



GrazingFutures and E-Beef Narrative

Buzzing with Ideas for Applications of Drones in the Beef Industry

Drone workshops in Cloncurry and Hughenden

The *E-Beef Smart Farming Partnership* and the *GrazingFutures Project* provide support around technology usage for improved decision making to beef producers. Making decisions early is a feature of beef businesses that are resilient to drought, flood and other market shocks. Innovation Hubs were formed as part of the E-Beef project, which involves groups of likeminded producers from within a region coming together to share ideas and knowledge, as well as trial various technologies in beef production systems. After conducting a survey of Innovation Hub producers, one of several identified common interests among producers was the application of drone technologies in the beef industry. Several producers from the initial survey had either purchased a drone or were thinking of purchasing a drone for use in agriculture.

To meet this need for specific technological information, project staff organised two drone workshops, in Cloncurry and Hughenden. The presenter of the workshops was Fiona Lake, who has an extensive background in the use of drones. Participants across the two workshops totaled 21 beef producers, six government staff and one NRM staff



member. The workshops covered a range of topics, including; rules and regulations of flying drones, uses of drones in agriculture (such as identification and spraying of weeds, mustering cattle and checking waters and infrastructure), as well flying drones safely on stations. Producers who were considering buying drones were given recommendations of drone technologies that would be suitable for the above tasks. Independent advice was also given regarding the purchase of drone accessories such as batteries and storage equipment, to extend the life of drone technologies when used on stations. The workshops finished off with some hands-on flying experience.

Participants brought with them many innovative ideas as to how they could potentially use drone technologies in their beef business upon the purchase of a drone. However, upon reflection after the workshop, many of these ideas were either discarded or changed as limitations of current drone technologies were recognised. For example, mustering a large-scale paddock with a drone from the homestead was not possible due to limited flight time. Alternatively, mustering a small holding paddock near a set of yards might be possible on some properties whilst factoring in constraints such as ambient temperature and wind speed. One producer stated:

Producers got a chance to get up close and observe the features of different types of drones.

“this workshop has actually saved me a few thousand dollars”, as he came to the realisation that current drone technologies would not be able to achieve the things, he initially wanted to use them for on his station, so he would not purchase one at this point in time.

“I was really keen to buy a drone to use for mustering and checking waters, but after hearing about their limitations, I think I will just stick to using a helicopter for mustering” he said.



Some of the **key limitations** of drone technologies identified in northern beef production systems were:

- **Limited flight time of drones**, with most commonly available models only having 20-30 minutes of flight time before batteries need to be changed
- **Ambient temperature**, with many regional temperatures exceeding the maximum recommended operating temperature of drones on an annual basis
- **Wind speed** exceeding the recommended maximum operating speed, meaning drones cannot be used at all times
- **Inability to operate drones out of line of sight without additional qualifications**

Fig. 1. The limitations of drones in largescale extensive beef operations.

Despite these limitations, after some hands-on experience, many producers still expressed an interest in purchasing drones. These drones would be implemented for a range of uses, such as; checking flood fences, river crossings and holding paddocks, assessing and improving yard designs as well planning fence lines and other infrastructure improvements. With successful implementation of drones for these uses, there is the potential for increased labour efficiency and reduced costs of repairs and maintenance of vehicles and machinery, improving business performance. Technology is changing rapidly, and there is still a lot of excitement within the industry around the use of drones in agriculture. With further advances in technology, such as drones that can carry more weight, are more resistant to high temperatures and have longer flight times, there is the potential for increased adoption of this technology within northern beef businesses.

Feedback from the day was positive, with 59% (13) of 22 survey respondents indicating that they would make a change to their business as a result of attending the day, predominantly around using their existing drones in a different way, or purchasing a drone.

When asked what they would change, responses included:

“use my drone more, take it on water runs and mustering”

“reduce helicopter time (by using a drone instead for some tasks)”

“purchase a drone”

“use my drone better”

“looking at using drones to assist mustering and for checking country for fence lines”

Upskilling of grazing industry support staff

The E-Beef project is supported by a partnership comprising Southern Gulf NRM, Desert Channels Queensland, Northern Gulf RMG, and Queensland Department of Agriculture and Fisheries.



Drought and climate adaptation program

Upskilling of extension and NRM staff is a key pillar of the GrazingFutures project and allows them to have informed conversations with producers, advising on current applications and limitations of technology, as well as where to access specific information and examples of uses of technologies within the beef industry. With continued advances in drone technology, the use of drones in agriculture is likely to increase. Beef producers need to be informed about the rules and regulations of drone use, as well as how to safely operate drones on station. As technology improves, days such as these workshops will continue to provide useful and relevant information for beef producers, while also allowing likeminded producers come together to share their experience, knowledge and ideas around drone technology, and other technologies within the industry.



Drone eye view of producers getting some hands-on experience at flying drones

As part of the Drought and Climate Adaptation Program (DCAP) GrazingFutures assists extensive livestock producers in western Queensland manage drought and business risks. In close alignment with GrazingFutures, E-Beef is a partnership with local producers and [Southern Gulf Natural Resource Management Group](#) (lead), [Desert Channels Queensland](#), [Northern Gulf Resource Management Group](#) and the Department of Agriculture & Fisheries (DAF) aiming to trial technologies and implement grazing best management practice.

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