

**SUMMARY AND POLICY RECOMMENDATIONS FROM
NSTF DISCUSSION FORUM ON PULSES AND FOOD SECURITY
2–3 JUNE 2016**

IYP 2016

The aim of the International Year of Pulses 2016 is to heighten public awareness of the nutritional benefits of pulses as part of food security, as well as sustainable food production.

Food security in South Africa

Hunger is rife in South Africa, with currently 26.5% of its children suffering from malnutrition, and food access remaining a problem to 14.1 million South Africans. The economy is growing at less than 0.5% per annum, and South Africa is importing significantly more agricultural produce than it did previously. Much of the high-quality agricultural land in South Africa has been lost to mining, game farming and property development. Poor seed/input supply systems, poor mechanisation support systems, low levels of knowledge, low soil fertility and high production risks are hampering farmers in making significant contributions to the future of the country's food security. People have become less interested in agriculture, and migration to urban areas continues.

South Africa contributes only 0.5% of international pulse production. The South African climate is conducive for growing pulses; pulses are water-savvy crops and they provide nutrients to the soil. These factors contribute to the recommendation that the country should be producing more pulses. The country could gain a competitive edge by producing its own pulses not only for local consumption but for export markets as well.

Trials conducted in Limpopo, Mpumalanga and the Free State revealed that mono-cropping had resulted in soil nutrient depletion and poor crop performance and that this could have been alleviated if the nitrogen content of the soil had been fixed. These areas have been subject to repetitive maize production that has resulted in the neglect of legume crops. This indicated the need for the revitalisation of legume production.

The alleviation of poverty in Africa needs its people to be properly fed and to generate products that yield an income. With modern technology for improving plant and rhizobial germplasms, better exploitation of indigenous legumes for both of these purposes is achievable.

Benefits of pulses

Pulses are an affordable and highly nutrient-rich food that help fight malnutrition in both developed and developing countries. They contain exceptionally high protein and complex carbohydrates and fibre, and assist in fighting diseases such as diabetes Type II, cardiovascular disease, high blood pressure and certain cancers. Pulses promote below-the-surface biodiversity. Farmers can select new varieties to adjust production to changing climate conditions. Pulses are excellent cover crops, and when used in intercropping systems, soil erosion is reduced and pests and diseases are more easily controlled. Pulses improve the quality of the soil, which results in better quality crops. Crop residues from pulses can be used as animal fodder.

Investment in research and production of pulses will respond to an increase in market demand for pulse products, which is currently relatively low in South Africa. South Africans need to start integrating the use of pulses into their day-to-day lives. Promotion and public awareness of pulses is therefore important.

National Policy on Food and Nutrition Security

South Africa is no longer able to provide many of its own food supplies. The National Policy on Food and Nutrition Security has been implemented to ensure the availability, accessibility and affordability of safe and nutritional food at national and household levels.

The South African government together with public and private parties needs to formulate a long-term plan to increase research investment in order to close yield gaps for pulse crops in South Africa. The plan

must address the extension of land under sustainable land management and reliable water control systems; improve rural infrastructure and trade-related capacities for market access; increase food supply, reduce hunger, improve responses to food emergency crises; and improve agriculture research, technology dissemination and adoption.

Government and public and private institutions need to invest in the monitoring and evaluation of farming activities and provide training and assistance on an ongoing basis to ensure the country's food security.

Department of Agriculture, Forestry and Fisheries (DAFF)

It was recommended that DAFF undertake a geographical audit on pulse production to determine which pulse crops should be grown in the various areas and whether this production should be by commercial or small farmers.

It is recommended that DAFF together with relevant government departments develop a long-term action plan for the production of pulses to ensure that the country becomes a competitive producer both locally and internationally.

Smallholder farmers should be advised on product planning regarding careful selection of crops or products to be produced according to marketability; on how to secure markets for their products; and on improved harvesting methods, grading and standardisation, packaging, handling and storage methods. This could be done by means of workshops. Further workshops could be held in conjunction with the ARC and other interested parties, to address soil management, the risk of soil contamination and soil erosion, as well as the correct use of fertilisers, and to improve skills in harvesting, handling and marketing.

Training and education need to be addressed through ongoing on-farm trials and demonstrations, and communication with farmers, which could be done through extension officers distributing information to small-scale farmers; use of the internet; and the use of mobile apps. The National Agricultural Marketing Council collects extensive data and can assist DAFF.

Long-term investment is needed in DNA technology to deal with the resistance of pulses to drought, disease and pests and to yield improved varieties. Further research on rhizobia for biological nitrogen fixation is required in order to obtain better investment for pulses.

It is crucial that pulse biological nitrogen fixation (BNF) research receive attention. There is a need for investment in rhizobium inoculation technology through public and private partnerships. An effective BNF dissemination strategy needs to be communicated to farmers, and capacity building along the BNF value chain should be pursued through partnerships with research and academic institutions in developed nations.

Farmers need assistance with funding for the commercialisation of their products.

Agricultural Research Council (ARC), DAFF, and provincial departments:

In the context of the recent severe drought, and the certainty of climate change, the ARC, DAFF and provincial agriculture departments, through extension officers, should address the training of smallholder farmers to ensure that they stay abreast of new technologies, including on hybrids that are drought and heat tolerant and better equipped to tolerate disease outbreaks during extreme drought conditions.

