Information and Communication Technology

Point, click and find

Thanks to Agri-Intel's powers of systemisation, agrochemical information is no longer a confusing jumble.

AGRICULTURAL CROPS, be they grains, vegetables or fruit, need human intervention to grow strong and healthy. One of the main priorities of every farmer is to protect the harvest. In this mission, agrochemical products play an important role. But knowing what products to apply when and how is no simple matter. From growth regulators to fungicides, pesticides and herbicides, the selection alone can be bewildering. Add to that the fact that one wrong choice can mean the loss of an export contract, and the process becomes truly daunting.

Farmers who produce fruit for export have to comply with a range of different requirements of destination countries and retailers in terms of maximum residue levels (MRLs), pre-harvest intervals (PHIs) and retailer-specific conditions regarding agrochemical use. Producers can also only use registered, legally permitted products that are safe and suitable and comply with the latest regulations.

When producers base their crop protection action on incorrect or outdated information, the financial and market access consequences can be dire.

1 Kobus Hartman with Chana-Lee White (left) and Sarah le Grange.
2 The Agri-Intel website features flexible, web-accessible search and reporting mechanisms to retrieve the MRL, PHI and retailer-specific agrochemical information it stores.

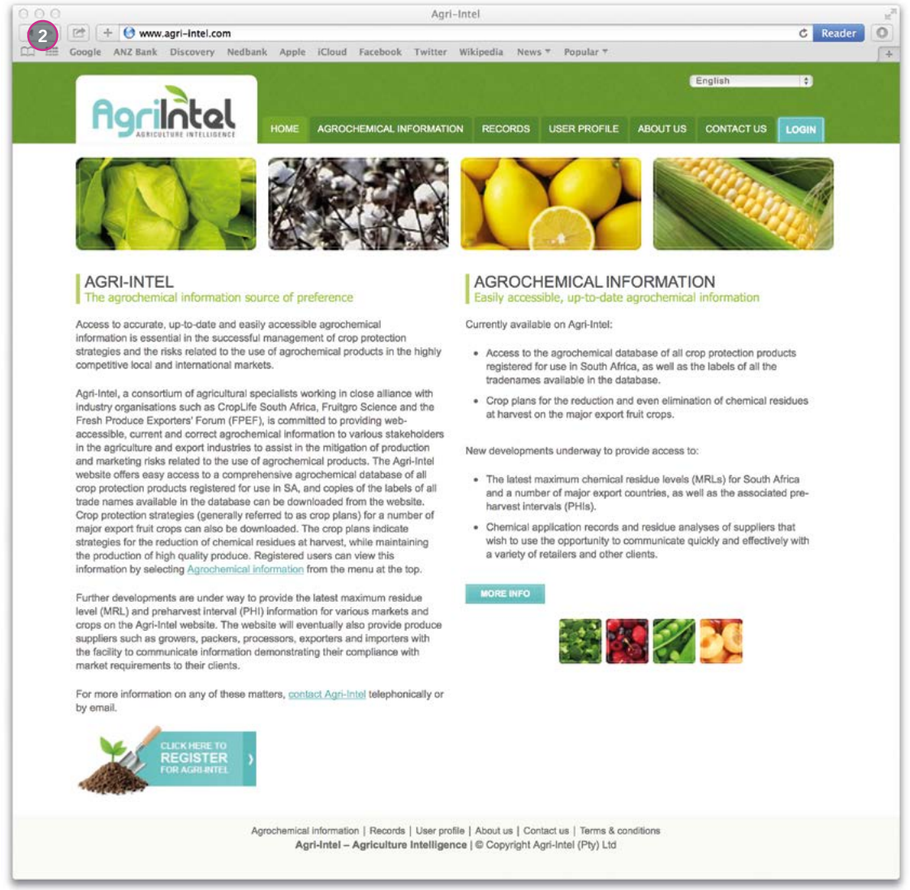
FIRST STEPS

As far back as 2007, Capespan Exports (now Capespan South Africa) established a website as part of the Agri Business Systems international (ABSi) initiative to meet the demand for a single source of information on agrochemical and other market requirements. It was an electronic communication platform that published information on international fruit export standards and requirements, and allowed producers to reciprocate with proof of their compliance with these standards.

