Selenium Chip™

Selenium is an essential trace element in the diet of animals. It is necessary for the growth and fertility of animals and for the prevention of various animal diseases.

- Increase selenium in the soil
- May increase livestock production
- May reduce White Muscle Disease
- May reduce infertility problems

Background

Selenium is an essential trace element for animal nutrition, but not for plants.

It is necessary for growth and fertility of animals and for the prevention of various animal diseases.

Selenium acts together with vitamin E as an anti-oxidant, as well as having an important thyroid function.

Symptoms of selenium deficiency in livestock include stiff-legged walking motion, poor growth and in severe cases, sudden death can occur.

Australian soils are generally low in selenium. This has an effect on the food chain causing metabolic disorders in livestock and low levels of selenium in human foodstuffs.

Selenium Chip™ is designed for application to pastures where the selenium is taken up by the plants through their root system. Grazing of these pastures then transfers the available selenium to the grazing animals.

This method of selenium uptake by the grazing animals means the risk of selenium overdose is very low when Selenium Chip™ is applied at recommended rates.

Selenium Chip™ is easy to use, takes minimal time and requires no animal handling.

Soil tests, tissue tests and or blood tests are all tools that farmers can access to get the most accurate level of detail to what amount of selenium is available/present for their livestock.

What is Selenium Chip™?

Selenium Chip™ is a granule formulation containing 10g/kg (1%) selenium as sodium selenite.

BENEFITS OF SELENIUM CHIP™

- Selenium Chip™ provides cost-efficient protection against selenium deficiency in livestock for up to 12 months following application
- Fast uptake by plants
- Easy to apply, saving time and labour. Simply add to the annual fertilizer application for the one pass over your pasture paddocks
- No animal handling required, therefore reducing animal stress
- Low risk of selenium toxicity when Selenium Chip™ is applied to paddocks at recommended rates

Why is Selenium Important

Selenium is an essential element for animals for fertility and general health, but non-essential for plants. Selenium is required by sheep, beef cattle, dairy cows, deer and horses:

- Protection against selenium deficiency in sheep, beef cattle, dairy cows and horses
- Selenium has an effect on growth and fertility in animals and has a role in the prevention of various livestock diseases including:
  - White Muscle Disease
  - Infertility
  - Ill thrift and susceptibility to other diseases
  - Reduced productivity including milk yield, wool growth, liveweight gains

How Does Selenium Chip™ Work

Selenium Chip™ encapsulates selenium in a safe polymer coating until soil moisture is present for release.

The sodium selenate form of selenium is readily available for plant uptake. Selenium applied to deficient soil is taken up by plants through their root system. Grazing of forage then transfers Selenium to the animal. This method of uptake by grazing animals means the risk of Selenium overdose is very low when Selenium Chip™ is applied at the recommended rate.

Research has shown that livestock may only need to graze a selenium treated pasture for 16 weeks, during which time sufficient selenium is stored to maintain blood Selenium levels above 250nmol/L for a further 35-40 weeks, providing 12 months supplementation. The duration of protection may be lower in high rainfall areas and high leaching soils.

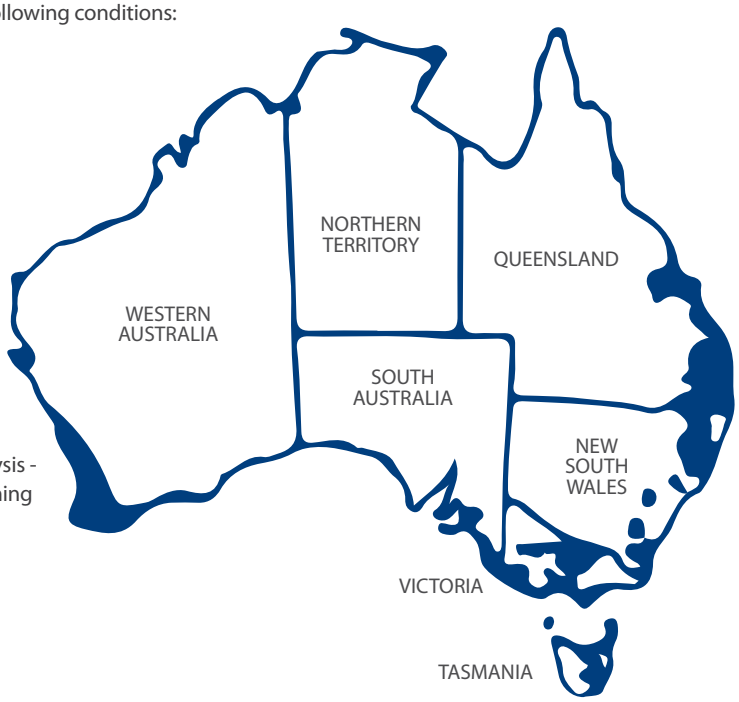
Areas of Australia Where Farm Animals May be at Risk From Selenium Deficiency

