



**Association of Agricultural Supply and Purchasing  
Organisations of Bohemia and Moravia**



# **CODEX**

**of good manufacturing practice  
reducing the risk of salmonella incidence  
in compound feed intended for poultry**

**2008**



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The Association of Agricultural Supply and Purchasing  
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2008-08-30

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*TABLE OF CONTENTS*

<b><i>I. INTRODUCTION</i></b> _____	<b>4</b>
<b><i>II. National Programmes for Reducing of Salmonella Incidence</i></b> _____	<b>5</b>
National programmes _____	6
<b><i>III. Control of salmonella incidence in raw materials</i></b> _____	<b>7</b>
<b>1. Supply and take-over of raw materials – general requirements</b> _____	<b>7</b>
<b>2. Storing of Raw Materials – General Conditions</b> _____	<b>7</b>
<b>3. Raw Material Classification</b> _____	<b>8</b>
<b>4. Monitoring of Salmonella Incidence in Raw Materials</b> _____	<b>9</b>
<b>5. Sampling and Analysing (Serotyping)</b> _____	<b>9</b>
<b>6. Evaluation of risky raw materials</b> _____	<b>10</b>
<b>7. Assessment of Raw Material Supplier</b> _____	<b>10</b>
<b>8. Measures in Case of Raw Material Contamination</b> _____	<b>11</b>
<b><i>IV. Control of Salmonella Incidence in Technological Equipment in the Process of Manufacturing and Storing of Compound Feed</i></b> _____	<b>12</b>
<b>1. Technological Equipment</b> _____	<b>12</b>
<b>2. Salmonella Incidence Control as a Part of HACCP System</b> _____	<b>12</b>
<b>3. Employees</b> _____	<b>12</b>
<b>4. Sampling Method and Analysis of Samples</b> _____	<b>12</b>
<b><i>V. Precautions Preventing Salmonella Incidence in Feed</i></b> _____	<b>14</b>
<b><i>VI. Transport of Feed</i></b> _____	<b>15</b>
<b><i>VII. Hand-Over of Compound Feed to Customer</i></b> _____	<b>16</b>
<b><i>VIII. Keeping Records of Salmonella Incidence Control in Compound Feed Plant and Measures Implemented in the Feed Industry</i></b> _____	<b>17</b>
<b><i>IX. Collection of Data on Salmonella Incidence Control and Measures Implemented in the Feed Industry</i></b> _____	<b>17</b>

## I. INTRODUCTION

Recently, salmonella incidence in the food chain in European Union member states, including the Czech Republic, has become a serious risk compromising human health. Salmonella incidence can be caused by a great number of reasons. Salmonella bacteria have been found in hatcheries, reproduction and production breeds. Salmonella is also found in slaughters and food-processing industry. Feed may be one of the sources of salmonella incidence. Therefore it is of paramount importance that a great attention is given to this risk in manufacturing of compound feed intended particularly for poultry. Consequences of detection of salmonella presence not only have impact on human health – we should realize an increasing trend in people morbidity in the Czech Republic caused by salmonella infection – but they have considerable economical impacts as well, associated e.g. with elimination of layer flocks in which salmonella was found, or as a consequence of measures taken, e.g. broilers can be further used only after being heat-processed.

With regard to severity of the situation in the EU member states, the European Commission have issued a whole range of regulations in order to establish national programmes for reduction of salmonella incidence in poultry. In particular, the regulations are targeted at reducing of incidence of *Salmonella enteritidis* and *Salmonella typhimurium*. The national programme for the Czech Republic, developed by the State Veterinary Administration, also comprises control of feed as one of potential sources and carriers of salmonella bacteria.

