



Awareness of, and attitudes to source-separated organic matter as an alternative to traditional fertilizers for soil improvements among Clarence Valley beef farmers

Phase Two: 201 telephone interviews with Mid-North Coast and North Coast beef farmers

Client:

North Coast Local Land Services

FINAL REPORT, dated: July 11th 2019



Contact:

James Parker

e: James.Parker@jettyresearch.com.au

p: 02 6650 9175

Level 1, 30 Industrial Drive

Coffs Harbour NSW

PO Box 1555

Coffs Harbour NSW 2450

w: www.jettyresearch.com.au

e: info@jettyresearch.com.au

Coffs Harbour Sydney

ACN 121 037 429

Prepared by	James Parker
Reviewed by	Christine Dening
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Note re terminology

The terms "commercial compost", "green-bin sourced compost" and "source-separated organics" (or organic matter) are used interchangeably throughout this report. In each case we are referring to the source-separated organic compost being produced by J.R Richards in Grafton.

Disclaimer

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Executive summary

In early 2019, North Coast Local Land Services (NCLLS) commissioned Jetty Research to conduct awareness and attitudinal research of beef cattle farmers on the NSW Mid-North and North Coasts, relating to the use of source-separated organic matter (also termed "green bin-source compost") as an alternative to fertilizers and other soil improving agents.

This report summarises the findings of 201 telephone and online interviews¹ with Mid-North Coast and North Coast beef farmers, to understand (primarily) their awareness of and attitudes towards green bin-sourced compost as an alternative to "traditional" fertilizers for the purpose of soil improvement.

Interviewing was conducted between May 20th and June 6th 2019.

Among the survey's major conclusions:

1. The majority of farmers (79%) are now using some form of rotational or cell grazing – which presumably will make it easier for them to apply soil improvers to selected pastures. Of those rotation- or cell grazing, the average number of paddocks (excluding outliers) was 18.
2. Most common rotation frequency was weekly (23% of rotation grazers) followed by "as grass/cover dictates" (21%). A further 18% rotated their cattle at least twice a week.
3. A majority of farmers had used a nitrogen-based fertilizer (65%), superphosphate (57%) and/or lime (52%) over the past three years. Collectively, 85% of all farmers had used one or more of these, while 31% of that cohort has used all three. Nine per cent had used a commercial compost, and 5% home-made compost. Two-thirds of respondents said they would apply some form of product to their pastures at least annually.
4. Three-quarters of those surveyed claimed to have heard of compost sourced from domestic green waste prior to our call. This suggests a high level of awareness.
5. When asked for their initial views on green bin-sourced compost, almost half (46%) had a generally favourable impression while 31% were negative and the balance neutral or unsure. Positive comments typically revolved around the benefits of putting organic material back into the soil. Among those whose initial impressions were negative, the major concerns revolved around foreign matter/contamination, its slower-acting nature, and/or cost.
6. In regard to specific (unprompted) advantages of source-separated organics as a soil improver, half focused on its natural origins, or the fact that it was better for the soil and/or less acidic than fertilizer.
7. Key drawbacks (again unprompted) centred around possible contaminants (and subsequent issues with certification), likely expense -in particular transport and spreading - and its slower acting nature vis. a vis. fertilizer.

¹ Comprising 183 telephone interviews and 18 online surveys

8. Just under one in five (17%) of respondents said they would be "very likely" to trial green bin-sourced compost, while a further 23% said they were "quite likely". This suggests that if concerns around contaminants and cost can be addressed, there is a strong groundswell of support for a wider compost trial among Mid-North Coast and North Coast beef farmers.
9. Agronomists and agricultural suppliers were the main sources of information/knowledge on soil quality and other farming issues (mentioned unprompted by 37 and 36% respectively) - highlighting the importance of these influencers in encouraging farmers to trial compost. Field days and word-of-mouth (23 and 22% respectively) were also valued information sources, followed by the Internet and The Land (19% each).
10. Some 79% of respondents asked to be kept abreast of developments with any field trials, and supplied email contacts accordingly. These details have been supplied separately to NCLLS.

A handwritten signature in black ink that reads "James D. Parker". The signature is written in a cursive style with a large, vertical initial 'J'.

James Parker, QPR, B. Ec, Grad Cert Applied Science (Statistics), AMSRS
Managing Director
July 11th 2019

Introduction

Background

In early 2019, North Coast Local Land Services (NCLLS) commissioned Jetty Research to conduct awareness and attitudinal research of Clarence Valley beef cattle farmers, relating to the use of source-separated organic matter (also termed "green bin-source compost") as an alternative to fertilizers and other soil improving agents.

This awareness and attitudinal research is designed to run parallel to a scientific field trial of source-separated organic matter for Clarence Valley beef farmers, being conducted in 2019 and 2020.

The awareness and attitudinal research comprises three separate waves of research:

1. In-depth interviews with eight Clarence Valley beef farmers (April/May 2019);
2. A "pre-trial" telephone survey of 200 beef farmers located on the Mid-North and Far North Coast of NSW (June 2019);
3. A "post-trial" telephone survey of 200 beef farmers located on the Mid-North and Far North Coast of NSW (dates to be advised, but likely to be after completion of the field trial in late 2020);

This report relates to the findings of wave 2, the pre-trial telephone survey.

Methodology

A survey questionnaire was constructed between NCLLS and Jetty Research – see Appendix 1 for final script.

A list of 1,267 beef farmers living "between Port Macquarie and the Queensland border and approx. 100km inland" was purchased from a commercial list supplier. Interviews were conducted from Monday May 20th to Thursday June 6th inclusive.

Farmers were initially screened to ensure they had 100 or more cattle. (This was later revised to 50 due to high levels of screen-outs). Potential respondents were called up to five times.

An online version of the survey was also constructed, and distributed via NCLLS contacts, and stock and station agents in Grafton and Dorrigo. Those initially declining to take part in the telephone survey were also re-contacted to see if they would be willing to do the survey online.

In all, 201 valid surveys were conducted. Of these 183 were conducted by phone, and 19 online.

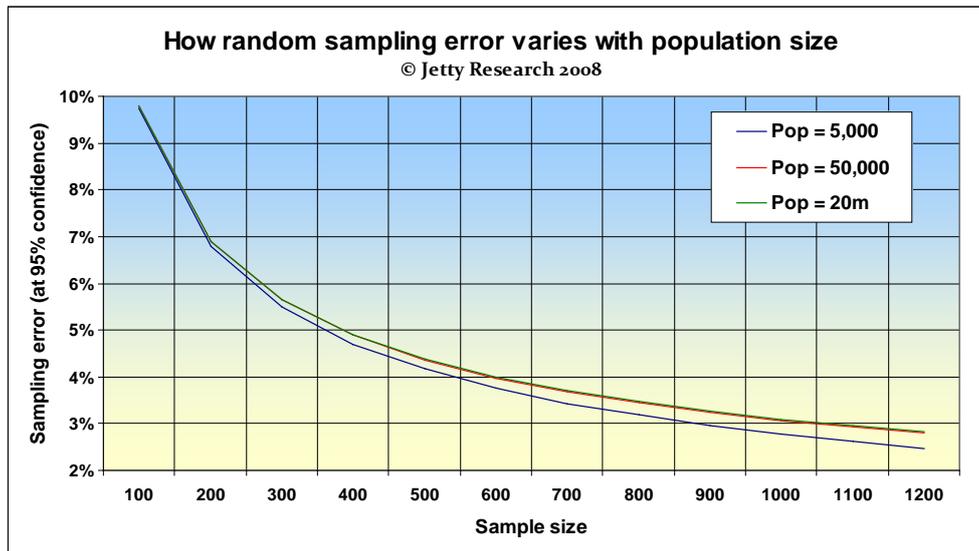
Note that not all respondents were asked all questions. The number of respondents to each question is marked as "n=XXX" in the relevant graph or table.

