

# Common targets, common solutions

Wayne Brough explains how results from the SCEPTRE edibles crop protection project will help ornamentals growers

While the SCEPTRE project (see panel) has been funded to specifically tackle crop protection on a wide range of outdoor and protected edible crops, that doesn't mean the results are of no relevance to ornamentals growers. On the contrary, the targets being worked on – including aphids, thrips, caterpillars, grey mould, powdery mildew, leaf spots, perennial and annual weeds – are similar to those encountered in many ornamentals crops. So the results should, with a little interpretation, benefit ornamentals growers too.

The 23 individual trials undertaken last year included 76 chemical products and 80 biological or other products. In all 210 treatments were tested, 116 of which resulted in relative control levels of 50% or more, an encouraging success rate. At this stage a good number of the new and novel treatments are still coded to preserve commercial confidentiality, so although useful information is being generated about the active ingredients, exact product detail will only follow later on. In a number of cases, however, some of the standard treatments used in the trials are still relatively new to the ornamentals industry so a summary of their performance from the year one results will be of direct commercial benefit to many growers now.

## DISEASE CONTROL

Downy mildew control was examined on brassica crops, the standard treatment in this case being Folio Gold (metalaxyl-M + chlorothalonil). Products containing metalaxyl-M such as Fubol Gold WG, Folio Gold WG and Subdue are already widely used by the ornamentals industry for downy mildew control, but the trial also indicated a useful level of control using Signum (boscalid + pyraclostrobin), Previcur Energy (fosetyl-



aluminium + propamocarb hydrochloride) and a number of new coded products.

Signum is a broad-spectrum protectant fungicide active against a range of foliar diseases and already has an extension of authorisation (EAMU 1842/09) for use in ornamental plant production. Previcur Energy is a mixture of two established actives for the control of downy mildew and a number of root diseases. EAMUs 1382/11 and 1557/11 allow its use in ornamental plant production and it has been included in recent HDC trials against impatiens downy mildew (PC 230a).

In SCEPTRE work on tomato botrytis, the standard chemical treatments tested were Switch (cyprodinil + fludioxonil) and Teldor (fenhexamid), with Prestop (*Gliocladium catenulatum*) the standard biological. Switch is a broad-spectrum fungicide and has label approvals for use on ornamentals and in forest nurseries, while Teldor is restricted

to outdoor forest nurseries only (EAMU 2926/08). Prestop has a general label approval for all protected non-edible crops for the moderate control of botrytis and a number of other root and stem diseases. These would all be expected to have an impact on botrytis but disease pressure was severe in the laboratory-based tests in the study and none of the treatments resulted in significant control. In another trial on a glasshouse crop no botrytis developed.

Alternaria leaf spot control was examined in trials on Chinese cabbage where the standard treatment was Rudis (prothioconazole) which has no authorisation for ornamentals. The other named products in the trial included Nativo 75WG (tebuconazole + trifloxystrobin), Signum and Folio Gold – and the former two gave very good disease control. Both have broad-spectrum activity, controlling a range of leaf spots, powdery mildew, rust and sclerotinia. EAMU 1842/09 allows use of Signum in ornamental plant production, while Nativo 75WG can only be used outdoors, at grower's own risk for effectiveness and crop damage, under the Long-Term Arrangements for Extension of Use. Significant disease control was also achieved by a number of the coded products examined.

Powdery mildew control was assessed on apples and cucumber.

In the case of apple, Systhane 20EW (myclobutanil) was the standard treatment although cyflufenamid was also included in the trial. Disease pressure was high and the prevailing weather made it difficult to maintain a regular fungicide programme but even so both treatments gave some level of disease control: two of the coded products were even more effective, though. Cyflufenamid (as Cyflamid) has EAMUs for use in outdoor ornamental plant production (0512/07) and forest nurseries (2915/08).

Systhane 20EW along with Rocket (triflumizole) were tested in the cucumber trial. Both treatments gave only moderate levels of control, possibly as a result

of fungicide tolerant disease strains. A number of coded products gave good levels of control. There is currently no UK authorisation for the use of Rocket.

### PEST CONTROL

Trials against aphid were undertaken on brassica, carrot, lettuce and raspberry; testing Biscaya and Calypso (both containing thiacloprid), Movento (spirotetramat) and Plenum (pymetrozine). Movento and some novel coded treatments controlled aphids very well in the brassica crops; Movento also worked well on lettuce. Control levels achieved by Biscaya (carrots) and Calypso (apples) were also good, while Plenum was less effective than Movento on lettuce. As the plants were beginning to heart, treatments with systemic activity, like Movento, were more likely to control aphids hidden within. All four insecticides control a wider spectrum of pests than aphids (primarily sap-sucking insects) including, depending on the product in question, whitefly, mealybug and thrips.

