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Comparativos do preço recebido por saca pelos produtores de soja no Brasil

Comparisons of the price received per sack by soybean producers in Brazil

Comparaciones del precio recibido por saco por los productores de soja en Brasil

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Resumo

A cultura da soja é uma das culturas mais importantes do agronegócio brasileiro e mundial. Dada a importância da cultura da soja para o agronegócio, objetivou-se com este estudo,

analisar e comparar os preços pela saca de soja recebida pelos produtores em diferentes municípios, estados e regiões no Brasil. Neste estudo foi realizada uma pesquisa exploratória com dados descritivos do tipo quantitativo fornecidos pela Companhia Nacional de Abastecimento. Foram analisados dados estatísticos entre os meses de maio de 2019 a abril de 2020 da cultura de soja em cento e dois municípios distribuídos em quinze estados. A região Sul do Brasil apresenta a maior valorização da saca de soja em nível nacional. Na região Centro Oeste, o Distrito Federal, e o município de Rondonópolis, no Mato Grosso, na região Nordeste, o estado do Maranhão, e Mata Roma/MA, na Norte, o estado do Pará, e os municípios de Dom Eliseu/PA e Paragominas/PA, na região Sudeste, o estado de Minas Gerais, e Uberaba/MG e Uberlândia/MG e na região Sul, o estado do Rio Grande do Sul, e Pelotas/RS, Vacaria/RS e Bagé/RS apresentaram a maior valorização da saca de soja entre os estados em nível regional e estadual. Os fatores que afetam o preço recebido pela saca de soja pelos produtores são às distâncias significativas entre as áreas de produção da commodity e os portos, as adversidades climáticas e as mudanças/variações no balanço global de oferta e demanda mediada pela Bolsa de Chicago.

Palavras-chave: Agronegócio; Produtores; Brasileiros; Exportação.

Abstract

The soybean crop is one of the most important crops in Brazilian and worldwide agribusiness. Given the importance of soy culture for agribusiness, the objective of this study was to analyze and compare prices for the sack of soy received by producers in different municipalities, states and regions in Brazil. In this study, an exploratory research was carried out with descriptive data of the quantitative type provided by the National Supply Company. Statistical data were analyzed between the months of May 2019 to April 2020 of the soybean crop in one hundred and two municipalities distributed in fifteen states. The southern region of Brazil has the highest appreciation of the soybean sack at the national level. In the Midwest region, the Federal District, and the municipality of Rondonópolis, in Mato Grosso, in the Northeast, the state of Maranhão, and Mata Roma/MA, in the North, the state of Pará, and the municipalities of Dom Eliseu/PA and Paragominas/PA, in the Southeast region, the state of Minas Gerais, and Uberaba/MG and Uberlândia/MG and in the South region, the state of Rio Grande do Sul, and Pelotas/RS, Vacaria/RS and Bagé/RS presented the greater appreciation of the soybean sack among the states at the regional and state levels. The factors that affect the price received for the sack of soybeans by the producers are the significant distances between the production areas of the commodity and the ports, the climatic adversities and the

changes/variations in the global balance of supply and demand mediated by the Chicago Stock Exchange.

Keywords: Agribusiness; Producers; Brazilians; export.

Resumen

El cultivo de soja es uno de los cultivos más importantes en los agronegocios brasileños y mundiales. Dada la importancia del cultivo de soja para los agronegocios, el objetivo de este estudio fue analizar y comparar los precios del saco de soja recibido por los productores en diferentes municipios, estados y regiones de Brasil. En este estudio, se realizó una investigación exploratoria con datos descriptivos del tipo cuantitativo proporcionados por la National Supply Company. Los datos estadísticos se analizaron entre los meses de mayo de 2019 y abril de 2020 de la cosecha de soja en ciento dos municipios distribuidos en quince estados. La región sur de Brasil tiene la mayor apreciación del saco de soja a nivel nacional. En la región del Medio Oeste, el Distrito Federal y el municipio de Rondonópolis, en Mato Grosso, en el noreste, el estado de Maranhão y Mata Roma/MA, en el norte, el estado de Pará y los municipios de Dom Eliseu/PA y Paragominas/PA, en la región sureste, el estado de Minas Gerais, y Uberaba/MG y Uberlândia/MG y en la región sur, el estado de Rio Grande do Sul, y Pelotas/RS, Vacaria/RS y Bagé/RS presentaron el mayor apreciación del saco de soja entre los estados a nivel regional y estatal. Los factores que afectan el precio recibido por el saco de soja por los productores son las distancias significativas entre las áreas de producción de los productos básicos y los puertos, las adversidades climáticas y los cambios/variaciones en el equilibrio global de la oferta y la demanda mediada por la Bolsa de Valores de Chicago.

Palabras-chave: Agroindustria; Productores; Brasileños; Exportación.

1. Introduction

The soybean crop is one of the most economically important crops in Brazilian agribusiness and in the world (Ventura et al., 2020a). The Gross Value of Agricultural Production in 2020 is estimated at R$ 683.2 billion. According to the Ministry of Agriculture, Livestock and Supply, the amount is 8.2% above that recorded in 2019 (Mapa, 2020).

Soybean is an agricultural commodity, as a product with less added value, as raw materials used to produce other goods. The price of soybeans is set internationally, responding to changes in the global supply and demand balance and these variations in the balance between supply and demand that cause sudden changes in prices (Lodi, 2019).

The soybean crop in the 2019/20 harvest grew 2.7% in planted area and with an estimated production of 122.1 million tons, being the record for the historical series, highlighting the country as the largest world producer (Conab, 2020).

In the world context, Brazil has significant participation in the supply and demand of products from the soybean agro-industrial complex (Pinto et al., 2020), is one of the main commodities, with a source of raw material in the production of bran and oil, among other products, commercially cultivated just over 40 years ago (Ferreira et al., 2015)

In addition, the variation in productivity in the different Brazilian states stand out, which can be explained by the technological level of production (Coelho et al., 2013; Ventura et al., 2020b), and consequently, the lesser or greater appreciation of the price per 60kg bag of soy.

