

## CASE STUDY



# CAPTURING CHEMICAL USAGE DATA

## CHALLENGE

Kagome produces a range of food crops that either get sold directly to consumers via the food retail channel, or that get processed in the Kagome factory in Echuca. Because of this, Kagome needs to accurately capture all input data in order to mitigate potential risks to the food supply chain. Up until 2016, Kagome relied on a paper-based system for record keeping.

## SOLUTION

In 2016 Kagome decided to implement a farm management system that turned out to be the incorrect solution for the team at Kagome. In 2019 they decided to switch to Agworld for recording all their agronomic and farming activities.

## RESULT

The team at Kagome has now implemented Agworld in their workflow, which allows them to easily capture all recommendations and chemical usage data, providing the traceability needed for food processing and supplying the food retail channel. The agronomy team can now quickly and easily supply any traceability information required to the quality department, knowing the information supplied is reliable.



## Kagome

TYPE	Row crops
LOCATION	Echuca, VIC
CROPS	Tomatoes, garlic, carrots, cereals
SIZE	3,000+ hectares

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**Stuart McColl**

Agronomy Manager  
Kagome, Echuca, VIC





## Large-scale food production

Since Japanese multinational Kagome purchased Echuca, VIC based Cedenco Australia in 2010, Kagome has been one of the largest tomato growers in the country, growing an average of 750 hectares of tomatoes per year. Kagome's farm land is located roughly between Deniliquin, NSW and Rochester, VIC, providing a natural spread to mitigate potential losses from hail storms and other weather-related events. Tomatoes are grown on 1.52m or 2m sub-surface drip irrigated beds and are only planted every third year, with winter-cereals grown in the other two years to break the rotation. Kagome also farms a number of pivot-irrigated fields in New South Wales and grows a rotation of carrots and garlic."

All tomatoes and carrots are processed at Kagome's factory in Echuca, as well as another 1000 hectares of tomatoes grown under contract by third parties, according to Kagome Agronomy Manager Stuart McColl: "We aim to harvest an average of 110 tonnes of tomatoes per hectare



and, between the tomatoes that we grow ourselves and the tomatoes grown under contract, our factory runs around two and a half months to process the harvest into a range of tomato-based products. We then use the factory for another two and a half months to process our carrots into juice for the export market, and sometimes we do some production runs of various fruits and vegetables such as apples, pears, cherries or beetroots. Combining these crops helps us utilise our processing capacity as much as possible throughout the year."

## Selecting a farm data management system

Because all crops produced by Kagome, except for cereals, either get processed for consumption in their factory, or sold directly to the food retail channel in the case of garlic, being able to accurately capture chemical usage data and report on it is key for Kagome. Stuart: "Prior to joining Kagome I worked in research agronomy and pest research, both in broadacre agronomy, so I'm used to creating very detailed records of what gets applied to a crop. After I joined Kagome in 2015 we started to look for a system that could help us create these records and automate part of our workflow. We selected a system in 2016 but, for a number of different

reasons, this system wasn't the right choice for us and so we changed over to Agworld in 2019."

Stuart continues: "We just needed a system that works for everyone involved, otherwise they just tend to 'give up' and we don't end up capturing all the data we need. When selecting software I think it's really important that you choose something that fits the bill right now, and you don't choose based on promises or future direction of what's coming down the track. Because if you do, you're sitting and waiting and in the meantime you're using something that's not doing everything you want, based on the premise that it may do so in future. You're basically just missing out, and it's not a difficult process to change systems if you feel this is needed again after a few years."

## Capturing application data throughout the workflow

Growing a tomato crop is not as simple and straightforward as some other crops like cereals, with up to 20 spray applications needed per season, which results in a lot of data to capture according to Stuart. "For some crops, like carrots for example, the in-crop management strategy is fairly predictable, so our junior agronomist Ruby and myself create a crop plan in Agworld at the start of the season and then convert that to recommendations as the season progresses. For tomatoes on the other hand our agronomic activities are a lot more reactive to the season's circumstances, so we don't create plans but just the recommendations as the need arises. A farm for us can have up to 20 fields or bays, which most of the time all have to get done as one job, which is really easy in Agworld by 'multi-selecting' fields when creating a recommendation."

Stuart continues: "Once we've created a recommendation in Agworld, we send this to the farm manager in charge of the fields that need to get sprayed. The sprayer operators then see this recommendation on their iPad so they know exactly what they need to do in each field, and this also gives them access to any label or SDS they might need. Once they have completed the job they turn the recommendation in Agworld into an 'actual' where they capture the chemical rates applied, batch numbers, weather data and any other important information. This also automatically gives us our withholding periods in Agworld, which is important for us too as we do have a lot of different staff potentially accessing a field."

"And when staff do access a field and have noticed something out of the ordinary, they use Agworld to create an observation which everyone else can then see as well; it saves someone else having to spend another half an hour trying to find the exact spot and what's going on there. Agworld is what really helps our team communicate better in the field. Agworld is also useful for our irrigation scheduling; the Vegetative Imagery overlay in Agworld helps us spot if some blocks might need more attention or if something else is going on; it's all about doing the right thing throughout the growing season."

## Utilising traceability data

Creating traceability data is not just done 'because they have to' at Kagome, but because this data is used regularly for a multitude of reasons



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says Stuart: “The quality department will come to us pretty regularly and ask for reports on actives used in a particular crop when it is getting processed. They might do a production run for a particular client who will then ask for the chemical report on everything used on the fields that went into the production run. Through Agworld’s reporting side this is quickly accessible and very easy for us to produce when it’s needed.”

Stuart adds: “Our production facility also gets audited multiple times each year for GAP, HACCP or other quality assurance schemes, and they all need chemical usage data as part of the audit process; Agworld has made this easy for us. Our quality department obviously also needs the chemical usage data from our contract growers, and even with that process we notice there’s a big difference if the grower uses Agworld. As an example, it takes us the same time to process handwritten data from a 20 hectare contract grower as it does to process data from a 700 hectare grower with Agworld records...a big difference!”

Stuart concludes with: “For us, Agworld helps us with keeping records and making everyone that is part of the process accountable. From the agronomy team’s recommendations to the field team’s applications - everything is organised in a tight process that leaves no room for verbal recommendations that can lead to errors. And, if we do have complaints from a neighbour, or a product hasn’t worked properly, we always have the data in Agworld to prove exactly what we’ve done and that we’ve applied the correct amount of product under suitable conditions. To me that’s why it pays to capture chemical usage data in a sophisticated system like Agworld: it allows this data to be used in many different ways after it has been captured.”



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