Compound feed manufacturers who are members of the Association of Agricultural Supply and Purchasing Organizations of Bohemia and Moravia (CMSOZZN hereinafter) produce more than 70 % of the total volume of the compound feed produced. Their participation in production of compound feed intended for poultry is even higher. 961,960 tons of compound feed for poultry was produced in the Czech Republic in 2006 (as per statistical data of the Ministry of Agriculture /MZe hereinafter/). Out of it, 908,025 tons was produced by member organizations of CMSOZZN (as per CMSOZZN statistical data), which is 94.4 % of the total annual production. The data clearly imply that our member organizations are those who have the greatest responsibility for quality and harmlessness of compound feed intended for poultry. The present situation is typical with an individual approach of compound feed manufacturers to mitigate a risk of salmonella incidence in feeds. However, there is quite a number of manufacturers presently who attend to solving of this problem with a systematic approach. Attention should be also paid to the fact that taking individual measures targeted at significant reduction of salmonella incidence require some additional costs that will consequently influence prices of compound feed. Compared to this, losses in consequence of measures imposed in poultry breeds and in the food industry are considerably higher – every compound feed manufacturer and poultry breeder should be aware of this proportion. Even though among the EU member states there is no unified approach to prevention of salmonella incidence in feed, the European Feed Manufacturers'

Federation (FEFAC) invites their member organizations, including our association, to have more active approach to solving of this problem. Elaborated and effective systems exist e.g. in Sweden, Finland and Denmark where the law places the duty on compound feed manufacturers to monitor incidence of salmonella. Effective systems based on willingness are e.g. in the Netherlands, Great Britain and Germany. Based on cooperation between associations of compound feed manufacturers and associations of breeders and producers of poultry and eggs, good manufacturing practices were elaborated in those countries, which include particular partial measures for production, storing and transport of compound feed and cur down potential incidence of salmonella in feed. It's worth mentioning that similar good manufacturing practices have been elaborated for individual levels of poultry breeding since only a complex approach can take effect in overall improvement of the situation of salmonella incidence in the Czech Republic.

Upon an agreement with the Czech-Moravian Poultry Union, the Association of Agricultural Supply and Purchasing Organizations of Bohemia and Moravia have decided to prepare a Code of Good Manufacturing Practice implementation of which should eliminate or at least significantly reduce the risk of salmonella incidence in poultry compound feed. The Code of Good Manufacturing Practice for production of salmonella-free poultry compound feed covers the whole manufacturing process, starting with control of feed raw materials which are risky in terms of salmonella contents, storing of feed raw materials, the technological process including potential heat processing or use of salmonella-killing agents, storing and transporting of final compound feed and hand-over to the customer. The Code also includes procedures for testing, sampling and sample analysis, measures taken in case of finding of salmonella presence, keeping records on checks performed and regular evaluation, both on the side of the manufacturing plant and on the side of the whole branch of the feed industry. Implementing this good manufacturing practice is voluntary. In relation to a customer, i.e. a poultry breeder, offering of compound feed with a high level of guarantee that it is salmonella-free is of paramount importance, and vice versa, poultry breeders should adhere to the principle to purchase compound feed only from a manufacturer who has established the Code of Good Manufacturing Practice for production of salmonella-free poultry compound feed.

## **II. National Programmes for Reducing of Salmonella Incidence**

Harmonized national programmes for reducing of salmonella in EU stem from general rules and time schedule according to the Council and Parliament regulation 2160/2003/ES and are available in websites <http://eur-lex.europa.eu>. In the Czech Republic, programmes for reproduction and production breeds of *Gallus gallus* layers are being realized at present. Other two programmes for fattening of chickens and turkey breeds are in a preparatory phase.

## National programmes

- a) A national programme for reducing of salmonella in reproduction breeds (*S. enteritidis*, *S. typhimurium*, *S. infantis*, *S. virchow*, *S. hadar*) effective from 01/01/07
- b) A national programme for reducing of salmonella in production flocks (*S. enteritidis*, *S. typhimurium*) effective from 01/01/07
- c) A national programme for reducing of salmonella in broiler flocks (*S. enteritidis*, *S. typhimurium*) effective from 01/01/09
- d) A programme for reducing of salmonella in turkey breeds will be applicable from 2010.