The cultivation of soybean occurs in all regions of Brazil, with specificities in each region of cultivation. However, the states of Rio Grande do Sul, Paraná and Mato Grosso (Presotto et al., 2018) should be highlighted as references for cultivation, the latter being the one with the highest productivity among the three (Embrapa, 2019). Brum (2002) points out that the cost of transport for transporting production to ports represents 62% of the exported soybeans and can be an example of a factor that influences the final price for the sack of soybeans.

The importance of soybean for the Brazilian and world scenario is explicit, which is why it is a highly technified crop and studied by several authors (Ferreira et al., 2015), and with measurement of production costs with conventional and transgenic soybean (Ventura et al., 2020a; Ventura et al., 2020b).

The price of the sack of soybeans, defined in major commercial centers, such as the Chicago Stock Exchange in the USA, is today one of the limiting points to the profitability obtained by the soybean producer in some regions of Brazil, even though there are consolidated price insurance instruments and future commercialization (Castro et al., 2006).

In this way, the producer needs to plan and analyze the production costs and the return for the soybean sack so that he has a profitable harvest, and his investment, in addition to paying the cost, that there is profitability to make his cultivation feasible. Given the above, given the importance of soybean culture for Brazilian agribusiness, the objective of this study was to analyze and compare prices for the sack of soybean received by producers in different cities, states, and regions in Brazil.

2. Materials and Methods

In this study, exploratory research was carried out with descriptive data of the quantitative type (Pereira et al., 2018), through the minimum, average and maximum of each producing unit provided from the Agricultural Information Portal at the Agricultural Observatory of the National Supply Company (Conab, 2020). Statistical data were analyzed between the months of May 2019 to April 2020 of the soybean crop (Glycine max L) in one hundred and two municipalities distributed in fifteen states: Distrito Federal (DF), Goiás (GO), Mato Grosso do Sul (MS), Mato Grosso (MT), Bahia (BA), Maranhão (MA), Piauí (PI), Pará (PA), Rondônia (RO), Tocantins (TO), Minas Gerais (MG), São Paulo (SP), Paraná (PR), Santa Catarina (SC) and Rio Grande do Sul (RS) in five Brazilian regions: thirty-one in the Midwest, six in the Northeast, eight in the North, thirteen in the Southeast and forty-four in the South.

The Brazilian municipalities analyzed in this study in the Midwest region in Brazil were Querência/MT, Sapezal/MT, Campo Novo do Parecis/MT, Sinop/MT, Sorriso/MT, Nova Xavantina/MT, Lucas do Rio Verde/MT, Chapadão do Céu/GO, Mineiros/GO, Bom Jesus de Goiás/GO, Jataí/GO, Paraúna/GO, Rio Verde/GO, Santa Helena de Goiás/GO, Vicentinópolis/GO, Campo Grande/MS, Itumbiara/GO, Anápolis/GO, Dourados/MS, São Gabriel do Oeste/MS, Sidrolândia/MS, Maracaju/MS, Rio Brilhante/MS, Cuiabá/MT, Campo Verde/MT, Primavera do Leste/MT, Brasília/DF, Chapadão do Sul/MS , Rondonópolis/MT, Catalão/GO and Cristalina/GO.

In the Northeast region of Brazil, the municipalities were analyzed: Balsas/MA, Barreiras/BA, Bom Jesus/PI, Gilbués/PI, Uruçuí/PI and Mata Roma/MA. In the Northern region of Brazil were Vilhena/RO, Gurupi/TO, Campos Lindos/TO, Dianópolis/TO, Pedro Afonso/TO, Porto Nacional/TO, Dom Eliseu/PA and Paragominas/PA. In the Southeast region of Brazil, Votuporanga/SP, Barretos/SP, Cândido Mota/SP, Assis/SP, Paracatu/MG, Unaí/MG, Capinópolis/MG, Coromandel/MG, Patos de Minas/MG, Araçatuba/SP, Uberaba/MG, Uberlândia/ MG and Orlândia/SP.

In the southern region of Brazil, the municipalities were analyzed of Santa Rosa/RS, São Luiz Gonzaga/RS, Joaçaba/SC, Tupanciretã/RS, Palmeira das Missões/RS, Não-Me-Toque/RS, Concórdia/SC, Capanema/PR Campo Mourão/PR, Ubiratã/PR, Cruz Alta/RS, Ijuí/RS, Passo Fundo/RS, Londrina/PR, Cornélio Procópio/PR, Palmitos/SC, Cafelândia/PR, Cascavel/PR, Medianeira/PR, Toledo/PR, Campo Belo do Sul/SC, Campos Novos/SC, Curitibanos/SC, Francisco Beltrão/PR, Rosário do Sul/RS, Pitanga/PR, Ibirubá/RS,

Ivaiporã/PR, Abelardo Luz/SC, Chapecó/SC, Xanxerê/SC, Guarapuava/PR, Erechim/RS, Porto União/SC, São Miguel do Oeste/SC, Pato Branco/PR, Canoinhas/SC, Mafra/SC, Ponta Grossa/PR, Cachoeira do Sul/RS, União da Vitória/PR, Pelotas/RS, Vacaria/RS and Bagé/RS.

The prices received per bag by the producer between the months of May 2019 and April 2020 for soybean crops were analyzed and were expressed in Brazilian reais (R$). The marketing unit is the bag, weighing 60 kg. The average values of the bag were obtained by adding the minimum and maximum values divided by two.

The price paid by trading companies and distributors is based on the values indicated by the Chicago Stock Exchange (CBOT). To find the base price, you need to add the CBOT offer to the day's prize. The prize is an extra offered to those who deliver soy for export. The american bag, bushel, is equivalent to 27.216kg. So, to find the value of the ton, mathematics is the total price divided by the bushel and multiplied by the unit of measurement of the ton, as the following equation 1:

