

Integrated grass weed control



Weed management



Weed control is more than just using herbicides.

Good control can be achieved by integrating a variety of control methods:

- Crop choice and rotation
- Cultivations vs min-till
- Crop establishment
- Chemical control.

Early control is key !

Stopping it early stops this



Grass Weeds = Yield Loss

Grass weed population for 5 % yield loss

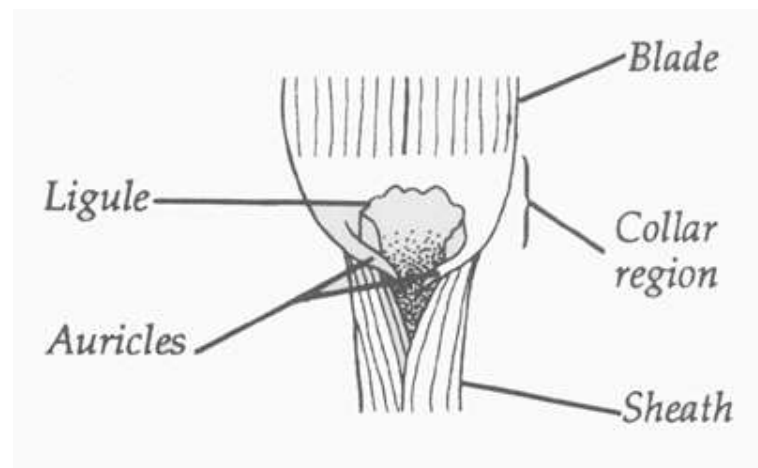
	weeds/m ²	£ lost /ha @£130/t @ 9t/ha
Blackgrass	12	-£58
Barren brome	6	-£58
AMG	2500 panicles	-£58 + drying costs
Cleavers	4	-£58

Weed biology

- Understanding the weed is essential to be able to gain effective control.
- Crop competition
- Timing of weed germination
- Seeds existing in the seedbank or could be imported in machinery
- Depth of weed seeds

Identifying grass weeds

- Auricles – Small claw or ear-like outgrowths at the junction of the leaf sheath and blade.
- Ligules – Membranous extension at the junction of the leaf sheath and blade.
- Panicles – The compound flowering head or ear of a grass in which each spikelet has a distinct stalk attached to the main stem.



Barren brome/sterile brome

- Annual tufted grass that can grow to 100cm in height.
- Leaf blades are green, turning purple and are finely pointed and covered in short hairs.
- Long-awned (15-30mm) loose flower head.
- In the young plant, ligule is very pointed.



Soft brome

- Loosely tufted, 10-100cm.
- Feels soft.
- Panicle is large, condensed and erect. Flowers hairy and awned.
- Very common, all cultivated land.
- Problem in cereals.



Image:

<http://www.bayercropscience.co.uk/your-crop/crop-diseases-weeds-and-pests/grass-weeds/soft-brome/>

Black grass

- Annual grass with upright round slender stems.
- Few nodes and fine hairless leaves.
- Grows in tufts or single plants.
- Ligule is present and is finely toothed 2-→5mm long.
- Green then dark purple flower head from May to August with multiple single flower spikelets producing 80–150 seeds/head



Annual meadow grass

- Most common grass weed flowering early germinating spring and autumn
- Leaf is folded in the stem, rather than rolled (boat-shaped leaves)
- Leaves light green, curved tip, central ridge underside, no auricles, the ligule is long (2-5mm) roundly pointed and smooth.



Wild oat

- Germinates mainly in the spring but seedlings can be found in autumn
- Looks similar to other cereals when young but leaves twist anticlockwise
- Leaf margins tend to be hairy towards the base, and leaves are broad, flat and blue-green.
- No auricles, the ligule is medium to long and slightly pointed.



Seed numbers/plant

Weed	Potential seed numbers
Blackgrass	100/hd * 10 = 1000
Annual Meadow Grass	100-500
Bromes	50-2000
Italian Rye Grass	100/head * 3 = 300

Seed Survival

Weed	% Decline	Longevity
Brome	90	< 5 years
Black Grass	75	< 5 years
Annual meadow grass	X	> 5 years
Italian rye grass	X	> 5 years
Wild Oats	X	> 5 years

East Hermiston



Mechanical control (plough)



