino.com/reduce-your-own-environmental-impact-with-wool/>
- Clothing Traceability., (2017). Clothing Traceability. <http://www.clothingtraceability.com/>.
- Cary, J., Webb, T., and Barr, N., (2001). The adoption of sustainable practices: Some new insights. An analysis of drivers and constraints for the adoption of sustainable practices derived from research.
- Department of Agriculture Forestry and Fisheries., (2018). Identification And Traceability System South Africa.
- Department of Agriculture Forestry and Fisheries., (2016). A profile of South African wool value chain.
- De Angelis, M. F., (2017). The role of design similarity in consumers' evaluation of new green products: an investigation of luxury fashion brands. *J. Clean.*
- de Beer, L., (2018). How does the NWGA commercialise communal wool sheep? Newton Park, Port Elizabeth: National Wool Growers' Association of SA.
- The German Development Institute [d-i-e]., (2016). Promoting the Sustainable Development Goals in Germany. Available at: https://www.idosresearch.de/uploads/media/DP_13.2016.pdf
- Dmytro Serebrennikov , Fiona Thorne , Zein Kallas and Sinéad N. McCarthy., (2020). Factors Influencing Adoption of Sustainable Farming Practices in Europe: A Systemic Review of Empirical Literature.
- Esterhuizen, D., (2006). An evaluation of the competitiveness of the South African agribusiness sector (Doctoral dissertation). Department of Agricultural Economics, Extension and Rural Development, University of Pretoria, South Africa, 1-315.
- Escobar, M. P., (2015). Perceptions and practices of farm record-keeping and their implications for animal welfare and regulation.

Food and Agriculture Organization of the United Nations (FAO)., (2014). Impact of international voluntary standards on smallholder market participation in developing countries – a review of the literature.

Food and Agriculture Organization of the United Nations (FAO) (2011). Role of

Women in Agriculture, <https://www.google.com/search?q=Female+participation+in+farming+is+highly+encouraged+by+government+as+it+has+an+impact+on+food+security+and+job+creation+for+the+country&oq=Female+participation+in+farming+is+highly+encouraged+by+government+as+it+has+an+impact+on+food+security+and+job+creation+for+the+country&aq=s=chrome..69i57.5318j0j4&sourceid=chrome&ie=UTF-8>

Fair Wear Foundation., (2019). Fair wear at

glance. <https://api.fairwear.org/wpcontent/uploads/2020/06/FairWear-Annual-report-2019.pdf>

Fossey, E., Harvey, C., McDermott, F. and Davidson, L., (2002). Understanding and evaluating qualitative research. Australian and New Zealand journal of psychiatry, 36(6), pp.717-732.

Four Paws report., (2017). Transitioning away from mulesed sheep wool. Available at:

<https://media.4paws.org/3/b/d/0/3bd05b1f460f6bc439f2a8a1e7af62084387cef2/Wool-Guidebook-2021.pdf>

Garbely, A., Steiner, E., (2022) Understanding compliance with voluntary sustainability standards: a machine learning approach. Environ Dev Sustain <https://doi.org/10.1007/s10668-022-02524-y>

Gardner, T.A., Benzie, M., Börner, J., Dawkins, E., Fick, S.E., Garrett, R.D., Godar, J., Grimard, A., Lake, S., Larsen, R.K., Mardas, N., McDermott, C.L., Meyfroidt, P., Osbeck, M., Persson, M., Sembrés, T., Suavet, C., Strassburg, B.B., Trevisan, A., West, C., & Wolvekamp, P., (2019). Transparency and sustainability in global commodity supply chains. World Development, 121, 163 - 177.

Gilg, A., Barr, S., and Ford, N., (2005), “Green consumption or sustainable lifestyles? Identifying the sustainable consumer”, Futures, Vol. 37 No. 6, pp. 481-504, available at:

<https://doi.org/10.1016/j.futures.2004.10.016>.