Sampling error

If we assume there are +/- 500 beef farmers with 50 or more head of cattle in the region from Port Macquarie to the Queensland border, a random survey of 200 beef farmers should be representative of all beef farmers in the region to within +/- 5.3% at the 95% confidence level. (That effectively means that if we conducted the same random survey 20 times, results should be representative of the target population to within +/- 5.3% in 19 of these 20 surveys.)

As Graph i, below, shows, sampling error correlates negatively with sample size. Caution should hence be taken in analysing smaller sample sizes.

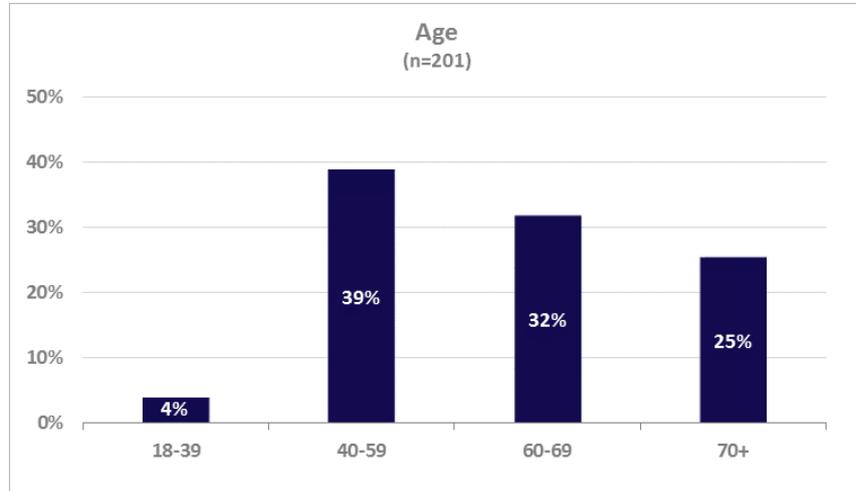
Graph i: How sampling error varies with sample and population size



In addition to the random sampling error, above, there may also be some forms of non-random sampling error which may have affected results. These include farmers unreachable by phone, the proportion of non-respondents (refusals, no answers etc.) and/or imperfections in the survey design. However, steps have been taken at each stage of the research process to minimise such errors wherever possible.

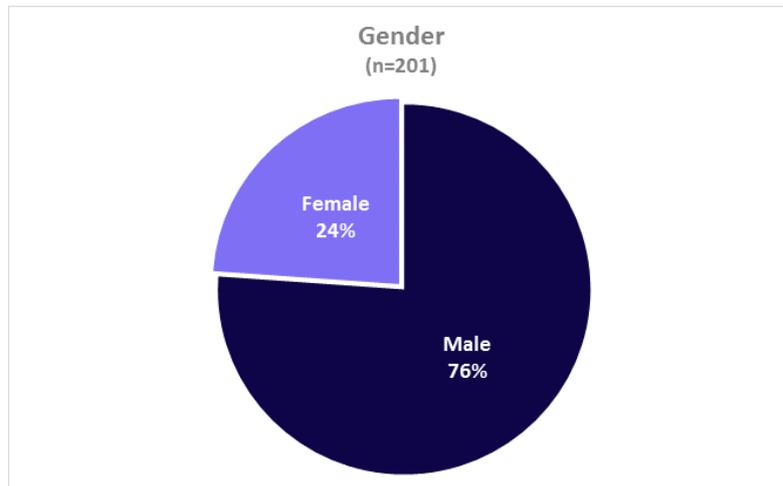
Part 1: Farm and farmer profiles

Graph 1.1: Respondent age



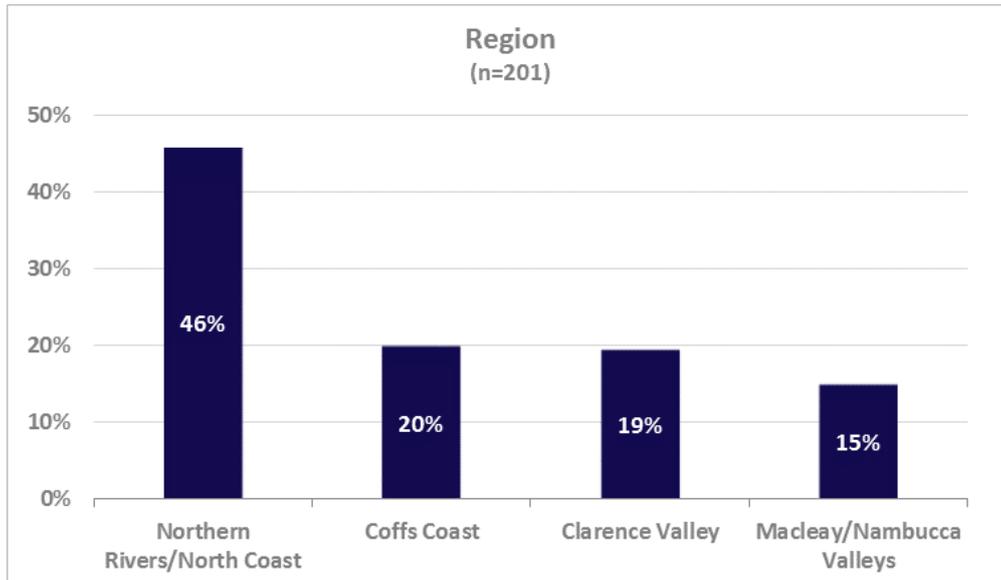
The majority of respondents were older, with over half (57%) aged 60+. While we are unsure if this accurately reflects the overall population of beef farmers, this age bias almost certainly has implications for other results in this survey.

Graph 1.2: Respondent gender



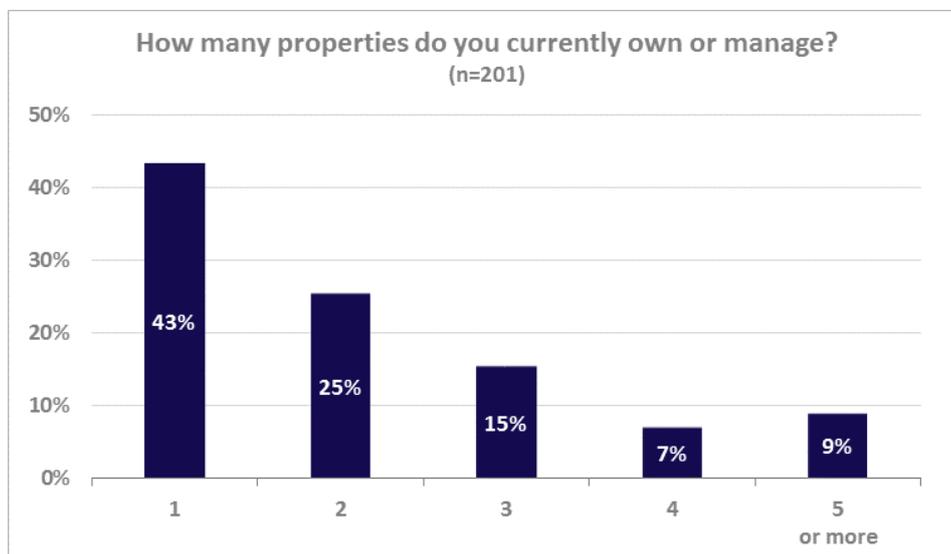
There was also a bias towards males, making up three-quarters of the sample.

