

Efficacy Guideline 611

Efficacy Guidance on the Restriction of Use of High Resistance Risk Herbicides

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Introduction

CRD has been considering how to tackle the issue of grass weed resistance in the UK. This has been prompted by the increasing occurrence of resistance and the limited number of herbicide options. In addition consideration of resistance risk and management is required as part of the regulatory process and there is a clear need to ensure the regulatory system is fair and equitable to all products. (See Efficacy Guideline 606: Resistance Risk Analysis and Use of Resistance Management Strategies)

In response to the threat from herbicide resistance to the sustainability of UK agriculture CRD asked the ACP for advice on the strategy for the future use of high resistance risk herbicides used for the control of grass weeds. These were presented to the ACP in November 2005.

The ACP advised that CRD should adopt a more restrictive regulatory approach to resistance management and apply restrictions to the use of existing grass weed herbicides where there is a high resistance risk (currently ALS inhibitor and ACCase inhibitor herbicides). These restrictions are aimed at prohibiting the use of sequences or mixtures of grass weed herbicides that are considered to pose a very high-risk of resistance, namely black-grass, Italian rye-grass and wild oats. These restrictions may also be appropriate for other herbicides which pose a high-risk of resistance. (See Efficacy guideline 602 'Resistance Warnings and Restrictions on Labels of Professional Herbicide Products for further information on label phrases and restrictions on other herbicide actives)

Products Containing ACCase inhibitors

Examples of active substances acting by ACCase inhibition

- Clodinafop-propargyl
- Fenoxaprop-p-ethyl
- Fluazifop-p-butyl
- Propaquizafop
- Quizalofop-p-ethyl
- Quizalofop-p-tefuryl
- Tepraloxydim (see exemptions below)
- Cycloxydim Tralkoxydim
- Pinoxaden Diclofop-methyl

The following restrictions and label wordings are applicable to all approvals containing relevant active substances, including parallel imports and specific off label approvals,

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unless a specific exemption is granted. The label must also contain the standard wording 'Strains of some annual grasses...' and any product specific phrases.

The Statutory Conditions of Use must include:

- A restriction on the maximum number of applications of any one active substance which is an ACCase inhibitor to one per crop (or one per year for perennial crops).
- The 'Other Specific Restriction' 'To avoid the build up of resistance do not apply products containing an ACCase inhibitor herbicide more than twice to any crop. In addition, do not use this product in mixture or sequence with any other product containing <active substance>'. Where there is more than one ACCase inhibiting active substance in a product both active substances must be named in the 'Other Specific Restriction'.

Label recommendations must include the following sentences:

- 'This product contains <active substance> which is an ACCase inhibitor, also classified by the Herbicide Resistance Action Committee as 'Group 1' (previously 'Group A').
- 'Use only as part of a resistance management strategy that includes cultural methods of control and does not use ACCase inhibitors as the sole chemical method of grass-weed control.'
- 'Applying a second product containing an ACCase inhibitor to a crop will increase the risk of resistance development; only use a second ACCase inhibitor to control different weeds at a different timing.'

Products Containing ALS inhibitors

Examples of active substances acting by ALS inhibition

- Flupyr-sulfuron-methyl
- Iodosulfuron methyl sodium
- Mesosulfuron-methyl
- Nicosulfuron
- Rimsulfuron
- Sulfosulfuron
- Propoxycarbazone-sodium
- Foramsulfuron
- Flazasulfuron

All products containing an ALS inhibitor with claims for control of grass weeds or that

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are shown to exert a selection pressure on high resistance risk grass weeds will be subject to restriction. The following changes will be applied to all approvals containing relevant active substances, including parallel imports and specific off label approvals.

The Statutory Conditions of Use must include:

- The 'Other Specific Restriction' 'To avoid the build up of resistance do not apply this or any other product containing an ALS inhibitor herbicide with claims for control of grass-weeds more than once to any crop'.

Label recommendations must include the following sentences:

- 'This product contains <active substance> which is an ALS inhibitor, also classified by the Herbicide Resistance Action Committee as 'Group 2' (previously 'Group B').
- 'Use only as part of a resistance management strategy that includes cultural methods of control and does not use ALS inhibitors as the sole chemical method of grass-weed control'.

This is in addition to the standard label phrase 'Strains of some annual grasses...' and any product specific phrases.

New active substances

ACCASE inhibitors

- Where the mode of action is ACCase inhibition (typically 'fops', 'dime' or 'dime') the restrictions and label wordings above should be applied.

