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**Report Name:** Unprecedented floods in Rio Grande do Sul threaten Brazil's agricultural output

**Country:** Brazil

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**Report Category:** Agricultural Situation, Dairy and Products, Grain and Feed, Livestock and Products, Oilseeds and Products

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**Report Highlights:**

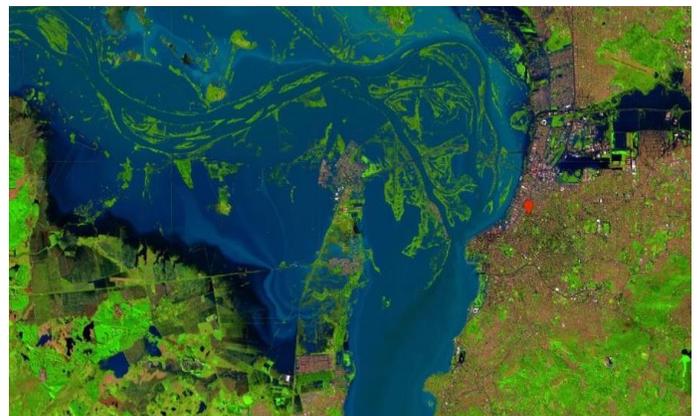
Brazil's Southernmost state, Rio Grande do Sul (RGDS), has been impacted by record high rainfall levels, reaching up to 800 millimeters in some regions, leading to unprecedented floods. The death toll reached 145 as of May 12th and nearly 620,000 people have been displaced. A major agricultural powerhouse, RGDS's agricultural and livestock sectors have been severely impacted. While accurate projections are still unknown, market specialists estimate losses across such key commodities as soybeans, rice, wheat, corn, meat and dairy. Impacts on local food production and possible price spikes are particularly concerning for consumers and policymakers, particularly on rice and dairy products.

## BACKGROUND

Since April 28<sup>th</sup>, Brazil's Southernmost state of Rio Grande do Sul (RGDS) has been impacted by its worst climate catastrophe as record high rainfall levels led to unprecedented floods. As of May 12<sup>th</sup>, the death toll reached 145 people, 132 are missing, and over 1,400 have been injured or sickened, according to the state's Civil Defense. Out of the state's 497 municipalities, 447 have been affected (Map 1), causing over R\$ 6.3 billion in losses (US\$ 1.22 billion) and leaving several thousands of citizens without electricity and/or clean drinking water. Approximately 2.1 million locals have been affected by this climate disaster, as nearly 620 thousand people have been displaced. RGDS's total population is 10.8 million people.

According to Brazil's National Water and Sanitation Agency (ANA) and National Institute of Meteorology (INMET), the state's capital, Porto Alegre, registered 327.4 millimeters of rainfall in almost one week (April 28<sup>th</sup> – May 5<sup>th</sup>). However, several other regions had precipitation levels at nearly 800 millimeters, eight times higher than the historical average (1991-2020), at 113 millimeters. Specialists say that three main factors enabled such disastrous climate catastrophe: (i) the El Niño phenomenon, which albeit reducing its strength compared to late 2023 is still influencing the weather in South America; (ii) high humidity flowing from the Amazon rainforest; and (iii) a heat wave affecting Brazil's Southwest and Center-West regions.

**Figure 1 – Porto Alegre's (RGDS capital) metropolitan region in a regular period (left) and in early May 2024 (right)**



Source: Sentinel 2, Google Earth Engine. Maps by: [Christian Santana Cunha](#).



**Map 1 – RGDS municipalities affected by heavy rains.** Source: [Valor Econômico](#). Chart by: U.S. Embassy Brasilia's Environment, Science, Technology, and Health Team.

Floods caused by heavy rains had a disastrous impact on the state's infrastructure, destroying several bridges and highways and damaging tens of thousands of residential buildings. As of May 10<sup>th</sup>, the state's Autonomous Department of Highways (DEAR) reported 80 partial or complete blockages across 49 roads and bridges. This number is down from 58 roads blocked in 110 different points on May 5<sup>th</sup>. The federal government estimates that reconstruction of the federal highways should cost over R\$ 1 billion (US\$ 193.4 million).