Gobbi, L., & Massa, I., (2015). Supply chain management in textile sector: the case of the Italian T-fashion traceability system. International Journal of Environment and Health, 7(4), 359–370.

- Goswami, S., (2014). Traceability to farm and factory, country of manufacturing, and apparel purchase scenario. Columbia: University of Missouri. <https://mospace.umsystem.edu/xmlui/handle/10355/44421>. Accessed 27 Nov 2016
- Harwood, R. R., (1990). A history of sustainable agriculture. In Sustainable agricultural systems (pp. 3–19)
- Henson, S. and Humphrey, J., (2009). The impacts of private food safety standards on food chain and public standard-setting processes.
- Henninger, C. E., (2015). Traceability the new eco-label in the slow-fashion industry? Consumer perceptions and micro-organisations responses. *Sustainability*, 7(5), 6011–6032.
- Hethorn, J., and Ulasewicz, C., (2008). Sustainable fashion: Why now (A conversation exploring issues, practices, and possibilities). New York: A & C Black Publishers Ltd.
- Holzapfel, S. and Wollni, M., (2014). Is Global GAP certification of small-scale farmers sustainable? Evidence from Thailand. *Journal of Development Studies*, 50(5), pp.731-747.
- Ibanez, M. a., (2016). Is Eco-Certification a Win–Win for Developing Country Agriculture? *Organic Coffee Certification in Colombia*. *World Development* 82, 14-27.
- SEAL. (2017). Sustainability Standards and the SDGs. Available at: <https://www.isealalliance.org/get-involved/resources/sustainability-standards-and-sdgs>
- International Organization for Standardization., (2019). Environmental management. Available at: <https://www.iso.org/iso-14001-environmental-management.html>
- International Organization for Standardization., (2014). Economic benefits of standards. Available at: https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/ebs_case_studies_factsheets.pdf
- International Trade Centre (ITC)., (2020). Market analysis. Accessed in May 2020. Available at: <https://marketanalysis.intracen.org/en>
- International Trade Centre (ITC) and European University Institute (EUI)., (2016). Social and environmental standards: Contributing to more sustainable value chains. Geneva.

International Wool Textile Organisation (IWTO)., (2020). Specifications for Wool Sheep Welfare. Rue de l'Industrie, 4 Brussels, 1000 Belgium.

Jena, P. R., (2012). The Impact of Coffee Certification on Small- Scale Producers' Livelihoods: A Case Study from the Jimma Zone, Ethiopia. *Agricultural Economics*, 429-40.

Kashmanian.,R.M., (2017). Building Greater Transparency in Supply Chains to Advance Sustainability. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1002/tqem.21495>

Karaosman.H., (2016). Sustainability in fashion. Available at: http://www.luxurymanagementconference.com/wp-content/uploads/2016/11/Sustainability-in-Fashion_FACTBOOK.pdf

Khapayi. M., (2016). Factors limiting and preventing emerging farmers to progress to commercial agricultural farming in the King William's town area of the Eastern Cape Province, South Africa

Kersting, S., and Wollni, M. (2012). New institutional arrangements and standard adoption: Evidence from small-scale fruit and vegetable farmers in Thailand. *Food Policy*, 37(4), 452-462.

Kom, L., (2016). Sheep flock structure, dynamics, management practices, and wool production under bush encroached and non-encroached areas of the Eastern Cape Province, South Africa. Department of Livestock and Pasture Science. Alice: University of Fort Hare.

Kumar, K., (2019). Why entrepreneurs should care about a food traceability. May 01. Accessed June 2020. Available at: <https://www.entrepreneur.com/article/333092>

Kwok, S. K., and Wu, K. K., (2009). RFID-based intra-supply chain in textile industry. *Industrial Management & Data Systems*, 109(9), 1166–1178

Latham, B., (2007). Sampling: What is it. Quantitative Research Methods-Texas Tech University.

