

Se	Selenium
I	Iodine
Cu	Copper
Zn	Zinc
B	Boron
Mg	Magnesium
Mn	Manganese
Co	Cobalt
Ca	Calcium
Min	All minerals

## DAIRY & BEEF CATTLE

### Mineral Deficiency Symptoms

Symptom	Deficiency	Notes
% holding first service	Se	Should be 55% or above
Heat detection difficulty	Se I	
Abortion / miscarriage	I	Vaccination signifies serious issue
Abnormal gestation period	Se I	
Slow calving	Se I	More than 4 hours
Malpresentations	Se	More than 2%
Thick amniotic sac	Se	Danger of suffocation
Neo-natal death	Se I	More than 2%
Slow dozy calves	Min	Slow to suckle
Small or overlarge at birth	Min	
Sickle hoof	Se	knuckled / bent over forefeet at birth
Retained cleansings	I	Usually in twins
Calf scours in early weeks	Se Co Cu	
Calf pneumonia	Min	
Nervous Twitchy Behaviour	Se Co	Common in Limousins
Feet problems – ulcers, laminitis, foul, dermatitis	Zn Cu	
Eye problems – running eyes, New Forest disease	Co	
Harsh, 'staring' coats	Cu	Often 'gingery'
Hairless 'spectacles' around eyes	Cu	Signifies extreme Cu deficiency
Slow loss of winter coat	Cu	
Staggers (grass tetany) hypo-magnesaemia	Mg Ca	
Milk Fever hypocalcaemia	Co Cu Se	
Urine drinking	Min	Usually in winter and in yard
Eating soil, tree leaves, hedges	Min	
High silage consumption	Min	
Diarrhoea on grass (not just after turnout)	Min	
Reluctance to close-graze pastures	Min	
Preference of some fields	Min	
Poor growth rate of young	Min	
Difficulty finishing cattle	Min	
Brucellosis	Min	General immune system deficiency
Bovine Tuberculosis	Min	General immune system deficiency
BSE	Min	General immune system deficiency
Johne's / Crohns / paratuberculosis	Min	General immune system deficiency
Mastitis – clinical or summer	Min	General immune system deficiency
Cell count (if above 100 – 120)	Min	General immune system deficiency
Milk yield per cow / yr (Holstein 8k / Friesian 6.5k)	Min	
Milk protein levels (if below 3.0 – 3.9)	Min	
Butterfat levels in milk (if below 3.7 – 4.5)	Min	
Lactation curve	Min	Should be flat not a sudden drop
Vet costs per cow per year	Min	Averages are beef £10 and dairy £25

## SHEEP

### Mineral Deficiency Symptoms

Symptom	Deficiency	Notes
Silent heats – suspected or confirmed	I	
Barren ewes	Se I	Should be less than 3%
Gestation period (150 days average)	Se i	If + or – 5 days
Prolonged lambing period	Se I	If more than 3 weeks
Lambing percentage	Min	If less than 150% Hill or 180% lowland
Abortion / miscarriage	Se I	Vaccination signifies serious issue
Twin lamb disease (pregnancy toxemia)	Co	
Ringwomb (non-dilation of cervix)	Se	If greater than 0.4%
Lamb losses in first two months	Min	If greater than 5%
Prolapse	Se	If greater than 1%
Retained cleansings	I	If greater than 1%
Scabby ears	Co	Looks like sunburn
Ewes late coming to milk	Min	
<i>Milk fever hypocalcaemia</i>	Co Cu Se	

<i>Mastitis</i>	Min	General immune system deficiency
Slow dozy lambs	Se	Slow to suckle
Malpresentations	Se	If above 3% - head back, one leg back, etc
Thick amniotic sac	Se	Danger of suffocation
Sickle hoof	Se	knuckled / bent over forefeet at birth
Watery mouth (e.coli)	Min	General immune system deficiency
Coccidiosis (protozoan parasite) acute scouring	Min	General immune system deficiency
Pasteurella bacterial pneumonia	Min	General immune system deficiency
Scrapie	Min	General immune system deficiency
Staggers (grass tetany) hypo-magnesaemia	Mg Ca	
Swayback	Cu	Signifies extreme Cu deficiency
Poor growth after weaning	Min	
Frequent working	Min	More than every three months
Poo-looking fleeces	Zn	
Scald / Strip in lambs (often becoming foot-rot later)	Zn Cu	
Foot-rot in ewes	Zn Cu	
Orf (virus – contagious pustular dermatitis)	Min	
Eye problems – running eyes, New Forest disease	Co	
Eating soil, tree leaves, hedges	Min	
White muscle disease	Se	
Pine	Co	Vitamin B <sub>12</sub> deficiency
Wool shedding (when not on anti-biotics)	Zn	
Poor fleece wrapping at shearing	Zn	
Yellow matting on saddle at shearing	Co	
Casting ewes (especially in spring)	Co	
Ewe losses per year	Min	If greater than 3%
Lambing problems with ewe-lambs / hogs	Min	
Too much concentrate needed for ewes at lambing	Min	

## CROPS

### Mineral Deficiency Symptoms

Symptom	Deficiency	Notes
Lodging in cereal crops	Zn Cu	Zinc is responsible for cell wall strength
Chlorosis in cereal crops	Mn Fe	
Black heart in root vegetables	B	
Potato blight	Cu Min	
Leaf resilience in general	Zn	
Fungal attack	Min	