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## **AN OVERVIEW OF WHEAT PRODUCTION AND MARKETING IN THE KUNENE AND ERONGO REGIONS**

### **ABSTRACT**

*With an average annual wheat consumption of 120,828 tons/annum in Namibia, over 94% of the equivalent of 111,804 tons/annum of wheat comes from imports (NAB, 2021). Thus, the Namibian Agronomic Board assessed wheat crop production and marketing activities in the Kunene and Erongo Regions by defining the production area and quantifying the current status quo of wheat crop production, storage, value addition, and marketing in those regions. The study identified wheat value chain actors and their respective functions. Quantitative research questionnaire survey method coupled with qualitative questionnaires were used to collect data from wheat producers and traders. A total of 40 respondents comprising of producers (39) and traders (1) participated in this study. The wheat study comprehensively covered five (5) wheat production areas namely: Fransfontein, Sesfontein, and Okombako of the Kunene Region and Otjimbingwe and Okombahe of the Erongo Region. Collected data were analysed using the descriptive statistical analysis method using Microsoft Excel and the value chain mapping model was applied to present the overall results. The study revealed that there is a prospect of wheat production in the Kunene and Erongo Regions. Although several challenges which include low production volumes, less area under wheat cultivation, and lack of improved varieties, lack of value addition and, poor market accessibility were recorded. Despite the high potential of wheat production in these areas, the lack of modern value-addition components promoted high importation of wheat-finished, value-added products into these regions. The study results further provide wheat production and marketing baseline information and untapped opportunities while enlightening potential investors and policymakers to possibly stimulate wheat production in Kunene and Erongo Regions for socio-economic development in striving to reduce national wheat importation. It is, therefore, recommendable for the Namibian Agronomic Board through the Ministry of Agriculture, Water and Land Reform to promote organised group farming and coordination among wheat producers, processors, traders and the provision of irrigation, wheat processing, storage, and marketing facilities is vital to the establishment of commercialized wheat production in the Kunene and Erongo Regions.*

**Keywords:** Food security, Wheat, Production, Marketing, Smallholder, Kunene, Erongo.

## 1. INTRODUCTION

Wheat (*Triticum aestivum*) is one of the oldest and one of the most important cereal crops, is among the leading cereal grain crops produced, consumed, and traded in the world together with maize, barley, pearl millet, and wheat incredibly supplying food to the world population. Wheat is a winter crop only produced under irrigation in Namibia, popularly eaten either as bread, pasta, etc., at both urban and rural setups. Wheat production enhances livelihood and food security at both national and household levels (Bushuk & Rasper, 1994). Thus, the Namibian Agronomic Board (NAB) undertook a fact-finding mission through an exploratory study in 2019 to explore the sustainability and efficient production of wheat crop farming in the Erongo and Kunene regions. The mission established that before independence indigenous communities who lived along the Swakop and Omaruru rivers as well as in the Kunene region had traditionally cultivated and relied on wheat as a staple food crop. After independence, these communities gradually shifted or dropped the cultivation of wheat. Whereby there has been an increase in maize cultivation over wheat. This might be attributed to various factors such as the availability of maize seeds on the local retail market; the low-level transfer of knowledge on wheat cultivation from elderly people to the young generation and the lack of wheat post-harvest processing equipment of which shift in cultivation from wheat to maize has not been bearing good results lately due to the persistence of drought during the past cropping seasons in those specific areas. Maize yields have been declining making maize cultivation unreliable for the past recent cropping seasons. This is due to the dry climate high temperatures and low summer rainfall received in these regions.

Although wheat cultivation practices are confined to small-scale in these areas, wheat performance continues to thrive well. This might be because wheat is cultivated during the winter season under irrigation using perennial spring water. Whereby, dryness and low rainfall do not have an impact on wheat production.

Therefore, the NAB in seeking to assist the producers in these two regions in reviving the cultivation of wheat production, conducted a study on wheat production and marketing in Kunene and Erongo Regions. The fact is that maize and wheat can be cultivated in different seasons and therefore, producers do not have to forgo maize for the cultivation of wheat. Thus, this study aimed to create baseline information on wheat producers, processors, and traders and the current status quo of wheat crop production, storage, value addition, and marketing in the Kunene and Erongo Regions of Namibia.

## 2. METHODOLOGY

The sample population size consisted of a total of 40 respondents comprising 39 producers and 1 trader who were interviewed from principal wheat-producing sites, namely; Okombahe, Fransfontein, Sesfontein, and Okombako. . The data was analysed using Microsoft Excel and Word, to formulate descriptive analysis.

## 3. RESULTS AND DISCUSSIONS

### 3.1. Demographic

The wheat production in the Kunene and Erongo Regions is largely operated by women and the elderly group. The results show that 56% of wheat producers are female. As per the present study results, the majority of wheat producers in Kunene and Erongo Regions are above 60 years of age which accounts for 36%, and 20% of producers are aged between 50 to 59 age group while youth under the age of 30 represent 8% only. Evidence reveals that there is a declining involvement of youth in agriculture, which might possess a negative implication on food security.

