CAB ABSTRACTS **HOT TOPIC:**

Unmanned aerial vehicles for precision agriculture

Technology in agriculture is constantly evolving as the industry addresses the dual challenges of food security and climate change. Collecting reliable and accurate data on the health of crops is essential to maximise yield and reduce losses. Unmanned Aerial Vehicles (UAVs) present a quick and increasingly cost-effective way of collecting this data and offer a higher resolution, unobstructed view down to the individual leaves of a crop, when compared with traditional satellite imagery. While UAVs have been around since the 1980s, practical application of this technology has been expanding rapidly in recent years, particularly within the agricultural sector.

CAB Abstracts covers the global literature on all aspects of precision agriculture, including remote sensing (image processing, mapping, robotics and computer software) for use in agriculture as well as forest management. The use of UAVs in agriculture is still a relatively new concept; however, changes in the law are making it easier for farmers to adopt this technology.

CABI's CAB Abstracts database comprehensively covers hot topics that matter

CAB Abstracts sources the world literature to provide the complete picture on advances in the use of Unmanned Aerial Vehicles in agriculture, including information on:

- **Crop health assessment**: UAVs can produce multispectral images that track changes in plants and indicate their health. Responding as soon as a disease is detected could save an entire crop.
  UAV-assisted dynamic clustering of wireless sensor networks for crop health monitoring.
  Sensors, 2018

  Low-cost multispectral imaging for remote sensing of lettuce health.
  Journal of Applied Remote Sensing, 2017
- **Soil analysis**: UAVs can produce detailed maps for early soil analysis, which can be used to help detect contamination or plan sowing patterns.
  Estimation of the vertical distribution of radiocesium in soil on the basis of the characteristics of gamma-ray spectra obtained via aerial radiation monitoring using an unmanned helicopter.
  International Journal of Environmental Research and Public Health, 2017
- **Crop spraying**: UAVs can scan the ground and spray the correct amount of liquid which increases efficiency and reduces the amount of chemicals penetrating into the groundwater.
  Chemical control of *Ceratovacuna lanigera* Zehntner with multi-rotor unmanned aerial vehicle.
  Plant Diseases and Pests, 2017

  Design and test of a six-rotor unmanned aerial vehicle (UAV) electrostatic spraying system for crop protection.
  International Journal of Agricultural and Biological Engineering, 2017
- **Irrigation**: drones with hyperspectral, multispectral or thermal sensors can identify which parts of a field are dry. Also, once the crop is growing, UAVs enable the calculation of the vegetation index, which describes the relative density and health of the crop, and can show the amount of energy or heat the crop emits.
  Addressing groundwater declines with precision agriculture: an economic comparison of monitoring methods for variable-rate irrigation.
  Water, 2017

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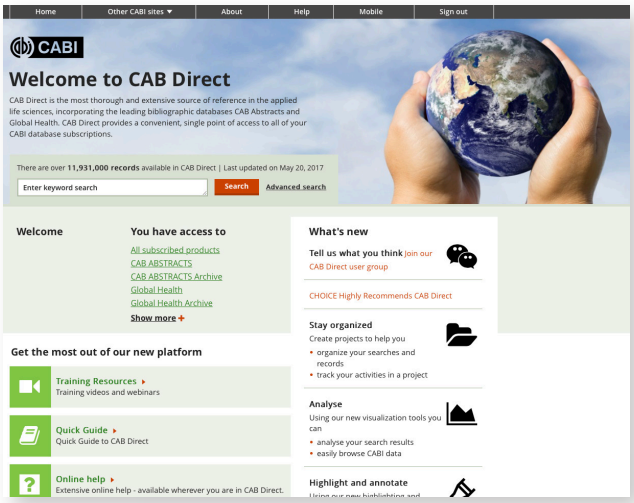

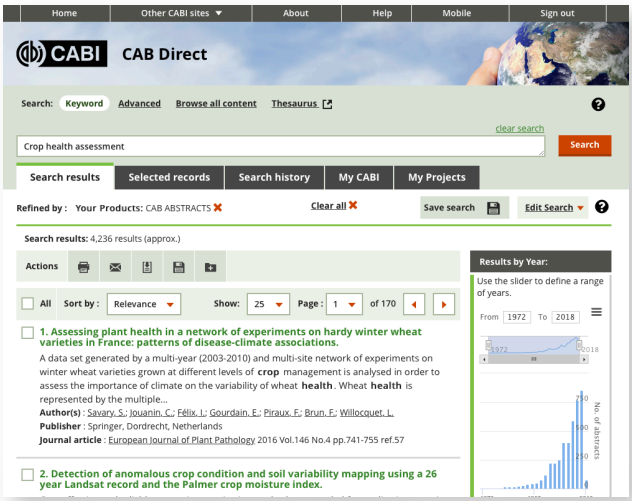

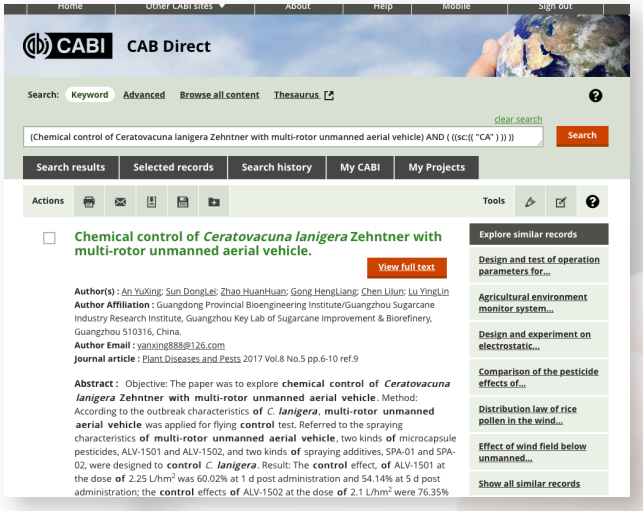

CABI Head Office, Nosworthy Way, Wallingford,
Oxfordshire, OX10 8DE, UK
T: +44 (0)1491 829313 **F:** +44 (0)1491 829198 **E**: sales@cabi.org