

Acts and Regulations

CODE OF PRACTICE FOR THE CONTROL OF SALMONELLA IN THE PRODUCTION OF ANIMAL FEED September 2005

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PREFACE

AFMA's CODE OF PRACTICE FOR THE CONTROL OF SALMONELLA IN THE PRODUCTION OF ANIMAL FEED FOR LIVESTOCK

This publication contains the monitoring programme for Salmonella in the animal feed industry that was established by the Technical Committee of AFMA during 2003/2004. The programme was established within the framework of the GMP code for the animal feed sector and is based on a similar code, which was accepted by the Productschap Diervoeder (PDV) in The Hague on 23 January 2002.

This document focuses on the identification and control of high risk raw ingredients and critical control points in the production process.

The purpose of AFMA's *Code of Practice for the Control of Salmonella* is to provide guidelines for establishing good manufacturing practices for compound feed production, feed mixing and production by the farmer and handling of raw materials and final feed straights including provision of on-farm storage.

All sections of the food industry, including livestock producers, raw material importers, suppliers and producers, and feed manufacturers (including commercial compounders, integrated producers and on-farm home-mixers) as well as abattoirs, hauliers and distributors of meat, have to limit the number of Salmonella organisms present in or on the final product offered for sale for human consumption.

1. INTRODUCTION

Infections caused by the motile *Salmonella* were reported in poultry as early as 1899 and have been extensively investigated. Infections, generally sub clinical, are common in all species of domestic poultry and game birds throughout most of the world and have also been reported in many different species of wild bird. Many different serovars have been identified in domestic poultry where one serovar may be the predominant isolate in a country for a number of years before it is replaced by another serovar. In South Africa the concentration of the major part of the poultry industry within a small number of larger companies means that *Salmonella* problems in integrated feed mills or breeding flocks may have a substantial effect on the national prevalence of specific *Salmonella* strains.

Salmonella are Gram-negative, non-sporing rods (2-4 x 0,5 µm) that do not have capsules. They are usually motile and have long flagellae, although occasional non-motile variants may occur.

About 2500 different *Salmonella* serovars have been described and reported. While all members of the species are considered to be potentially pathogenic, different serovars differ widely in their host range and the pathogenic syndromes that they produce. Confirmation of the diagnosis requires the isolation and identification of the causal agent and preferably its specific serovar.

Contaminated feedstuffs are undoubtedly a common and important route by which a poultry flock becomes infected with *Salmonella*. Animal protein may be included in the ration in the form of fish meal. Surveys of such raw materials used in poultry feeds have revealed occasional contamination with *Salmonella*. Likewise vegetable proteins may become contaminated either before or during processing.

Salmonella organisms are widespread and will never be completely eliminated from the environment. There is evidence that in certain incidents an increase in human food poisoning has been associated with the use of raw materials of animal origin in the preparation of food for human consumption. This problem could be largely overcome by applying good consumer or industrial kitchen hygiene and practices, including thorough cooking or, where uncooked ingredients have been used, effective and continuous refrigeration. However, all sections of the food industry, including livestock producers, raw material importers, suppliers and producers and feed manufacturers (including commercial compounders, integrated producers and on-farm home mixers) as well as abattoirs, hauliers and distributors of meat have a responsibility to limit the number of *Salmonella* organisms present in or on the final product offered for sale for human consumption.

Standards and the necessary control measures have been laid down in the GMP code for the animal feed industry in order to control *Salmonella* in poultry feeds. The aim is to minimise the introduction of *Salmonella* into the poultry feed chain via animal feeds.

The control measures mostly aim at the processing during production of poultry feeds and at the supply and use of *Salmonella*-critical feed ingredients. In addition there are general control measures in the GMP code for animal feeds

other than poultry in order to minimise the introduction of Salmonella via feed.

Monitoring is necessary *to verify the effectiveness of the control measures for both the Salmonella-critical feed ingredients and also the poultry feeds*. It is also equally important to keep track of feeds for other species of animal. Monitoring of Salmonella contamination of *non-salmonella-critical feeds materials*, is necessary in order to avoid unexpected confrontation with contamination from that source. This monitoring is primarily done by the companies involved.

Based on the monitoring data from members, AFMA is responsible for maintaining a half-yearly list of salmonella-critical feeds. Using this data the feed ingredients in question from individual suppliers (production location or shipping agents) may also be placed on a so-called "White List", where less strict obligations for the compound feed manufacturers and also lower monitoring frequencies for the feed ingredient suppliers will apply.

