Rice is a key crop in Colombia, ranking first in economic terms amongst short-cycle crops (annual crops) and representing an important staple of the national diet. Rice is the third largest crop in terms of value of national production, behind coffee and sugar cane, and it has a significant role in the country’s food security and rural consumption.
Rice is the third crop in terms of value of national production. Up to 2 million people are involved throughout the value chain. Colombia has transitioned from being a rice importer to becoming an exporter.

Sector association level
Fedearroz is the Rice Producers National Association, representing farmers across the country and acting as an union for coordination and lobbying purposes.

Value chain of the rice sector in Colombia

The value chain builds on seven main processes from input selection to marketing and consumption. Each process involves specific activities, which are conducted by direct actors and engage identified indirect actors.

BRPM analysis
Each process of the value chain was assessed in order to identify the climate risks associated to each phase and the resilience options and tools available to address these risks and achieve specific resilience outcomes. The BRPM analysis of the Harvest and Processing process is presented below.

Key sector stakeholders
- Direct actors: producers, input suppliers, Fedearroz, millers and retailers
- Indirect actors: Ministry of Agriculture, financial institutions, others, millers association and other agricultural agencies.

Main challenges in the sector
It is estimated that the sector could grow 60% from current levels. Sector experts consider that current credits and investments in the sector are still too short-sighted and that financial instruments should have a long-term outreach, as the sector needs significant support in reducing costs and ensuring sustainable profitability.

BRPM Analysis - Rice value chain in Colombia

Normal environmental conditions for production
- The cycle productive for rice is about four months. The growing season is from the sowing year: i) January-June, seeing greater planting activity, and ii) July-December, involving greater production.
- Temperatures range commonly between 30-35ºC and the minimum temperature for production ranges between 21-24ºC.
- Production is substantially dependent in water being supplied in water up to 10 m³ per day, which are influenced by dry and wet phases.
- Droughts conditions are necessary during planting and harvesting phases.

Main climate-related impacts affecting the value chain
- The rice producer is highly vulnerable to climate events and variability due to its dependency on water and adequate temperatures needed for the development of crops.
- Floods, mostly related with rivers flooding rice cultivations, are the main productive climate-related event affecting rice production and profitability.
- Extreme rainfall causes difficulties to the population of planting area and harvesting.
- Floods during the second half of the year causes damages to the infrastructure and machinery.
- Landslides resulting from floods or extreme rainfall have negative impacts on the value chain, as damaging the transportation and transportation networks.

Resilience Solutions
- Leading resilience solutions: Strengthening the capacity of government and technological institutions to provide goods and services and enabling the proper functioning of the supply chain.
- AMTEC brings together both resilience solutions, combining good agricultural practices, knowledge and technology transfer, capacity building, and ensuring sustainable profitability.

BRPM Analysis - Harvest and Processing process

Example of Resilience Solution
The leading resilience service in the Colombian rice sector is the Massive Adoption of Technology Program, AMTEC, which combines agro-climatic knowledge, technology transfer, capacity building, and ensuring sustainable profitability. The AMTEC program is the approach taken by Fedearroz to combat adverse climate impacts on rice production in Colombia.

AMTEC brings together both resilience solutions and the mitigation of climate impacts to the entire value chain are driving market opportunities. Recent trends have driven more clients to businesses providing the decision-making processes of individual rice producers, based on reliable weather information and proven best practices.

While all these strategies provided by AMTEC are already available in the market, it is the packaged concept that makes the difference. The model involves a long-term outreach, as the sector needs significant support in reducing costs and ensuring sustainable profitability.
Main challenges related to resilience solutions

- The direct impacts of CC to producers are clear, but most of them lack the financial capacity to purchase knowledge services in order to become more resilient;
- There are significant limitations in understanding the commercial value of knowledge services.
- Limited access to finance as companies providing knowledge services have more difficulties in receiving financing from financial institutions than companies providing machinery and fixed assets.
- Many providers of knowledge services are relatively small and lack the capacity to compete with larger, multinational companies.

Greatest opportunities in the sector

Producers could particularly benefit of climate data, including high quality weather data and extreme weather events early warning systems, for planning and implementation practices in all production related processes.

Expansion of best practices in water management and updating irrigation systems are key for the sector's competitiveness and sustainable profitability.

The sector needs to become more environmentally friendly, particularly regarding soil use and management. As general awareness increases, producers are understanding the added value of quality, certifications and better management of the production process. There should be more focus on increasing production efficiency rather than production area. Improve access to finance and develop adequate financial instruments and financial incentives. Sector associations, local governments and financial institutions are becoming aware of the financial challenges and constraints that producers face.

Quotes

“I have been working on agro-climatic practices for 15 years. Recently on climate projects, collaborating with FAO and the Ministry of Agriculture. I have realised that I have been working on climate adaptation and mitigation technologies since the start of my career, but we did not use these terms before.” Cesar Cortez, Agronomist

“We do care about nature, water and the environment, this is why we train our growers and ensure the best practices for producing rice. I had not thought about climate change, but I know our farmers use less water than the average rice producer, our rice is of better quality, is organic and we ensure biodiversity thrives in our producers’ farms.” Juan Manuel Suzo, Arroz Blanquita, 2017

“The impacts of climate change, and appropriate resilience solutions, vary significantly across the different growing regions of Colombia. The rice federation is investing large amounts of resources in combatting climate impacts as a means of improving production and livelihoods across the country. The federation is engaged in extensive international collaboration to promote its understanding of technical improvements in rice farming, including climate resilience methods.” Elkin Florez, Fedearroz, 2016

Business examples

Ecosaga is a company specialized on agro-climatic services that offers services around climate and weather interpretation applied to various sectors and manages a broad portfolio of clients. The company specializes on weather forecast and short-term climate projections applied to the knowledge of plant physiology and crop management, providing tailored decision-making tools both at the local level and at a larger scale. These tools facilitate actions based on accurate information.

As stated by company representatives, while it might be too early to talk about long-term trends, their experience is that the demand of services increases demonstrably after extreme climate events, such as El Niño or La Niña events. Moreover, there are clear signals that wealthy associations and farmers are becoming more worried about climate variability than 10 years ago and are seeing the benefits of monitoring closely their farms and crops. Insurance companies are also becoming more aware of the benefits of monitoring the weather.

One of the main challenges related to agro-climatic services is that there is still a lot of uncertainty regarding the data, datasets are not complete, and for some areas there is almost no real data. While there is a growing interest in agro-climatic services, few actors are willing to pay a fair price for the services.

Arrocera La Esmeralda, known as Arroz Blanquita, has been producing rice for over 60 years as the most awarded companies and the only certified producer of organic rice in Colombia. Since its beginnings, Blairquita has worked for and on behalf of rice producers.

Climate conditions are one of the many challenges that producers face. In addition, new challenges appear constantly as pests, scarce labour and production land due to producers switching to other crops, price uncertainty, contra-band rice, violence, floods, droughts, and tax reforms, among other.

The focus has been on supporting small producers, training them and keeping them in the centre of the business. The company has around 620 producers with farms of less than 5 ha. Capacity building and trainings are provided to producers with the objective of improving competitiveness and profitability of the business. The practices promoted include land levelling, dry fertilization, less seeds per hectare, permanent flood, agro-chemicals elimination and optimizing water usage. The implementation of these practices have resulted in the doubling of rice productivity per hectare and a decrease of production costs by half.