The ARC should continue undertaking development projects on the cultivation of indigenous pulses and the use of effective biological nitrogen fixation. The ARC should provide information and develop technologies for the production of pulses in participation with farmers.

National Research Foundation (NRF), Agricultural Research Council (ARC) and DAFF:

The NRF, ARC and DAFF should consider the recommendations that were made for areas that need further research, including:

- Drought-tolerant and disease-resistant pulse varieties
- Climate change mitigation
- Bio-fortification
- Bio-energy
- Pulse biological nitrogen fixation.

Department of Science and Technology (DST)

Local communities in South Africa possess a wealth of knowledge of indigenous edible plants that survive adverse weather conditions and are excellent sources of nutrition. The DST already works on recording indigenous knowledge (IK), facilitating benefit sharing agreements with communities, and the development and marketing of products based on IK. This work should be continued and expanded. Technology transfer related to relevant processes and technologies should be facilitated. The DST might consider establishing additional centres of excellence at universities around the country to address knowledge gaps related to technologies and biodiversity related to IK.

Department of Trade and Industry (the dti)

The dti should be requested to develop policies to conduct research and analysis on sorghum, soybean, dry bean and groundnuts such as bambara groundnuts for the expansion of the domestic market through facilitating off-take agreements between producers and processors supported by dti incentives. These policies should encompass the promotion of locally available pulses and foods, the pricing of retail products, the development of pulse-bases in foods, the strengthening and implementation of food-labelling regulations, and the packaging of dried beans and other pulses.

The global food challenge is to meet consumer demand by producing food with a high nutritional value, at affordable prices, by competitive value chains to ensure sustainability. The market share in South Africa is currently dominated by four or five major retail outlets, which stifles competition and reduces commodity prices. Agricultural marketing cooperatives should be informed of the importance of their role in the promotion of smallholder farmers, as membership of such cooperatives will allow them to have more control over their products in the marketing chain. Cooperatives should also encourage smallholder farmers to transform their raw agricultural produce into value-added products.

If South Africa is to become a competitive producer of pulses, incentives would have to be put in place to support the local market; and increased efficiency in production processes would have to be pursued; investment is needed in marketing infrastructure; and the dti could play an important role in developing standards for the industry.

It is recommended that the dti and DAFF partner with multidisciplinary research teams and marketing partners to assist in the promotion of under-utilised pulses (e.g. bambara groundnuts) in order to create effective input/output market opportunities that will benefit smallholder farmers and rural communities.

Industrial Development Corporation (IDC)

The IDC promotes value-adding expansionary agro-processing activities to primary agricultural production that fosters economic transformation and inclusivity. The IDC emphasises the importance of research and development, and is addressing investment in soybean, sorghum and barley. Partnerships with processors are encouraged to support emerging farmers to grow and move into commercial-scale production. Government must ensure policies that regulate and protect public investment in infrastructure, and storage facilities in rural areas need to be developed to support investment. Government and research institutions must continually investigate new disease-resistant and adaptable varieties of seed.

Department of Transport

The reintroduction of rail transport for agriculture should be investigated, as road transport is becoming increasingly expensive for transporting agricultural produce. Aging rolling stock has impacted on volumes moved by rail; in the long term, however, rail transportation remains cheaper than road. Agreements would need to be reached with the private and public sectors to improve existing rail infrastructures at silos and mills.

Department of Basic Education (DBE)

It is recommended that the DBE introduce curriculum-based school lesson plans on pulses (plans are freely available from pulses.org).

In order to address the general lack of interest in agriculture amongst the youth of South Africa, the DBE and DAFF could initiate youth outreach programmes.

Facilitators of school feeding programmes should be educated on the importance of healthy eating habits and the incorporation of pulses into the diet in order to promote good nutrition and a healthy lifestyle.

Department of Mineral Resources

Open-cast mining in Mpumalanga in particular has led to the loss of fertile topsoil and the pollution of farmers' boreholes, with the water being rendered unfit for agricultural and domestic use. One of the major problems is that rural farmers have been displaced and have had to bear the costs of resettlement themselves; many have converted their land along supply roads to mines into truck stops and switched from farming to transport operations servicing the collieries in those areas. There has been a visible decline in the viability of agriculture for smallholder farmers, which has led to a large decrease in agrarian activities and in many instances has also led to the abandonment of farmland.

The Department of Mineral Resources should liaise with mining companies on the importance of comprehensive planning and the investment in clean and green technologies that limit their impact on agriculture. Technologies need to be explored to extract minerals simultaneously with agricultural activities.

Conclusion

- A key issue for South Africa's future sustainability is to have a well-developed food system.
- Sustainable production requires regulatory certainty.
- The necessary information should be accessible to Government, researchers and farmers.
- Producers in South Africa and Africa should be working together in terms of production and distribution.
- The country needs to take heed of the population's demands and start acknowledging and addressing these demands.
- The country needs to acknowledge the positive impact pulses could have on the economy and food security.

It was recommended that a round table meeting should be arranged between relevant government departments, that a dedicated committee for pulse production be established with all interested parties and milestones be agreed in order to submit a report to Cabinet on the potential for increased pulse production in South Africa.

Continued dialogues such as this forum must be undertaken regularly in order to bring knowledge and information to the fore.