



Feeding Food Waste to Pigs Survey Report

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1	EXECUTIVE SUMMARY	1
2	BACKGROUND	2
3	SURVEY METHODOLOGY	2
3.1	Pre-testing	2
3.2	Contact details	3
3.3	Survey documents	3
3.4	Survey incentive	3
4	SURVEY RESULTS	4
4.1	Response	4
4.2	Visits to the MPI webpage	5
4.3	Food waste usage survey responses	6
	Appendix-A: Cover Letter	13
	Appendix-B: Pamphlet on Feeding Food Waste to Pigs	14
	Appendix-C: Food Waste Usage Survey Questionnaire	15
	Appendix-D: Biosecurity Awareness Quiz	16
	Appendix –E: Biosecurity Awareness Quiz Results	17
Q1	What is the correct heat treatment?	17
Q2	How do the Food Waste Feeding Regulations define “Meat”?	18
Q3	What is the purpose of the Food Waste Feeding Regulations?	19
Q4	The maximum fine for individuals feeding non-compliant food waste to pigs	20
Q5	Must cooked meat be treated before feeding to pigs?	21
Q6	Who can approve alternative treatment standards?	22

1 EXECUTIVE SUMMARY

This report presents the findings of the Feeding Food Waste to Pigs Survey that was conducted by the Ministry of Primary Industries (MPI) in 2013. This postal survey was carried out to improve understanding of the nature and extent to which pigs are fed food waste in New Zealand. Improved information was considered desirable to assist in:

- ensuring compliance with the Food Waste Feeding Regulations, including development of effective communication programmes targeting those feeding food waste to pigs;
- any potential review of the Food Waste Feeding Regulations.

Key findings of the survey are:

- 902 (12%) unique responses were received from the 7451 survey documents that were posted out to persons on MPI's FarmsOnLine database listed as owning pigs.
- Of the 902 responses received, 388 (43%) reported as owning pigs at the time of answering the survey questions, and 514 (57%) did not own pigs.
- Of the 388 pig-owning respondents, 315 (81%) owned between 1 and 10 pigs.
- 315 (81%) of the 388 pig-owning respondents fed food waste to their pigs either regularly or occasionally.
- 230 (73%) of the 388 pig-owning respondents estimated the quantity of food waste they fed their pigs at up to 10kg/week/property.
- For 239 (76%) of the 388 pig-owning respondents, food scraps generated in their own household or scraps from friends and neighbours were the only source of food waste for their pigs, with the other 24% also sourcing from trade sources.
- 166 (53%) of the 315 food waste feeding respondents stated that they were absolutely certain that the food waste they fed their pigs did not contain/had not come into contact with meat, while 138 (44%) indicated that it contained / possibly contained meat, or may have possibly come into contact with meat (cooked or uncooked).
- Of the 138 respondents who reported feeding their pigs food waste that may possibly have contained meat, 135 (98%) of them estimated the meat content to be up to 15% of the food waste.

This report also includes the results of the quiz on the Biosecurity (Meat and Food Waste for Pigs) Regulations 2005, which was conducted as part of the survey. The results support that the great majority of the respondents understood the requirements under the Food Waste Feeding Regulations at the time of completing the quiz. An information sheet on the regulations was included in the mail-out.

2 BACKGROUND

In view of the internationally recognised importance of the waste feeding pathway in potentially transmitting exotic diseases, including foot and mouth disease, MPI (the then Ministry of Agriculture and Forestry, MAF) developed the Biosecurity (Meat and Food Waste for Pigs) Regulations 2005. Under these regulations, food waste containing meat, or that has come in contact with meat, must be heated to 100°C for one hour before being fed to pigs.

MPI has very little information on the nature and extent of feeding food waste, including food by-products, to pigs. Improved information was considered desirable to assist in:

- ensuring compliance with the Food Waste Feeding Regulations, including development of effective communication programmes targeting those feeding food waste to pigs;
- any potential review of the Food Waste Feeding Regulations.

In order to inform regulated parties of their obligations under the regulations, MPI has used a variety of media channels to communicate regulatory information to the stakeholders. The media channels include publishing information on MPI's website (www.biosecurity.govt.nz/foodwaste), articles in magazines and newspapers, distributing pamphlets at Fieldays and agricultural fairs, radio broadcasts, and putting up an animation on YouTube (www.youtube.com/watch?v=IJsUsspqA9s&feature=youtu.be).

Information on the Food Waste Feeding Regulations was included along with the posted survey documents. Consequently, the Feeding Food Waste to Pigs Survey was simultaneously a data collection exercise and a further communication campaign.

3 SURVEY METHODOLOGY

The Feeding Food Waste to Pigs Survey was carried out by post.

An option to complete the survey through the Internet was also offered through the link www.mpi.govt.nz/foodwastesurvey. As well as facilitating responses for people with internet access, this minimised post-survey data entry costs for MPI. The online survey was hosted on SurveyMonkey's website (www.surveymonkey.com).

3.1 PRE-TESTING

The Food Waste Usage Survey Questionnaire and the Biosecurity Awareness Quiz were pre-tested internally within MPI. Feedback was requested and provided by NZPork, who were also asked by MPI to arrange for some pig farmers to pre-test the proposed questionnaire and quiz. Ten farmers contributed.

3.2 CONTACT DETAILS

The contact details of pig owners were obtained from MPI's FarmsOnLine (FOL) database (<https://farmsonline.mpi.govt.nz>). The FOL database contained 7468 addresses of properties that were listed as having pigs.

Details on the FOL database were corrected by matching them to New Zealand Post's Postal Address File. The number of survey letters that were finally posted was 7451.

The survey envelopes were lodged with New Zealand Post on 17 October 2013.

3.3 SURVEY DOCUMENTS

The following documents were mailed out to the addressees as part of the survey:

- *Cover Letter*: This document described the purpose of the survey (Appendix-A).
- *Pamphlet on Feeding Food Waste to Pigs*: A one-page information sheet on the Food Waste Feeding Regulations targeted at pig owners (Appendix-B).
- *Food Waste Usage Survey Questionnaire*: This was the instrument for collecting the food waste usage data (Appendix-C).
- *Biosecurity Awareness Quiz*: This questionnaire (Appendix-D) was designed to test the respondents' understanding of the requirements under the Food Waste Feeding Regulations after reading the pamphlet on feeding food waste to pigs.
- *Postage Paid Envelope*: This was included to facilitate the return of the completed survey document.

The deadline for receiving response was 15 November 2013.

3.4 SURVEY INCENTIVE

To encourage response, MPI offered respondents the chance to win a Prezzy gift card worth \$300.

The winner was Dara Robbie of 255 Haunui Road, RD 3, Eketahuna 4996.

4 SURVEY RESULTS

4.1 RESPONSE

The below table presents the data on the survey response.

	Return Response	Number (%)
1.	Envelopes returned to MPI unopened (Return to Sender/Gone No Address)	1103 (14.8)
2.	Recipients used the reply envelopes to advise MPI that they either no longer owned pigs, or MPI's database was incorrect as they never owned pigs, or addressee is deceased.	72 (1.0)
3.	Recipients emailed MPI to advise that they either no longer owned pigs, or MPI's database was incorrect as they never owned pigs, or addressee is deceased.	17 (0.2)
4.	Recipients phoned MPI to advise that they either no longer owned pigs, or MPI's database was incorrect as they never owned pigs, or addressee is deceased.	51 (0.7)
5.	Recipients used the reply envelopes to return the survey documents completely unanswered.	4 (0.1)
6.	Recipients submitted paper-based survey documents <i>[This figure excludes the eight duplicates indicated below. Fifty-five of those who submitted paper-based survey documents chose to remain anonymous.]</i>	863 (11.6)
7.	Recipients completed the survey online <i>[Note: All those who completed the survey online provided their contact details.]</i>	39 (0.5)
8.	Duplicate responses <i>[Multiple survey documents were sent to the same street address, which enabled submission of duplicates.]</i>	8 (0.1)
9.	Envelopes whose statuses are unknown <i>[This number was derived by subtracting the sum of the numbers in rows 1 to 8 from 7451, which was the total number of envelopes dispatched.]</i>	5294 (71.0)
TOTAL		7451 (100%)

After deletion of the eight duplicates (Row # 8 in the above table), a total of 902 unique responses (863 paper-based responses and 39 online responses) were considered for computing the results of the survey. This calculates to a response of 12%.

