# Current deer trace element advice, inc. Multimin® usage at velveting

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#### Multimin at velveting

In the velvet season of 2024, four Hawkes Bay velvet farmers were approached to discern if they had interest in utiliSing a multimineral injectable product in their two-year-old stags at button draft. These farmers were enlisted because they were recording their velvet stags and weights, were happy to inject their deer at button draft, and had reasonable numbers of two-year-old stags. Multimin or Multimin Evolution® were injected from mid to late September at a dose rate of 1ml/100kg subcutaneously which is the on-label dose for deer. The split in product use was due to a delay in the Multimin Evolution being available. Farms one and four used Multimin Evolution, farms two and three used Multimin. Multimin Evolution contains zinc 60mg/ml (as disodium zinc EDTA), manganese 10mg/ml (as disodium manganese EDTA), copper 15mg/ml (as copper disodium EDTA) and selenium 5mg/ml (as sodium selenite). Multimin contains all of the above except 20mg/ml less zinc.

Due to money constraints, it was left up to the farmers on the day of their two-year-old stag button draft to manage the split in mobs, those that were to receive a multimineral injection and those that weren't. One farmer chose to inject the odd numbers, others just completed it at random in the shed once drafting had been completed. There was a mixture of deer injected who had cast their buttons and those that hadn't, this indicated velvet harvest was in 60 days or more. With deer, animal health treatments are best completed at the time of management tasks for ease and thus, button draft was chosen as the most appropriate time for administration.

#### Results

Table 1. The number of two-year-old stags on each property which were treated and untreated and the average velvet weights of each mob.

Farm	No. stags per farm		Average velvet weights			
	Treated	Untreated	Treated (kg)	Untreated (kg)	Diff	
1	47	45	2.14	2.18	-0.04	
2	26	54	4.34	4.16	0.18	
3	69	71	3.2	3.09	0.11	
4	30	39	4.27	3.99	0.28	
Total	172	209				

On three of the four farms there appears to be a gain in the multimineral treated groups however the amount that it improved growth varied between farms, and no statistical analysis was carried out to determine the significance of this. In the 2024 velvet season, the average price for velvet was \$100/kg, this equates to a range of -\$4.00 to +\$28.00 per head return at a cost of approx. \$1.65 incl GST for 1.5ml of Multimin.

#### Farmer feedback

• Farmer one commented that "feed was definitely a factor this year with all weights back about a kg in the two year stags". The spring of 2024 was quite dry late in the season for Hawkes Bay but some areas were

also impacted earlier. The lack of rainfall as experienced on farm one had an impact on feed and thus velvet production (Figure 1 and 2). This shows that trace element supplementation is not a substitute for feed.

• Farmer 4 noted that "less culls were in the treated mob", he culled nine two-year-olds and three of them were in the treated mob vs. six in the non-treated mob.

Figure 1. Farm one spring 2024 rainfall (worst).



In summary, this shows that Multimin may have a positive impact on velvet growth when given at button draft. However, there are different responses noted due to the farm influence on velvet weight. For the author, Multimin supplementation at button draft appears to be that extra lift in performance when all other things are at their optimum. It would be interesting to see if this is repeatable from year to year, farm to farm and across MA stags. This was a farmer observational study, and it is not the intention of the author to definitively say that Multimin increases velvet growth. It was to consider whether Multimin could be applied at key times for deer performance as has been shown in the dairy sector, for those high performing herds looking for that extra lift, when all other factors are at their optimum.

#### Vet survey on trace element advice to deer farmers

When considering trace element supplementation in deer it was decided at the same time to survey the profession to understand what is currently advised by veterinarians. A range of deer veterinarians were targeted individually and then a group email sent out to the NZVA Deer Special Interest Branch. Twelve surveys were received back completed. The following is a summary based on those answers and thus is limited by this.