### 3.2. Wheat production and output in Kunene and Erongo Region

#### 3.2.1. Land under wheat cultivation in Kunene and Erongo Regions

Study findings reveal that total land size under crop cultivation differs from farmer to farmer and region to region. Most farmers on average devote land size of up to 2.8 ha per producer for crops. Otjimbingwe in Erongo Region recorded the largest average cropland of 5.7 ha per producer and Sesfontein in Kunene Region recorded the lowest average area of 1.1 ha per producer.

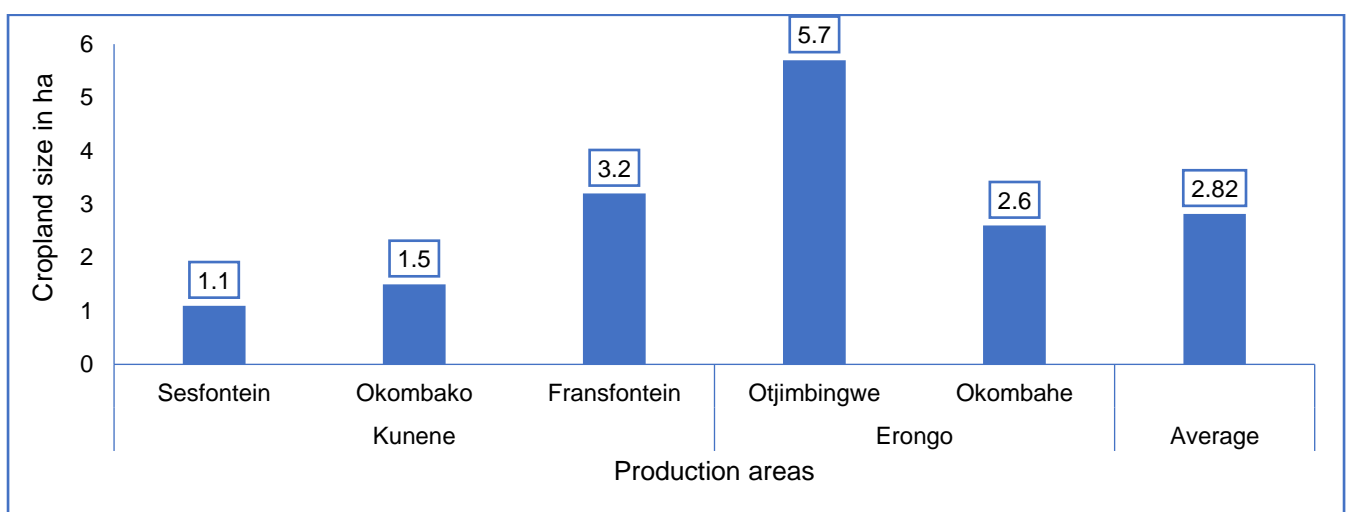


Figure 1: Total average cropland size (ha) per producer in each production area.

On overall average local producers in Kunene and Erongo Regions allocate 1.2 ha for wheat cultivation. Results depict that on average, producers in Erongo Region production areas;

Otjimbingwe and Okombahe allocate more area for wheat cultivation of 2.2 ha, and 1.5 ha per farmer respectively while in Kunene Region areas Sesfontein, Okombako, and Fransfontein allocate 0.9 ha, 0.6 ha, and 0.9 ha per producer for wheat cultivation respectively, Figure 2.

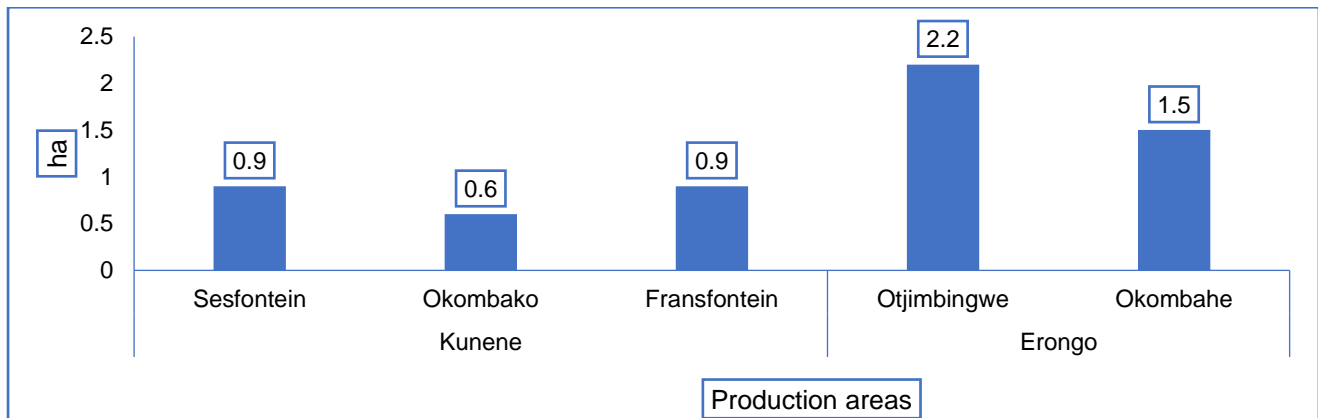


Figure 2: Average area size (ha) allocated for wheat cultivation by producer in each production area

According to Kimhi, (2006), market imperfection and un-accessibility contribute to the declining area under crop cultivation. This could be the same scenario with wheat cultivation in Kunene and Erongo Regions; the absence of a well-established wheat market that is accessible by local wheat producers might be negatively attributed to small land size allocation for wheat cultivation in Kunene and Erongo Regions. Therefore, comprehensive interventions and policies are needed to effectively revive wheat production and promote its consumption through market facilitation and other related support.