The “Return to Sender” envelopes and the contact details of those who phoned, emailed and responded to the survey were passed on to the FarmsOnLine Team at MPI for updating the database.

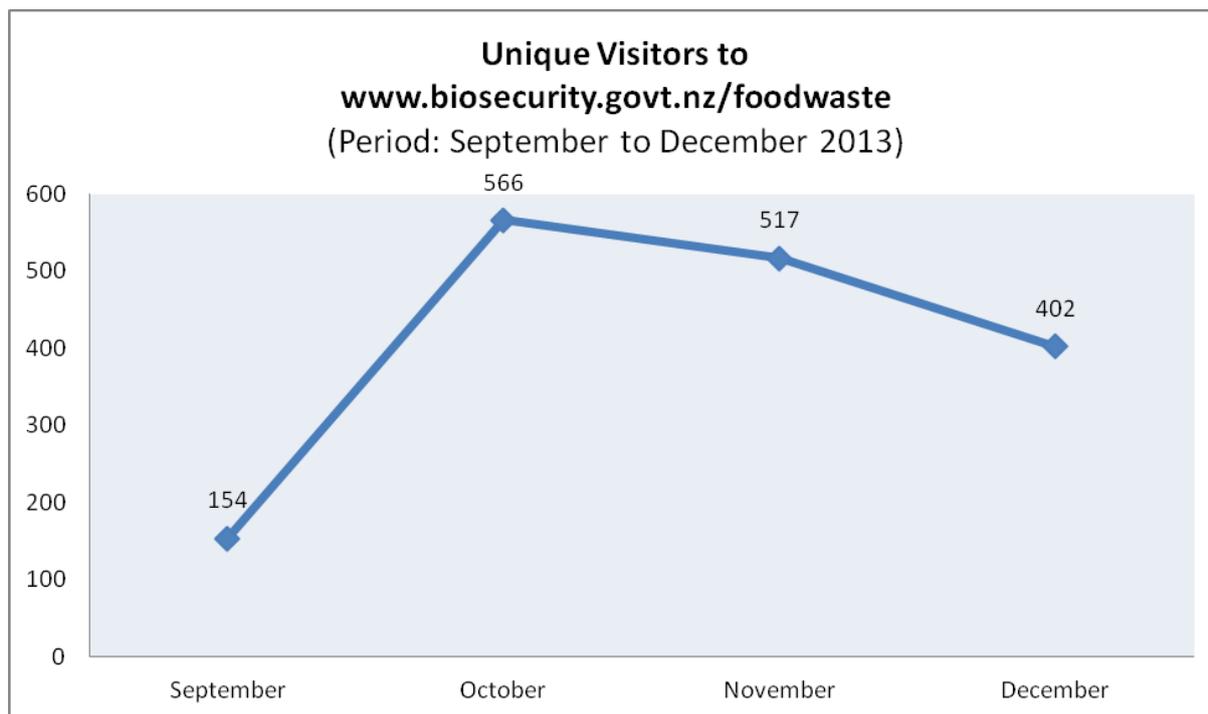
4.2 VISITS TO THE MPI WEBPAGE

MPI maintains a webpage – www.biosecurity.govt.nz/foodwaste – that provides information on the Food Waste Feeding Regulations. One of the communications objectives of the survey was to increase the visibility of this webpage so that pig owners know where to find information regarding these regulations.

The above communications objective was intended to be achieved by not only making the respondents aware of the webpage URL on the survey cover letter but also by including a question (Question # 6: *Who can approve alternative treatment standards?*) in the Biosecurity Awareness Quiz whose answer was not in the pamphlet sent to them but on the webpage. While it was possible to choose the correct answer through logical reasoning, the hint in Question # 6 urged the respondents to visit the webpage for the answer.

There was more than a three-fold increase in the number of unique visitors (numbering 566 in October 2013) to the Food Waste Feeding Regulations webpage compared to the pre-survey visitor number of 154 in September 2013. However, it must be noted that some of the web traffic may have originated from the Lifestyle Block website (www.lifestyleblock.co.nz) where a banner advertisement on the Food Waste Feeding Regulations was placed for a three month period starting from the last week of October 2013. Clicking the banner advertisement took the visitor to MPI's webpage on the Food Waste Feeding Regulations.

The chart below presents data on the number of unique webpage visitors for the period September to December 2013, with September 2013 being the pre-survey data.



4.3 FOOD WASTE USAGE SURVEY RESPONSES

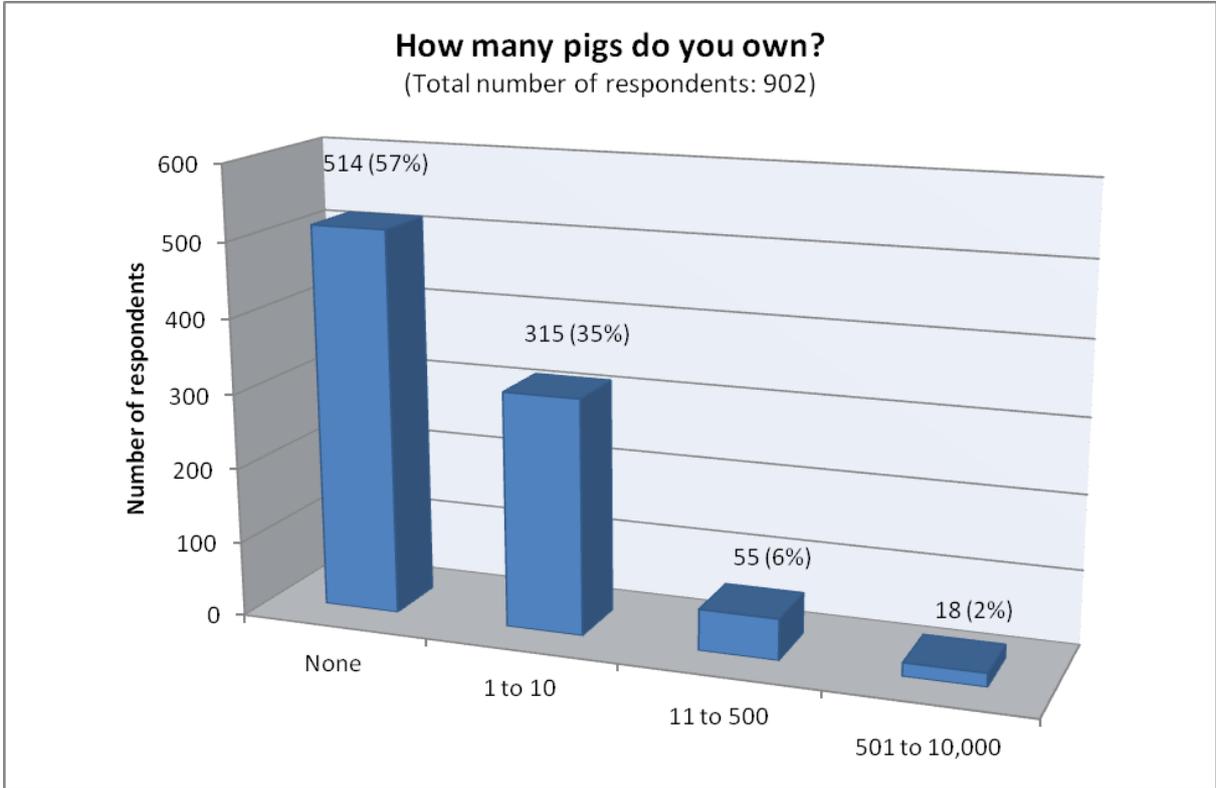
In the following sections, descriptive statistics of the seven questions in the Food Waste Usage Survey are presented.

