

# Castlemains

## Integrated Control of Grass Weeds

Castlemains  
Climate Change Focus  
Farm

Notes from meeting on  
22nd November 2017

*The tenth meeting of the Castlemains Climate Change Farm Focus discussion group focused on; controlling problematic grass weed, why these need to be controlled and an update on the greening rules for 2018.*

### Key points

#### Keep them Out!

- Don't let grass weeds build a population in the background.
- Keep machinery clean and avoid purchasing straw or dung from areas which may have had black grass problems.
- Identify which grass weed you are dealing with.
- Explore cultural control options before relying on chemical control.

## Use all the tools in the box!

The meeting discussed all of the weed control tools available to farmers, many of whom had attended because they had a problem with weeds on their own farm.

Scottish farms do not yet have a problem with the infamous "blackgrass" which has caused big issues in the south of the United Kingdom. However Scottish farms are already fighting the battle against grass weeds; Bromes, Wild Oats, and Annual Meadow Grass were all mentioned.

A 'one for all' approach to grass weeds is not effective, all control measures must target and exploit the individual weed species characteristics, using rotation cultivation, drilling date and available chemistry, in order to achieve greater than 95% control rate and deplete the population.



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# Lessons from the South

Dr Paul Gosling, grass weed expert from AHDB, gave a presentation on his experience and research carried out on grass weeds in England and further afield.

Farmers are now facing issues from an over reliance on chemicals and we are now seeing herbicide resistance becoming more apparent. Blackgrass is a highly prolific weed capable of producing 100 seeds / head; with each plant having the ability to produce 20 tillers, that plant is then able to produce up to 2000 seeds. Black grass germination peaks in the autumn, and only a small germination rate in the spring, making it very competitive with winter crops.

Combatting blackgrass requires a multi-pronged attack in order to reduce the impact it has in Scotland. Options which are common practice in England such as delaying drilling until later in the year, or cultivating stubbles to allow germination of the blackgrass before spraying with glyphosate to achieve control has limited scope in Scotland (due to the shorter crop establishment windows).

The use of break crops will allow farmers to drill outwith Blackgrass's peak germination window. Break crops with varying levels of crop competitiveness, as well as herbicides with different chemical components than those used regularly in cereal crop weed control will all aim to reduce the chances of resistance developing.

In areas of the south of England there is such pressure from grass weeds, particularly black grass, that farmers who have not had grass in their rotation for over 40 years are reintroducing it. This is because it is the only control they can now rely on. However even a four year grass ley will not be sufficient in some places.

Blackgrass has a high rate of seed decline of around 75%. For example, when leaving the soil undisturbed for 1 year, around 70—80% of the seeds will become unviable. However, some farms have such a problem with blackgrass that even if they have 100,000 seeds/m<sup>2</sup>, then after a four year grass ley there would still be 1,500 viable seeds per m<sup>2</sup>.

	No of	No of seeds/m <sup>2</sup> after 75% decline
Year 1	100	25
Year 2	25	6
Year 3	6	3

Learning from these experiences in England, it is imperative that the key control method is to keep blackgrass out in the first instance. Methods to do this will include ensuring seed is blackgrass free; clean machinery when moving between farms and refusing straw from areas thought to having a problem with blackgrass. It is hoped that blackgrass will not become such an issue in Scotland as it has been in England. This is due to the higher proportion of spring cropping and more farms having livestock within the rotation. England is dominated by winter cropping of particularly winter wheat on heavier soils both of these factors are beneficial to blackgrass germination.

# Know your enemy...

Grass weed species can be similar in nature & looks, but each will have very distinctive individual characteristics. The key to tackling grass weeds is understanding their germination patterns and preferred conditions. A singular approach to controlling multiple species grass weeds will not be sufficient.

First, you need to identify which grass weed species you have. This can be done by looking at the seed head, but also at the neck stems of the grass weeds, and identifying their “collars”. This can be used to identify the plants earlier in the life cycle.

