



BROADACRE & PASTURE RANGE

PROTEX B

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Advanced Protein Synthesis

A premium liquid blend made from an array of different trace minerals which have a significant impact on the efficiency of plant photosynthesis. This blend specifically targets the ability for a plant to convert free ammonium in the plant into protein, resulting in an increased nitrogen conversion process which we describe as advanced protein synthesis. How is this possible? By adding the nitrogen in a specific form as a foliar applied product.

Why does nitrate accumulate in the leaves of plants?

Pasture legumes such as clovers make nitrogen through their symbiotic relationship with Rhizobia spp. bacteria. Sub clover is very efficient at making nitrogen where it will make nitrate NO_3 and then convert this into ammonium NH_4 and then into amino acids and proteins for high quality feed.

Sub clover pastures can produce around 200kg/ha of nitrogen which will be deposited into the soil. Over time, nitrogen in these soils will build up and the pasture may become invaded by other species such as silver grass *Vulpia* spp. Cape weed *Arctotheca calendula*, barley grass *Hordeum* spp or marshmallow *Althea officinalis* which thrive in soil high in nitrate.

These plant invaders will creep in with over grazing or excessive hay/silage harvesting. The nitrogen that the clover has laid down is generally

in the form of nitrate. The nitrate NO_3 will accumulate in the leaves of plants when photosynthesis slows due to stress, most often caused by weather events.

In winter photosynthesis will slow when the weather is cloudy and cold. Nitrate conversion to protein is reduced as photosynthesis is slowed by the lack of sunlight and it is then nitrates begin to accumulate in the leaves.

Nitrate accumulation in the leaf will release infra-red signals and ammonium which insects that feed exclusively on nitrate will immediately pick up. Typically, Red legged Earth Mite (RLEM) *Halotydeus destructor*, Lucerne Flea *Sminthurus viridis* and caterpillars like Pasture Looper *Ciampa arietaria* will be attracted to the source of food. These insects can only ingest and process nitrate as they have a very basic digestive tract.

Protex B has been designed to overcome the build-up of nitrate in the leaf by super charging the photosynthetic processes and converting the nitrates into complex protein.

Protex B not only encourages new growth in the plant, it also eliminates the food source for those insects attacking the pasture. Protex B has locked out the insects from their food source and they will ultimately leave the pasture or die of starvation.



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Protex B works slowly but is completely safe to the predators of the nitrate feeding insects such as Anystis mite, lady bird beetles, Lace wings, spiders and ants. Protex B is also completely safe to Dung beetles, birds and grazing animals. There is no withholding period for Protex B.

Protex B can be applied at 2-5L/ha when insect damage appears. Very little change in the insect population will occur in the first five days after application. At day five (5) Red Legged Earth Mite may be seen on the Cape weed which will still be high in nitrate with fewer RLEM on the clover. After seven days the RLEM population will be low and regrowth of the pasture should start to occur.

It should be noted that more than one application may be needed especially where the calcium levels in the soil are low. Monitoring the pasture for insect damage should continue throughout the growing season. Building the soils calcium with lime will greatly assist in preventing insect attack and the need for insect control as the calcium will build cell strength and resistance to fungal and insect attack. It will also make the pasture more nutritious for stock which will in turn improve stock health.

APPLICATION RATES

2-5 litres per hectare or as advised.

**Store in a cool place away from sunlight.
Stir well before use.**

TYPICAL ANALYSIS

Major Elements	(w/v%)
Magnesium	1.10%
Sulphur	0.52%
Molybdenum	0.33%
Zinc	0.32%
Manganese	0.30%
Boron	0.27%
Copper	0.24%
Nickel	0.11%
Cobalt	0.05%
Iron	0.03%

