

## Why do we take bacteriological samples?

- Correctly obtaining quality bacteriological culture samples under field conditions is essential in the timely and reliable diagnosis and effective treatment of poultry diseases.



## Procedure

### Key Considerations for Bacteriological Sampling

- Samples should be taken from living or recently dead animals.
- Samples should be taken from site(s) showing possible signs of disease as early as possible after illness is observed.
- Samples should be obtained from the edge of lesions as microbial replication will be the most active at this location.
- An aseptic (sterile) technique is essential to avoid cross-contamination during sample collection.

**Note** - Samples taken from animals recently treated with antibiotics are of little value for the isolation of bacteria.

### Equipment Needed for Sampling

- Scissors
- Scalpel
- Forceps
- Spatula
- Bacteriological loop
- Spray with an alcohol based disinfectant
- Gloves
- Bunsen burner
- Sterile swabs in individual containers
- Sterile transportation containers

Specimen Types	Examples
Fluids	Blood, Egg Contents, Exudates (fluid from tissues)
Swabs	Body Surfaces and Body Cavities
Tissue	Internal Organs
Feces	Fecal Material

**Note** - Types of specimens required for bacteriological culture vary significantly depending on the disease suspected. Specimens required for each disease should be determined by a veterinarian. Always consider collecting an appropriate and complete set of specimens for the disease suspected. Incorrect specimen collection could cause an unreliable result of the bacteriology test.

## Procedure for taking bacteriological samples

All birds used for sampling must be humanely euthanized by a trained individual.

### Step 1 Prepare work area and sampling instruments

- Disinfect the work area with an approved disinfectant.
- Clean and sterilize instruments by flaming them over a Bunsen burner and allowing them to cool prior to use.



### Step 2 Sampling

#### Procedure for Taking Tissue Samples

- Always wear gloves.
- Flame instruments until cherry red and allow cooling prior to use.
- Using a scalpel cut a piece of tissue (approximately 4 cm<sup>3</sup>).
- Using forceps, place tissue into a sterile container. If multiple tissue samples are taken place each in a separate container.
- Send sample to the microbiology laboratory.

#### Procedure for Taking Swab Samples

- Swabs should be taken if fresh tissue samples are not an option.
- Expose the organ surface, joint or cavity from which the swab is to be taken.
- Immerse a sterile swab into the sample material or fluid.
- Place swab into sterile tube containing appropriate bacteriology transportation media (commercially available).



**Note** - Bacteriological samples from intestines should always be collected last to avoid contamination of other organs with the intestinal content during necropsy.

## Sending samples to the laboratory

- Submit samples in individual leak-proof containers.
- Containers should be clearly labeled indicating identity of the bird, specimen information and the date of collection.
- All information related to samples should be filled in on the sample submission form. This form can be obtained from the laboratory performing the analysis and should include:
  - Brief clinical history of the case, including the age and sex of birds affected.
  - Information on any treatment administered.
  - Tentative diagnosis and prevalence of the diseases in the flock.
  - Information on tissues sampled.
- Samples should be delivered to the laboratory on ice packs as soon as possible (they must arrive within 24 hrs).
- If transportation is delayed, samples should be refrigerated at 4°C (39°F).
- Correctly taken samples can be invalidated by improper transportation.
- Samples taken for anaerobic bacteria isolation (e.g. Clostridia, Campylobacter) require specific sampling and transportation conditions, which should be recommended by a veterinarian.
- Sampling quality determines bacteriology test result reliability.

Example of a leak-proof container for sample submission.