(1) *Ton price = CBOT Price + Premium / Kg equivalent to bushel * kg ton*

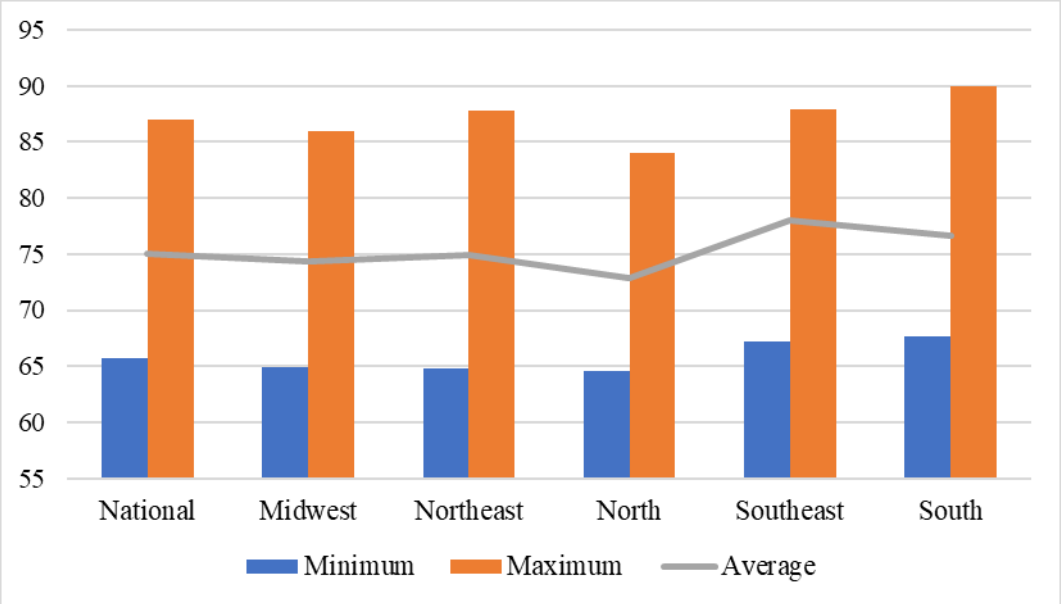
To find out the value of the bag, it is necessary to divide the price per ton by 16.67 (number of bags that are equivalent to one ton), as the following equation 2:

(2) Price per bag = Price per ton in reais / number of bags per ton

Among the months, prices were tabulated and the minimum, average, and maximum price for each municipality were determined, expressed in graphs, and compared between Brazilian municipalities, states, and regions.

3. Results and Discussion

Graph 1. Minimum, average and maximum values of prices received by the producer per sack of soybean at the national level and in the five regions in Brazil.

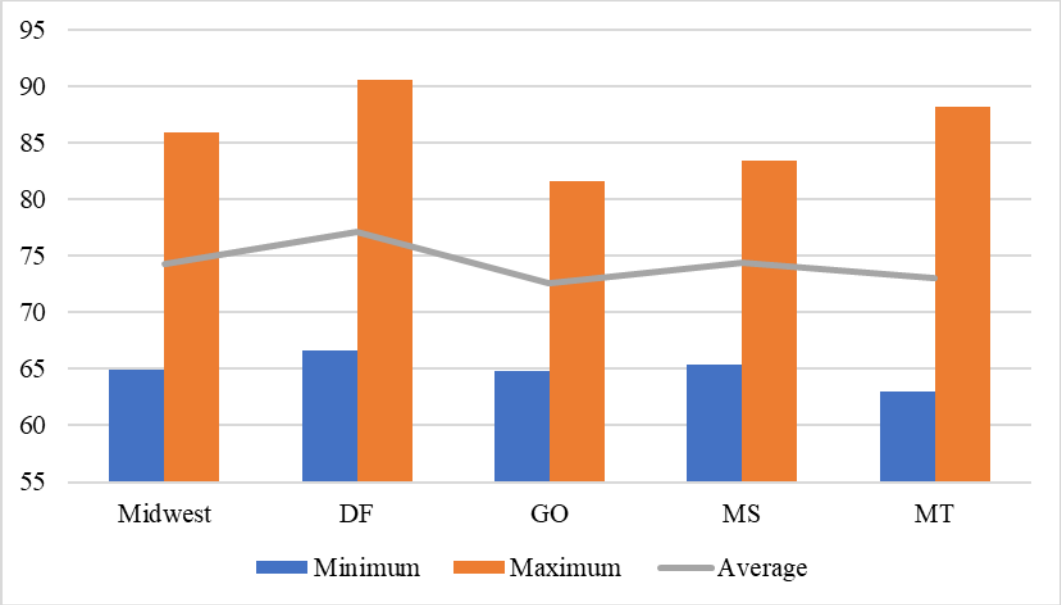


Source: Data were obtained by Conab (2020).

There is an appreciation of the 60 kg sack of soybean in the South region, with a maximum price of R$ 90.00, in contrast, the North region, has the lowest value per bag, with a value of R$ 84.00. The South region still holds the minimum value most valued among the regions, with the best average price being observed in the Southeast region (Graph 1).

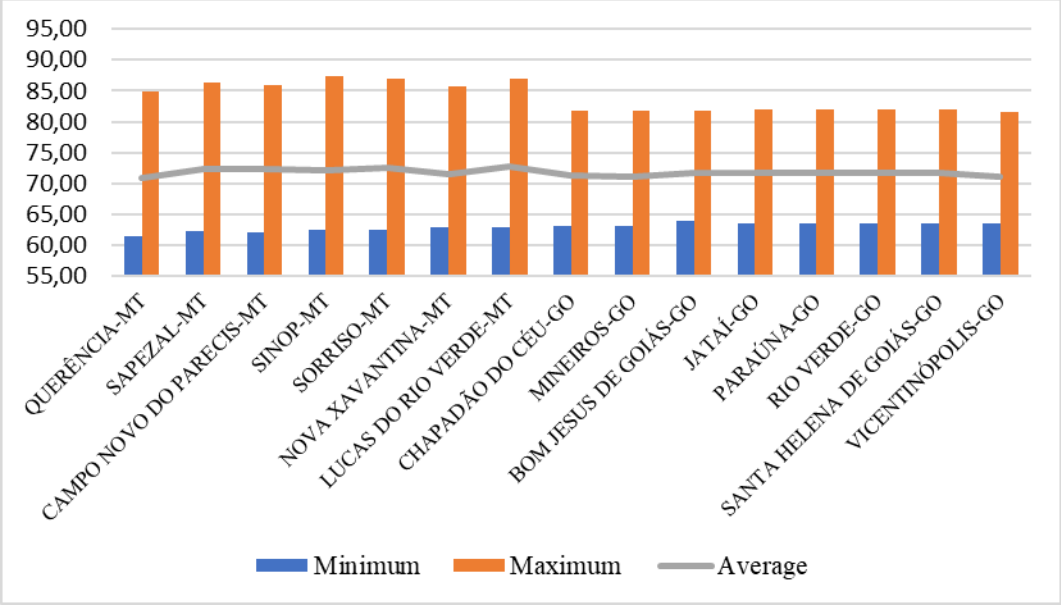
China's announcement to tax US soybeans by 25% in retaliation for shipping Chinese products enacted by the United States did not influence the price of soybeans, valuing the amount paid for soybeans in the South and North, and in the North, as great influence or freight to the ports with factor of reduction of the gains by the producers (Daroit, 2018).

