"Smart" concept for cover planting wins Farming by Satellite Prize

The 3rd Farming by Satellite Prize, promoting the use of satellite technologies in agriculture, was decided on Monday 23rd January at International Green Week in Berlin. The overall winner of €5,000 was a team from ISA Lille in France with their idea for using satellite data to pair the issues of managing nitrogen levels together with solving soil compaction, and using cover crops to address this in an environmentally sensitive way. The €4,000 Special Africa Prize went to "Shamballite" a team from Kenya with their innovative and well-documented idea for a mobile and satellite-based Farming Information System.

They beat stiff competition from 76 other young people across 13 European and 8 African countries. Judges selected seven teams from Europe to take forward to the final 'live' judging round, and another three from Africa, who made their presentations by video-link. Portugal was successful in getting two teams through to the final round, and other finalists were from Belgium, Czech Republic, France, Germany and Italy. For the Special Africa prize, it was Kenya that was particularly successful – providing two out of the three finalists, with the third coming from Morocco.

The €3,000 Second Prize and €1,000 Third Prize went to Czech Republic and Italy respectively.

Farming by Satellite Prize is an initiative of the European GNSS Agency (GSA) and the European Environment Agency (EEA). It is sponsored by CLAAS, a leading manufacturer of agricultural engineering equipment, and crop protection experts Bayer CropScience.

Reviewing the winning entries this year, GSA judge Reinhard Blasi said:

"The judges were particularly impressed with the high quality and professionalism that has evolved over time, especially for the African participants. It was this and the holistic approach focussing on a real challenge for Kenya´s farmers that helped "Shamballite to win first place. The idea sends simple mobile messages to support farmers with decision-making by closing specific information gaps."

Commenting on the environmental aspect of entries, Hans Dufourmont of EEA added: "It has been remarkable to see how the Copernicus' European Union open data policy becomes a real game changer that boosts the uptake of satellite imagery for improving the

environmental aspects of farming practices: we have seen plenty of proposals taking advantage of the free access to Sentinel satellite data.

Said Christian Radons of CLAAS: "As agriculture becomes more knowledge intensive, our role extends beyond machinery design and manufacture to use science, innovation and technology to make a difference across the whole value chain. We really want to encourage tomorrow's innovators to apply their talents to the agriculture sector, which is why we have supported the Farming by Satellite Prize since the first edition in 2012. With each edition of the Prize, we notice the submissions improving in quality and applicability. This is a great signal for the future of farming and food production."

Commented Alex Melnitchouck of Bayer CropScience: "Today's farmers have a lot of knowledge at their fingertips, helped by the spread of mobile communications. Combine this with the latest seed varieties, detailed weather data and crop analysis tools, and they have a better chance to increase production and cope with climate change. There is a real opportunity to help farmers with decision-making and use advanced technology in simple ways to manage their businesses better, and to lower costs. The Farming by Satellite Prize is a way of raising awareness of these opportunities and tapping into the talents of young people to make them happen."

The last words go to the winners who said: "We are so excited to have been selected as winners; it has been a great experience, and we hope to see our idea become reality."

Entrants must be under the age of 32 and can take part as individuals or as a team. They can submit case studies of trials, or new ideas and innovations, particularly those relying upon European Geostationary Navigation Overlay Service (EGNOS), the forthcoming GALILEO system and COPERNICUS (the European Earth Observation Programme).

For more information visit: www.farmingbysatellite.eu or contact organiser Andrea King at andrea.king@askhelios.com.

Team ISA Lille – France

Students at Institute of Live Science in Lille

Title of Entry: Optimization of plant cover properties using satellite imagery

About ISA Lille:

The Team is composed of four students: (left to right) Geneviève Baumann, Louise Vernier, Charlotte Lejoyeux and Marie Rolloy. They are all studying in fourth year in the school ISA (Institute of Live Science) in Lille (North of France). They all come from a different place: Genevieve and Marie both come from Paris whereas Charlotte comes from Le Mans (West of France) and Louise from a small village in the North of France.