4.3.1 How many pigs do you own?

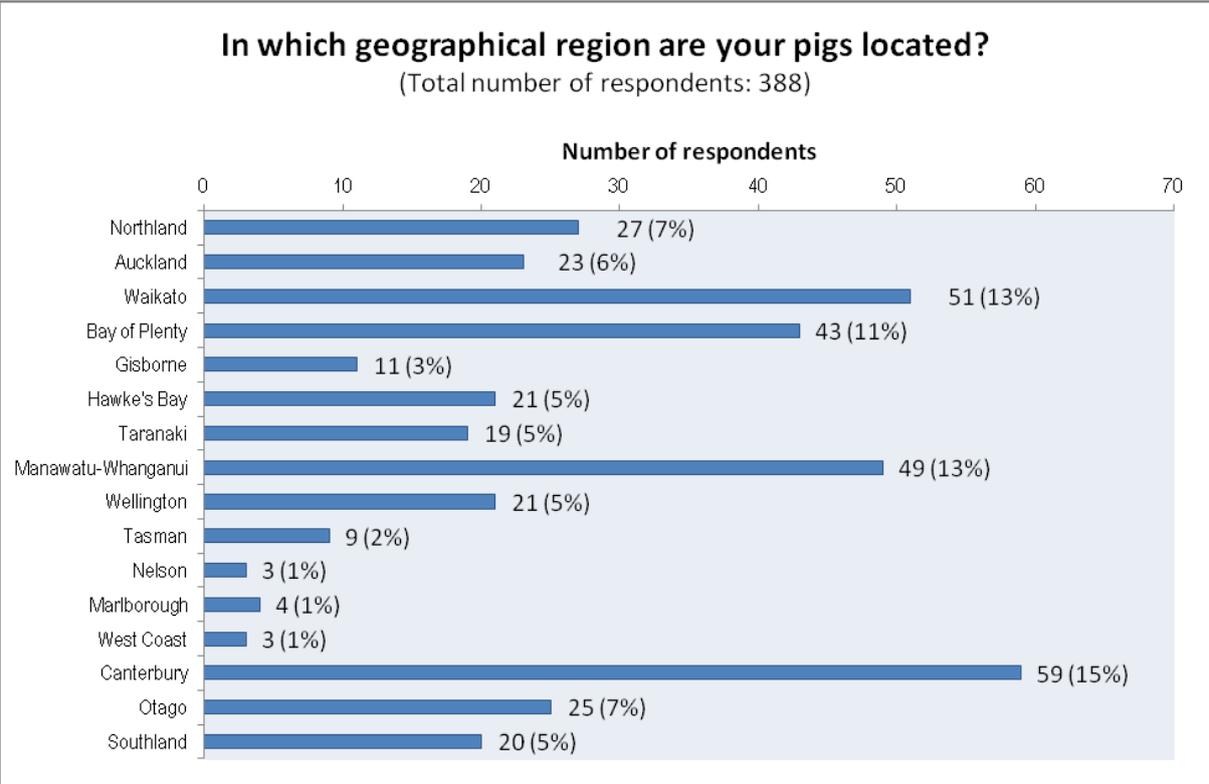
This was a filter question. Anybody answering “None” to this question was not required to respond to the remaining questions in the Food Waste Usage Survey document.

514 (57%) of the 902 respondents did not own any pigs at the time of answering the survey questions.

Of the 388 respondents who replied that they did own a pig or pigs, 315 (81%) owned between 1 and 10 pigs.

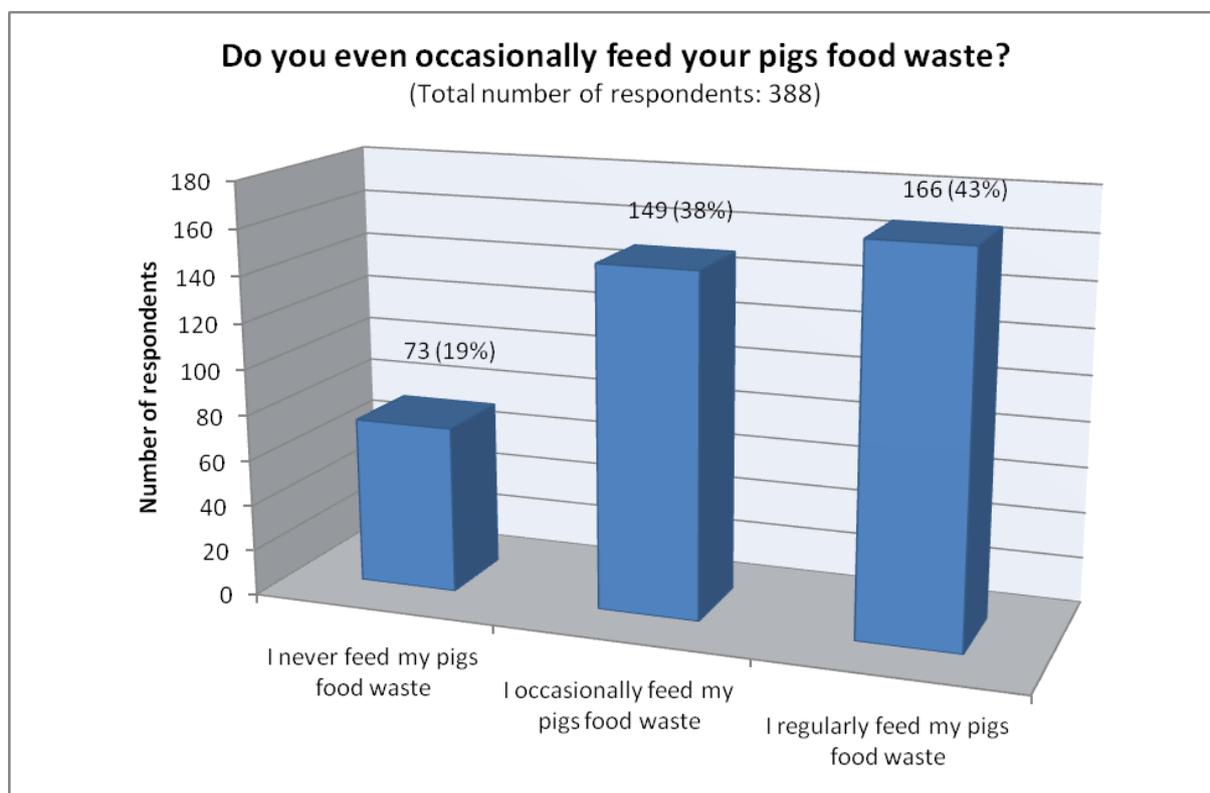


4.3.2 In which geographical region are your pigs located?



4.3.3 Do you even occasionally feed your pigs food waste?

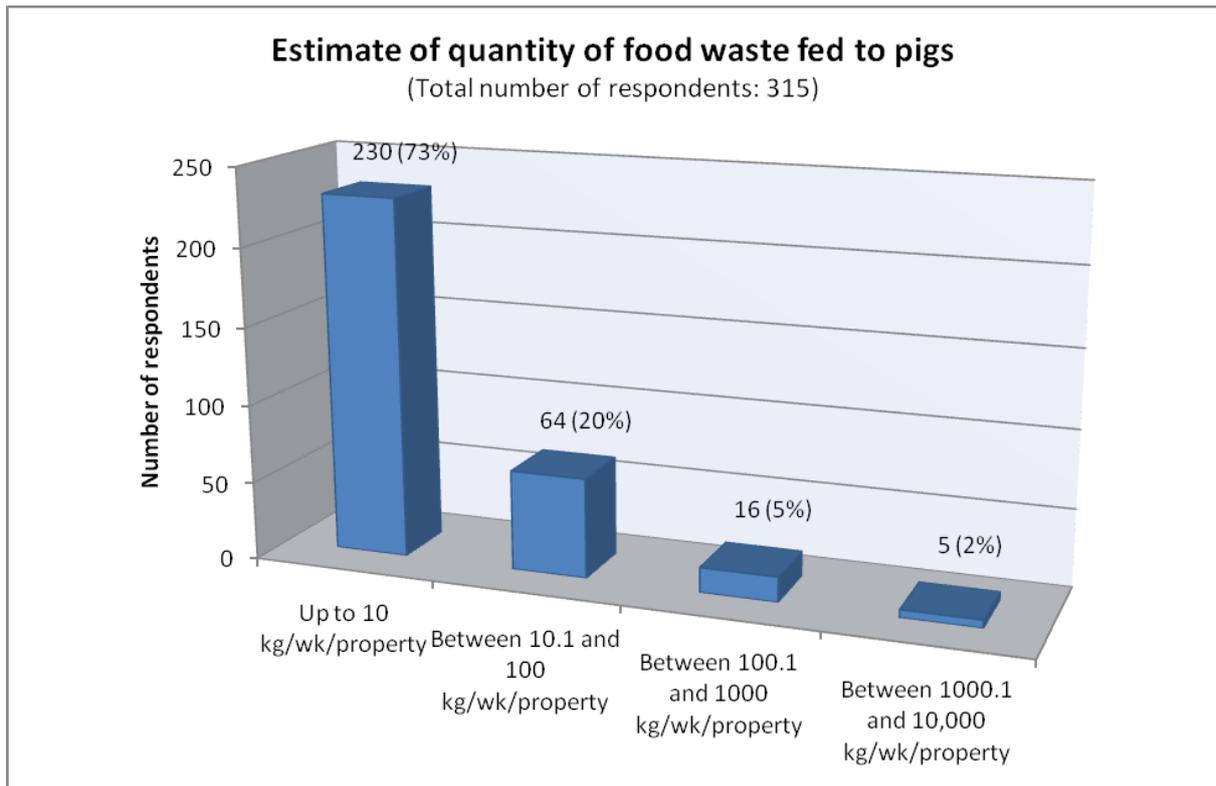
315 (81%) of the 388 pig-owning respondents reported feeding food waste to their pigs either regularly or occasionally.



