



9ECPA 2013

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General points

1. The paper must be supplied as a Microsoft Word file. If your abstract is accepted, you will get an invitation by e-mail to write a paper. That e-mail includes a link for submitting paper. Follow that link and upload the file.
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4. Colour figures can be included in the paper. The hardcopy of the proceedings will be printed in B/W. However, on the CD of the proceedings, all figures will be in colour.

Format & structure

Font: 12 pt Times New Roman

Line spacing: single

No line or page numbers. No headers or footers (other than footnotes). Do not include paper/abstract ID number.

Margins: 30mm all sides.

Section titles – main sections: left adjusted, bold, sentence case; sub-sections: left adjusted, regular, sentence case, under scored. No section numbering.

One blank line before and after main section titles.

One blank line before sub-section titles.

Paragraphs should be fully justified.



The structure of the paper must be:

- Title – bold, left adjusted, sentence case
- Authors – surname and initial only (no first names), regular, left adjusted, sentence case
- 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

Figures

1. Figures should be embedded in the paper close to where they are referenced in the text.
2. Figures should preferably be placed at the top or bottom of a page.
3. All figures must have a figure number and a caption placed underneath the figure.
4. All axes should have legends with units (where appropriate).
5. All captions/legends on a figure must be clearly legible – note that the A4 pages will be reduced to about three quarters in each direction when printed in the Proceedings.
6. All maps must have a length scale.
7. There should be no overall frame to a figure.
8. The proceedings will be printed in B/W. Therefore, authors should check for clarity/quality of colour figures converted to B/W or gray scale to include in their paper.



Tables

1. Tables should be placed close to where they are referenced in the text. They should be in text format – not a graphics.
2. A table number and caption should be placed above each table.
3. The number of vertical and horizontal lines in a table must be kept to a minimum. Generally, there should be no vertical lines and no horizontal lines within the body of a table.
4. Values in a table should be in regular font.

Equations

1. Preferable, equations should be written in Microsoft Equation Editor.
2. Equations should normally be placed on separate lines from the text.
3. Equations should be numbered sequentially, the number appearing to the right of the equation and in round parentheses ().

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.
4. Non-English titles should be followed by English translation of the title in parentheses.
5. Proceedings (or collected works) editors should be named. Publisher and publisher location for conference proceedings should be included – not conference location and date.
6. Only published works and those accepted for publication may be included. Submitted but not yet accepted papers may not be included.
7. No references in abstract or conclusions.

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Mapping infestations of potato cyst nematodes and the potential for spatially varying application of nematicides

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Abstract

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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...

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

SI units only

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Introduction

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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).

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Materials and methods

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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.

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Instrumentation

A DGPS receiver was mounted...

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Results

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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).

Input	Potentially variable?	Cost (£ ha ⁻¹)	Potential saving (£ ha ⁻¹)
N, P, K fertiliser	Yes	220	33 (15%)
Lime	Yes	30	6 (20%)
Herbicides (i) pre-emergence	No	60	-
(ii) post-emergence	Yes	60	60 (100%)
Fungicides	No	144	-
Insecticides	Yes	26	26 (100%)
Nematicides (i) Granular	Yes	360	360 (100%)
(ii) Fumigant	Yes	550	550 (100%)

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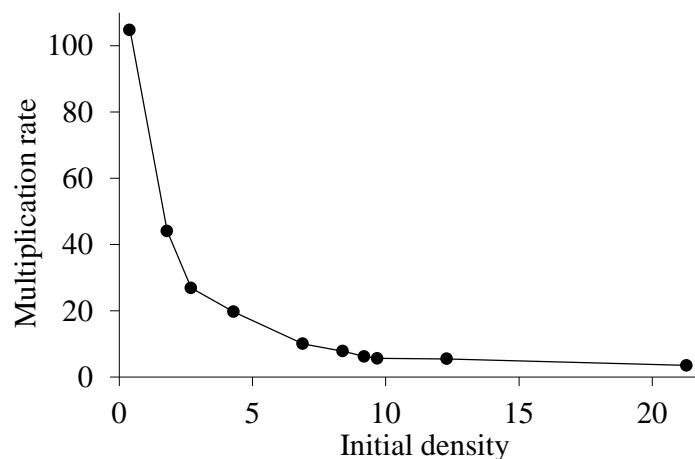


Figure 1. Relationship between initial population density (P_i) and multiplication rate (P_f/P_i) from hectare blocks at Ram Farm.

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

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Discussion

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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...

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Conclusions

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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.

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Acknowledgements

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This project was funded...

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References

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ABC. 1999. The Agricultural Budgeting and Costing Book, No. 48. Agro Business Consultants Ltd: Melton Mowbray, 343 pp.

Anon. 1997. Will remote mapping help pinpoint PCN? Potato Review 7(3) 9-10.

Barker, A. D. P., Evans, K., Russell, M. D., Halford, P. D., Dunn, J. A. and Blaylock, P. J. 1998. Evaluation of the combined use of fumigation and granular nematicide treatment for the control of *Globodera pallida* in potatoes. Tests of Agrochemicals and Cultivars 19 6-7.

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Sudduth, K. A., Drummond, S. T., Birrel, S. J. and Kitchen, N. R. 1997. Spatial modeling of crop yield using soil and topographic data. In: Precision Agriculture '97: Proceedings of the 1st European Conference on Precision Agriculture, edited by J.V. Stafford, BIOS Scientific Publishers Ltd, Oxford, UK, pp. 439-447.