



Understanding the role of soil properties in apple canker management

Project aim:

To identify soil properties that may affect apple canker development in commercial production.

Project outputs will:

- 1) Help the apple industry to better plan new plantings on soil that is less conducive to canker development.
- 2) Enable the industry to better predict, monitor and manage canker.
- 3) Accelerate the research on soil treatments that may reduce canker development.

Project methods:

- 1) Collecting existing soil analysis data and canker severity estimate from growers. We require the data from over 100 individual commercial orchards across the UK to ensure reliable conclusions can be drawn.
- 2) Select orchards for detailed canker and soil analysis by the NIAB team to validate the results .

Study duration: 2023-2025.

Research team contact details: canker.survey@niab.com

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Thomas Passey: tom.passey@niab.com

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Address: Canker Survey, Pest and Pathogen Ecology, NIAB, New Road, East Malling, Kent, ME19 6BJ

* Required

Informed Consent for Data Collection.

In order to deliver the research and help to better manage apple canker in the future we would like to collect the following data:

- 1) **Soil analysis data from individual orchards planted from 2015 onwards.**
- 2) **Estimates of canker severity in each orchard.**
- 3) **Grower contact details which will enable us to contact selected growers during the study to arrange detailed canker and soil assessment by NIAB team.**

Collected data, including contact details, will not be shared with any third parties during or after the study.

Data will be stored on a secured encrypted server. Access to the data will be limited to authorised personnel working on the project.

Location data in all resulting publications will be anonymised. All identifiers such as names, locations, company names, orchard names will be removed.

1

I consent voluntarily to be a participant in this study. I understand that I can be contacted by NIAB East Malling researchers during the study. I can withdraw from the study at any time, without having to give a reason. *

Yes

No

2

I give permission for the soil analysis data and canker data that I provided to be deposited with NIAB East Malling so it can be used for future research. *

Yes

No

3

I give permission for my contact details to be securely stored by NIAB East Malling so I can be contacted for future research projects. *

Yes

No, please delete my contact data at the end of the study (Sept 2025)

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Signature (Name, Surname) and Date *

PART 1: Grower and Orchard Data

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Orchard name: *

6

Farm or Company name: *

7

Contact e-mail: *

8

Contact phone (optional):

9

Orchard location. Please provide either:

- GPS coordinates

or

- the nearest Post Code *

10

Planting Year and Month: *

11

Does orchard have irrigation?

- Yes
- No
- Other

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Is orchard planted on a slope:

- Yes
- No

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Which direction is the orchard slope facing (optional)?

- South
- South West
- West
- North West
- North
- North East
- East
- South East

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Rootstock variety *

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Scion variety *

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Distance between trees:

17

Distance between rows:

18

Is the orchard prone to drought?

- Yes
- No
- Not sure

Is the orchard prone to waterlogging?

- Yes, waterlogging observed at least a few days every season.
- No, waterlogging not observed every season.
- Not sure

PART 2: Soil Data

Please send a copy or a photo of the most recent soil analysis results sheet from the orchard you described in Part 1.

Please send it to: canker.survey@niab.com

or

Canker Survey, Pest and Pathogen Ecology, NIAB, New Road, East Malling, Kent, ME19 6BJ

Feel free to send all soil analysis data from multiple orchards in one e-mail.

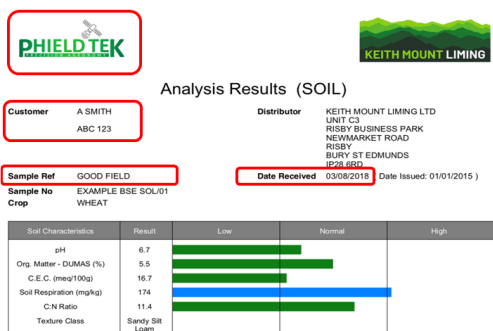
In this section we are collecting a few details of soil results sheet that will enable us to match the results sheet you sent over e-mail with the orchards description in part 1 and canker estimate in part 3.

See example results sheet with required details highlighted in red.

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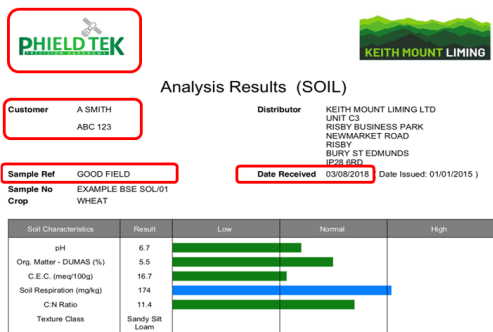
*

Soil **Analysis provider** as on the results sheet (e.g. Phield Tek):



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Customer name as on the results sheet: (e.g. A Smith) *



Sample reference as on the result sheet (e.g. good field): *



Analysis Results (SOIL)

Customer A SMITH
ABC 123

Distributor KEITH MOUNT LIMING LTD
UNIT C3
RISBY BUSINESS PARK
NEWMARKET ROAD
RISBY
BURY ST EDMUNDS
IP28 8RD

Sample Ref GOOD FIELD
Sample No EXAMPLE BSE SOL01
Crop WHEAT

Date Received 03/08/2018 (Date Issued: 01/01/2015)

Soil Characteristics	Result	Low	Normal	High
pH	6.7	[Bar chart showing 6.7 between Low and Normal]		
Org. Matter - DUMAS (%)	5.5	[Bar chart showing 5.5 between Low and Normal]		
C.E.C. (meq/100g)	16.7	[Bar chart showing 16.7 between Low and Normal]		
Soil Respiration (mg/kg)	174	[Bar chart showing 174 between Low and Normal]		
C:N Ratio	11.4	[Bar chart showing 11.4 between Low and Normal]		
Texture Class	Sandy Sil Loam	[Bar chart showing Sandy Sil Loam between Low and Normal]		

Analysis date as on the results sheet (e.g 3/8/2018): *



Analysis Results (SOIL)

Customer A SMITH
ABC 123

Distributor KEITH MOUNT LIMING LTD
UNIT C3
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NEWMARKET ROAD
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PART 3: Canker severity estimate

Please indicate the severity of canker in the orchard you described in part 1 and provided soil data in part 2.

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Choose the category that best describes the canker situation in the orchard: *

- None. No obvious canker lesions or branch dieback.
- Low. One or two canker lesions or dieback on a very small proportion of trees.
- Moderate. A few canker lesions or dieback on many trees, a few trees killed by canker.
- Severe. Many canker lesions and dieback on most/all trees. Death of many trees are attributable to canker.

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Is the canker severity uniform across the orchard? Please choose one option: *

- Roughly uniform
- Not uniform, some section are much better or much worse than the rest of the orchard.

Thank you very much for contributing your data.

This research would be impossible without your contribution.

We will be analysing the data shortly and will let you know if this orchard has been selected for the detailed canker and soil assessment by the NIAB team.

If you have any other comments, please enter them in the box below or contact the research team directly via e-mail:

canker.survey@niab.com

Matevz Papp-Rupar: matevz.papp-rupar@niab.com

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Xiangming Xu: xiangming.xu@niab.com

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Any other comments, suggestions and observations:

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