Herbicide phytotoxicity testing on a range of container-grown ornamental plant species – trial visit event

Darby Nursery Stock Ltd, Fen Farm, Severalls Road, Methwold Hythe, Thetford IP26 4QU

Tuesday 21st April 2026

zest® Sustainable ICM	Horticulture Crop Protection	HTA	

Event Agenda

Time	Content	Speaker
Darby Nursery Stock Ltd, Fen Farm, Severalls Road, Methwold Hythe, Thetford IP26 4QU		
09:00 – 09:45	*Arrival, breakfast roll and refreshments*	
09:45 – 10:00	**An introduction to HCP Ltd**	Jo McTigue, **HCP Ltd**
10:00 – 10:20	**Setting the scene – challenges with weed control and herbicide selection in container-grown HNS production**	Wayne Brough, **HTA,** Selchuk Kurtev, **Zest Sustainable ICM**
10:20 – 10:45	**Introduction to the herbicide trial objectives and discussion**	Selchuk Kurtev, **Zest Sustainable ICM**
10:45 – 12:00	**View the herbicide trial plots and early observations**	All Delegates
12:00 – 12:30	**Questions and answers**	All Delegates
12:30	*Wrap up, networking and depart*	

Introduction to the trial

The objective of the trial is to assess the safety of new and existing herbicides with pre- and post-emergence herbicide products (six products tested) for use over container-grown ornamentals and to add the limited range of products currently available and used commercially. The project aims to apply the products to a limited range (26) of container-grown plant species to provide an indication about the relative safety of each product applied in two timings - early spring and late summer.

a) Species list

Herbicide trial proposal – list of nominated plant species and their taxonomic grouping

	Previous/current name	Class	Order	Family	Genus	Updated name
1	*Buddleja davidii Royal Red*	Equisetopsida	Lamiales	Scrophulariaceae	Buddleja	*Buddleja davidii*
2	*Carex testacea*	Equisetopsida	Poales	Cyperaceae	Carex	*Carex testacea*
3	*Ceanothus azureus Blue Mound*	Equisetopsida	Rosales	Rhamnaceae	Ceanothus	*Ceanothus caeruleus*
4	*Choisya ternata White Dazzler*	Equisetopsida	Sapindales	Rutaceae	Choisya	*Choisya ternata*
5	*Clematis hybrid Nubia*	Magnoliopsida	Ranunculales	Ranunculaceae	Clematis	*Clematis* hybrid
6	*Cornus alba Baton Rouge*	Magnoliopsida	Cornales	Cornaceae	Cornus	*Cornus alba*
7	*Euonymus fortune Emerald Gaiety*	Equisetopsida	Celastrales	Celastraceae	Euonymus	*Euonymus fortunei*
8	*Geranium wallichianum Rozanne*	Equisetopsida	Geraniales	Geraniaceae	Geranium	*Geranium wallichianum*
9	*Hebe x fransciscana Variegata*	Magnoliopsida	Lamiales	Plantaginaceae	Veronica	*Veronica x franciscana*
10	*Helenium autumnale Short n Sassy*	Equisetopsida	Asterales	Asteraceae	Helenium	*Helenium autumnale*
11	*Hosta Shadowland Empress Wu*	Equisetopsida	Asparagales	Asparagaceae	Hosta	*Hosta* spp.
12	*Hydrangea paniculata Framboisine*	Equisetopsida	Cornales	Hydrangeaceae	Hydrangea	*Hydrangea paniculata*
13	*Jasminum officinale*	Magnoliopsida	Lamiales	Oleaceae	Jasminum	*Jasminum officinale*
14	*Lavandula angustifolia Hidcote*	Magnoliopsida	Lamiales	Lamiaceae	Lavandula	*Lavandula angustifolia*
15	*Lonicera japonica*	Magnoliopsida	Dipsacales	Caprifoliacea	Lonicera	*Lonicera japonica*
16	*Lonicera nitida Garden Clouds Gopper Glow*	Equisetopsida	Dipsacales	Caprifoliaceae	Lonicera	*Lonicera ligustrina*
17	*Philadelphus maculatus Mrs EL Robinson*	Equisetopsida	Cornales	Hydrangeaceae	Philadelphus	*Philadelphus maculatus*
18	*Photinia x fraseri Scarlet Blaze*	Magnoliopsida	Rosales	Rosaceae	Photinia	*Photinia × fraseri*
19	*Potentilla fruticosa Abbotswood*	Equisetopsida	Rosales	Rosaceae	Syn. Dasiphora	*Dasiphora fruticosa*
20	*Prunus laurocerasus Etna*	Magnoliopsida	Rosales	Rosaceae	Prunus	*Prunus laurocerasus*
21	*Salvia nemorasa Caradonna*	Magnoliopsida	Lamiales	Lamiaceae	Salvia	*Salvia nemorosa*
22	*Sambucus nigra Black Beauty*	Equisetopsida	Dipsacales	Viburnaceae	Sambucus	*Sambucus nigra*
23	*Sedum Rose Carpet*	Equisetopsida	Saxifragales	Crassulaceae	Syn. Hylotelephium	*Hylotelephium pluricaule*
24	*Spiraea japonica Shirobana*	Equisetopsida	Rosales	Rosaceae	Spiraea	*Spiraea japonica*
25	*Stipa arundinacea*	Equisetopsida	Poales	Poaceae	Syn. Anemanthele	*Anemanthele lessoniana*
26	*Veronica × media Ulster Blue Dwarf*	Equisetopsida	Lamiales	Plantaginaceae	Veronica	*Veronica spicata*

