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CropLogic Flies First Aerial Imagery Field in Pacific Northwest USA

CropLogic Limited (ASX:CLI) is pleased to announce that it has flown its first aerial imagery field for the 2018 growing season in the Pacific Northwest, USA.

CropLogic uses aerial imagery with infrared and near infrared technology to detect signs of plant stress in its early stages. This technology can often detect these areas of stress long before they are apparent to the naked eye, allowing for early detection and treatment, which adds to plant health, maximises optimum growing days and therefore crop yield.

Thomas Muhlbeier, CropLogic imagery specialist, said:

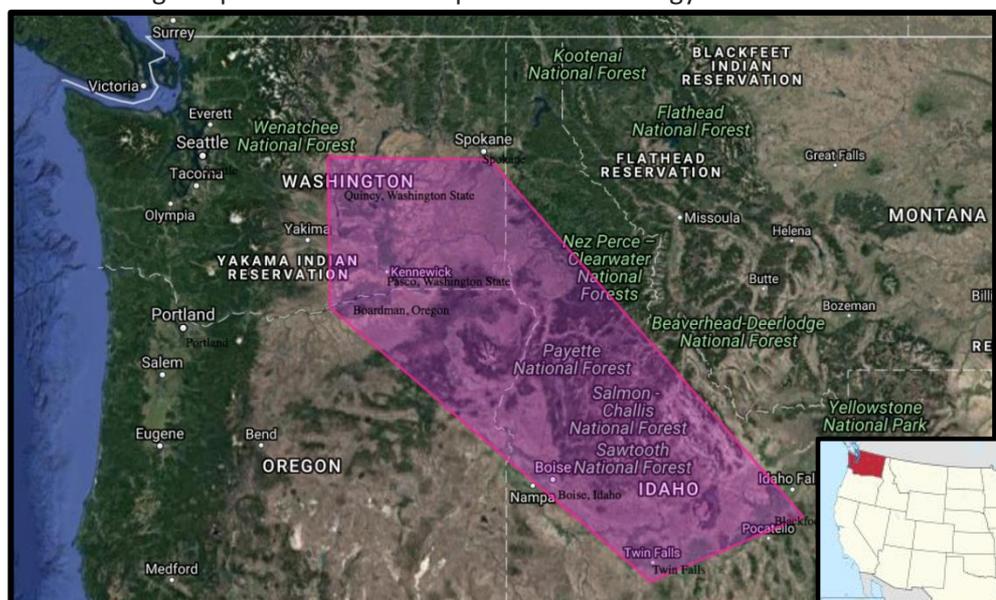
“It always feels good to fly the first field of the season.”

Mr Muhlbeier is based in CropLogic’s Washington State office and has over 26 years’ experience providing aerial imagery to growers in the Pacific Northwest.

Mr Muhlbeier, said:

“In the peak of the season we will fly over 200 fields a day. Many of the fields are 100 acre pivots and with images out to the grower within 24 hours of the fields being covered, we certainly have our work cut out for us.

“But it is rewarding to see growers returning to the service year after year and then seeing the positive and real impact this technology has on their fields.”



Map of CropLogic Imagery Client Area



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CropLogic Imagery uses cameras mounted on fixed wing planes. Flights are flown out of Pasco airport, Washington State. In an annual growing season, clients are serviced across Washington State, Idaho and Oregon.



CropLogic's 1972 Cessna gearing up for 2018 season. In the peak of the season CropLogic Imagery can fly over 200 fields a day.

About CropLogic Aerial Imagery

CropLogic uses infrared and near infrared imagery to detect areas of plant stress in its early stages. Causes of stress may include such things as a pest or weed infestation, nitrogen deficiency and, in the case of irrigated growing, lack of soil moisture.

In the absence of aerial imagery, a common industry practice is for these areas of stress to be identified by a visual representation, assessed by an individual at ground level ('by walking the field'). Many of the fields serviced by CropLogic imagery are 100-acre pivots with some clients having over 100 of these pivots. As such, a visual assessment for the detection of plant stress is time consuming and costly.

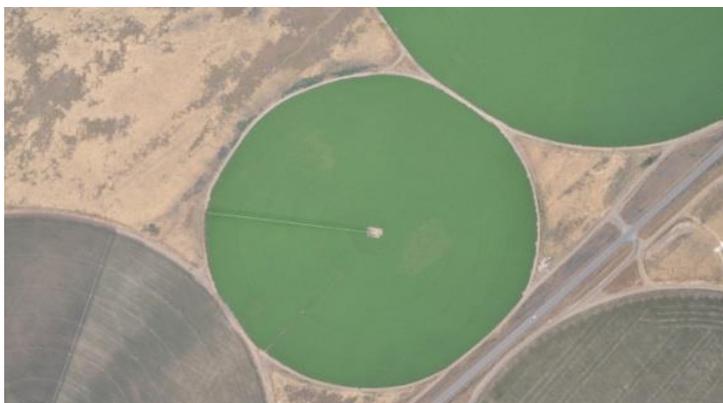
Other methods commonly used is spot leaf sampling and assay. This is the process of manually collecting leaf material and sending this material to a laboratory for testing. These manual, subjective processes of identification of plant stress expose themselves to human error and/or management oversight.