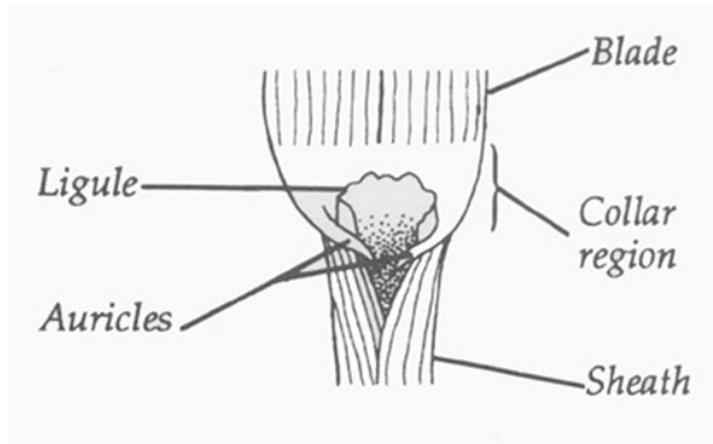


Figure 1: Parts of grass weed plants

Once the weed species has been identified, you need to understand the weeds characteristics, most of which are well documented. The key characteristic is the time of germination - whether this usually occurs in either autumn or spring, depends on the species.

## Barren Brome

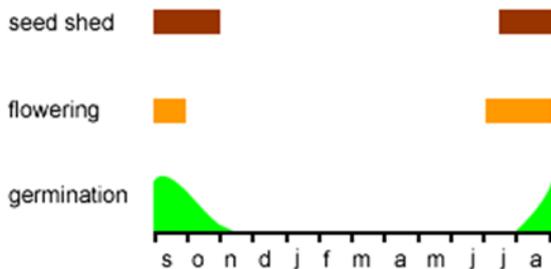


Figure 2: Lifecycle of Barren Broome

## Wild Oat

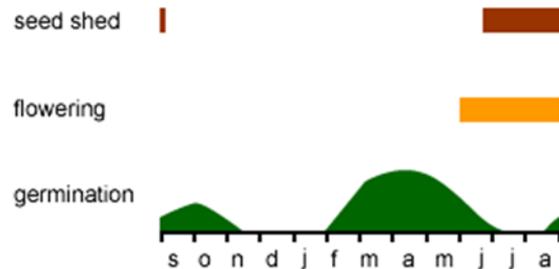


Figure 3: Lifecycle of Wild oat

Figures 2 & 3 above show two common grass weeds and their variation in germination pattern. Barren brome only germinates in the autumn, whilst the wild oat can germinate in autumn but is predominantly a spring germinator. There is little point of trying to target wild oats establishment by spraying in the autumn since the vast majority will not have germinated and will not receive any of the herbicide. Differing approaches are required depending upon the species of grass weed.

# Keep them out !

The implication of having grass weeds on your farm includes not only the costs of control but also difficulty of harvest and the financial loss of crop due to increased competition for nutrients and light.

The increase in variable costs are mainly through increased applications of herbicides although they can include increased costs of fuel & cultivation of land by attempting to bury weed seeds to reduce the risk of them germinating and competing with the following crop. These two things combined can cause a drop in gross margin of 15% before any yield loss is taken into account.

## Effects of grass weeds



- An increase in Variable costs of minimum £80/ha
- Fixed cost establishment goes up if you plough + £10/ha
- Drop in gross margin of 15%
- For the next 4 wheat crops =£ - 360/ha

In order to reduce the farm population of grass weeds you will need to achieve greater than 95% control.

## What's next?

Congratulations to Bob and Craig for gaining a 'Highly Commended' status at the RSPB Nature of Scotland awards held in Edinburgh. Pictured from the right, Craig & Bob Simpson with BBC's Mike Dilger, & Castlemains' Farming For a Better Climate's co-facilitator Craig Bothwell.



The final meeting is to be held at Castlemains in mid February.

There are nine climate change focus farms in Scotland. Keep up to date with their activities at



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[www.farmingforabetterclimate.org](http://www.farmingforabetterclimate.org)

Meetings are free to attend and all farmers are welcome.

For Castlemains, contact farm facilitator Craig Bothwell on 0131 603 7521 or via email at [craig.bothwell@sac.co.uk](mailto:craig.bothwell@sac.co.uk) for more information.

Farming for a Better Climate is funded by the Scottish Government as part of the Farm Advisory Service (FAS). The Climate Change Focus Farm programme is supported as part of its Veterinary and Advisory Services (VAS) legacy activities.

