ISPA Newsletter 12(10): Nitrogen Community Election, Article from Colombia Country Rep., Jobs, Events and More

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International Society of Precision Agriculture

MONTHLY NEWSLETTER



ISPA Nitrogen Community Deputy Leader Election

Members of the ISPA Nitrogen Community have been invited to participate in the Deputy Leader Election. The deadline to complete your ballot is 30 November 2024. Results of the election will be announced in the December ISPA Newsletter.

If you are a member of this community and did not receive an email with a link to your ballot, please email info@ispag.org

Precision Agriculture: A Historical Perspective and Current Trends of production monitoring installed in harvester of Sugarcane in Colombia

Precision agriculture began to gain momentum in the early 1990s. The implementation of production monitors initially focused on corn and soybean crops. However, significant advancements were made, such as Graeme Cox's contributions in 1996, which led to the development of production maps for sugarcane. Later, in Brazil, the concept was refined and validated for use in both manual harvesting with sugarcane loaders and mechanical harvesters.

In Colombia, the first equipment (production monitor) for sugarcane harvesting arrived in 2007, along with the necessary concepts for understanding and utilizing this technology. This initiative was driven by one of the oldest sugar mills, which implemented production maps in sugarcane loaders and harvesters across approximately 40,000 hectares.

Initially, sensors for rotation, elevation, and hydraulic pressure were installed on sugarcane loaders. By coordinating various actions, these sensors helped define an algorithm for counting cane loads and geolocating them. Additionally, four load cells were incorporated as part of the productivity monitors in harvesters, which later evolved into a single load cell for increased versatility.

These systems require continuous monitoring and discipline for proper maintenance and operation. Over time, other sugar mills adopted this technology, and by 2013, it had become widespread. It is estimated that over 80% of sugar mills in Colombia have implemented these tools. However, challenges remain, including the need for training in maintenance and operation, as well as a lack of technical and agronomic knowledge for utilizing the data strategically in crop management.

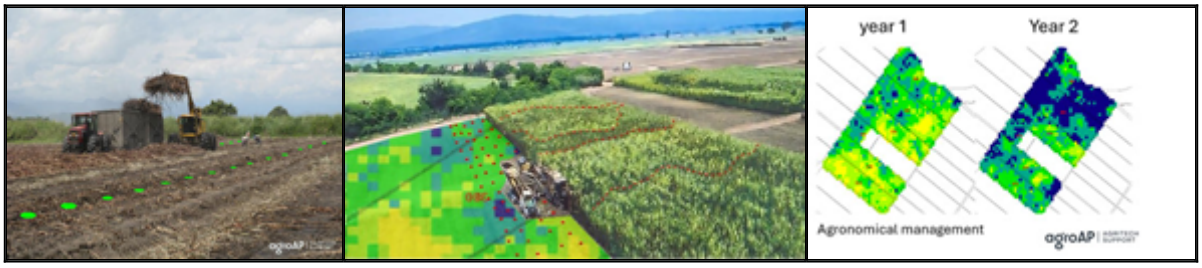
Fortunately, the introduction of optical monitors for production measurement has improved data quality. Nonetheless, filtering and selection of this data are essential to create maps with minimal noise during interpolation. Unfortunately, the cost of this equipment presents a barrier to its extensive adoption among potential users. Other agricultural technology companies have proposed estimating production based on the operational parameters of harvesters; however, some tests have revealed that the algorithms need further adjustment to yield reliable information.

Since the introduction of production maps for sugarcane, there has been integration with soil data to recommend fertilizers, evaluate treatment outcomes, and identify areas of low productivity and limiting factors. These production maps have also validated differences and similarities with vegetation indices, showing approximately 34% correlation in evaluations conducted in various environments. In the lowest production areas, these correlations may slightly increase.

It is crucial to recognize that while vegetation index maps provide valuable information, they are complementary to, rather than a replacement for, production maps.

Undoubtedly, production maps for sugarcane remain and will continue to be a valuable tool for validating limiting factors and assessing treatment outcomes aimed at enhancing productivity. The real impact lies not just in the ability to interpolate and construct maps, but in correlating various factors to achieve a better understanding of crop behavior in its respective environment.

Production maps in sugarcane



Carlos Mosquera. CEO AGROAP. Colombia. Country Representative ISPA.

Upcoming Events

25-27 FEB 2025
GIS & Drone Applications in Agriculture Conference

29 JUN - 3 JUL 2025
15th European Conference on Precision Agriculture
Barcelona, Spain
ecpa2025.upc.edu/

22-31 AUG 2025
XXXII ISSCT Centennial Congress
Cali, Colombia
issctcennial.com/

14-16 OCT 2025
11th Asian-Australasian Conference on Precision Agriculture
Chiayi, Taiwan
ispag.org/Events/ACPA

2-4 FEB 2026
International Crop Modeling Symposium (iCROPM2026)
Florence, Italy

Week of 13 JUL 2026
17th International Conference on Precision Agriculture and the 11th Brazilian Congress on Precision Agriculture
Porto Alegre, Brazil
ispag.org/icpa

See the ISPA website for a complete list of events.
Do you have an event that would be of interest to our members? Send us an email to let us know.

Jobs Listing

- Postdoc in Digital Agronomy for Climate Resilient Perennial Agriculture
- Tenure Track Assistant Professor in soil spectroscopy at Department of Agroecology, Aarhus University
- Assistant or Associate Professor of Extension Soil Management - University of Kentucky - Department of Plant and Soil Sciences
- Precision Agriculture Technologies Extension Specialist - University of Tennessee - Biosystems Engineering and Soil Science
- Assistant Professor (Extension) - Mississippi State University - The Department of Agricultural & Biological Engineering
- University of Georgia - Assistant Professor - Extension Specialist Precision Agriculture Systems

Do you have a job you would like to post to the ISPA website? Please send your job announcement, a short description, and cutoff deadline for applications to info@ispag.org

Contribute to the ISPA Newsletter

Do you have a precision ag event, project, or news article that our members would be interested in? Please let us know. We post events, job opportunities, and news from members from around the globe. Email info@ispag.org or use the handy online form to submit your contribution.

Stay Up To Date with ISPA on Social Media!

Be sure to follow ISPA on Twitter and LinkedIn to remain up to date with what the society has to offer. If you're posting about precision agriculture and would like to reach our international community, please add #ispag to your post.

Precision Agriculture Definition

Precision Agriculture is a management strategy that gathers, processes and analyzes temporal, spatial and individual plant and animal data and combines it with other information to support management decisions according to estimated variability for improved resource use efficiency, productivity, quality, profitability and sustainability of agricultural production.

The International Society of Precision Agriculture (ISPA) is a non-profit professional scientific organization.
The mission of ISPA is to advance the science of precision agriculture globally.

Contact newsletter@ispag.org to suggest content for future newsletters or visit www.ispag.org for more about the Society