The complete wording of the programmes can be found in websites [www.svs-cr.cz](http://www.svs-cr.cz)

The objective of the national programmes is to reduce salmonella incidence in the environment. It's been determined to reduce the number of positive flocks to 1 % or less by 31/12/09. In production breeds of layers, prevalence of positive flocks lower than 37.5 % should be achieved. At present, a national programme for reducing of salmonella prevalence in broiler flocks is being prepared and it will become effective from 01/01/09.

In the case of a positive finding in a reproduction breed, confirmation samples of poultry are examined and based on their result the flock is determined upon. The option of confirmation samples in production breeds will be abandoned starting with 01/01/09 and if a positive result of *S. enteritidis* or *S. typhimurium* is found in the environment, all eggs coming from the environment will be classified in class B and intended for heat processing. Flocks will not be slaughtered any more, only in the case of suspected infection, it is in the case of clinical symptoms of flock infection and laboratory confirmation of it.

Within the national programme for reducing of salmonella in broiler flocks, there will be a duty to test the environment using swab cuffs within three weeks before the slaughter so that the result will have been known by the time of slaughter. The examination result will be handed over to the slaughter facility within the information on the food chain.

The harmonized programmes also comprise the Methodology of Animal Health Control and Imposed Vaccinations issued annually by the State Veterinary Administration (SVS) of the Ministry of Agriculture and Nutrition of the Czech Republic.

Feeds intended for livestock are tested for presence of salmonella in compliance with the ES regulation No. 1774/2004 of SVS CR via the respective Regional Veterinary Administration. Random sampling is performed by an official veterinarian in facilities manufacturing compound feed or in poultry farms.

### **III. Control of salmonella incidence in raw materials**

In terms of a compound feed manufacturer, salmonella is primarily a problem of raw materials as results of the current analyses show. The basic rule of every single manufacturer is to be alert when purchasing raw materials.

#### **1. Supply and take-over of raw materials – general requirements**

- a) Raw materials can be purchased only from a manufacturer or importer registered according to the European Parliament and Council (ES) regulation No. 1831/2003 laying down requirements for feed hygiene,
- b) Supplier must meet the conditions applicable to purchase, treatment and storing of raw materials which are mentioned in the Collection of Good Practices Principles and HACCP for production, storing and shipping of complementary materials, premixes and feed intended for animals giving products for food production – a common bulletin of the Ministry of Agriculture and the Association of Agricultural Supply and Purchasing Organizations of Bohemia and Moravia,
- c) Raw materials can be purchased only from suppliers who perform long-term systematic control of salmonella presence (see below)
- d) Each delivery must be accompanied by protocols which must contain the following sections:
  - 1) date / time of take-over,
  - 2) indication of a container delivering the goods,
  - 3) name of the starting feed,
  - 4) the amount delivered,
  - 5) supplier,
  - 6) delivery instruction or references,
  - 7) analytical results necessary for the feed safety management
  - 8) the country of origin.
- e) Origin of each batch of the raw materials supplied must be traceable,
- f) An assigned and trained person must be present at the delivery and take-over.

#### **2. Storing of Raw Materials – General Conditions**

- a) Raw materials must be stored in a dry place with hygiene rules maintained and access of rodents, birds and domestic animals must be avoided. Any source of moisture must be



eliminated immediately. Sufficient ventilation is necessary for prevention of water vapour condensing,

- b) Raw materials must not be stored near stables with animals or near wastes of animal origin; raw materials must not be stored in premises in which animals were stabled in the past unless the premises were cleaned and disinfected properly,
- c) Floors of the storing premises must be made of concrete, asphalt or any solid material and must be vegetation-free. Walls and floors should be made of leakproof materials. Storing premises must be made of durable materials and must be closed. The entry to a warehouse should be provided with a sufficiently large hardened area to avoid contamination with mud or other dirt. Doors (the entry) must be solid and tight, closed all the time except for a time needed for delivering materials to and dispatching from the warehouse. The personnel entry must be separated. If doors have to be opened due to venting, entry of birds or other animals must be avoided,
- d) Individual raw materials must be separated sufficiently,
- e) Warehouses must be cleaned on a regular basis and must be clean when raw materials are delivered in,
- f) A warehousing system for safety storing must be worked out (simple identification, prevention of exchange possibility, a FIFO principle – first in, first out),
- g) Warehouses of raw materials must be separated from warehouses of the final products (compound feed),
- h) Great attention must be paid to potential contamination with dust,
- i) Each storing premises must have a decontamination plan elaborated,
- j) Acceptance baskets and raw material warehouses are among the most critical issues in terms of salmonella contamination within the whole process,
- k) Contaminated basic starting materials intended for treatment, return or disposal must be safely separated from other raw materials.