Agriculture and livestock were the most impacted sectors both directly and indirectly. Floods damaged crop fields and storage facilities, as well as hampered supply logistics. Brazil's National Confederation



Photo 1 by: [Mauricio Tonetto](#) (RGDS's Communications Secretariat).

of Municipalities (CNM) preliminarily estimates losses above R\$ 1.264 billion (US\$ 245 million) in these two sectors. Nonetheless, the actual economic impact could be considerably higher as improved weather should soon allow a more accurate estimate of crop and animal losses.

RGDS is one of the main agricultural producing states in Brazil. The agriculture and livestock sectors account for nearly 17 percent of the state's Gross Domestic Product (GDP). As such, impacts on local food production and possible price spikes are

particularly concerning for consumers and policymakers. Amongst the main crops and agricultural goods, the state produces significant shares of Brazil's soybean, rice, wheat, corn, dairy, animal protein and animal feed, fruits, and vegetables. As an impact, the Brazilian bank Bradesco forecasts a 3.5 percent recession in Brazil's agricultural sector in 2024.

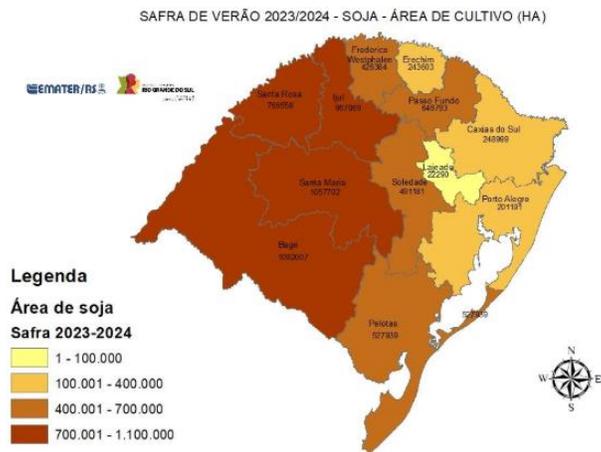


Photo 2 by: [Amanda Perobelli](#) (Reuters). Municipality of Canoas – in the great Porto Alegre metropolitan region – flooded.

## SOYBEANS

**Table 1 – Pre-flood soybean area, production, and yield forecasts<sup>1</sup>**

	Area (1000 hectares)		Production (1000 MT)		Yield (1000 MT)	
	RGDS	Brazil	RGDS	Brazil	RGDS	Brazil
<b>CONAB</b>	6,673	45,235	21,888	146,522	3,280	3,239
<b>Safras &amp; Mercados</b>	6,667	45,391	22,799	151,246	3,420	3,332
<b>EMATER/RS</b>	6,682	-	22,247	-	3,329	



**Map 2 – Geographical Distribution of Soybean 2023/24 Areas in RGDS.**

Source and chart by: EMATER/RS.

After two seasons affected by dry weather and below-potential production, RGDS’s farmers expected to yield a full harvest. This would have caused the state to return as the second largest soybean producer. The state’s full productive potential was estimated to compensate the 2023/24 yield losses in the Center-West due to poor weather in late 2023.

The Association of Technical and Rural Extension Enterprises of Rio Grande do Sul’s (EMATER/RS) latest pre-flood projections estimated an area of 6.7 million hectares (ha) and production at a record high of 22.3 million metric tons (MMT). They indicate that 76 percent of harvesting is now completed. This results in up to 1.6 million ha (and potentially up to nearly 5.3 MMT, assuming average yields of 3,329 kg/ha) was

still to be harvested at the time of the floods. This value represents over 20 percent of EMATER/RS’s output estimate and up to four percent of Brazil’s forecasted national soybean production.

As for all crops, a more accurate estimate of losses will only be possible in the coming weeks as weather improves. Market analysts agree that an important share of the state’s soybean expected output will be lost, with current projections ranging from 750 thousand MT to 2.8 MMT. According to CONAB’s estimate, this reduction would come on top of nearly 15 MMT cut from Brazil’s initial productive

<sup>1</sup> Sources: National Supply Company (CONAB), as of April 11<sup>th</sup>; Safras & Mercados, as of April 12<sup>th</sup>; and Association of Technical and Rural Extension Enterprises of Rio Grande do Sul (EMATER/RS), as of March 05<sup>th</sup>. Chart elaborated by: Post Brasilia’s OAA.

potential for 2023/24. CONAB's current estimate at 146.5 MMT is ten percent below their initial forecast at 162 MMT. USDA's May WASDE estimate is at 154 MMT.

