Australian Grain Industry – Code of Practice Technical Guideline Document

No. 20 NATIONAL RESIDUE SURVEY PARTICIPATION

Compiled on behalf of the Australian Grain Industry by:
Grain Trade Australia

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Technical Guideline Document

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1. Application

This document refers to the participation of the grain industry in the National Residue Survey (NRS). Specifically, it is designed to provide guidance to industry on the required rates of representative sampling for subsequent NRS assessment, noting that overall sampling requirements are controlled by the NRS.

2. Discussion on the National Residue Survey

2.1 What is a National Residue Survey

The National Residue Survey (NRS) is an operational unit within the Australian Government Department of Agriculture and Water Resources (DAWR).

The NRS is an essential part of Australia's pesticide and veterinary medicine residue management framework providing verification of good agricultural practice in support of chemical control of-use legislation and guidelines.

NRS residue monitoring programs monitor the levels of, and associated risks from, pesticides and veterinary medicine residues in Australian food products. The programs help to facilitate and encourage ongoing access to domestic and export markets. NRS supports Australia's primary producers and food processors who provide quality animal, grain and horticulture products which meet both Australian and relevant international standards.

Since 1993, the NRS Grains Program has been funded by the NRS component of the statutory levy on grains.

2.2 What Commodities are Included in the NRS Grains Program

The program covers the following grain commodities:

- Cereal grains (wheat, barley, oat, maize, sorghum, triticale);
- Pulses (chickpea, cow pea, pigeon pea, field pea, faba bean, lentil, vetch, navy bean, mung bean, lupin);
- Oilseeds (canola, sunflower, soybean, safflower, linseed).
- For flour mill sampling, the milled fractions of wheat, durum, soybean and maize are included.

2.3 Overview of what Samples are Collected

The program involves the sampling and testing of Australian export and domestic traded grain for a range of pesticides and environmental contaminants. Representative samples are collected at export out-turn and domestic receival.

Annually an average of over 6000 grain samples are collected at bulk and container export packers, oilseed crushers, feed mills, flour mills, feedlots and chickpea and oat processors.

2.4 What Testing Occurs

Analytical screens cover pesticides, veterinary medicines and environmental contaminants. The chemicals required to be tested are reviewed at least annually in consultation with industry. Testing parameters take into account Australian registered chemicals, chemical residue profiles and overseas market requirements.
Grain samples are screened for a range of chemicals and have included the following (noting this list and compounds within each category varies each year following review):

- Insecticides
- Fungicides
- Herbicides
- Organochlorines
- Fumigants
- Heavy Metals
- Mycotoxins
- Others as required

2.5 Obligations on Industry

As outlined in the Code of Practice (section 2.4.1):

"*Under this Code, the following industry sectors are required to actively participate on a continuous basis in the NRS grains residue monitoring program, and to comply with any NRS directions applying to that program:*

- *All grain organisations out-turning on the domestic market to an end-processor (who is not defined as a primary producer);*
- *All domestic market end-processors;*
- *All bulk grain exporters; and*
- *All container exporters*."

2.6 NRS Directions for Participation

Industry should contact the NRS directly via the details on their website http://www.agriculture.gov.au/ag-farm-food/food/nrs/contact.

The process for participating in the NRS program can be summarised as follows:

- Following contact, the NRS will detail industry requirements for participation in the program, including:
    - IT system requirements;
    - Sample collection;
    - Sample labelling; and
    - Sample despatch.
- Training will be provided by the NRS to assist participants in meeting the requirements of the program.
- The NRS will also advise how results generated through the program will be provided to the respective participants.

