



**LANDCARE RESEARCH**  
MANAAKI WHENUA

## **Results of online survey of soil factsheets**

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# **Results of online survey of soil factsheets**

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## **Summary**

- Hawkes Bay Regional Council requested Envirolink funding for an investigation of how well the S-Map online factsheets were meeting consumer needs, and whether any improvements could be made. Landcare Research carried out this task between December 2015 and February 2016.

## **Objectives**

- Survey existing and potential end-users of S-map to determine the key deficiencies of the soil factsheets and what interpretative and supporting information would help make these factsheets more accessible.
- Via the survey, identify and focus on those improvements to the soil factsheets that will have the greatest positive impact.
- Produce a set of recommendations to guide future S-map Online development, and the production of a beta-factsheet that incorporates key features to increase utility, ease of use and accessibility of soil information. This will be tested initially with Hawke's Bay Regional Council users.

## **Methods**

- Design a survey
- Distribute the survey
- Collate results, analyse and report

## **Results**

- A short, 12-question survey was devised and posted online between 9 December 2015 and 12 January 2016.
- Of the 92 people who responded, 70% answered enough of the questions to class as a completed survey. These respondents worked on the survey for an average of 9 minutes.
- Most respondents had some knowledge of soils but did not consider themselves to be experts.
- Nearly all respondents were putting the factsheet information to practical use in their businesses and in their employment.
- All the sections in the factsheets are valued – key physical properties most of all. All suggestions of additional information to add to the factsheets will please nearly all the people nearly all of the time. The most appreciated would be a photograph to go with the soil description and better links between the “new” and old soil names.

## **Conclusions**

- The soil factsheets are generally meeting the needs of the users. These users will appreciate additional information on their soils and this can probably be most easily incorporated by reorganising the factsheets to a summary sheet, followed by/linked to pages on specific topics.
- Most of the users have a reasonable knowledge of soils and so the information in the factsheets does not need simplification but would sometimes benefit from clarification.
- Linking from a sidebar may also be a good way to direct the user to additional information sources, such as on irrigation or land use capabilities.
- Making the information in the soil factsheets easily portable into farm management plans and Overseer would assist many users.

## **Recommendations**

### **To improve/augment the soil factsheets**

- Reorganise the factsheets to a summary sheet, followed by pages on specific topics.
- Include on the summary sheet a general description of the soil in plain English.
- Include a generic photograph of a typical soil of this type on the summary sheet. If a photograph proves difficult to obtain, then a diagram would be a suitable alternative.
- Clarify the links between the old and the “new” soil names.
- Add information or links to information on risks and risk management associated with a particular soil and to information on land management practices.
- Add soil information relevant to irrigation or link to this information.
- Add information on soil landscape relationships or link to this information.
- Consider presenting the information in a way that is easily portable to Overseer and into farm management plans.

### **To improve any subsequent survey on the soil factsheets**

- Add the question: ‘Does S-Map cover the region in which you are interested?’
- In the personal details section, add an additional occupational category: ‘Working for a central government department’.
- Ask for information on the age group of the respondent.

# 1 Introduction

S-map provides sub-catchment to regional-scale soil information to support a wide variety of stakeholders in achieving increased primary production and meeting regulatory requirements (Lilburne et al., 2004). This support is dependent on a good information supply; therefore S-map online has been established (<http://smap.landcareresearch.co.nz/home>), allowing users to access free information for their locality, in an easy-to-understand way (e.g. through factsheets). In the last six months alone, 21 000 factsheets have been downloaded by the public.

S-Map is working towards a national coverage. Mapping to date has concentrated upon the productive land areas; areas are added as time and funding permit. Figure 1 shows the current coverage.



**Figure 1** S-Map coverage (green) as at January 2016.

Each factsheet contains three pages of quite technical soil-related information, which is potentially difficult to interpret. Although the factsheet download numbers are encouraging, there could be a set of potential end-users who are not able to use the data and advice in the factsheets.

## **2 Background**

Minimising the impacts of nutrient loss from intensive land use on freshwater has become a national priority. As a consequence, central and regional government and industry policymakers are demanding quality soil information to underpin the widespread implementation of farm nutrient budgets, farm environmental plans (FEP) and audited self-management schemes. Both industry and regulatory agencies recognise that the success of these initiatives relies on a coordinated, consistent and auditable approach that includes accurate translation of this information into practice.