Graph 1.3: Farm locations



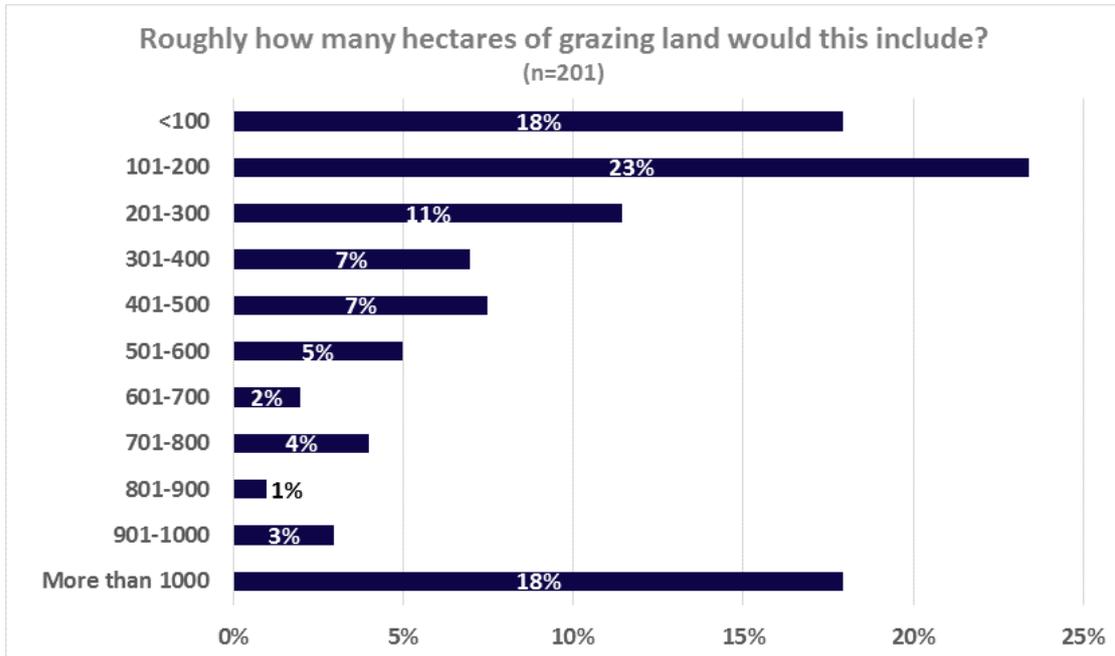
Just under half the sample were located on the Northern Rivers and North Coast, with the balance spread almost evenly between Coffs Coast, Clarence Valley, and the coastal fringe from Port Macquarie to Nambucca.

Graph 1.4: Number of properties owned



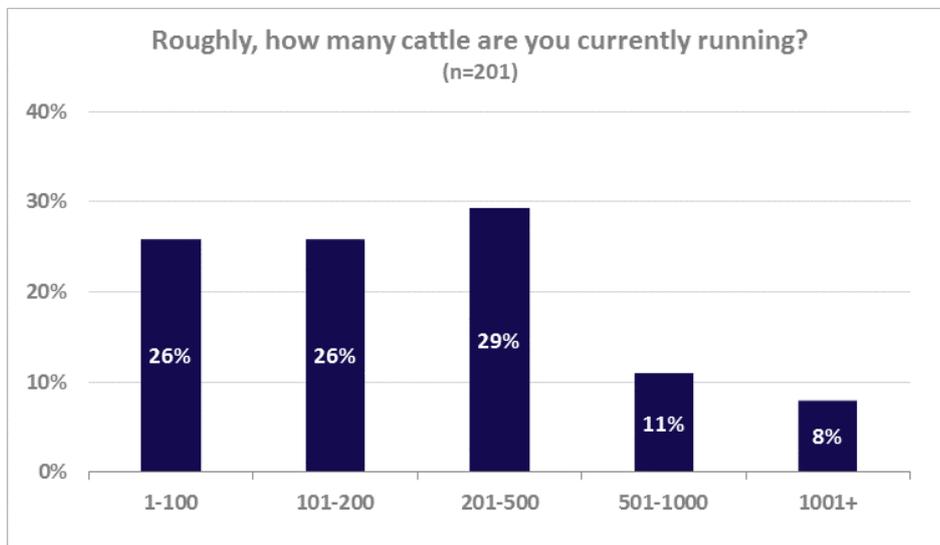
While 43% of respondents only had the one farm, it is interesting to note that over 30% owned or managed three or more properties.

Graph 1.5: Farm size



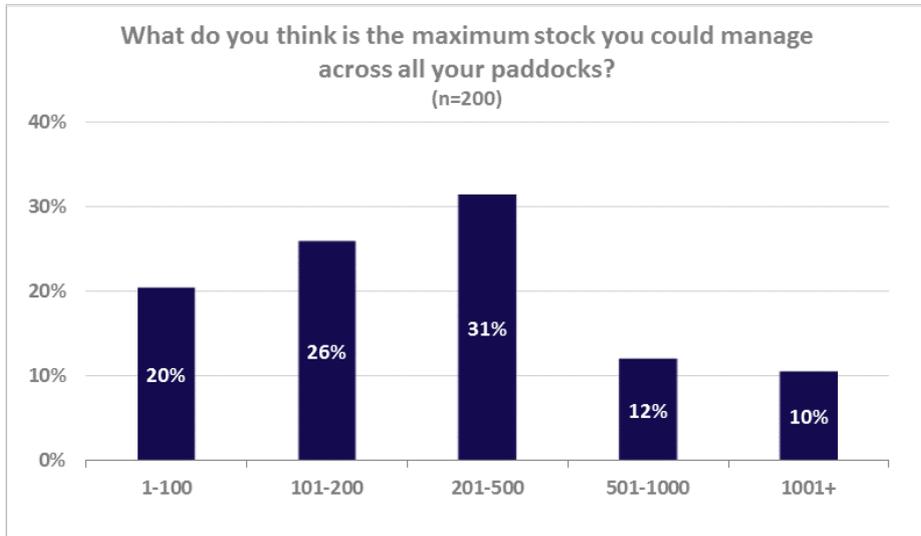
Farm size showed a wide variety of responses, with a median response of 201-300 hectares. However more than one out of five respondents had larger (800+ hectare) grazing land.

Graph 1.6: Cattle run



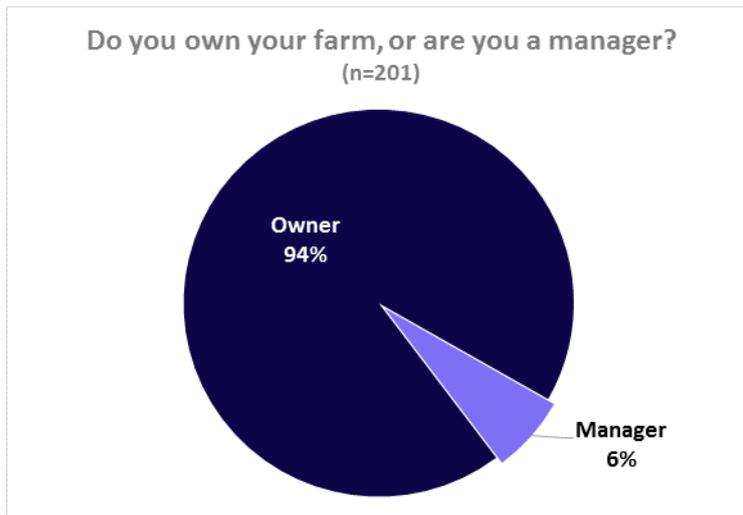
The most popular response was 201-500 cattle, with the sample split roughly evenly between those with more or less than 200 cattle.

Graph 1.7: Maximum capacity



Maximum carrying capacity was roughly in line with current stocking. In fact, almost 80% of respondents said their maximum capacity was in the same category as their existing stocking.

