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Font: 12 pt Times New Roman
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One blank line before and after main section titles.
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- Institutions and Addresses of authors – italics, left adjusted, sentence case
- Email address of corresponding author - regular, left adjusted, sentence case
- Abstract – approximately 100 words
- Keywords - 5 maximum (do not include ‘precision agriculture’ or similar)
- Introduction
- Further sections – usually Introduction, Materials and Methods, Results, Discussion
- Conclusion
- Acknowledgements
- References

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1. Figures should be embedded in the paper close to where they are referenced in the text.
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1. Preferable, equations should be written in Microsoft Equation Editor.
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References

1. Literature quoted in the text should be indicated by author and publication year – one author (Smith, 2012); two authors (Smith & Jones, 2012); more than two authors (Smith et al, 2012).
2. References must be listed in alphabetical order of 1st author (then 2nd author etc). Surnames, initials of all authors must be included.
3. The reference must contain – author(s) name(s), year, title (sentence case), journal name in full (or ‘In: proceedings of….’ or book publisher), volume number, issue, page range.
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Mapping infestations of potato cyst nematodes and the potential for spatially varying application of nematicides

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Abstract

The most important constraint to potato production in the UK is the damage caused by the potato cyst nematodes (PCN) Globodera pallida and G. rostochiensis. These are serious pests, capable of causing substantial yield loss. Modern management systems depend heavily on nematicides which, at c. £360 ha⁻¹ for granular and c. £550 ha⁻¹ for...

Keywords: maps, nematicides, nematode control, potato cyst nematodes.

Introduction

The potato cyst nematodes (PCN) Globodera pallida and G. rostochiensis are the most problematic pests faced by potato growers in Britain, being both persistent and capable of causing substantial loss of yield (Trudgill, 1986). A recent survey of potato production in England and Wales revealed that 64% of the fields surveyed were infested with PCN and that, of the infested fields, 67% were essentially pure G. The Global Positioning System (GPS) has made it possible for modulated treatments with nematicides to be accurately targeted (Haydock & Evans, 1995), and commercial packages have followed (e.g. Anon., 1997).

Materials and methods

The field surveyed, covering c. 8 ha, at Ram Farm, Nocton, Lincolnshire, grew spring barley in 1996. On 1 May, 1996, the field was sampled at 20-m intervals along the tramlines, which were 24 m apart and ran parallel to the western boundary of the field.

Instrumentation

A DGPS receiver was mounted…
Results

The data for the pre- and post-cropping Ram Farm samples are summarised in Table 2. After harvesting, the average density of the PCN population over the whole field was found to have increased more than eight-fold, from 8 to 66 eggs g\(^{-1}\) soil, and the…

Table 1. Inputs for potato production and their potential for spatial application. Costs are taken from ABC (1999).

<table>
<thead>
<tr>
<th>Input</th>
<th>Potentially variable?</th>
<th>Cost (£ ha(^{-1}))</th>
<th>Potential saving (£ ha(^{-1}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>N, P, K fertiliser</td>
<td>Yes</td>
<td>220</td>
<td>33 (15%)</td>
</tr>
<tr>
<td>Lime</td>
<td>Yes</td>
<td>30</td>
<td>6 (20%)</td>
</tr>
<tr>
<td>Herbicides (i) pre-emergence</td>
<td>No</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>(ii) post-emergence</td>
<td>Yes</td>
<td>60</td>
<td>60 (100%)</td>
</tr>
<tr>
<td>Fungicides</td>
<td>No</td>
<td>144</td>
<td>-</td>
</tr>
<tr>
<td>Insecticides</td>
<td>Yes</td>
<td>26</td>
<td>26 (100%)</td>
</tr>
<tr>
<td>Nematicides (i) Granular</td>
<td>Yes</td>
<td>360</td>
<td>360 (100%)</td>
</tr>
<tr>
<td>(ii) Fumigant</td>
<td>Yes</td>
<td>550</td>
<td>550 (100%)</td>
</tr>
</tbody>
</table>

Figure 1. Relationship between initial population density \((P_i)\) and multiplication rate \((P_f/P_i)\) from hectare blocks at Ram Farm.

\[
\text{Sph}(a) = \frac{3h}{2a} - \frac{1}{2} \left( \frac{h}{a} \right)^3 \quad \text{for } 0 < h \leq a \quad \text{and} \quad 1 \text{ for } h > a
\] (1)
Discussion

Although PCN, in common with other species of plant parasitic nematodes, are fairly immobile and are spread mainly by operations that move the soil, apparently discrete patches that are surrounded by uninfested areas are often actually surrounded by areas...

Conclusions

Full spatial application of both nematicides would be possible if growers were to accept the possibilities of PCN patches being missed by the sampling procedure and of areas of zero count simply being below detection threshold and likely to increase dramatically if not treated.

Acknowledgements

This project was funded...

References