Lam, J. K., and Postle, R., (2006). Textile and apparel supply chain management in Hong Kong. *International Journal of clothing science and technology*, 18(4), 265–277. Martin, M. (2013). Creating sustainable apparel value chains: a primer on industry.

- Luján-Ornelas, C., Güereca, L.P., Franco-García, M.-L., Heldeweg, M., (2020) A Life Cycle Thinking Approach to Analyse Sustainability in the Textile Industry: A Literature Review. *Sustainability*, 12, 10193. <https://doi.org/10.3390/su122310193>
- Mahashi, M., Mgwali, N., and Obi, A., (2019). Assessing Socio-Economic Factors Influencing Wool Production in Kolomana Villages of Eastern Cape, South Africa. *S. Afr. J. Agric. Ext.*, 47(4), 59 - 74.
- Maingi, N. and Njoroge, G.K., (2010). Constraints to production, disease perceptions and ticks and helminths control practices on dairy cattle farms in Nyandarua District, Kenya. *Livestock Research for Rural Development* Volume 22, Article #138, <http://www.irrd22/8/2010main22138.htm>
- Makapela, M., (2008). An overview of the management practices for wool production amongst the communal farmers of the Hewu district in the Eastern Cape Province. Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- Mwanga, G., Mbega, E., Yonah, Z., Chagunda, M. G. G., (2020). How Information Communication Technology Can Enhance Evidence-Based Decisions and Farm-to-Fork Animal Traceability for Livestock Farmers, *The Scientific World Journal*, vol. 2020, Article ID 1279569, 12 pages, 2020. <https://doi.org/10.1155/2020/1279569>.
- Mitiku, F. Y., (2017). Do Private Sustainability Standards Contribute to Income Growth and Poverty Alleviation? A Comparison of Different Coffee Certification Schemes in Ethiopia.
- Mhlongo, Z.S. and O'Neill, V.C., (2013). Family influences on career decisions by black first-year UKZN students. *South African Journal of Higher Education*, 27(4), pp.953-965.
- Moretto, A., Macchion, L., Lion, A., Caniato, F., Danese, P., and Vinelli, A., (2018). Designing a roadmap towards a sustainable supply chain: a focus on the fashion industry. *Journal of Cleaner Production* 193, 169–184
- Musemwa L., Chagwiza C., Sikuka W., Fraser G., Chimonyo M., and Mzileni N., (2007). Analysis of Cattle Marketing Channels Used by Small Scale Farmers in the Eastern Cape Province, South Africa. *Livestock Research for Rural Development* 19(9).
- Navarro-Galera, A., Ruiz-Lozano, M., Tirado-Valencia, P. and Ríos-Berjillos, A.D.L., (2017). Promoting sustainability transparency in European local governments: An empirical analysis based on administrative cultures. *Sustainability*, 9(3), p.432.

Nadvi, K. and Wältring, F., (2004) Making sense of global standards. In H. Schmitz (ed.) *Local Enterprises in the Global Economy*. Cheltenham: Edward Elgar.

National Wool Growers Association., (2020) (NWA). www.nwga.co.za

Nkonki B., (2008). The diversity of smallholder wool production and its marketing aspects:

A case study at Xume, Eastern Cape, South Africa.

Nsoso, S.J. and Mdimabe, M.J., (2003). A survey of Karakul sheep farmers in Southern Kalahari, Botswana: management practices and constraints to improving production. *SA Anim. Sci.* 4(1), 23-27.

Orestis Kairis., (2015). Exploring the Impact of Overgrazing on Soil Erosion and Land Degradation in a Dry Mediterranean Agro-Forest Landscape

Pedersen, E. G., (2016). Exploring the relationship between business model innovation, corporate sustainability, and organisational values within the fashion industry. *J.Bus. Ethics.*

Potts J, Lynch M, Wilkings A, Huppe GA, Cunningham M, and Voora V., (2014). *The State of Sustainability Initiatives Review 2014: Standards and the Green Economy*. IISD: Winnipeg.

