

Research Application Summary

Challenges and opportunities faced in Sesame production in Zambezi Valley, Zimbabwe

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Abstract

The Kaitano area of the Zambezi Valley is one of the few main producers of sesame (*Sesamum indicum*) in Zimbabwe. The soils are fertile, alluvial in nature, and the temperatures are usually high, making them suitable for sesame production. However, production of sesame has mainly been localised, and farmers cite several challenges. This study examined opportunities and challenges faced by smallholder farmers in sesame production in the Zambezi Valley. The study used focus group discussion, field observations and literature reviews. The main challenges that the farmers face included; lack of knowledge on agronomic practices, planting populations, and fertility management; lack of access to improved varieties and certified seed; lack of production support, including input schemes; lack of proper markets for sesame in Zimbabwe, and as result most farmers sell their crop across the border in neighbouring Mozambique; low prices; and high susceptibility to pests such as the white cotton mealybug. The opportunities lies in the availability of large tracks of suitable fertile land, ability of sesame to grow under very dry conditions, suitable temperatures, the high nutritional content of sesame which can help reduce nutritional problems, potential for value addition and the availability of a potential market for sesame seed. It is recommended that regular training of farmers be undertaken including availing quality seed and developing improved agronomic practices through community action research to improve sesame production. The provision of market linkages, training in value addition and processing would improve nutrition and livelihoods of the communities.

Key words: Agronomic practices, community action research, market linkages, sesame production, value addition, Zimbabwe

Résumé

La région de Kaitano dans la vallée du Zambèze est l'un des rares producteurs principaux de sésame (*Sesamum indicum*) au Zimbabwe. Les sols sont fertiles, de nature alluviale, et les températures sont généralement élevées, ce qui les rend propices à la production de sésame. Cependant, la production de sésame a été principalement localisée, et les agriculteurs font face à plusieurs défis. Cette étude a examiné les opportunités et les défis rencontrés par les petits exploitants agricoles dans la production de sésame dans la vallée du Zambèze. L'étude s'est appuyée sur des discussions de groupe, des observations sur le terrain et des revues de la littérature. Les principaux défis auxquels les agriculteurs sont confrontés comprennent le manque de connaissances sur les pratiques agronomiques, les densités de plantation et la gestion de la fertilité, le manque d'accès aux variétés améliorées et aux semences certifiées, le manque de soutien à la production (y compris les programmes de fourniture d'intrants), le manque de marchés appropriés pour le sésame au Zimbabwe (en conséquence, la plupart des agriculteurs vendent leur récolte de l'autre côté de la frontière, au Mozambique voisin), les bas prix et la grande sensibilité aux parasites tels que la cochenille blanche du coton. Les opportunités résident

dans la disponibilité de grandes étendues de terres fertiles appropriées, la capacité du sésame à pousser dans des conditions très sèches, des températures appropriées, le contenu nutritionnel élevé du sésame pouvant aider à réduire les problèmes nutritionnels, le potentiel de valeur ajoutée et la disponibilité d'un marché potentiel pour les graines de sésame. Il est recommandé de former régulièrement les agriculteurs, notamment en développant des pratiques agronomiques améliorées par le biais de la recherche-action communautaire et en leur fournissant des semences de qualité afin d'améliorer la production de sésame. L'établissement de liens avec le marché, la formation à la valorisation et à la transformation amélioreraient la nutrition et les moyens de subsistance des communautés.

Mots clés : Pratiques agronomiques, recherche-action communautaire, liens avec le marché, production de sésame, valeur ajoutée, Zimbabwe.

Introduction

Semi-arid regions, such as Zambezi Valley in Zimbabwe are often too dry for successful dryland cereal crop production. Small grains and legumes are an option. However, over the years the thrust towards increasing cereals and small grain has left behind the important climate adapted crops such as sesame. Sesame (*Sesamum indicum*) is a commonly grown oil seed crop in the Zambezi Valley with a huge potential to improve the livelihood of the communities. Oil seed crops like sesame are sometimes preferred to food legumes mainly because of their multiple uses. In Africa, production of sesame stands at 40% of the world's production with countries like Nigeria, Ethiopia and Sudan being ranked highest producers (Author and Abimiku, 2012).

Sesame is mainly produced in the savannas largely by smallholder farmers on relatively poor soils and this accounts for the low yields averaging 300kg/ha (Author and Abimiku, 2012). In Zimbabwe, the crop is one of the marginalised crops and is grown in natural regions IV and V, mostly at household level for consumption and, to a lesser extent, as a cash crop (Munyua *et al.*, 2013). Yields average 300 to 500kg/ha depending on the management of the crop. However, very little research attention has been placed on sesame. This is because of multiple challenges faced in sesame production. The lower productivity of sesame makes it unattractive to communal farmers, yet sesame is adapted to the local climatic conditions and is rich in macro and micronutrients.

As part of efforts to improve sesame production in the study area, this study was undertaken to explore the opportunities and challenges to sesame production in Kaitano in Zambezi Valley, Zimbabwe. It was hypothesised that though opportunities exist for increased sesame production, currently they are out-weighted by challenges.