But the need for a streamlined communication system that included a consolidated source of agrochemical information extended to the entire food crop and agrochemical industry. Consequently, CropLife SA, the association that represents manufacturers and suppliers of crop protection products in South Africa, contributed funding to expand the ABSi chemical database. It was eventually decided, however, to maintain ABSi as a Capespan in-house service, and to establish another platform to serve the entire fruit export and broader agricultural industry.

In 2012, Kobus Hartman led a PHI-funded project, initiated by the South African Agrochemical Database Consortium, to develop a fully-fledged web portal that houses an expanded, consolidated, web-accessible chemical information database of all the agrochemical products registered in South Africa.

It was envisaged to be a crucial resource for role-players in agricultural production and marketing,



PROJECT TITLE
Developing a consolidated, continuously updated and web-accessible South African agrochemical database (first call) and Developing flexible, web-accessible search and reporting mechanisms to retrieve the stored agrochemical information (second call)

PRINCIPAL INVESTIGATOR
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DURATION
One year + one year

PHI-2 CONTRIBUTION
R250 000 (first call)
R170 000 (second call)

LEAD INSTITUTION
South African Agrochemical Database Consortium

BENEFICIARY
The entire fresh fruit industry

FOCUS AREA
Information and communication technology

Pre-harvest intervals (PHIs) refer to the time that has to pass between the last application of a pesticide and when fruit can be harvested for safe, immediate consumption. In other words, the withholding or safety period between application and harvest necessary to comply with the MRLs for the chemicals applied.

such as producers, food packers and processors, producer bodies or associations, exporters (including the Fresh Produce Exporters' Forum), importers, auditors, local and international retailers, agrochemical companies and their representatives, as well as CropLife South Africa and its associated bodies. It was also intended to assist regulatory stakeholders, including the Department of Health, the Department of Agriculture, Forestry and Fisheries (DAFF), analytical laboratories and certification bodies.

"One of the key features of the first phase of the Agri-Intel project was that it consolidated agrochemical information from various sources into one, easily accessible database," says Mr Hartman. "It is still the only source of agrochemical information of this magnitude and scope in South Africa."

SOURCING THE INFORMATION

An important source of this information is the labels of registered agrochemical products. Since these labels are legal documents, it is of the utmost importance that the information is interpreted correctly and, where necessary, clarified with the registration holder. This not only meant that the Consortium had to maintain expert knowledge, but also required prompt communication between it and registration holders.

Upon the completion of the first phase of the project, the Consortium had met its objective to establish an accurate, verified, comprehensive and continuously updated online South African agrochemical database in English and Afrikaans.

Information on the maximum residue levels allowed by importing countries was gleaned from the websites of the European Union, the Environmental Protection Agency in the USA, CODEX and sites carrying information on export destinations such as Russia and the Far East. South African PHIs are indicated on product labels, but a variety of industry sources had to be consulted to determine export destinations' intervals.

This information was published for the main export fruit types (citrus, pome and stone fruit, and table grapes) in PDF format, as insufficient funding was available to develop a full-scale database and reporting mechanisms for the MRL, PHI and retailer information components.

The PDF format meant that the database was not searchable; users could not query a set of data, or narrow down a search to isolate specific information or effectively compare sets of information. Also, information was outdated until the next PDF was published and downloaded by users. Enter Phase 2.

BUILDING AN INFORMATION HIGHWAY

From February to November 2013, the Consortium focused its efforts on developing flexible, web-accessible search and reporting mechanisms to retrieve the MRL, PHI and retailer-specific agrochemical information stored in Agri-Intel.

