

A Practitioner's Perspective On Beef Carcass Condemnations

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Introduction

The numbers and incidence of carcass condemnations in steers and heifers presented for slaughter for the last three years are as follows: 1991-(28,833/23,526,797)—0.12%, 1992-(26,595/26,700,000)—0.10%, 1993-(26,631/27,600,000)—0.10%. (Table 1) The figures for FY 1994 were not available at the time this article was written. The top six most prevalent reasons for condemnation of beef carcasses are pneumonia, abscess/pyemia, septicemia, contamination, eosinophilic myositis, and toxemia. The numbers quoted are from USDA, FSIS, and only refer to steers and heifers from federally inspected slaughter facilities. The numbers for cows, bulls, and veal calves are not included. The USDA does not distinguish between finished cattle and those sent to slaughter early (realizers/railers). The information from FSIS on condemnations is no longer routinely printed for distribution, but can be attained via the Freedom of Information Act. An address is listed at the end of this article.

Diagnosis and Disposition

The terminology and reasons for condemnation of beef carcasses can be confusing to producers, feedlot personnel, and veterinarians alike. After viewing the categories and specific diagnosis for condemnation, one can notice many are vague. It must be kept in mind that a veterinary inspector does not have a history, or usually any clinical signs, from which to help him/her with a specific diagnosis. If there are enough specific lesions present to make a more definitive diagnosis, then that will be what is listed. There are over thirty different diseases and conditions for which animals undergoing antemortem and postmortem inspection can be condemned or retained. (Table 2) The majority of the causes listed do not need further explanation. An attempt will be made to try to further define those more commonly misunderstood or ambiguous terms.

Table 1. Steers and Heifers Condemned: USDA Inspected Establishments.

Disease	1991	1992	1993
Pneumonia	5,020	4,128	4,369
Abscess/Pyemia	4,087	3,622	3,891
Septicemia	2,783	2,606	2,968
Contamination	2,775	2,554	1,054
Eosinophilic Myositis (EM)	2,081	2,086	2,224
Toxemia	1,644	1,677	1,604
Peritonitis	1,377	1,187	1,397
Dead	1,190	1,024	1,226
Misc. Degen. & Dropsical		1,096	1,257
Pericarditis	1,177	971	1,112
Arthritis	868	919	893
Nephritis/Pyelonephritis	956	689	638
Injuries	678	399	741
General Misc.	435	651	164
Uremia	382	367	417
Misc. Inflamm. Cond.	311	234	603
Malignant Lymphoma	308	344	366
Moribund	273	236	288
Actinomycosis/bacillosis	150	452	202
Icterus	169	229	279
Tuberculosis R & NR	109	239	146
Emaciation	197	122	89
Epithelioma	83	108	83
Carcinoma	120	77	73
Misc. Neoplasms	66	77	57
Pyrexia	63	69	101
CNS Disorders	54	72	95
Misc. Infect. Disease	35	52	41
Pigment Conditions	74	73	34
Cysticercosis	28	33	29
Other	150	202	190
TOTAL	27,643	26,595	26,631

Steers and heifers offered for slaughter:
 1991 - 23,526,797
 1992 - 26,700,000 *
 1993 - 27,600,000 * (estimated)

Source: USDA/FSIS/S&T/SIB

Table 2. Causes

Degenerative and dropsical
Emaciation
Miscellaneous Dropsical (Edema)
Infectious or Granulomatous
Actinobacillosis and Actinomycosis
Tuberculosis non reactor
Tuberculosis reactor
Miscellaneous Infectious Disease
Inflammatory
Arthritis
Septic Arthritis
Eosinophilic Myositis
Hepatitis
Nephritis and Pyelonephritis
Pericarditis
Peritonitis
Pneumonia
Uremia
Miscellaneous Inflammatory Disease
Neoplasm
Carcinoma
Epithelioma
Malignant Lymphoma
Sarcoma
Miscellaneous neoplasm
Parasitic Conditions
Cysticercosis
Miscellaneous parasitic condition
Septic Conditions
Abscess/Pyemia
Septicemia
Toxemia
Other
Central Nervous System Disorder
Contamination
Dead
Icterus
Septic Injury (Bruise)
Pyrexia

One of the first concepts to keep in mind is that of diagnosis and disposition. The veterinary medical officer must arrive at a diagnosis, and from there determine what is to be done with the carcass. While determining what is to be the disposition, several important principles must be considered. These are: the amount of diseased or abnormal tissue, localized vs generalized and acute vs chronic conditions, derangement of body functions, and would the tissues affected be injurious to the health of the consumer.

Due to the complexity of the disease process, it is almost impossible to establish specific criteria and regulations for all cases to aid in determining dispositions. Professional knowledge and judgement by the veterinarian are relied upon. Criticism is often applied here because an exact etiology is not determined. Think back on the number of times you are able to make an exact

diagnosis based only on gross pathology. Drs. Robert Pierson and Rue Jensen told students many times they were only able to diagnose about 70% of the necropsied animals they examined. There may not be just one overwhelming reason why a carcass is not passed. There may be several disease processes going on in different areas of the same animal. No one is enough to condemn the entire carcass on its own, but putting them all together more than justifies stopping it from entering the food chain. After assessing everything, the veterinarian may then choose one of the following courses of action:

1. Passed for food.
2. Retained and then passed after localized lesions are excised and condemned.
3. Condemned for human food. It may be rendered for animal food.
4. Hold the carcass pending laboratory results.
5. Passed with restrictions, usually referring to further processing such as heating or refrigeration at specified temperatures and times.

