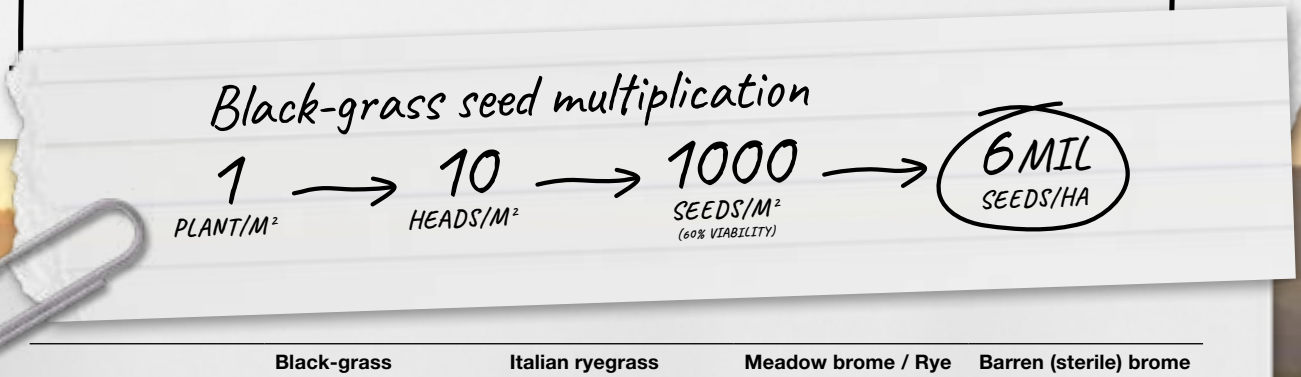
IPM Game Plan

Achieving sufficient control to reduce future populations of challenging weeds such as black-grass and ryegrass can feel like an impossible task, but with a strong IPM Game Plan, and Luximo® in your corner, it can be done.

KNOW THE OPPOSITION

Knowledge is power. The better you know your weed competition, the better able you are to defeat it.

- **Weed biology:** Learn more about the weeds on your farm as different species thrive in different conditions, and cultural and chemical controls may need to be adjusted.
- **Mapping & monitoring:** Through field walking or remote digital technology, measure and map grass weed infestations to monitor problem areas and track progress.
- **Spring germinators:** Monitor emerging weeds and growth stages in the spring in case you need to alter your control strategy.
- **Seed bank profile:** Keep a record of years with high levels of seed return and past cultivations, to better understand where seed from different seasons is likely to sit in the soil profile. This, combined with expected dormancy, can help determine the most effective cultural control strategy.
- **Resistance testing:** Test for resistance every 3-5 years on an individual field basis. Click here for WRAG guidance.



	Black-grass	Italian ryegrass	Meadow brome / Rye brome / Soft brome	Barren (sterile) brome / Great brome
Weed ID tips	Smooth leaves; can be purple at the base of stems but variable	Green and hairless leaves rolled in the shoot; tufted or solitary stems	Oval shaped spikelets with shorter awns	Pointed leaves with short hairs; wedge-shaped spikelets with long awns
Emergence	Sep - Nov (80%) Mar - May (20%)	Sep - Nov (94%) Mar - Apr (6%)	Aug - Oct (plus Mar - Apr for soft brome)	Aug - Oct (98%)
Stubble management	Leave untouched until September, then use shallow cultivations to kill off emerged seedlings and encourage further germination, which can then be removed with glyphosate			Shallow cultivate as soon as possible after harvest to encourage germination

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KEEP IT CLEAN

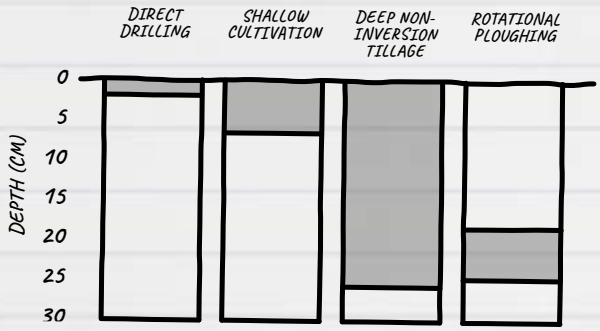
A clean game is a good game. Farm hygiene is key to stopping the introduction and spread of grass weeds on farm.

- **Harvest:** Where possible, prioritise clean fields first and cut dirty fields last.
- **Machinery:** Before moving fields, thoroughly clean the combine, baler, drill or cultivation equipment. If using contractors, stop the spread at the farm gate by ensuring all equipment is cleaned prior to coming on farm.
- **Straw:** Is baling or spreading best? Try to avoid exporting a problem from one field to another.
- **Seed:** Using certified seed will reduce the risk of introducing weeds. If producing Farm Saved Seed, ensure the field is clean of grass weeds before harvest, and that the seed is properly cleaned & stored before drilling.
- **Drilling:** Try to avoid disturbing weed seeds when drilling. Click here for further advice.
- **Field margins, stewardship mix & game cover:** Monitor non-cropped areas to prevent weed ingress. Control grass weeds in these areas where permissible.