S-map is a proven example of the merit of resource information that has allowed councils to respond to both existing and emerging issues. It has been used to address productivity and environmental issues/outcomes (e.g. East Coast forest accord to address erosion, Manawatu-Wanganui region to develop natural capital based approach, Grow Otago to develop regional economy; developing catchment limits for zone committees in Canterbury; identifying high class soils for protection in Waikato; improving soil inputs in Overseer).

To maximise leverage from the robust soil information provided by S-map Online requires that councils and other users can access and accurately interpret information. This is beyond business-as-usual and requires a partnership approach between the stewards/developers of S-map Online (Landcare Research), the investors/users (councils) and end-users (land scientists / land managers / landowners).

A previous Envirolink project (Strategic Roadmap for Land and Water Research, 2013) identified enhancing the coverage, quality, interoperability and access of S-map [land cover and land use information] as a high priority for the cross-council Special Interest Group – Land Monitoring Forum (LMF). This follow-on work therefore has the support of the LMF.

One of the first steps in addressing the gap between science and implementation is to consult with end users to identify information requirements. This should assist us to present soil information in a way that fosters efficient and effective understanding of complex science data so that it can be incorporated into good practice. If we facilitate the transfer (from researchers to managers) of the most up-to-date science knowledge, as well as building capacity, we improve land scientists'/managers' ability to respond to and mitigate environmental changes, and to sustainably use soils and associated natural resources, such as freshwater.

To effect this, we created an online survey, with a link to it on the front page of the S-Map web page, and asked our users for their opinions. This way, we plan to drive factsheet design from the user perspective, rather than by the perspectives of the science community.

The survey aims to identify key barriers to understanding the information provided through S-map Online to improve the 'user friendliness' of factsheets and therefore increase the use of soils information in the regions and across end-users.

### 3 Objectives

- Survey existing and potential end users of S-map to determine any key deficiencies of the soil factsheets and any interpretative and supporting information that would help make these factsheets more accessible.
- Via the survey, identify and focus on those improvements to the soil factsheets that will have the greatest positive impact.
- Produce a set of recommendations to guide future S-map Online development, and the production of a beta factsheet that incorporates key features to increase ease of use and accessibility of soil information. This will be tested initially with Hawke's Bay Regional Council users.

### 4 Methods

#### 4.1 Survey design

The Landcare Research project team (Lilburne, Carrick, Cuthill, Belliss) discussed what information was needed. Other relevant online resources were examined for background information and to see if they had features we could emulate. These brochures included:

- the Topoclimate factsheets – both the guides to these Soil Information Sheets and technical data sets and the sheets themselves
- the GrowOtago climate and soil map companion booklet
- SMART Irrigation New Zealand booklet 'Irrigation on hills'
- a Dairy NZ pamphlet 'Reducing surface runoff on grazed winter forage crop paddocks by strategic grazing management'.

A survey was then drafted and constructed using the online facility Survey Monkey (<https://www.surveymonkey.com/>) and circulated around the team for further review before being distributed to a dozen Landcare Research soil scientists for their inputs. We also consulted colleague Pike Brown of the Landcare Research Governance & Policy team since he is an expert in survey design.

The survey began with two questions about the respondents to gain an idea of likely capabilities and applications.

We then sought information on what the factsheets were being used for and the ease/difficulty of using the various sections of information. Finally, we asked questions about perceptions of the value of a series of suggested improvements. We also made allowance for respondents to make additional comments/recommendations. The survey as it appeared online is in the appendix at the end of this report.

## 4.2 Survey distribution

Once satisfied it was fit-for-purpose, the survey was uplinked to the front page of the S-Map Online site <http://smap.landcareresearch.co.nz/home> (Figure 2). In addition, an e-mail was sent to all the recipients of the Soil Horizons newsletter advising them of the survey's existence and asking for their participation. We also approached other likely interested recipients recommended to us. The survey was also posted on Facebook and Twitter.

The survey was available online from 9 December 2015 to 12 January 2016.