### **3. Raw Material Classification**

The basic purpose of raw material classification is:

- a) Identification and a special control of risk factors – raw materials and suppliers,
- b) Assessment of raw materials and suppliers based on the checking results,
- c) If necessary, a raw material should be rejected, or the respective supplier should be disqualified from the raw material suppliers.

#### **4. Monitoring of Salmonella Incidence in Raw Materials**

Manufacturer is responsible for inspecting of starting materials. For that reason they must check starting materials continuously for salmonella presence, including serotyping. All types of raw materials intended for production of feed should be monitored.

It's in the manufacturer's interest to create as extensive database of control samples as possible in order to determine the level of the risk of salmonella contamination in particular raw materials and individual suppliers of raw materials. For that reason, individual manufacturers should share their databases of the testing results. The target status is establishing of a common national database of salmonella prevalence in feed which would provide manufacturers with an overview of salmonella prevalence in particular types of feed raw materials. The final products (compound feed) must also be subject to monitoring.

In order to establish an effective monitoring the following elements are necessary:

- a) Qualified personnel for sampling,
- b) Technical equipment and tools for sampling,
- c) Sampling must follow an approved methodology,
- d) Monitoring results must be assessed formally and evaluated by a quality control qualified person,
- e) The manufacturer should have access to their own or an external microbiological laboratory capable of providing credible analyses results,
- f) Samples taken should be stored for at least one month for the purpose of a follow-up analysis.

#### **5. Sampling and Analysing (Serotyping)**

Sampling and analyses of starting feeds must be performed in accordance with a control plan.

Frequency of sampling follows previous results and evaluation of individual raw materials and their suppliers. Raw materials and suppliers who are labelled risky undergo more frequent inspecting. A minimum frequency of sample analysing is one month. Analyses of raw material samples must follow approved methods. Serotyping of detected salmonella types must be performed according to approved reference methods.

Records that must be retained:

- a) Sample label and identification and the date of sampling,
- b) The detail result including serotyping,
- c) Records on the raw material flow,
- d) Record on measures taken in the case of a positive finding.

Raw materials should be sampled on acceptance to the warehouse and on release from it so that a potential source of contamination in the warehouse was revealed. The source must be found and eliminated immediately.

## **6. Evaluation of risky raw materials**

Some basic raw materials show a high level of contamination with salmonella and should be monitored and checked. However, salmonella may be found in all types of basic raw materials. Outputs obtained from in-house or shared databases of raw materials are used as a background source for determination of a risk level. If a manufacturer does not have enough results from the internal or shared monitoring of raw materials, they use available databases for evaluation of raw materials. The internal database can be combined with an external source; compatibility of data must be ensured.

Raw materials should be at least divided into three risk categories (high, medium, low) according to results of previous monitoring or according to databases available.

As an example of raw material categorization in terms of the risk level of salmonella contamination, a division based on monitoring results of PDV (the Dutch Animal Feed Product Board) or EFSA (the European Food Safety Authority) published in 2005. Base on the results, raw materials can be divided as follows:

### **High risk level:**

#### **Usual incidence 5-15 % of contaminated raw materials**

- Rape seed extracted, rape seed expeller

### **Medium risk level:**

#### **Usual incidence 5 % of contaminated raw materials**

- Sunflower seed extracted, Sunflower seed expeller
- Soya seed extracted or expeller (South America only)
- Full-fat soya beans, treated under hypothermic conditions
- Fish meal (South America only)

### **Low risk level:**

#### **Usual incidence up to 3 % of contaminated raw materials**

- Other raw materials – in particular cereals (contamination up to 1 %)

## **7. Assessment of Raw Material Supplier**

In case of a lack of available data the supplier is evaluated on the basis of results obtained from internal or shared databases of raw material monitoring. Declaration on salmonella

incidence in raw materials should be a part of purchase agreements or other contractual clauses. Manufacturer familiarize with the quality assurance system of the supplier. The system should also involve monitoring of salmonella incidence based on, if possible, the HACCP basis. Outcomes of the check are accessible to the supplier.

