

# Info Note

## Local, reliable and timely agro-climatic information: a requirement of Colombian farmers

### *Results from mapping actors and agro-climatic information needs for maize and bean cultivation in pilot sites - Colombia*

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#### Key messages:

- Farmers need targeted, local, timely agro-climatic information from trusted sources, which allows to take better harvesting, variety, inputs, soil and crop management decisions, to face climate variability.
- It is strategic to incentivize mechanisms for the transmission and diffusion of information that increase trust among and towards farmers and technicians
- Television and radio are preferred information transmission mechanisms. Mobile phone applications are an effective way to receive and share real-time information.
- The favorite way to receive technical assistance is through a person follow up.
- Farmers do not trust official institutions sending climatic information, while there is a feeling of low interest towards smallholder farmers.

Awareness of climatic information relevant for future decisions through climatic forecasts is not enough to support farmer's decision-making. It is necessary to look for agricultural management alternatives that allow farmers to adapt to climatic conditions and implement efficient and sustainable management systems, within a framework of effective communication with farmers (Jones, 2003; Pulwarty *et al.*, 2003). In Latin America are very few the initiatives related to climatic forecasts. The Project "Agroclimatic services and food security information for improved decision-making – AgroClimas" aims to support private and public sector actors in Colombia, Guatemala and Honduras to implement and use agro-climatic risk management tools, validated and adjusted to the needs of final users.

This info note presents results from a mapping of actors and agro-climatic information needs in crops important for food security (maize and bush beans), in pilot sites of the project in Colombia. The hypothesis underlying the study is that through mapping actors who transmit information (climatic, prices, technical and financial) to farmers, knowing if this information is considered reliable, identifying unattended information needs and preferred formats to receive it that would support production decisions, one can devise useful, relevant, reliable, sustainable applicable solutions.

Between April and July 2015, 27 semi-structured interviews with key informants at national and department level and 12 focus groups with a total of 151 farmers in the departments of Córdoba (maize) and Santander (bush beans) were carried out.

### **Climatic variability and indebtedness: agricultural challenges in Córdoba and Santander**

In Córdoba, cultivated systems are based on hybrid or transgenic maize in rotation with cotton, or in mixed systems of traditional and hybrid maize in rotation with name and cassava. In 2013, Córdoba stood second for traditional and modern maize production at national level. Approximately 80% of farmers are tenant, while big holdings are owners. Cotton production is more dynamic and appears to sustain maize production.

Smallholders planting traditional maize varieties plant native varieties in less than 5 ha and their use is usually for family consumption.

Most frequent problems in maize cultivation in this region are lack of adequate machinery, drainage systems, high cost of seed, insufficient storage infrastructure and lack of reliable local climatic information, especially given that farmers highly depend on climatic conditions for their

harvest. The observation of lunar phases and ancestral knowledge are common. Culture is an important element to consider in incentivizing the adoption of new practices and technologies.

According to farmers in Córdoba, the past few years have been characterized by “veranillos” or intense drought periods. With losses, their adaptation capacity is limited: those who can, saw maize again with their resources, while the majority gets indebted to do it, sometimes even selling goods. Few have harvest insurance.



Maize field affected by lack of rainfall and high temperatures in the first 40 days of growth, Córdoba. June 2015 Photo: G. Blundo

In Santander, bush beans are harvested twice a year, mostly in rotation with tobacco, but a significant number of farmers also row maize and coffee. Within annual crops, Bush beans are the second in terms of area in Santander, and the first in terms of number of producers. Land tenure is most often “aparcería”, a lease where the producers pay about 20% of their production as rent. Owners tend to invest more in their land and production, receive more support from tobacco companies and the government, and also have more sources of information.

The department does not count with adequate machinery to prepare soils and for sowing, nor adequate irrigation systems to improve productive levels. Water scarcity, rainfall variability and high temperatures are the main challenges faced by farmers.

It is customary to prepare the sowing for Easter for the first bean season, while the second starts in September. In the focus groups, participants from Villanueva estimated that in the first part of 2015 they lost about 80% of bean harvest due to high temperatures and late rains. In this municipality, farmers tend to sow earlier in order to take advantage of higher selling prices as they harvest before other areas, but this strategy is not always successful. Moreover, climate and soil variability between municipalities is significant: for instance, contrary to Villanueva, farmers in San Gil perceived 2015 as a “regular” year.