From the survey, all veterinarians refer to the lab reference ranges for trace elements. The most important trace elements in deer that advice is given on are copper (12/12) and selenium (9/12). For the purpose of this paper, they will be the main focus. A few discussed iodine and cobalt in deer however, these trace elements are mainly considered in a small minority of cases, i.e. iodine in mid to late pregnancy, if hinds are wintered on goitrogen-containing forages, and cobalt in young stock/summer/autumn.

TE	Testing: How, when, what trace elements to test	Animals: What and when to supplement		
Copper	Livers at works on whatever is going	Hinds	Before winter (scanning) / before fawning (set stocking)	
	Liver biopsy on weaners	Weaners	At weaning	
	Some don't test, just supplement as know	Stags	Autunm, winter, early spring esp young stags where ALD seen	
Selenium -	On livers at same time as copper	All	All year. Premate, weaning, regrowth, winter	
	Bloods - premate, weaners			

# Testing and animal requirements

# Supplementation: What products to use

TE	Product	Comment		
Copper PKE Injection		1kg/hd/d through winter and velvetting		
		Works quicker		
	Multimin	Works quicker, multi-purpose		
	Bolus	Longer acting, and safer, but not as manageable to use		
	Cu Sulphate Fetiliser	As long as no secondary deficiency at play		
Selenium Selovin		Works quicker		
	LA	Longer acting, split dose for less time		
	Prills	1-2kg/ha/yr		
	Multimin	Works quicker, multi-purpose		
Cobalt	Injection	Given at weaning		
lodine	Flexidine	LA injx pre-fawning		

NB: Label recommendations used if product registered for deer, if not registered, label dose for cattle used.

A survey carried out in 2005 of farmers (n=174) showed 88% supplement copper, 76% selenium, 40% cobalt and 4% iodine (Wilson *et al.* 2008). Copper was mainly supplemented by bolus and then fertilizer. The greatest concern in the results was the concurrent use of more than one form of copper used on approximately 15% of farms in the survey. The paper notes that as many deer farms concurrently farm sheep and cattle, the high levels of selenium and cobalt supplementation could be warranted for that species, and thus not targeted for the deer (as the main form of supplementation of cobalt and selenium was with fertiliser).

# Points of note from literature

Deer reference ranges and testing recommendations:

Trace element	Deficient	Marginal	Adequate	Test	No. rqd
Serum copper	<5umol/L	5–8umol/L	>8umol/L	Mar / Apr then	
Liver copper	<60umol/kg	60–100umol/kg	>100umol/kg	again Jul / Sep	5–8 biopsy
Whole blood selenium			>120umol/L	Early autumn -	
Liver selenium			>203–250nmol/kg	hinds / weaners	4–5 bloods

(Grace 2002) (Grace and Wilson) (Grace et al, 2000) (Wilson & Grace).

- Plantain can enhance the copper, vitamin B12 and selenium status of deer. Chicory has higher levels of copper than plantain. Keep in mind concentrations of elements such as iron, molybdenum and sulphur that may decrease absorption of copper (Hoskin *et al.* 2005). Copper levels in maize are considerably lower.
- Some studies have shown no weight gain response from supplementation despite low serum copper levels and clinical cases (Scott 2003).
- Growing deer appear less sensitive to deficiency than sheep and cattle, suggesting reference ranges for those species are not appropriate for deer (Grace *et al.* 2000).

### Key things to consider for deer trace element advice

- Test for trace elements and monitor treatment response. To ensure 'adequate' we need to understand the recommended range in deer for the trace element in question.
- What are the goals of the trace element plan? To treat and prevent, maintain adequacy/manage risk. It's important to work through the required outcomes for the farmer.
- Ensure that outcomes and expectations align i.e. cost of purchase and administration of the supplement against immediate health/growth returns also considering any unintended consequences (toxicity/losses), and whether or not supplementation is carried out to manage risk.
- There is an opportunity for deer veterinarians to work with their deer farmers to consider their existing supplementation plan, any risks associated with it, when to monitor trace element levels and assess this information against current performance.
- If deer run the gauntlet of inadequacy and stress ensues, what role do trace elements play on the resulting outcomes. Is the approach to trace element supplementation in deer a more holistic approach?

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