2. GENERAL FEED MILL PRACTICES

2.1 Personnel and Training

- * All personnel who are involved in the purchasing and handling of raw materials and in the production of final animal feeds and their transport must be trained in the principles of bacteriological hygiene and in the practice (and relevant theory) of the tasks assigned to them.
- * Key personnel should have designated deputies, where possible and be provided with adequate supporting staff;
- * The distribution of responsibilities between key personnel for the purpose of *Salmonella* control must be clearly defined in writing

2.2 Training

- * Training should cover not only specific tasks but also good manufacturing practices and the importance of personal hygiene;
- * There must be a training program and training should be documented;

2.3 Hygiene

- * Cloakrooms and toilets must be provided. They should be conveniently available to, but separate from, production areas;
- * All operatives must wear garments appropriate to the process being carried out. The garments should be cleaned regularly and frequently;
- * Persons not regularly employed in a production area, whether employees of the animal feeds manufacturer or not, must wear clean protective clothing where appropriate;
- * No person known to be suffering from a communicable enteric disease shall be employed on production processes.

2.4 Premises

- * Principle buildings should be located, designed, constructed, adapted and maintained to suit the operations carried out therein;
- * The factory site, processing areas, laboratories and stores must be maintained in a clean and tidy condition and be free from accumulated waste;

- * Waste material must be collected into suitable receptacles for removal to collection points away from the production areas. It should be disposed of at regular and frequent intervals;
- * Control measures must be routinely applied to exclude the entrance of rodents, insects, birds and domestic animals as far as possible. The control treatment required must be carried out by trained personnel and should not contaminate goods in the building and records of control treatment should be kept;
- * Operating areas must not be used as a general right of way for materials or personnel passing through to other parts of the factory;
- * The operations carried out in any particular area of the premises must be appropriate for prevention of contamination of one product or raw material by another;
- * Walls, ceilings and floors must be clean and maintained in a good state of repair;
- * Plant layout must avoid creation of inaccessible recesses.

- 2.5**
- * Storage areas must be adequate and organised to permit suitable and effective access, separation and identification of raw materials, packing materials and finished products;
 - * Storage facilities must be completely emptied and cleaned regularly according to an approved cleaning program. Storage areas must facilitate storage of goods in a clean, dry and orderly condition;
 - * Goods that have been rejected, recalled or returned must be placed in separate and adequate segregated storage until disposed of, to preclude contamination of other materials and products;
 - * Storage areas must be constructed to prevent entrance and harbouring of rodents, insects, birds and domestic animals; control measures must be routinely applied to exclude these pests. The control treatment required must be carried out by trained personnel and should not contaminate goods in the building.

2.6 Transport

- The feed manufacturer, or his agent, must ensure that all vehicles, including those operated by third parties, are visually inspected at the time of loading and found to be clean and dry before being used for the transport of final feed;
- *

- All vehicles used for the transport of final feed should be subjected to a regular cleaning and sanitising programme to ensure that they are maintained in a generally clean state with no build up of waste material. If they are used for the carriage of other goods or materials, they must be thoroughly cleaned, sanitised and dry before being used to transport final feed;
- *

- Final feed should be protected from contamination and kept dry during transport. Enclosed vehicles or containers should be used whenever possible for loose bulk, but where this is impracticable loads should be covered. Any cover so used must be maintained in a clean and sound condition and must be cleaned, sanitised and dried before use if it has been used to cover other materials or goods;
- *

- * All personnel who may be involved in the transport of final feed must be

given clear guidance and instructions on their duties. Training should not only cover specific tasks but good general hygiene practice and the importance of personal hygiene.

3. RISK ASSESSMENTS

Unlike other contaminants, Salmonella can occur at more than one point in the production chain and can be eliminated. Major factors of influence are moisture and temperature.

3.1 Feed Ingredients

Salmonella appears especially in feeds *containing protein*. Most feed ingredients which may contain this Salmonella are subjected to processing such as oil extraction which kills off the organism. Recontamination may, however, occur during cooling and through mixing with waste flows which are created during the processing and which have not been subjected to heat treatment. Recontamination can also occur during transport to the customer, compound feed manufacturer or farmer.

Feed ingredients will be considered to be salmonella-critical from the 1st quarter of 2005 on the basis of a high contamination incidence determined from monitoring data showing frequent Salmonella contamination in these feed ingredients.