Methodology

Data were obtained through Focus Group Discussions that were carried out during training of farmers on water harvesting and post-harvest management. The focus groups consisted of mixed sex groups with less than 10 participants. During the discussions challenges and opportunities for strengthening sesame value chain was gathered. Data were also collected during field visits and field tours where farmers discussed the challenges they were facing on the ground. The study also used a systematic review of recent literature focusing on sesame production. Published journals and conference proceedings were used to provide information covered in this review paper.

Results and Discussion

Several challenges were highlighted as major challenges for increasing sesame production in the Zambezi Valley. The challenges (Table 1) included the lack of technical know how on agronomic practices, planting populations, and low soil fertility for sesame. While there are manuals on growing other crops such as soybean and maize, there is none for sesame. There was also lack of access to improved varieties and certified seed and as a result farmers use mostly retained seed. There is also lack of production support, including input schemes for sesame unlike for other mainstream crops such as cereals which were being funded by the Government. The sesame market systems are also poorly developed in Zimbabwe, characterised by low prices in the country and as result, most farmers sold their crop across the border in neighbouring Mozambique. There were no equipment nor research handling and processing sesame; sesame processing were done manually. There was no research on pest and diseases in sesame, yet sesame was attacked by the white cotton mealybug and nematodes. There was also lack of capacity building on value addition.

Thus, sesame producers were faced with an array of problems and this has resulted in low production of the crop. However, because of the high returns and high value prices compared to other crops in neighbouring Mozambique, some farmers still grew it and sold it to markets in Mozambique.

Table 1. Challenges faced by farmers in sesame production

Challenge	Possible ways of mitigating the challenge	Stakeholder
Lack of technical know on agronomic practices, planting populations, and fertility management for sesame	<ul style="list-style-type: none"> Increased training Increasing communication Training with extension workers Increased interaction with universities 	Extension Universities
Lack of access to improved varieties and certified seed	<ul style="list-style-type: none"> Research on new varieties Breeding new varieties Availing new varieties on the market 	Research institutions Seed houses Agro-dealers
Lack of production support, including input schemes for sesame	<ul style="list-style-type: none"> Increase production support Avail subsidies and subsidised inputs for sesame producers 	Government Researchers Agro-dealers
Lack of a proper market for sesame	<ul style="list-style-type: none"> Establish proper markets for sesame 	Invest in markets
Low prices	<ul style="list-style-type: none"> Ensure eradication of middle men, by ensuring Increasing value addition, and processing 	Government Industry
Difficulties in handling	<ul style="list-style-type: none"> Research on processing machinery Training on handling and processing 	Research Institution Universities Innovators
Very high susceptibility of diseases such as the white cotton mealybug	<ul style="list-style-type: none"> Research on diseases and pest Trial on new chemicals Development of pest and diseases tolerant varieties. 	Research Institution Universities Agro-dealers Seed houses
Little research on sesame	<ul style="list-style-type: none"> Avail fund for research on sesame Establish a sesame research centre 	Research Institution Universities Agro-dealers Seed houses

The study however revealed opportunities to increase sesame production in Zambezi Valley (Table 2). Sesame thrives in extremely dry environments and places where many other crops fail, thus making it an ideal crop to cultivate in the face of climate change. In addition the value addition/fortification of native cereals and sesame seed into other products can improve health and nutrition outcomes. The potential impacts of growing and processing sesame in the study area appeared big, as this would improve the overall nutrition and health status of the region at a low cost. The health benefits of sesame seeds are due to its high nutritional content, including vitamins, natural oils, and minerals, such as calcium, iron, magnesium, phosphorous, manganese, copper, zinc; and organic compounds such as thiamine, vitamin B6, folate, protein, fibre and tryptophan.

The health benefits include, but are not limited to prevention of diabetes, lowering of blood pressure, building of strong bones, protection against radiation, increased heart health, improved digestion and improved blood circulation. Regardless of these benefits, the contribution of sesame seed to human health and nutrition has been overlooked in Zimbabwe and in the SADC region in general. Yet sesame products provide cheap and locally available sources of balanced diets to fight malnutrition and improve health and nutritional outcomes among communities.

Table 2. Opportunities for increasing sesame production in Zambezi Valley

Challenge	Possible ways of optimising on the Opportunity	Stakeholder/s
Availability of large tracks of suitable fertile land	Increase acreage and production to make the area an major sesame producer	Farmers, Government, Extension, Researchers
Ability of sesame to grow under very dry conditions,	A climate adapted crop, which can promoted in semi-arid regions	Farmers, Government, Extension, Researchers
Willingness to learn by farmers,	Training and capacity building of farmers and extension staff in sesame production	Farmers, Government, Extension, Universities
High nutritional content of sesame	Potential to reduce nutritional problems in smallholder communities	Farmers, Government, Extension, Universities
Potential for value addition	Development of value added products	Universities, Farmers and extension
Availability of a large potential market for the sesame seed.	Exploit the market by increasing production, Linking farmers to the markets	Government, Extension, Universities

Conclusion

There is a great potential to increase sesame production in Zambezi Valley. However, there is an array of challenges which need to be addressed in order to increase productivity and strengthen sesame value chain in the study area. There is need for research to address the current challenges and there is also need for increased investment and capital injection into sesame production. Sesame has the potential to create employment.

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