Thiacloprid can be used on ornamentals by way of a label recommendation for Exemptor. Use of Biscaya and Calypso is via EAMUs: 0392/11 for Biscaya in ornamental plant production; and Calypso in ornamental plant production (2831/08) or in protected ornamentals (3728/06). Movento has two EAMUs for use in ornamental plant production and forest nurseries (1579/11 and 1987/11), while Chess WG (the same active ingredient as Plenum) can be used on protected ornamentals and in protected forest nurseries under EAMU 2834/08.

Cabbage root fly can be a pest of ornamental cabbage and kale – a SCEPTRE trial last year looked at control measures on edible brassicas. The standard treatment in this case was Tracer (spinosad) which performed well along with two coded treatments. EAMU 2908/08 allows use of Tracer on ornamental specimens (for moth control); Conserve is the product commonly used under protection as there's a label recommendation for thrips control.

There were only low numbers of caterpillar in the brassica trial making it difficult to determine precisely the effects of the treatments tested. However, Steward (indoxacarb) did give control. Steward has an EAMU (2905/08) for caterpillar control in ornamental plant production and protected forest nurseries. Dipel DF (*Bacillus thuringiensis*) was also included in the trial.

European tarnished plant bug and

### CROP PROTECTION: THE STRATEGIC CHALLENGE

Much of HDC's research on crop protection is in response to specific and immediate challenges – to plug a gap left by withdrawal of a key pesticide, for example. But alongside this work, a more strategic R&D approach is now vital, too, to ensure growers can continue or increase production while facing the potential loss of a myriad of crop protection products over the coming decade.

HDC began taking that approach two years ago, pulling together a consortium to undertake a Horticulture LINK project, now known as SCEPTRE (Sustainable Crop and Environment Protection – Targeted Research for Edibles), that will help growers move away from reliance on strong chemical controls, towards a wider range of crop protection agents and methods that may need more sophisticated tactics – both in terms of the R&D needed and the eventual management of them on crops (see *HDC News* May 2011).

Research is concentrating on the most immediately pressing pest, disease and weed challenges as well as those for which we anticipate that control measures will become more difficult in the future as a result of restrictions on pesticide availability. As the project name suggests the work is concentrating on edible crops but with completion of the first year's trials, results of potential value to the ornamentals sectors is already being generated.

common green capsid are occasional pests of nursery stock and other ornamental species. SCEPTRE included a trial on control of European tarnished plant bug on strawberry. The standard treatment was Calypso, but Chess WG and Steward were also included. All three gave useful levels of control and all have EAMUs for use on ornamental crops, though not necessarily specifically for plant bug or capsid control.

Thrips, including western flower thrips, can be an issue on many ornamental crops and control measures have been tested on leeks and protected peppers in the first year of SCEPTRE. Tracer was used as the standard treatment on leeks but there was no named standard for peppers. Tracer gave good control of onion thrips on leeks. Conserve (which has the same active ingredient as Tracer) is commonly used for thrips control on protected ornamental crops, though resistance has been reported

with western flower thrips.

Control of two-spotted spider mite and whitefly were also examined but all the treatments in these trials were coded.

### WEED CONTROL

Annual weed control treatments were assessed on a range of vegetable crops and strawberries. The trial on vegetables included a coded residual herbicide product (SH2011-0105) which controlled a range of weeds both pre- and post-emergence and was safe on many of the crop species tested.

The same experimental herbicide and Gamit 36 CS (clomazone), also a residual, were tested on strawberries, but the dry spring last year kept weed populations low. Gamit 36 CS caused a moderate level of phytotoxicity to the plants, but SH2011-0105 was safe. Both products are currently being examined on field-grown nursery stock as a project under the HDC Fellowships programme (CP 86).

SCEPTRE's work on perennial weed control consisted of a herbicide trial and tests on an 'electrical weeder' in bush and cane fruit. Roundup (glyphosate) was tested tank mixed with Shark (carfentrazone-ethyl) and also with a number of other coded products. The Roundup and Shark mixture gave good control of nettles, docks and thistles. The 'electrical weeder' is still in an early stage of development but gave almost complete control of creeping thistles – though regrowth was observed with docks and nettles following treatment.

With year two of the project now under way it is worthwhile keeping abreast of developments with SCEPTRE. The most promising products will be taken forward for EAMUs or registration. HDC staff will also be monitoring developments and liaising with crop associations and growers about the potential use of new products in the ornamentals sectors too, so watch out for announcements by HDC which will be made as soon as any new chemistry is permitted on a commercial level.

### ABOUT THE AUTHOR



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