Graph 2. Minimum, average and maximum values of prices received by the producer per sack of soybeans in the analyzed states of the Midwest region of Brazil.



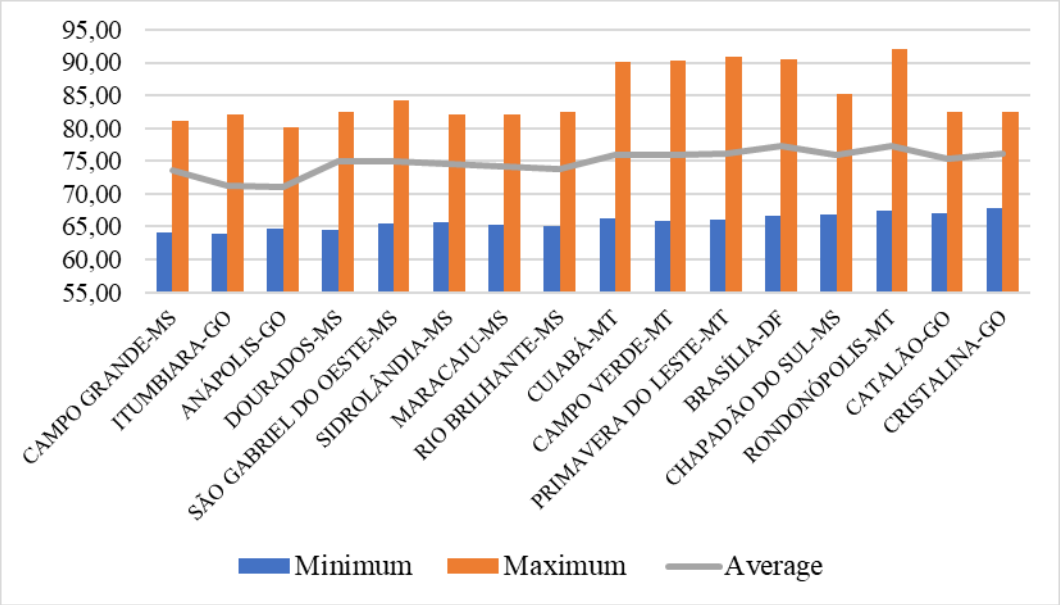
Source: Data were obtained by Conab (2020).

Graph 3a. Minimum, average, and maximum values of prices received by the producer per sack of soybeans from the municipalities analyzed in the Midwest region of Brazil.



Source: Data were obtained by Conab (2020).

Graph 3b. Minimum, average, and maximum values of prices received by the producer per sack of soybeans from the municipalities analyzed in the Midwest region of Brazil.

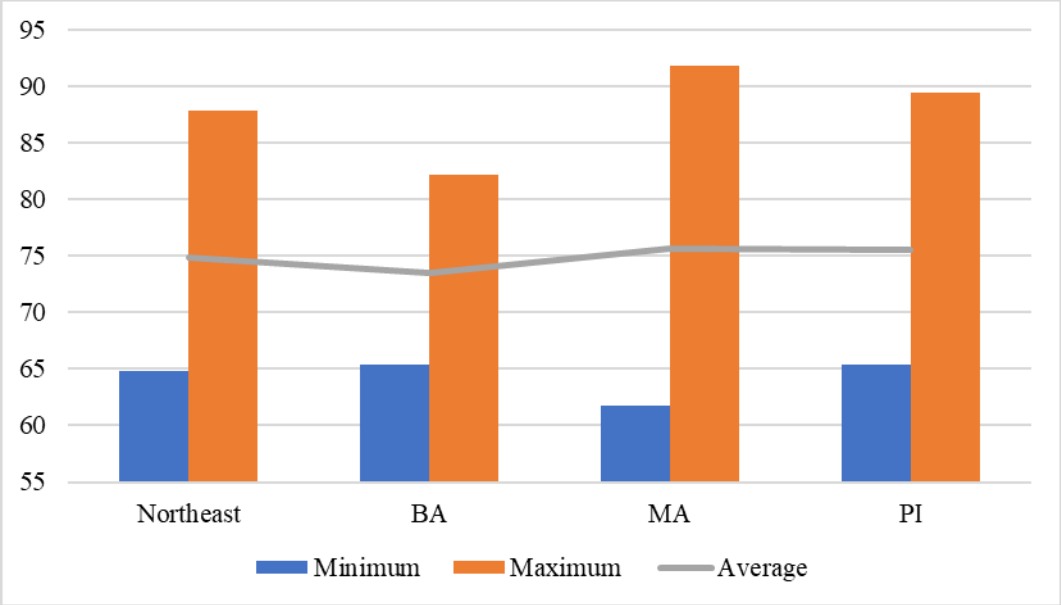


Source: Data were obtained by Conab (2020).

The Federal District and the state of Mato Grosso have the most valued values per bag, being higher than the average for the Midwest region. The Federal District in the Midwest region obtained the highest minimum, average and maximum values for the soybean bag, with R$ 90.60, R$ 77.15, and R$ 66.60, respectively. Note the appreciation of the soybean sack in Rondonópolis/MT, with the value of R$ 92.06, having subsequently the city of Primavera do Leste/MT, with the value of R $ 90.86 (Graphics 2, 3a and 3b).

