

## Mineral Guide

Our mineral guide below should help you recognise if your livestock may be deficient in a particular element from the symptoms listed:

<b>Sodium deficiency</b>	<ul style="list-style-type: none"><li>* Depresses protein and energy utilisation</li><li>* Reduces growth and reproductive function and due to lack of saliva - digestion</li><li>* Cattle prone to urine drinking</li></ul>
<b>Calcium deficiency</b>	<ul style="list-style-type: none"><li>* Rickets in young animals, Milk fever and Hypocalcaemia in ewes</li><li>* Impairs bone growth and weight gain</li><li>* Increases need for Vitamin E.</li></ul>
<b>Phosphorus deficiency</b>	<ul style="list-style-type: none"><li>* Increases need for Vitamin D3</li><li>* Depresses feed intake, digestion efficiency and growth</li><li>* Reduces fertility and affects bone formation, liveweight and milk output</li></ul>
<b>Magnesium deficiency</b>	<ul style="list-style-type: none"><li>* Associated with stress and energy levels - leads to 'Staggers' and Milk fever</li><li>* Reduced milk yield, growth and vitality</li></ul>
<b>Manganese deficiency</b>	<ul style="list-style-type: none"><li>* Impairs fat and carbohydrate metabolism and growth - skeletal abnormalities</li><li>* Depresses reproductive function - resulting in weak offspring</li></ul>
<b>Zinc deficiency</b>	<ul style="list-style-type: none"><li>* Impairs growth - skeletal abnormalities</li><li>* Depresses reproductive function - resulting in weak offspring and immunity</li><li>* Poor hoof and skin condition</li><li>* Increases SCC in milk</li></ul>
<b>Copper deficiency</b>	<ul style="list-style-type: none"><li>* Poor growth and fertility</li><li>* Causes 'Sway back' in lambs and "Gingering" of coat in cattle</li><li>* Anaemia, bone defect, scours</li></ul>
<b>Cobalt deficiency</b>	<ul style="list-style-type: none"><li>* Reduces synthesis and reserves of Vitamin B12</li><li>* Loss of body weight and appetite - reduced growth and anaemia emaciation</li><li>* Impairs milk yield - weak lambs and calves</li></ul>
<b>Iodine deficiency</b>	<ul style="list-style-type: none"><li>* Ringworm</li><li>* Increases retained cleansings</li><li>* Reproductive failure - abortion or foetal re-absorption</li><li>* Weak, hairless and dead offspring</li></ul>
<b>Selenium deficiency</b>	<ul style="list-style-type: none"><li>* Impairs growth and affects fertility</li><li>* Muscular dystrophy (White muscle disease)</li><li>* Increase retained cleansings</li></ul>
<b>Vitamin A deficiency</b>	<ul style="list-style-type: none"><li>* Impairs sexual activity and reproduction - weak offspring</li><li>* Reduces appetite and growth</li><li>* Increases Mastitis and SCC</li></ul>
<b>Vitamin B1 (Thiamine) deficiency</b>	<ul style="list-style-type: none"><li>* Mouldy forage, grains and high energy diets can cause deficiency</li><li>* Poor growth rates</li><li>* CCN and scouring</li></ul>
<b>Vitamin B12 deficiency</b>	<ul style="list-style-type: none"><li>* Loss of appetite, poor growth rates, feed utilisation and stomach performance</li><li>* Scouring, nervous disorders and 'Pine' in young stock</li></ul>
<b>Vitamin D3 deficiency</b>	<ul style="list-style-type: none"><li>* Increases risk of Milk fever and 'Staggers'</li><li>* Impairs mobility - affects joints and bone growth</li></ul>
<b>Vitamin E deficiency</b>	<ul style="list-style-type: none"><li>* Affects young (Muscular dystrophy)</li><li>* Impairs production and heat function</li><li>* Poor sucking and Colostrum quality</li></ul>

### Sources:

**Animal Nutrition** 2nd Edition, McDonald, Edwards & Greenhalgh  
**Re-Defining Mineral Nutrition** Edited by J.A. Taylor-Pickard & L.A. Tucker  
**A Veterinary Book for Dairy Farmers** R.W. Blowey