

Policy options for unlocking the potential of Malawi's soybean value chain

Anderson Gondwe, Divan van der Westhuizen, Helga Ottermann, Henry Kankwamba, and Levison Chiwaula

Key Messages

- Soybean production offers a potentially viable alternative to tobacco, aligning with the country's efforts to diversify its economy and reduce its dependence on tobacco as the main export crop.
- A significant supply gap exists for soybean in Malawi, with the 2023/24 production estimated to only meet 47% of total demand by local industries (due to El Nino induced drought).
- With limited opportunities for land expansion, future growth in soybean production will be driven by improvement in yields, which are currently among the lowest in the world, far below potential yields.
- Malawi's private sector has invested in a soybean processing capacity of 650,000 mt, creating a surplus capacity that can support the industry's future expansion.
- Policy options include bridging the yield gap to increase production and promoting domestic processing of soya into value-added products that attract better margins in local and export markets.

Introduction

Soybean is one of the key crops that the Government of Malawi has identified as having the potential to contribute to the country's agenda of diversifying away from overreliance on tobacco as a main export crop¹. The crop has many uses including food for humans in its various forms such as soya pieces, soy milk, and soy flour; feed for poultry and other livestock; and cooking oil. Malawi's soybean sector has registered significant growth in both the production and area planted over the years, supported by market-led factors including an increase in the demand for soya and products from regional markets; and rapid expansion of the poultry industry. In response to this and future growth potential, the private sector in Malawi has invested in nearly 650,000 mt processing capacity. This capacity is more than three times the average level of production of 199,207 mt recorded over the past decade³.

Despite the existing marketing potential, the sector faces several challenges which limit the development of the sector. These challenges occur at the various stages of the value chain and include low productivity levels due to production system-related factors such as limited to no use of fertilisers, the recycling of seed, and overreliance on rainfed production in the face of climate variability; uncompetitive margins compared to other cash crops such as tobacco; market uncertainties due to export restrictions and bans; and pests and diseases.

The development of the Malawian soybean industry requires significant transformation, including the marketing and trading environment (and the respective policy that impacts this). This study identifies the opportunities and challenges limiting the growth of the soybean sector.

The study findings are useful for informing the development of policy and investment reforms necessary for sustaining the growth of the sector.

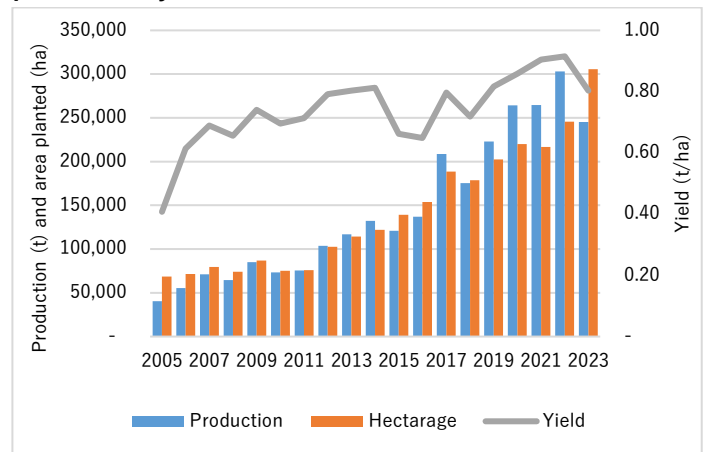
Data and methodology

The data sources utilised in this study include the Annual Production Estimates Survey (APES) data from the Ministry of Agriculture; import and export data; and key informant interviews. We conduct an industry trend analysis of soya production and productivity; gross margin analysis at various stages of the value chain; and simulation of the impacts of various policy scenarios on indicators such as growth in Gross Domestic Product (GDP), employment creation, and poverty reduction. This policy brief is based on the *Policy and Investment Prioritisation through Value Chain Analysis (PPVC)* deep dive analysis of the soybean value chain in Malawi. The value chain analysis follows a market-led approach which aims to assist governments with evidence-based analysis to adequately prioritise their policies and investments, determine which policies and public investments are most (cost) effective at driving market-led inclusive agricultural transformation, and involve public- and private-sector stakeholders⁴.