3. Sample Collection

3.1 General

While the NRS will detail to individual participants the protocols and requirements of sample collection, including relative frequency of sampling required, it is incumbent on industry to ensure the obligations of participation in the program are met. Similarly, industry, and individual participants are responsible to manage their own compliance to chemical residues without excessive reliance on results generated through the NRS program:

- It is the responsibility of all staff involved in sampling to adhere to all relevant Workplace, Health and Safety regulations and rules of the company where the sampling is to occur.
- The entire sampling system must be designed and operated for its intended purpose, that is, in general, to obtain a representative sample of the grain being handled for participation in the NRS program.
- The entire sampling system will be adequately described and documented in the Company Operating Procedures (e.g., a Container Packer Operations Manual).
- A range of sampling accessories may assist in sample collection, compilation and despatch.
- Regular inspections of all elements of the sampling system must occur.
- Each type of mechanical sampling equipment must be monitored to verify the sampling system is operating correctly, including the frequency of sample collection occurs as stipulated.
- A number of records are required before, during and after use of the sampling equipment.
- The sampling frequency is determined by a number of factors including:
    - Loading rate;
    - Composite sample size required for NRS analysis and retention/other purposes by the facility; and
    - Access and ability to collect incremental samples.
- There is no preferred location for the collection of a sample during grain movement. However, as a general principle any location used must enable a representative sample to be taken of the grain.

The sampling protocols as listed below may be over-ridden by advice from the NRS.

3.2 Nature of Sample Collected

At all times, as per requirements for 'samples collected for analysis of a consignment' (as outlined in the Code), the samples collected as part of the NRS program are to be representative of the consignment.

The entire sampling system must be designed for its intended purposes, that is, in general, to obtain a representative sample of the grain being loaded/unloaded. On no occasion are non-representative samples to be included in the NRS program. Various methods may be used by industry to collect these representative samples.

For export consignments, the sampling rate at a minimum is to be as per Department of Agriculture and Water Resources (DAWR) Export Control Act stipulations, being 2.25l/33.33 tonnes. In most situations, for practical purposes, the sample drawn for DAWR to meet the Export Control Act requirements, is sub-sampled and a sample sent for NRS purposes (i.e., a separate NRS sample is not drawn from the consignment).

If a separate NRS sample is drawn then once collected, sub-samples are to be composited and if required, sub-divided into the appropriate sample size via a method that ensures the sample(s) for NRS purposes remain representative of the consignment.

3.3 Bulk Vessels

As advised by the NRS, a representative sample of every hatch (or part thereof) is to be obtained from every bulk export of the commodities listed under point 2.2.

3.4 Containers

As outlined in the NRS Protocol supplied to the Container Packing facility, the NRS sampling guideline suggests one grain sample to be collected and despatched under the NRS program for every 4,000 tonnes out-turned.

The Container Packing facility should liaise with the NRS annually and agree on a potential maximum number of samples to be collected based on expected tonnage throughput, recognising the above guideline.

During the year, where the tonnage and thus number of samples are expected to be significantly different, immediate contact with the NRS is to occur to discuss options.

3.4.1 Each Container Consignment

Unless advised by the NRS the following should apply:

- At a minimum, 5 sub-samples are to be collected at regular intervals during loading of a container. Additionally, as stated previously, minimum sampling rates as stipulated by DAWR (2.25l/33.33t) must be met.
- Each sub-sample collected during loading:
    - Is to be of the same size.
    - Are to be taken at regular intervals during loading.
- Thus, the sampler needs to review the expected tonnage rate of grain to be loaded and determine the interval between sample collections to ensure sampling is evenly spaced during loading of a container.
- The minimum size of sub-samples collected will depend on a range of factors including:
    - Loading rate;
    - Number of containers;
    - Sample size required to be sent for NRS analysis; and
    - Sample size required to be retained/used for other purposes by the Container Packing facility.

3.4.2 Number of Container Consignments

Unless otherwise advised by the NRS the following should apply:

- Samples despatched under the NRS program should represent the entire container consignment.
- Samples should not be of individual containers, unless only one container is loaded for that consignment.
- Samples collected for the NRS program should be spread out as evenly as possible over the entire collection period (i.e., year) and not concentrated in a particular period.
- Samples collected for the NRS program should cover as many of the commodities listed under 2.2 as possible. That is, if for example loading three commodities during the year, attempts should be made to sample all three and not concentrate sampling efforts on one or two commodities only.

