Innovating for Colombian agricultural competitiveness

Claudia Patricia Uribe G., Innova Prospectiva y Negocios S.A.S.


“The strategic foresight research and technological development and innovation agendas R+D+i, basis for addressing sector policies” 2

Focusing and organizing

The Colombian Sistema Nacional de Ciencia y Tecnología Agroindustrial (SNCTA) 3 (National System for Agro-industrial Science and Technology) has been operating in a disorganized way, which has caused a vast dispersion of investments, low quality and relevance, duplication of efforts and little technology adoption in the agricultural sector. This translates into low impact on the country’s agricultural competitiveness.

In order to respond to this problematic, the Ministry of Agriculture and Rural Development (MADR, Spanish acronym) proposed the establishment of research and technological development and innovation (R+D+i) agendas, aimed at focusing on investment resources and enhancing coordination among organizations. This coordination was carried out by means of long-term participatory planning tools, with the collaboration of various stakeholders linked to production chains. 4 This project, Proyecto Transición de la Agricultura, (agricultural transition project) was funded by the World Bank and implemented by MADR. The Ministry contracted universities, producers’ associations and research centres to establish 25 R+D+i agendas with strategic foresight vision, for an equal number of production chains. Each agenda prioritized a market potential product, determined which market to reach and identified chains or competitor countries.

Operating process

When the R+D+i agendas were developed, four premises were taken into account:

a. Selecting an analysis framework, to obtain a systematic and complete vision of the problems identified by the chain stakeholders

b. Determining a long-term vision, to address R+D+i

---

2 FEDESARROLLO. 2011. Evaluación de resultados e impactos del Proyecto Transición de la Agricultura Bogotá, Colombia.
3 Law 607 of 2000 created SNCTA, with the goal of providing the necessary knowledge, methods, technologies and technological products to the agricultural sector to perform vis-à-vis the national requisites and the international environment.
4 Law 811 of 2003 created the supply chain organizations of the agricultural, forestry and fisheries sectors, seen as a group of activities that are technically and economically coordinated from the beginning of production and elaboration of the product till its final commercialization. These supply chain organizations are constituted by all the agencies that participate in the production, transformation, commercialization and delivery of an agricultural product.
c. **Achieving genuine impact from research, technological development and innovation** by shifting from an offer-based model to one based on the chain demands

d. **Strengthening SNCTA.**

To implement the 25 agendas, MADR, together with the National University and international consultants, established the following steps:

a) Prioritize and select production chains  
b) Define a strategy to link the chain stakeholders in the different stages of the studies  
c) Define the methodological process to be followed  
d) Provide capacity training for the groups that will implement the studies  
e) Develop agendas  
f) Validate and disseminate the results.

This collective development became a methodology of its own for defining the R+D+i for the Colombian agricultural sector. It involves the implementation of several tools assembled in a competitive intelligence system.

---

### Strategic vision of the agricultural sector

Two fundamental aspects can be gathered from the analysis of the 25 agendas: a) define a shared vision of the agricultural sector b) propose elements of public policy to achieve it.

---

#### Shared vision of the agricultural sector

In 2020, the quality of life of agricultural producers will be better given the advances in production efficiency and quality. This enables the country to be more competitive in international markets and to make the most of free trade agreements. Among these advances, we can highlight:

- Improved health status in the country thanks to the strengthening of organizations
- Disminución de la informalidad y el contrabando de productos de origen agropecuario.
- Decreased unreliability and less smuggling of agricultural-based products. Steady food production that guarantees food security and generates exportable surplus. Access to resources, genetics, and sustainable use of biodiversity and protection of traditional knowledge, as well as policies oriented towards climate change adaptation and to the evaluation of environmental services.
- Important innovations through the use of SNCTA results, strengthened by the supply chains
- A 1 percent increase in resources investment in R+D+I, which has given the country the economic resources and scientific and technological capacities required by the sector in the medium and long term.

---

[Castellanos, O. et al., 2009, Manual metodológico para la definición de agendas de I+D+i en cadenas productivas agroindustriales. MADR: Bogotá, Colombia.]
The second aspect, related to policy elements, refers to the strengthening of institutional capacity to respond to sector demands and to the challenges imposed by free trade treaties. The government must design and implement production incentives and allocate resources to invest in infrastructure and logistics. In addition, it is necessary to promote the links between small- and medium-scale producers and businesspeople in equal terms to generate economies of scale, reduce the need for intermediaries and strengthen different types of organizations.

To support the achievement of the sector's vision, it is necessary to strengthen SNCTA through a research promotion policy, and by increasing funding and human resources capacity-building policies. Furthermore, more scientific and technological exchange should be promoted by strengthening the scientific, local, national and international cooperation links.

On the other hand, it is necessary to support strategic research topics related to conservation, characterization and obtaining improved varieties and the use of certified seed. This would contribute to identifying the potential of native plant material and Colombian indigenous species, and aspects related to plagues and diseases. Also, topics such as the use of agricultural inputs, efficient water management and sustainable resource management can be explored.

