National Diploma Plant/Animal

Marketing Agri-Products

Handout 19

Inspections for Meat and Dairy

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The inspections at an abattoir

At an abattoir meat inspection forms an important part of quality control.

a) To ensure that only apparently healthy, physiologically normal animals are slaughtered for human consumption and that abnormal animals are separated and dealt with accordingly.

b) To ensure that meat from animals is free from disease, wholesome and of no risk to human health.

Therefore, specific inspection procedures are followed to minimise contamination.

Meat inspection should be seen as an integral part of the slaughter and production process and is not regarded as an end product inspection. It consists of the following

aspects:

- Ante-mortem inspection
- Primary (on the line) inspection
- Secondary meat inspection of detained carcasses or organs
- Laboratory analysis including screening procedures

A final decision about a carcass or part of one must be based on all the information obtained from these ante-mortem inspections, visual inspections, palpations, incisions, smells and laboratory analysis forthcoming from these procedures.

The following areas of concern are addressed during this process:

An ante-mortem inspection is the first opportunity to:

- recognize and have removed those animals that cannot be converted to a wholesome product or may act as a possible source of contamination identify and slaughter separately animals suspected of being affected by a disease that might render the carcass or part of it unfit for human consumption
- gather information of importance for the evaluation of the carcass during meat inspection. Examples are Rabies, Tetanus, diarrhea and abscesses

A routine meat inspection remains the most important way to identify and remove pathology and abnormalities, including contamination that poses a threat to both the safety and quality of the product. The judgement of carcasses and organs are based on:

- the severity of the lesions
- the causes thereof

- and the duration of the lesions.

Provided care is taken in the interpretation of results, microbiological examination of meat is of value in the assessment of wholesomeness, of hygienic methods adopted during slaughter, dressing and processing and of the efficiency of methods of preservation. It can also indicate the potential shelf-life and identify potential health hazards.

The bacterial status of meat is determined in superficial and deep samples. Superficial samples may be taken by removing thin slices, by rinses, swabs or adhesive tape, or by the agar sausage and impression plate techniques. Deep samples of meat must be taken with care in order to avoid superficial contamination. They can be obtained using sterile scalpels and forceps or, in the case of frozen meat, a cork borer or an electrical drill fitted with a bore extracting bit.

Although microbial counts have been made the basis of food microbiological analysis, they are defective indicators for the following reasons:

- bacteria in food are not stable like heavy metals; their populations vary constantly
- food usually contains a variety of micro-organisms, some or all of which may enhance or inhibit each other
- time of sampling, usually at plant or retail shops, gives no indication of the final microbial count in the consumer's home, long after sale
- the number of organisms or amount of toxin or allergen which affects man is not known
- environmental conditions, e.g.: temperature, pH and type of sampling, markedly influence bacterial growth
- counting microbes is a cumbersome procedure

The following areas are examples of control areas (not always critical control points) at the abattoir to eliminate or reduce poor meat quality:

- Assessment of the transport used for animals to the abattoir
- Ante-mortem inspection of livestock
- Compulsory resting periods for slaughter stock
- Measures to ensure the cleanliness of slaughter stock
- Meat inspection

Slaughter processes and control measures to reduce the possible contamination of meat with the external skin/hide surfaces.

- Routine and specific laboratory diagnostics to confirm disease conditions or residues.
- Chilling

The inspections on a dairy farm

Platform tests or milk reception tests are the commonly used names for the tests carried out by the persons responsible for raw milk collection and/or reception. The tests in question are rapid quality control tests - organoleptic tests being of great importance.

This is important from the point of view of processing and quality of end products, because one single lot of milk of poor quality can spoil the rest of the milk it is mixed with.

Application of platform tests does not directly involve laboratory analysis of raw milk samples but in suspected cases a sample from milk should be taken to the laboratory for further inspections for quality. This lot of milk should be taken aside and not mixed with bulk milk in order to verify its quality.

At milk reception sites - during milk collection and reception at milk plant – the platform tests can be applied as follows:

Organoleptic tests

- The appearance of the surface of the milk and the lid is observed (Any abnormal colour of the milk)
- Any abnormal smell

Lactometer test (determination of adulteration of milk by adding water)

- If the milk appears to be too thin and watery and its colour is "blue thin" it is suspected that milk contains added water.

Alcohol test (rapid determination of elevated acidity of milk)

- Any reason to suspect that milk is sour.
- If the result of alcohol test indicates too high acidity in milk a sample from milk is to be taken to the laboratory for further testing of titratable acidity.

One of the most important tasks of quality control is to control and follow up regularly the fulfilment of quality standards at every stage of the process flow in order to guarantee the best possible quality of end products.