### 3.2.2. Seed production and supply system

Figure 3 shows that the majority of the farmers (over 64%) in Kunene and Erongo Regions use the traditional landraces seed retained from the previous harvest, and only a few wheat farmers (36%) source seeds from the Ministry of Agriculture, Water and Land Reform and Informal village market and very few local wheat producers who use improved commercial varieties such as SST 884 sourced from local retailers such as Agra and Kaap-Agri.

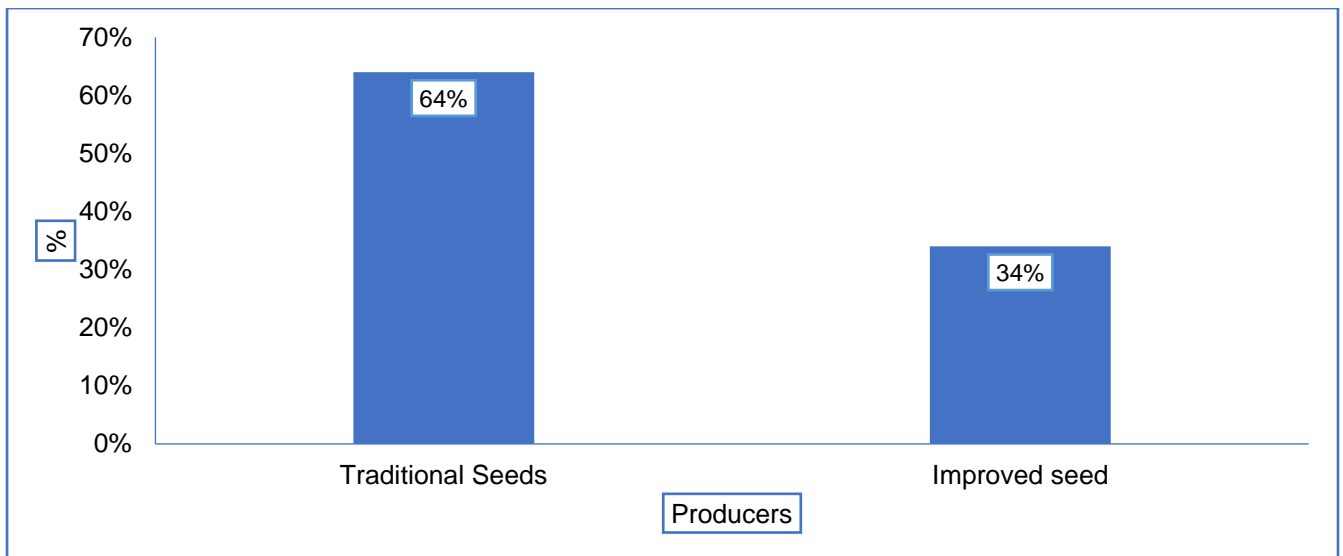


Figure 3: Farmers' proportion on utilization of certified seeds versus traditional seeds

Currently, there is no seed production and supply system in operation in Kunene and Erongo Regions as farmers mainly use their reserved traditional seeds for production, and there is no seed certification process. Hamukwala *et al*, (2010) urged that significant productivity enhancements are impeded by low access to improved technologies such as high-yielding seed varieties. Traditional local wheat varieties might have low yield productivity in comparison to improved varieties (Hamukwala *et al*, 2010).

Therefore, the planting of high-yielding improved and certified seed varieties might have a valuable contribution to wheat production in Kunene and Erongo Regions. Therefore, an effective and efficient seed production and supply system could enhance wheat production and productivity in the Kunene and Erongo Regions.

### 3.2.2.1. Seed source, varieties, and prices

Some wheat producers select and reserve seeds from the main harvest and sell them to other farmers during the planting season. This could be grains sold as seeds. The price of seeds in the Kunene and Erongo Regions varies from area to area ranging from N\$10 to N\$50 per kilogram, averaging N\$30 per kilogram. According to the respondents, producers within Sesfontein areas are the major wheat seed suppliers.

Local landraces (traditional local varieties) are the most commonly planted wheat varieties by local wheat producers at an average seeding rate of 15kg/ha. Local producers' seeding quantities differ from place of which some use 5-10kg/ha while others use more seed of up to 15-25kg/ha. Seeds are mainly acquired from informal vendors (especially in Sesfontein) or among farmers themselves as well as at local shops and from the Ministry of Agriculture, Water and Land Reform (MAWLR).

### 3.2.3. Wheat production in Erongo and Kunene Region

#### 3.2.3.1. Production practices

Wheat in the Kunene and Erongo Regions is cultivated during the winter season and is currently limited to household use only. Cultivated under irrigation using perennial spring/aquifer water. Flood irrigation is the most commonly practised irrigation type, some farmers use river-bed moisture for irrigation. Organic fertilizer is the main applied fertilizer type by all wheat producers in the Kunene and Erongo Regions.