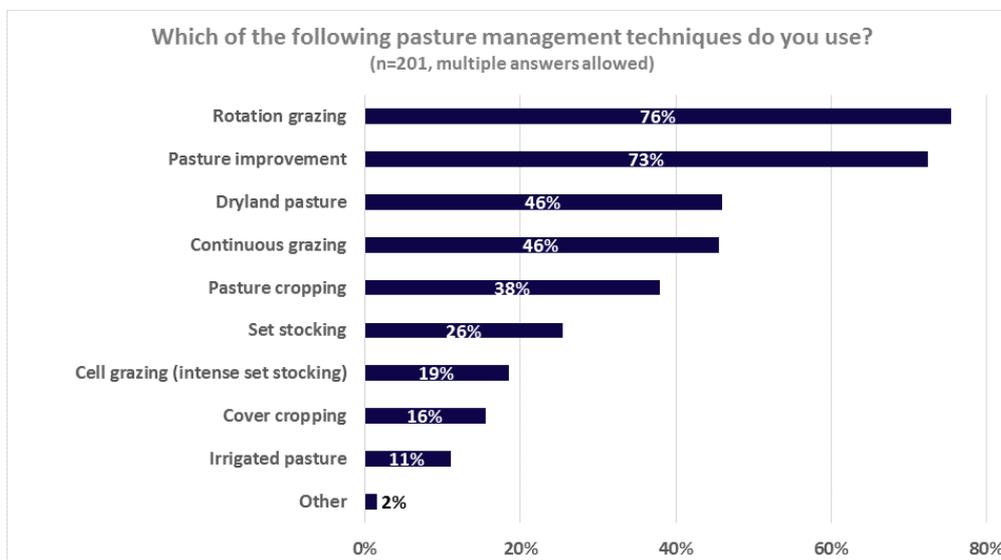
Graph 1.8: Owner/manager status



Almost all respondents owned their farms.

Part 2: Current pasture and soil improvement techniques

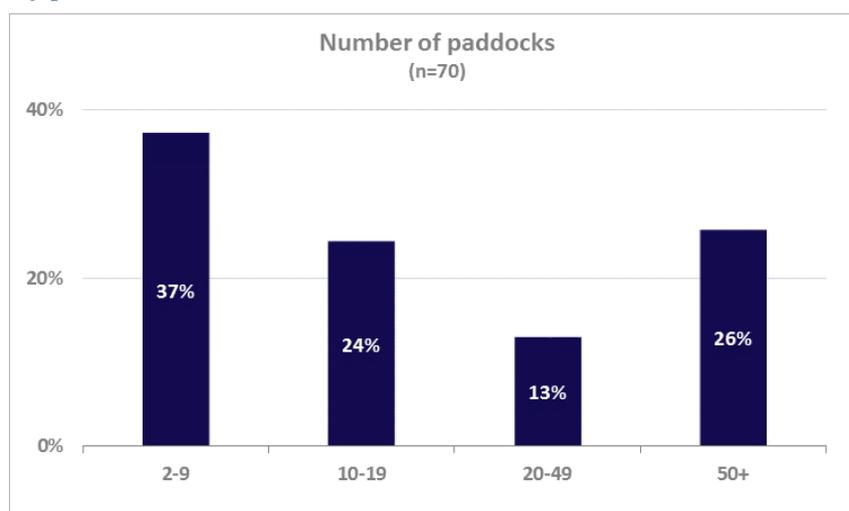
Graph 2.1: Which of the following pasture management techniques do you use?



Three-quarters of all respondents said they were using rotation grazing, the same proportion as those claiming to use improved pastures. Around half were still using continuous grazing², while one out of five said they cell grazed. (In all, 79% managed rotational and/or cell grazing.)

Note there were very few differences to this by size of farm/s or number of cattle grazed.

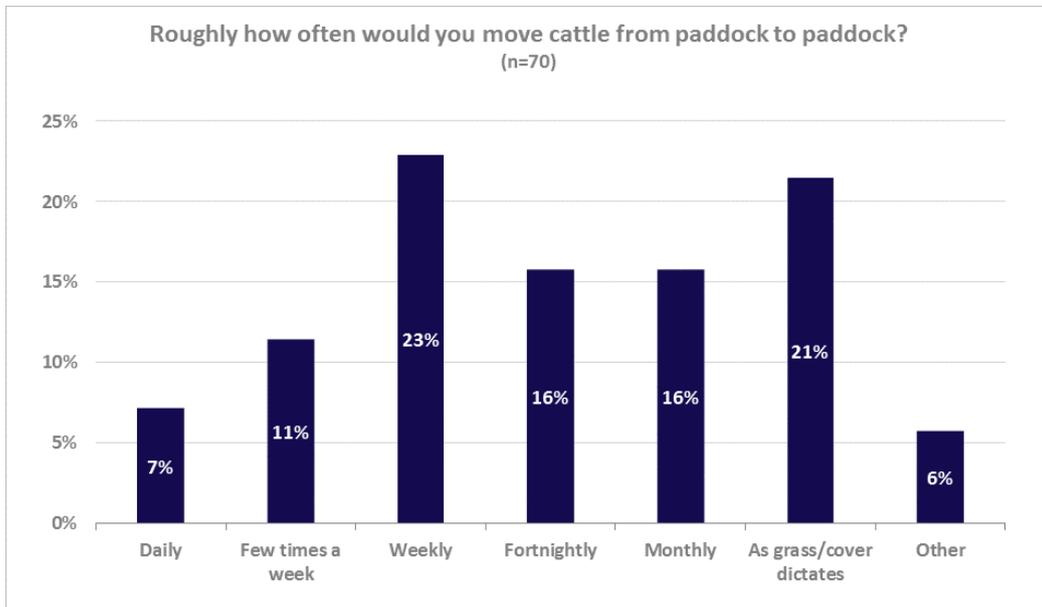
Graph 2.2: How many paddocks would this include?



² Remembering that same farmers, especially those with more than one property, may be using multiple grazing techniques

Of those rotation- or cell grazing³, the majority used less than 20 paddocks. (Excluding outliers, average was 18 paddocks). However five respondents said they used 50 paddocks or more, of which three claimed to have more than one hundred.

Graph 2.3: How often do you move cattle from paddock to paddock?

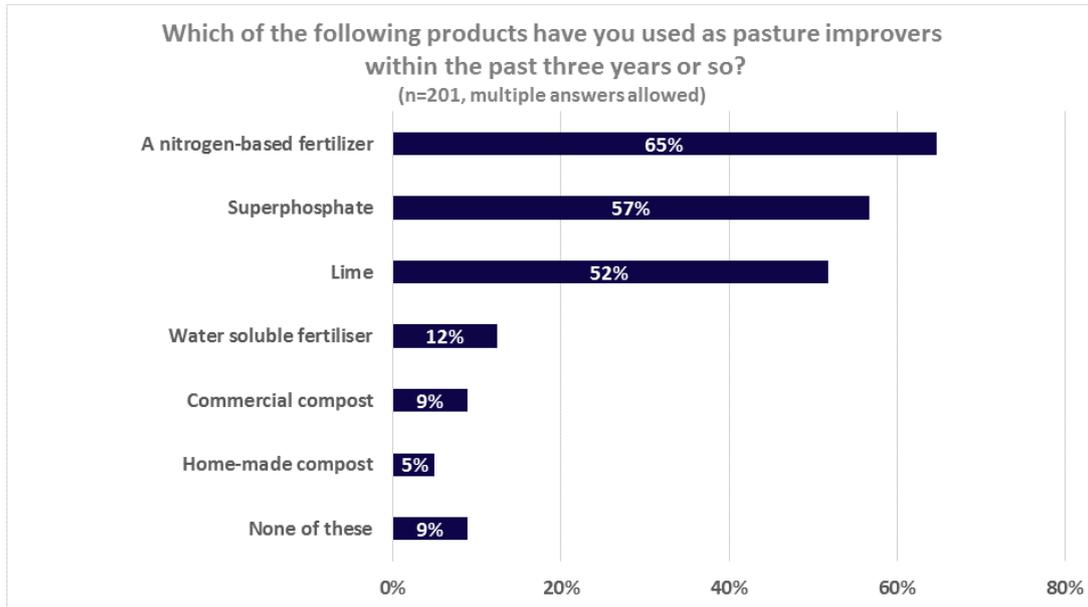


The most common frequency of movement was weekly (23%), with 21% saying they did it as grass cover dictated. However almost one out of five (18%) rotated cattle more than weekly. Results were similar by size of farm and frequency of cattle.