The principal reaction when facing a bad harvesting season is indebtedness in order to pay for inputs and cover previous loans. Alternatively, farmers look for off-farm employment in construction or tourism.

There is a widespread problem with low generational turnover in agriculture, farmers do not want their sons to work in agriculture because it is not considered a stable employment. Moreover there is a strong pull towards tourism and recreation.



Bush vean production in San Gil (above) and Villanueva (below), Santander. June 2015. Photo: G. Blundo

## Connectivity and reliability of actors

Figure 1 y 2 show the network of actors that provide different types of information to farmers, identified in the 12 focus groups. The size of each circle (node) shows the level of trust that farmers attributed to each actor, color intensity indicates the number connection that each actor has. Farmers in Santander appear more connected than those in Córdoba (63 actors identified in Santander, against 46 in Córdoba), and appear to have more trust in the information these actors provide.

In **Córdoba**, the municipalities closer to the departmental capital, Montería, and farmers who cultivate hybrid or transgenic maize seem to have more connections, while farmers cultivating traditional maize are more isolated in terms of information and technical assistance. In Santander, land owners appear more connected.

In both departments, the information sent by the Institute for Hydrology, Meteorology and Environmental Studies of Colombia (IDEAM) and the media is not considered relevant because it is national and departmental, not local. In both departments, participants felt that there is no reliable information at the local level, therefore climate information is not used for decision-making. Sowing decisions are rather driven by custom and the beginning of rains.

