Agricultural digital decision support tools: a landscape analysis

Ulli Kuhlmann, Rob Reeder, Emma Jenner, Claire Curry

G20 MACS Meeting, Bali, Indonesia
CABI in brief

Not-for-profit intergovernmental organization, established by a United Nations treaty-level agreement

Owned by 49 Member Countries which have an equal role in the organization’s governance, policies and strategic direction

Global reach – 450+ staff across more than 20 locations worldwide

Addresses issues of global concern such as food security and food safety through research and international development cooperation

Major publisher of scientific information – books, ebooks, digital learning, compendia and online information resources
Millions of apps available for almost everything?

- Google Play store 3.48 million apps, Apple App Store 2.22 million, but identifying the best app or web-based applications for specific needs in agriculture is very difficult
  - Google and Apple online stores use generic categories (classifications) and keyword tags (maximum of five tags for Play Store apps) to filter apps
  - For example, the Google Play Store uses: productivity, business, education, tools, books & reference, communication and weather related to agriculture
  - Play stores restrict searches to 250 apps in any one search
Identifying apps designed to assist in crop production

- In a first step, we conducted a landscape analysis to identify apps and web-based applications that are designed to assist in crop production, serving the needs of public and private-sector agricultural advisors who are critical sources of information and guidance for farmers

- The review involved the characterization of each agricultural app or web-based tool identified (crop/country focus; language; online/offline capabilities; user rating; etc)

- We developed an open access website to streamline this search process for public and private agricultural advisors, growers and other stakeholders interested in crop production decision support tools
Hundreds of tools (apps and websites), were identified and catalogued in a data management system with their characterization details.

- Over 400 apps have been characterized, covering 10 broad subject matter categories (see figure on left)
- Additionally, 193 websites equipped with agricultural decision support tools were recorded.
Landscape analysis (continued)

- The majority of apps were developed solely for the Android platform compared to a small fraction developed exclusively for iOS
  - 37% of apps were available on both platforms
- Android devices, are cheaper and far more widely available (in particular in developing countries); they are responsible for more than 80% of the market share in Africa and Asia (www.statista.com)
- Most apps (80%) could be accessed for free (no cost to users). Of the remaining apps some were subscription-based whereas others offered a “freemium” model, where the basic app is free to download, but more advanced features require a monthly subscription
- Similar results were also noted by Costopoulou et. al. (2016), Karthikeyan and Kumar (2019) and Barbosa et. Al. (2020) in surveys undertaken of agricultural apps

www.cropappindex.org launched in February 2022, comprising >400 apps and website tools relevant to crop production (updated automatically and regularly).
The Crop App Index pulls in apps and websites relevant to crop production and the additional information added by CABI makes it easier for users to find agricultural decision support tools.
Crop App Index functionality

- Allows users to search both the Apple and Google play stores simultaneously
- Browse by category or search for what you need
- Refine results using relevant and useful filters such as country, language and crop
- View a description and other useful details about each tool
- Click the tool to visit the website or to download the app
- Translation option
- Currently 430 tools available and growing
www.bioprotectionportal.com
Update on CABI BioProtection Portal

- A free online resource that enables users to correctly identify, source and apply registered biocontrol and biopesticide products against agricultural pests
- Also provides general information on biological control and IPM via blogs and other resources
- Launched in February 2020
- Now live in 31 countries with more in pipeline – aiming for ~40 countries by the end of 2022
- Available in local languages and English
- Online and offline versions available
- >3,600 registered products in database
- >700,000 users since launch
Countries on portal

- Australia
- Canada
- Colombia
- Germany
- Kenya
- Mali
- Niger
- Spain
- Bangladesh
- Brazil
- Burkina Faso
- China
- Hungary
- India
- Ivory Coast
- Jordan
- Nepal
- Portugal
- United Kingdom

Coming soon

- Indonesia
- Saudi Arabia
- USA
- Sri Lanka

In discussion

- The Netherlands
- Malaysia
- New Zealand
- Vietnam
- China
- Lao PDR
- PNG
- South Africa
The CABI BioProtection Portal

- Multiple potential users:
  - **Growers and advisors** who need current and reliable information, on-demand, regarding the availability and correct use of effective, lower toxicity products that are registered locally and meet market/export standards
  - **National authorities responsible for regulation/registration of plant protection products** who require information on registered products in neighbouring countries
  - **Biocontrol manufacturers** looking to promote wider uptake of their products and identify new markets
Permission to use national governmental datasets

- Information is sourced directly from national governments’ lists of registered plant protection products
- Permission is always requested from the national authority responsible for the registration of plant protection products to use the data set, and links to the authority websites are displayed on the portal
How does it work?

- Navigate to desired country homepage and select language, occupation, crop and/or pest
Product search results

- Search results display **all registered products in a given country** for a selected crop-pest combination.
Detailed product information

- Detailed product information includes **details of registrant, local product distributor, product safety, application, additional uses, etc.**

View label, SDS and product factsheet (where available)

Contact local product distributor
Access to information on biocontrol and IPM

• Growers and advisors can find general information on biological control and IPM via a series of blogs and a collection of relevant information and links

• Crop-specific resources section in the pipeline for 2022
Funding mechanism to guarantee open access

Partners

Sponsor

Donors

Associates
Please don’t hesitate to contact Ulli Kuhlmann: u.kuhlmann@cabi.org

CABI is an international intergovernmental organisation, and we gratefully acknowledge the core financial support from our member countries (and lead agencies) including: