

“The key to moving forward lies within collaboration.”

Opening Pandora's box

The capabilities of field recording software are evolving rapidly, but it seems that limits on data integration are halting the progress of widespread uptake. CPM looks at the key issues facing growers and challenges two of the leading platforms about how they're addressing these problems.

By Charlotte Cunningham

Ever since the days of Optimix and Multicrop in the 1980s, growers have relied on field recording software to capture and store crop application as well as regulatory information. While they've no doubt been very helpful aids to growers, the rapid development of more and more platforms — as well as a change in grower needs — means the limitations of these legacy systems are starting to show.

While the functionality seems to be available from the multitude of offerings, enabling growers to carry out a whole host of tasks on farm, such as growth stage prediction and compliance record keeping, the main problem seems to be the connectivity between platforms — leaving

growers in a muddle about exactly how they can access and share data in the most simple way.

According to Clive Blacker, Map of Ag, connecting different streams of data is proving to be key. “Gathering and collecting data accurately can be quite a laborious process, so having cross-platform connectivity is really essential.”

Lately, there's been a surge in interest in data, and a belief that this information is worth a huge amount, he adds. “In the right hands, it is, but there are a lot of little niggles that haven't been worked out, yet which is a problem for both farmers and the wider industry.

“We're seeing a lot more systems come to market that don't supply farmers with the beneficial tools that they're really looking for. And if they do, the lack of connectivity means there's a risk of wasting time and resources by having to manually reinput farm data.

“The main issue as I see it, is that many growers are running cloud-based systems that simply don't talk to each other.”

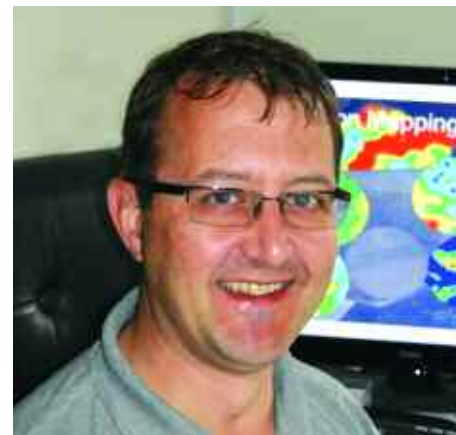
While there is a whole host of software available on the market, arguably the two that hold the largest amount of grower data are Gatekeeper and Greenlight. “These platforms are mostly used by professional farmers, looking to make sophisticated data analysis, but also with the support that allows agronomists to make recommendations,” says Clive. “However, while I often find that farmers are generally very open

and honest about sharing data — platform compatibility is often the block that prevents the industry moving forward as they're not working together with other field-recording or sensor-data software.

“For example, if I want to use Gatekeeper to get a link to real time grower data it's costly, and many people begrudge having to pay for access to data that is, effectively, owned by them.

“As a farmer, I'm frustrated that I can't easily share my data.”

Though the challenges are apparent, Clive believes there aren't the resources to create a ▶



The lack of communication is causing suffering at the expense of all of those growers who see the potential in working together, says Clive Blacker.

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▶ one-size-fits-all platform just yet. “It’s a massive challenge for the industry and as of yet, we don’t have something that does everything we need it to.”

So where does agriculture go from here? “For me, the key to moving forward lies within industry collaboration, and I believe that we’ve got to head towards autonomous collection and automated data feeds so we can unlock the true potential of data.”

With the COVID-19 pandemic highlighting the

true importance of connectivity, Clive’s plea is for software firms to step up and become more open to cross-platform transfer and collaboration. “This lack of communication is causing suffering at the expense of all of those growers who see the potential in working together.”

To see where the land lies from the software developers’ perspective, *CPM* challenged both Gatekeeper and Greenlight to find out exactly what its platform offers, and what it’s doing to ensure seamless two-way data transfer is delivered.

Gatekeeper

Gatekeeper, by Farmplan, claims to manage around 40% of the UK’s arable land and offers users a combination of compliance reporting, field recording and precision farming data analysis. “I think the key ethos of Gatekeeper is to provide a central hub of data for users,” explains Sarah Alexander, arable commercial product manager at Farmplan. “It’s always been focused on both growers and agronomists and making sure that the relationship between those two parties is also supported.”

Gatekeeper was predominantly launched to assist with compliance recording and monitoring, she adds. “Gatekeeper includes Sentinel, a complete listing of all the UK approved

View from the field

While a complete solution isn’t quite there yet, Essex farmer, Ed Ford, believes he’s found a near-perfect offering in Greenlight, following the switch from a competitor brand. “I struggled with our original software, largely due to how complicated it was. You could analyse absolutely everything on farm with it, but it took time to do so.”

Realising the need for better mapping facilities, Ed then purchased Omnia and recognised a cloud-based field recording software was the direction he wanted to head in. “When something is web-based, it means anyone can use it at any time, rather than relying on nominated computers in the office.”

With a large amount of data already on his existing system, Ed was nervous about jumping straight into a new platform, so decided to trial his old system and Greenlight side-by-side for 12 months. “Within two weeks, I’d made up my mind,” he says. “I think for the smaller business, Greenlight is a much better solution.”

As well as a simpler user interface, Ed also notes Greenlight’s integration with Omnia as a big part of the success of the platform on his farm.

“Greenlight is so forward thinking and they’re constantly developing and updating the functionality. I also really like that there’s an app — as well as a web version — that means I can input data immediately in the field.”

In terms of functionality going forward, Ed would like to see a stock module added to the platform. “At the moment, there’s no way of tracking stock, but this is only a minor point — I do all the spraying myself, so I should know what’s in there,” he laughs.

“But overall, I’m really pleased with our decision to switch — it’s a simple, intuitive tool to use that’s making a real difference on farm.”

Simple benefits

For Doug McCowan, farm manager at Harnage Estates’, the benefits of being able to simply and quickly capture, process, analyse and use data is evident when it comes to the software he uses across all of his arable enterprises, Farmplan’s Gatekeeper.

“The more you use the software, the more you get out of it. It’s an essential asset.”

Doug is a particular fan of the web app, with

data passed wirelessly to machinery operator’s smartphones and tablets, allowing them to complete spray sheets as they do the work, with vital information such as times, quantities, operator details and health and safety check lists all entered.

“It allows us to update records as we work rather than having to repeat the whole process once we have finished, which makes life so much easier and gives us a lot more control,” he says. “I can bring up any map at anytime, anywhere. It means I don’t have to worry about transferring information with a USB, which is useful when things are busy.”

“Another example of how we’ve got value from it is by using yield mapping to create potash application maps. We make the template on Gatekeeper then create a map which we export to our Ag Leader system. We don’t want to be under-applying or over-applying potash, given that it’s vital to crops but also a finite resource.

“If it’s good for the long-term health of the soil, then it’s the responsible thing to do.”

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pesticides, which allows the user to verify all their jobs are compliant”, she adds.

The farm management system has become known for satisfying legislation, compliance and ensuring products are verified and suitable for purpose, but another area it's focused on is the precision farming aspect of agriculture, says Sarah.

“If you go out and buy a new drill or fertiliser spreader, for example, it's more than likely to have precision farming capabilities. One of the things that's been a challenge to the industry is that every brand will almost certainly have a different file format than that of a competitor.

“Our precision farming module allows you to handle all of your data, so regardless of which type of machine a customer uses, they'll have the tools to manage and monitor this through the software.”

Noting the frustration caused by the industry desire to have data in one place, Sarah believes that Gatekeeper largely provides an effective remedy, though this doesn't come without challenges. “There's always going to be new platforms emerging and different systems coming onto the market, and I think we're working towards a world where data flows more freely. So going forward, our objective is to help data flow between platforms, to make that transition more seamless for the benefit of the user.

“Of course, it's not quite as simple as just wanting to do it — sometimes there just aren't the resources to connect everybody to everything as it does cost money.”

While there are questions over just how far field-recording software goes to facilitate cross-platform data exchange, there are a number of third parties that are already connected to Gatekeeper, such as Hummingbird, Openfield and KisanHub, explains Sarah. “We have relationships with a large number of agri-businesses, and that functionality is available to all, but no data is shared without explicit permission from the user.”

In a Twitter poll, CPM found that given the choice over Gatekeeper or Greenlight, 67% of growers said they favour the Farmplan software, though they did make reference to a need for an update and a more user-friendly interface, as well as a standard web-based version of the software — so what are Gatekeeper doing to tackle these issues?

“We do have a web-based product called Gatekeeper Cloud, and we're now working on an exciting project to extend functionality and work towards the next level of cloud-based solutions,” she explains. “This will bring agronomy and precision farming, spatial activity and grower functionality together as a global solution — not just for farming in the UK — and create a product that's suitable for any territory around the world.”

According to Sarah, there are already about 30 different types of machine manufacturer integrations in Gatekeeper today. “There are an increasing number of platforms that do different things, like weather monitoring and grain sampling, so it's important that we focus on collaboration going forward, so that growers can access their information instantly no matter what systems they're using.

“We also recognise that we've got to improve on the web app and make it as seamless as possible, but the functionality is there.”

Through this new global project, one of the key objectives Gatekeeper has is to take a fresh new approach to the user interface, as well as re-evaluating ease of use and design. “Gatekeeper has been around for a long time now, and the system and growers' requirements have changed, so we'll be updating this to meet the demands of today's environment.

“For people that want to access just the basic



Going forward, Gatekeeper's objective is to work with as many people as possible to make that transition more seamless across all platforms, says Sarah Alexander.

levels of functionality, I can see why it would feel overcomplicated and perhaps not user-friendly, but that's something we're looking to address going forward.” ▶

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▶ Gatekeeper has also recently added to its mapping capabilities by introducing integration with RPA digital boundaries. “These boundaries can now be quickly and easily imported into Gatekeeper, allowing growers and agronomists to quickly match their fields in Gatekeeper with their registered field boundaries. This functionality is available to all users of the mapping module and makes it much easier for users to create general farm management maps and better support precision farming activities.”

Greenlight

Available in both a web and mobile application, Greenlight Grower Management is a cloud-based farm management system.

In terms of functionality, Greenlight boast offline mobile capability and has geospatial mapping for crops and fields, explains



Grower Management uses API Gateways to connect and share relevant data with in-house and third-party systems to remove the requirement for double data entry and save users time, says Paul Thomas.

Paul Thomas, senior business development manager at Muddy Boots. “The crop recording system tracks input use, costs of production, as well as crop and variety information, and compiles all the reports required to demonstrate that spray, fertiliser and other compliance measures are met.

“Compliance is assured through the automated import of product approvals and regulation framework, ensuring sprays meet local regulations.

“For the agri-service industry and larger growers, it’s possible to link product use recommendations directly into the ag chemical product-ordering portals of the linked or preferred supplier, helping manage inventory, speed up delivery and reduce potential for errors.

“The upcoming release of our farm inventory function is also highly anticipated by farmer clients.”

But looking to the challenge of two-way data transfer, what are Greenlight doing to tackle this? “Greenlight uses API Gateways to connect and share relevant data with in-house and third-party systems to remove the requirement for double data entry and effectively, save time,” explains Paul. “Single sign on and authentication ensures the data transfer is seamless and easy.

“Growers and agronomists can activate services that range from automated and manual soil lab integrations, nutrient calculators (RB209 and NMax in the UK), order/stock inventory management, variable rate or zone mapping tools.