Remmen, A., Jensen, A., & Frydendal, J., (2007). *Life Cycle Management: A Business Guide to Sustainability*; UNEP/SETAC Life Cycle Initiative: Copenhagen, Denmark.

Russell, I. M., (200). "Sustainable wool production and processing." *Sustainable textiles*: 63-87.

Sassenrath, G. F., Halloran, J. M., Archer, D., Raper, R. L., Hendrickson, J., Vadas, P.; and Hanson, J., (2010). "Drivers Impacting the Adoption of Sustainable Agricultural Management Practices and Production Systems of the Northeast and Southeast United States" (2010). Publications from USDA-ARS / UNL Faculty. 587.

Scholtz, M. M., & Bester, J., (2010). The effect of stock theft and mortality on the livestock industry in South Africa. *Applied Animal Husbandry & Rural Development*, 3(1), 15-18.

Schouten, G., Vellema, S., and Wijk, J. v., (2016). Diffusion of global sustainability standards: The institutional fit of the ASC-Shrimp standard in Indonesia. *Revista de Administração de Empresas*, 56(4), 411-423.

Sikhweni N.P & Hassan R., (2013). Opportunities and challenges facing small-scale cattle farmers living adjacent to Kruger National Park, Limpopo Province.

Shih, W. Y. C., and Agrafiotis, K. (2015). Sustainability in Clothing Manufacturing and Competitiveness: Is It a New Mind-Set or a Paradox?. In S. S. Muthu (Ed.) Handbook of Sustainable Apparel Production (pp. 39–50).

Sellare, J., (2020). Do Sustainability Standards Benefit Smallholder Farmers Also When Accounting For Cooperative Effects? Evidence from Côte d'Ivoire. American Journal of Agricultural Economics, 681-695.

Smith, A., (2003). Issues in sustainability: creating value for online users.

Sneddon, J. N., Lee, J. A., and Soutar, G. N., (2010). Ethical issues that impact on wool apparel purchases. In Australia and New Zealand Marketing Academy Conference, 1, 1-8.

Social Accountability International., (2019). SA8000® Standard. Available at <https://sa-intl.org/programs/sa8000/>

Sommer, C., (2017) Drivers and constraints for adopting sustainability standards in small and medium-sized enterprises (SMEs). No. 21/2017. Discussion Paper.

Statistics South Africa. 2016. Community survey. https://www.statssa.gov.za/publications/03-0105/Presentation_CS2016_Agricultural_Households.pdf

Taylor, S. and Littleton, K., 2006. Biographies in talk: A narrative-discursive research approach. Qualitative sociology review, 2(1), pp.22-38.

Textile Exchange., (2020). Responsible Wool Standards. Available at: https://textileexchange.org/standards/responsiblewool/?gclid=Cj0KCQjw_vjWBhD8ARIsAmCd54UAReJgE52p_p8zJPN4qitPBuIv8znRwpt5GZSeyKpqY2O6dYS8aAju1EALw_wcB

Textile Exchange., (2016). <https://textileexchange.org/wp-content/uploads/2021/04/2016-Textile-Exchange-Annual-Report.pdf>

Terrestrial animal health., (2016). Available at: https://rr-africa.woah.org/wp-content/uploads/2019/11/en_csat-vol2-2018.pdf

Tran, D and Goto D., 2019. Impacts of sustainability certification on farm income: Evidence from small-scale specialty green tea farmers in Vietnam

Ubilava, D., and Foster, K. (2009). Quality certification vs. product traceability: consumer preferences for informational attributes of pork in Georgia. *Food Policy*, 34(3), 305–310

UN Global Compact., (2014). A Guide to Traceability: A Practical Approach to Advance

Sustainability in Global Supply Chains. <https://www.unglobalcompact.org/library/791>

United Nations (UN)., (1992). Sustainable Development Agenda 21. United Nations, New York.