Except Louise, all the students had no experience in agriculture before studying at ISA Lille. This school offers the opportunity to learn about environment, food industry, landscape or agriculture, to become engineer. They chose to take part in this prize because they are all interested in improving agriculture with techniques respecting the environment. Moreover, this was the opportunity for them to work on a transdisciplinary project.

Mentors: Bertrand Vandoorne and Eric Taisne

About their Entry:

Cover crops improve the soil structure and its level of organic matter, reduce erosion and leaching, and avoid phenomena of slaking. Our model will optimize the properties of the cover crops to improve soil composition. The main purpose is to create a precise mapping of an agricultural plot, bringing together information of the last crop nitrogen deficiency, the soil moisture and its structure. Then we select the best species from each zone: a specific mixing of plants for each kind of agricultural plot of land. With this map, we can give some preconisation about the composition of the mixing to maximize the benefits related to each plant species.
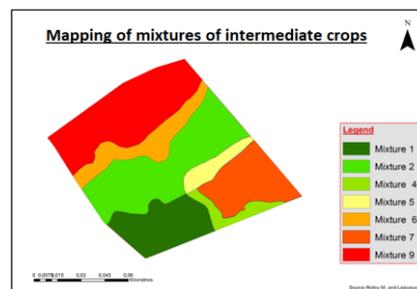
TTT Solutions – Czech Republic

Ph.D. students at Palacky University, Czech Republic

Title of Entry: Crop Type Detection and Evaluation System

About TTT Solutions:

All three members of TTT Solutions are ph.D students at at Palacky University at Department of Geoinformatics in Olomouc, Czech Republic.

Tomáš Pour: (left) His specialization is remote sensing, image analysis and thermography. He studied both bachelor and master degree at the department of Geoinformatics.

Tomáš Pohanka: (middle) He specializes in administrating spatial databases, creating Python scripts for spatial analysis and data mining.

Antonin Benc: (right) His work focuses on Geoinformatics in environmental applications, modelling and prediction of landscape units. Since 2015 he is the owner of the company SpatialComp, which deals with the collection of spatial data, analysis for municipal administration, property records, and environmental applications.

About Team TTT Solutions Entry:

Crop type Detection and Evaluation System (CDES) is a project focused on improving control capabilities of government regarding subsidies for agricultural purposes, agricultural market predictions and precision farming.

The project is using Sentinel 2 system supported by national LPIS (Land Parcel Information System) data. This workflow will serve not only as a practical tool but as a scientific platform as well. That will allow us to improve the methodology in the future and extend the range of applications.

Ambrogio Zanzi (Glorify) – Italy

GIS solutions Consultant

Title of Entry: A new forecasting system for rice production

About Ambrogio Zanzi:

Ambrogio Zanzi holds a bachelor and a master degree in agricultural science both from Università degli Studi di Milano (Italy).

He graduated magna cum laude with a dissertation on the development of a new crop forecasting system – the subject of this entry – to foresee both quantitative and qualitative aspects of rice harvest. Then, he has completed his studies at University of Massachusetts Amherst (USA). He is currently working as a consultant for his family company all over Italy promoting the use of GIS solutions into the fields of arboriculture and urban environmental management. Moreover, he has been involved in different European founded projects regarding environmental protection and agricultural working safety, such as the Interreg project "Pro Arbora" and the Erasmus Plus project "Vet Safety".

Mentor: Dr. Giovanni Cappelli - giovanni.cappelli@unimi.it

About Ambrogio Zanzi Entry:

Glorify is a new forecasting system that combines earth observation and crop modelling to provide estimates of the rice production both on quantitative and qualitative aspects. It has been tested in the Northern Italian rice district considering as quality variable the head rice yield (HRY) – one of the main determinant of rice market price – with encouraging statistical results: EF and R2 > 0.9.

Applying this combined forecasting method to different crops, it can be possible to have more reliable prevision of the agricultural performance under different conditions, allowing authorities to better control and foresee agricultural productions.