

Trace Elements – Do They Affect Fertility?

Fertility is a complex issue and there are numerous reasons why a decrease may be observed. This is why it is critical that your vet is involved to investigate and ensure that the correct issue is being addressed. One area worthy of investigation is the trace element status of your animals, as nutrition plays an important role in fertility, and imbalances in the supply of trace elements can have a negative impact.

Copper

Copper is a component of enzymes which are responsible for thriving and fertility in ruminants. It is also utilised for production of healthy wool and hair and for white blood cell function. White blood cell function is vital to the immune system, which defends livestock against disease and parasites.

Copper should never be supplemented without first consulting a vet to establish that there is a need, as excess copper can result in copper toxicity which can prove fatal. While copper deficiency can be caused by insufficient copper in the diet, this is actually relatively rare. It is far more likely that animals are ingesting high levels of other elements, which either antagonise copper or cause harm after absorption. These antagonists include:

- Molybdenum
- Sulphur
- Iron

Cobalt

Cobalt is required by rumen microbes for the production of Vitamin B12 – this is important for energy utilisation and is critical for growth.

The body has no capacity to store cobalt, therefore cobalt must be continuously supplied through the diet or appropriate supplementation.

Selenium

Selenium is vital for muscle function and deficiency can result in white muscle disease. Selenium deficiency is also a cause of impaired fertility, impaired growth, poor hair and wool quality and reduced immunity.

Iodine

Like cobalt, iodine is a trace element that ruminants have no capacity to store and a continuous supply must therefore be available. Where the animal's diet is unable to provide this, supplementation will be required.

Stock deficient in iodine may suffer from:

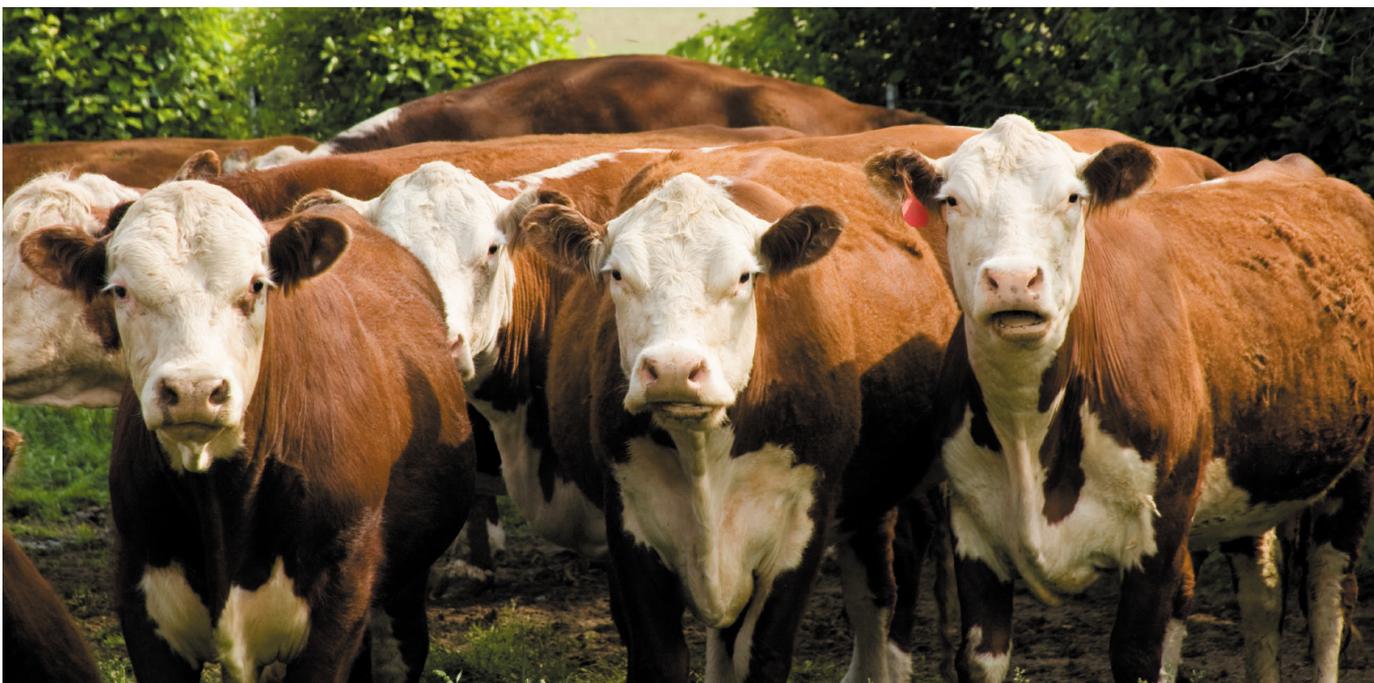
- Reduced fertility
- Poor growth and weight loss
- Weak/stillborn offspring
- Reduced milk yield
- Goitre (enlarged thyroid)