Finally, it is necessary to support the development of products or products with market potential, added value in transformation processes, and some degree of conservation and special characteristics, to expand the markets or substitute imports. Non-technological aspects should be explored, such as the availability and quality of information to support decision making, and the predisposition to form associations of producers and corporate management.

**Ownership**

Presently, the R+D+i agendas of supply chains serve as a fundamental input to the national government,\(^6\) which has prioritized the strengthening of SNCTA by promoting links between different stakeholders through the establishment of the exclusive sector research agenda R+D+i (Agenda de Investigación Única de I+D+i Sectorial).

The national government appointed the Corporación Colombiana de Investigación Agropecuaria (Corpoica) (Colombian Corporation for Agricultural Research) as coordinator of SNCTA, for the creation of the national social agenda. The agenda has been incorporated into an information platform,\(^7\) in order to support the links between the different SNCTA stakeholders and generate indicators to support decision making and strategies, such as the creation of knowledge links that promote institutional agreements that can respond to the needs indicated in the national agenda R+D+i.

In the same way, production groups and research centres in the sector have taken ownership of several agendas, as sector planning tools. Such is the case of the national federation of oil palm growers, Federación Nacional de Cultivadores de Palma de Aceite (FEDEPALMA); the oil palm research centre, Centro de Investigación en Palma de Aceite (CENIPALMA), and the Colombian federation of livestock owners, Federación Colombiana de Ganaderos (FEDEGAN).

**Some lessons learned**

The organization of stakeholders in supply chains allows focus in strategic sectors and facilitates stakeholders' participation and ownership of their institutional spaces. In this way, national and regional chain supply councils constitute the appropriate entities for the R+D+i agendas to be the guiding framework for decision making, the efficiency of processes, the development of innovative products and the ability to reach new niche markets by improving research and technology processes.

This is the case of the beef and veal chain research agenda,\(^8\) which identified various markets for three types of products: a) ecological products; b) prime cuts; and c) domestic consumption meat. These results continue to guide the Colombian cattle sector strategies.

The establishment of research agendas carried out by the stakeholders directly involved, such as production groups and agricultural research centres, enable greater ownership and use of the results achieved, as well as leaving behind trained human resources in the use of strategic foresight tools.

However, it is necessary to inspire confidence in ANCTA stakeholders, with the objective of ensuring that financial pledges materialize from the private- and public-sector donors, to guarantee resources for the financing of the agendas in a sustainable way and to focus investment on strategic topics for the country.

---

\(^6\)Plan Nacional de Desarrollo, Prosperidad para todos, 2010 - 2014

\(^7\)Sistema de Información de I+D+i del SNCTA, cuya gestión y análisis está a cargo del Observatorio del SNCTA, www.siembra.gov.com

\(^8\)FEDEGAN (Federación Colombiana de Ganaderos). 2010. Agenda de I+D+i de la Cadena de la Carne Bovina.
Final recommendations

One of the most decisive aspects of the exercises for steering strategies is sustainability, seen that they must go beyond the terms of individual governments until they become State policies. To accomplish this, it is necessary to continue working on the results that have been achieved to date, with a systemic and strategic vision of the Colombian agricultural sector for the next 20 years, by defining immediate policies.

Market-oriented research and development processes recognize science and technology as creators of competitiveness. Market changes must lead to impacts through the use of strategic foresight tools that allow chain stakeholders to give preference to the dynamics of the environment and promote actions that lead to greater competitiveness; and to positioning in national and international markets at short, medium and long terms.

Aiming to extend and link the critical science and technology areas that respond to the challenges described, it is necessary to define a human resources capacity training policy that will promote linkages between research groups and knowledge networks. To achieve this, it is necessary to formulate and enhance professional training in knowledge transfer and in technical assistance to producers. This way, the transfer and adoption of technologies to achieve the required innovation in the agricultural sector will be more significant.

Thus, the development process of R+D+i agendas has enabled the creation of a methodology that not only contributes to the pool of tools but also provides an adequate assessment of the impacts, beginning from the implementation phase and the monitoring of the R+D+i agendas.

An evaluation of the results and impacts was carried out in the final stage of the project Proyecto Transición de la Agricultura. It states that “although the future adoption and sustainability of the agendas is perfectly viable, and would bring multiple benefits to the sector, such adoption will not be possible without the greater participation of MADR in the dissemination stage, and to bring about real impact it will need the continuous availability of funds to finance the agendas’ evolution in the coming years.”

It also states that “the methodology that has been developed is important, as well as the negotiation process between producers and research entities and the ownership of the methodology for the development of the R+D+i agendas. However, it is necessary to improve the sharing of the results and to connect all links of the supply chain in the implementation stage.”

---

Citation:

Contact information:
Claudia Patricia Uribe G. (curibe@innovapn.com); the Brief series coordinator Robin Bourgeois (Robin.Bourgeois@fao.org).

Disclaimer:
Creative Commons Attribution & Noncommercial License (BY-NC). Licensees may copy, distribute, display and perform the work and make derivative works based on it only for noncommercial purposes and if they give the author or licensor the credits in the manner specified by these.