Physical checking of functioning of the quality assurance system is also a part of evaluation of raw material suppliers. The checks are performed particularly at suppliers' whose quality assurance system is not certified continuously by an independent certification subject.

Thorough familiarization with the quality assurance system of the raw material supplier is more important than written guarantee "salmonella free".

Raw materials should be classified in minimum of 3 risk categories (high, medium, low risk) according to results of the previous monitoring.

Supplier, in whose facility a high risk level of raw material contamination has been found out should be permanently or temporarily disqualified.

## **8. Measures in Case of Raw Material Contamination**

- a) Reporting a positive finding to the supplier, or a warehouse-keeper and transporter. In case of including in the common monitoring providing the result to the common database,
- b) Increasing the frequency of controls in deliveries from the supplier with a positive finding,
- c) Rejecting a contaminated batch from operation, and fulfilment decontamination,
- d) If a contaminated raw material cannot be rejected from operation and must be or was processed in the final feed, the final product must be subsequently treated thermally or chemically so that the total decontamination was performed,
- e) All areas and parts that might be contaminated with a positive raw material must be cleaned properly,
- f) Cross-contamination must be avoided.

The above-mentioned measures are a part of a decontamination plan of raw materials. If a contaminated raw material cannot be safely and effectively decontaminated in the manufacturing process, the raw material must be returned to the supplier or disposed of safely.

## **IV. Control of Salmonella Incidence in Technological Equipment in the Process of Manufacturing and Storing of Compound Feed**

### **1. Technological Equipment**

- a) All parts of technological equipment which get in contact with feed must be designed so that they are cleanable
- b) Cleaning should be performed in regular intervals and each time an extraordinary contamination occur (e.g. baskets for acceptance of raw materials)
- c) Particular attention should be paid to the acceptance basket, draining of condensate in the granulation cooler and cleaning of aspiration equipment,
- d) One of the basic requirements is maintaining the floors, walls and partitions clean,
- e) Trained employees should perform regular checking of cleanliness of technological equipment. They target the checking activities particularly at cleanliness of the acceptance basket, silk bins for raw materials, stirring device, transport routes, granulator and granule cooler and bins for final compound feed,
- f) Unauthorised persons mustn't enter the building in which storing and manufacture is performed and measures preventing access of birds, rodents and domestic animals are taken.

### **2. Salmonella Incidence Control as a Part of HACCP System**

It is recommended that the whole process of control of salmonella incidence, i.e. from acceptance of compound feed through storing and subsequent production of compound feed, including storing and transport of them, was a part of the system of analysis of (microbial) risk on the basis of determination of monitoring of critical control points of HACCP.

### **3. Employees**

- a) All employees taking part in the manufacturing process should be trained and informed of the required duties which relate to prevention of salmonella incidence in compound feed,
- b) Employees taking part in the manufacturing process should have a change-room available and have to use working clothes.

### **4. Sampling Method and Analysis of Samples**

The following conditions should be ensured for effective control:

- a) Prevention of contamination of the sample by the sampling person – from external sources, or cross-contamination between separate sampling points,
- b) Compromising of health of sampling person and transporter of samples – samples can be handled as potentially hazardous material,
- c) With regard to predicating capacity of results and interpretation of them the sampling method should be harmonized.