#### 3.2.3.2. Cost of Production

Wheat production cost among farmers in these areas ranges from N\$1,400/ha to N\$8,000/ha, averaging at N\$4,373/ha (mainly costs of seeds, fertilizer, labour and irrigation water pumping). The Figure below shows the average production cost per ha at each production area. Figure 4 shows that Sesfontein reported the highest production cost of N\$5380/ha followed by Okombako with N\$5,103/ha while Okombahe recorded the lowest production cost of N\$3,750. The cost estimates established in this study are by respondents, of which the majority of producers attested that wheat production is highly expensive.

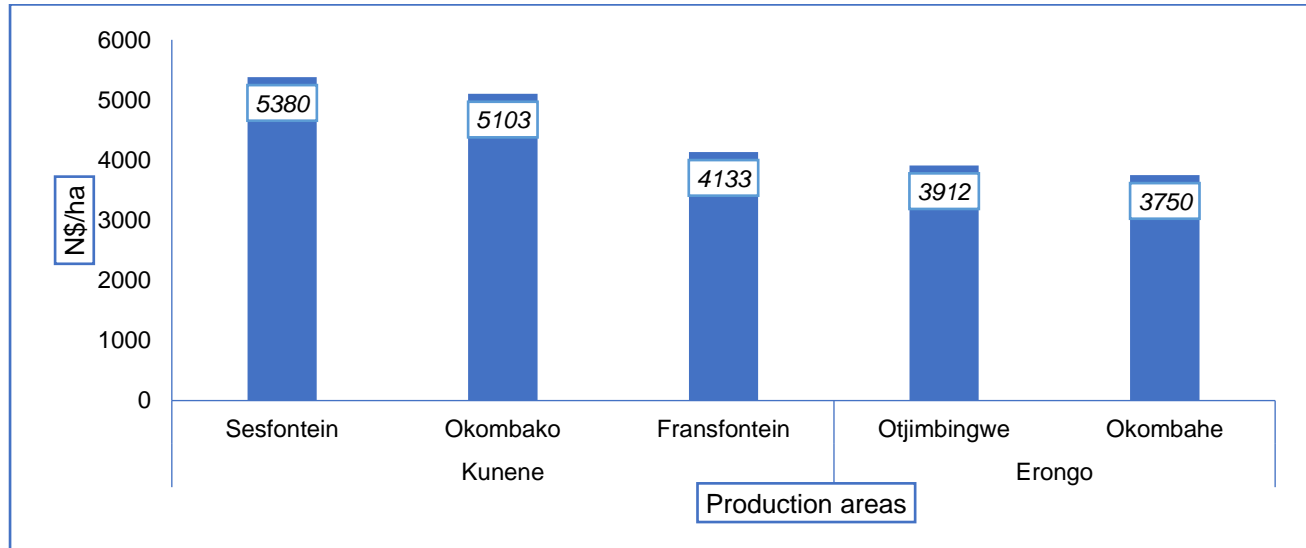


Figure 4: Wheat average production cost per ha as per production area

#### 3.2.3.3. Productivity

As per results illustrated in Figure 5, wheat productivity in these production areas is very low, estimated approximately at 342 kilograms per ha overall average. This could be attributed to the reliance on landraces (traditional local varieties), low-yielding native varieties and lack of production technical training. Figure 5 shows that Fransfontein has the highest yield productivity of 600kg/ha followed by Okombahe with 350kg/ha, while Okombako recorded the lowest yield of 242kg/ha.

