COSECURE™
COSEICURE™
ZINCOSEEL™

Unique & Revolutionary Continuous-Release Soluble Glass Boluses for Sheep & Lambs

Helps to improve fertility

Cosecure & Coselicure are the world’s only boluses designed to prevent Thiomolybdate Toxicity before it occurs

‘Best in class’ product in weight gain and profit trial¹ (Cosecure Lamb)

Unique and revolutionary soluble glass technology

Slow, constant release of elements for up to six months in lambs and 8 months in sheep

Unique ionic copper and zinc formulations

THE ONLY RUMEN-AVAILABLE COPPER BOLUSES*

*Cosecure and Coselicure only

www.bimeda.com www.cosecureboluses.com
**Understanding Dietary Thiomolybdate Toxicity**

Molybdenum and sulphur from the sheep/lamb’s diet combine in the rumen to form Thiomolybdate. Thiomolybdate will bind with copper in the rumen. When there is insufficient copper in the rumen, Thiomolybdate will move into the bloodstream in search of further copper. It is here where Thiomolybdate Toxicity occurs. Thiomolybdate combines with copper co-dependent enzymes in the blood, which are vital for fertility and thrive, and renders them inactive.

**Does Iron Play A Role?**

Yes, iron and sulphur in the rumen also combine with copper and create a stable compound which passes out of the animal, thus reducing the amount of copper in the rumen and increasing the likelihood of Thiomolybdate Toxicity.

Thiomolybdate Toxicity is highly damaging to the sheep/lamb and can cause:

- infertility
- decreased conception rate
- anoestrus
- delayed onset of puberty
- decreased energy utilisation

**How do the boluses work?**

The Cosecure and CoseiCure boluses use a unique soluble glass technology, which provides a slow and constant release of elements into the rumen for up to 6 months in lambs and 8 months in sheep.

**Are they different from other boluses?**

Yes. Bimeda revolutionary boluses are completely unique.

Through releasing sacrificial copper in the rumen Cosecure and CoseiCure are the only boluses designed to prevent and treat Thiomolybdate Toxicity before it occurs. As thiomolybdate (MoS\(_4\)) will first deplete copper in the rumen and, if there is not adequate copper there, bind to copper in the blood stream, it is vital that the bolus copper becomes active in the rumen. This is where Cosecure and CoseiCure boluses are active.

Some capsules deliver copper in the form of copper oxide. However, copper oxide requires a low pH to become active.

As the normal range of rumen pH is higher, between pH 5.5 and 6.5, it is chemically impossible for copper oxide to become active here. Copper oxide only becomes active in the abomasum (which has a pH range of 2 to 4), where it may simply be absorbed into the body and cannot stop the thiomolybdate uptake into the blood.

Bimeda boluses are the only true dissolving boluses, and dissolve at a slow but constant rate.

* Cosecure boluses last for up to 6 months in lambs and 8 months in sheep.

Are Cosecure or CoseiCure boluses available for sheep and lambs?

Cosecure boluses are available for sheep and lambs. CoseiCure boluses are only available for sheep.

**Stage 1: In the Rumen**

- Molybdenum
- Sulphur
- Iron
- Copper

**Stage 2: In the Rumen**

- Molybdenum
- Sulphur
- Copper

**Stage 3: In the bloodstream**

- Copper co-dependent enzyme
- The MoS\(_4\) binds to the copper and stops the copper-dependent enzymes from functioning.

This can be hugely damaging to the animal’s fertility and thrive. These enzymes need copper from the bloodstream to release hormones that are vital for:

- the onset of oestrus (and thus, fertility)
- energy metabolism

**How can this be prevented?**

- **Cosecure** and **CoseiCure** boluses are the solution to this problem. They provide sacrificial copper in the rumen, which binds with thiomolybdate and prevents it from entering the bloodstream. Thus Thiomolybdate Toxicity is prevented.

**Caution:** Check all other copper and selenium inputs before recommending Cosecure or CoseiCure. Use diagnostic tests as recommended by Bimeda.

**NB:** Cosecure boluses are available for sheep and lambs. CoseiCure boluses are only available for sheep.

In the bloodstream copper is vital for the function of the enzymes required for the onset of oestrus and energy metabolism. If thiomolybdate (MoS\(_4\)) enters the bloodstream, it will seek out these enzymes, bind with ‘their’ copper, and make them inactive. Fertility and energy utilisation will be impaired. Thiomolybdate Toxicity occurs.