Future soybean contracts negotiated at the Chicago Board of Trade (CBOT) have already been impacted. Several market analysts expect international prices to continue high. Accurate estimates of losses will directly affect domestic and international prices as concerns with Brazil's supply grow.



Photo 3 by: [Fábio Eckert](#) (RGDS producer in Tapes, by the margins of Patos Lagoon).

Infrastructure bottlenecks resulting from landslides, blockages or roads/bridges destruction should also impact the state's crushing capacity. RGDS is Brazil's fourth largest crusher in Brazil with installed capacity to process up to 31.8 thousand MT per day (15 percent of national capacity), according to the Brazilian Association of Vegetable Oil Industries (ABIOVE). This means that every seven days of outages in RGDS is the equivalent to Brazil not crushing for an entire day. As the state's crushing industry potentially operates at lower capacity, supply of soybean products for biofuels, human consumption, and animal feed should be somewhat disrupted. Also, as excessively moist soybeans increase the acidity of soybean oil, supply should be further pressured, particularly for the food industry.

On May 6<sup>th</sup>, the Brazilian National Agency for Petroleum, Natural Gas and Biofuels (ANP) allowed for a 30-day waiver in the biofuels blend mandate for RGDS. Reductions ranged from the current 14 percent (B14) to two percent (B2) for biodiesel, and from 27.5 percent of anhydrous ethanol blend in regular gasoline to 21 percent. Representatives from Brazil's oil, gas and biofuels industries mentioned logistical challenges in their operations, though confirmed that stocks are sufficient and there will not be shortage of fuels.

## RICE

**Table 2 – Pre-flood rice area, production, and yield forecasts<sup>2</sup>**

	Area (1000 hectares)		Production (1000 MT)		Yield (kg/ha)	
	RS	Brazil	RS	Brazil	RS	Brazil
<b>CONAB</b>	901	1,234	7,476	9,766	8,301	7,912
<b>Safras &amp; Mercados</b>	903	1,590	7,452	10,663.00	8,250	6,708
<b>EMATER/RS</b>	900	-	7,495	-	8,325	-
<b>IRGA</b>	900		7,150		7,942	



*Photo 4 Source unidentified*

RGDS is the largest rice producer in Brazil and contributes to over 70 percent of all national rice production, a culturally and economically important food product for Brazilians. According to EMATER/RS's latest pre-flood projections, the state had planted 900 thousand ha across 173 municipalities and was expected to harvest 7.5 MMT in the current 2023/24 season. As of May 8<sup>th</sup>, the Rio Grande do Sul's Rice Institute (IRGA) estimated that 84 percent of all areas had been harvested leaving 22.9 thousand ha completely lost due to the floods, and another 17.9 thousand ha partially underwater. Assuming a state-wide yield of 7,942 kg/ha, these areas could be responsible for 182 thousand MT and 142 thousand MT of rice. Harvesting progress is significantly behind the same period last year (99 percent harvested in the state as of May 6<sup>th</sup>, 2023, according

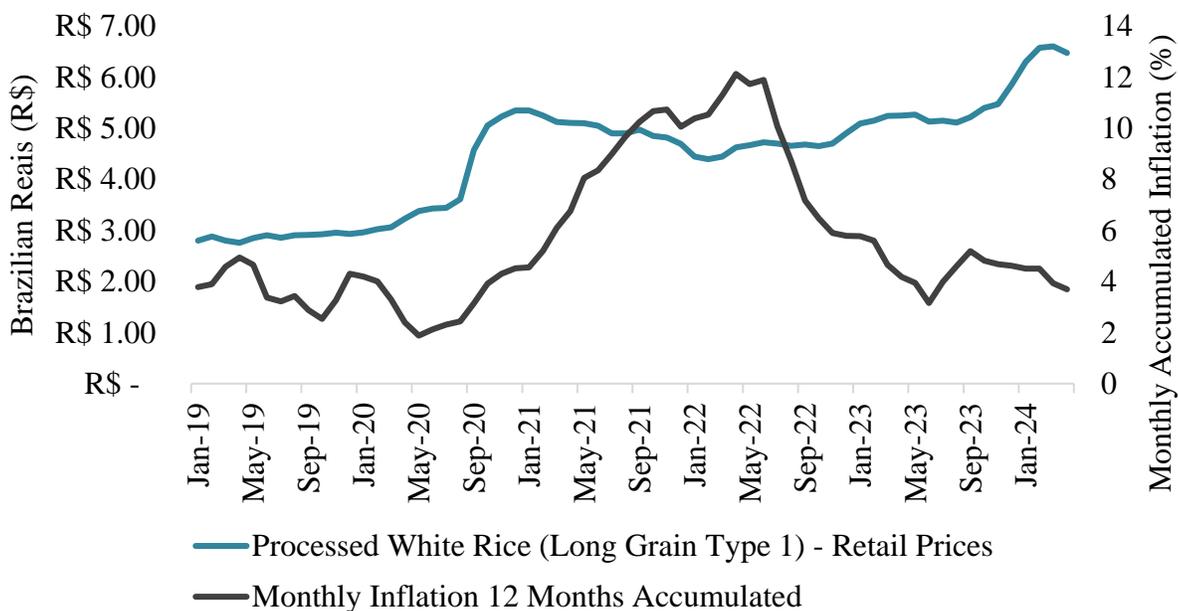
to CONAB). This is partially due to slow sowing progress last year as a result of floods in September 2023.

