SURVEY REPORT ON THE WASTE DISPOSAL PRACTICES OF LOCAL GOVERNMENT AREAS IN AUSTRALIA

BACKGROUND

Biosecurity Australia (BA) has prepared a revised draft import risk analysis (IRA) report for the importation of mature hard green Cavendish bananas from the Philippines. To help evaluate the potential quarantine risks associated with the requested importation of Philippine bananas, information on the distribution of Australian bananas and disposal of banana waste was collected. This was provided in part through a survey of waste disposal practices of Local Government Areas (LGAs) in Australia. Information from the survey has been used in an indicative way to provide values for the model that aided the IRA team in determining the potential risks associated with pests and diseases.

SURVEY METHODOLOGY

A postal/telephone survey of 101 LGA councils throughout Australia was conducted by BA in January and February 2006. LGAs were selected according to their location. Fifty one LGAs were selected in the *grower areas* (i.e. commercial banana growing areas) and 50 were selected in the *other areas* (i.e. non-commercial banana growing areas). Of the total 678 LGAs in Australia, 84 are considered to be located in the *grower areas* and the remaining 594 are located in the *other areas*.

Ten of the 51 LGAs selected from the *grower areas* were included because each was strongly associated with commercial banana production in Australia. These were Cardwell, Johnstone, and Gold Coast in Queensland; Coffs Harbour, and Richmond Valley in New South Wales; Broome, Carnarvon, Wyndham East Kimberly in Western Australia and Darwin in the Northern Territory. The LGA of Brisbane was also included, given its significant population (more than 950,000) relative to all other LGAs in the *grower areas*.

The remaining 41 LGAs selected in the *grower areas* were randomly chosen, with the probability of selection based on their population estimated by the Australian Bureau of Statistics at June 2004. The 50 LGAs selected from the *other areas* were also chosen using this method.

Each selected LGA council was contacted by telephone to obtain the name of an environmental officer or appropriate contact person who would complete the survey. A letter was then posted to the council representative on 11th or 12th Jan 2006 giving advanced notice of the survey and included the survey questionnaire (Appendix 1).

LGA council representatives either responded to the survey by completing it in writing and returning it by fax/post, or undertaking a telephone interview with BA staff. Fifty five survey responses were received by fax/post and 46 interviews were conducted by telephone. In some cases, LGA council representatives who completed the survey in writing were also telephoned by BA staff to clarify their responses. If

LGAs that were surveyed sent municipal waste to an adjoining LGA, these were also contacted to determine the throughput of the municipal tip and its management practices.

RESULTS

A variety of data was collected from this survey of LGA councils. The results below are a summary of these responses and represent the simple counts, averages or proportions across the relevant responding group of LGA councils.

1. Survey participation

- 87% of selected LGAs participated in the survey

Rate of response of LGAs participating in the survey

	LGAs surveyed	
	Responses	Non-responses
Banana region (#)	49	2
Non banana region (#)	39	11
Total (#)	88	13
Total (%)	87	13

2. Household food waste disposed to municipal tips

- 91% of LGAs disposed of all (i.e. 100%) their collected household food waste to a municipal tip
- Of the eight LGAs (9%) which did not dispose all their collected household food waste to a municipal tip;
  - 5 LGAs sent waste both to a municipal tip and an alternative facility for recycling (to convert to compost)
  - 2 LGAs sent 100% of their waste to a bio-energy facility to create methane
  - 1 LGA sent 100% of their waste to a facility for conversion into compost

Disposal of collected household food waste by LGAs

	Disposal type	
	100% municipal tip	Other[†]
Banana region (#)	43	6
Non banana region (#)	37	2
Total (#)	80	8
Total (%)	91	9

[†]Other refers to all other waste disposal methods apart from '100% municipal tip'. It includes disposal of some, but not all waste to a municipal tip and the conversion of waste into compost and methane

3. Households that compost household food waste at home

- 70 of the 88 LGAs surveyed had no information about the percentage of households that compost household food waste at home in their LGA
- Based on the 18 LGAs that responded with estimates of the percentage of households that compost household food waste at home, the average was 16%. These LGA responses were wide ranging (1%–50%) and were generally estimates rather than being based on a survey previously undertaken by the LGA. However, there were three LGAs where survey data established that 34%, 35% and 50% of households compost food waste

Percentage of households in LGAs that compost food waste at home

	Household composting (%)	
	Mean	Range
Banana region (7 councils)	14.4	(1–40)
Non banana region (11 councils)	17.4	(1–50)
Average	16.2	

4. Food waste composted at home

- 81 of the 88 LGAs surveyed had no information about the percentage of food waste that is composted by households at home in their LGA
- Based on the seven LGAs that estimated the percentage of food waste that is composted by households at home, the average was 55%. These LGA responses were wide ranging (5–100%) and were generally estimates, rather than being based on a survey previously undertaken by the LGA

5. Municipal tips operating in LGAs

- Each LGA operates on average 1.5 municipal tips

Number of municipal tips operating in LGAs

	Tips (#)	Tips/council area (#)
Banana region (49 councils)	72	1.47
Non banana region (39 councils)	60	1.54
Average		1.50