(Continued next page...)

³ Note that due to a scripting error, only 70 farmers were asked this question rather than the 158 using rotation and/or cell grazing.

Graph 2.4: Which of the following products have you used over the past three years or so?



The majority of farmers (65%) had used a nitrogen-based fertilizer over the past few years, while 57% had used superphosphate and 52% lime. Collectively this accounted for 85% of the sample. Of these:

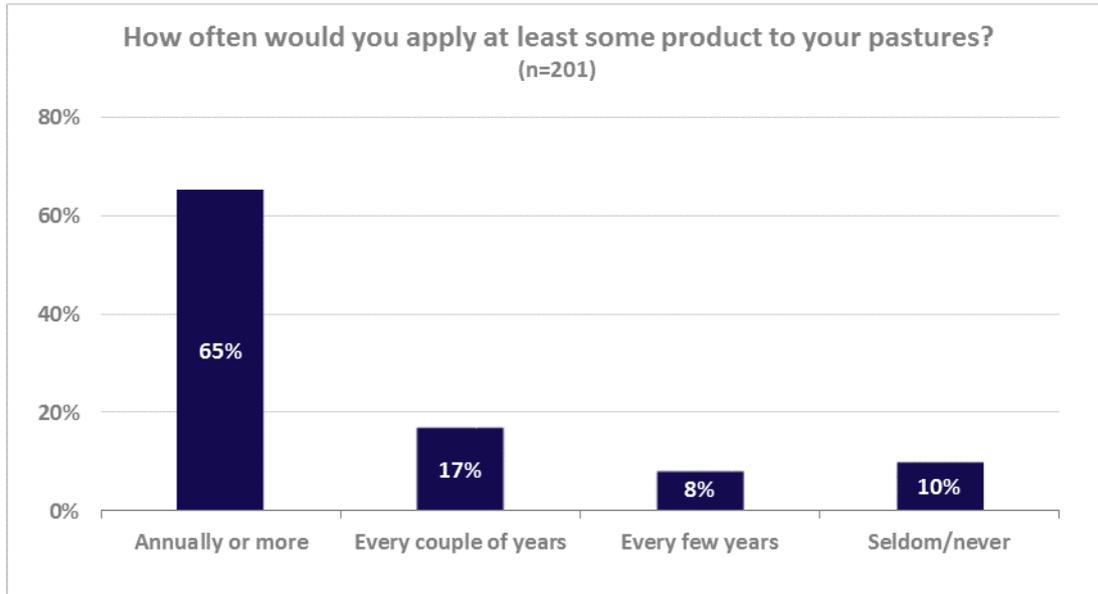
- 31% used all three
- 18% used superphosphate and nitrogen
- 16% used nitrogen alone
- 12% used superphosphate and lime
- 8% used nitrogen and lime
- 8% used lime alone
- 7% used superphosphate alone.

Those managing larger farms (i.e. 300+ hectares) were more likely to use one or more of these than smaller farms.

Nine per cent of respondents said they were already using commercial compost on their paddocks, and 5% were using home-made compost. Larger farms were more likely to be using commercial compost, while home-made compost was (understandably) more common on smaller properties.

Other commonly mentioned (3+ times) soil improvers included aeration, other crops (rye grass, legumes, soy beans etc.), chicken manure, gypsum, sulphur and potash.

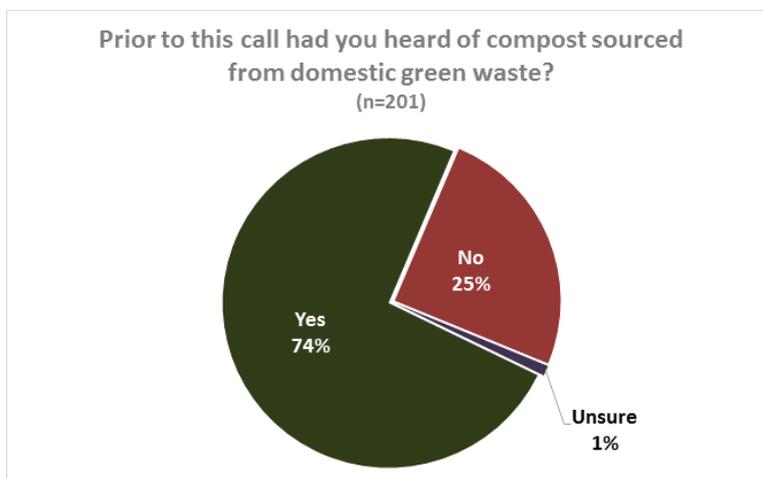
Graph 2.6: How often would you apply at least some product to your pasture?



The majority of respondents applied soil improvers at least annually. Those running more than 200 cattle were significantly more likely to apply annually or more than smaller farmers (at 77% and 54% respectively), while Coffs Coast farmers were the most likely to apply product annually or more (92%, vs. 54% for the Clarence Valley).

Part 3: Awareness and attitudes to the use of green bin compost

Graph 3.1: Prior to this call, had you heard of compost derived from domestic green bin waste?

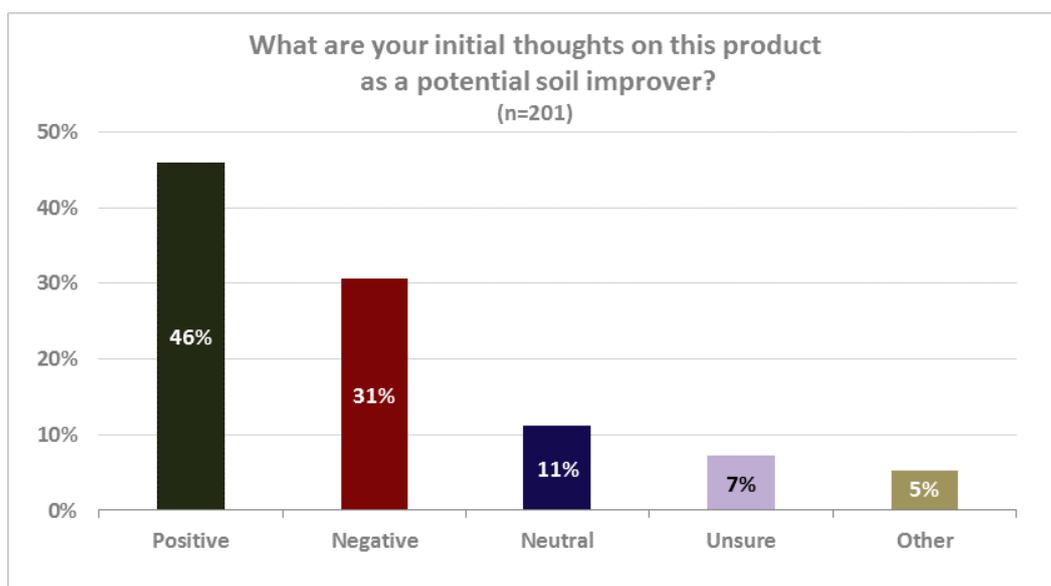


Three-quarters of those surveyed claimed to have had prior awareness of compost derived from domestic green bin waste. This was consistent by size of farm and region. It suggests a high base level of awareness, which is presumably favourable.

Those who had not heard of source-separated compost were then offered the following definition:

"Compost is a combination of organic materials such as mulch, garden organics, food waste, manure etc, that has undergone a composting process. This project utilises New South Wales EPA certified compost processed from organic materials commonly sourced from domestic green bins."

Graph 3.2: What are your initial thoughts on this product?



When asked their initial thoughts, just under half were positive while 31% provided negative first impressions.

