

Queensland Communities in transition

InFarm, Goondiwindi – innovation set to change agricultural systems across the globe

Weeds have a devastating economic impact on agriculture in Australia and around the globe. They compete for light, moisture and nutrients, reducing both crop yields and quality. In Australia alone it is estimated that weed control costs the agricultural industry more than \$2.5 billion every year in lost production and \$1.5 billion in weed control activities ⁽¹⁾.

Jerome Leray's and Dr Mehdi Ravanbakhsh, Goondiwindi based company, InFarm, is pioneering the development of ground breaking drone-to-tractor weed identification technology that is enabling large farms in south west Queensland to achieve savings of up to 95% in herbicide use on farm.

"InFarm is an agricultural artificial intelligence platform focused on solving the most significant problems faced on-farm. Our platform will revolutionise modern farming practices as we know it. InFarm bypasses the internet, unlocks big data and provides farmers direct access to technological advances and Artificial Intelligence (AI); enabling increases in both profitability and sustainability. InFarm aims to pioneer positive change in farming practices on a global scale." Jerome Leray, 2019

HIGHLIGHTS

- Up to 95% reduction in herbicide costs
- Advance technology that can be integrated with a farmer's every day tractor and spray equipment
- Advance Queensland "Ignite Ideas" funding in 2017
- Microsoft Artificial Intelligence grant in 2019 to support technology that tackles climate change and sustainability issues across the globe



How it works – practical and cost effective

- The process uses drones to firstly capture high definition images of the paddock.
- These images are uploaded into InFarm's processing platform where a unique weed-identifying algorithm is applied.
- The result is a tractor ready file that pinpoints the exact location of the weeds. The file can be uploaded into a standard variable rate tractor via a USB.
- The data is used to control the nozzles turning them on and off depending on the presence of weeds.



Jerdone Leray



Dr Mehdi Ravanbakhsh

BENEFITS

What makes this technology truly exciting is that while it utilises state of the art Artificial Intelligence and advanced technology, it can be integrated with a farmer's everyday tractor and spray equipment. It eliminates the need for expensive extra equipment and on-farm internet connectivity issues.

BENEFITS

Effective weed control becomes increasing important in periods of water shortage. Recent research in wheat production has found that controlling weeds in fallow crops over a wide range of sites and seasons showed an average soil water saving of 37mm per hectare and 44 kg N per ha ⁽²⁾

Agtech Start-up getting noticed

Using Jerome's extensive experience in remote sensing and drones and Mehdi's geospatial background in identifying individual weed species, these two humble innovators have created a software solution that could quite literally change how herbicides are applied across the globe.

In 2017, the company received a \$100 000 "Ignite Ideas" grant to increase the drone's capabilities from 60 hectares of fallow land a day to more than 500 hectares in order to meet farmer's spraying requirements. By 2018 InFarm had proved it could cater to commercial scale operations.

In 2019, Infarm was selected to receive a Microsoft grant for development in Artificial Intelligence. The grant will give Infarm access to Microsoft high powered computing resources to help develop software that targets weeds that are highly resistant and problematic from an ecosystem point of view. Such access will enable Infarm to develop a solution in 3-6 months instead of at least one year.