To prevent this from happening, we must prevent the thiomolybdate from entering the bloodstream. To do this, ‘sacrificial copper’ must be provided in the rumen.

**Does Copper and Selenium Play A Role?**

Yes. Bimeda revolutionary boluses are available for sheep and lambs. They provide sacrificial copper in the rumen and any copper present. If there is not enough copper in the rumen, the MoS\(_4\) will move into the bloodstream in search of further copper.

To prevent this from happening, we must prevent the MoS\(_4\) from entering the bloodstream. To do this, ‘sacrificial copper’ must be provided in the rumen.

**Stage 1:**

- thiomolybdate (MoS\(_4\))
- copper

**Stage 2:**

- thiomolybdate (MoS\(_4\))
- copper

**Stage 3:**

- thiomolybdate (MoS\(_4\))
- copper

This can be hugely damaging to the animal’s fertility and thrive. These enzymes need copper from the bloodstream to release hormones that are vital for:

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**NB:** Cosecure boluses are available for sheep and lambs. CoseiCure boluses are only available for sheep.
Myths and misconceptions about copper & sheep

Myth 1: If copper is showing up in blood tests, there is no Thiomolybdate Toxicity

Reality: Thiomolybdate (MoS₂) binds to copper and makes it useless. However, this useless copper will still show up in blood tests. Therefore sheep and lambs showing adequate copper levels, may still be suffering from Thiomolybdate Toxicity.

Myth 2: Other forms of element supplementation are as effective as using Cosecure and Cosecure boluses

Reality: Studies have shown bolusing to be a more effective form of element supplementation in sheep than alternative options. The Bimeda boluses provide a constant supply of elements for up to six months and you can be 100% confident in the quantities of trace elements each sheep or lamb has received.

The following disadvantages were identified in other forms of trace element supplementation:

<table>
<thead>
<tr>
<th>ADMINISTRATION METHOD</th>
<th>DISADVANTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free access systems (eg licks &amp; blocks)</td>
<td>Suffer from variable intakes, ranging from zero to excessive (McDowell, 1992); 50% of ewes choose not to consume any supplement (Kendal, 1977).</td>
</tr>
<tr>
<td>Oral drenches</td>
<td>Require frequent dosing due to short acting response (Kendall et al 2000)</td>
</tr>
<tr>
<td>Pasture dressing &amp; water supplementation</td>
<td>Suffers from variable intakes, often related to the weather. For hill sheep, can be difficult in practice due to extensive nature of hill sheep production. (Towers et al 1976)</td>
</tr>
<tr>
<td>Injections</td>
<td>Require long term storage within the animal or frequent dosing. Only one mineral per injection.</td>
</tr>
<tr>
<td>Supplement feeding</td>
<td>Adds significantly to cost of production. Can be difficult for hill sheep due to extensive conditions. May not be available all year around.</td>
</tr>
</tbody>
</table>

Myth 3: Some copper is good, so more copper must be better!

Reality: More does not necessarily mean better. Where thiomolybdate toxicity occurs, it is vital that bolus copper is rumen-available. While some nutritional capsules may contain more copper, if this is in the form of copper oxide, it may only be available in the abomasum where it may simply be absorbed into the body and cannot stop the thiomolybdate uptake into the blood.

Myth 4: If the sheep’s fleece looks healthy after I’ve administered a copper supplement, it must have worked

Reality: Thiomolybdate Toxicity can have both visible (clinical) and invisible (subclinical) symptoms and consequences. Poor fleece quality is an example of a clinical symptom. However, some of the more damaging consequences of Thiomolybdate Toxicity are invisible, such as reduced fertility and reduced energy utilisation. Just because an improvement in outwardly symptoms, such as fleece quality, is observed, this does not mean that the more severe flock health issues caused by Thiomolybdate Toxicity have been rectified by a supplement. To prevent thiomolybdate toxicity, we recommend using Cosecure or Cosecure boluses. Their rumen-available, ionic copper actually prevents thiomolybdate toxicity, rather than just treating its clinical symptoms in the way some other supplements may.

For Thiomolybdate Toxicity & Iodine Deficiency

Some Sheep Suffer From Both Thiomolybdate Toxicity and Iodine Deficiency

Cosecure boluses contain rumen-available copper, preventing thiomolybdate toxicity before it occurs. Each pack contains 50 boluses (50 doses).

