

# Application Booklet Green on Green



## Broadleaf in Cereals

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Version 1

<https://bilberry.io>

Any questions? [hello@bilberry.io](mailto:hello@bilberry.io)

# Introduction

*Bilberry has been developing a technology capable of detecting and spot spraying weeds in crops, known as Green on Green, for more than 3 years. **Broadleaf in Cereals** is the first commercial application of our Green on Green market leading technology, showing promising results in minimising crop damage and herbicide expenses whilst maximising profit through sustainable practices.*

*Through the **Broadleaf in Cereals** application, growers with wheat, barley and oats as part of the farming system are seeing extraordinary benefits using the camera system.*

*This booklet will set out best practice guidelines to ensure users maximise the benefits of the camera system and overall integrated weed management strategies on farm. Included are use cases and testimonials from a range of users, highlighting different approaches to obtain the same goal: sustainably optimising weed control at a whole farm scale.*





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# 1. Application Guidelines

## Which weeds does it detect?

Most broadleaves with a diameter > 5 cm, including:

- Rosette shaped (wild radish - *Raphanus raphanistrum*, volunteer canola - *Brassica napus*, capeweed - *Arctotheca calendula*, double gees - *Rumex hypogaeus*)
- Legumes (blue lupin - *Lupinus cosentinii*, narrow-leaf lupin - *Lupinus angustifolius*, beans - *Vicia faba*, lentils - *Lens sp.*)
- Others like mallows - *Malva sp.*, clover - *Trifolium sp.*, potatoes, cleavers *Galium aparine sp* etc.



## What is the best timing?

Our cameras can detect what you can see when you're sitting on the boom. For best results, we recommend an early application before stem elongation (up to Zadocks 30) ideally before crop development obscures the inter-row after canopy closure.

## What does the application see?





# 1. Application Guidelines

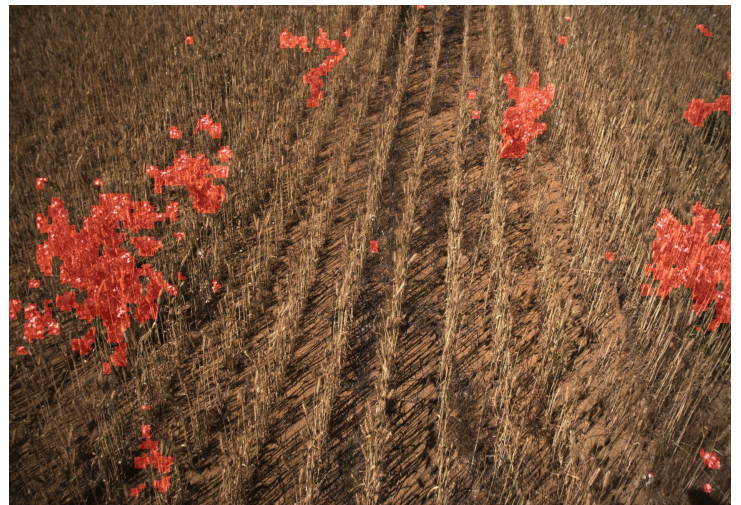
! After crop canopy closure, only weeds at the same level or above the canopy will be seen and therefore, detected by the cameras.



Detection and hit rate of flowering weeds increases to over 95%

## Is a camera salvage spray possible?

Yes, spot spraying later germinating weeds and escapees at a later stage is a strong use pattern with the cameras. We have seen strong results with salvage spot spraying as long as the weeds are flowering or above the canopy. Salvage application timing can be performed in later crop growth stages, as the algorithm has been developed with the ability to detect weeds out of a senescing crop.





## 2. System Basics and Benefits

### Spray What You Can See

*"If you can see the weed with your eyes, the camera will see it." - Broden Holland*

Cameras can be affected by high stubble loads, crop shading, and canopy closure. If they cannot see the weeds in question, they cannot spray them, it's as simple as that.



**20**km/h  
recommended  
spraying speed

### Get Significant Chemical Savings

Average chemical savings are around 80% and can go up to 98% depending on the weed infestation in your paddock and the section size.