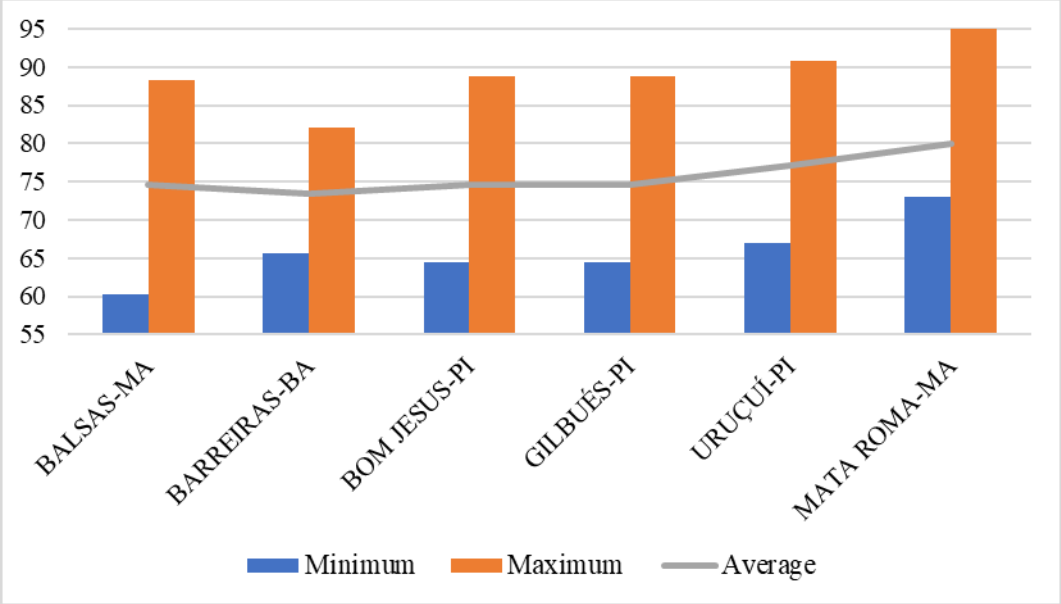
According to Ventura et al. (2020a), the regions of Brasília/DF and Primavera do Leste/MT, the use of transgenic soybean increases in great productivity in relation to the cultivation with conventional soy, such technological contribution increases the production cost, but in this way, it is done greater appreciation of the sack of soybeans is necessary to make investment possible.

Graph 4. Minimum, average and maximum values of prices received by the producer per sack of soybeans in the analyzed states of the Northeast region of Brazil.



Source: Data were obtained by Conab (2020).

Graph 5. Minimum, average, and maximum values of prices received by the producer per sack of soybeans from the municipalities analyzed in the Northeast region of Brazil.



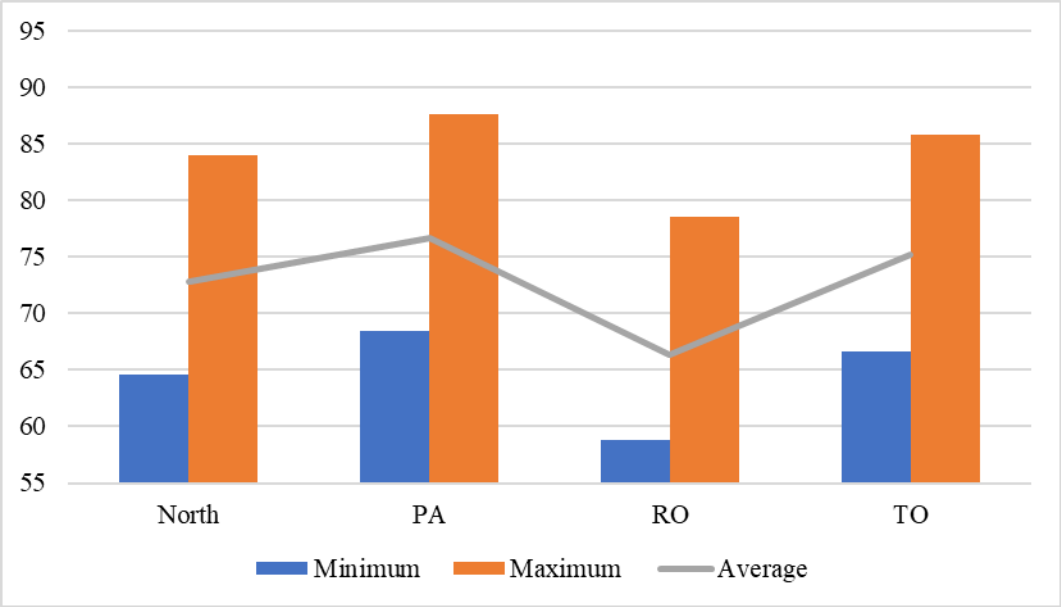
Source: Data were obtained by Conab (2020).

When looking at the analyzed states of the Northeast, Maranhão has the highest appreciation of the sack of soybeans, although, in May 2019, there was the lowest value of the sack of soybeans among the analyzed states. Among the municipalities analyzed, Mata

Roma/MA, showed the highest appreciation of the sack of soybeans, ranging from R$ 73.03 to R$ 94.95 (Graphics 4 and 5).

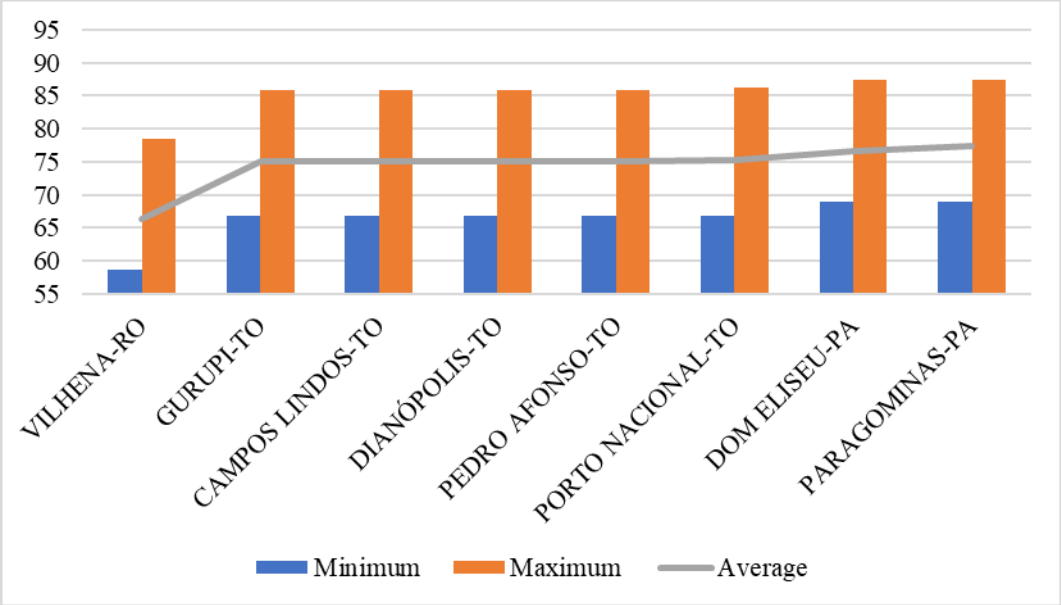
In the Northeast region, the limitations for the development of agricultural crops have an emphasis on climatic adversity, and the majority of the soils, poor in nutrients and with a physical structure that is not suitable for supporting agricultural activities (Castro et al., 2012).