TOP 5 COMBINE CLEANING TIPS:

- Remove large build-ups of debris by hand
- Open all panels on the machine
- Use a leaf blower to remove finer debris and get to places where the hand can't reach
- Check around the wheel axles for seed and chaff build-up
- Open the stone trap and clean inside and don't forget the header

WEED SEED BANK BY CULTIVATION TYPE



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PLAN THE ATTACK

Attack is the best form of defence. Cultural controls are at the heart of a winning strategy. Below are some key tactics for consideration.

- **Soil health:** Address drainage issues, pH & nutrient deficiencies and minimise compaction.
- **Rotational ploughing:** Knowing whether to bury seed or leave it on the surface is key. Consider ploughing 1 in every 5 years or more, to bury viable seed and then to leave it there for as long as possible.
- **Stubble management:** For black-grass, leave stubble untouched until September, as much will emerge without cultivations, and then use shallow cultivations to kill off emerged seedlings and encourage further germination. Understanding the grass weed species you have in each field is important since you may need to tailor your stubble management for different weed issues.
- **Stale seedbeds:** Shallow cultivations (up to 5cm), combined with rolling can encourage flushes. Remove flushes through cultivations and a maximum of two glyphosate applications. Click here for WRAG guidelines on glyphosate resistance management.
- **Delayed drilling:** Although an anxious wait, delaying drilling of dirty fields until mid-October is critical, allowing a decent flush of grass weeds to emerge that can be removed prior to drilling. Prioritise drilling clean fields first and dirty ones last.
- **Competitive crops:** Plan variety, seed rate and drilling date to ensure a competitive crop. Delaying drilling too late (e.g. mid-November) can result in reduced crop competition, allowing surviving weeds to flourish.
- **Spring cropping:** The ultimate form of delayed drilling is to include spring cropping in the rotation. The benefits of spring cropping will vary between weed species.
- **Fallow / grass leys:** For severe populations, consider 2 – 3 years of fallow or grass leys.
- **Roguing:** Adopt a zero-tolerance approach by hand roguing low populations at heading, before the start of seed shed.
- **Crop destruction:** Spray out heavily infested areas before seed shed with glyphosate. It may be a difficult decision but there are considerable gains that can be made from this approach in future years.

BLACK-GRASS POTENTIAL YIELD LOSS

100 HEADS/M² =	500 HEADS/M² =
10% YIELD LOSS (POTENTIAL)	50% YIELD LOSS (POTENTIAL)

AVOID THE FOLLOWING CULTIVATION APPROACHES:

- Deep, non-inversion tillage
- A second ploughing within a 5-year period
- Lower depths of soil disturbance than during spring drilling
- Failure to consolidate after soil disturbance

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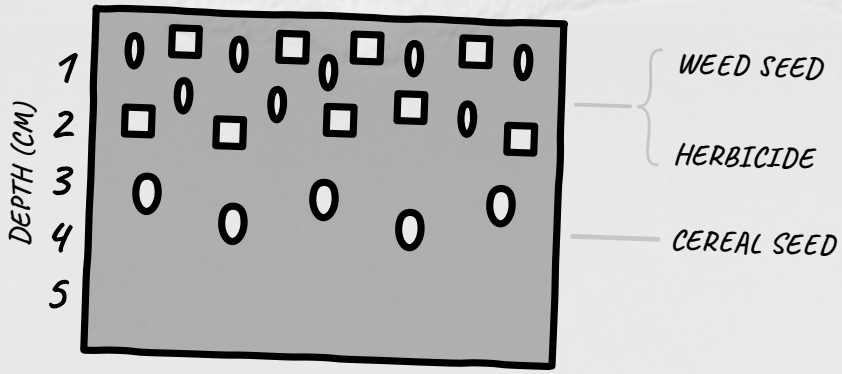
OPTIMISE YOUR LAST LINE OF DEFENCE

Don't fall at the last hurdle. Herbicide applications are a vital step in achieving good grass weed control.

- **Chemical control:** The best chemical control of grass weeds comes from applying a robust pre-emergence herbicide and following this with a peri or early post emergence treatment, whilst weeds are still small. If treatment is delayed weeds become bigger and herbicides less effective. Weeds also need to be actively growing for the herbicides to have the greatest effect.
- **Resistance management:** Use a combination of different modes of action at full, recommended rates to maximise the level of control, whilst also helping to protect the active ingredients from further resistance development. Use your strongest options first to gain the greatest reduction in weed numbers and to minimise the risk from poor weather preventing follow up applications.
- **Luximo®:** Luximo® is a brand new mode of action in the armoury against black-grass with its own HRAC classification, setting new standards of control for both black-grass and ryegrass in winter wheat and spring barley, whilst also maintaining comparable levels of brome control to current standard, residual herbicide options.
- **Application:** Maximise performance and crop safety of pre-emergence herbicides with this key guidance:
  - Spray 24 - 48 hours after drilling and ensure no blocked nozzles
  - Aim to apply on to moist, clod-free and consolidated seedbeds, with minimal trash
  - Ensure seed is covered by a minimum of 32mm of settled soil and make sure the drill maintains this depth evenly across the field
  - If direct drilling, ensure slots are closed before application
  - Luximo® has been proven to deliver consistent results across a range of water volumes and nozzle types, allowing you flexibility in choosing the right set up to get the job done.

THE IDEAL SEEDBED



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