4.3.4 Estimate of quantity of food waste fed to pigs.

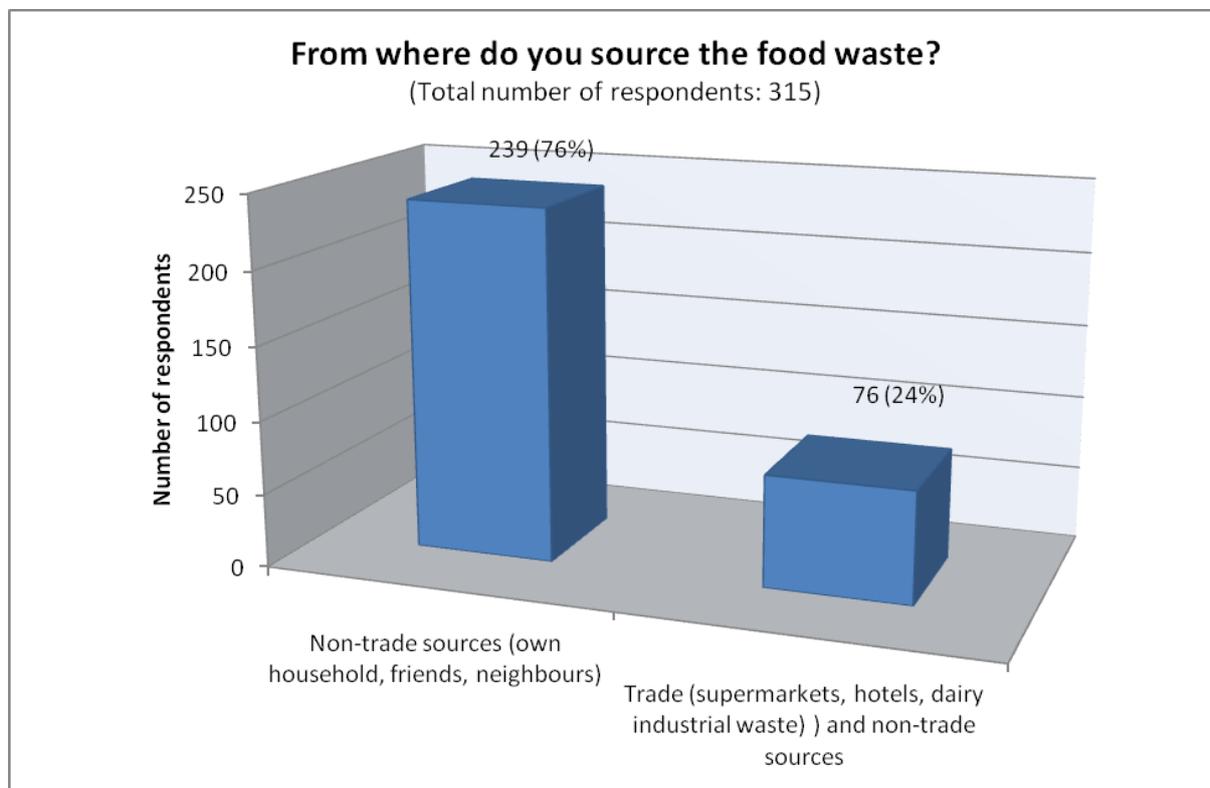
This was an open-ended question, with the respondents being asked to write the quantity (in kg/week/property) of how much food waste they fed their pigs.

It was recognised at the time of drafting of the survey questionnaire that answering this question would be a challenge for respondents as it is unlikely that pig owners keep precise records of the quantity of food waste they give to their animals.



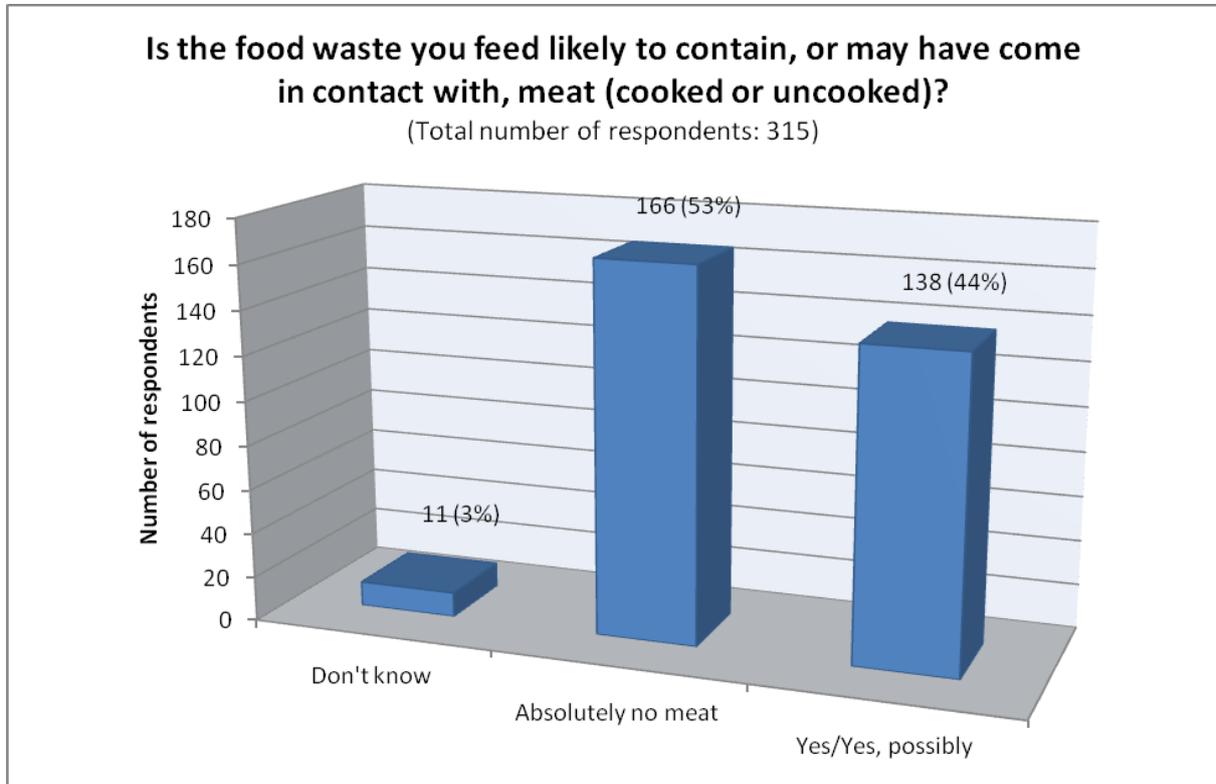
4.3.5 From where do you source the food waste?

The results obtained from these respondents demonstrated that food scraps generated in their own household or scraps from friends and neighbours was the most common source of food waste for their pigs.