b) Treatment list

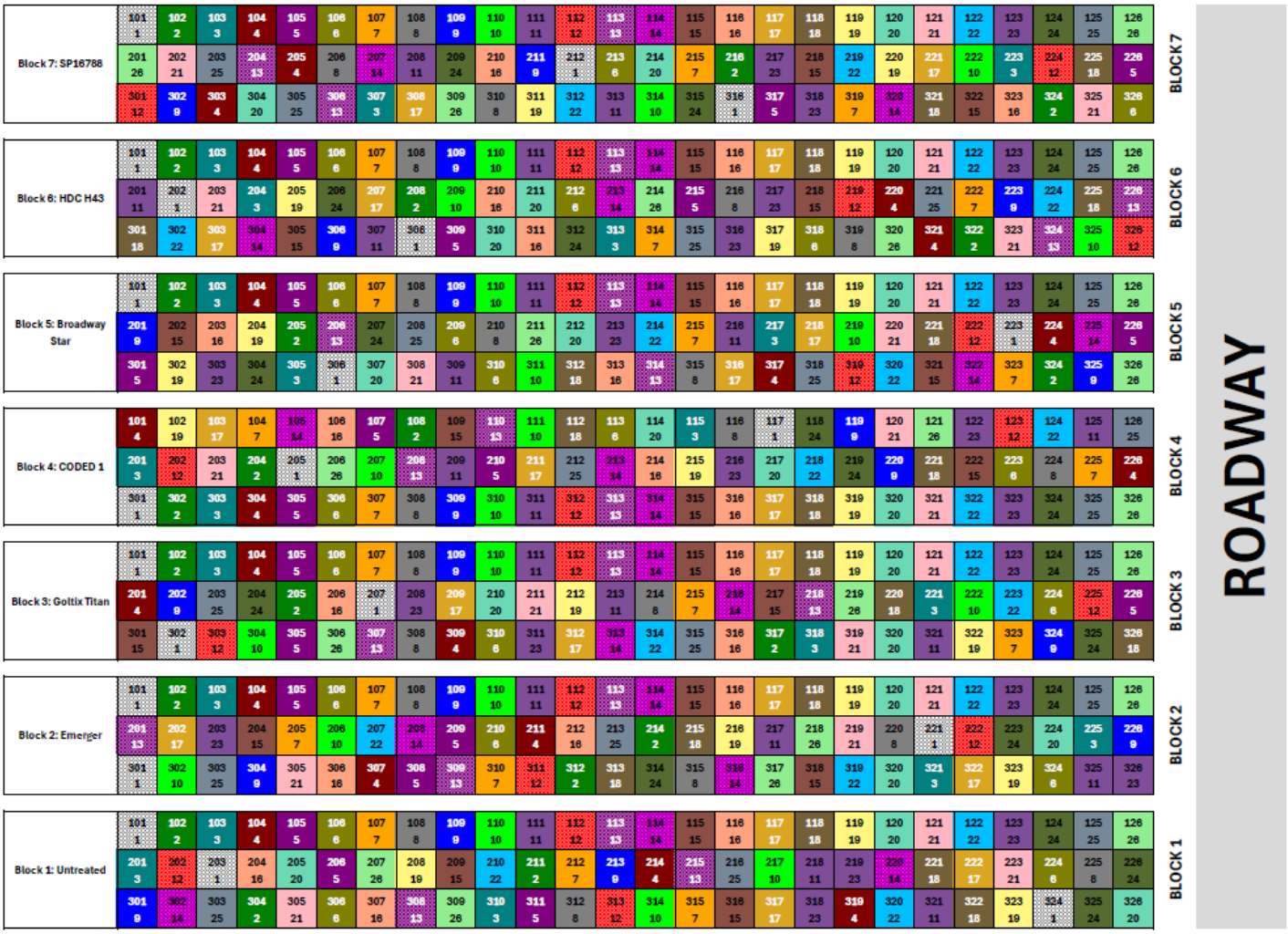
Products applied at 2 bar pressure using fine-medium spray quality with red flat Fan nozzle110° 04, 1.306L/min. Experimental permits sought as necessary.