The map of Australia below indicates areas where selenium deficiency has been recorded, but it is suspected that further areas are yet to be identified. Selenium deficiency can occur under the following conditions:

- Soil types that are low in selenium, such as volcanic or older leached soils, including duplex soils
- Where animals are rarely fed supplements bought off farm that could have good levels of selenium
- Improved pastures with a high clover content
- Relatively high rate of fertiliser
- Stocking rates of 8 DSE/ha or higher
- Acidic soils that are becoming more acidic

Areas at risk to Se deficiency

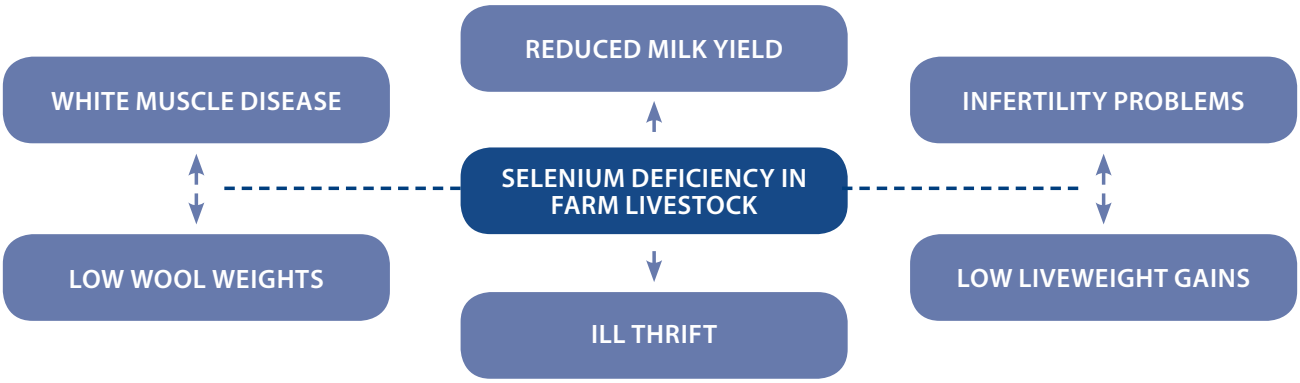
G.J. Judson and D.J. Reuter Ch24 "Soil Analysis - an interpretation Manual™ © CSIRO Publishing



Livestock Effects of Selenium Deficiency

Signs of selenium deficiency are more commonly observed in sheep than in cattle. White Muscle Disease is the most common clinical manifestation of selenium deficiency in livestock. Other signs include ill-thrift, scours, infertility, subclinical mastitis, reduced growth rate and reduced fleece weight. Marginal deficiency is usually not shown by clinical signs but can result in reduced productivity.

ANIMAL HEALTH ISSUES RELATED TO SELENIUM DEFICIENCY



SELENIUM DEFICIENCY DIAGNOSIS

	Sheep		*Cattle*	
Indicator	*Deficient*	*Adequate*	*Deficient*	*Adequate*
Whole Blood selenium (µmol/L)	<0.25	>0.50	<0.15	>0.25
Blood Plasma selenium (µmol/L)	<0.15	>0.32	<0.10	>0.15
Blood glutathione peroxide (U/g Hb)	<30	>50	<20	>40
Liver selenium (µmol/kg dry matter)	<2.0	>4.0	<2.0	>4.0

The best indication is obtained by stock blood selenium values, but knowledge of soil types, fertiliser history and pasture selenium levels wil be of assistance.

DIRECTIONS FOR USE

- DO NOT ADMINISTER DIRECTLY TO ANIMALS
- Selenium Chip™ is not a feed supplement and is intended for pasture application only.
- Do not graze animals on pasture during application. Do not use other selenium supplements whilst animals are grazing treated pastures or expose recently supplemented animals to treated pasture without veterinary advice.

APPLICATION

- Selenium Chip™ can be applied either mixed with annual fertiliser application or broadcast alone using a small spreader
- Apply annually to pastures or forage crops at a rate of 1kg/ha to selenium deficient soils
- Priority should be given to paddocks that will be running young stock so as to maintain good general health and growth rates.

TIMING

- Selenium Chip™ is best applied during periods of active plant growth (spring or autumn).

LET'S GROW TOGETHER

Planning your forage and seed requirements in advance can make a big difference to your productivity. For over 75 years PGG Wrightson Seeds have been working with farmers to get the balance right.
To discuss your growth plans call your Sales Agronomist now.