**Figure 2** Front page of S-MapOnline showing the link to the soil factsheet survey.

## 4.3 Collation of results, analysis and reporting

SurveyMonkey automatically summarises the results and makes the data available both graphically and in tabular form. In addition, the software enables you to easily slice the data to look at temporal trends in answers. Also, individual responses can be inspected.

## 5 Results

### 5.1 General information & trends

We kept the soil factsheet survey short, to the point, and easy to work through because people are better at sparing a few minutes than at settling down to a long session.

Ninety-two people filled out some/all of the questionnaire. This was a reasonably good result given the non-ideal timing just before Christmas. Most responded as soon as the survey was sent out or during the following week. After that, responses were minimal, with a mini peak the week work premises opened again after the Christmas break.

Just over 30% of the replies were deemed incomplete by Survey Monkey. These respondents typically filled out only the first two questions and then quit the site, the session lasting from a few seconds to a couple of minutes. Some persisted to questions 3 and 4 but then quit the site. One of the in-house reviewers of the survey before it was promulgated had thought that we might quickly lose farmer interest. In fact, 27% of the incomplete surveys included 'working on a farm' as part of the occupation description, against 35% that included 'working in a regional authority', which does not indicate a particular loss of farmer interest. The same in-house reviewer also thought students would lose interest as we were offering no incentives for participating. Only one respondent with an incomplete survey identified as studying.

Those that did complete or nearly complete all the questions took an average of 9 minutes to do so – reasonably close to our estimate of 4–8 minutes. However, this average does not include two outliers – one respondent who took 53 minutes and another who spread the task out over more than a week.

In general, most respondents had some knowledge of soils but did not consider themselves to be experts. A quarter said they were not an expert. Nearly all were putting the factsheet information to practical use in their businesses and in their employment.

All the sections in the factsheets are valued – key physical properties most of all. All suggestions of additional information to add to the factsheets were widely approved of but the most appreciated were a photograph to go with the soil description and better links between the 'new' and old soil names.

### 5.2 Detailed responses, by question

#### Question 1: When it comes to soil knowledge would you describe yourself as:

<i>Options</i>	<i>% respondents</i>	<i>No. of respondents</i>
<i>An expert</i>	18.48	17
<i>Not an expert</i>	23.91	22
<i>Somewhere in the middle</i>	57.61	53
	Total	92

**Question 2: Are you (tick as many as apply):**

<i>Options</i>	<i>% respondents</i>	<i>No. of respondents</i>
<i>Working for a regional authority</i>	38.46	35
<i>Working on a farm (farmer/farm manager)</i>	19.78	18
<i>Working as a consultant</i>	19.78	18
<i>Working in research</i>	23.08	21
<i>Working in education</i>	9.89	9
<i>Studying</i>	2.20	2
<i>Other ( please specify)</i>	16.48	15
Total		91

The low percentage of people identifying as studying may, in part, be a reflection of the timing of the survey during the holiday period.

Fifteen respondents identified as ‘other’ and added more information about their occupation. As seven (8%) of these respondents indicated they worked for central government, this option would ideally have been included in the survey question. The occupations included:

- nutrient budgeting
- providing information to farmers through a range of tech transfer mechanisms
- central government
- water zone committee
- librarian at a scientific institution
- scientific officer at a fertilizer co-op
- district council (so actually a regional authority)
- policy analysis (assumedly for government)
- forestry

**Question 3: What are your main uses of the soil factsheets? (tick as many as you like)**

<i>Options</i>	<i>% respondents</i>	<i>No. of respondents</i>
<i>Finding out about the environment around me</i>	36.29	24
<i>Information for research while studying</i>	7.35	5
<i>Information for research while working</i>	47.06	32
<i>As an information source for farm management plans or a consent</i>	57.36	39
<i>As an information source for understanding and managing land</i>	69.12	47
<i>As an information source for a model, e.g. the Overseer nutrient budget model</i>	51.47	35
Total		68

The typical respondent has a use for the factsheet information, other than finding out about the environment. The main uses are for planning, managing and modelling the land.

#### Questions 4, 5 & 6:

- (4) Thinking about the soil factsheets, which section(s) do you find the most useful?
- (5) Still thinking about these sections of the factsheets, do you find the information clear and easy to understand/apply?
- (6) Again thinking about these sections of the factsheets, does the information provided fully cover what you need to know?