What Action Should I Take for my Herd?

The only way to be certain if trace element imbalances exist in your herd is to investigate with your vet. The vet can carry out blood sampling and may also recommend forage samples and liver samples. Without these it is impossible to be sure what the stock require.

When Should I Take Action?

Trace element investigations can be carried out at any time but are often best utilised in advance of any major management periods such as breeding or in the run-up to calving.





If trace elements imbalances are present, any dietary changes should be implemented gradually. The following periods should be considered for investigation, however, your own vet can advise on the best time for your herd:

- Three months prior to calving
- Six to eight weeks prior to breeding

Which Method of Supplementation is Right for my Animals?

If your vet diagnoses a trace element deficiency and has advised you to supplement trace elements, you have a number of options. First and foremost, take your vet's advice on which method is best suited to your management system. Some of the options available include:

Oral Drenches

Drenches are a quick, convenient option and are generally relatively cheap. It must be remembered that trace elements such as iodine and cobalt cannot be stored in the body between doses so drenches cannot provide an effective long-term solution.

Free Access Systems, Such as Licks and Blocks
We need to ensure that all animals receive an amount of trace elements which is compatible with their daily requirements. Too much of a trace element can prove toxic; too little and the deficiency will not be addressed.

Unfortunately, the free access lick and block systems do not provide this guarantee and an independent study highlighted that intakes between animals are extremely variable, with some consuming nothing and others consuming excessive quantities.¹

Injections

Injections can be suitable for targeted administration in conjunction with the advice of your vet. They can be appropriate where only a single trace element, such as copper, is required.

Pasture Dressing and Water Supplementation

Like blocks and licks, these forms of supplementation suffer

from variable intakes. It is also difficult in practice where animals are grazed extensively.

In-feed Supplementation

Trace elements can be provided by the provision of TMR, concentrates or bag minerals.

Often these are specified based on 'averages' or 'common requirements' as opposed to being based on what has been determined is deficient and required on farm. Ideally these mixes should be prepared based on an investigation to address the animals' specific trace element requirements.

Trace Element Boluses

Boluses provide a convenient and controlled method of trace element supplementation.

This means there are no variable intakes and no guesswork for the farmer. This is particularly important for animals requiring cobalt and iodine which cannot be stored in the body and therefore a daily supply is required. Their long-lasting nature is also highly convenient and reduces labour costs as regular bolusing is not required.

Cosecure Cattle* is the only multiple trace element medicinal bolus proven to improve fertility in an independent trial² and supplies copper, cobalt and selenium for up to six months. Its sister product, Coselcure, also delivers iodine.

The most important thing to remember is to ensure that a need for trace element supplementation has been established before supplying any form.

This editorial is provided by Bimeda – makers of Cosecure Cattle*

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*Cosecure cattle is a POM – VPS medicine containing copper, cobalt and selenium.

Use medicines responsibly – Noah.co.uk/responsible

Trace elements should be supplemented in response to known deficiencies – if you are uncertain about the trace element status of your livestock please contact your vet to investigate. Some trace elements, copper in particular, can be harmful if over-supplemented.

The SPC data sheet is available on the VMD website.

REFERENCES

1. McDowell, 1992
2. 'The effect of Cosecure on the conception rate and trace element status of dairy cattle'. AM Mackenzie, MM Moieni and SB Telfer.



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