“Machinery options are in development for release in the near future. Key global manufacturers are currently linking their crop analysis, disease risk and decision tools to Greenlight to drive further efficiencies for growers globally in 2020.”

As well as this, Greenlight uses standardised product, crops and variety lists to ensure that



In terms of functionality, Greenlight boasts offline mobile capability and has geospatial mapping for crops and fields.

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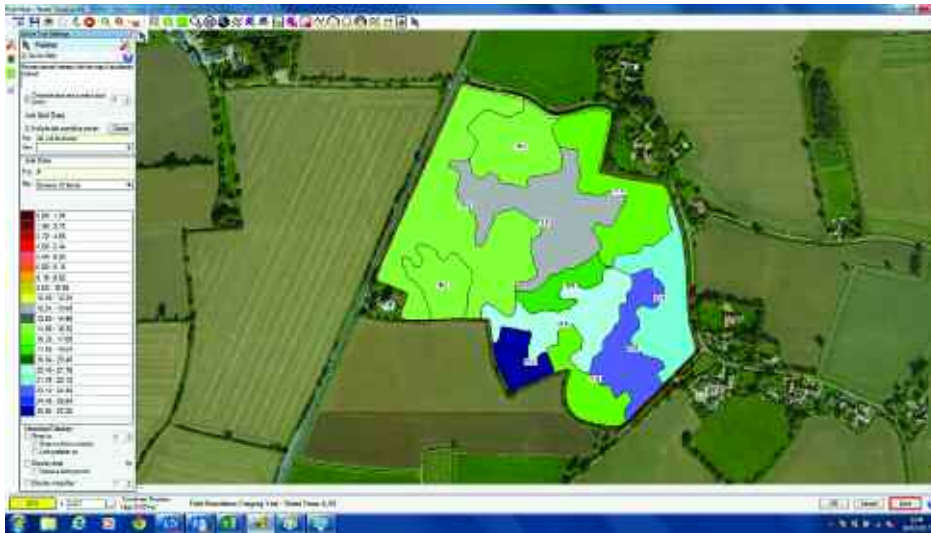
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There are a number of third parties that are connected to Gatekeeper, such as Hummingbird, Openfield and KisanHub.

data can be interpreted by any linked system, explains Jack Evans, head of commercial at Muddy Boots. "Standardised Gateways, as well as authentication and security measures, ensure continuous seamless data access for users.

"The data belongs to the subscriber and Muddy Boots will facilitate data sharing when requested."

Muddy Boots is also involved in global data standardisation efforts through groups such as AgGateway and others to facilitate data sharing

and linking, he adds. "Greenlight can integrate with Muddy Boots' other products that work through the supply chain (to retailer level) managing quality, food safety and sustainability."

The tool doesn't claim to be perfect, and a major limitation is that the app is only available on iOS currently, though Android and Windows compatibility is being worked on at present, explains Paul.

On top of its data storage facilities, Greenlight has mapping modules, as well as the functionality

to help with stewardship issues, adds Paul. "Greenlight uses Google Maps for background mapping of fields and crops but can also import field boundaries through connected services.

"This can be changed to other background mapping at a country level and we anticipate that our new UK RPA Map import function will be released later this year."

Growers can submit shape files for import to save time and ensure data is all aligned where systems may not be linked for any reason, he explains. "Precision or zone maps are created within linked precision tools and the boundary data can be shared with Greenlight and data is stored in the cloud on behalf of the users on an Azure storage capability."

As well as this, growers can record all stewardship crops, stewardship physical and mapped areas, manage all activity in these areas, and report out on this easily using the standard built-in report suite, notes Paul. "NVZ and RB209 compliance, product use and reporting are all dealt with using the automated service within the system that is free to activate."

When it comes to buffer-zone management, spray recommendations automatically pull through the required buffer zones and precautions for each product and this is visible to the spray operator through the app or on a printed paper copy, he adds. ■

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