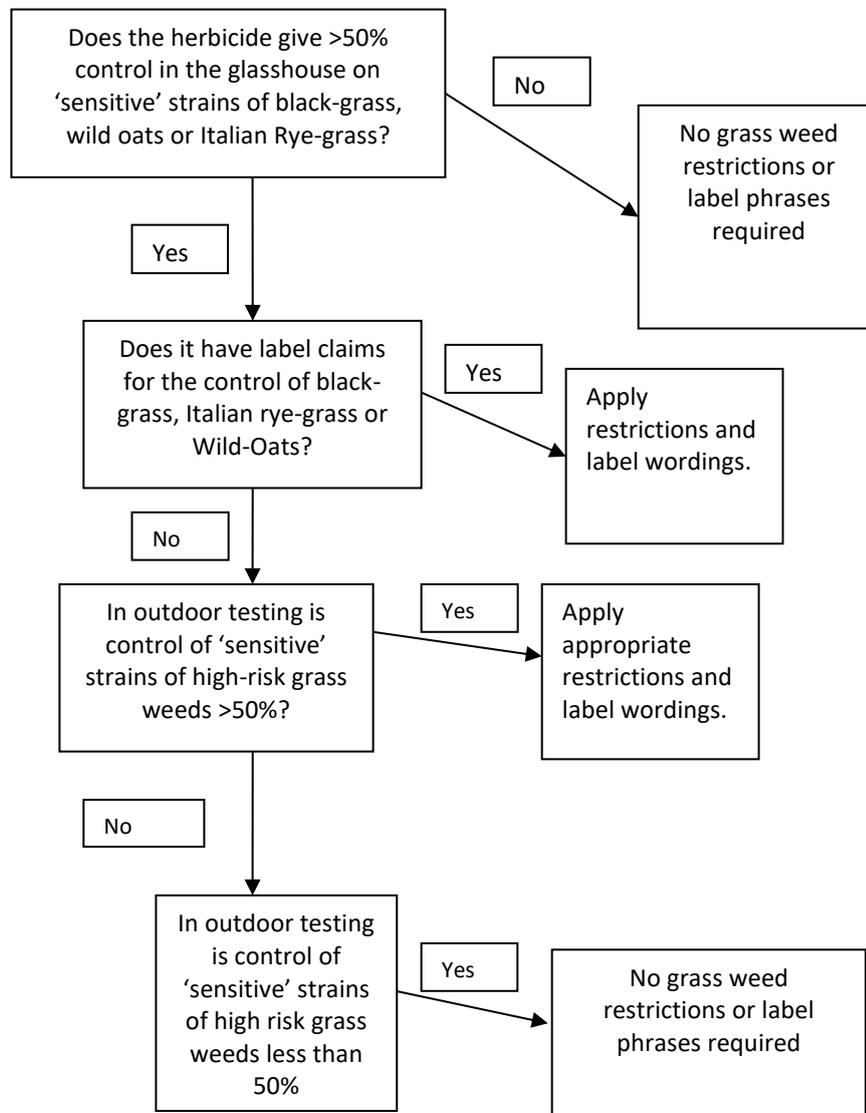
ALS inhibitors

- Where the mode of action is ALS inhibition data must be provided on the sensitivity of black-grass, Italian rye-grass and wild oats at the dose recommended. This is irrespective of the specific label claims of the product.
- If, at the recommended dose and application timing, the active substance can be demonstrated in the glasshouse to give <50% control of 'sensitive' strains of black-grass, wild-oats or Italian ryegrass then no further testing is required and the product containing that active substance would not be subject to restriction.
- If, in glasshouse testing, the active substance gives 50% or more control of 'sensitive' strains of black-grass, wild-oats or Italian ryegrass at the recommended dose and application timing then some form of outdoor testing should be conducted. This may be undertaken in outdoor containers or in efficacy field trials. In both cases the effectiveness against black-grass, wild-oats or Italian ryegrass must be recorded on a plant basis as % control compared to the untreated when used against weed growth stages likely to be encountered in normal use. The regulatory outcome will

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depend on the effectiveness of the product against high resistance risk grass weeds.

The following can be used as a tool in decision-making:



In situations where control of 'sensitive' strains of black-grass, wild-oats or Italian ryegrass is > 50 % there is clearly a significant selection pressure being applied to the grass weed populations. In some situations a case may be presented to justify why the herbicide should not be subject to restriction. This may include a further assessment of the factors influencing its activity, such as timing of application and weed growth stage at application. For example, in glasshouse tests a product may show moderate levels of control of small black-grass plants but when used as recommended, for example in the