<sup>2</sup> Sources: CONAB, as of April 11<sup>th</sup>; Safras & Mercados, as of October 20<sup>th</sup>, 2023; EMATER/RS, as of March 05<sup>th</sup>; and Rio Grande do Sul's Rice Institute (IRGA) as of May 8<sup>th</sup>. Chart elaborated by: Post Brasilia's OAA.

Although precise estimates are currently not possible, market analysts indicate that rice losses could even reach up to 1 MMT, which would represent nearly 14 percent of Brazil’s 2023/24 production, according to USDA’s May WASDE (7.2 MMT). Datagro estimates that the state’s rice harvested volumes should be 10 to 11 percent lower than initially forecasted. While rice has a natural water resistance, water levels above certain limits and floods lasting several days (when the crop is in its final growth stages) can damage the grains and reduce yields.

Producers indicate that some of the rice crop that had already been harvested was flooded in warehouses, casting further doubt over RGDS’s supply. Also, infrastructure bottlenecks limit the capacity of southern producers to ship available rice north to other parts of Brazil. Rio Grande do Sul’s Rice Federation (Fedearroz/RS), however, stressed that Brazil will not be internally undersupplied, despite the current disaster. They argued that the state is capable of reaping over 7 MMT, sufficient to supply the internal demand alongside rice supply from other states.

**Figure 2 – Evolution of average domestic rice prices and accumulated inflation (January 2019 – April 2024)**



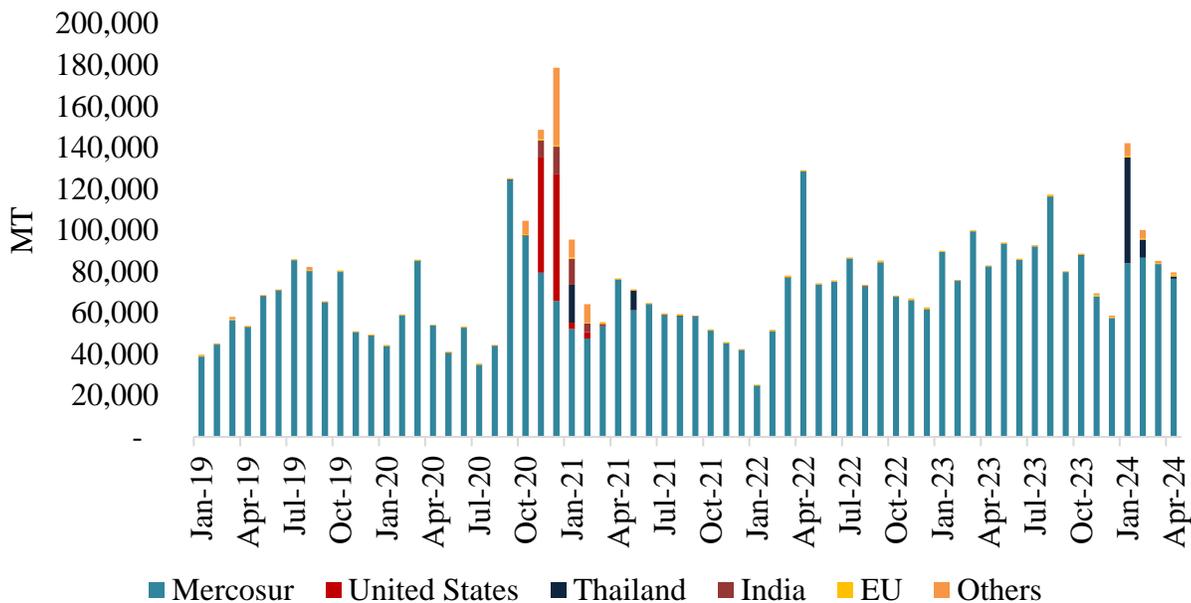
Source: CONAB and the Brazilian Institute of Geography and Statistics (IBGE). Chart elaborated by: Post Brasilia (Office of Agricultural Affairs – OAA).