The following principles should be observed in order to ensure proper sampling:

1. Basic types of samples are as follow:
  - Raw materials and final compound feed
  - Dust and impurities (e.g. take off chutes and baskets, technology etc.),
  - Swabs (from similar places which do not provide enough material for sampling of dust, monitoring after decontamination etc.),
  - Foot (“overshoe”) samples – for monitoring of burden of large areas. For sampling, standardized sampling kits will be used. They contain the following:
    - Sterile gloves,
    - A sterile sampling bag (a bag for shaker – stomacher will be the best choice, it is used in the subsequent determination for non-selective propagation of sample),
    - For swabbing, sterile sampling swabs and saline solution for damping,
    - For foot samples plastic shoe-covers and the tread covers made of an absorbent material and saline solution for damping of them
2. Other sampling tools (e.g. spades) should be well cleanable and a thorough mechanical cleaning and disinfecting is necessary between separate samplings (preferably with paper wiper and then with alcohol or a high temperature – do not use chemical agents which could affect the result of analysis of a subsequent sample).
3. Each sample includes a filled out record (protocol) on sampling which contains the following data at minimum:
  - Date of sampling,
  - Sampling point (a loading basket and where.., the floor and where.., etc.)
  - Sample labelling (name of raw material, KS, swab, dust, etc.),
  - Sampling person’s name,
  - Other data – all facts that are important for result interpretation (e.g. leaking water, tracks or rodents and birds, etc.)
4. When a sample is taken and record on sampling filled out, the sample should be transferred as soon as possible to a laboratory which will perform testing. If it is not

possible, the sample must be kept at a temperature of 5-8 °C till dispatch. Samples are transported properly packed (preferably in a transport box or in a multilayer shock-proof envelope); transport by mail or through a shipping company. Increase in temperature during transportation for 1-2 days does not have a significant influence on the analysis result.

5. A laboratory performing determination of *Salmonella* sp. should be competent to do it. The method used should be validated in the laboratory (accredited at the best). As the standard, a method according to ČSN ISO EN 6579 is used due to the maximum compatibility with Programmes of reduction in salmonella incidence organized by the State Veterinary Administration, preferably in the design according to Amendment No. 3 on a semi-solid medium. If the finding is positive, the test comprises biochemical and/or serological confirmation; isolates should be kept (if possible) for future detail confirmation intended for e.g. tracing of a source of contamination.

## **V. Precautions Preventing Salmonella Incidence in Feed**

Based on results of monitoring of raw materials, compound feed and all technological elements, preventive and sanitary precautions are taken. The precautions should lead to minimizing of risks at all levels of production.

### a) Technological precautions:

- Consistent separation of risk and non-risk raw materials,
- Minimizing of potential contamination by rodents and birds,
- Preventing of contamination of air drawn into the cooling column,
- Prevention of penetrating of moisture into individual production technological elements,
- Minimizing of formation of aggregates in the process of production, storing and transportation,
- Continuous maintaining of cleanliness in the course of the whole process of production, storing and transportation.

### b) Treating of raw materials and final feed

Some effective precautions should be taken in order to eliminate salmonella in feed. The precautions can be further divided into preventive precautions and targeted decontamination measures. However, both preventive and targeted measures must always ensure potential decontamination.

Recommended decontamination methods include treatment by heat, chemical treatment or combination of both.

During thermal treatment a raw material or feed should be heated over 81 °C for 180 seconds. If parameters are met the treatment eliminates potential positive occurrence of salmonella. Measures taken during re-cooling should ensure that cooling air and other handling are not a cause of re-contamination of treated feed.

Chemical treatment by products based on organic acids is another possibility of elimination of positive occurrence of salmonella. Application of it must guarantee the same level of decontamination as thermal treatment. An advantage of chemical treatment is reduction in a risk level of recontamination in further handling of treated feed.

c) Preventive sanitation interventions to technological, storing and transporting equipment:

Check of potential risk of contamination of technologies in the whole process of production, handling and storing should be an inseparable part of regular monitoring. Manufacturer has to elaborate a plan of disinfections and sanitation which should be fulfilled properly and its efficiency should be thoroughly verified.

Based on monitoring, risk points in the whole process of production, storing and transport should be defined and so should be frequency of measures taken.