Graph 6. Minimum, average and maximum values of prices received by the producer per sack of soybeans in the states analyzed in the Northern region of Brazil.



Source: Data were obtained by Conab (2020).

Graph 7. Minimum, average, and maximum values of prices received by the producer per sack of soybeans from the municipalities analyzed in the Northern region of Brazil.



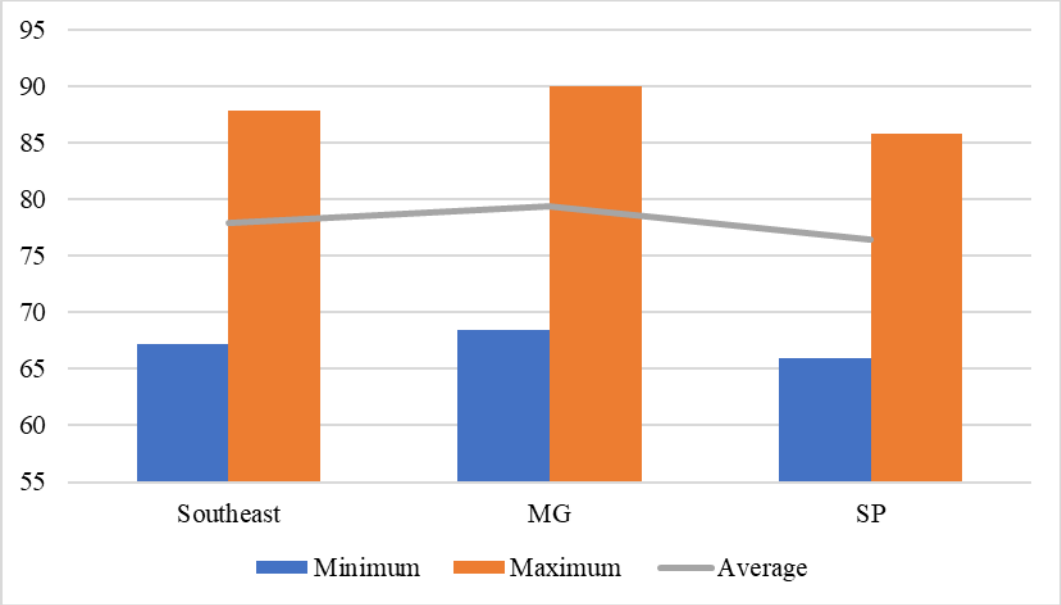
Source: Data were obtained by Conab (2020).

In the North, the state of Pará and Tocantins, showed the best values for the soybean bag, with an average value of R$ 87.60 and R$ 85.80, respectively. When analyzing the cities, there is a similarity in the values of the sack in the cities of Tocantins, with a slight increase in values for the municipalities of Pará, but the devaluation of the sack of soybean is evident when it comes to Vilhena/RO (Graphics 6 and 7).

Brum (2002) stresses that the cost of transportation for the disposal of production is a determining factor for the price of soybeans, influencing the devaluation in regions far from the ports, where there is a greater demand for soybeans for export.

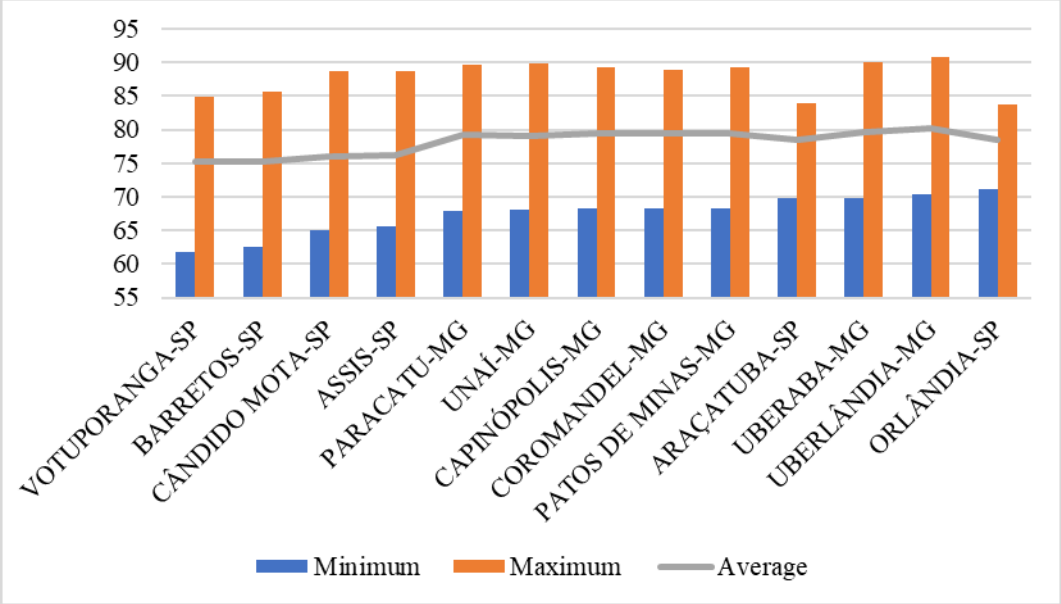
According to Caixeta Filho (2006), logistical management can represent a major sustainability differential for soy agribusiness in countries like Brazil. This happens due to the significant distances between the production areas of the commodity and the main ports, with the majority use of the road modal, which is usually in very precarious conditions (Schalch, 2016).