6. Throughput of municipal tips

- Each municipal tip has an average throughput of 38,508 tonnes per year

Tip throughput of municipal tips operating in LGAs

	Total tip volume (tonnes/yr)	Average tip volume (tonnes/yr)
Banana region (76 tips)	2,576,229	33,898
Non banana region (64 tips)	2,814,867	43,982
Average		38,508

Note: Data also includes municipal tips located in adjoining LGAs who received municipal waste from the LGAs surveyed

7. Covering rate of municipal tips

- 88% of waste in municipal tips in Australia was covered at least once per day
- 92% of waste in municipal tips in Australia was covered at least several times per week
- 0.4% of waste in municipal tips was covered less than weekly

Covering rate of municipal tips in Australia

	Rate which landfill is covered					
	Several times/day	Daily	Several times/wk	Weekly	Remains uncovered	Other†
Tips (#)	9	49	15	36	11	20
Volume (t/yr)	735,305	4,000,941	247,298	385,562	11,325	10,665
Coverage (%)	13.64	74.21	4.59	7.15	0.21	0.20

†Other refers to tips where landfill was covered less frequently than weekly

8. Covering rate of municipal tips – *grower areas*

- 87% of waste in municipal tips in the *grower areas* was covered at least several times per week

Covering rate of municipal tips located in the grower areas

	Rate which landfill is covered					
	Several times/day	Daily	Several times/wk	Weekly	Remains uncovered	Other†
Tips (#)	6	24	12	25	4	5
Volume (t/yr)	616,985	1,458,141	156,798	330,865	8,825	4,615
Coverage (%)	23.95	56.60	6.09	12.84	0.34	0.18

†Other refers to tips where landfill was covered less frequently than weekly

9. Covering rate of municipal tips – *other areas*

- 98% of waste in municipal tips in the *other areas* was covered at least several times per week

Covering rate of municipal tips located in the other areas

	Rate which landfill is covered					
	Several times/day	Daily	Several times/wk	Weekly	Remains uncovered	Other[†]
Tips (#)	3	25	3	13	9	17
Volume (t/yr)	118,320	2,542,800	90,500	54,705	2,681	6,056
Coverage (%)	4.20	90.33	3.21	1.94	0.10	0.22

[†]Other refers to tips where landfill was covered less frequently than weekly

10. Distance of banana plants from municipal tips

- Six municipal tips (13%) located in the *grower areas* had bananas plants growing within one km of the tip
- Two municipal tips (4%) located in the *grower areas* had banana plants growing at the tip

Distance of banana plants from municipal tips

	Distance of nearest banana plant from tip (#)		
	< 1km	>1km	Unknown
Banana region (79 tips)	6	41	32
Non banana region (54 tips)	0	4	50

APPENDIX 1 - SURVEY QUESTIONNARE

DAFF 05/12671

Date

Mr/Ms
<Insert address>

Dear Mr/Ms

ADVANCED NOTICE OF WASTE DISPOSAL SURVEY

Biosecurity Australia is currently preparing a draft import risk analysis for the importation of bananas from the Philippines. This involves the evaluation of potential quarantine risks associated with their proposed importation to ensure Australia's favourable pest and disease status is maintained. To help conduct this analysis, Biosecurity Australia needs to identify how food waste is disposed throughout Australia.

In the week beginning Monday 23 January 2006, Biosecurity Australia staff will be phoning a representative sample of shires/councils throughout Australia to conduct a survey about waste disposal. As an advanced notice to the survey, please find attached the survey questions.

We would be most grateful if you could participate in the survey when contacted by phone. Alternatively, you may like to complete the survey in writing and fax it to Biosecurity Australia on 02 xxxx xxxx by Friday 20 January 2006.

Please note that your survey responses will be treated as confidential. The survey information will be used to compile aggregated statistics for computer modelling.

We look forward to your assistance in this important matter.

Yours sincerely

General Manager
Plant Biosecurity

Waste survey for local shire/council

For the purposes of this survey, the term *household food waste* includes any fruit and vegetable scraps, and spoilt or unused fruit and vegetables which is derived from households and disposed as waste.

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1. What is the name of your shire/council and what is its postcode?
   Name: _____
   Post code: _____

2. Of the household food waste collected by your shire/council, in what percentages is it disposed to:
   a. [%] municipal tip
   b. [%] other (*please specify*) _____

3. What is the approximate percentage of households in your shire/council which compost household food waste at home?
   a. [%]
   b. not known (circle if required)

4. Some households compost all of their household food waste at home, while others compost only some of their food waste at home and dispose the remainder by other means. Of the households in your shire/council which compost food waste at home, what percentage of food waste is composted?
   a. [%]
   b. not known (circle if required)

5. How many municipal tips operate in your shire/council?
   [ ]

6. Please fill out the table below:
   I. name (or number) of each municipal tip in your shire/council
   II. annual throughput of each municipal tip
   III. how often landfill in each municipal tip gets covered (*please tick)*
   IV. if banana plants (commercial or wild) grow within one km of the municipal tip, list the nearest approximate distance that banana plants are located from each tip

I	**II**	**III**						**IV**
Tip name/no.	**Tip throughput** (tonnes/yr)	**Rate which landfill is covered**						**Distance of banana plants from tip** (metres)
		Several times/day	Daily	Several times/wk	Weekly	Remains uncovered	Other *(please specify*)	