This list of salmonella-critical feed ingredients is maintained and updated by AFMA's technical committee every half year on the basis of the monitoring results. The feed ingredients in question from individual suppliers (production locations or shipping agents) can, on the basis of monitoring and control data, be placed on a so-called "White List". These are suppliers of feeds and feedstuffs within the group 'salmonella-critical' who, may then be considered to be 'non-critical'.

3.2 Compound Feeds

A major source of Salmonella introduction for the compound feed manufacturer is, firstly, the reception of (salmonella-critical) feed ingredients (raw materials). It is then important to consider whether measures to control Salmonella such as acidification, heating or pelletising are used. It was decided that all poultry feed manufacture should include a mandatory Salmonella killing step when using salmonella-critical feed ingredients. When heating is used the cooling may result in recontamination. Finally, proper cleaning of the transportation vehicle is important in order to avoid recontamination prior to delivery at the livestock breeding company.

3.3 Critical Control Points in the Feed Mill

For every production location where compound feed is produced there should be a list of Critical Control Points for the examination of Salmonella levels in accordance with the minimum frequencies shown in the following schedule.

Amount of annual production of animal feed by business unit	Minimum number of samples per quarter per critical control point
Up to 12,000 tonnes	1
More than 12,000 tonnes	3

3.4 Items for Monitoring

To measure the effectiveness of salmonella-killing treatments and the degree of recontamination the following monitoring moments are particularly important:

- * Loading of transport with a feed ingredient from the producer or loading port;
- * Reception of a feed ingredient at a compound feed manufacturer;
- * Loading of transport with compound feed for delivery to the farmer.

4. MONITORING OF FEED INGREDIENTS (RAW MATERIALS)

Products	By supplier of feed ingredients (raw materials)	By compound feed manufacturer
Salmonella-critical feed ingredients	x	x
Non-salmonella-critical feed ingredients	x	x

4.1 Salmonella-Critical Feed ingredients

4.1.1 By feed ingredient suppliers

All suppliers of salmonella-critical feed ingredients are obliged to implement a monitoring programme for Salmonella as intended in this programme based on the monitoring data received from members, AFMA maintains a half-yearly list of salmonella-critical feed ingredients from individual suppliers (production locations or shipping agents) which may be placed on a "White List" (see para.3.1).

Monitoring will take place in accordance with protocols drawn up for each salmonella-critical feed ingredient by AFMA.

The "White List" will be drafted following a trial period in the 1st quarter of 2005. The White List will be defined in a protocol as part of this programme. Feed ingredients will be scrapped generically from or replaced on the list of salmonella-critical feed ingredients depending on data received.

4.1.2 By compound feed manufacturers

All producers of *compound feeds* are obliged on receipt of *salmonella-critical feed ingredients* at a production location where *poultry feed is produced* to examine the feed ingredients in question for Salmonella in accordance with the protocol in *appendix III*. This monitoring is partly intended to verify the monitoring by the suppliers of these feed ingredients and the assessment of possible recontamination during transport.

The number of samples per product must be related to the use (and method of supply) of the feed ingredients in question.

4.2 Non-Salmonella-Critical Feed Ingredients

Salmonella status of non-salmonella-critical feed ingredients must be monitored. Non-salmonella-critical feed ingredients may in time become a source of contamination either in the form of a compound feed or as a feed ingredient

used at the farm.

In response to intensive monitoring current salmonella-critical feed ingredients may eventually be considered non-salmonella-critical through improved control of the production process.

When this occurs the Salmonella status of these feed ingredients must still be monitored so the monitoring programme will remain a necessity for non-salmonella-critical feed ingredients.

Currently the following product groups in particular, due to the presence of protein, may contain Salmonella:

- * animal proteins, insofar as they are not salmonella-critical;
- * oil-bearing seeds and by-products insofar as they are not salmonella-critical;
- * grains and grain by-products;
- * legumes;
- * dairy products

4.2.1 By feed ingredient suppliers

All suppliers of feed ingredients are obliged to implement a monitoring programme for Salmonella harmonised to the company's HACCP analysis.

4.2.2 By compound feed manufacturers

All manufacturers of compound feeds are obliged, in the event of production of untreated compound feeds and poultry feeds, to examine feed ingredients, including non-critical feed ingredients, for Salmonella. The pertinent instructions are in the protocol *appendices III and IV*.

