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AGTECH CHILE: an outreach and technology transfer platform for closing gaps in emerging Chilean precision agriculture companies

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Abstract. [[Click here to enter abstract text](#)]

The abstract is often the only part of the paper to be read, so include your major findings in a useful and concise manner. Include a problem statement, objectives, brief methods, quantitative results, and the significance of your findings. The abstract should be no more than 350 words long.

Agtech Chile is an outreach and technology transfer platform that aims to help emerging precision agriculture companies in Chile to close technical gaps and to expand internationally. The Project is led by a media company, Redagricola, which has magazines and organises conferences in Chile and Perú and a group of scientific advisors. 25 emerging companies have joined the Project. Since December 2015 we have organized 7 seminars and workshops which have been attended by more than 1500 people, covering themes such as sensors, drones, irrigation scheduling, foodtech, spatial variability, big data and farm operation. All of this has been backed by a strong media footprint, devoting 8 permanent pages in our magazines and two dedicated websites: www.agtech.cl and www.agtechlatam.com. This stage of the Project has been supported by the

Chilean government through its agency CORFO and will close its first year with and international conference “Agtech Latam” in January 2017.

Keywords.

Precision Agriculture, Media, Outreach, Start Ups, Chile, Perú, Technical Transfer, Education.

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Agtech Chile Goals

Agtech Chile is an outreach and technology transfer platform that develops education and training for novel precision agriculture and biocontrol companies in Chile. It is supported by the Chilean government, through its development agency Corporación de Fomento de la Producción, CORFO. It organizes workshops, seminars, field days and it has a strong media footprint through Redagícola Chile & Perú magazines and www.agtech.cl and www.agtechlatam.com

The general goal is to develop outreach and technical transfer activities in order to help these novel companies become world class enterprises. It has specific goals for each of the two subsets of companies (precision agriculture and biocontrol).

The specific goals for the precision agriculture companies are: (1) Detect the technological needs related to precision agriculture and the use of information technologies in the main agriculture sectors; (2) Educate the companies in the novel sensor technologies that are available; (3) Inform the companies about the state of the art in platforms, data transmission protocols and spatial-temporal data communication; (4) Train the companies in the latest spatial-temporal data management techniques; (5) Offer the companies updates regarding the latest products and technologies in the field of UAVs; (6) Inform the companies about new tools to develop novel products and services.

There are also common goals for precision agriculture and biocontrol companies: (1) Inform farmers about the benefits of their offerings; (2) Train the companies on how to export their services and products to other Latin American companies, especially to Perú and Colombia. (3) Establish and innovation ecosystem around agtech in Chile.

Agtech in Chile

The companies that we are working with are part of the new technologies in agriculture, popularly described as agtech companies. These kind of companies encompass a wide array of products and services offerings, including precision agriculture, IT for farmers, biotechnology inputs, food e-commerce, bioestimulantes, biocontrol, sustainable proteins, novel irrigation systems, biomaterials, bioenergy, among others. In this project we will work with two very clear subsectors: Precision Agriculture and Biocontrol.

The origin of precision agriculture in Chile is dated back to 1997 with the early works of Dr. Rodrigo Ortega Blu, who demonstrated high variability in the Chilean soils and crop yields, which justified the use of variable spatial-temporal management. Dr. Ortega (Scientific Director of this project) created the Precision Agriculture Program at Instituto de Investigaciones Agropecuarias (INIA), later he created the “Centro de Agricultura de Precisión” at Pontificia Universidad Católica de Chile (CAPUC) and the “Centro Avanzado de Tecnología Agronómica” (CATA) at the Universidad Técnica Federico Santa María, all of them in Chile. In those centers and also in Universidad de Talca and in other INIA research stations a wide array of research on precision agriculture has been made, mostly in broad acre crops, but predominantly in fruit orchards and vineyards, with public and private funding.

This is very particular of Chile, because most of the research has been conducted in cash crops: fruits and vineyards.

From these initial projects, we estimate that at least 200 professionals have been trained in the main technologies and practices of precision agriculture.

Early in the year 2000 the first precision agriculture companies appeared in Chile (Atec, Precision

Farming), immediately followed by Agroprecision, Agrosat and NeoAg Agricultura de Precision. These initial companies were lately followed by many in the fields of irrigation control and recently the market has seen the appearance of many start ups, mostly in the UAVs and Irrigation fields.

The precision agriculture industry in Chile it is still very small and fragmented. This, together with a very small critical mass in R&D, makes it difficult to inform the Chilean agriculture market about the clear benefits of the use of these technologies.

Chile is the largest fruit exporter in the Southern Hemisphere. Food exports are the country's second income, totalling US\$18,000 millions in 2015. In many fields such as wine, table grapes, blueberries, avocados, cherries, the Chilean industry leads in the Southern Hemisphere and its agronomist are well respected globally. Based on this, precision agriculture emerges as a science that can help to boost yields and quality and based on the agronomic knowledge of the fruit and wine exporting industry, the local precision agriculture companies can develop novel products for the world.

But first, it has to "close" some technical gaps.