These questions were to determine the relative value of the information provided. We also wanted to know how well the sections of information were covering the respondent's information needs and how understandable this information was.

All the sections in the factsheets were valued – key physical properties most of all.

Respondents were less positive about the ease of understanding the information. All sections except for the key physical properties were rated as very clear by less than 50% of respondents. The information for Overseer was the least clear – this might also reflect the proportion of respondents that were Overseer users. Most respondents got what they needed to know from the factsheets – this question got fewer very positive responses, with more 'yes, usually' responses than 'yes, always' responses.

#### Which sections of the soil factsheets are the most useful?

Section	Response (% respondents)				No. of respondents
	Very useful	Somewhat useful	Not useful	Don't know/ don't care	
Key Physical properties	71.01	24.64	2.90	1.45	69
Key chemical properties	35.29	52.94	7.35	4.41	68
Additional factors to consider in choice of management practices	47.76	41.79	7.46	2.99	67
Additional information (classification data & functional horizons)	34.85	54.55	7.58	3.03	66
Soil information for Overseer	44.78	40.30	4.48	10.45	67

**Do you find the information clear and easy to understand/apply?**

Section	Response (% respondents)				No. of respondents
	Very clear	Somewhat clear	Not clear	Don't know/ don't care	
Key Physical properties	53.73	38.81	1.49	5.97	67
Key chemical properties	37.88	54.55	1.52	6.06	66
Additional factors to consider in choice of management practices	36.92	47.69	7.69	7.69	65
Additional information (classification data & functional horizons)	30.16	46.03	15.87	7.94	63
Soil information for Overseer	24.24	50.00	9.09	16.67	66

**Does the information in the soil factsheets fully cover what you need to know?**

Section	Response (% respondents)				No. of respondents
	Yes, always	Yes, usually	No, not usually	Don't know/ don't care	
Key Physical properties	16.39	63.93	16.39	3.28	61
Key chemical properties	13.11	57.38	22.95	6.56	61
Additional factors to consider in choice of management practices	12.07	58.62	22.41	6.90	58
Additional information (classification data & functional horizons)	10.34	58.62	20.69	10.34	58
Soil information for Overseer	11.86	52.54	11.86	23.73	59

**Question 7: Which, if any, of the following additional information would you find useful?**

Section	Response (% respondents)				No. of respondents
	Very useful	Somewhat useful	Not useful	Don't know/ don't care	
<i>A photograph of a typical soil profile of this soil type</i>	74.14	22.41	0.00	3.45	58
<i>A diagram of a typical soil profile of this soil type</i>	52.54	38.98	5.08	3.39	59
<i>A general description of the soil in plain English</i>	65.52	27.59	5.17	1.72	58
<i>The links between old and new soil names are better explained</i>	64.41	32.20	0.00	3.39	59
<i>More information on risks &amp; risk management relating to this soil</i>	54.24	38.98	5.08	1.69	59
<i>More information on the science &amp; methods behind the soil information</i>	25.42	49.15	22.03	3.39	59
<i>Interpretations of the risk categories for land management practices</i>	57.63	33.90	6.78	1.69	59
<i>More information on soil/landscape relationships</i>	42.37	52.54	3.39	1.69	59
<i>More information on land use suitability</i>	54.24	37.29	6.78	1.69	59
<i>A section on soil information relevant to irrigation</i>	47.46	40.68	6.78	5.08	59
<i>A section on soil uses versus soil fertility</i>	38.98	45.76	13.56	1.69	59
<i>More information on soil chemistry</i>	27.59	46.55	24.14	1.72	58
<i>More information of the origin of the soil information</i>	23.73	50.85	22.03	3.39	59
<i>More information on the reliability of the information</i>	45.76	45.76	6.78	1.69	59
<i>Links to information about landscapes typical to this soil</i>	41.38	46.55	10.34	1.72	58

Essentially, we can add any amount of information to the soil factsheets and please nearly all the people nearly all of the time but the most appreciated would be a photograph and better links between the “new” and old soil names. Least appreciated would be more information on the science and methods behind the soil information.