Among the major comment themes from those positive:

"I have used it already to experiment on a few cubic metres of grass. It's fantastic. The grass greened up."

"I think it would be good as long as there is no rubbish or weeds."

"I would imagine it would be extremely good as it has the bio activity which will be very beneficial to our country."

"It would be hugely important at a reasonable cost. I would use that over what I am currently using if I had more cattle."

"Was proceeding on large scale until EPA shut down the supply chain process. Believe a very good option should we be guaranteed of no residue issues."

"Would probably use but are not aware of costs and efficiencies".

Even among those initially positive, concerns crept in about contamination and cost issues. However among this group there was a definite willingness to give it a try if those fears could be addressed.

Among the major comment themes from those initially negative:

"As long as it doesn't bring weeds or any bio security risks."

"Concerned about possible plastic pollutants/contamination."

"I have tried it years ago and you just don't get the kick out of it that you do with fertilizers."

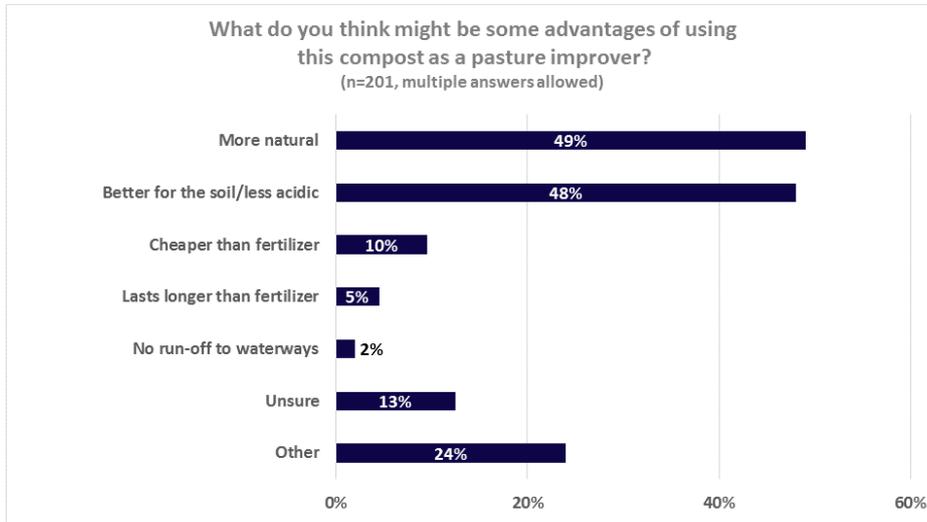
"If you have to take the cattle off I wouldn't like it."

"These days you have to justify everything you do, this product has come from all over the place, how is it certified? How do we know that what's in it is what they are saying is in it?"

'We'd be too far away from the source to be economical."

Neutral and unres sure mainly related to requiring more information before offering an opinion. Again, pricing and possible contaminants were cited as the major unknowns.

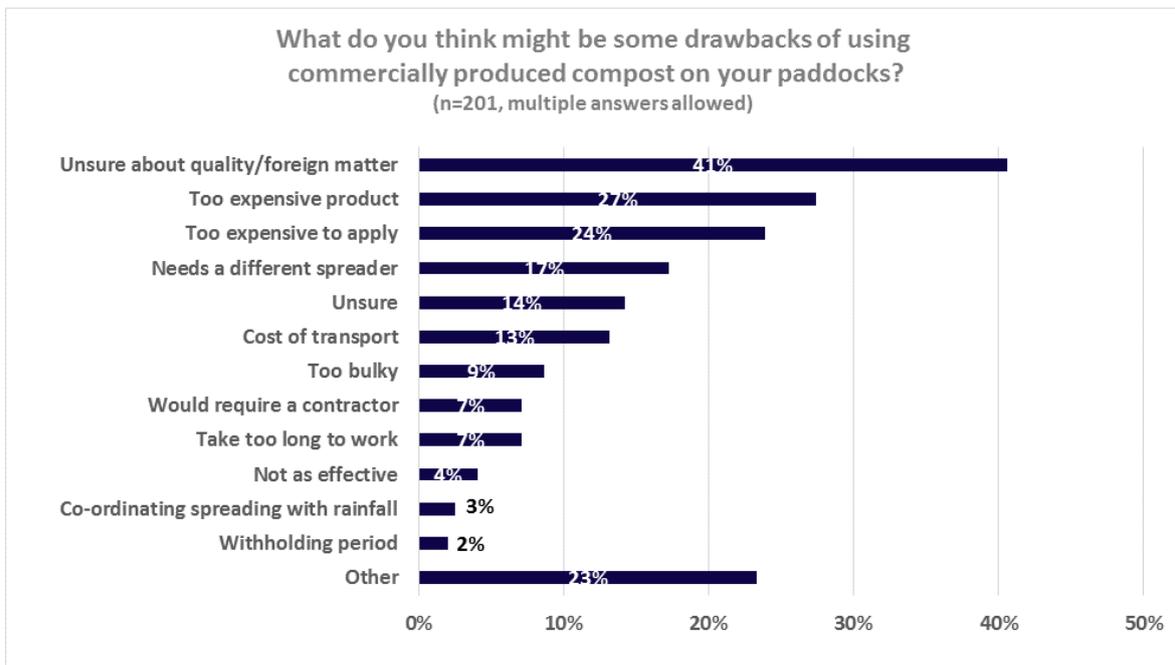
Graph 3.3: What do you see as the possible advantages of using this compost as a soil improver?



When asked (unprompted) what they saw as the major potential benefits of compost, a few common themes emerged. These have been coded, with the results shown in Graph 3.3. In the absence of further information, most defaulted to compost's environmental credentials – that it was natural, and/or better for the soil. One out of ten believed it would be cheaper than fertilizer, while 5% pointed to the fact it lasts longer.

("Other" pointed to factors such as its ability to build organic matter in the soil and/or retain moisture, aiding worm growth, the fact that it is produced locally, and that it's a good use for green waste.)

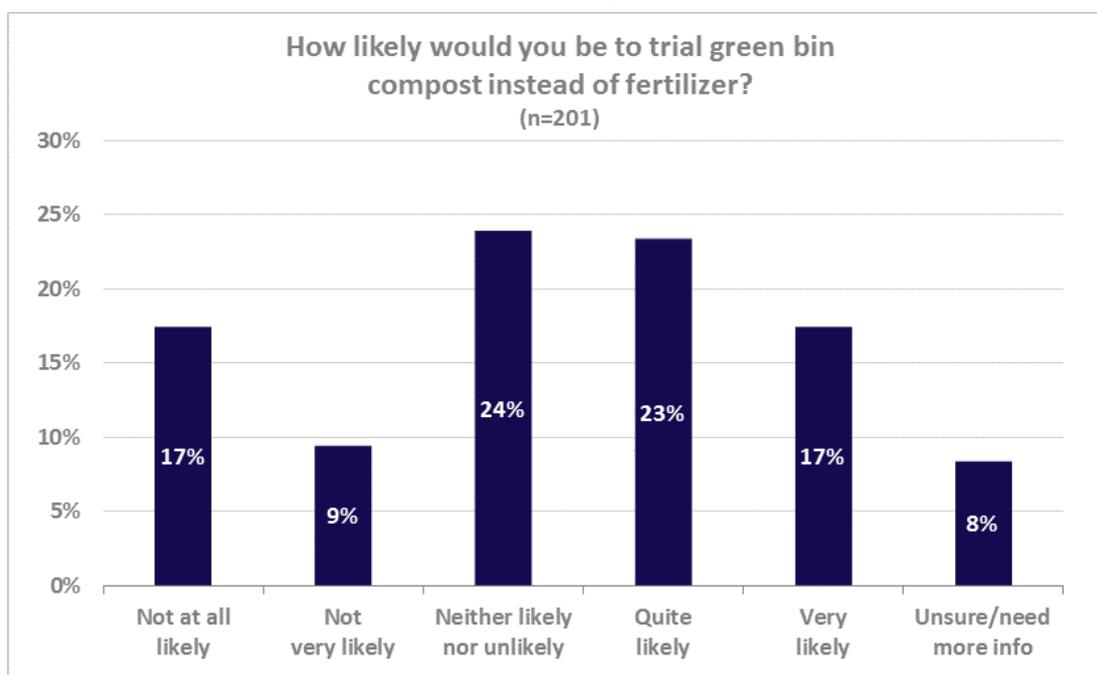
Graph 3.4: What do you see as the possible drawbacks of using this compost as a soil improver?



