Toppel 100 (MAPP 15696)
For Winter Oilseed Rape, Sugar Beet, Fodder Beet and Red Beet
13 August 2014

Introduction
Toppel 100 (contains 100 g/l cypermethrin as an Emulsifiable Concentrate) for Cabbage Stem Flea Beetle (Psylliodes chrysocephala) Control in Winter OSR and Beet Leaf Miner (Pegomya hyoscyami) in Sugar Beet.

Table 1. Summary of information for Toppel 100 (MAPP 15696) in Winter OSR and Sugar Beet

<table>
<thead>
<tr>
<th>Crop</th>
<th>Maximum individual dose (ml/ha)</th>
<th>Maximum number of treatments (per crop)</th>
<th>Latest time of application</th>
<th>LERAP</th>
<th>Mode of action (MoA)</th>
<th>Recommended water volume (l/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter Oilseed Rape</td>
<td>0.250 l/ha</td>
<td>4</td>
<td>End of flowering</td>
<td>A</td>
<td>Pyrethroids 3A – sodium channel modulator*</td>
<td>200</td>
</tr>
<tr>
<td>Sugar Beet</td>
<td>0.250 l/ha</td>
<td>2</td>
<td>None stipulated</td>
<td>A</td>
<td></td>
<td>600</td>
</tr>
<tr>
<td>Fodder Beet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Beet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Other UK approved actives in this group:- alpha cypermethrin, beta-cyfluthrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, pyrethrin, tau-fluvalinate, tefluthrin, zeta cypermethrin

Winter Oilseed Rape – Cabbage Stem Flea Beetle (CSFB)

Yield effects due to CSFB
Early sown crops of winter oilseed rape are more at risk to CSFB damage then later sown crops, especially if seed bed conditions are poor and dry and crop growth is slow. Currently there is no robust data available on the economic damage that can be caused, but in extreme situations CSFB can kill seedlings before they emerge. Typical foliar damage is shown in Photo1.

Control of CSFB using pyrethroid insecticides
Currently pyrethroid insecticides are the only alternative to neonicotinoid seed treatments for control of CSFB adults and larvae.

To try and minimise the risk of resistance developing in the UK, sprays should only be applied if necessary. The HGCA suggested spray thresholds are shown in Table 2. It is recommended the full rate for the recommended product is used in the correct water volume. If using Toppel this is 250 ml/ha in 200 l/ha of water. Avoid repeat spraying if possible. It is expected that all pyrethroid sprays will provide a similar level of control of CSFB.

Resistance
Due to the pyrethroid insecticides all belonging to the same MoA category the risk of resistance developing in the UK is very high. The presence of target-site resistance to pyrethroids in CSFB has already been detected in Germany and indications are that results from an HGCA funded post-harvest survey this year, will confirm resistance is present in the UK. It is therefore vital that pyrethroids are used in a rational manner to minimise the development and/or further spread of resistance.

Table 2. HGCA spray thresholds

<table>
<thead>
<tr>
<th>OSR growth stage</th>
<th>Spray threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 leaves</td>
<td>25% of leaf area lost</td>
</tr>
<tr>
<td>3-4 leaves</td>
<td>50% of leaf area lost</td>
</tr>
</tbody>
</table>

If the crop is growing more slowly than it is being destroyed then apply a spray.

Toppel 100 can be used up to 4 times in Winter OSR. However to minimise resistance routine sprays should be avoided.

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**Winter Oilseed Rape – Turnip Yellows Virus (TuYV)**

Pyrethroids including Toppel 100 are approved for use against *Myzus persicae* the peach-potato aphid which is the vector for TuYV however HGCA funded research indicate that control is unlikely due to widespread resistance of the pest to all pyrethroids. UPL do not recommend the use of Toppel 100 for the control of the peach-potato aphid.

**Sugar Beet - Beet leaf miner (Mangold Fly)**

**Control of Beet leaf miner using Toppel 100 – is it allowed?**

Insecticides without specific labelling for Beet leaf miner (Mangold Fly) control or suppression in sugar beet can be applied to manage this pest providing that all the conditions of use and any other specific directions on the label or within the Notice of Approval are complied with, e.g. those stated in Table 1 for Toppel 100. Apply Toppel 100 at 250 ml/ha and aim to keep water volumes high, 600 l/ha if possible where damage is high and good crop cover is required.

**Spray thresholds and spray timings**

No spray thresholds have been determined for leaf miner damage in sugar beet at the late summer/autumn growth stages. Often damage will not pose an economic threat but in some areas in recent years this pest has caused significant loss of green leaf, potentially opening up the crop to later frost damage.

To be effective, insecticides need to be applied at the first appearance of mines or before most eggs hatch. Toppel 100 has the advantage over some other pyrethroids in that it does not have a harvest interval requirement.

**Cultural control**

Leaf miner will typically overwinter in the soil, however some may spend the winter as adult flies among plant debris or in sheltered areas. Known alternate hosts abroad are *Amaranthus* spp, these weeds also occur in the UK, so reducing or eliminating favoured winter ‘homes’ may help reduce pest damage in the future.

**Toppel 100 on other crops**

The number of crops on the Toppel 100 label either matches or exceeds other cypermethrin products, and unlike any of the other cypermethrin products it has a large range of Extension of Authorisation for Minor Use (EAMU) approvals. A summary of crop approvals are shown in Table 3.

**Table 3. Crops with full or EAMU approvals for Toppel 100**

<table>
<thead>
<tr>
<th>Full label approval</th>
<th>EAMU’s</th>
</tr>
</thead>
</table>
| apple, barley, broccoli/calabrese, Brussels sprout, cabbage, cauliflower, field bean, fodder beet, grassland, kale, mangel, oats, oilseed rape, pear, potato, red beet, rye, sugar beet, triticale, vining pea, wheat | **Outdoor:**- carrot, horseradish, parsley, parsnip, asparagus, beet leaves, Chinese cabbage, spinach, broad bean  
**Protected:**- beet leaves, Chinese cabbage, spinach  
**Other Crops:**- linseed, ornamental plant production, numerous herb species |

Information and documentation on EAMU’s for Toppel can be obtained from the CRD website using the Extension of Authorisation for Minor Use in the UK (formerly known as ‘SOLA’s) data base. www.pesticides.gov.uk/guidance/industries/pesticides/topics/databases. Alternatively you can contact Pamela Chambers, Technical Support Manager, pam.chambers@uniphos.com or Louise Dalgliesh, Campaign Manager, ldalgliesh@uniphos.com.

**BASIS points for the technical information provided by Toppel 100 update are CP/37756/1415/g (1 CPD).**

To claim please e-mail scott@basis-reg.co.uk.

Information in this update does not constitute a recommendation, it is for guidance only. Up to date information can be found on our website www.upleurope.com.

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