On May 9<sup>th</sup>, the federal government enacted a Provisional Measure (*Medida Provisória*, in Portuguese) to allow the import of up to 1 MMT of rice to curb potential price spikes. The government has emphasized the measure will be put in place to contain speculation, highlighting that Brazil is not at risk of a rice shortage. CONAB will lead the import process through public auctions. Mercosur partners (composed of Argentina, Paraguay, Uruguay, and Brazil) traditionally supply most of imported rice. Industry stakeholders also consider importing smaller volumes from Thailand, the world’s second-

largest exporter after India. Rice imports from most countries outside the Mercosur bloc would be subject to the current 10 to 12 percent *ad valorem* tariff.

Brazil unilaterally reduced its rice tariff in September 2020. It established a temporary tariff rate quota (TRQ) of up to 400 thousand MT with zero in-quota tariffs, which fostered a diversification of import partners (see Figure 3). In May 2023, the federal government also temporarily cut tariffs by 10 percent on various food products amid growing inflation driven by the pandemic and the Russia-Ukraine conflict.

**Figure 3 – Evolution of Brazil’s monthly rice imports (January 2019 – April 2024)**



Source: Trade Data Monitor (TDM). Chart elaborated by: Post Brasilia’s OAA.

### CORN

RGDS is also Brazil’s largest first-season corn producer (the first corn crop out of Brazil’s annual three crops). Before the floods, EMATER/RS estimated an area of 812.8 thousand ha and an output of 5.2 MMT. As of May 9<sup>th</sup>, nearly 86 percent of areas had been harvested, in line with the historical harvesting progress of the last five seasons. EMATER/RS reports that the floods have stalled harvesting and damaged a significant portion of the remaining field. Nearly ten percent of the unharvested corn is in the maturing stage, with the remaining four percent in grain filling.

This results in up to 114 thousand ha and potentially 728 thousand MT could be at risk, representing nearly 14 percent of the state’s initial productive potential for first-season corn. Market analysts forecast an upwards price trend in the domestic market, though with limited spillover in international prices as

the bulk volume of Brazil’s corn production comes from its second crop, mostly produced in the Center West region after the soybean harvest.

### WHEAT

The state is home to over 40 percent of Brazil’s wheat area and is responsible for nearly 45 percent of the national production in the 2023/24 season, according to CONAB. The harvest had already been completed by late 2023. While sowing for the next season has kicked off in other states, including Brazil’s second largest producer (Paraná), fieldwork has not yet started in RGDS. Brazil’s Wheat Industry Association (ABITRIGO) indicate that several mills have been flooded, affecting the quality and integrity of the stored 2023/24 grain.

This month’s disaster is the second weather-related phenomenon to affect the same local wheat marketing year. In September 2023, another episode of rainfall levels, landslides and flash floods impacted the crop’s mid-season production window.

**Table 3 – Brazil’s estimated production, imports, supply, and domestic consumption (MY 2019/20 – MY 2023/24)**

	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024
Production (1000 MT)	5,155	6,235	7,679	10,554	8,100
Imports (1000 MT)	7,029	6,395	6,392	4,678	5,700
Total Supply (1000 MT)	14,271	14,576	15,922	16,334	15,597
Domestic Consumption (1000 MT)	11,900	11,800	11,750	11,850	12,000

*Source: USDA FAS’s Production, Supply and Distribution (PSD). Table elaborated by: Post Brasilia’s OAA.*

Brazil is not self-sufficient in wheat production and relies on imports, mostly from Mercosur countries. In the first quarter of 2022, wheat prices increased due to the Russia-Ukraine conflict, evidencing the country’s reliance on international markets.

Similarly, market specialists believe that domestic wheat prices should increase over the coming months given the impacts on RGDS’s harvested and storage losses. This year’s flooding might impact the ability of the RGDS’s wheat farmers to expand production for the next season, which could further pressure supply and boost prices.