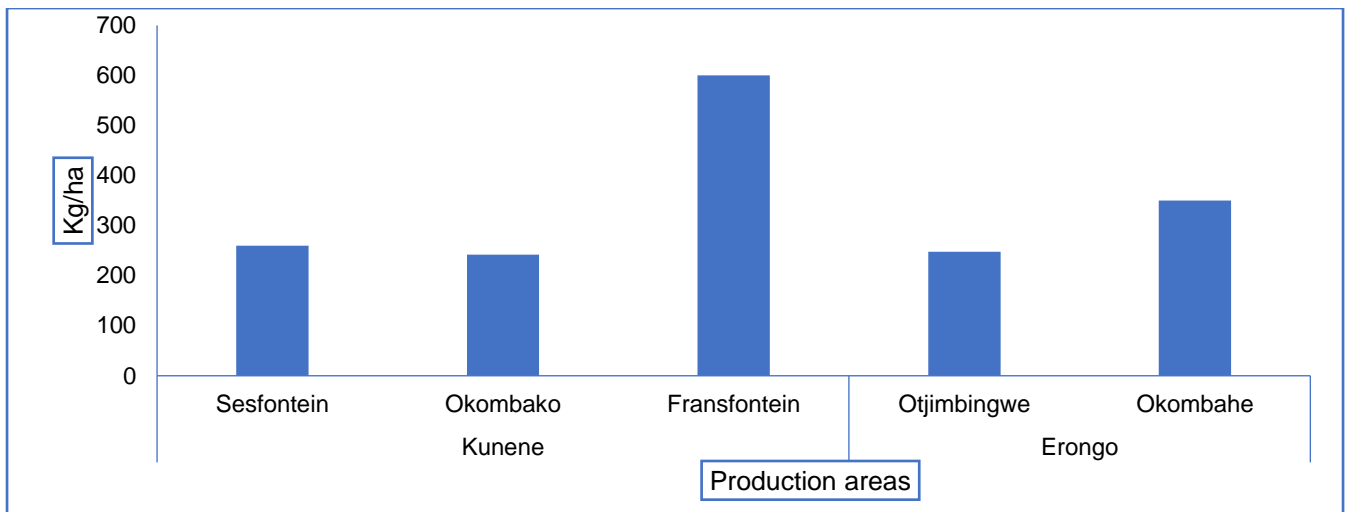


Figure 5: Wheat average production yield per ha (kg) as per production area

#### 3.2.3.4. Production output

On overall average farmers obtain a total harvest of 451 kg per farmer per season. Figure 6 below shows the total average wheat production per season per producer in each production area. Otjimbingwe recorded the highest volume of 752 kg per season, followed by Fransfontein with 527 kg per season per producer while Okombako recorded the lowest production of 242 kg per season per producer.

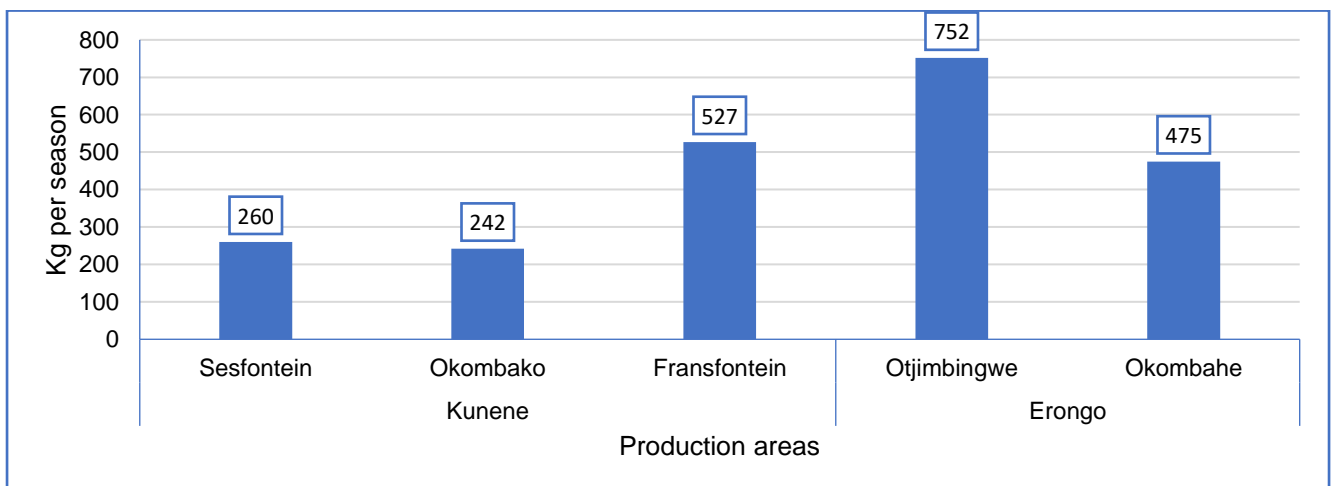


Figure 6: Total average wheat production per producer per season (kg) as per production area

#### 3.2.4. Storage

The present study reveals that all wheat producers do not have a packhouse or cold storage system. Instead, on-farm traditional storage methods are commonly used for storing wheat grains in the Kunene and Erongo Regions. According to Nyambo, (1993), Grains stored in improved granaries

suffer less insect attack and less loss than in traditional granaries. Therefore, it is very critical to improve storage facilities in these wheat-producing areas.

### 3.2.5. Transport to the market

The results revealed that wheat producers in the Kunene and Erongo Regions do not transport their products to the market but sell them at the farm or use them for household consumption.

## 3.3. Regulatory compliance and protection

### 3.3.1. Certified Seeds and Food Safety Accreditation

Wheat producers in the Kunene and Erongo Regions mainly rely on their own retained seeds from the previous harvest for wheat production. Thus, more than 90% of the producer's population does not use certified seeds from accredited seed suppliers only less than 10% of producers sometimes have access to accredited and certified seeds mainly through the Ministry of Agriculture, Water and Land Reform and informal local shops (Figure 7). Farmers don't have knowledge of the Seed and Seed Varieties Act 23 of 2018. There is no food safety accreditation system in place.

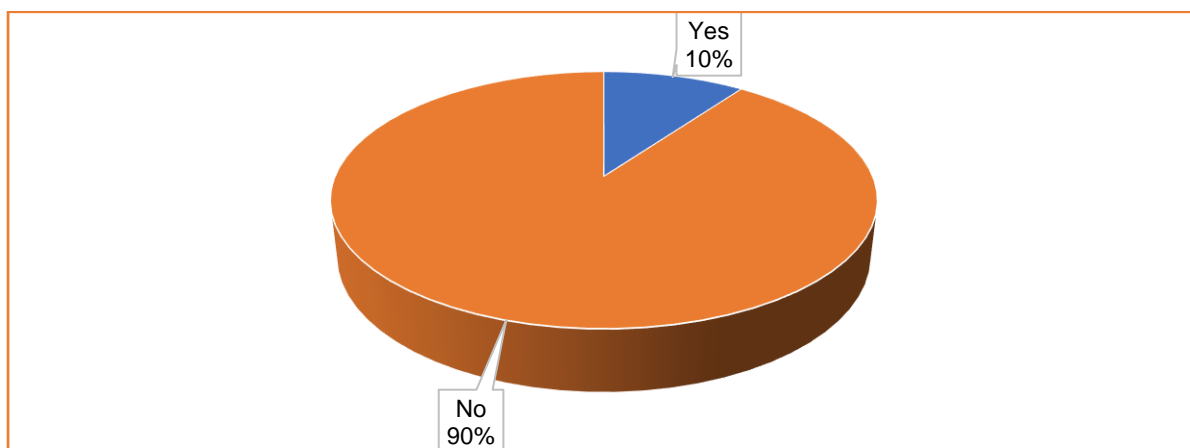


Figure 7: Proportion (%) of producers using certified seeds from accredited suppliers