Trends in soybean production and productivity

Over the past two decades, soya production has grown by an annual average rate of 12.4%. This expansion has been driven by the growth in the area under cultivation and yield per hectare by 9.3% and 4.8% per annum, respectively (Figure 1).

Figure 1: Trends in soybean production and productivity in Malawi



Source: APES data

Despite the growth, average yields remained very low, ranging from 0.41 tonnes to 0.92 tonnes per hectare compared to an estimated potential yield of between 2.5 and 3.0 tonnes per hectare with good crop management. More generally, the increase in production has also been supported by strong demand for soya globally due to its unique caloric and protein content compared to other legumes. Specifically, global soya production was projected to exceed the production of all pulses by about four times².

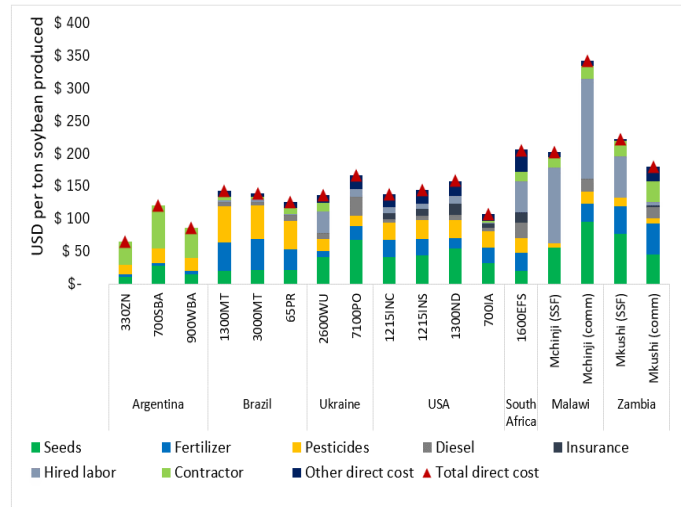
Key challenges facing the soybean industry

High cost of production

The cost of producing a ton of soybeans per hectare in Malawi is higher than in other countries due to the high costs of inputs, including labour, seeds, fertilisers, and pesticides (Figure 2). The cost of labour is particularly higher than in other countries due to low levels of mechanisation leading to the intensive use of labour for farm activities such as land preparation, planting, crop management, and harvesting. Furthermore, the cost of seeds is high due to inadequate seed

multiplication efforts, leading to a low supply of certified seeds compared to demand.

Figure 2: Comparative cost of Soybean production in Malawi and other selected countries

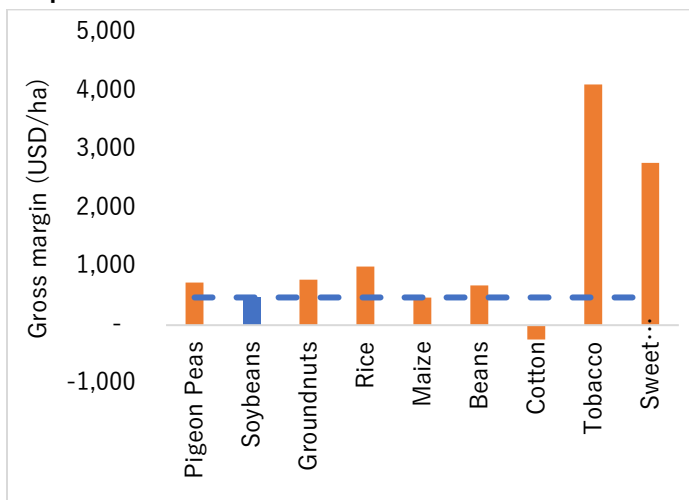


Source: Agri benchmark

Poor Competitiveness of Soya compared to other crops

Our analysis shows that tobacco and sweet potatoes receive the largest farm gross margins compared to other crops, including soya (Figure 3).

Figure 3: Farm-level gross margins of competing crops in Malawi



Source: PPVC Key Informant Interviews

The key factors for low farm gross margins for soya include high cost of production, poor quality and low productivity, mainly due production system

related practices, low utilisation of improved seed, inoculants, specialised fertiliser, and chemicals for managing pests and diseases (e.g., soybean rust).

