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POLICY BRIEF

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DEVELOPING POLICY TO INFLUENCE THE ADOPTION OF CONSERVATION AGRICULTURE IN NORTHERN NAMIBIA

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KEY MESSAGES

- Strengthen extension and technical support: Government should establish and strengthen Conservation Agriculture (CA) specialists within Agricultural Development Centres and provide farmers with practical training, demonstrations, and affordable equipment to increase adoption.
- Improve access to equipment and inputs: Support local manufacturing, private-sector investment, and commercialization of CA equipment and inputs to reduce dependence on costly and limited external supplies.
- Integrate CA into environmental and climate policies: Recognize CA as a climate-smart agricultural approach within national environmental, climate-change, and agricultural strategies to promote soil conservation, reduce erosion, and strengthen ecosystem resilience.
- Improve policy coordination: Establish stronger coordination among relevant ministries, research institutions, private-sector actors, and farmer organizations to integrate CA across agricultural, climate, environmental, and national development programmes and ensure coherent implementation.



EXECUTIVE SUMMARY

Agriculture plays a significant role in the economic development of Namibia, and it is the main source of livelihoods for many people, especially those living in rural areas. The effort of producing sufficient food to feed the expanding population is encountering forces such as poor soil fertility, low rainfall, and sporadic rainfall patterns. Conservation agriculture is proposed to be an alternative farming technique to replace the traditional conventional tillage system, which is believed to contribute to poor soil structure. However, to accelerate the adoption rate of conservation agriculture, attractive policies need to be developed to encourage more farmers to practice conservation agriculture. Developing policies to accelerate the adoption rate of conservation agriculture, research to demonstrate the capability of conservation agriculture, and innovation to design hand tools to ease the work will be at the core of ensuring the success of conservation agriculture in the northern regions of Namibia

Introduction



Agriculture plays a significant role with regard to economic development, especially in the rural economy, with mostly subsistence farmers who rely on their land for food and income (Lai, 2012). For instance, it is estimated that about 67 percent of inhabitants in Namibia live in rural areas, the majority of whom depend on smallholder crop production as a means of livelihood (MAWF, 2015). The most common agricultural practice in northern Namibia is small-scale farming, mainly in the communal areas where farmers practice mixed farming consisting of livestock and crop production (Kerdiles, 2015). Despite the efforts to produce enough food, it is still an uphill task towards self-sufficiency and food security in most rural communities of Namibia.

This can be attributed to several factors; Firstly, the soil in the northern communal areas is low in nutrients and has a poor water holding capacity, except in the north-east region of Zambezi (Krebs, 2014). There are irregular rainfall patterns, which normally occur between October and March. Crop production is often poor or inadequate because of insufficient rainfall that often starts either early or late. The consequences of climate change exacerbate these issues by increasing weather pattern variability, causing crop failures, and lowering yields. market swings brought on by supply chain inefficiencies and changes in the market (Hassaan, 2024). As a tradition, subsistence crop farmers in these communities mostly practice conventional tillage (CT) using either animal-drawn mouldboard ploughs or tractor-drawn disc harrows that pulverize the soil, thus affecting soil porosities and soil moisture retention capacity (Krebs, 2014). An alternative method to this traditional way of farming is conservation agriculture (CA).

PROBLEM STATEMENT

The area where rain-fed pearl millet and maize production is practiced in northern Namibia receives an average of 350-400 mm of rainfall per annum. With this average rainfall, pearl millet can yield more than 400 kg/ha under conventional tillage. With the introduction of sustainable agricultural technologies such as conservation agriculture, yields have been observed to improve pearl millet production to about 2,500 - 3,000kg/ha in Omusati and Oshana, located in north-central Namibia (Schlenk-er, 2010). The soil in the northern communal areas is low in nutrients and has a poor water holding capacity, except in the north-east region of Zambezi (Krebs, 2014). There are irregular rainfall patterns, which normally occur between October and March. Crop production is often poor or inadequate because of insufficient rainfall that often starts either early or late. Hence, conservation agriculture provides a protective buffer to crop production, particularly during drought conditions (Palm, 2014). Based on the identified good features of the CA system, it seems worthwhile shifting from the existing traditional farming practices to CA, expecting that this will lead to improved yields and the conservation of soil moisture and nutrients (Gebru, 2010). A review of the agricultural sector indicated that there is a perpetual deficit in staple food and most African states including Namibia are net importers of staple food (Mushendami, 2008).

PRIORITY POLICY RECOMMENDATIONS

In Namibia, about 60% of the population are subsistence farmers who depend largely on crop production, where pearl millet and maize are the major crops. Agriculture contributes 5-6% towards the GDP of the country (Shifiona, 2016). The total population of Namibia has been projected to increase from the present 2.2 million to 3 million by 2031, with the majority situated in the northern regions (MAWF, 2015). The projected population has been bypassed already because 2023 Population and Housing Census revealed that the population was at 3,022,401 people. Conservation Agriculture needs policy support for several important reasons as presented in Table 1:

Table 1: Priority recommendations

Priority	Challenge	Policy Intervention	Key Action	Expected Outcome
Adoption & Scaling	High initial costs, limited knowledge and equipment	Incentives, training and extension	CA specialists at Agricultural Development Centres; affordable equipment	Increased farmer adoption
Financing	High short-term costs vs. delayed benefits	Subsidies, credit and cost-sharing	Targeted CA subsidy programme	Reduced financial barriers
Research	Limited Namibia-specific evidence	Government-funded research	Establish CA research station/centre	Locally adapted CA technologies
Equipment & Inputs	Limited local availability	Support local manufacturing	Develop and commercialise CA equipment	Improved access to CA technologies
Environmental Sustainability	Soil degradation and erosion	Integrate CA into environmental policy	Promote CA as climate-smart agriculture	Improved soil and ecosystem health
Land Tenure	Insecure tenure discourages investment	Strengthen tenure security	Support communal farmers' long-term land-use investments	Greater investment in sustainable farming
Policy Coordination	Fragmentation across sectors	Cross-sectoral coordination	Integrate CA into national development and climate strategies	Coherent national CA implementation

Infrastructure and Input Markets

Barrier: Farmers may lack access to CA-specific equipment (like no-till planters), mulch, or cover crop seeds. At the moment, we do not have tynes and animal-drawn seeders in our local market, making it difficult for the small-scale farmers to buy this equipment to use in their crop fields.

Policy Role: Policies can encourage private sector participation, improve rural infrastructure, and ensure reliable input supply chains. Policymakers can emphasize the policies that encourage the local production of these hand tools required to implement conservation agriculture. Local institutions can design the prototypes and pass on the copyright to local agricultural engineers to multiply the production of these tools, and local agri-entrepreneurs can distribute and market this product.



Figure 1: The type of implement we need in our market

CALL-TO-ACTION

- CA practices can significantly improve soil health, increase biodiversity, and reduce greenhouse gas emissions.
- CA needs policy support to overcome adoption barriers, promote sustainability, align incentives, and scale practices that contribute to national food security, climate resilience, and land restoration.
- Efforts to promote CA should include comprehensive education and outreach programs targeting all stakeholders at all levels.
- Governments can foster a climate that promotes wider adoption by incorporating CA techniques into agricultural laws.
- Building trusting connections with national, international, and local politicians is crucial. Developing strategic policies will foster the success possibilities of conservation agriculture in Namibia and beyond.

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