PRODUCT	APPROVAL	DOSE RATE	WATER VOLUME	TIMING	NUMBER OF APPLICATIONS	CROP TYPE
EMERGER	*EAMU 3341/25*	*1.40 L/ha*	*400 L/ha*	*1st October to 30th April*	*3*	*Field + container*
GOLTIX TITAN	*EAMU 1318/25*	*1.50 L/ha*	*600 L/ha*	*March to July*	*2*	*Soil treatment*
BROADWAY STAR	*EAMU 1118/25*	*0.265 Kg/ha*	*600 L/ha*	*1st October and 31st May*	*1*	*Field + container*
CODED 1	*Not approved*	*1.00 L/ha*	*400 L/ha*	-	*1*	-
HDC H43	*Not approved*	*1.00 L/ha*	*600 L/ha*	-	*1*	-
SP16788	*Not approved*	*0.4 L/ha*	*400 L/ha*	-	*1*	-

- **Emerger (aclonifen) -** residual herbicide for broad-leaf and grass weed control. EAMUs 3340/25 and 3341/25.
- **Goltix Titan (metamitron + quinmerac) -** residual and post-emergence herbicide. EAMU 1318/25.
- **Broadway Star (florasulam + pyroxsulam) -** post-emergence herbicide. EAMU 1118/25.
- **CODED 1 -** selective post-emergence contact herbicide. Pursuing an EAMU currently. An emulsifiable concentrate, selective post-emergence, spring applied herbicide for the control of a wide range of broad-leaved weeds. Superior control of annual broad-leaved weeds, including cleavers, mayweed, and thistles, some bittercress and groundsel control. HRAC4
- **HDC H43 -** residual herbicide for broad-leaved and grass weed control. Included in AHDB Horticulture trial HNS 198 trial in 2016. Proved safe and effective when used post-planting in a tank mix with Stomp Aqua + Flexidor on rose stocks as well as post-budding. Safe on field-grown Geranium and Veronica, although some early phytotoxicity was noted, but 10 weeks after treatment the plants were saleable. Manufacturer is currently looking for approval on field vegetable crops and an EAMU potential for container- and field-grown ornamentals is highly recommended. HRAC K3.
- **SP16788 -** contact and residual herbicide for broad-leaved and grass weed control. Maize herbicide in suspension concentrate formulation. Root and foliar uptake. Superior broad-leaved weed control including amaranth, bittercress, chickweed, grasses, nightshade, shepherds purse. Overseas data suggest very useful reduction in marestail. Would have impact on grass but will need tank mixing partner, although barnyard and millet grass control is superior. HRAC27.

