

## OXFORD PLANT SCIENCES Herbicide Resistance Testing Service

Tests are carried out to detect resistance of Black-grass (*Alopecurus myosuroides*), Wild-oats (*Avena* spp.) and Italian rye-grass (*Lolium multiflorum*) to herbicides of the ACCase ('fop' and 'dim'), urea and dinotroaniline chemical groups. In 2008, a new test is being added to test for resistance of the same grass species to acetolactate synthase ('ALS') chemical groups.

*Important note: This protocol for testing 'ALS' resistance is provided as an indicator of blackgrass target site resistance to herbicides from this chemical group. The principal commercial product in this group is based on mesosulfuron+iodosulfuron (Atlantis WG). It is unlikely to reliably detect partial resistance due to enhanced metabolism.*

### TESTING FOR BLACKGRASS RESISTANCE

Testing is carried out for enhanced metabolism resistance and target site resistance to fenoxaprop-P-ethyl (reference 'fop', and tralkoxydim); Cycloxydim (reference 'dim'), pendimethalin, chlorotoluron, isoproturon, flupyrsulfuron and many other herbicides. Resistance to ALS inhibiting herbicides includes flupyrsulfuron, mesosulfuron+iodosulfuron (Atlantis WG).

### TESTING FOR RYEGRASS RESISTANCE

Testing is carried out for enhanced metabolism resistance and target site resistance to diclofop-methyl, tralkoxydim, and cycloxydim.

### TESTING FOR WILD OATS RESISTANCE

Testing is carried out for enhanced metabolism resistance and target site resistance to fenoxprop-P-ethyl.

### TESTING METHODOLOGY AND ASSESSMENTS

The number of seeds with shoots over 1 cm long is determined after two weeks and assessed to provide a measure of the degree of resistance. A key element is the inclusion of standard reference populations of both resistant and susceptible species.

### PRESENTATION OF RESULTS

They are normally available by late September to early October for seed samples collected in July. The results give an indication of the resistance mechanisms present and are used to help determine the optimum herbicide strategy to use in field crops.

The results of screening tests for resistance to black-grass, wild-oats and Italian rye-grass is presented according to the following categories:

- S Susceptible
- R? Early indications that resistance may be developing, possibly reducing herbicide performance (previously described as 1\*).
- RR Resistance confirmed, probably reducing herbicide performance (combining previous 2\* and 3\* categories).
- RRR Resistance confirmed, highly likely to reduce herbicide performance (combining previous 4\* and 5\* categories).

TEST	COST	RESULTS AVAILABLE
Rothamsted Rapid Resistance Test	£125 + VAT per seed sample	Late September
Standard Pot Test (allows choice of herbicide for testing)	£125 + VAT per herbicide per seed sample	November

Please follow the sampling instructions below and post the seed sample with the sampling details form to Oxford Plant Sciences at the address given on the sampling form.

## Grass Seed Sampling Form for Resistance Testing

OPS sample reference number: 08/	<b>FOR OFFICE USE</b>
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### GRASS SAMPLE DETAILS

Please fill in the boxes below and mark each sample bag with the farm details.

Grass Type \_\_\_\_\_

Type of test required (please tick box)

Rothamsted Rapid Resistance Test		Pot Resistance Test	
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Names of Herbicides for Pot Test	1.	
	2.	
	3.	
	4.	

FARM ADDRESS	REPORT/INVOICE ADDRESS (IF DIFFERENT)
Name	Name
Address	Address
Postcode	Postcode
Tel	Tel
Fax	Fax
Mobile	Email
Email	
Field name or Reference (one form per grass sample)	

Send the completed form with the grass sample in an envelope (email us if you require envelopes) to:

Felicity Dyndor  
 Oxford Plant Sciences Ltd  
 3 Lower Farm Barns, Bucknell  
 Bicester, OXON OX27 7LT

Tel: 01869 243333  
 Fax: 01869 248262  
 E-mail: [fdyndor@oxfordplantsciences.co.uk](mailto:fdyndor@oxfordplantsciences.co.uk)

## A Guide to a Good Sampling Method

### Sampling Black-grass, Wild Oat, Ryegrass Seeds

- Collect about a mug full of ripe seeds at random.
- Gently rub the seed heads over a collecting bag and the viable seeds should drop in quite easily. DO NOT STRIP HEADS BY PULLING OFF ALL THE SEEDS OR CUT OFF ENTIRE SEED HEADS as most of these seeds will not be viable.
- Do not collect in very wet conditions.
- Always use a paper bag or envelope for collecting the seed, and allow it to air dry before sending off to be tested.

### Timing of Sample Collection

**Blackgrass (*Alopecurus myosuroides*);** optimum time for collecting ripe seeds is usually the second and third week in July when about 10-20% of the seeds have been shed. Collecting seeds in June is generally too early.

**Wild Oats (*Avena* spp.);** optimum time for collecting ripe ryegrass seed is the second half of July or early August.

**Ryegrass (*Lolium multiflorum*);** optimum timing is a little more precise as the seeds tend to be shed rapidly, but early to mid July is usually optimal.