### 3.3.2. Government protection

Farmers plead to the government for the establishment of a formal market, training, and protection in related compliance, safety certification systems, and market price regulation.

## 3.4. Marketing and price information

### 3.4.1. Market share

The majority of wheat producers are willing and prepared to produce and market wheat and wheat products in bulk, however, the lack of a formal market deprives these farmers of partaking in this formal mainstream economy. Consequently, producers opt to produce and sell at informal markets and use it for household purposes only. Sometimes smallholder farmers store and sell wheat back to farmers during peak planting season at high prices as seeds. Due to a lack of market producers might



have opted for household production. Over 46% of wheat producers in the Kunene and Erongo Regions do not have a market thus, they don't sell but produce for their own consumption. While 54% of wheat producers in these regions sell their products at home, of which the buyer (local communities) bears the cost (Figure 8).

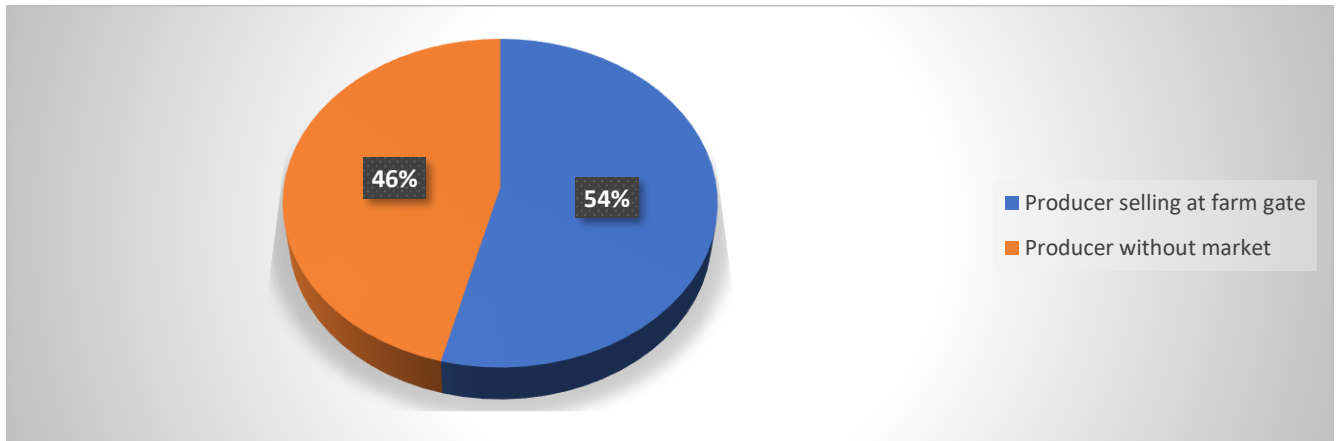


Figure 8: Market share (%) distribution

### 3.4.2. Value addition

Currently, there is no value addition taking place apart from the traditional milling of wheat grains by grinding with stones into flour mainly for own consumption. There is a lack of modern milling equipment available in the production sites thus the communities use the traditional milling method of grinding the grains against stones (Figure 9).



Figure 9: Traditionally milled wheat flour using grinding stones (Source: Author's compilation)

### 3.4.3. Supply contract

Currently, wheat producers in these areas don't have any existing supply agreement contracts. However, all showed a high willingness to enter into supply contract agreements if available to them.

#### **3.4.4. Storage**

The present study reveals that all the sampled sorghum producers do not have a packhouse or cold storage system. Instead, on-farm traditional storage methods are commonly used for storing sorghum grains in Namibia.

#### **3.4.5. Traders/processors**

Due to the missing market, farmers are currently producing for household consumption and marketing through the informal market at a very small quantity of no significant volume. On average 538 kg of wheat grains per producer is sold at the local community level per season at a price range of N\$10/kg to N\$50/kg averaging N\$15/kg.

#### **3.4.6. Consumption**

Wheat is commonly sold as grain and seeds in these areas. However, local wheat farmers currently process wheat grain into flour for home consumption only, using traditional processing methods such as gridding stones for milling. Wheat is commonly eaten as boiled grains, roasted, and processed into bread. Despite the lack of a market high demand for wheat was displayed among the community members, however, consumption tonnage is not quantified due to the informal market set-up.

### **3.5. Financing information, training, and industry affiliation**

#### **3.5.1. Financing Information**

The study revealed that all wheat producers finance their wheat production activities with their own money from savings without a loan or financial assistance from any financial institutions.