5. MONITORING OF COMPOUND FEEDS

5.1 Compound Feeds for Poultry

5.1.1 By compound feed manufacturers

All manufacturers of poultry feeds are obliged to carry out internal company checks (monitoring) of poultry feeds in accordance with the protocol *appendix III*.

The number of samples per product is related to the production volume of various types of feeds for various links in the poultry chain.

5.1.2 By feed ingredient suppliers

All suppliers of wheat, corn and other feed ingredients intended for supply in simple form to poultry farms are obliged to sample these products according to instructions in the protocol *appendix III*.

5.2 Compound Feeds and Feed ingredients for Animals other than Poultry

5.2.1 By compound feed manufacturers

All manufacturers of compound feeds other than poultry feeds (pigs and ruminant feeds) are obliged to carry out internal company checks (monitoring) in accordance with protocol *appendix IV*. This may involve

determinations of both Salmonella and Enterobacteriaceae levels.

The number of samples per product is related to the total production volume of the compound feeds for the specific production location.

6. ACTIONS AND CLASSIFICATION IF A POSITIVE SAMPLE IS FOUND

6.1 Positive Samples - Raw Materials

- * If a consignment of animal feed raw material does not meet the microbiological criteria as specified by the feed and/or premix manufacturer, the consignment may only be processed for animal feed or premix if the objectives of this *Salmonella* Code can be achieved by applying an approved modified treatment. An internal company procedure must be established as follows:
- * Notify the supplier, storekeeper and hauler to keep the ingredient separate;
- * Double the rate of monitoring of the source of supply to further investigate the cause of the infection;
- * If contaminated material is present in the mill, it should be removed if possible for decontamination;
- * If contaminated material is present and cannot be removed, it should only be incorporated into feed which will be subjected to appropriate heat treatment such as pelleting under controlled conditions, or to treatment with an approved product, at a rate sufficient to decontaminate the feed;
- * Storage areas that have contained contaminated consignments must be cleaned in such a way as to prevent contamination of subsequent consignments. A procedure must be established for this, as well as a record of the occurrence and cleansing of contaminated areas.

6.2 Positive Samples - Animal Feed

- * If Salmonella is detected in animal feeds, action must be taken by the company to trace the cause. The feed manufacturer must clearly indicate what action he has taken to trace the cause and to modify the equipment or plant procedures. All necessary follow-up actions taken shall also be documented for purpose of verification;
- * Mill and raw material management must be informed immediately;
- * Double intensity of sampling and testing of production;
- * In case of unsatisfactory results of sample testing, the source of contamination should be traced and followed by appropriate measures in order to eliminate further contamination from this source and possible build up in the plant;
- * If further infections occur thorough cleaning of the plant must be mandatory.

6.3 Classification of Salmonella-Positive Samples

In all cases of Salmonella-positive samples from feed ingredients (raw materials), compound feeds and feed ingredients for farm mixers, serotype and possibly phage type must be classified. The purpose of this classification is to establish more accurately any relationship among Salmonella types in feed ingredients, the compound feeds produced from them, animals and animal products. It is an aid in investigating the possible cause of Salmonella contamination in a subsequent link in the chain.

Salmonella tests should be performed by an ALASA accredited laboratory.

6.4 Reporting of Salmonella-Positive Samples

AFMA is responsible for keeping record of all Salmonella-positive results on raw materials. Salmonella-positive results should be reported to AFMA on the Salmonella Reporting form shown in appendix V.

APPENDIX I

PROTOCOL FOR THE MONITORING OF SOUTH AMERICAN FISH MEAL SUPPLIERS

1. TARGET GROUP

Suppliers of fish meal.

2. PRODUCTS

Fish meal produced in or originating from South America.

3. GENERAL CONDITIONS

Any Salmonella-positive result should be classified immediately.

The country of production of the fish meal should always be reported to the customer when product is delivered.

4. EXAMINATION FREQUENCY

On reception at the RSA sea port - during or after unloading of ship into silos (from 200 -600 tons:

Basic regime: Every ship

5. SAMPLING METHOD

On reception at the RSA sea port - during or after unloading of ship into silos (from 200 -600 tons:

During or after unloading per silo into which reception takes place:

- minimum 25 sub-samples of c. 25 grams, for the first 250 **(in)** ton;
- for every 50 **(in)** ton extra, 5 extra samples.

Record composition of collective samples from the sub-samples in question.

Final samples: Every sample examined for Salmonella **(more than one per)????** should be Salmonella-negative before the batch may be accepted into the South African trading traffic.