Comments added included:

*‘The main limitations of the factsheets are the lack of a typical soil profile and lack of landscape model to place the soil in the landscape. I would also prefer that local names be retained and the family name remain in the background.’ (Education)*

*'Links to the descriptions of soil classes and their general distribution'* (Researcher)

*'Better descriptions or links to physical properties, e.g., what does well drained mean and how would I recognise it in the field'* (Regional authority)

*'Depth to subsoil layer for Overseer needs explanation'* (Consultant)

*'Based in Taranaki which is not covered so none of the information is useful - so can't really comment.'* (Consultant)

*'A better description in words. All the stuff is in the factsheets, but how do we know we are looking at the right factsheet? There are shitloads of very similar soils with very similar names and it is diabolical trying to decide if the one you are looking at is the right one.'* (Regional authority)

## Question 8: Uncertainty

This question sought information on whether soil factsheet users were interested in the uncertainties associated with the information presented to them. This question was answered by 59 respondents. If uncertainty information was included, a traffic light format was moderately preferred to confidence limits.

*Thinking about the quality of the soil information:*



### Question 9: Uses of the factsheet information

This question was to determine how the factsheet information was being applied. As we expected, most of the information was used to prepare farm management plans, as an input to GIS systems, and to add information into Overseer.

#### When you apply information from the soil factsheets, do you use it:

Option	Response (% respondents)				No. of respondents
	Yes, always	Yes, usually	Not usually	No	
<i>In a GIS</i>	22.00	42.00	20.00	16.00	50
<i>In Overseer</i>	18.37	30.61	20.41	30.61	49
<i>In another software package</i>	0.00	11.63	41.86	46.51	43
<i>In a farm management plan</i>	13.21	49.06	13.21	24.53	53

A number of respondents made comments here (representative samples below):

*'Resource consent application' (Forester)*

*'For identifying suitable sampling sites and for identifying groupings of old sampling sites for better data analysis' (Researcher)*

*'Effluent management, land development, general soil enquires' (Regional authority, researcher)*

*'To assess risks for consents; use of info for assessing general soil properties or helping to explaining soil aspects to other people' (Regional authority, researcher)*

*'To respond to general enquiries about land uses, purchase decisions and appropriate management' (Regional authority)*

*'Statistical reporting' (Central Government)*

*'Ecological management plan' (Consultant)*

*'Quantitative indicator for reports' (Consultant)*

*'Land environment plan' (Consultant/education)*

There were also comments from respondents who had no local S-Map coverage:

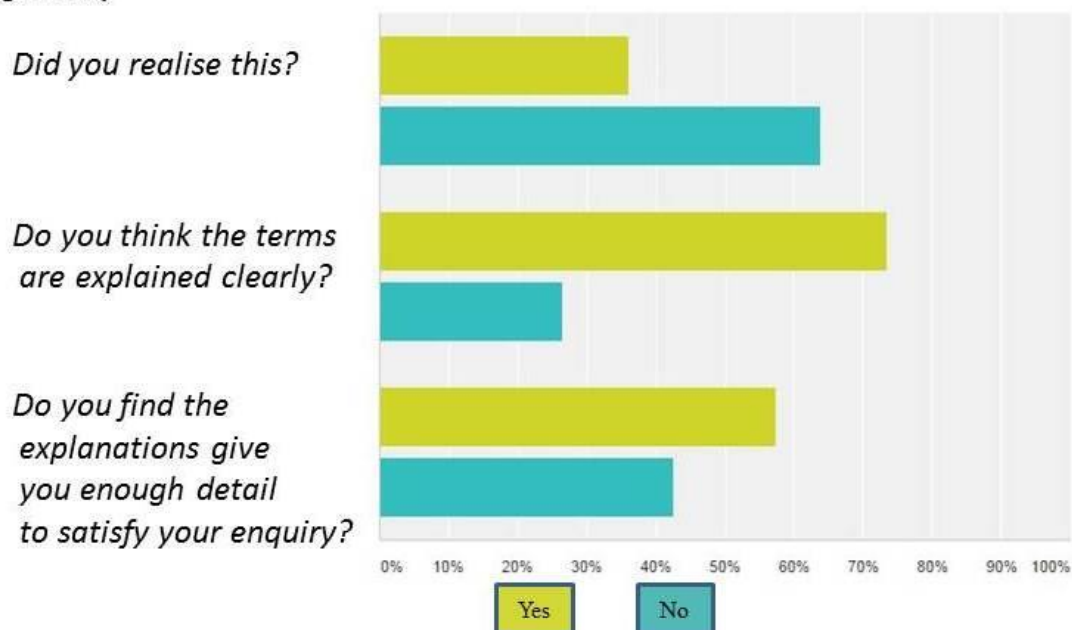
*'Soil Factsheets not available for Northland. Small area on s-map is far too unreliable to be of any value at all' (Consultant)*