#### **3.5.2. Industry affiliation**

As illustrated in Figure 10, overall only 32% of total wheat producers are affiliated or registered with farmers' associations or organizations such as Otjimbingwe Farmers Association (5%), Okombahe Farmers Association (5%), Otjikuyu Farmers Association (10%) and Fransfontein Community Garden (2%) while remaining 68% wheat farmers population are not affiliated to any association. Thus, there is a need for organized group farming and awareness creation for the benefit of farmers' associations.

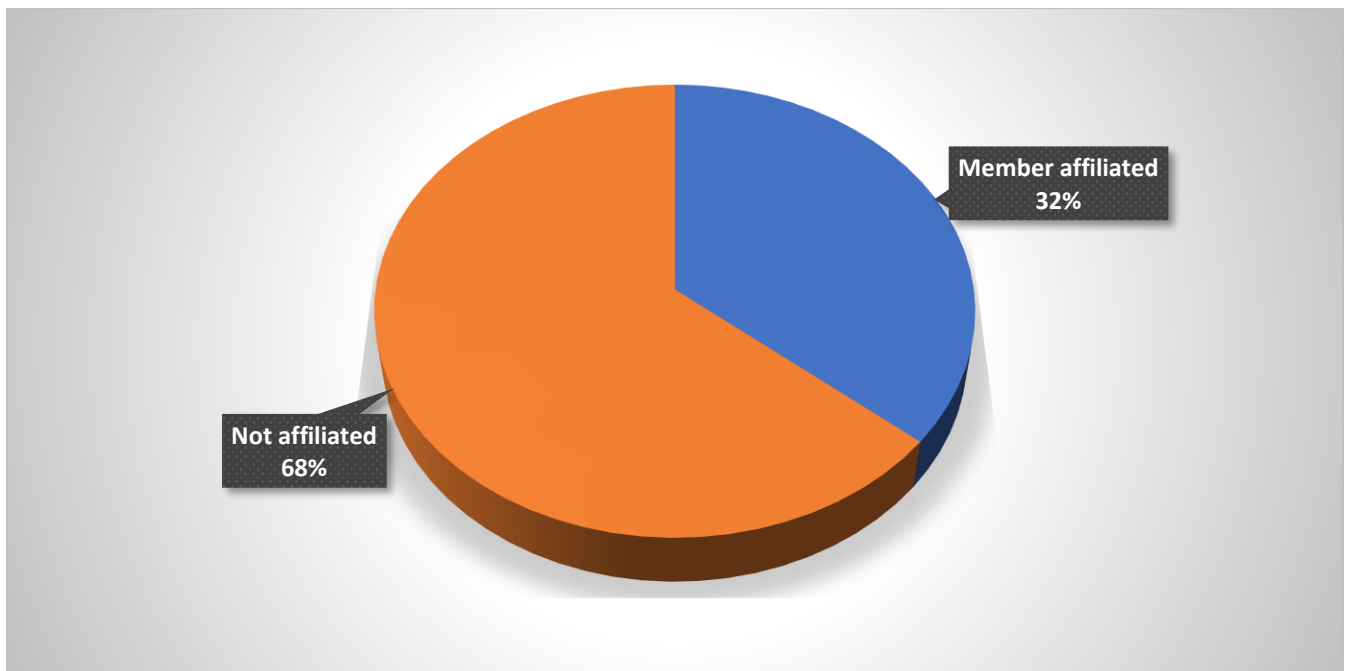


Figure 10: Producers' industry affiliation

### 3.5.3. Training in wheat cultivation

Furthermore, the majority of wheat producers over 92% have not received any training on wheat cultivation techniques or related skills while only 8% indicated to have received training on wheat production through the Ministry of Agriculture, Water and Land Reform (Figure 11).