Technical Gaps Detected

(1) There is not a clear understanding of what farmers demand from precision agriculture companies; (2) There is little knowledge about the scientific-technological bases behind the development of sensors; (3) the companies admit they need to learn more about the state of the art in platforms, and spatial-temporal data transmission and communication. (4) There is a need for more education in spatial-temporal data management. (5) There is a need for more education in the use of UAVs.

Activities

The project has two types of activities: in person and through media.

Media: We have established a section in Redagrícola Chile magazine which devotes 8 pages to the project in 11 issues (during the 15 months of the first stage of this project). In that section many aspects of precision agriculture have been covered and in each issue a profile of at least three companies has been published. We have also devoted a special website: www.agtech.cl (and www.agtechlatam.com).

In person: The project consists of 15 workshops, field days and seminars.

- December 2015: Opening Seminar: Agtech Chile.
 - o Invited international speaker in Precision Agriculture: Dr. Raj Khosla, Colorado State University.
- January 2016: Biocontrol products quality.
 - o Invited international speaker: Dr. María Mercedes Martínez, University of Bonn, Germany.
- March 2016: The use of sensors in agriculture.
 - o Invited international speaker: Dr Viacheslav Adamchuk, McGill University, Canada.
- April 2016: Compost and Organic Matter Production Workshop
 - o Invited speaker: Dr. María Mercedes Martínez, University of Bonn, Germany.
- June 2016: Novelties in Precision Agriculture, Foodtech and Agtech at 3a Conferencia Redagrícola, Santiago de Chile.
 - o Invited international speakers:
 - Dr. Raj Khosla, Colorado State University, USA.
 - Marius Robles, Reimagine Food, Spain.
 - Drew Zabrocki, Centricity, USA.

- June 2016: Novelties in Precision Agriculture, Foodtech and Agtech at 3a Conferencia Redagícola, Santiago de Chile.
 - o Invited international speakers:
 - Dr. María Mercedes Martínez, University of Bonn, Germany.
 - Dr. Aura Pedroza, Pontificia Universidad Javieriana, Colombia.
 - Bill Dunham, parter at Dunham/Trimmer and 2BMonthly.
- June 2016: “Biocontrol Products Formulation Workshop” at 3a Conferencia Redagícola, Santiago de Chile.
 - o Invited international speakers:
 - Dr. María Mercedes Martínez, University of Bonn, Germany.
 - Dr. Aura Pedroza, Pontificia Universidad Javieriana, Colombia.
- August 2016: “Precision Agriculture: Data analisis and operations”
- August 2016: “How to export precision agriculture services and biocontrol products to the Peruvian market”
- October 2016: Conference “Precision Agriculture: platforms, data communication technologies and protocols”
- October 2016: Conference: “Biocontrol: regulatory aspects”
- January 2017: International Conference “Agtech Latam 2017”

Participating Companies

The following companies are members of Agtech Chile. We started with 20 companies and now we have 25 members.

It is an open platform and new companies can join (they just have to pay a small fee).

- ANASAC
- AGROPRECISO
- AGRISERVICE
- AGROPRECISION
- AGROPRIME
- AGROTECHNOLOGY
- AVANCE BIOTECHNOLOGIES
- BIO INSUMOS NATIVA
- BIO PACIFIC
- BIOGRAM
- CHEMIE
- COMPO EXPERT
- CD TEC
- CROP MONITOR
- FOOD IF

- LEM SYSTEM
- MORPH2O
- NEOAG
- RESET
- ROSARIO
- SOFRUCO
- VITATERRA
- WISECONN
- ZURAGRO
- XILEMA

Agtech Chile Team

Director: Patricio Trebilcock Kelly, Journalist.

Scientific Director: Dr. Rodrigo Ortega Blu, Ing. Agrónomo, MS, PhD

Biocontrol Scientific Advisor: Dr. María Mercedes Martínez S., Microbiologist, PhD

Coordinator: María José Kuhn, Architect.

Producers: María Carolina Orellana, Agronomist; Pascuala Muggli, Agronomist.

Journalists: Rodrigo Pizarro, Juan Pablo Figueroa, Francisco Fabres.

About Redagrícola

Redagrícola Comunicaciones S.A. is a Chilean company that publishes the leading magazines about fruit and vegetable production in Chile and Perú. We publish 8 issues and year in each country, with a combined print run of 16,000 copies per issue. We have offices in Lima and Santiago. In each country we organise annual conferences and local events.

www.redagricola.com

We also publish for New Ag International (France-UK) the Spanish version of their magazine and help them in the organisation of their established global conferences: New Ag International Conference, the World Congress on the Use of Biostimulants in Agriculture and Biocontrol Latam and Biocontrol Asia Conferences.

www.newaginternational.com

Results

We are still in the first term of the project, but so far we can show some results:

1,500 people have attended our workshops, seminars and conferences. (300% above what was

estimated in the project)

25% increase in participating companies since we launched the project.

At the end of the first stage of the project (January 2017) we will be able to deliver a qualitative and quantitative report about it.