*'Have no relevant factsheets to refer to' (Consultant)*

### Question 10: Glossary

This question was included to see if the glossary facilities were meeting needs and expectations. Surprisingly, many respondents said they did not realise that clicking on a phrase could take them to a glossary.

*Clicking on any phrases in blue on the fact sheets takes you to the glossary*



### Question 11: General comments

Question 11 was not really a question but an opportunity to make any other comments on the soil factsheets and these are included below:

*'It would have been helpful to have a comments section for all the questions in this survey. When you put in the soil symbol it should be clearer where the PDF document is or in a more prominent location. I know, but someone using it for the first time or less frequently may not be aware'* (Regional authority)

*'Just to reiterate that an LUC component for the soils would be very helpful'* (Regional authority)

*'Not all values are there e.g. P loss potential and pugging vulnerability. Old names more clearly identified alongside the new would make it more appealing for landowners who are used to the old names'* (Regional authority)

*'Maybe a little more info to help guide appropriate use in overseer. e.g., values for when the soil compacted'* (Regional authority)

*'The glossary is cool. I think you should also explain the categorisation of every property, not just the general meaning. e.g. poorly drained means the grey zone is within 30 cm or right under the topsoil; the grey zone is the anaerobic zone. What does loamy weak mean? What does LOT mean? Implications of high or low P retention, implications of high or low clay content. What is loess?'* (Regional authority)

*'Many that I have used do not have the older soil series name on the factsheet. This would be useful as it is often better known by farmers and older staff. It's useful to have both. I like having the NZSC classification as that can tell me about the general nature/class of the soil. A general photo of a typical soil would be great, and a useful tool to help explain things. Further information on the % of a soil sibling in a map unit may be useful as this sometimes generates queries'* (Regional authority/researcher)

*'Landholders don't relate to the new soil names'* (Regional authority/research)

*'The change in soil names is frustrating and not always consistent i.e., clicking on the map doesn't always give the same answer as searching by the previous soil name'* (Regional authority/farming)

*'Making the old soil names clearer or more noticeable, many people think they are just gone, and debate the S-Map names regularly'* (Consultant/farming)

*'Please officially publish the 1984 hard-copy soil maps (Cox, Taylor, Sutherland and others) in digital form'* (Consultant)

*'As mentioned, explanations of subsoil depth to subsoil layer. I often average the depth to stones or whatever based on functional horizon'* (Consultant)

*'The locality search function doesn't seem to work very well if a street address is used. Generally I have had to use a less specific address and then hunt around for the street address. This works fine if it is an area you know well, but can be slow if it is an unfamiliar area'* (Consultant)

*'Thanks for a great resource and for continuing to improve things'* (Consultant)

*'Yes I would like some work done on their use in classifying high class soils on the factsheet. What is the accuracy and confidence limits – maybe only of use where more detailed soil surveys have been done'* (Consultant/education)

*'Hide the family name. Explain the concept of the functional horizon better. Use more actual data rather than modelled data'* (Education)

*'Direct link to OVERSEER would be useful in future i.e. eliminate re-entering data'* (Regional authority/education)

*'Would be interested in querying the database on multiple soils and getting specified results in a spreadsheet to aid use in GIS use'* (Researcher)

*'Very important to understand the quality of the data (uncertainty) as well as the source and the process particularly for derived values'* (Researcher)

*'Great to have electronic source' (Researcher)*

*'Very confusing. Able to find areas OK but then layers not clearly identified or linked to factsheets. Unable to go back. Would need training to be able to use this as the instructions are unclear. Have not answered many questions due to this' (Researcher)*