Graph 8. Minimum, average and maximum values of prices received by the producer per sack of soybeans in the analyzed states of the Southeast region of Brazil.



Source: Data were obtained by Conab (2020).

Graph 9. Minimum, average, and maximum values of prices received by the producer per sack of soybeans from the municipalities analyzed in the Southeast region of Brazil.



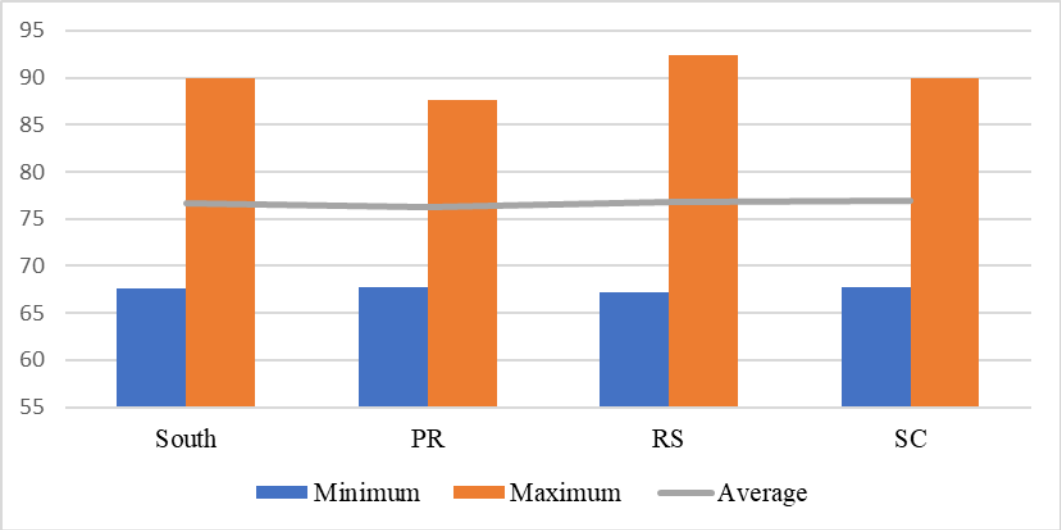
Source: Data were obtained by Conab (2020).

Among the states analyzed in the Southeast, Minas Gerais showed a greater appreciation of the soybean sack, in relation to the minimum, average and maximum values. When looking at the graph, we noticed that the municipality of Orlândia/SP had the highest

minimum value per sack of soybeans (R$ 81.04) and, as a function of time, the municipalities of Uberaba/MG and Uberlândia/MG, obtained the highest valuation by the soybean bag, with R$ 90.09 and R$ 90.86, respectively (Graphics 8 and 9).

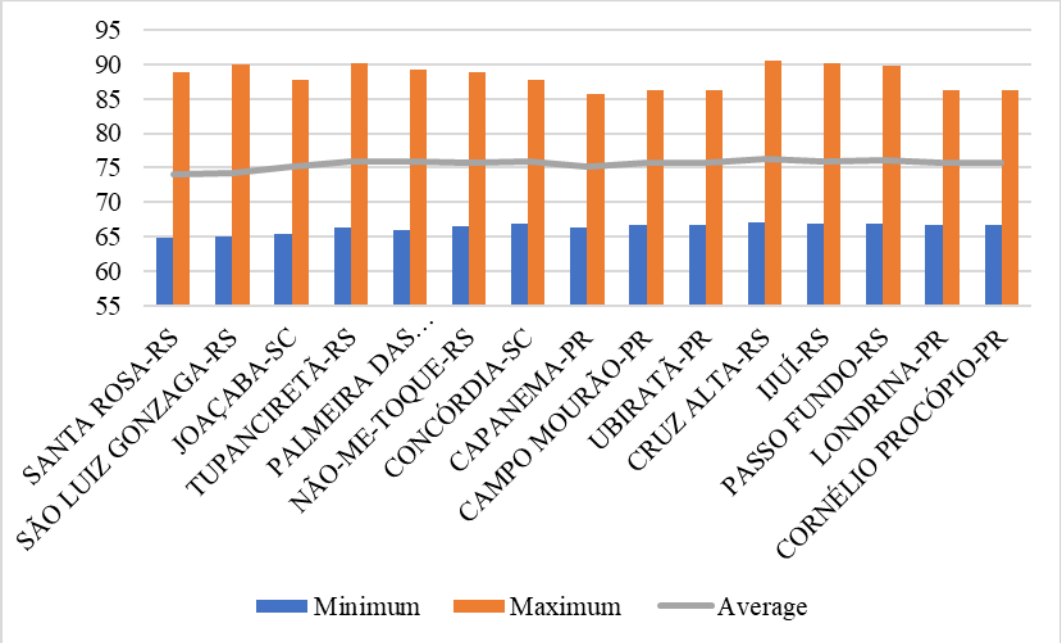
The prices of products from the soybean complex tend to be very volatile, with fluctuations in their by-products such as prices for grain, bran and soybean oil, although the fluctuations that occur in the prices in question are largely associated with changes in supply and demand (Dall´Agnol et al., 2010).

Graph 10. Minimum, average and maximum values of prices received by the producer per sack of soybeans in the states analyzed in the southern region of Brazil.