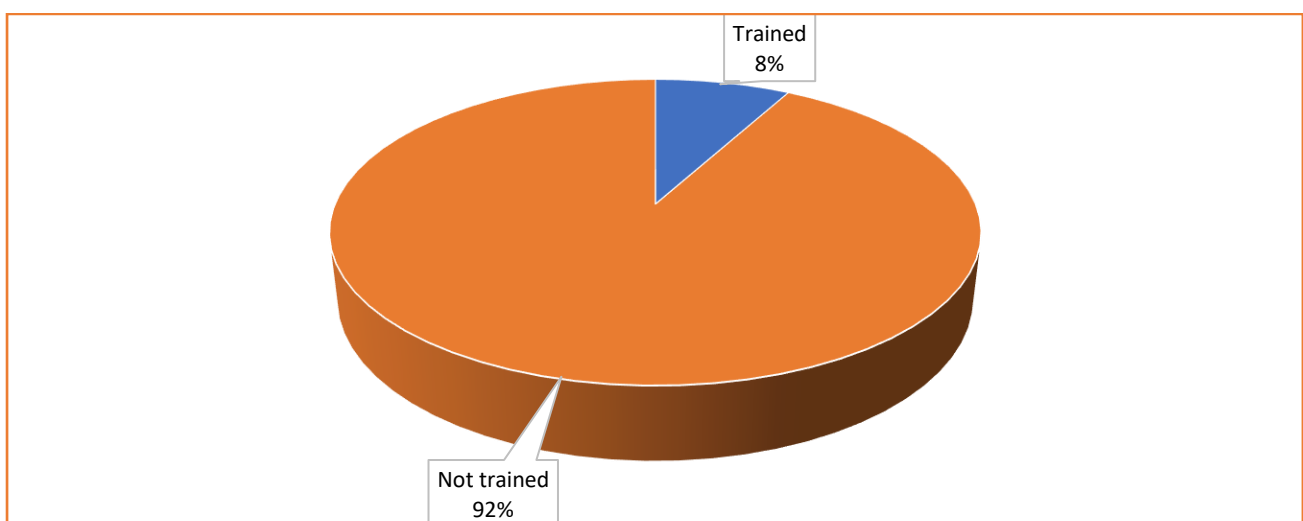


Figure 11: Proportion (%) of local farmers trained in wheat cultivation in the Kunene and Erongo Regions

### 3.6. Wheat constraints and opportunities in Kunene and Erongo Region

#### 3.6.1. Opportunities

The study revealed that input suppliers/seed growers, producers, and traders encounter several challenges as alluded to in Table 2.

*Table 1: Opportunities and Challenges encountered by sorghum input suppliers, producers, and traders.*

Value chain actor	Challenges	Opportunities
Producers	<p>Wheat production and marketing have various constraints that hinder the full benefit of wheat value chain existence and operation in the Kunene and Erongo Regions. The following among others are the major challenges associated with wheat production and marketing in the Kunene and Erongo Regions:</p> <ul style="list-style-type: none"> <li>• Lack of formal Market</li> <li>• Draught recurrence resulted in low water flow at the river</li> <li>• Price fluctuation and volatility</li> <li>• Poor accessibility to improved seed varieties</li> <li>• Lack of training and technology cultivation techniques in wheat farming</li> <li>• Lack of value addition, milling or processing and storage facilities</li> <li>• Lack of support services such as water tanks, fencing materials</li> </ul>	<p>Despite challenges associated with wheat production in Kunene and Erongo Regions, there are various opportunities such as income generation, marketable highly demanded wheat products more importantly food security at the household level, and animal feed. The following among others are the major opportunities associated with wheat production and marketing in the Kunene and Erongo Regions:</p> <ul style="list-style-type: none"> <li>✓ Many ends use and ensured food security at household and national level</li> <li>✓ An opportunity for income generation, livelihood improvement, and Women Empowerment</li> <li>✓ The promotion of wheat production will ensure reduced reliance and dependence on maize as the main food crop in these regions.</li> <li>✓ and Women Empowerment.</li> <li>✓ Promotion of sorghum production will ensure reduced reliance and dependence on pearl millet and maize as these two crops do not perform optimally during below-average rainfall or drought seasons.</li> </ul>
Traders	<ul style="list-style-type: none"> <li>• There are no known traders other than farmers who produce and do trading.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Wheat commodities possess a high economic return on sales as the product is in high demand.</li> </ul>

		<ul style="list-style-type: none"> <li>✓ Good business opportunities for local farmers, food security, income generation, and livelihood improvement.</li> <li>✓ Wheat is demanded throughout the year as it is considered a pride staple food for these communities.</li> </ul>
Input suppliers	<ul style="list-style-type: none"> <li>• With no established input supply system, farmer reserves their own seeds and sell them among themselves.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Revenue generation</li> </ul>

#### 4. CONCLUSIONS

The commercialisation prospect of wheat crops in Namibia is feasible. However, wheat production predominated by smallholder farming set-up and the infrastructural inadequacies that characterise smallholder farming have reduced wheat market expansion and value extraction from the wheat value chain at each nodal link in Kunene and Erongo Regions. There is a noticeable importation of wheat products, especially wheat meal flour and other processed wheat products from other regions which indicates high demand. The wheat production in Kunene and Erongo Regions lacks technological levels and standardized processing machines at the farm level which could be of significant benefit to the wheat sector in Kunene and Erongo Regions.

Therefore, is recommended for possible intervention measures to directly or indirectly improve and upscale wheat production, processing, and creation of a formal marketing stream in the Kunene and Erongo Regions wheat-producing areas. Currently, local farmers mainly use irrigation production systems using natural perennial surface aquifers or springs therefore, the upscaling of wheat production in Kunene and Erongo Region requires resources and support such as improved seed varieties, irrigation facilities and pressure pumps. Furthermore, the expansion of wheat production requires the clearing of new land currently underutilised within the production areas.

#### 5. RECOMMENDATIONS ON IMPLICATIONS FOR POLICY

- ✓ Identification and consequently registration of all wheat producers in Kunene and Erongo Regions should be conducted to establish accurate baseline information for necessary socio-economic development.
- ✓ Effective and adequate infrastructures for wheat processing, storage, and marketing facilities within smallholder wheat production areas are strongly recommended to increase value extraction from wheat products.

- ✓ Promotion and awareness creation of wheat production for food security at both household level consumption and commercialization in these areas shall ensure consistent supply and a sustainable market chain.
- ✓ Promotion of organised group and contract farming and coordination among wheat producers, processors, and traders is of significant benefit to the establishment of commercialized wheat production in the Kunene and Erongo Regions.
- ✓ Furthermore, conducting wheat field trials to investigate the performance of different varieties in such a unique environment, shall assist in determining the quality of the grain produced and the yields improvement.

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