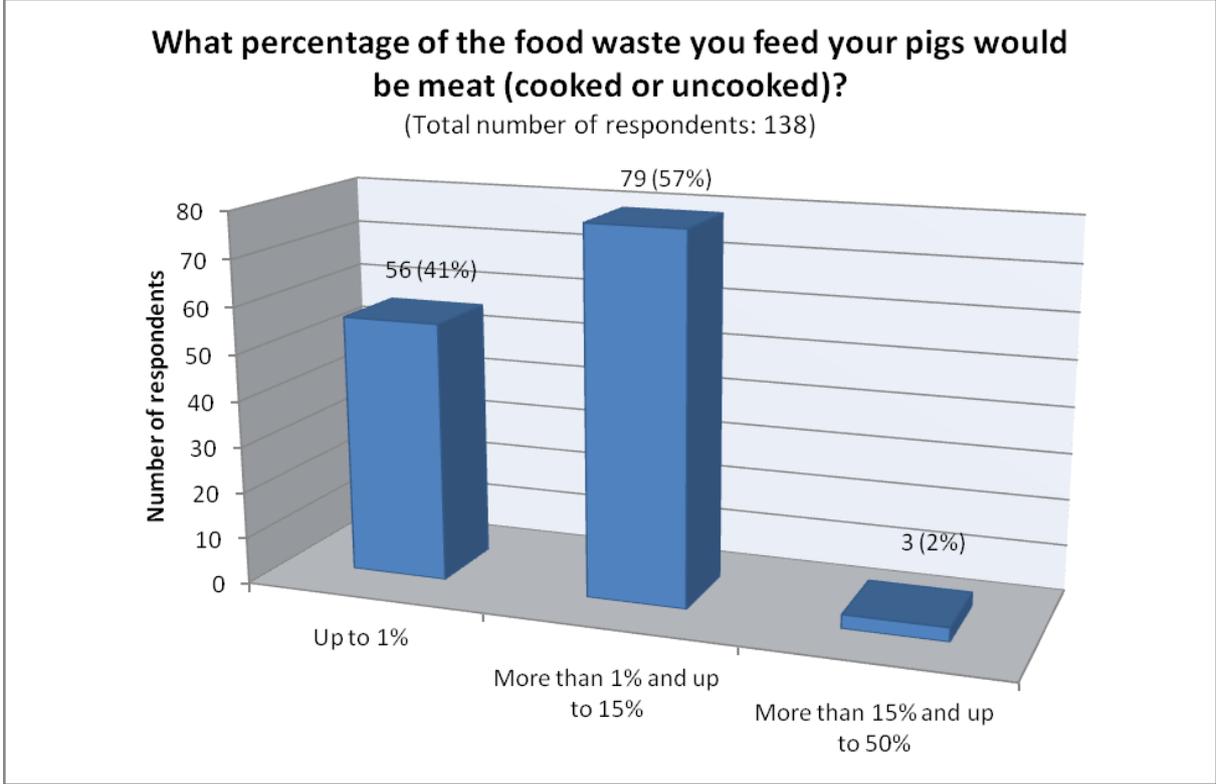
4.3.6 Is the food waste you feed likely to contain, or may have come into contact with, meat (cooked or uncooked)?

Of the 315 respondents who reported feeding food waste to their pigs, 166 (53%) of them stated that they were absolutely certain that the food waste they fed their pigs did not contain meat (cooked or uncooked), or had not come into contact with meat.



4.3.7 What percentage of the food waste you feed your pigs would be meat (cooked or uncooked)?

Respondents who reported feeding food waste to their pigs that may/may possibly have contained meat (cooked or uncooked) were asked to estimate the percentage of meat (cooked or uncooked) in the food waste they fed the pigs.



Appendix-A: Cover Letter

Ministry for Primary Industries
Manatū Ahu Matua



14 October 2013

Address1
Address2
Address3
Address4
Address5

This \$300 Prezzy Card could be yours



Dear owner_init owner_surn

Complete our Biosecurity Awareness Quiz and win!

Answer six easy questions on the enclosed quiz, complete the Food Waste Usage Survey questionnaire and you will go into the draw to win a Prezzy Card (www.prezzycard.co.nz) worth \$300! You can also answer online, just go to this link: www.mpi.govt.nz/foodwastesurvey

The Ministry for Primary Industries (MPI) is using the quiz to inform you about the requirements under the **Biosecurity (Meat and Food Waste for Pigs) Regulations 2005**. Anyone keeping pigs need to be aware of these. You are receiving this letter because in our database you are listed as owning pigs.

Feeding food waste to pigs is a common practice in New Zealand. Unfortunately, not enough is known about the extent of this practice. The Food Waste Usage Survey is an attempt to fill this gap. With your help, we hope to collect reliable information that would be useful to MPI for developing a more effective communications programme or for amending the Food Waste Feeding Regulations, if needed.

Responses received by **Friday 15 November 2013** will go into the prize draw (provided you have indicated to be included in the draw)—so grab a pen, read the enclosed **Feeding food waste to pigs** pamphlet, visit our website www.biosecurity.govt.nz/foodwaste, and start ticking the answers. A postage paid envelope is included. We will notify the winner by post.

MPI thanks you in advance for your time and effort in responding to the quiz and the survey.

If you have any question about this survey, please contact me on 04-894 0550 or email me at foodwaste@mpi.govt.nz.

Yours sincerely

Nasser Ahmed
Senior Adviser (Animal Imports)
Animal Imports Team

Growing and Protecting New Zealand

Standards Branch
Animal and Animal Products Directorate
Pastoral House, 25 The Terrace, PO Box 2526
Wellington 6140, New Zealand
Telephone: +64-4 894 0550, Facsimile: +64-4-894 0733
www.mpi.govt.nz

Appendix-B: Pamphlet on Feeding Food Waste to Pigs



Ministry for Primary Industries
Manatū Ahu Matua



FEEDING FOOD WASTE TO PIGS



RESTRICTIONS ON FEEDING MEAT AND FOOD WASTE TO PIGS

Illegally imported meat may harbour important exotic epidemic diseases such as foot and mouth disease (FMD) and the swine fevers. Feeding such meat to pigs can spread these diseases. For example, feeding contaminated food waste to pigs is considered to be the most likely cause of the 2001 FMD outbreak in the United Kingdom.

Despite border control measures to manage the biosecurity risks associated with importing meat products into New Zealand, unauthorised meat products could potentially enter the country. To supplement the border control measures the Ministry for Primary Industries developed the **Biosecurity (Meat and Food Waste for Pigs) Regulations 2005**.

DON'T GIVE UNTREATED MEAT AND FOOD WASTE TO PIGS

Food waste that contains meat or has come into contact with meat must be heated to 100°C for one hour before you can safely feed it to pigs. The easiest way to do this is to boil the untreated food waste for one hour while stirring frequently; the temperature must be maintained at boiling point for the whole one hour. By treating food waste according to these rules, any disease-causing bacteria and viruses present will be destroyed.

This treatment requirement applies to all food waste that contains raw or cooked meat or food waste that has *come into contact with* raw or cooked meat. It applies to both commercial food waste and household food waste.

FEEDING NON-COMPLIANT FOOD WASTE TO PIGS, OR ALLOWING NON-COMPLIANT FOOD WASTE TO BE FED, IS AN OFFENCE. FOR INDIVIDUALS THE FINE CAN BE UP TO \$5,000, WHILE CORPORATIONS CAN BE FINED UP TO \$15,000.

www.mpi.govt.nz

FOOD WASTE FROM TRADE SOURCES

If you collect food waste from a trade source (such as a hospital, a supermarket or a food business) the supplier may ask for written confirmation that you will use the food waste according to the rules. The supplier may ask you to do so even if the food waste does not contain meat or has not come into contact with meat. The supplier may pass on your contact details to MPI. Having a register of all parties involved in the food waste supply chain allows MPI to provide updates and information on the food waste rules.

WHAT IS "MEAT"?

The regulations define "meat" as any material taken or derived from an animal, with the exception of egg, milk and rendered material. Egg and egg products, milk and milk products, and rendered material (such as tallow, blood meal, meat and bone meal) don't need to be heat treated.

DEFAULT IS TO HEAT TREAT FOOD WASTE

If you are not sure what is in the food waste, or unsure whether it has been heat treated, you must assume it contains meat and heat it to 100°C for an hour before feeding it to your pigs. Alternatively, you can ask your supplier for a declaration that the food waste was either treated according to the rules or that it does not contain meat or has not come into contact with meat.

FOR MORE INFORMATION

You can find more information on the meat and food waste regulations at www.biosecurity.govt.nz/foodwaste. You can also email your query to foodwaste@mpi.govt.nz.