c) Trial layout

HNS Herbicide tolerance trial Darby Nursery stock 2026 - Trial Map



d) Early observations at 7 DAT and 14 DAT

Species	Untreated	Emerger	Goltix Titan	CODED 1	Broadway Star	HDC H43	SP16788
Buddleja davidii 'Royal Red'		Chlorosis	Leaf curl	Wilting	Chlorosis	Chlorosis	Bleaching
Carex testacea							
Ceanothus azureus 'Blue Mound'							Chlorosis
Choisya ternata 'White Dazzler'							
Clematis hybrid 'Nubia'				Wilting		Chlorosis	Chlorosis
Cornus alba 'Baton Rouge'							
Euonymus fortunei 'Emerald Gaiety'							
Geranium wallichianum 'Rozanne'				Wilting			
Hebe x fransciscana 'Variegata'		Chlorotic spotting					
Helenium autumnale 'Short n Sassy'				Wilting			
Hosta 'Shadowland Empress Wu'		Chlorotic spotting	Chlorosis				
Hydrangea paniculata 'Framboisine'							
Jasminum officinale							
Lavandula angustifolia 'Hidcote'							

Lonicera japonica		Chlorosis	Chlorosis	Wilting, drying, and browning	Wilting, chlorosis, and drying	Chlorosis	Chlorosis
***Lonicera nitida* 'Garden Clouds Copper Glow'**							
***Philadelphus maculatus* 'Mrs EL Robinson'**		Chlorosis and tip burn			Chlorosis		Chlorosis
***Photinia x fraseri* 'Scarlet Blaze'**							
***Potentilla fruticosa* 'Abbotswood'**							
***Prunus laurocerasus* 'Etna'**							
***Salvia nemorasa* 'Caradonna'**		Chlorosis		Wilting	Chlorosis	Chlorosis	Bleaching and chlorosis
***Sambucus nigra* 'Black Beauty'**		Chlorosis		Wilting	Chlorosis		Chlorosis
***Sedum* 'Rose Carpet'**							Bleaching
***Spiraea japonica* 'Shirobana'**							Bleaching and chlorosis
Stipa arundinacea							
***Veronica × media* 'Ulster Blue Dwarf'**		Chlorosis	Wilting and chlorosis	Wilting and chlorosis			Bleaching and chlorosis

	Average leaf severity 1-25%
	Average leaf severity 25-50%
	Average leaf severity 50-75%
	Average leaf severity 75-100%

Overall, due to the different times of emergence from dormancy, some species were more advanced than others at the point of application. With the evergreen species, damage at this stage was less likely, although the photinia which was already out of dormancy showed very little initial symptoms. Choisya, Cornus, grass species, Hydrangea, Jasminum, Photinia, Potentilla and Prunus did not show signs of damage and appeared to tolerate most herbicides at this application timing. However, some damage is starting to become visible now (Treatment 1 = untreated).

- **Treatment 2** (Emerger) was slow to exhibit symptoms earlier on, but by 14 DAT some species like Lonicera, Philadelphus and Salvia showed chlorotic spotting or overall chlorosis of the growing points. Orange deposits were also visible with this treatment due to the product formulation and colour of the concentrate. At the time of treatment, Photinia was considered to have the softest growth, yet surprisingly no chlorosis was noted.
- **Treatment 3** (Goltix Titan) produced minimal leaf curl and chlorosis by 14 DAT, and the treatment does appear relatively safe with the exception of Buddleja, Hosta, Lonicera and Veronica.
- **Treatment 4** (Coded 1) this product showed the most severe damage immediately after application. Some species like Hebe and Lavandula did not exhibit any symptoms by 7 DAT but started showing some twisting and wilting after 14 DAT. However, Buddleja, Clematis hybrid, Geranium, Lonicera, Sambucus and Veronica, were severely damaged almost from day 1 after treatment (see below).
- **Treatment 5** (Broadway Star) was very slow to show early damage and after 7 DAT only Lonicera showed any significant visual symptoms. Subsequently by 14 DAT, Buddleja, Philadelphus, Salvia and Sambucus also started to show leaf cupping and chlorosis.
- **Treatment 6** (HDC H43) was the most promising in terms of early symptoms, by 14 DAT only Buddleja, Clematis, Lonicera and Salvia were showing mild chlorosis, although Veronica also started to exhibit early signs of necrotic leaf edges.
- **Treatment 7** (SP16788) was the slowest to show any symptoms, but by 14 DAT a bleaching effect appeared suddenly. The symptoms appear to be leaf bleaching only with no leaf or tissue malformation, so it will be interesting to see if plant recovery is full and how long it takes.