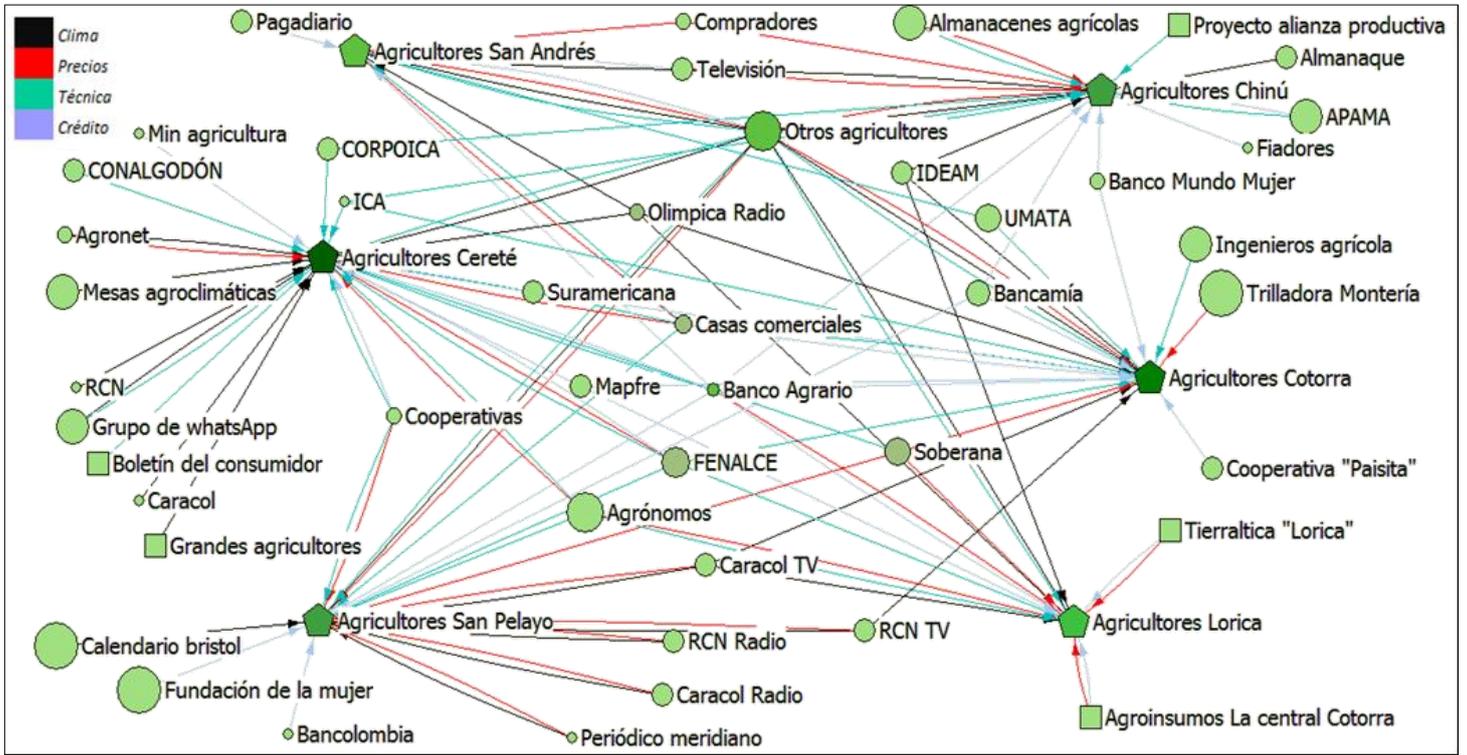


Figure 1. Network of actors identified in Córdoba

In Córdoba, the media is the largest group of actors mentioned, including radio, television channels, almanacs and papers. The second group in terms of actors mentioned is financial entities, including cooperatives, which mainly support their associates. Producer associations and government agencies such as the Colombian Corporation for Agricultural Research - CORPOICA, IDEAM or the Colombian Agricultural Institute (ICA) were mentioned almost in all communities.

Farmers in Córdoba have low trust in the actors with which they interact, mainly relying on information exchanged with other farmers or experts. They have low trust in financial entities because of the difficulty perceived in applying for loans and crop insurance. Climate related information provided by the media is considered very general and not relevant at the local level.

On the other side, farmers in **Santander** are linked to several producer and agricultural promotion associations, and government agencies were mentioned in most focus groups. These associations provide technical assistance for targeted crops.

In Santander, information exchanges between farmers is considered very reliable, as well as information received from agricultural promotion associations and financial entities. Moreover, they also trust in the information received from producer associations such as the Coffee Growers Committee, the Horticultural Association of Colombia (ASOHOFrucol), the National Federation of Coffee Growers (FEDECAFÉ), the National Federation of

Tobacco Growers (FEDETABACO), the National Federation of Grain and Legumes Growers (FENALCE), and the Curiti Producers Union. They also consider that FENALCE, CORPOICA and the Ministry of Agriculture and Rural Development (MADR) have lost their link with farmers who are far from main urban areas. However, trust in these institutions is high and the technical assistance they provide is appreciated.



in Córdoba, contrary to Santander, where women participated actively and numerous, and where the agriculture and development agency has a program specifically aimed at women inclusion in economic activities.

## Conclusions and policy implications

Overall, farmers in both departments have a significant level of indebtedness, bush bean and maize production appears subsidized by other crops such as cotton, tobacco or yam, while access to agricultural credits and insurance is low.

According to Podestá *et al.*, 2002, it is confirmed that a key element to facilitate the use of climate forecasts is a decision support system that allows to evaluate the results of alternatives in order to adjust crop management. Farmers are in fact interested in adopting different crop management after a forecast if:

- The information is local
- It comes from a source considered reliable such as experts or other farmers
- It is transmitted with appropriate timing for decision making
- Its impacts are measurable, verifiable and validated, for instance through results from pilots and demonstration plots in two consecutive years

It is strategic to incentivize systems for the transmission and diffusion of information, for instance through exchanges of lessons learned, interest groups, meeting spaces, expert visits, or by taking advantage of social networks and new technologies.

Keeping in mind requirements mentioned by farmers and key actors, some potential solutions are already in place:



Local Technical Agroclimatic Committee of Córdoba.  
Photo: E. Díaz.

- **Climate:** innovative experiences such as the [Mesas Técnicas Agroclimáticas Locales](#) (Local Technical Agroclimatic Committees) that would include farmers and focus at the local level characterizing different types of farmers, could achieve success of projects focused on improving transmission and adoption of useful, relevant, reliable, sustainable and applicable information. This would be additional to local knowledge, ancestral experience and lessons learned by farmers that allows governing bodies to generate adequate and sustainable policies.
- **Soils:** Since 2015, farmers interested in having their soils analyzed at low cost can do it through an initiative by the Ministry of Agriculture and Rural Development (MADR) and CORPOICA, which through [Servientrega](#), will allow to send soil samples to specialized labs, connecting science and farmers' fields. They will also be able to access a simple tutorial showing how to take soil samples.
- **Technical assistance:** [Linkata](#) is an initiative by MADR and CORPOICA with the objective to strengthen Technical Assistance Services in Colombia. In the website, technicians can access capacity building modules in 42 knowledge areas, which allows them to update their knowledge and transfer it to farmers.

## Further Readings

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## CCAFS and Info Notes

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