June 2013

New Zealand Government

Growing and Protecting New Zealand

Appendix-C: Food Waste Usage Survey Questionnaire

FOOD WASTE USAGE SURVEY

Ministry for Primary Industries
Manatū Ahu Matua



Feeding food waste to pigs is a common practice in New Zealand. Unfortunately, not enough is known about the extent of this practice. This survey is an attempt to fill this gap. With your help, we hope to collect reliable information that would be useful to MPI for developing a more effective communications programme or for amending the Food Waste Feeding Regulations, if needed, MPI appreciates your time and effort for participating in this survey.

1. How many pigs do you currently have? We are asking this to find out if there is any association between the size of a farm and the practice of food waste feeding.

None. You don't need to answer the remaining survey questions. Please post this questionnaire after completing the Biosecurity Awareness Quiz on the other side of this page.

I currently have _____ pigs (including piglets) in total. Please go to Question 2

2. In which geographical region are your pigs located? We are asking this to find out if the practice of feeding food waste to pigs is more common in certain regions than the others. Answering this question would be particularly useful if you have chosen not to provide your address on the reverse of this page. Please go to Question 3 after answering this.

- Northland
- Auckland
- Waikato
- Bay of Plenty
- Gisborne
- Hawke's Bay

- Taranaki
- Manawatu-Wanganui
- Wellington
- Tasman
- Nelson
- Marlborough

- West Coast
- Canterbury
- Otago
- Southland

3. Do you, even occasionally, feed food waste to your pigs? The food waste could be fruit, vegetables, cereals, milk products, egg products, bread and bakery products, seafood, meat and meat products, or anything other than commercially manufactured pig feed. The food waste could have come from your own kitchen, friends or neighbours, or from "trade" sources such as a food waste trader, hospital, school, supermarket, hotel, or restaurant.

I never, even occasionally, feed my pigs food waste. You don't need to answer the remaining survey questions. Please post this questionnaire after completing the Biosecurity Awareness Quiz on the other side of this page.

I occasionally/regularly (circle the word that best fits your situation) feed my pigs food waste. Please answer Questions 4 to 6.

4. The quantity of food waste I feed my pigs would be about _____ kg/week [rough estimates will do].

5. From where do you source the food waste for feeding your pigs? Please choose one of the two options below.

The food waste comes exclusively from my household, and friends and neighbours. Absolutely NOTHING comes from "trade" sources, such as a food waste trader, hospital, school, supermarket, hotel, or restaurant.

The food waste comes from my household, and friends and neighbours, as well as from "trade" sources such as a food waste trader, hospital, school, supermarket, hotel, or restaurant.

6. Is the food waste you feed your pigs likely to contain, or may have come into contact with, meat (cooked or uncooked)?

Note: The Regulations define "meat" as any material taken or derived from an animal (including fish), with the exception of egg and egg products, milk and milk products, and rendered material (such as meat & bone meal).

No, I am ABSOLUTELY certain that the food waste I feed my pigs does not contain meat (cooked or uncooked), or has not come into contact with meat (cooked or uncooked). Thank you for your responses. You do not need to answer Question 7. Please post this questionnaire after completing the Biosecurity Awareness Quiz on the other side of this page.

Yes/Yes, possibly. Please answer Question 7.

Don't know. Thank you for your responses. You do not need to answer Question 7. Please post this questionnaire after completing the Biosecurity Awareness Quiz on the other side of this page.

7. What percentage of the food waste you feed your pigs would be meat (cooked or uncooked)? _____% [rough estimates will do].

Thank you for your responses. Please post this questionnaire after completing the Biosecurity Awareness Quiz on the reverse.

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Appendix-D: Biosecurity Awareness Quiz

BIOSECURITY AWARENESS QUIZ

Ministry for Primary Industries
Manatū Ahu Matua



Be in to win a \$300 Prezy Card! To go into the draw, you will need to participate in this quiz and complete the Food Waste Usage Survey questionnaire on the reverse of this page. Please provide your contact details below so that we know where to send you the prize, if you win. MPI will keep your contact details confidential. If for any reason you are unwilling to provide your contact details, MPI will still appreciate your answers to the quiz questions and the responses to the Food Waste Usage Survey (on the reverse of this page).

Your name	
Your postal address	

Instructions for the quiz

- Only one of the three options is the correct answer to the question.
(Clue: You can find the answers to Questions 1 to 5 in the enclosed pamphlet – *Feeding food waste to pigs*).
- Mail the completed form in the included postage paid envelope to reach us by **Friday 15 November 2013**.

Question	Tick <input type="checkbox"/> the correct answer
1. According to the Food Waste Feeding Regulations what is the correct time-temperature that food waste that contains meat, or has come into contact with meat, must be heated to before feeding to pigs?	<input type="checkbox"/> 75 degrees Celsius for 30 minutes. <input type="checkbox"/> 100 degrees Celsius for one hour. <input type="checkbox"/> 120 degrees Celsius for one minutes
2. The Food Waste Feeding Regulations define "meat" as:	<input type="checkbox"/> Egg and egg products, milk and milk products, and rendered materials (such as meat and bone meal). <input type="checkbox"/> Fruit and vegetable waste. <input type="checkbox"/> Any material taken or derived from an animal, with the exception of egg and egg products, milk and milk products and rendered material (such as meat and bone meal).
3. The purpose of the Food Waste Feeding Regulations is to ...	<input type="checkbox"/> Prevent the spread of important exotic epidemic animal diseases (such as foot-and-mouth disease) were they to enter the country through illegally imported meat products. <input type="checkbox"/> Control worms in pigs. <input type="checkbox"/> Make the food waste more digestible to the pigs.
4. Feeding non-compliant food waste to pigs is an offence. For individuals, the fine can be up to...	<input type="checkbox"/> \$5,000 <input type="checkbox"/> \$6,000 <input type="checkbox"/> \$10,000
5. Meat cooked for human consumption need not be treated again for feeding to pigs	<input type="checkbox"/> That's right, cooked meat can be fed directly to pigs. <input type="checkbox"/> That's wrong, it needs to be treated again according to the regulations before feeding to pigs. <input type="checkbox"/> Both the above options are wrong; the Food Waste Feeding Regulations prohibit completely the feeding of meat to pigs.
6. Alternative treatment options to the heating requirement of 100°C for one hour can be approved by... Clue: You will find the answer to this question on our website at www.biosecurity.govt.nz/foodwaste .	<input type="checkbox"/> The Director-General, Ministry for Primary Industries. <input type="checkbox"/> Mayor of the local council. <input type="checkbox"/> Chief Executive, Ministry for the Environment.

Please complete the Food Waste Usage Survey questionnaire on the reverse of this page before posting it in the included postage-paid envelope.

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Appendix –E: Biosecurity Awareness Quiz Results

As indicated at the beginning of this document, the Biosecurity Awareness Quiz was included to achieve a communications objective.

To correctly answer the questions the respondents were guided to read the pamphlet on food waste feeding and visit the www.biosecurity.govt.nz/foodwaste website.