"Our vision was to give Agri-Intel users the ability to run efficient and directed searches and to easily compare MRL and PHI information in terms of different crops, agrochemicals, markets and retailers," says Mr Hartman. "These tools were needed to achieve the website's ultimate purpose, which is to assist in decision-making and to reduce the risk of non-compliance."

By the end of 2013, the software development and testing had been completed. This included the database, an administration facility and reporting mechanisms to query and obtain results from the information in the database. Data had also been imported, tested and verified.

In terms of the fresh fruit industry, Agri-Intel now contains complete data for pome and stone fruit, table grapes and citrus in terms of MRL requirements in South Africa, the European Union, America and Russia; PHIs and information on UK retailers' residue levels requirements and preferred chemicals.

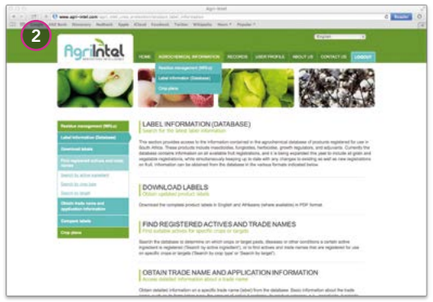
Apart from providing information, the Agri-Intel website also facilitates one-on-one communication between local fresh produce suppliers and international markets. Suppliers can upload their spray records and residue analyses results. Certificates are also available for downloading and viewing by specific, designated retailers.

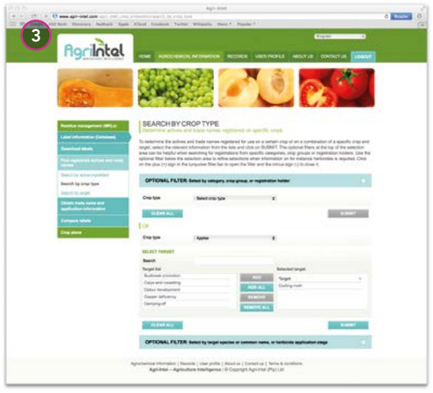
"We have quite literally moved from a dirt track to an autobahn when it comes to access of information," says Mr Hartman.

THE ROAD AHEAD

In this age where information is generated and changed in the blink of an eye, the value of a website depends on the quality and frequency of its updates. "This remains a challenge for us," says Mr Hartman. CropLife currently funds one permanent position for the maintenance of the database content, but funding is needed for website hosting and administration, further database maintenance and quality control, and further software development.

"There is so much more we can do," says Mr Hartman. "For example, offering specialised services on a user-pays basis could turn Agri-Intel into a sustainable business."





AS EASY AS W-W-W

Agri-Intel provides an agrochemical database that is:

- **Easily accessible** via the Internet.
- **Consolidated** – all critical label information, MRLs and PHIs are in one location.
- **Always accurate** – unlike printed material, it is continuously updated and remains relevant.
- **Flexible** – can be queried and filtered, because it is not only static documents.

A WEALTH OF INFORMATION

- Almost 2 000 registered chemical labels (trade names).
- More than 500 active ingredients.
- Agrochemical information on all the regulated raw agricultural commodities of plant origin, such as fruit, vegetables, grain, forestation, flowers and ornamentals.
- Labels of insecticides, fungicides, herbicides, adjuvants and growth regulators.
- Information on registered targets, eg, the particular pests, diseases or weeds controlled by specific products.
- Registered dosages.
- Information relating to the application of the products.

Maximum residue limits (MRLs) are the maximum traces of agrochemicals that are allowed to be on food. These limits are set by international bodies such as the European Union (for EU countries), the Environmental Protection Agency (for the USA) and relevant authorities in other countries. The purpose of MRLs is to protect consumers against overexposure to pesticides, fungicides and other chemicals used to protect crops.

1-4 The series of screen shots shows the steps a user will follow to draw a report on the products that are registered to control codling moth on apples. The process culminates in a comprehensive report.