6. ANALYSIS METHOD

ISO 6579; 1993 (E) or any other ISO accredited method. The analysis must be carried out by an accredited laboratory.

7. CORRECTIVE MEASURES

If a batch of fish meal from outside RSA has a Salmonella-positive result during import control it must be decontaminated (heat treatment or chemical treatment) and must be Salmonella-negative when re-examined before the batch can be accepted.

APPENDIX II

PROTOCOL FOR THE MONITORING OF PRODUCERS OF EGG SHELLS OR EGG SHELL CONTAINING FEED INGREDIENTS (LIKE POULTRY BYPRODUCT MEAL)

1. TARGET GROUP

Producers of eggshells or egg shell containing feed ingredients.

2. PRODUCTS

Dried eggshells or eggshell containing feed ingredients.

3. GENERAL CONDITIONS

A current list showing the following details must always be available at the production site:

the number of vehicles loaded, which vehicles were sampled, date of consignment of samples to the laboratory and the result (and classification if Salmonella-positive). This list must be filed and made available on request.

If a Salmonella-positive result is obtained it should be typified.

When delivering animal feed ingredients the name of the producer, country of production (possibly the production location) and the products ordered should be specified.

4. EXAMINATION FREQUENCY

For each production location at least one sample per delivery day must be examined for the presence of Salmonella.

5. SAMPLING METHOD

The sample material should be taken from the product flow during loading and must be packed in sterile sample pots. Samples taken should be at least 60 grams, sufficient to compose two samples of 25 grams each. The producer must send the samples within 2 working days and order the laboratory to:

- * make a mixed sample from the material if there are multiple samples per delivery day;
- * analyse a single final sample for each delivery day.

6. ANALYSIS METHOD

ISO 6579; 1993 (E) or any other ISO accredited method. The analysis must be carried out by an accredited laboratory.

APPENDIX III

PROTOCOL FOR THE MONITORING OF POULTRY FEED SUPPLIERS

1. TARGET GROUP

Producers of poultry compound feeds and suppliers of feed ingredients for poultry

2. PRODUCTS

Other compound feeds than those intended for poultry.

3. GENERAL CONDITIONS

4. EXAMINATION FREQUENCY

4.1 Poultry compound feeds

The following microbiological examination should be carried out in accordance with the minimum frequencies shown in the following schedules (per business unit).

Examination for Salmonella	
Type of compound feed	Minimum frequency, calculated per delivery batch of 24 tonnes
Grand parent stock	1 in 5 batches
Raising/breeding parent stock	1 in 25 batches
Parent stock	1 in 25 batches
Broilers	1 per month
Laying-hens and breeding/raising laying hens	1 per month

4.2 Feed ingredients for production of compound feeds

For every production location where poultry compound feed is produced salmonella-critical feed ingredients should be examined for Salmonella in accordance with the minimum frequencies shown in the following schedule, irrespective of whether they will be processed in compound feeds for poultry or for other animals.

Salmonella-critical feed ingredient:

Type of feed ingredient	Minimum frequency
All feed ingredients on list of Salmonella Critical Feed Ingredients	On arrival at the compound feed production location: representative sampling per 100 tons with a maximum of 4 samples per month

Non-salmonella-critical feed ingredients

Also for every production location where poultry compound feed is produced there should be an examination for Salmonella of non-salmonella-critical feed ingredients which are processed in compound feeds for poultry in accordance with the minimum frequencies shown in the following schedule.

Amount of annual production of poultry feed by business unit	Minimum number of samples per quarter
up to 2,000 tonnes	1
up to 4,000 tonnes	1
up to 6,000 tonnes	1
up to 8,000 tonnes	2
up to 10,000 tonnes	2
up to 20,000 tonnes	5
up to 30,000 tonnes	7
up to 40,000 tonnes	10
more than 40,000 tonnes	12

5. **SAMPLING METHOD**

The samples of compound feed or feed ingredients intended for single feeding should be taken from the product flow at a point as close as possible to loading of the bulk container (or filling of the sacks), or, in the event of process control, as close as possible to the critical point in the process. The samples of end product for process control on the basis of Enterobacteriaceae must be taken at a point as close as possible before loading the bulk container (or filling of the sacks). The quantity of the samples to be taken must be at least 60 grams, sufficient to compose two samples of 25 grams each.