When asked about possible drawbacks, a larger range of specific concerns emerged. These focussed mainly on the possibility of contamination (raised unprompted by 41% of all respondents), cost to buy (27%) or apply (24%) and whether it would require a different spreader (17%). Cost of transport was also raised a number of times, along with perceived issues with bulkiness and the (perceived) need to co-ordinate spreading with rainfall.

Other comments focussed on bio-security concerns, slow returns vis. a vis. fertilizer, lack of nitrogen, need for regular rainfall and (conversely) fears regarding run-offs.

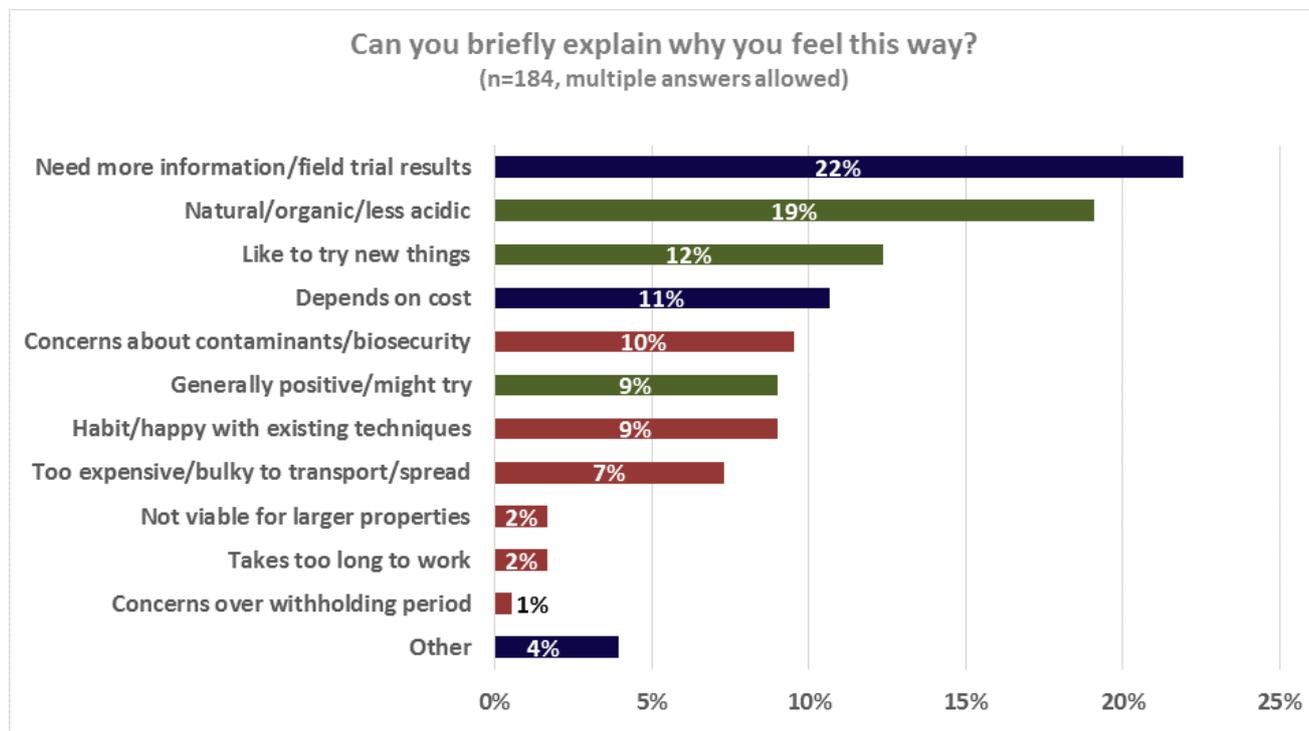
Graph 3.5: How likely would you be to trial green bin compost, if the overall costs were roughly the same?



When asked how likely they would be to trial green bin compost, 40% said they were likely or very likely – with 17%, or almost one in five, in the "very likely" category. This is encouraging.

Respondents (except for those "unsure") were then asked why they felt this way, with the unprompted responses coded in Graph 3.6 (next page):

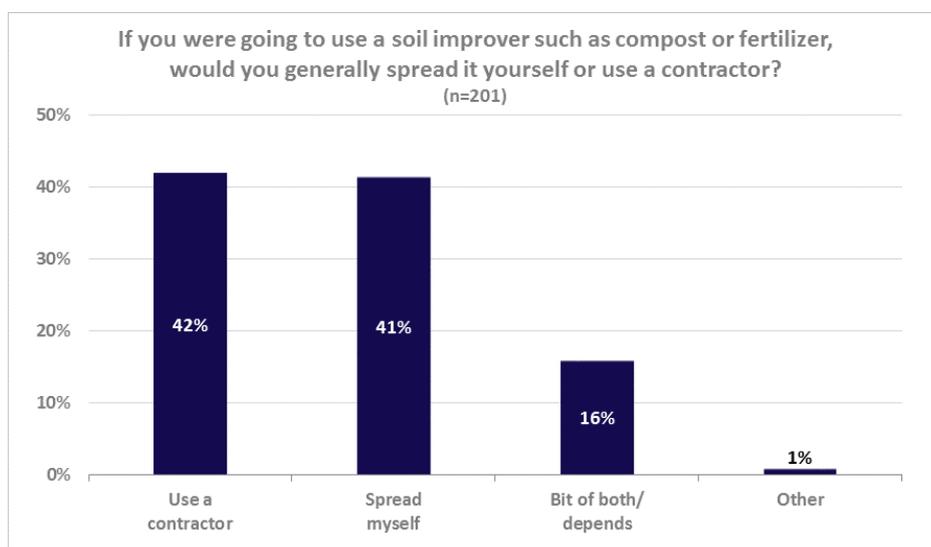
Graph 3.6: Can you briefly explain why you feel this way?



Of those generally positive to trial (green bars), main reasons were compost's environmental benefits, a willingness to try new ideas, and a general feeling of positivity towards compost. Of those negative (red bars) the same issues arose around contamination fears, likely cost, bulkiness and – to a lesser extent – slower nutrient release.

These are the concerns that must be addressed head-on for a successful large-scale trial.

Graph 3.7: Would you generally spread compost or fertilizer yourself, or use a contractor?



As to how they typically spread fertilizer and/or compost, views were evenly split between those preferring to do it themselves, and those preferring to use a contractor. Larger farms were more likely to prefer the use of contractors (47% of respondents with 300 or more hectares, vs. 35% of those with smaller farms).

Part 4: Key information sources

Graph 4.1: Where do you get most of your information on soil quality or other farming issues?



The survey concluded with respondents asked (in an unprompted question) to nominate their preferred source of information on soil quality and other farming issues. Local agronomists and agricultural produce suppliers were far and away the major sources noted, highlighting their importance as key influencers in any rollout. Field days were also a popular source on information, along with friends and neighbours – highlighting the importance of networking opportunities as a way of spreading information.

Interestingly neither "old" nor "new" media featured prominently as key information sources – though it's likely they remain important secondary (i.e. less "top-of-mind") sources of influence.

While "other" covered a wide variety of information sources, half were along the lines of "myself/personal experience/trial and error" etc. – suggesting a possible concern around complacency and/or unwillingness to try new ideas.