Terminology

Causes for condemnation or retention can be broken down into categories. These include degenerative and dropsical, infectious, inflammatory, neoplastic, parasitic, septic, and miscellaneous or other. By far the most confusing are those in the septic group. These include septicemia, toxemia, and pyemia. If a carcass is determined to suffer from one of these conditions it must be condemned. The terms septicemia and toxemia are clinical terms — not pathological — and are only used when a specific disease cannot be diagnosed. In general terms lymph nodes are enlarged in septicemia cases while in toxemia cases they are normal to reduced in size.

Septicemia

Defined as a morbid condition caused by the presence of pathogenic microorganisms and their associated toxins in the blood. Typical lesions include generalized, acute lymphadenitis, imperfect coagulation of blood, petechial and or ecchymotic hemorrhage of the kidneys, epicardium, and mucous and serous membranes. Often times there is an infected wound or bruising. Injection sites are listed as possible findings as well.

Toxemia

This condition is defined as an intoxication due to poisonous products, either those produced by the body or by microorganisms. This leads to degenerating changes in cells of parenchymous organs without evidence of the bacteria which produced the toxins being present at the site of damage. Possible postmortem lesions include edematous lymph nodes, degenerative

changes of liver, kidney, spleen, and fat. Typical problems associated with this conditions would include mastitis, metritis, displaced abomasum, and C-sections.

Pyemia

A condition whereby generalized multiple abscesses occurs as a result of a pyogenic organisms entry into the systemic circulation. Changes would include serous degeneration and infiltration of fat and muscle tissues. It is more often associated secondary to castration, dehorning, footrot, vegetative endocarditis, and caudal vena caval thrombosis development from rumenitis-liver abscess complex.

Uremia

As it sounds, this condition is more commonly associated with pathology of the urinary tract. Nephritis, pyelonephritis, cystitis and urinary calculi are some of the postmortem findings common with this diagnosis. Another common cause associated with uremia condemnation is that of vaginal prolapse. Carcasses that exhibit any urine odor are automatically condemned.

Anasarca (Edema) vs Miscellaneous Dropsical Condition (Dropsy)

Edema is the term more often seen written on condemnation slips. It refers to the condition where there is an abnormal accumulation of fluid within muscles primarily in the region of the brisket, shoulder, and shank. This differs from the dropsy condition where the fluid accumulation is also seen in the thorax or abdomen. It is often associated with heart, lung, liver, and kidney chronic conditions. There is a lack of inflammatory process with this diagnosis (compared with pericarditis). More often, animals suffering from heart failure are condemned for dropsical condition.

Eosinophilic myositis (EM)

The cause of this condition is listed as unknown. The most common lesions are small colored foci, yellowish-green to yellowish-white, usually found in the heart and tongue. Some evidence exists linking this form with *Sarcocystis spp.* Another form less frequently seen is that of fewer, larger foci that are more well defined and a bright green to greenish gray in color. The lesions may also be found in the cheek muscles, esophagus, diaphragm, and hanging tender. The lesions are usually first detected when the head or heart is examined. Other conditions such as cysticercosis, steatosis, muscle degeneration, and true marbling can be confused with EM. The lesions are best observed in warm carcasses prior to chilling. Although there are provisions for passing

the carcass after trimming, it is the author's experience that once EM is diagnosed, the entire carcass is condemned.

Muscle damage from parenteral injections is being closely monitored by FSIS inspectors as well as packing plant personnel. More and more attention is being focused in this area, even to the point of taking samples for residue analysis. Many plants automatically take samples for antibiotic screening on all realizers and all cattle showing evidence of pneumonia.

Contamination of the carcass has been one of the top reasons for condemnation and is the most common cause for trimming. Most meat scientists agree the majority of the contamination occurs from the hide. The industry is working to reduce this problem via such ways as carcass washing, steam vacuuming, and dehairing. To date there is no condemnation officially listed as microbial pathogen contamination. This may change depending on USDA's approach to including HACCP in the inspection system. The possibility exists an animal may be "tanked" because through some quick diagnostic test it is found to be contaminated with *E. coli* 0157:H7, *Salmonella*, *Listeria*, *Camphylobacter* or other microorganism.

The veterinary inspector's job is to ensure that only wholesome and safe products are passed on to the consumer. Some individuals seem to work under the assumption that producers are trying to slip something past them and therefore see their job to stop as many animals from being passed as they can. The vast majority, though, are veterinarians, such as yourselves, who take their jobs seriously, are only following the regulations passed down to them, and are willing to communicate and cooperate with veterinarians and producers. **Without a doubt, one of the best means to learn more about carcass problems is to work with the packing plants your clients serve, the kill floor personnel, and the FSIS veterinarians and inspectors. Include routine slaughter checks as a part of the service you provide to your client feedlots.**

References

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