



Horticultural  
Development  
Company

## **Grower summary**

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### **HNS 166**

Hardy ornamentals: herbicide  
screening for herbaceous  
perennials and grasses

Annual Report 2009

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Only officially approved pesticides may be used in the UK. Approvals are normally granted only in relation to individual products and for specified uses. It is an offence to use non-approved products or to use approved products in a manner that does not comply with the statutory conditions of use, except where the crop or situation is the subject of an off-label extension of use.

Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

## **Further information**

If you would like a copy of the full report, please email the HDC office ([hdc@hdc.org.uk](mailto:hdc@hdc.org.uk)), quoting your HDC number, alternatively contact the HDC at the address below.

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## Headline

A range of herbicide products have been assessed for crop safety when applied post-potting to container-grown herbaceous perennial nursery stock and the most successful have been identified.

## Background and expected deliverables

Good weed control continues to be important for hardy ornamental growers to ensure that plant quality is maintained and that accreditation standards are achieved. Herbicides remain the most cost-effective weed control method although herbaceous subjects are particularly vulnerable to herbicide damage.

With the loss of herbicides and changes in weed populations on nurseries it is important to continue to assess new products to help combat resistant weed species and extend the range of subjects screened for which herbicides can be used.

The recently completed HDC project HNS 139 (Atwood, 2009) identified herbicides, new to the UK, which appear to have potential for use on herbaceous perennial and grass crops. The focus of HNS 139 was mainly on shrub species, so further screening work is required specifically on herbaceous perennial and grass crops.

This project is evaluating several new herbicides for efficacy and safety for use on a wide range of container-grown herbaceous subjects as well as extending the range of crop species phytotoxicity information for currently used herbicides

## Summary of the project and main conclusions

Trial plants of 20 herbaceous perennial species (Table 1) were potted up in late May/early June 2008 and kept weed-free until commencement of the trial.

Table 1. Herbaceous perennial species used in the experiments

<i>Achillea</i> ‘Salmon Beauty’	<i>Hosta albo marginata</i>
<i>Alstroemeria lutea</i>	<i>Iris germanica</i> ‘Jane Philips’
<i>Bergenia</i> ‘Baby Doll’	<i>Leymus arenaria</i>
<i>Coreopsis</i> ‘Zagreb’	<i>Lobelia</i> ‘Queen Victoria’
<i>Crocsmia</i> ‘Kathleen’	<i>Lupinus</i> ‘Galaxy mixed’
<i>Dryopteris goldinia</i>	<i>Penstemon</i> ‘Sour Grapes’
<i>Fragaria</i> ‘Pink Panda’	<i>Peonia</i> ‘Prima Verde’
<i>Geranium nodosum</i>	<i>Schizostylis</i> ‘Sunrise’
<i>Helenium</i> ‘Bruno’	<i>Sedum</i> ‘Autumn Joy’
<i>Hemerocallis</i> ‘Stafford’	<i>Symphytum</i> ‘Wisley Silver’

The following herbicide treatments were applied on 20 June 2008 (Table 2).

Table 2. Treatments used in summer herbaceous plant nursery experiments

Treatment	Product	Active ingredient	Product application	Approval status
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			<b>rate</b>	
1.	Untreated control			
2.	Ronstar 2G	oxadiazon (2 % w/w)	200 kg/ha	Label
3.	Teridox	dimethachlor (500 g/L)	3.0 L/ha	Not in UK
4.	Flexidor 125	isoxaben (125 g/L)	1.0 L/ha	Label
5.	Springbok	metazachlor (200 g/L) + dimethenamid-p (200 g/L)	2.5 L/ha	LTA*
6.	Dual Gold	s-metolachlor (960 g/L)	1.6 L/ha	Not in UK
7.	New code A	not disclosed	2.6 kg/ha	Not in UK

\*LTA = Long-Term Arrangements for Extension of Use.

Dual Gold (s-metolachlor) and New Code A were completely safe to all of the 20 subjects tested. The other treatments were generally safe but there were a few incidences of damage. The *Penstemon* were damaged by both Flexidor 125 (isoxaben) and Ronstar 2G (oxadiazon), both causing scorch and flower abortion. The *Hemerocallis* were damaged initially by Ronstar 2G and Flexidor 125, although the visible damage was low by the time of the second assessment. The *Bergenia* suffered veinal yellowing and scorch from Springbok (metazachlor + dimethenamid-p). Ronstar 2G also appeared to cause some scorch to *Crocsmia*.

Dual Gold in particular could be a useful herbicide for herbaceous growers. Although there are gaps in the weed control spectrum – notably bittercress – results from HNS 139 showed that it does give good control of willowherb and grasses and some control of groundsel so could be a useful supplement to Flexidor 125 which offers poor control of these weeds.

Springbok appeared relatively safe in this experiment but the active ingredient metazachlor has been associated with damage to container grown herbaceous plants in the past when used as Butisan S. Springbok product does contain less metazachlor than Butisan S so might be safer but further work is needed to confirm safety.

Teridox is relatively unknown as a herbicide for ornamentals. Initial crop safety results suggest that it may be a useful and relatively safe product.

Both Flexidor 125 and Ronstar 2G are used on herbaceous crops although a number of species are susceptible to damage. The results reported here indicate a further range of species (*Alstroemeria*, *Dryopteris*, *Frageria*, *Leymus*, *Paeonia* and *Symphytum*) that can be safely treated. The successful result with *Dryopteris* is interesting as growers have tended to avoid treating ferns with herbicides.

Where species have been previously tested these results are generally in line with previous findings and entries in the '*Weed Control for Nursery Stock Growers Handbook*'. However Ronstar 2G, which has previously been listed as safe to *Crocsmia* and *Penstemon*, did affect plants in this experiment. *Hosta* and *Schizostylus* were previously listed as moderately susceptible and *Sedum* fully susceptible to Ronstar 2G although no damage was recorded in this experiment. These subjects should be treated with caution until the results are confirmed.

Since the start of the experiment development work on New Code A has stopped and the product will not now be developed for the UK or European market.

### **Financial benefits**

It is difficult to establish the full financial benefit from the project at this stage because two of the key new herbicides identified are not yet available on the UK market and Springbok requires a SOLA for use on ornamentals. However the benefits from extending the range of crops to which Ronstar 2G and Flexidor 125 can be applied can be estimated to save around £2,500/ha in hand-weeding costs for those crops less the cost of herbicide at £54/ha for Flexidor 125 or £1,000/ha for Ronstar 2G.

### **Action points for growers**

- When available in the UK, Dual Gold and Teridox show promise for use in container-grown herbaceous perennial nursery stock during the growing season.
- Dual Gold could be a useful supplement to Flexidor 125 to improve control of groundsel, grasses and willowherb.
- Springbok appeared safe to a range of herbaceous perennials except *Bergenia*.
- Springbok is currently available in the UK and can be used under LTA on ornamentals until June 2009 but would require SOLA for use after that date.
- Further crop safety information is available to extend the use of Ronstar 2G and Flexidor 125 to *Alstroemeria*, *Dryopteris*, *Fragaria*, *Leymus*, *Paeonia* and *Symphytum*.