The basic preventive measure is regular cleaning completed with appropriate sanitation with chemical agents. It is advisable to adjust frequency of checks and sanitations based on results of effectiveness of measures taken.

d) Measures in case of detecting salmonella presence:

- Handling of contaminated material should be stopped without delay,
- Information should be reported immediately to the plant management,
- The plant management should take effective measures to minimize risks,
- Contaminated raw material or feed passes to the risk category,
- Thorough monitoring of all raw materials and technology should be performed in order to find causes of contamination,
- Positive material is decontaminated and technological equipment which might be contaminated in the process of handling and production is sanitized,
- Contaminated material can be released only based on verification of 100% efficiency of decontamination interventions performed,
- After finding out causes of contamination new preventive measures are taken to prevent re-contamination,
- Re-classification to a non-risk category can be performed only after consistent monitoring of effectiveness of measures taken.

## **VI. Transport of Feed**



For transportation of feed, general requirements are applicable, stated by the Code of good practices principles and HACCP for production, storing and transport of complementary materials, premixes and feed intended for animals giving products for production of food in part E – Principles of good manufacturing practice in transport of feed, complementary materials and premixes.

In addition to these requirements the following should be ensured for preventing of potential contamination with salmonella:

1. For transportation of feed raw materials:

- a) Cleaning of loading area always before transport and after transport of feed raw materials potentially risky in terms of likely incidence of salmonella,
- b) Cleaning of loading area using mechanical tools and then with an allowed disinfectant appropriate for elimination of salmonella,
- c) Random verification of cleaning efficiency via swabbing and analysing for salmonella presence,
- d) Feed raw materials should be transported in covered transport containers,
- e) Appropriate prevention of access of birds and rodents to transported feed raw materials,
- f) Random check of adherence of the afore mentioned requirements and recording the checks performed.

2. For transportation of compound feed:

- a) Cleaning of transport space before transport of compound feed for poultry each time the previous compound feed transported was not intended for poultry,
- b) Cleaning should be mechanical (e.g. pneumatic) and random so-called wet-cleaning using approved disinfectants appropriate for elimination of salmonella,
- c) Compound feed, both loose and bagged one, should be performed only in covered transport containers,
- d) Random verification of cleaning effectiveness via swabs and analysing of them for presence of salmonella,
- e) Adherence to the mentioned requirements to perform random checks and record them.

It is important to ensure that the above-mentioned principles apply to both in-house and contractual transport.

## **VII. Hand-Over of Compound Feed to Customer**

In terms of prevention of salmonella incidence in the facility, a supplier of compound feed recommends the customer regular cleaning of storage bins in which the compound feeds are stored and from which the feed is dispatched to technologies of feeding lines, or regular cleaning of intermediate storage bins if they are a part of the technology. The compound feed supplier should inform the customer about implementation of the Code of Good Manufacturing Practice reducing the risk of salmonella incidence in compound feed including the type of a specific measure taken (e.g. granulation, or what product is used).

It is recommended that a compound feed customer implement a Code of Poultry Breeder (good operation and hygiene practice for feeding without incidence of salmonella), which was published by the Czech-Moravian Poultry Union. In the scope of zoo-consulting and counselling services, it will offer to the breeder a professional assistance during implementing it. If customer requires sampling of compound feed for determination of salmonella presence, they will agree with the supplier on their presence at sampling, the sampling method, and requires a part of the sample taken for in-house analysis.

### **VIII. Keeping Records of Salmonella Incidence Control in Compound Feed Plant and Measures Implemented in the Feed Industry**

In order to make valid conclusions based on the results of salmonella testing, appropriate records should be kept in each manufacturing facility, which contains the following data at least:

- a) Date of sampling,
- b) Sampling point (a loading basket and where., floor and where., etc.),
- c) Sample labelling (name of raw material, KS, swab, dust, etc.),
- d) Sampling person's name
- e) Other data – all facts that are important for result interpretation (e.g. leaking water, trace of present rodents and birds, etc.)
- f) Result of the testing (salmonella negative – positive),
- g) Results of serotyping, if performed.