Weak price transparency

Existing marketing and trading mechanisms together with the availability of accurate market information are not conducive for price discovery, transmission, and transparency (buying permits that limit buyer competition, minimum price setting impacting processor competitiveness, export restrictions causing lower prices, high transportation costs and complex export protocols and regulations). This has negative effects on producer and processor gross margins (Figure 4).

Figure 4: Value chain gross margins per node



Source: PPVC Key Informant Interviews

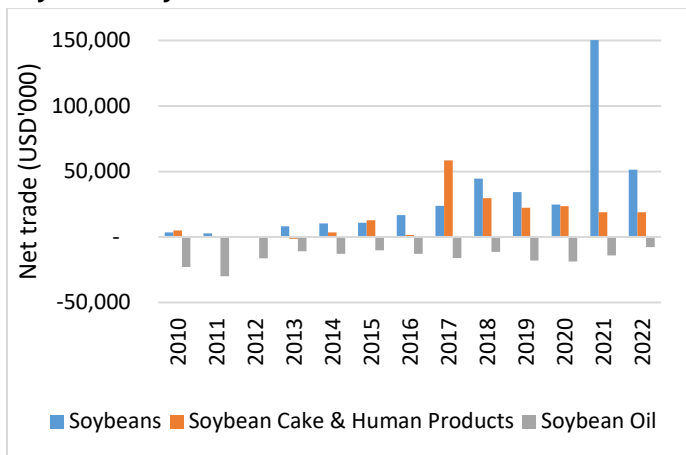
Opportunities for the soybean industry

Availability of export opportunities

Malawi has become a consistent net exporter of soybean and oil cake and a net importer of soya oil (Figure 5). The expansion in the export of soybeans can be attributed to an increase in production volumes and growth in demand, as highlighted earlier. Non-GMO soybeans receive a price premium in export markets such as India and Pakistan which created incentives for Malawian

processors. Further export potential can be unlocked, however, challenges around export processes and costs remain.

Figure 5: Trends in Malawi’s net trade position for soybean, soybean cake, and oil



Source: Own analysis using ITC Trademap data

The increase in net soybean cake exports can be attributed to growth in the poultry industry where the cake is a key ingredient in the manufacturing of animal feeds.

The negative net import value of soybean oil is because locally produced soybean oil is considered less desirable than sunflower and palm oils due to their desirable taste characteristics. Furthermore, Soybean has an extraction rate of only about 16% compared to sunflower and palm oil which have a high crude cooking oil extraction content of at least 40% (using advanced solvent extraction technology). Thus, soya bean cooking oil produced locally is supplemented by imported crude cooking oil³. Furthermore, soybean is mainly crushed for soybean cake for local livestock feed and exports, while soybean cooking oil is often perceived as a by-product by Malawian processors.

Malawi is also a net importer of soya bean pieces (texturised vegetable protein), for human consumption. The potential market for soya bean

pieces is growing, however, Malawi is not competitive in supplying these products to regional and international markets.

Existing surplus demand and crushing capacity

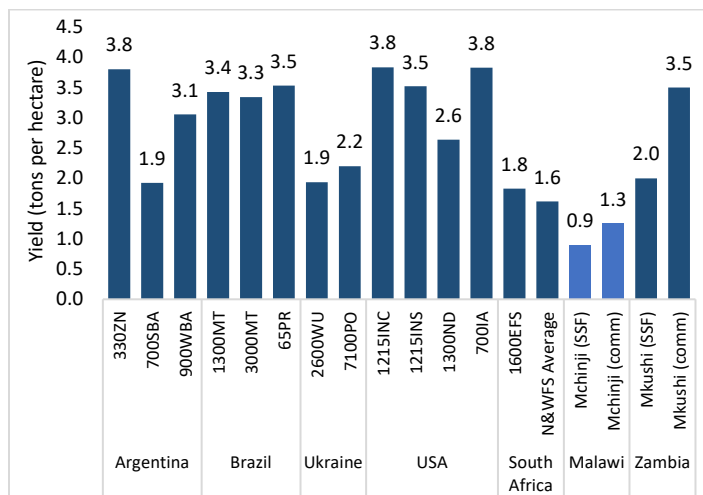
The total installed capacity is around 650,000 mt³ against production of 245,401 mt for the 2023/24 season. The production level represents only about 47% of total processing demand, assuming 80% installed capacity utilisation. Additionally, some soybeans are exported, further reducing the supply to local processors. The shortfall negatively impacts utilisation rates, profitability, and sustainability of the operations. This excess demand and processing capacity indicate the existence of significant market opportunities to support future growth.

