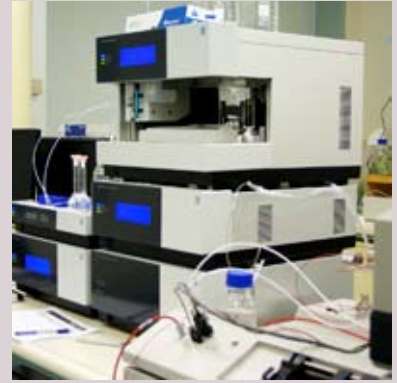


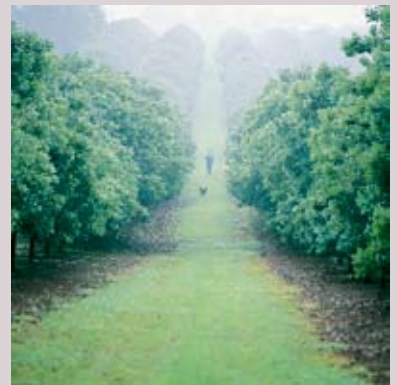
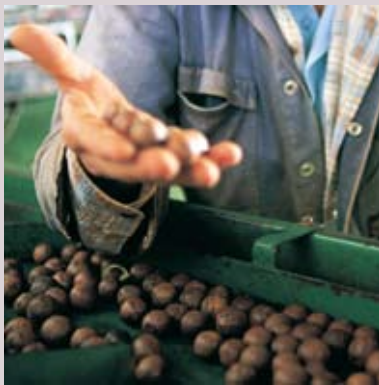


**Australian Government**

**Department of Agriculture, Fisheries and Forestry**  
Product Integrity, Animal and Plant Health



**National Residue Survey**  
2007–2008  
**Macadamia nut program**  
*Chemical residue monitoring results*



## OVERVIEW

The National Residue Survey (NRS) was originally established in 1961 to measure pesticide residues in exported meat. Today, NRS tests for residues of agricultural and veterinary chemicals and environmental contaminants in 25 animal and 25 plant commodities including five horticultural products. Since 1993, NRS has operated on full cost recovery, and is funded principally by levies from participating industries. The Australian Government provides 0.5% of NRS funding for national and international residue commitments that provide benefits for the community, for industry and for government programs. For further details visit our website.

Since initial participation of the macadamia industry through the Australian Macadamia Society (AMS) in 1996, 1 456 macadamia nut samples have been tested for residues in the NRS random residue testing program. All samples complied with the relevant Australian Standards. The program is funded by a macadamia industry levy of 0.63 cents per kilogram of kernel produced.

### Residue testing results 1996–2008



Chemicals	No. of samples	Compliance (%)
<i>Pesticides</i>	1 161	100.0
<i>Herbicides</i>	174	100.0
<i>Environmental contaminants (metals)</i>	121	100.0
<b>Total</b>	<b>1 456</b>	<b>100.00</b>

This exemplary record demonstrates industry concerns regarding residues, as well as AMS's position concerning quality assurance in chemical usage and environmental contamination. The 100% compliance with Australian Standards has been achieved by industry through the appropriate use of agricultural chemicals according to good agricultural practice. The results of the NRS residue testing program assure AMS customers that their products comply with Australian Standards.

### Sampling

In close cooperation with AMS, sampling arrangements, the choice of chemicals to be tested within the screen, liaison with industry and reporting procedures are reviewed annually upon completion of each year's sampling, and appropriate adjustments made as necessary. Samples are collected from eleven processing plants located in New South Wales and Queensland. In cooperation with AMS and the macadamia nut processing plants, NRS organises two sampling rounds per year in September/October and April/May. NRS contacts each processing plant prior to each sampling round to coordinate sampling within specific timeframes.

Each sample of approximately 1 kg of kernel is collected by quality assurance staff at the processing plants, in accordance with NRS procedures and protocols. The kernels are packaged in NRS bags and freighted to the contract laboratory. Results are sent electronically from the laboratory to NRS, where the data is collated and compiled for industry and government use. NRS designs and manages the sampling, and contracts external providers for operational functions such as laboratory services, supply and distribution of sampling materials and freight.

### Chemical screen 2006–2008

The purpose of the random monitoring program is to confirm the residue status of the sampled produce, as specified by the maximum residue limits (MRLs) of the Australia New Zealand Food Standards Code (ANZFSC).

Samples are tested against an agreed chemical screen that is developed in consultation with AMS. If any sample shows a positive result for a chemical, further confirmatory testing is carried out. Any sample found to contravene the ANZFSC is traced back to its origin by relevant state and territory authorities and appropriate action taken.

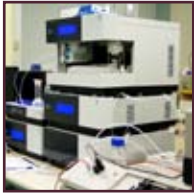
The chemicals listed in the following table include those that may be used in macadamia nut production in Australia, as well as those that may be important in terms of international trade.

In 2007–2008, 115 samples were collected and tested for the chemicals shown in the following table.

Group	Chemicals	Number of samples	Compliance (%)
<b>Pesticides</b>			
<i>Organochlorines</i>	endosulfan	115	100.0
<i>Organophosphates</i>	acephate	115	100.0
	azinphos-methyl	115	100.0
	chlorpyrifos	115	100.0
	diazinon	115	100.0
	methidathion	115	100.0
	trichlorfon	115	100.0
<i>Synthetic pyrethroids</i>	cyfluthrin	115	100.0
	deltamethrin	115	100.0
	permethrin	115	100.0
<i>Carbamates</i>	carbaryl	115	100.0
<i>Acaricides</i>	tebufenozide	115	100.0
<i>Fungicides</i>	carbendazim	115	100.0
	iprodione	115	100.0
	metalaxyl	115	100.0
<b>Herbicides</b>	diquat	20	100.0
	glufosinate	20	100.0
	glyphosate	20	100.0
	oxyfluorfen	115	100.0
	paraquat	20	100.0
<b>Total</b>		<b>115</b>	<b>100.0</b>

### Residue testing results 2007–2008

All 115 macadamia nut samples were 100% compliant with Australian Standards for all the chemicals tested.



### Laboratory performance evaluation and proficiency testing

NRS contracts analytical laboratories to perform the relevant residue analyses. Laboratories are proficiency tested in order to ensure the validity of analytical results.

NRS continues to be an accredited provider of proficiency testing schemes. Accreditation ensures that the NRS proficiency testing system is recognised within the laboratory community as meeting internationally accepted standards and having the ability to establish the technical competence of participating laboratories.



### International maximum residue limits

In consultation with the Australian Macadamia Society, NRS has maintained its international MRL tables for countries that are major export markets for Australian macadamia nuts. These tables can be found on the NRS website (see below).

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*Photos courtesy the Australian Macadamia Society*