### Best Light Time

Ideal spraying timing starts 2h after sunrise and stops 2h before sunset, when the natural light is the strongest.

➔ **and many other benefits for your farm**  
check them out [here](#)

### 3. Use Case - Andrew & Rod Messina



#### Farming Snapshot:

- **Location:** Mullewa, WA
- **Area:** Over 12,000 hectares
- **Crops:** Wheat, Canola and Lupins
- **Soil:** Sandplain soil type
- **Rainfall:** 250-350mm annually
- **Machine:** Agrifac Condor Endurance 2

Large scale camera spot spraying has been conducted on Andrew and Rod's farm since 2020 with great results using the **Broadleaf in Cereals** application.

According to Spot Spraying Efficiency Tests (SSET) conducted in 2020 and 2021, weed control percentage was up to 95% in paddocks sprayed 2 times in the season. This leads to an average of 84% reduction (a range of 74-94%) in herbicide use depending on weed infestation of each paddock.



*"The saving was significant, in terms of the amount of herbicide saved, that has pretty much paid for the cameras in one year"* - **Andrew Messina**



Read more about this use case [here](#).

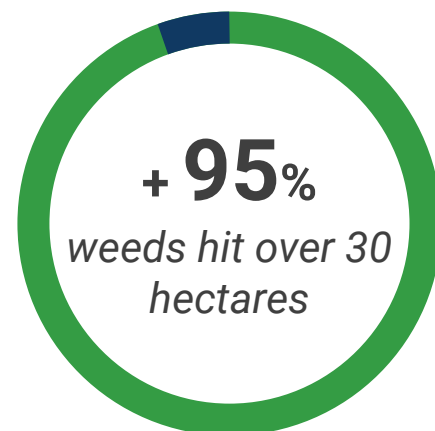
## 4. Use Case - Dyson Farming



### Farming Snapshot:

- **Location:** United Kingdom, Dyson Farming Smart Farm
- **Size:** 5,000 Hectares
- **Crops:** Barley and wheat
- **Machine:** Dammann DT2800H S4 Sprayer

The core focus for Dyson Farming using Bilberry's solution is twofold; stewardship and food security. The aim is to protect the soils and environment that their business relies on. Dyson Farming conducted their initial tests of the Bilberry **Broadleaf in Cereals** application in the 2021 season over 30 hectares with great results. They had a 50% reduction in cost of herbicide usage and 95% hit rate of target weeds.



*"Green on Green was completely new to everybody so we were a little dubious. We did a trial and we were absolutely amazed by the results"* -  
**Richard Lee**

Watch the [video](#) to hear more.

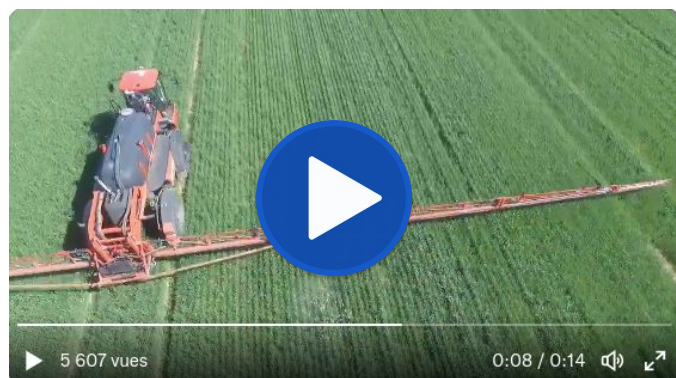




## 5. Application in Action



*Agrifac Endurance II, 48m, targeting wild radish in wheat*



*Agrifac Endurance II, 48m, spot spraying wild radishes*



*Miller Nitro, 36m, targeting wild radish, capeweed, blue lupin in wheat*



*Goldacres G6, 36m targeting volunteer canola in wheat*

### Want to see more?

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### Disclaimer

The content and data presented in this document is correct at time of writing and contains some anecdotal information which may not align with the results you experience on your farm. If you are experiencing varied performance with your Bilberry system please bring it to the attention of your local sprayer representative or Bilberry support team member.