Potential for yield growth

With limited opportunity for land expansion due to population pressures, improving soybean yields seems to be the most viable path for increasing production. Malawi has the lowest yield levels compared to other countries such as Zambia, South Africa, Argentina, Brazil, Ukraine, and the USA at different farms (Figure 6).

To improve yields, the Government of Malawi recommends using improved soya varieties suited to agro-economic conditions; fertiliser use; timely field preparation and planting; seed inoculation; disease and pest management; correct seeding rate; and irrigation to mitigate against the risks of climate change⁵.

Figure 6: Comparative yields per hectare across selected countries



Source: Agri benchmark

Impact assessment of selected policy reforms

Using a partial equilibrium model and economy-wide modelling framework approach, we conduct simulations of the effects of three proposed policy reforms on three key outcomes—national GDP growth, employment creation, and poverty reduction. The impacts are measured between 2023 (the baseline) and 2030 (the target year).

The first reform aims to boost the local feed industry through targeted poultry reforms that absorb more oilcake in the domestic animal feed market. Furthermore, the policy aims to redirect the currently exported seedcake towards domestic processing, utilising the excess installed capacity and targeting the production of value-added Textured Vegetable Protein (TVP) soya products (including soy chunks, granules, flakes, and pieces) for export markets.

The second policy reform is focused on an improvement in the marketing and trading regulation of soybean products, including the removal of buying permits; removal of minimum price setting; removal of export restrictions

(promoting an open market); and the creation of a supply and demand industry forum to promote transparency and market information. The reform aims to create a conducive environment by improving farmgate prices and reducing the raw material purchase price of processors to expand production and exports.

The third reform focuses on enhancing the export of soybean and oil cake through public-private-sector partnerships aimed at export promotion and improvement in productivity and utilising the existing export market opportunities.

Impact on GDP

Implementing the local feed and soy-pieces reform would add USD 12.4 million to the GDP. Adding marketing liberalisation would raise the gain to USD 43.7 million. Implementing all three reforms would add USD 97.1 million.

Impact of employment

The gains include 12,600 jobs based on local feed and soy pieces reforms; 8,900 additional jobs from marketing liberalisation reforms; and 14,200 jobs from soy product export reforms. If all the three reforms are implemented, 35,700 jobs would be created. Nearly 90% of the jobs are in rural areas, specifically in soybean farming, even though reforms also entail significant capacity expansion and productivity gains in off-farm activities.

Impact on poverty

The results show strong poverty impacts, with between 20,500 and 101,700 people lifted out of poverty by 2030 relative to baseline poverty of 9.4 million people. Most poverty reduction is in rural areas, which is also where most poor people live.

Recommendations

First, it is essential to enhance the competitiveness and profitability of soybean production by improving yields which are currently below their potential levels. This can be achieved by planting improved soya varieties suited to agro-economic conditions and good agronomic practices such as correct seeding rate; seed inoculation; fertiliser use; timely field preparation and planting; disease and pest management; and irrigation to mitigate against the risks of climate change.

Second, there is a need to implement policy reforms that aim to foster a more competitive environment. These reforms are aimed at encouraging participation in export markets, domestic processing, and the development of value-added products that attract better market margins. As demonstrated in the simulations, implementing these reforms can significantly improve the competitiveness of the soybean industry while simultaneously enhancing economic growth, employment creation, and poverty reduction.

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Contact: Dr. Anderson Gondwe (Email: a.gondwe@mwapata.mw).

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