Costcure: Copper 13.4%, Cobalt 0.5%, Selenium 0.3%

Cosecure boluses provide the element to the unborn lamb. This can result in lambs being born weak or dead

CoseIcure boluses: Copper 13.4%, Cobalt 0.5%, Selenium 0.3%, Iodine 1%

For sheep suffering from iodine deficiency, Bimeda offer Cosecure boluses, which offer all the benefits of the Cosecure boluses, while simultaneously supplementing iodine.

Sheep deficient in iodine may suffer from:

- Poor growth and weight loss
- Reduced hormone secretion and reproductive health
- Reduced bone growth and skeletal development
- Ewes will not be able to transfer sufficient amounts of the element to the unborn lamb. This can result in lambs being born weak or dead

Which Bolus Do I Need? Cosecure Or Cosecure boluses

For Thiomolybdate Toxicity

Cosecure Boluses
Copper 13.4% Cobalt 0.5% Selenium 0.3%

Cosecure boluses contain rumen-available copper, preventing thiomolybdate toxicity before it occurs. Each pack contains 50 boluses (50 doses).

Which Bolus Do I Need? Sheep or lamb?

Cosecure and Cosecure boluses provide a convenient and effective solution for thiomolybdate toxicity and for selenium and cobalt deficiency. One bolus provides long-acting, controlled release trace element supplementation, in biologically available forms to sheep and lambs.

Cosecure boluses, but which also supplement iodine simultaneously. Available for sheep only. Each pack contains 50 boluses (50 doses).

Additional Benefits of Cosecure and Cosecure boluses

In addition to delivering copper to the sheep/lamb Cosecure and Cosecure boluses provide selenium and cobalt.

Selenium supplementation
Selenium deficiency can result in white muscle disease, impaired reproduction, reduced immunity and reduced milk production.

Cobalt supplementation
Cobalt is required for the production of Vitamin B12, which is important for thrive and fertility. The body has no capacity to store cobalt, therefore cobalt must be continuously supplied. Cosecure boluses are ideal as they provide a continuous supply of cobalt for up to 6 months in lambs and 8 months in sheep. Cosecure boluses are active for up to 6 months in sheep.

Weight gain in lambs
Cosecure boluses were proven ‘best in class’ in an independent weight gain and profit trial.

Boost fertility
Improves fertility in sheep by preventing thiomolybdate toxicity.

Boost thrive and immunity
Bolusing around tupping is believed to boost the thrive and immunity of both ewes and unborn lambs.

The Alnorthumbria Veterinary Group performed a blind trial using nearly 500 Suffolk & Texel lambs out of mules on a farm in Northumberland. Cobalt and selenium deficiencies had previously been diagnosed on the farm. All the lambs were twins and were grazing grass/clover leys in rotation.

They tested two drenches, two boluses and a cobalt injection, to find out which product:

- helped the lambs fatten fastest
- gave the best margin over product cost

The Methodology

• Lambs split into groups of 80
• Weighed every 2 weeks from July 18th to November 14th
• Blood samples taken 3 times to measure blood levels of selenium cobalt and copper
• Fat lambs, ready for slaughter, were drawn throughout the trial

Cosecure gave the greatest profit when compared to other treatments.

The control lambs dosed with Cosecure:
• Had nearly twice the levels of selenium and cobalt in the blood, than lambs treated with other products
• Gained 146g/day over 120 days, compared to 11g/day for the control on just grass

The Profit

After subtracting the cost of the product, Cosecure Lamb gave extra profit of £7.05/€8.37 per lamb (calculated at £2.00/€2.37 per kg).

This equates to £3525 / €4185 extra profit per 500 lambs

The Results

Zinc Deficiency – The Problem

Zinc deficiency can be a problem for both sheep and lambs. Zinc is essential for immune function and even marginal deficiency will affect immune response (Gershwin et al, 1987).

Zinc also plays an important role in fertility and is essential for sexual maturity, reproductive capacity, and more specifically, for the onset of oestrus. Zinc is also associated with hoof health.

There are no significant stores of body zinc, so the animal must rely on a daily supply to meet requirements.

Zinc Deficiency – The Solution

Bimeda’s Zincosel Sheep and Zincosel Lamb boluses deliver a controlled and constant supply of zinc, selenium and cobalt to sheep and lambs and can play an important role in improving immune function, fertility and thrive.