- The number of consignments sampled during the year will depend on the tonnage and number of consignments exported by that facility. The Container Packing facility must use judgement in this area:
    - When large numbers of consignments are exported, not every consignment should be used to participate in the NRS program as this will over-extend NRS resources (i.e., funds).
    - As per requirements of the Code, the NRS program should not be used as an internal QA scheme by the Container Packer facility.
    - The facility should undertake its own sampling and testing (and other risk managements systems) to ensure the residue content of grain loaded meets all regulatory and contract requirements (see section 2.7.1)
    - A balance must be made between the number of consignments and number of samples collected/sent under the NRS program, recognising the directions of the NRS sampling guideline listed above.

3.5 Domestic Consignments

This applies to a range of grain consignments to the domestic market, including milled products, maltsters, oilseed crushers, stockfeed manufacturers, feedlots, and food processors.

The Domestic Processing facility should liaise with the NRS annually and agree on a potential maximum number of samples to be collected based on expected tonnage throughput. As a guideline, a sample should be despatched under the NRS Program per 4,000 tonnes received. During the year, where this is expected to be significantly different (i.e., a significant increase in tonnage received), immediate contact with the NRS is to occur to discuss options.

3.5.1 Each Consignment

Unless advised by the NRS the following should apply:

- Samples may be obtained from the most suitable location, depending on the storage and / or transport type.
- For sampling ex a road truck (preferred where possible), GTA procedures for sampling static bulk grain should be followed. Refer TGD 5 Static Grain Sampling – Road Truck.
- For sampling during grain movement, at a minimum, 5 samples are to be collected at regular intervals during unloading of the grain at the domestic facility.
- Each sub-sample collected:
    - Is to be of the same size.
    - Are to be taken at regular intervals.
- Thus, the sampler needs to review the expected tonnage rate grain will be unloaded and determine the interval between sample collections to ensure sampling is evenly spaced during the period of unloading.
- The minimum size of sub-samples collected will depend on a range of factors including:
    - Unloading rate;
    - Number of transport units;
    - Sample size required to be sent for NRS analysis; and
    - Sample size required to be retained/used for other purposes by the domestic facility

3.5.2 Number of Domestic Consignments

Unless advised by the NRS the following should apply:

- Samples despatched under the NRS program should represent the entire consignment.
- Samples should not be of individual transport units, unless only one transport unit is loaded/unloaded for that consignment.
- Samples collected for the NRS program should be spread out as evenly as possible over the entire period of the collection period (i.e., year) and not concentrated in a particular period.
- Samples collected for the NRS program should cover as many of the commodities listed under point 2.2/3.5 as possible. That is, if for example receiving three commodities during the year, attempts should be made to sample all three and not concentrate sampling efforts on one or two commodities only.
- The number of consignments sampled during the year will depend on the tonnage and number of consignments received by that facility. The domestic processing facility must use judgement in this area:
    - When large numbers of consignments are expected, not every consignment should be used to participate in the NRS program as this will over-extend NRS resources (i.e., funds).
    - As per requirements of the Code, the NRS program should not be used as an internal QA scheme by the facility. The facility should undertake its own sampling and testing (and other risk managements systems) to ensure the residue content of grain received meets all regulatory and contract requirements (see section 2.7.1).
    - A balance must be made between the number of consignments and number of samples collected/sent under the NRS program.

4. Further Information

- National Residue Survey http://www.agriculture.gov.au/ag-farm-food/food/nrs/plant-product-testing

- The Grain Industry Code of Practice for the Management of Grain along the Supply Chain http://www.graintrade.org.au/grain-industry-codes

- Technical Guideline Document No.17 “Guidelines for Development of a Container Packer Operations Manual”.

- Technical Guideline Document 5 ‘Static Grain Sampling – Road Truck”.