



ENHANCED ABATTOIR SURVEILLANCE PROGRAM

Rib fractures

In most instances rib fractures refer to old healed fractures (calluses) caused by physical injury and commonly associated with abnormally weak bones due to nutritional deficiencies or imbalances. These bones will break without excessive force, however physical impact during handling is a major contributing factor. Rib fractures have a widespread distribution across South Australia, and are most prevalent in new season's lambs in above average rainfall years. Fractured and callused ribs are trimmed from affected rib cages resulting in reduced carcase weights.

Condition summary



Three healed (old) rib fractures seen as white thickened areas along the inside of the rib cage (circled)



Weak bones result from mineral deficiencies or imbalances. These bones may break without excessive force or as a result of inappropriate handling and or facilities. Fractures are usually seen as thickened white areas which are healed bone calluses on the ribs. Factors causing rib fractures include physical impact during handling and frequently calcium and/or copper deficiency associated with acidic soils.



On farm, reduced production such as reduced growth rate, later turn-off, ill thrift, anorexia and infertility. Rib fractures are an animal welfare issue as fractures are painful.



Sections from affected ribs are trimmed, affecting the rib rack and reducing the weight and value of the carcase.



Treatment is dependent on the underlying cause and may involve specific mineral supplementation. Appropriate handling of lambs and nutritional management of pregnant and lactating ewes can reduce the potential for rib fractures.

What impact does this have?

The currently estimated \$3 million annual cost to the red meat industry in South Australia is conservative and does not include costs associated with reduced production and welfare impacts on farm. Research estimates that the cost is \$1.30/carcase to the producer and \$25/carcase to the processor.

How do sheep get rib fractures?

The cause of rib fractures is highly complex and can involve the deficiency or imbalance of:

- Vitamin D
- Calcium and phosphorous
- Copper and molybdenum (and iron and sulphur)

The end result is weak bones that break easily. Most commonly rib fractures are seen in fast growing lambs on lush pastures. The majority of rib fractures are seen in lambs from the South East, Adelaide Hills, Fleurieu Peninsula and Kangaroo Island.

Deficiencies can be caused by **primary dietary deficiencies** such as cereal and grass hays and green cereals which are usually deficient in calcium during winter, or lush pastures which have a low availability of copper compared with conserved forage. Internal parasites can also interfere with calcium uptake in the diet by damaging the intestinal lining. The most significant parasite involved is the black scour worm *Trichostrongylus vitrinus*.

The most common deficiencies are **secondary**, meaning they are caused by other factors, such as:

- lush green feed containing anti-vitamin D substances
- high grain diets containing excess phosphorous, resulting in calcium deficiency unless calcium is supplemented
- diets high in molybdenum, iron and/or sulphur which can induce copper deficiency

What might be seen on farm?

Many animals with rib fractures show no obvious signs however some may be seen having difficulty breathing after handling. Ill thrift, anorexia, weight loss and infertility may also be seen. If other bones are affected then animals have a reluctance to move, including lameness, bowed or broken legs, swollen joints and soft bones of the skull (this is rare).

How do I prevent rib fractures?

1. Test soil to identify calcium deficiency and address by applying lime.
2. Test pastures in spring for sulphur, molybdenum, copper and iron content to assess the need for a copper supplement.
3. If copper supplementation is needed, injectable copper is preferred in livestock as it avoids rumen interference.
4. Blood sample ewes at joining or scanning and lambs at marking to assess rib fracture risk.
5. Provide 40:40:20 stock lime, dolomite and salt to ewes in the last 6 weeks of pregnancy or when grain is a major dietary component.
6. Reduce lamb injuries by avoiding the use of dogs in yards, improving yard design and particular care when handling lambs.
7. Identify and remove hazards in the yards, and minimise the number of times lambs are yarded by drafting into light/medium/heavy at the first draft.
8. Educate and raise awareness of the importance of animal welfare to improve husbandry standards.

FOR FURTHER INFORMATION:

Contact your local veterinarian, livestock consultant or PIRSA Animal Health Officer
Or visit www.pir.sa.gov.au/eas

