Soil insecticide for the control of wireworm and PCN in potatoes

Key features

- Recognised as the most effective treatment available for reducing wireworm damage in potatoes
- Reduces the number of tubers damaged by wireworm and the number of feeding holes per tuber
- Protects against yield loss caused by potato cyst nematodes (PCN) and provides excellent population control, particularly on sandy and silt soils
- Prolongs activity
- Low risk of leaching from target zone
- Good persistence, even in wet or irrigated conditions
- Only available in the improved Ultima® closed transfer pack

Product profile

Mocap is recognised as the leading soil insecticide for reducing wireworm damage in potatoes. What is less well known is that its activity against PCN is also of the highest level, particularly on sandy and silt soils.

- Contains 10% w/w ethoprophos on a sepiolite granule
- Water solubility of ethoprophos is low
- Limited vertical movement in moist soils and horizontal movement is limited to only a few centimetres
- Increasing organic matter (OM) reduces movement. At high levels of OM efficacy may be reduced
- For effective wireworm control sufficient soil moisture is required to release the active ingredient into soil space where wireworms are present
- Soil half life is 4 – 12 weeks depending upon soil type, moisture, pH and temperature
- All degradation products are non-hazardous

Dose rates

- Potato cyst nematodes and wireworms – 100 kg/ha
- Wireworms only – 60 kg/ha

Recent trials have shown that transmission of Spraing (Tobacco Rattle Virus – TRV) by free-living nematodes is effectively reduced by Mocap applied to control PCN at 100 kg/ha. Anecdotal evidence from UK and Dutch advisors suggests that Mocap-treated crops can benefit from control of secondary pests, such as millipedes and symphilids.

Application of Mocap

In order to optimise the activity of ethoprophos, it is important to apply and incorporate Mocap so that it is evenly mixed into the soil at the depth where the potatoes are to be planted. This can be achieved by overall application, using a carefully calibrated micro-granule or air-flow fertiliser applicator and then incorporating with the soil using a rotary-powered cultivator. A power harrow, discs, spring tines or dutch harrows can be used, provided that two passes at right angles are made. Granule application on the bed tiller may also be used in PCN situations.

Recent work suggests that when Mocap is applied for PCN control, its efficacy is less affected by dilution from over-incorporation than other more soluble granular nematicides used at lower dose rates.

N.B. Mocap granules are not hazardous to wildlife provided they are buried as soon as possible after application. If full incorporation cannot be completed within a working day, cover the granules by lightly harrowing prior to full incorporation.

Getting the best wireworm control

The level of control achieved by Mocap relates to several factors:

- Soil moisture content – efficacy can be reduced in dry weather
- Quality of incorporation – see ‘Application of Mocap’
- Organic matter content of soil – generally weaker efficacy in high OM soils

Probably the most critical factor is the level of pest infestation at planting. To minimise the risk of damage above packer thresholds, it is important that an Integrated Pest Management (IPM) programme is followed. Occasionally, where wireworm populations are high, consideration must be given as to whether the field is suitable for the pre-pack potato market.
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www.bayercropscience.co.uk
IPM programme for wireworm

An IPM programme aims to minimise populations by:
- Assessing the risk of wireworm
- Using wireworm treatments where possible in the rotation
- Ploughing up grass as late as possible
- Using an approved insecticide at planting
- Growing early maturing potato varieties

Assessing the risk

Whilst wireworm detected in spade digs is a useful indication where pest is abundant, soil sampling is traditionally the method of assessing risk:
- A soil corer is used to take samples to the depth of previous cultivations
- Wireworms in the core are counted in the lab
- From this, the number per hectare is calculated

However, best results are obtained by sampling grassland when soil is moist; problems can arise when sampling ploughed sites or when dry.

Unfortunately populations below the detection threshold of 100,000/ha can still cause significant damage. Whilst providing a quantitative result, this technique is expensive. An alternative developed in the early 1990’s is the:

ADAS/Bayer CropScience baiting system

- Jointly developed with ADAS
- Traps are baited with a mixture of wheat and barley
- 10 traps are used per 5 hectares, providing a wider sample than soil coring
- Traps are checked after 10 – 14 days and wireworms counted
- This system is only available through your Mocap distributor, agronomist and leading independent potato advisors

Benefits of the ADAS/Bayer CropScience baiting system

Compared to traditional techniques the traps are:
- At least as effective in detecting wireworm compared to traditional soil sampling
- Simple to use with no need for laboratory analysis
- Cheap
- Highly effective in arable rotation
- A tried and tested risk assessment technique

Traps prove most effective when used in the spring or immediately before planting. However, whilst one wireworm trapped indicates a risk, spring populations do not predict actual tuber damage.

Wireworm feeding behaviour varies with soil moisture and temperature.

RISK ASSESSMENT OF WIREWORM IN POTATOES

<table>
<thead>
<tr>
<th>BAIT TRAP OR SOIL CORE?</th>
<th>YEARS IN GRASS?</th>
<th>SITE ASPECT?</th>
<th>HISTORY OF DAMAGE?</th>
<th>DAMAGE EXPECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireworms present</td>
<td>5 or more</td>
<td>S/SE facing</td>
<td>Yes</td>
<td>Incorporate MOCAP 10G at 60 kg/ha</td>
</tr>
<tr>
<td>Wireworms absent</td>
<td>Less than 5</td>
<td>Flat, N, W facing</td>
<td>No</td>
<td>Treatment may not be needed</td>
</tr>
</tbody>
</table>

When high numbers of wireworms are found, damage can be severe and insecticides may not give satisfactory control.

This flow chart is intended for use in fields in grass rotation. The incidence of wireworm damage in arable rotation is increasing.

For more information visit the potato section at www.bayercropscience.co.uk
Mocap is a registered trademark of Bayer. Ultima is a registered trademark of Bayer. Mocap 10G contains ethoprophos.
Always read the label: use pesticides safely.

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