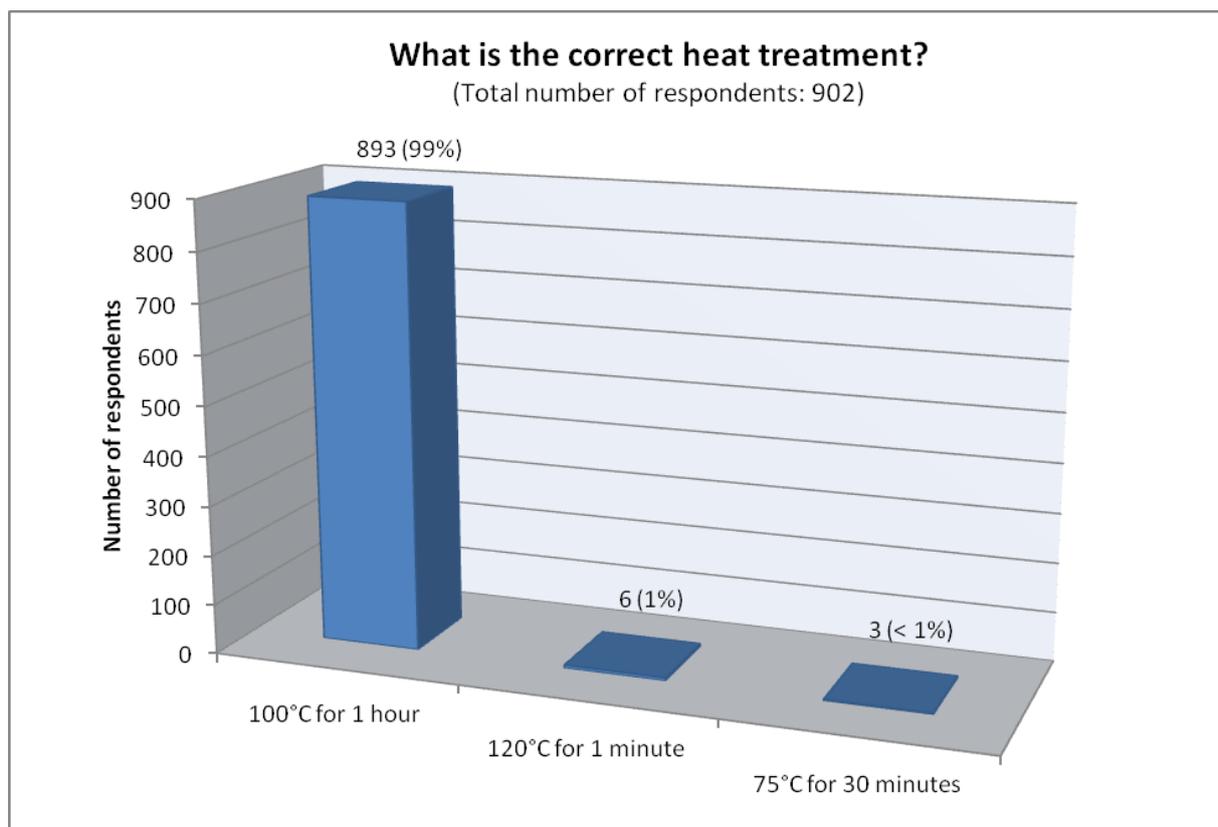
Each of the six questions in the quiz had three answer options, with one option being the right answer.

The results of the Biosecurity Awareness Quiz are presented below.

Q1 WHAT IS THE CORRECT HEAT TREATMENT?

The Food Waste Feeding Regulations require meat or food waste that contains or has come into contact with meat to be heated to 100°C for one hour before feeding it to pigs.

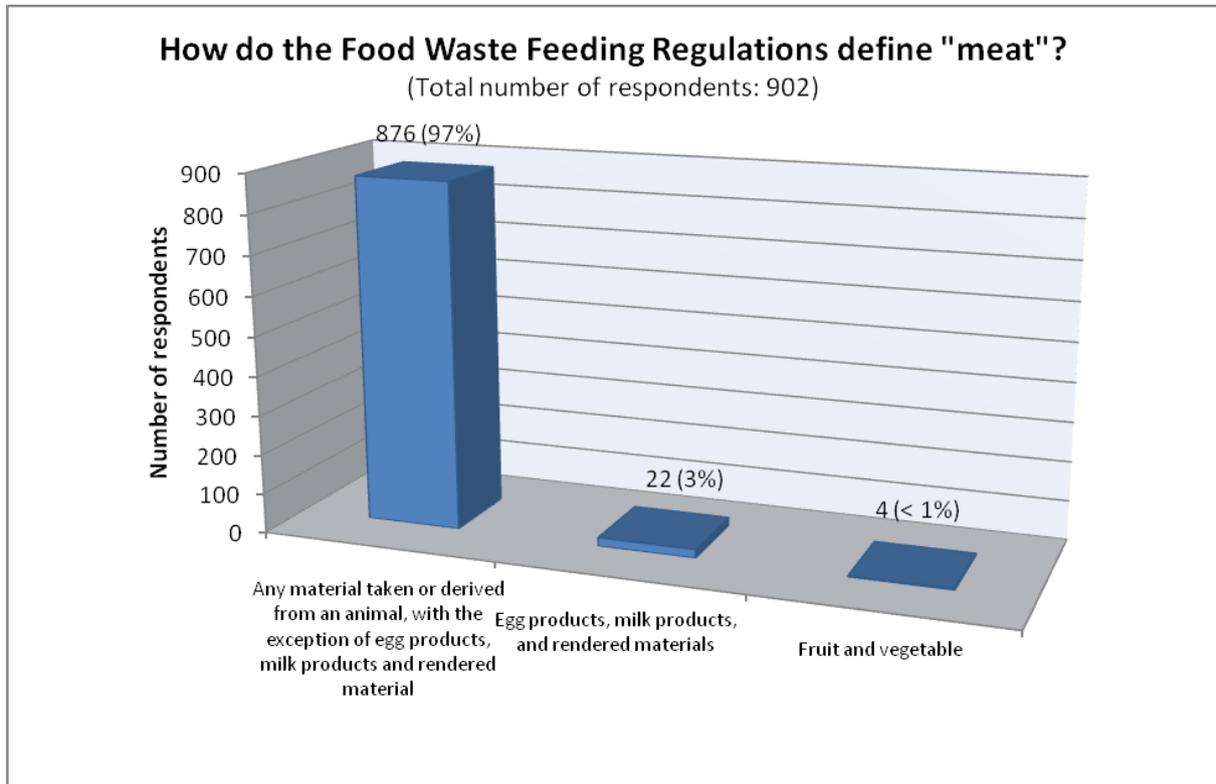
As can be seen from the chart below, 99% of the respondents chose the correct answer to the question “According to the Food Waste Feeding Regulations what is the correct time-temperature that food waste that contains meat, or has come into contact with meat, must be heated to before feeding to pigs?”



Q2 HOW DO THE FOOD WASTE FEEDING REGULATIONS DEFINE "MEAT"?

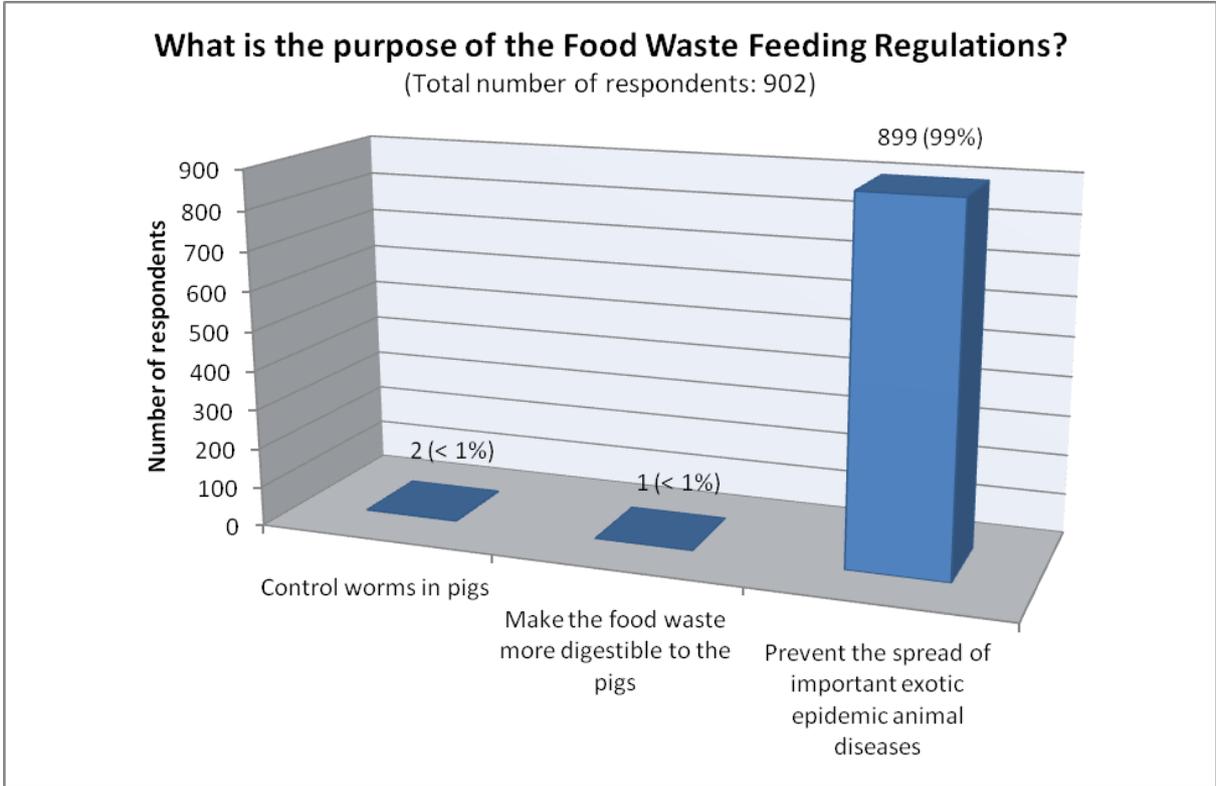
The Food Waste Feeding Regulations define "meat" in a specific way: it is any material taken or derived from an animal, with the exception of egg, milk and rendered material.