6. **ANALYSIS METHOD**

ISO 6579; 1993 (E) or any other ISO accredited method. The analysis must be carried out by an accredited laboratory.

7. **CORRECTIVE MEASURES FOR A SALMONELLA-POSITIVE RESULT**

If a sample is found to be Salmonella-positive the following actions must be taken.

7.1 Compound feed or feed ingredients intended for single feeding

- * All processed salmonella-critical feed ingredients which are still present must be examined for Salmonella;
- * Each Salmonella-positive sample of compound feed and feed ingredient must then be typified (type of Salmonella);
- * Sampling and analysis must be carried out at critical points in the production process (compound feed) and/or logistical process (feed ingredient);
- * Additional investigation of the cause must be carried out;
- * Suitable measures must be taken to remove the cause.

7.2 Feed ingredient intended for processing in compound feed

When the presence of Salmonella-positive feed ingredient is detected in the factory:

- * there should be an analysis for Salmonella at all critical points in the factory;
- * the necessary cleaning and decontamination measures should be taken.

APPENDIX IV

PROTOCOL FOR THE MONITORING OF PRODUCERS OF COMPOUND FEEDS OTHER THAN POULTRY FEEDS

1. TARGET GROUP

Manufacturers of compound feeds other than those intended for poultry.

2. PRODUCTS

Compound feeds other than those intended for poultry.

3. GENERAL CONDITIONS

N.A.

4. EXAMINATION FREQUENCY

The sampling of the distinguishable types of end product must be done in accordance with the minimum frequency (per company unit) indicated below. This also depends on the treatment to which the product has been exposed.

4.1.1 Salmonella

When testing for Salmonella the test should take place as follows:

Samples of feed ingredients and compound feeds should be taken for analysis. The basic principle is that at least half of the samples should be from compound feed and the remainder from the most critical feed ingredients including the non-salmonella-critical feed ingredients in the judgment of the entrepreneur.

The following table clarifies the number of samples to be taken.

Annual production of compound feed for all types of animal than poultry by business unit (for moisture-rich mixes; quantities of dry substance)	Minimum number of samples per quarter
up to 2,000 tonnes	1
up to 4,000 tonnes	1
up to 6,000 tonnes	1
up to 8,000 tonnes	2
up to 10,000 tonnes	2
up to 20,000 tonnes	5
up to 30,000 tonnes	7
up to 40,000 tonnes	10
more than 40,000 tonnes	12

4.1.2 Enterobacteriaceae

Testing for Enterobacteriaceae must be done per production line on which Salmonella-reducing treatment is carried out, by~

- 1) sampling twice a year at the critical points in the production process in order to determine the level of Enterobacteriaceae and thus test the production process (thermal treatment);

2) sampling of end product per line per quarter.

In addition, at least twice a year, sampling and analysis for Salmonella must take place at critical points in the production process.

4.2 No Salmonella-reducing treatment

If no Salmonella-reduction treatment takes place there should be an inspection as intended in § 4.1.1.

5. SAMPLING METHOD

The samples of compound feed or feed ingredients intended for single feeding should be taken from the product flow at a point as close as possible to loading of the bulk container (or filling of the sacks), or, in the event of process control, as close as possible to the critical point in the process. The samples of end product for process control of Enterobacteriaceae must be taken at a point as close as possible to loading the bulk container (or filling of the sacks). The quantity of the samples to be taken must be at least 60 grams, sufficient to compose two samples of 25 grams each.

6. ANALYSIS METHOD

ISO 6579; 1993 (E) or any other ISO accredited method. The analysis must be carried out by an accredited laboratory.

7. CORRECTIVE MEASURES FOR SALMONELLA - POSITIVE RESULT

If a sample is found to be Salmonella-positive the following actions should be taken.

7.1 Compound feed or feed ingredients intended for single feeding

- * All processed salmonella-critical feed ingredients which are still present must be examined for Salmonella;
- * Each Salmonella-positive sample of compound feed and feed ingredient must be typified (type of Salmonella) ;
- * Sampling and analysis must be carried out at critical points in the production process (compound feed) and/or logistical process (feed ingredient);
- * Additional investigation of the cause must be carried out;
- * Suitable measures must be taken to remove the cause.

APPENDIX V

REPORT SALMONELLA POSITIVE SAMPLES

Download the Salmonella Positive Samples Report here > [open](#) | [save](#)

**FAX THIS REPORT TO AFMA AT THE FOLLOWING NUMBER:
(012)663-9612**