*'Add soil carbon data and a timescale to see how soils change over time and vary over space?' (Researcher)*

*'They are a key source of information about soils so please keep them coming and adding more relevant information to that already contained in them'. (Science staff, fertilizer co-op)*

*'Metadata, confidence levels and plain English explanations would be very helpful in national environmental statistical reporting' (Central Government)*

*'Need for plain English, available through social media and has plenty of photographs' (Policy)*

*'I don't use them myself but I think our in-house staff do for their research, or may have call to depending on their projects. Sounds like a cool resource!' (Librarian at a CRI)*

From a respondent in an area with no S-Map coverage:

*'Would only be of use to me if my province was included' (Consultant)*

### **Question 12: Finally, how would you prefer the information on the factsheets to be organised?**

After the comments, the final question sought opinions on whether the layout of the current factsheets is satisfactory or if a different way of organising the information, perhaps from general to specific, was preferred.

Of the 57 respondents who answered this, just over 40% answered 'the current structure works for me' but just under 60% wanted 'a summary sheet, followed by pages detailing specific topics'.

Therefore, if the factsheets were to be reorganised, a summary sheet followed by details is preferred.

### **5.3 Unsolicited e-mail responses**

Some people e-mailed back, either to offer suggestions of other people to contact, to make a comment outside the survey itself, and/or to seek information on related topics. On the whole these were positive, but there were a few exceptions. Some of these are included below:

*'I do not use your soil factsheets'*

*'I do not ever use your soil factsheets, so there is no point in me passing judgement on them'*

## 6 Conclusions

- The soil factsheets are generally meeting the needs of the users. These users will appreciate additional information on their soils and this can probably be most easily incorporated by reorganising the factsheets to a summary sheet, followed by/linked to pages on specific topics.
- Most of the users have a reasonable knowledge of soils and so the information in the factsheets does not need simplification but would sometimes benefit from clarification.
- Linking from a sidebar, may also be a good way to direct the user to additional information sources, such as on irrigation or land use capabilities.
- Making the information in the soil factsheets easily portable into farm management plans and Overseer would assist many users.

## 7 Recommendations

### To improve/augment the soil factsheets

- Reorganise the factsheets to a summary sheet, followed by pages on specific topics.
- Include on the summary sheet a general description of the soil in plain English.
- Include a generic photograph of a typical soil of this type on the summary sheet. If a photograph proves difficult to obtain, then a diagram would be a suitable alternative
- Clarify the links between the old and the “new” soil names.
- Add information or links to information on risks and risk management associated with a particular soil and to information on land management practices.
- Add soil information relevant to irrigation or link to this information.
- Add information on soil and soil landscape relationships or link to this information.
- Consider presenting the information in a way that is easily portable to Overseer and into farm management plans

### To improve any subsequent survey on the soil factsheets

- Add the question ‘Does S-Map cover the region in which you are interested?’ This would have identified those respondents who cannot use the factsheets yet for their regional/local work but probably will when S-Map coverage extends. This question would have been placed directly after the personal details section.
- In the personal details section, an additional occupational category of ‘Working for a central government department’ would be useful.
- In this same section some age banding could have helped to determine whether the new/old soil name issue is, as we suspect, related to when respondents learned about soils (and therefore an issue gradually moving towards extinction).

## **8 Acknowledgements**

We thank Karen Scott and Pike Brown for information and advice on surveying; Carolyn Hedley for providing the Soil Horizons mail-out list; Jim Payne, Scott Fraser, and James Barringer for valuable comments on the survey draft; Tom Cuthill for reviewing and Leah Kearns for editing this report.