97% of the respondents chose the correct option for the question as to how meat is defined in these regulations.



Q3 WHAT IS THE PURPOSE OF THE FOOD WASTE FEEDING REGULATIONS?

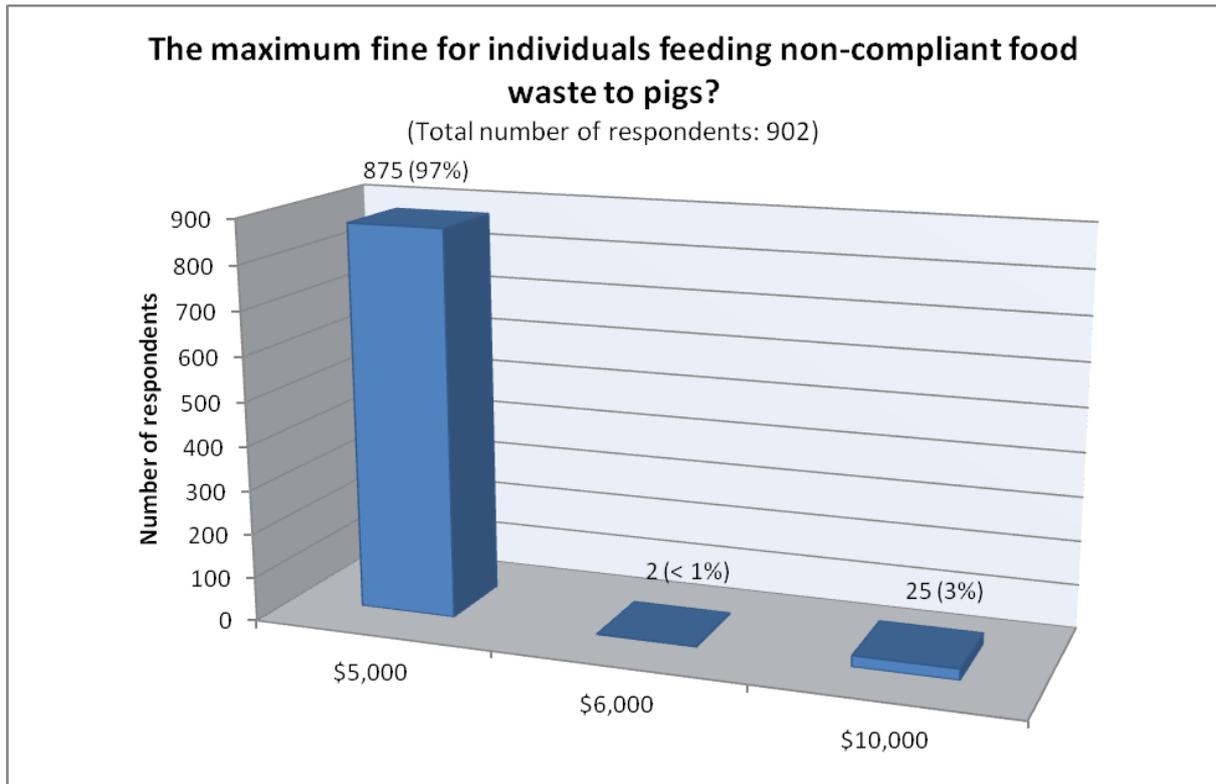
The great majority of the respondents chose the correct response to the question “*The purpose of the Food Waste Feeding Regulations is to ...*”.



Q4 THE MAXIMUM FINE FOR INDIVIDUALS FEEDING NON-COMPLIANT FOOD WASTE TO PIGS

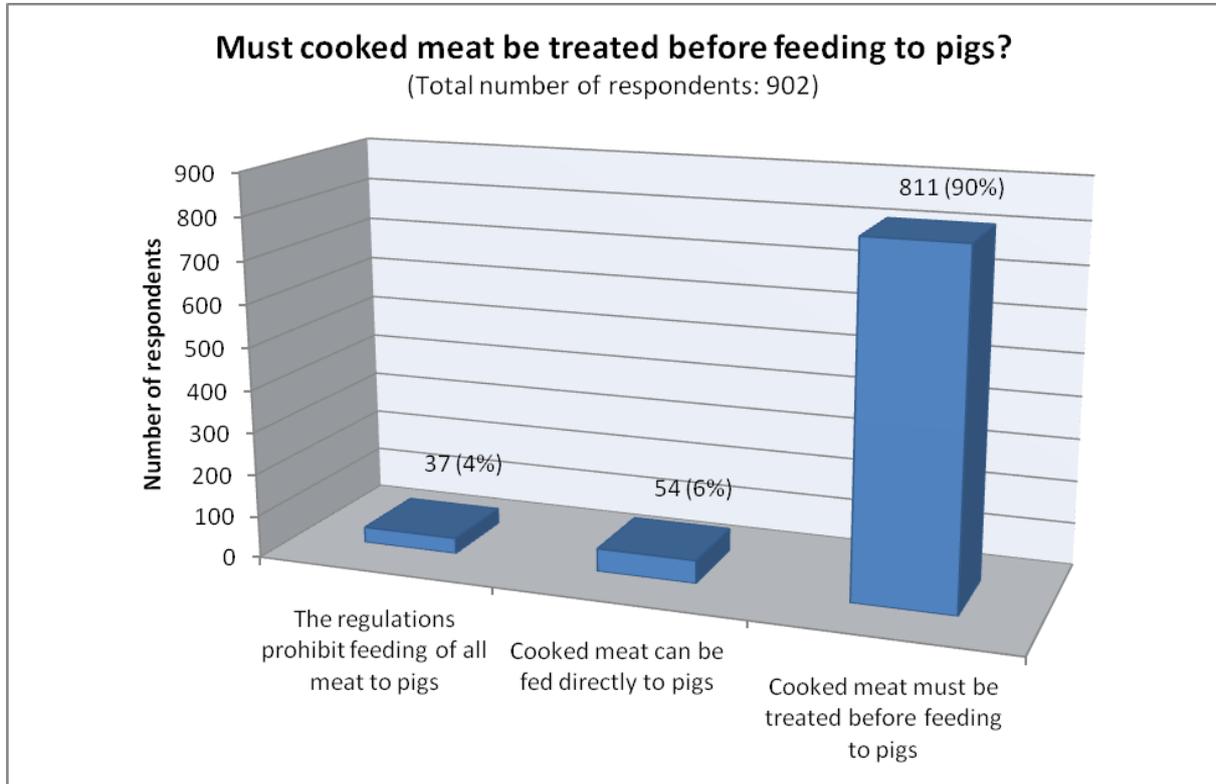
Failure to comply with the Food Waste Feeding Regulations can result in fines of up to \$5000 for individuals (the maximum for corporations is \$15,000).

The chart below presents the responses received for the question “Feeding non-compliant food waste to pigs is an offence. For individuals, the fine can be up to....”.



Q5 MUST COOKED MEAT BE TREATED BEFORE FEEDING TO PIGS?

The regulations state that food waste containing/having contact with meat must be treated to 100°C for one hour, or an alternative approved treatment, before feeding it to pigs.



Q6 WHO CAN APPROVE ALTERNATIVE TREATMENT STANDARDS?

While the treatment stated in the Food Waste Feeding Regulations is heating food waste that contains/has come into contact with meat to 100°C for 1 hour, the regulations grant power to the Director-General of MPI to approve alternative treatment standards.

The chart below presents the results of the responses received for the above question.