FARM
ADVISORY
SERVICE



Rotational control



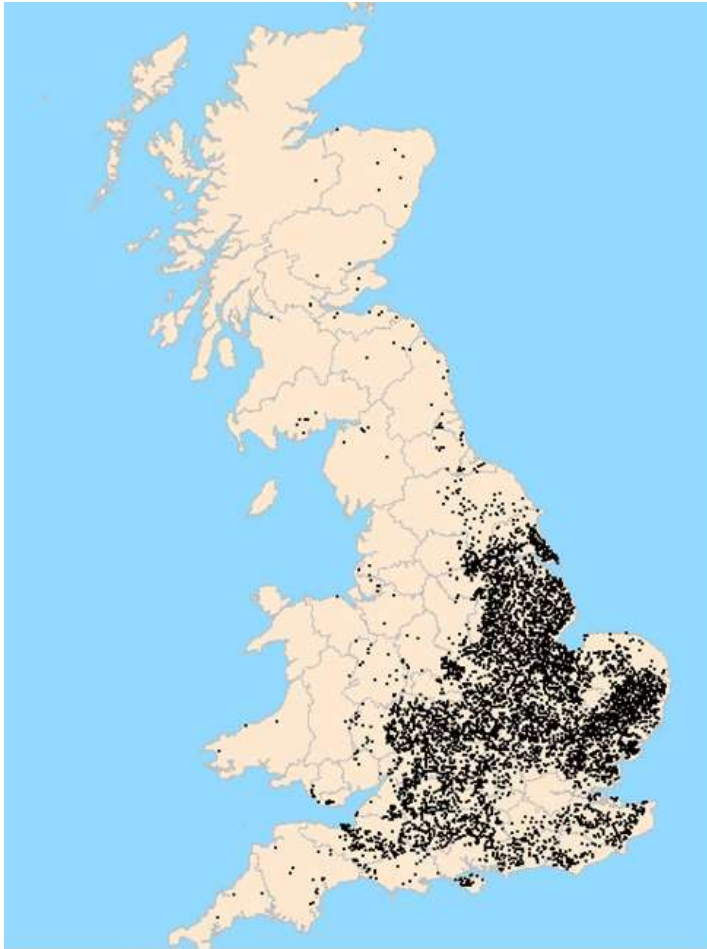
Drilling date

Delayed autumn sowing:

- Allows more seeds to emerge and be controlled by glyphosate
- Residual pre-emergence herbicides can be more effective
- Black grass in later drilled crops is less competitive



Cleaning the machinery



(BAYER '14)

- Clean machinery coming onto the farm is crucial
- Contractors and demonstrations moving between farms

If you give grass weeds a yard they will take a mile, keep them out!

Brome Trials East Hermiston BASF/SRUC



- Treatments using different herbicides
- Trial sown on 13 October 2015
- Pre em treatments applied on the 14 Oct 15
- Post em (Broadway Star) was applied on GS12-13 treatments applied on the 25 Nov 15
- Head counts recordings 23 Jun 16
- Trial sprayed off 24 Jun 16

Brome Trials East Hermiston BASF/SRUC



Treatment	No. of Brome Heads/ m2 on 23/06/16
Control No Herbicide	967
Pre – emergence only	533
Post- emergence only	210
Pre and post em	20
Pre em was Liberator plus Picona Post em Broadway Star	

Brome Trials East Hermiston BASF/SRUC



Brome key control measures



- Good ploughing in the rotation
- Spring cropping / break crops
- Delayed drilling and glyphosate pre drilling
- Cleaning machinery
- Shallow cultivation encourages chit.
- Field margins strategy
- Seed zero tolerance
- Appropriate herbicide

Wild Oats

- High longevity of seeds
- Avoid build up of seed bank
- Wild oats best control timing can be difficult
- Several herbicide options such as Pinoxaden, plus some of the brome/blackgrass sprays in Wheat
- Roguing where populations allow

Annual Meadow grass



- Reduce seed production by early control
- Good ploughing strategy
- Delay drilling helps but keep the crop competitive
- Rotations
- Good seed beds
- Apply herbicides early (according to label)

Herbicide resistance



*“The majority refer to **black-grass**, but queries have been raised in the last two years on **brome species and annual meadow-grass**”
(Weed Resistance Action Group June 2015)*

Protecting Water and Environment



- Integrated pest management – Think cultural control first then herbicides.
- 6m buffer strips next to watercourses
- Use greening rules / AECS.

Thank You



Herbicides

Pre-emergence	Product	Crop	AMG	Brome	Wild Oats	Blackgrass
Chlorotoluron	Tower		***		**	**
Pendimethalin (PDM)	Stomp/Anthem	WW/WB	***		*	**
Flufenacet	Liberator/Crystal	WW/WB	***	**	*	**
Prosulfocarb	Defy	WW/WB	***	*		*
Tri-allate	Avadex Excel	WW/WB	***	*	**	**
Post-emergence						
Flupyrsulphuron -methyl	Lexus SX	WW	**			**
Meso + idosulphuron-methyl	Atlantis/Pacifica	WW	***	**	***	***
Pyroxsulam	Broadway Star	WW		***	***	
Pinoxaden	Axial	WB/SB			***	**
Clodinafop-propargyl	Topik	WW			***	**

Herbicide Cost

Pre-emergence	Product	£/ha Full Rate
Chlorotoluron	Tower	24
Pendimethalin (PDM)	Stomp/Anthem	18
Flufenacet	Liberator/Crystal	37
Prosulfocarb	Defy	33
Tri-allate	Avadex Excel	37
Post-emergence		
Flupyrsulphuron -methyl	Lexus SX	14
Meso + Idosulphuron-methyl	Atlantis/Pacifica	35
Pyroxsulam	Broadway Star	31
Pinoxaden	Axial	49
Clodinafop-propargyl	Topik	28

Herbicides Sterile Brome

- A minimum of **two spray** programme in WW mixtures of:
 - Pre em flufenacet, pendimethalin/DFP
 - Prosulfocarb / picolinafen
 - Post em – (ALS inhibitors) **WW ONLY**
 - Pyroxulam (Broadway Star) + PDM
 - Pacifica, Attribut, Monitor
 - Winter Barley: Pre em only
 - WOSR: Kerb

The Ideal Field Margin for Brome Control!



- Sow a perennial grass mixture
- Not cultivated
- Avoid herbicides/drift
- Mowing before seed has shed
- Plough between the field and the margin if bromes are spreading
- BUT Mowing not allowed under greening rules (until after 31 August)