



Price determinants of grain legumes

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Introduction

Grain legume cultivation and consumption provide many services beyond their immediate functionality of the nutrients contained in their grains. However, in a market context price is the most crucial information required by stakeholders to make decisions about producing and trading. KEZEYA SEPNGANG ET AL. (2018a) differentiated the prices of legumes in two main categories: producer prices and market prices, whereby the market prices are those paid between traders – processors – end-users. Therefore, based on the stage in the value chain, market prices vary. The authors derived the following formula to present the link between these two price categories:

$$\text{Producer price} = \text{Price of the processor} - \text{Freight cost} - \text{Margin of the trader} - (\text{Cargo handling charges})$$

(Whereby the “price of processor” here represents the market price)

Knowing price influencing factors can help legume sector actors to anticipate price trends, thereby enabling them to adjust their activities. Depending on location, legumes’ price determinants vary and often depend on other crops’ price. BA ET AL. (2020) analysed the influencing factors in major legumes’ producer and exporter countries in an extensive project report. The objective of this study is to summarize and consolidate their findings to make them more accessible.

Data and methods

The research question for this study is: what are the determinants of legume prices? For this, a literature review was undertaken. This was completed by market data from legumes’ specialised websites. In addition, survey data from the LegValue project from 65 stakeholders including farmers, processors, and collectors was employed. Data about selling or buying of pea, faba bean, lentil, chickpea and soybean was taken into account. This survey asked questions, with suggested answers, about purchasing and selling prices, and the impact of these prices in contracts, the influence of prices level on the price of stakeholders’ products.

Results and discussion

In competitive markets, prices are assumed to be determined by supply and demand. Hereby, the supply and demand are influenced by many factors. Tab 1 shows an overview of factors that influence the prices of legumes both on the supply and demand sides.

Tab1: Influencing factors of legumes prices on the supply and demand sides

Supply	Demand
<ul style="list-style-type: none"> • production and imports (specifically those of the major consumers) • storability • revenues (of farmers) • farming contracts • stocks • transfer to farmers • stock building policies • processing technology • level of production • cost and capacity of storage • cost of production • cost differences of organic farming • freight cost • labels • exports and quotas on exports • environmental policies • growing intention of big players • weather condition • farming system 	<ul style="list-style-type: none"> • world demand • economic growth • weakening of currency • end-use • dietary changes • labels • willingness to pay • processing technology • quality • type of grain legumes • revenues (of consumers) • substitutes • Import policy (tariffs and quotas) • cost of transport • variety • geographical indications (PGI/PDO) • farming system

There are factors like “farming system” that influence the prices both on supply and demand side. Concerning this factor, prices of organic grown legumes are expected to be higher than the conventional grown legumes. Empirically prices can reach the double of the conventional produced legumes.

Another point that is not explicitly mentioned in the table is the indirect influence of political decisions that impact the supply (e.g. due to subsidies) and the demand (e.g. taxes on import). For instance, KEZEYA SEPNGANG et al. (2018b) note that subsidies of the EU's "greening program" might have a negative impact on the price level of grain legumes. This can be explained either by the higher production volumes which is taken into account when setting prices by different stakeholders. Another example refers to the import taxes and quota in India which had a negative impact on the exports to this more lucrative market. Therefore, some countries that exported their grain legumes to India observed a decreased level of their legumes' prices.

It remains a challenge to rank these factors on their degree of importance. This mostly relies on analysed legume species, countries (exporters or importers), end uses (food or feed) of legumes and if there is a contract between stakeholders. Depending on the selected legumes, the impacts' level of these factors varies. For example, the variety factor "Protected Designation of Origin" (PDO) that leads to higher prices is more relevant for exclusively - food used - grain legumes like dry bean, lentil and chick-pea.

Based on the global production and demand, it follows that foreign trade is playing an important role in the price setting of legumes. While the production of pea in Canada and Russia might indirectly influence the prices of pea in some European countries, the demand of faba bean in Egypt or the consumption of pea in India positively influences the prices of the respective crops in the exporting European countries like Lithuania in case of pea and Germany for faba bean.

However, some factors have a preeminent effect in price determinants. So, production levels in major competitor countries, planting intention in exporting markets and products' quality are, among others, important factors influencing legumes' prices in Canada, United Kingdom and Australia. While market prices, production level, products quality and reference crops (wheat, soymeal, maize, barley) prices are predominant in the EU. Factors influencing prices setting mechanisms can be interdependent of each other. For example, production level is associated to weather conditions and surface of cultivation. In the same way, the revenue level and the world demand depend on economic growth.

Other factors like seasonality and the "time of trade" also influence the price level. For example, legume growing farmers who have better possibility to store their harvest might sell their grains for higher prices later additionally considering storage costs. The decisive point here is

whether it is profitable, taking into account the storage costs.

Conclusion

This study shows that legumes' price setting involves complex links between factors, supply chain stakeholders and policy makers. Each part has some distinct impact on price finding mechanisms depending on the side (sale or purchase and supply or demand) considered. Globally, all main legume producers and exporters are challenged with factors implied in setting prices to get market shares. Despite the multiplicity of factors considered in the prices' formation, trends are identified when we compare the EU to other countries. Also comparing actors with established contracts to those that have no contracts highlights differences in prices. The demand in importers' countries and the production in competitor countries are considered more in legume prices in Canada, Australia and the UK than in the EU. Legumes produced under contract are less sensitive to most of factors involved in prices setting. They are mainly influenced by specific market segments. Price setting builds on indexed prices. In case of fixed prices, influencing factors play a minor role in a short-term perspective but become more influential in the long run.

The complexity of factors influencing price setting of legumes constitutes a challenge for actors in supply chains as identification of appropriate prices might be linked to considerable transaction costs. More transparent and publicly available time, location and quality specific price reporting might be specifically helpful for small and medium sized actors with less market power.

Acknowledgement/Financing: This work was carried out as part of the LegValue project. The European Union in the Horizon 2020 programme under number 727672 funded the project.

Sources

BA B, SMADJA T, KEZEYA B, MUEL F & MERGENTHALER M (2020) Report on price setting mechanism in legume markets. Deliverable D3.2 of LegValue.

KEZEYEYA SEPNGANG B, STAUSS W, STUTE I & MERGENTHALER M (2018a): The market of grain legumes in Germany – First results of the EU-project LegValue. Forschungsbericht des Fachbereichs Agrarwirtschaft Soest, Nr. 44.

KEZEYA SEPNGANG, B., I. STUTE, W. STAUSS, B.-C. SCHÄFER & M. MERGENTHALER (2018b). Möglichkeiten zur Bildung von verwertungsorientierten Preisindikatoren für Futtererbsen und Ackerböhen im Vergleich zur veröffentlichten Marktpreisbrichterstattung. Berichte über Landwirtschaft 96(3).