Appendix 1: Questionnaire

Version 1

5497_NCLLS_2019

Last modified:16/05/2019 12:14:50 PM

- Q1. Hi my name is (name) and I'm calling from Jetty Research on behalf of North Coast Local Land Services, previously the Catchment Management Authority. We are conducting a short research survey of North Coast beef farmers around the issue of soil quality and pasture improvement. The survey takes around 10 minutes, all answers are confidential, and we're not trying to sell anything.**

Would you be willing to assist North Coast Land Services by answering a few questions now or at a more convenient time?

Offer a CALL BACK between 2:00 - 7:00pm. To verify call Mark Asquith 6659 9408 (North Coast Local Land Services)

Yes	1	
No	555	

Answer If Attribute "No" from Q1 is SELECTED

Q1

- Q2. Thank you for your time. Have a great afternoon/evening.**

End

- Q3. I just have a few quick qualifying questions. Firstly can you confirm you are a cattle farmer with 100 or more head of cattle?**

Yes	1	
No	555	Go to Q2

Q3

- Q4. And is your property located between Port Macquarie and the Queensland border and within 100km (roughly) of the coast?**

NO will terminate

Yes	1	
No	555	Go to Q2

Q4

Q5. Great! May I just have your first name for the survey?

Only to refer to you by name

Q5

Q6. Thanks so much [Q5], to kick things off, how many properties do you currently own or manage?

UNPROMPTED

1	1
2	2
2	3
4	4
5 or more	5

Q6

Q7. And in total, roughly how many hectares of grazing land would this include?

If they say acres, halve the amount e.g 50 acres = 25 hectares

<100	1
101-200	2
201-300	3
301-400	4
401-500	5
501-600	6
601-700	7
701-800	8
801-900	9
901-1000	10
More than 1000	11
Unsure	12

Q7

Q8. And roughly how many cattle are you currently running?

UNPROMPTED

1-50	1
51-100	2
101-200	3
201-500	4
501-1000	5
1001+	6

Q8

Q9. What do you think is the maximum stock you could manage across all your paddocks? (i.e. in the best conditions?)

UNPROMPTED

1-50	1
51-100	2
101-200	3
201-500	4
501-1000	5
1001+	6

Q9

Q10. Do you own your farm, or are you a manager?

UNPROMPTED

Owner	1
Manager	2
OTHER	

Q10
Q10

Q11. [Q5], which of the following pasture management techniques do you use?

PROMPTED - tick any that apply

Continuous grazing	1	Q11_1
Set stocking	2	Q11_2
Rotation grazing	3	Q11_3
Cell grazing (intense set stocking)	4	Q11_4
Pasture improvement	5	Q11_5
Pasture cropping	6	Q11_6
Cover cropping	7	Q11_7
Dryland pasture	8	Q11_8
Irrigated pasture	9	Q11_9
OTHER		Q11_O

Q12. And roughly how many paddocks would this include for set stocking or cell grazing?

*Answer If Attribute "Set stocking" from Q11 is SELECTED OR
Answer If Attribute "Cell grazing (intense set stocking)" from Q11 is SELECTED*

RECORD number.

Q12

Q13. And roughly how often would you move cattle from paddock to paddock?

*Answer If Attribute "Set stocking" from Q11 is SELECTED OR
Answer If Attribute "Cell grazing (intense set stocking)" from Q11 is SELECTED*

Still on set stocking or cell grazing

Daily	1
Few times a week	2
Weekly	3
Fortnightly	4
Monthly	5
As grass/cover dictates	6
OTHER	

Q13

Q14. And [Q5] which of the following products have you used as pasture improvers within the past three years or so?

PROMPTED - tick any that apply

Superphosphate	1
A nitrogen-based fertilizer (including urea, chicken poo etc.)	2
Lime	3
Commercial compost	4
Home-made compost	5
Water soluble fertilizer	6

Q14_1
Q14_2

Q14_3
Q14_4
Q14_5
Q14_6

Q15. Is there anything else you have used over the past three years or so to improve your soil?

PROBE or type no

Q15

Q16. On average, how often would you apply at least some product to your pastures? Would it be:

PROMPTED

Annually or more	1
Every couple of years	2
Every few years	3
Seldom/never	4

Q16

Q17. Now [Q5], prior to this call had you heard of compost sourced from domestic green waste?

Yes	1
No	555
Unsure	666

Q17

Q18. Compost is a combination or organic materials such as mulch, garden organics, food waste, manure etc, that has undergone a composting process. This project utilises New South Wales EPA certified compost processed from organic materials commonly sourced from domestic green bins..

What are your initial thoughts on this product as a potential soil improver?

PROBE

Q18

Q19. So based on the description I just gave you, what do you think might be some advantages of using this compost as a pasture improver?

UNPROMPTED - tick any mentioned

Cheaper than fertilizer	1
Lasts longer than fertilizer	2
Better for the soil/less acidic	3
More natural	4
No run-off to waterways	5
Unsure	666
OTHER	

Q19_1
Q19_2
Q19_3
Q19_4
Q19_5
Q19_6
Q19_O

Q20. And what do you think might be some drawbacks of using commercially produced compost on your paddocks?

UNPROMPTED - tick any mentioned

Too bulky	1
Too expensive product	2
Too expensive to apply	3
Cost of transport	4
Not as effective	5
Take too long to work	6
Needs a different spreader	7
Would require a contractor	8
Unsure about quality/foreign matter (e.g. plastics)	9
Withholding period	10
Coordinating spreading with rainfall too difficult	11
Unsure	666
OTHER	

Q20_1
Q20_2
Q20_3
Q20_4
Q20_5
Q20_6
Q20_7
Q20_8
Q20_9
Q20_10
Q20_11
Q20_12
Q20_O

Q21. On a scale of 1-5, where 1 is not at all likely and 5 is very likely, how likely would you be to trial green bin compost instead of fertilizer, assuming the overall costs were roughly the same?

Confirm correct scale

1 - Not at all likely	1
2	2
3	3
4	4
5 - Very likely	5
Unsure/need more info	6

Q21

Q22. Can you briefly explain why you gave a score of [Q21]?

Do not answer if Attribute "Unsure/need more info" from Q21 is SELECTED

PROBE

Q22

Q23. And if you were going to use a soil improver such as compost or fertilizer, would you generally spread it yourself or use a contractor?

UNPROMPTED

Spread myself	1
Use a contractor	2
Bit of both/depends	3
OTHER	

Q23

Q24. We are almost to the end [Q5]. On a slightly different topic, where do you get most of your information on soil quality or other farming issues?

UNPROMPTED. Probe and tick any that apply.

Local Land Services	1	Q24_1
The Land	2	Q24_2
Other magazines/newspapers (RECORD which ones in other)	3	Q24_3
Internet (RECORD what site in other)	4	Q24_4
From neighbours	5	Q24_5
Agricultural suppliers/produce store	6	Q24_6
Local agronomists	7	Q24_7
Other industry experts (RECORD which one/s in other)	8	Q24_8
At field days, demonstrations etc.	9	Q24_9
OTHER		Q24_0

Q25. Now just some demographics to finish off. Firstly into which of the following age ranges would you fit?

PROMPTED

18-39	1
40-59	2
60-69	3
70+	4

Q25

Q26. Gender?

DONT ASK

Male	1
Female	2

Q26

Q27. May I have your postcode?

Q27

Q28. Just before we finish, North Coast Local Land Services will soon be running a one-year field trial of EPA-certified compost for beef farmers in the Clarence Valley. Would you like to kept up to date with how it goes?.

IF YES - Could I just have your email address please?

READ BACK EMAIL or type full postal address.

No	555
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Q28
Q28

Q29. Thanks so much [Q5], that's the end of the survey. North Coast Local Land Services greatly appreciates your time and feedback. Did you have any questions? Thanks again and have a great afternoon/evening.

End