## **9 References**

Lilburne L, Hewitt A, Webb TH, Carrick S 2004. S-map: a new soil database for New Zealand. Proceedings of SuperSoil 2004: 3rd Australian New Zealand Soils Conference, Sydney, Australia.  
[http://www.regional.org.au/au/asssi/supersoil2004/s5/oral/1512\\_lilburne.htm](http://www.regional.org.au/au/asssi/supersoil2004/s5/oral/1512_lilburne.htm)

## Appendix 1 – The survey

### S-Map Factsheet improvements

**We are planning to improve our S-map soil fact sheets and are seeking information to guide this. We would appreciate your help as we want to make the soil fact sheets as convenient & useful as possible, while keeping them relevant for all levels of use.**

**This survey should take a maximum of 5-8 minutes and is mainly a box-ticking exercise although there is space to make comments too.**

### S-Map Factsheet improvements

Firstly, a little bit about you

1. When it comes to soil knowledge would you describe yourself as:

- ☐ An expert
- ☐ Not an expert
- ☐ Somewhere in the middle

2. Are you (tick as many as apply to you)

- ☐ Working for a regional authority
- ☐ Working on a farm (farmer/farm manager)
- ☐ Working as a consultant
- ☐ Working in research
- ☐ Working in education
- ☐ Studying
- ☐ Other (please specify)

### S-Map Factsheet improvements

Now the survey itself

3. What are your main uses of the soil fact sheets? (tick as many as you like)

- ☐ Finding out about the environment around me
- ☐ Information for research while studying
- ☐ Information for research while working
- ☐ As an information source for farm management plans or a consent
- ☐ As an information source for understanding and managing land
- ☐ As an information source for a model, e.g. the Overseer nutrient budget model

4. Thinking about the fact sheets, which section(s) do you find the most useful?

	Very Useful	Somewhat useful	Not useful	Don't know/don't care
Key physical properties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Key chemical properties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional factors to consider in choice of management practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional information (classification data & functional horizons)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soil information for Overseer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Still thinking about these sections of the fact sheets, do you find the information clear and easy to understand/apply?

	Very clear	Somewhat clear	Not clear	Don't know/don't care
Key physical properties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Key chemical properties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional factors to consider in choice of management practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional information (classification data & functional horizons)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soil information for Overseer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## S-Map Factsheet improvements

6. Again thinking about these sections of the fact sheets, does the information provided fully cover what you need to know?

	Yes, always	Yes, usually	No, not usually	Don't know/don't care
Key physical properties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Key chemical properties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional factors to consider in choice of management practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Additional information (classification data & functional horizons)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soil information for Overseer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### S-Map Factsheet improvements

7. Which, if any, of the following additional information would you find useful?

	Very useful	Somewhat useful	Not useful	Don't know/don't care
A photograph of a typical soil profile of this soil type	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A diagram of a typical soil profile of this soil type	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A general description of the soil in plain English	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The links between old and new soil names are better explained	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More information on risks & risk management relating to this soil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More information on the science & methods behind the soil information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpretations of the risk categories for land management practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More information on soil/landscape relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More information on land use suitability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A section on soil information relevant to irrigation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A section on soil uses versus soil fertility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More information on soil chemistry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More information of the origin of the soil information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More information on the reliability of the information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Links to information about landscapes typical to this soil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

### S-Map Factsheet improvements

#### 8. Thinking about the quality of the soil information:

	Yes	No	Maybe	Don't know
Do you find it useful to have quantitative uncertainty information associated with the soil data?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Would it be helpful if the uncertainty of the information was always provided as a confidence limit?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Would it be helpful if the reliability of the information was always traffic-lighted (green = very confident, amber = some caution, red = not at all sure)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### S-Map Factsheet improvements

#### 9. When you apply information from the soil fact sheets, do you use it:

	Yes, always	Yes, usually	Not usually	No
In a GIS?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In Overseer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In another software package	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In a farm management plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>			

### S-Map Factsheet improvements

10. Clicking on any phrases in blue on the fact sheets takes you to the glossary

	Yes	No
Did you realise this?	<input type="radio"/>	<input type="radio"/>
Do you think the terms are explained clearly?	<input type="radio"/>	<input type="radio"/>
Do you find the explanations give you enough detail to satisfy your enquiry?	<input type="radio"/>	<input type="radio"/>

### S-Map Factsheet improvements

11. Would you like to make any other comments/recommendations for the soil fact sheets?

### S-Map Factsheet improvements

12. Finally how would you prefer the information in the fact sheets to be organised?

- ☐ The current structure works for me
- ☐ A summary sheet, followed by pages detailing specific topics

**That's all, thanks for your time.**