<https://www.un.org/ecosoc/en/sustainable-development>

University of North Carolina at Chapel Hill., (2017)

<https://oira.unc.edu/wpcontent/uploads/sites/297/2017/07/Developing-and-Using-Rubrics.pdf>

University of Texas., (2017). Developing a rubric. [https://ctl.utexas.edu/instructional-](https://ctl.utexas.edu/instructional-strategies/creating-checks-learning)

[strategies/creating-checks-learning](https://ctl.utexas.edu/instructional-strategies/creating-checks-learning)

United Nations Forum on Sustainability Standards) (UNFSS)., (2016). Meeting sustainability goals:

Voluntary sustainability standards and the role of the government. 2nd Flagship Report of the

United Nations Forum on Sustainability Standards (UNFSS). Available at:

https://unfss.files.wordpress.com/2016/09/final_unfss-report_28092016.pdf.

von Hagen, O., and Alvarez, G., (2011). The Impacts of Private Standards on Global Value Chains-

Literature Review Series on the Impacts of Private Standards.

Wigley, S. M., Sinha, P., Goworek, H., Fisher, T., Cooper, T., Woodward, S., and Hiller,

A. (2012). The sustainable clothing market: an evaluation of potential strategies for UK retailers.

International Journal of Retail & Distribution Management, 40(12), 935–955.

Wrzaszcz, W., and Prandecki, K., (2015). Economic efficiency of sustainable agriculture. *Problems of*

Agriculture Economics, (2_2015).

Zhang, T., and Kraisintu, K., (2011). The role of traceability in sustainable supply chain management

(Master Thesis). <http://publications.lib.chalmers.se/records/fulltext/146242.pdf>.

ANNEXURE A: COMMUNAL WOOL FARMERS SURVEY

Date: DD-MM-YY

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Questionnaire no:

Researcher: Zosuliwe Kala

Mobile number: 0760540784

1. General Information

Name of the interviewee	
Name of the farm	
Local municipality	
Telephone/ cell number	
Village if the same as the location	
District	

1.1 Gender of the farmer	Female
	Male

1.2 Age of the farmer

1.3	Single		Married		Divorced		Windowed	
Marital status								

1.4 Household size

1.5 Level of education of the farmer	Less Grade 7	1
	Matric	2
	Post Matric	3
	Other	4

2. How did you acquire the land

Bought (Title deed)	1
Leased	2
Inherited	3
Given by Government	4
Allocated by the Headman	5
Renting and /or share	6
Other	7

2.1 What is your total farm area	
2.2 Total number of sheep	

3. Knowledge- farming experience

3.1 Are you involved in any other farm activities, apart from wool	1	Yes
	2	No

3.2 How long have you been involved in the production of wool?
--

3.4 How much income to you get per season on average
--

4. Can you please indicate any type of production loss when practising wool production?

Post-harvest	
Theft	
Disaster	
Diseases	
Other	

5. Labour

5.1 What type of labour do you use	1 Hired	2 Family	3 Both
------------------------------------	---------	----------	--------

6. Infrastructure

6.1 Do you have access to the shearing shed?	Yes	No
--	-----	----

If yes please rate it according to its importance in your farming

1	2	3	4	5
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1- Not at all satisfied

2- Partly satisfied

3- Satisfied

4- More than satisfied

5- Very satisfied

And please explain the entire process of shearing on a normal shearing day that ensure proper record keeping.....

If no Where do you shear sheep and keep and keep your wool before it goes to the market.....

6.2 What do you use to shear your sheep?

1. Scissors	2. Shearing machine	3. Other
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7. Can you please indicate the variable inputs that you use for production in the farm? (E.g. Vaccination and dipping etc.)

Variable inputs	Estimated costs
Medication	
Vaccination	
Feed	

8. Marketing

8.1 Where do you sell your wool	1. Transport yourself to Formal market (Auction)	2. Broker	3. Other
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9. How much do you get per kg of wool

10. What type of tool do you use to identify your animals?.....

11. What methods do you use for grazing?.....

12 Where do you keep your animals at night?.....