CropLogic Imagery replaces this with a digital process that is both time and cost effective. Fields that would have taken weeks to assess under a ground level visual representation or assay method are flown and processed in a matter of hours. The CropLogic Imagery process for the identification of plant stress also significantly limits exposure to the same human error risks or management oversight inherent in these other processes.

Further to these efficiency benefits, the use of infrared and vegetative index images allows for the early detection of plant stress. Infrared imagery looks at slight changes in the infrared signal given by plant leaves, with plants under stress being found to give off a different infrared signal to that of a healthy plant. Vegetative index looks at the foliage mass of an area. Foliage production of a plant or a group of plants that is less than what is normal for a healthy plant or other plants in that field are indicators of plant stress.

Infrared and vegetative index imagery allows CropLogic Imagery to identify areas of plant stress that would not have been visible to the naked eye, particularly at ground level. This allows for areas of plant stress to be addressed early, often before they have taken hold, therefore increasing the number of optimum growing days in a growing cycle and therefore increasing yields.

This process can be seen in the following images.



Normal Colour (RGB) image where areas of stress are not immediately apparent

From the image to the left, the normal colour image doesn't clearly show any problem with the field.

However the Infrared (IR) (to some extent) and the Vegetative Index (VI) to a greater extent show patches in which the plant growth is less vigorous (denoted by the lighter colour).

It's these areas which should be visited by the agronomist to investigate further - the "VI" images allow the team to identify potential problems earlier than traditional colour images.



Colour infrared image where areas of stress are beginning to be identified



Vegetative index image with areas of stress clear identifiable (circled in red)

Delivery systems and the CropLogic Imagery Process

CropLogic Imagery uses cameras mounted on fixed wing planes to service its clients in the Pacific Northwest. On a weekly basis, there is 28,000 acres under active management (44 miles²; 113km²) These clients are distributed across Washington State, Idaho and Oregon. Flights are flown out of Pasco Airport, Washington State.

The normal CropLogic Imagery process consists of the following. Growers make imagery requests direct to CropLogic's Pasco Office. Imagery is then coordinated and scheduled for flight course efficiency. The fields are then flown.

Following the fields being flown the imagery is processed in the Pasco Office. Areas requiring attention are detected. Imagery and areas requiring attention are then sent to the grower. Follow up by a CropLogic agronomist is made where required.

From the field being flown the grower generally has the imagery and area requiring attention notes within 24 to 36 hours. In peak season, CropLogic will fly over 200 fields a day using the process. Many of these fields are 100 acre pivots.

Drones and CropLogic Imagery

CropLogic Imagery has previously successfully used drones as a delivery system for plant aerial technology. The positive trials were made possible by an innovation loan from New Zealand owned innovation fund Callaghan Innovation.



CropLogic Drone test flight – New Zealand – 2017.



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The size of service area and field sizes in the Pacific Northwest does not make it economically viable for CropLogic to service these fields with the current drone capability available on the market. Although not servicing such fields at the moment, CropLogic can see great potential in the application of drones for smaller acreage high value crops. There is also potential for the application of larger service areas should drone capability increase.

About CropLogic

CropLogic is an award winning New Zealand agronomy services company listed on the Australian Securities Exchange (ASX) and currently servicing approximately 60,000 acres or 30% of the potato market in Washington State, USA. CropLogic offers large scale crop growers with agronomic expertise based upon scientific research and delivered with cutting edge technology – science, agronomy and technology interwoven into an expert system for decision support.

CropLogic builds upon 30 years of scientific research by The New Zealand Institute of Plant and Food Research, an internationally-recognised Crown Research Institute. The CropLogic analytical platform gathers crop data via in-field sensors coupled with satellite communications, before processing this with proprietary scientific models to predict outcomes and optimise field productivity. Skilled agronomists help present this information to the grower and assist them in their critical decision-making process.

The CropLogic system has been developed with the benefit of over 500 field trials throughout Australia, China, New Zealand, and the United States of America. In 2017 the system was commercially launched into Washington State, USA.

For more information please visit: <http://www.croplogic.com/>

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