For further data processing it is convenient to establish database keeping of data – it is unambiguous and unique naming of particular fields and data.

### **IX. Collection of Data on Salmonella Incidence Control and Measures Implemented in the Feed Industry**

Summary data on salmonella prevalence in feed and on measures taken are important as a background for negotiations with surveillance authorities and the Ministry of Agriculture,

namely in preparation of measures of nation-wide importance, such as e.g. the National Programme of Reduction in Salmonella Incidence for upcoming periods. Results can be also used for the needs of the European Feed Manufacturer's Federation (FEFAC) for presentation of approaches of industrial manufacturers producing compound feeds to prevent incidence of salmonella in feed in individual EU member states. Summary overviews of salmonella prevalence in feed are also important in filling out of questionnaires which are distributed by the European Commission to feed associations in member states. Last but not least, presentation, presentation of the found out data on salmonella incidence in feed also in relation to poultry breeders and the feed industry is also important.

Data on salmonella prevalence in feed will be summarized by the Association of Agricultural Supply and Purchasing Organizations of Bohemia and Moravia, based on results sent by the member organizations which produce compound feed for poultry. The Association of Bohemia and Moravia should guarantee anonymity of the data received and mustn't mention identity of manufacturers in relation to positive incidence of salmonella.

Member organizations of ČMSOZZN will send found out data on numbers of samples taken, results of analyses for presence of salmonella and measures taken, in electronic form of subsequently presented tables, for calendar year 2008, by 20<sup>th</sup> Jan 2009 at the latest. Similarly, for the future calendar years by 20<sup>th</sup> Jan of the respective year at the latest.

ČMSOZZN will process the submitted data in summary tabular overviews including a brief commentary which will characterize situation in salmonella prevalence in feeds in the Czech Republic, including efficiency of the measures taken. A summary report for the respective year will be published by 1<sup>st</sup> March of the following year at the latest.

**Examples of tables**

A number of samples taken and results of analyses for presence of salmonella in ..... (indicate the year)

A) Samples taken from feed raw materials

Feed raw material	Total number of samples taken	Total number of positive results	% of positive samples out of the total number sampled

**Note:** feed raw material – e.g. extracted rape seed etc., sampling point e.g. in the store, transport vehicle, storage bin etc.

B) Samples taken from compound feed produced

Compound feed name	Sampling point	Total number of samples taken	Number of positive results	% of positive samples out of the total number sampled

**Note:** compound feed name – e.g. BR-3, N etc.; sampling point – e.g. after the mixer, from a storage bin, during filling of a transport vehicle, from the transport vehicle etc.

C) Samples taken from swabs

Swabbing point	Total number of swabs (samples)	Number of positive results	% of positive samples out of the total number of swabs (samples)

**Note:** swabbing point – e.g. the floor (wall) of a compound feed store; technological equipment – name the sampling point, e.g. in the acceptance basket, the raw material storage bin (for compound feed), the transport vehicle, condensate under the granule cooler etc.

If a result positive for presence of salmonella is found the measure taken should be characterized briefly. E.g. heat-treatment, granulation, treatment with a chemical agent, recall of the respective product from the circulation etc. performed

## Notes

## Notes

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Title of Work: Code of Good Manufacturing Practice Reducing Risk of Salmonella Incidence in Compound Feed for Poultry

Publisher: The Association of Agricultural Supply and Purchasing Organizations of Bohemia and Moravia

Type-Setting: Ing. V. Pokorný, CSc.

Print: Printing office PEMA  
Nad Primaskou 43, 100 00 Prague 10

Published without a stylistic revision

ISBN: 978-80-254-2343





**Published by:**  
**Českomoravské sdružení organizací**  
**zemědělského zásobování a nákupu**  
**Opletalova 4, 113 76 Praha 1**  
**internet: [www:cmsozzn.cz](http://www:cmsozzn.cz), e-mail:[cmsozzn@cmsozzn.cz](mailto:cmsozzn@cmsozzn.cz)**

**ISBN: 978-80-254-2343-1**