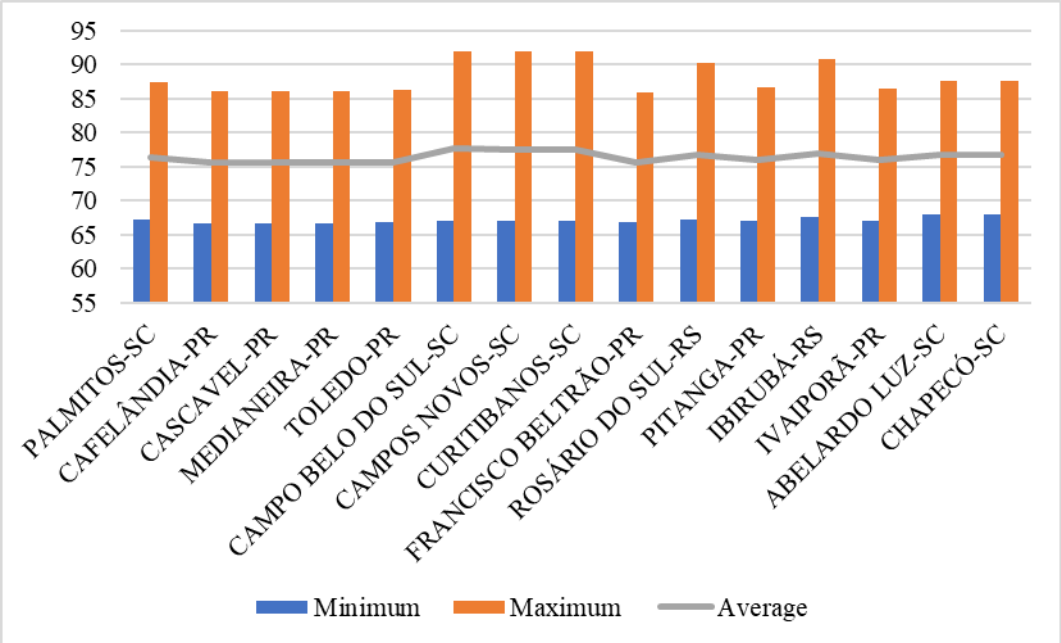
Source: Data were obtained by Conab (2020).

Graph 11a. Minimum, average, and maximum values of prices received by the producer per sack of soybeans from the municipalities analyzed in the southern region of Brazil.



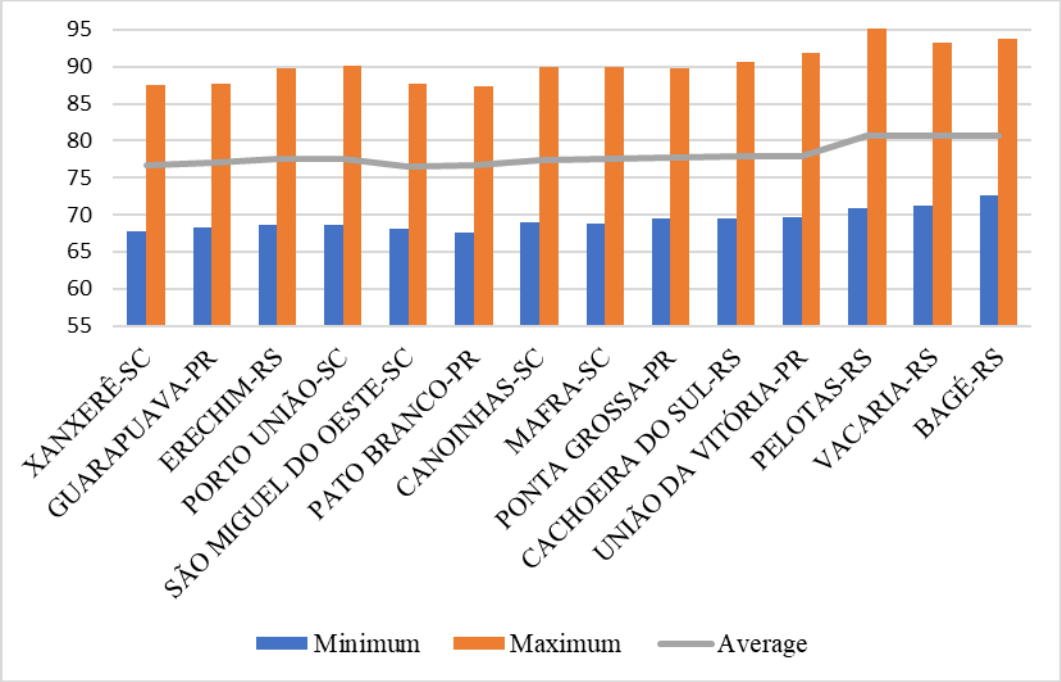
Source: Data were obtained by Conab (2020).

Graph 11b. Minimum, average, and maximum values of prices received by the producer per sack of soybeans from the municipalities analyzed in the southern region of Brazil.



Source: Data were obtained by Conab (2020).

Graph 11c. Minimum, average, and maximum values of prices received by the producer per sack of soybeans from the municipalities analyzed in the southern region of Brazil.



Source: Data were obtained by Conab (2020).

Among the states analyzed, RS showed the highest appreciation of the soybean sack with a value of R$ 92.40. The municipalities of Pelotas/RS, Vacaria/RS and Bagé/RS presented the highest minimum values (R$ 70.83, R$ 71.30 and R$ 72.63), average values (R$ 80.65, R$ 80.60 and R $ 80.75, respectively) and maximum values (R$ 95.79, R$ 93.23 and R$ 93.69, respectively) (Graphics 10, 11a, 11b and 11c).

The high cost of soybean production due to the use of agricultural technologies, coupled with the fluctuation in the market price of products, can lead to loss of profits in soybean crops (Ventura et al., 2020a). Associating financial planning with knowledge of agricultural production costs is effective in controlling agricultural activities, as it is possible to create strategic planning in the acquisition of inputs (Artuzo et al., 2018), in addition, strategic analysis is necessary of the market for sale at a price seeking a good profit margin.

4. Conclusions

The southern region of Brazil has the highest appreciation of the soybean sack in the country. In the Midwest, the Distrito Federal, in the Northeast, the State of Maranhão, in the North, the State of Pará, in the Southeast, the State of Minas Gerais and in the South, the State

of Rio Grande do Sul has the largest appreciation of the soybean sack among states at the regional level.

In the Midwest region, the municipality of Rondonópolis/MT, in the Northeast, Mata Roma/MA, in the North, the municipalities of Dom Eliseu/PA and Paragominas/PA, in the Southeast, the state of Minas Gerais, Uberaba/MG and Uberlândia/MG and in the South region, in the municipalities of Pelotas/RS, Vacaria/RS and Bagé/RS, has the highest appreciation of the soybean bag, among municipalities at the regional level.

The factors that affect the price received for the sack of soybeans by the producers are the significant distances between the production areas of the commodity and the main ports, with the majority use of the road modal, which is generally in very precarious conditions, the climatic adversities and the changes in the global balance of supply and demand and these variations in the balance mediated by the Chicago Stock Exchange.

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