Furthermore, the zinc in Zincosel boluses may also prove beneficial for:
• Udder health, through reduced mastitis and increased rekeratinisation (Martin et al, 1996, Whitaker et al. 1996)
• Reduced incidence of foot-rot (Demertzis et al, 1978)
• Increased wound healing (Wacker, 1976)
• Playing a role in the prevention of broken mouth (Miller, 1991)
• Increased immune response (Gershwin et al, 1987)

Zincosel Boluses

Each Zincosel lamb and sheep bolus contains:
• 15.2% w/w zinc
• 0.15% w/w selenium
• 0.5% w/w cobalt

The bolusing of sheep around lambing is thought to be beneficial in promoting thrive and immunity among newborn lambs.

Independent trial by Alnorthumbria Veterinary Group finds

Cosecure Lamb gives more profit & weight gain

Zincosel Boluses

<table>
<thead>
<tr>
<th>Product</th>
<th>Daily live weight gain (g)</th>
<th>% lambs sold fat</th>
<th>Extra profit £/lamb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cosecure (Co,Se,Cu)</td>
<td>146</td>
<td>62</td>
<td>£7.05</td>
</tr>
<tr>
<td>Drench 2 (Vit/Min)</td>
<td>128</td>
<td>53</td>
<td>£3.74</td>
</tr>
<tr>
<td>Smartshot injection (Co only)</td>
<td>124</td>
<td>48</td>
<td>£2.72</td>
</tr>
<tr>
<td>Other bolus (Cu,Se,Cu,I)</td>
<td>126</td>
<td>56</td>
<td>£1.94</td>
</tr>
<tr>
<td>Drench 1 (Vit/Min)</td>
<td>116</td>
<td>43</td>
<td>£1.20</td>
</tr>
<tr>
<td>Control (grass only)</td>
<td>111</td>
<td>41</td>
<td>-------</td>
</tr>
</tbody>
</table>

Cosecure lamb gives extra profit of £7.05/€8.37 per lamb!
**Cosecure** • **CoseICure** • **ZincoSel**

**Dosage and administration key information:**

- **Refer to technical data sheet for full information on dosage and administration**

- **Cosecure & Cosecure Sheep:** for all classes of sheep greater than 25kg live weight. One Cosecure bolus may be given at any convenient time in the sheep management year. It is particularly appropriate to give Cosecure 2 to 3 weeks prior to tupping for cover at this critical time, through to lambing and peak lactation. Repeat annually.

- **ZincoSel Sheep:** for all classes of sheep greater than 25kg live weight. One Zincosel bolus may be given at any convenient time in the sheep management year. It is particularly appropriate to give Zincosel at or just before lambing to cover lambing / lactation and the grazing season. Repeat annually at lambing or every 6-8 months for all year round protection.

- **ZincoSel Lamb & Cosecure Lamb:** from 6 weeks of age and less than 25kg live weight - one bolus. Do not dose lambs less than 6 weeks of age and do not administer until the animals are ruminating. In the case of smaller breeds the dosing of lambs may have to be delayed until 10 weeks of age.

**How to administer Bimeda sheep and lamb boluses**

- **HIGHLY IMPORTANT:** Boluses are sensitive to sudden changes in temperature, as may occur when very cold boluses are swallowed by the animal. It is important that the bolus is removed from the foil pack, and brought to 15-20°C (room temperature) prior to administration.

- Great care should be taken not to cause injury by placing the gun too far inside the throat of the animal.

- Ensure that each animal has swallowed the bolus by observing the sheep for a short time after dosing to avoid regurgitation.

- The bolus will dissolve within the reticulo-rumen and add the minerals to those of the diet that has been consumed.

- Give orally by the use of a Bimeda applicator which delivers the bolus directly into the top of the gullet.

- Do not feed copper-supplemented rations nor feed stuffs high in naturally occurring copper to animals receiving Cosecure or Coseicure nor administer copper or selenium by injection or copper orally while the boluses are still active, unless advised by a veterinary surgeon.

- Do not administer selenium by injection while Zincosel boluses are still active, unless advised by a veterinary surgeon.

- Please contact Bimeda before using Cosecure and Coseicure, especially if already using mineral supplementation, to ensure that copper poisoning does not occur. Texel, Charollais, Zwartables & Suffolk are particularly susceptible to this problem.

- Always consult your animal health advisor before commencing use of boluses. Refer to the product safety data sheet for full product information.

References

1. Alnorthumbria Veterinary Group Trial Into Lamb Weight Gain And Profit Gain

Use Medicines Responsibly. Consult the prescriber before using.

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