## LIVESTOCK AND DAIRY/MILK

With the third largest hog and poultry herds in Brazil, RGDS also plays a significant role in the country's livestock sector. It produces 11 percent of Brazil's pork and 20 percent of national poultry production, according to the Brazilian Animal Protein Association (ABPA). Between May 2023 and April 2024, the state accounted for an average of nearly 13 percent of all national livestock slaughters, with a particular relevance for hogs (20 percent), chicken (11 percent), and turkey (27 percent).

**Table 4 – RGDS's total animal slaughter (May 2023 – April 2024)**

	<b>Chicken</b>	<b>Hogs/Pigs</b>	<b>Turkey</b>	<b>Bovine</b>	<b>Others</b>	<b>Total</b>
RGDS (1000 head)	399,003	6,197	3,065	499	84,143.35	492,907
Brazil (1000 head)	3,526,245	31,442	11,267	17,759	331,561.64	3,918,275
RGDS as share of total (Brazil)	11%	20%	27%	3%	25%	13%

*Source: Brazil's Ministry of Agriculture and Livestock (MAPA). Table elaborated by: Post Brasilia's OAA.*

Floods impacted the state's livestock logistical operations as the transportation of inputs and animal feed were severely obstructed by the inaccessibility of many roads. While local news report that some animal confinement sites were affected, the main challenge has been logistical. On May 6<sup>th</sup>, ABPA announced that ten of their associated animal origin processing facilities had to temporarily suspend operations as inputs and workers could not reach the sites safely. Activities started gradually resuming as of May 9<sup>th</sup>, with only two facilities still inoperative. The industry has declared that the risk of meat shortage has been eliminated as companies shifted their attention to adapt their logistical routes in the short term. Besides these challenges, the industry is also concerned with the instability of energy supply, which can especially impact poultry production.

**Table 5 - RGDS's animal herds (2022) in thousand heads**

	<b>Poultry</b>	<b>Hogs/Pigs</b>	<b>Bovine</b>	<b>Others</b>	<b>Total</b>
RGDS	178,719	6,171	11,933	4,574	201,397
Brazil	1,586,048	44,394	234,353	55,342	1,920,136
RGDS as share of total (Brazil)	11%	14%	5%	8%	10%

*Source: IBGE. Table elaborated by: Post Brasilia's OAA.*

The state's dairy sector, Brazil's third largest milk producer (responsible for 4.1 billion liters in 2022, has also been affected by the floods. The Rio Grande do Sul's Association of Dairy Industries (Sindilat-RS) noted in early May 2024, around 4.4 million liters per day (40 percent of RGDS's daily milk production) was at risk of not reaching dairy factories, due to the widespread infrastructure bottlenecks. Additionally, with limited or no electricity for several days, many farmers have reportedly been unable to mechanically milk the cows and refrigerate the product. Properties with backup generators were running out of fuel.

Inflation concerns grow as RGDS usually supplies larger volumes of milk between late April and July, compensating lower output from the offseason in the Southeastern (main milk producing region) and Center Western states. In this scenario, both federal and state level policy makers have temporarily flexed some procedures to ensure a steady flow of milk and dairy production and commercialization. Market analysts indicate this disaster can worsen an ongoing crisis in the dairy sector. Many producers who have lost their houses, animals and/or machinery consider abandoning this business altogether as it could no longer be viable to restructure the investments they once had.

### **WHAT'S NEXT?**

Many municipalities across the state are still underwater, and hundreds of thousands of people remain displaced. The exact timeline as to when they will be able to return is still unknown, as well as to when businesses will resume operations to any resembled normality. Weather forecasts indicate that rains could continue, although at lower levels than in the previous weeks. This would worsen the humanitarian situation, affect the well-being of livestock, and further hinder crop developments in the regions where the waters have not impacted.

The actual figures of losses in agriculture remain unknown which is one of the hardest-hit sectors. It should take a while until the government, farmers, cooperatives and industries are able to assess the damages. However, considering RGDS's important national contribution across several commodities, it is expected that prices should increase over the second half of 2024 in several basic food items, especially rice and dairy.

FAS OAA Brasilia will continue to monitor the situation and will incorporate the outcomes of this natural disaster in the upcoming commodity GAIN reports.

**Attachments:**

No Attachments.