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How to minimize liver abscesses in feedlot cattle

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Liver abscesses are usually found at slaughter, but they are created much earlier in the feeding system. This issue explains how rumen injury, unstable intake, cattle type, step-up design, starch pressure, roughage, and regulatory options determine liver abscess risk.

Liver abscesses are not simply a packing-plant problem. They are a biological record of rumen damage, bacterial translocation, and feeding-system instability. Many affected cattle show no obvious clinical signs, but severe abscesses can reduce intake, weight gain, feed efficiency, and carcass value. Packers face liver condemnation, additional trimming, and occasional damage to adjacent tissues. Minimizing abscesses therefore requires more than adding a control product to the ration. It requires protecting the rumen from the receiving period through the final days on feed and using slaughter feedback to identify high-risk pens, cattle sources, and feeding practices.

Liver abscesses start as rumen injury

The usual sequence is described as the acidosis–rumenitis–liver abscess complex. Rapid fermentation and repeated periods of low rumen pH damage the rumen epithelium. Bacteria cross the injured wall, enter portal blood, and reach the liver, where abscesses may become established. *Fusobacterium necrophorum* is most consistently implicated, although infections are often polymicrobial and may include *Trueperella pyogenes*. The liver abscess is the final lesion; the preventable starting point is usually repeated rumen instability and loss of epithelial integrity.

Intake variation multiplies risk

High-concentrate diets increase risk, but grain level alone does not explain differences among pens. Erratic consumption exposes cattle to periods of low intake followed by compensatory overeating. Missed deliveries, inaccurate bunk calls, sorting, abrupt ration changes, crowding, heat-stress intake suppression, and aggressive feeding after refusals intensify fermentation peaks. Finer or more intensive grain processing can increase this pressure further. Consistent feed delivery, adequate bunk access, conservative recovery after disruptions, and close observation of feed disappearance reduce the variation that damages the rumen.

Cattle type changes the risk

Breed does not cause liver abscesses, but biological type influences the system in which they develop. Holsteins have historically shown greater prevalence and severity than conventional beef cattle, with longer exposure to concentrate diets considered an important explanation. Beef-on-dairy cattle differ in early-life feeding, health history, frame, maturity, and expected days on feed. Lightweight or dairy-influenced cattle may therefore require dedicated receiving diets, slower adaptation, additional roughage protection, different starch processing, and an earlier review of their economic marketing endpoint.

Step-up programs

A step-up program is a rumen-protection program, not simply a calendar for replacing roughage with grain. Moderate-risk cattle may adapt over approximately 21–28 days, whereas lightweight, heat-stressed, dairy-influenced, or previously disrupted cattle may require 35 days or longer. Progress should depend on stable intake, behavior, and manure rather than the planned date alone. Finishing roughage commonly sits near 10% of diet dry matter, but higher-risk pens may justify 15%, or temporarily 20%, when this reduces acidosis pressure and intake disruption. Roughage must provide effective structure; percentage inclusion alone is insufficient.

What U.S. feedlots can use

Management remains the foundation, but U.S. feedlots also have approved product options. Tylosin phosphate is approved for reducing liver abscess incidence associated with specific bacteria and, as a Veterinary Feed Directive drug, requires veterinary oversight. It must be used according to current labeling and veterinary direction. Ionophores can support feed efficiency and fermentation management but do not replace liver-abscess prevention. Buffers, yeasts, direct-fed microbials, vaccines, plant extracts, and other technologies may provide support, but none justifies rushing adaptation, overprocessing grain, or underfeeding effective roughage.

What EU systems can use

EU feedlots operate under a different antimicrobial framework. Medicated feed containing antimicrobials cannot be used routinely, so prevention must carry more of the load. Priorities include slower adaptation, sufficient effective roughage, controlled starch fermentability, appropriate grain processing, accurate TMR preparation, sorting control, water access, and disciplined feeding during heat stress. Authorized non-antibiotic additives may support rumen stability, but management

In brief,

Liver abscesses are a feeding-system signal. Packers find them, but the conditions are usually created earlier through rumen injury, unstable intake, excessive starch pressure, poor adaptation, inadequate effective roughage, or a feeding program mismatched to cattle type. Prevention begins with consistent intake and a step-up program that responds to cattle rather than the calendar. Roughage level and physical form must match starch fermentability, grain processing, and pen risk. Approved products can support control where legally available, but they cannot repair a poorly managed feeding system. Nutritionists should use slaughter feedback to identify patterns and correct the conditions that allowed abscesses to develop.

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