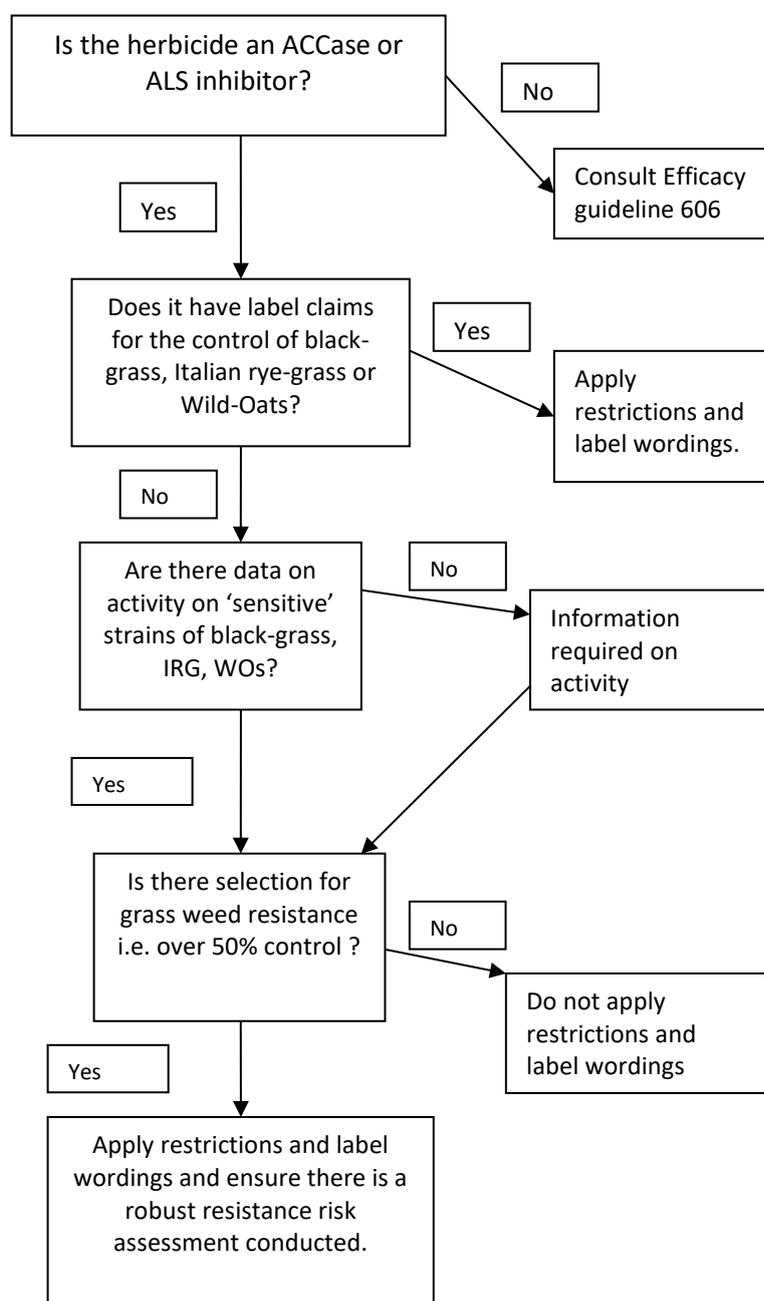
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spring when black-grass may be at a more advanced growth stage, control may actually be poor. In these circumstances the selection pressure may be less than that suggested from glasshouse tests and restriction may not be necessary.

Mode of action unknown

Where the mode of action is unknown a resistance risk assessment must be conducted (see Efficacy guideline 606: Resistance risk analysis and use of resistance management strategies), including consideration of the activity on high resistance risk species. Where the overall risk is high restrictions should be considered.

To assess whether restrictions are relevant the following may be useful:



Sequences and mixtures of ALS inhibiting herbicides

In future these will be evaluated from two perspectives;

Following crops.

Currently all ALS inhibitors must be identified as such and they must contain a warning that they must not be used in mixture or sequence another ALS inhibitor. To remove this restriction an applicant must demonstrate that there is no risk from a particular mixture or sequence to following crops. This is usually achieved by submission of suitable data, normally consisting of a minimum of six field trials (three per year) over two cropping seasons. (See Efficacy Guideline 303).

Resistance.

The Other Specific Restriction 'To avoid the build up of resistance do not apply this or any other product containing an ALS inhibitor herbicide with claims for control of grass-weeds more than once to any crop' precludes a sequence of two ALS inhibitor herbicides with activity on grass weeds. Any applications for approval of mixtures and sequences of ALS inhibitor herbicides with grass weed activity must now also provide a resistance risk assessment for that sequence. Consideration will also be required for mixtures or sequences of ALS inhibitors where one product has primarily grass weed activity and the second broad-leaved weed activity. An assessment of resistance risk on broad-leaved weeds is a requirement as ALS resistant chickweed and poppy populations have been found in the UK.

Exemptions

Tepraloxydim

Onions & Leeks (July 2006)

To date only one exemption to these restrictions has been granted. As it stood the new restrictions meant that in onions and leeks only one application of tepraloxydim would be permitted. There were a number of discussions with the HDC, the Leek Growers Association and the British Onion Producers Association regarding the agronomic need for a split dose i.e. two applications of tepraloxydim for the control of annual meadow-grass. A resistance case was produced by these parties. The basis of this case was that high resistance risk grass weeds occur on a very small percentage of the area grown and in the absence of the target weed the risk of resistance would be inherently low. An exemption was thus granted and for those products containing tepraloxydim there will still be the facility to use a split dose application for the control of annual meadow-grass. Clearly if black-grass, wild-oats and Italian ryegrass are major weeds then the label advice is that only one application of tepraloxydim should be used.

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if

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you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This leaflet is available at:

http://www.hse.gov.uk/pesticides/resources/E/Efficacy_Guideline_611.pdf

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