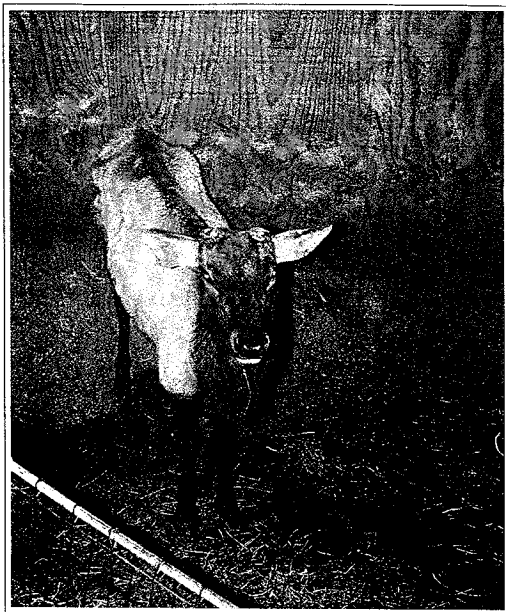


# Drench to beat fading Elk

**Craig Matthews**

*details work by AgResearch Invermay which confirms the suspicion that Wapiti-type deer are more susceptible to parasites than Reds. The research also shows the value of ivermectin and moxidectin for parasite control and better performance in Wapiti hybrids.*



A sorry looking Elk displays marked fading symptoms

NORTH AMERICAN Wapiti have been used to hybridise with Red deer from early deer farming days in New Zealand. The resulting hybrids usually gain weight faster and produce more velvet than pure Reds.

However, New Zealand Wapiti do not perform as well as they in theory should. Something is holding back their growth. What is it?

Research into the apparently unrelated fading Elk syndrome sug-

gests a solution, or at least a path towards finding one.

Most deer farmers will know that fading Elk is associated with stomach parasites. This has led to a bit of lateral thinking by the researchers at AgResearch Invermay, and the idea that stomach parasites could also be behind the lower Wapiti performance figures in New Zealand.

Ken Waldrup, Colin Mackintosh

and their team of scientists have done research comparing the affect of parasitism on Wapiti hybrids with the effect on Reds.

By controlling the degree to which groups of both Red and Wapiti deer were infected with lungworm and abomasal parasites, they were able to compare how each sub-species performed.

Four groups of deer were tested: two groups each of 10 weaner Wapiti hybrid and Red hinds.

For each species one group was minimally parasitised, the other moderately.

The deer were measured for live-weight gain, serum biochemistry and lungworm larval counts. Half the animals were slaughtered about three months after weaning; the rest four months later.

The experiment also enabled the scientists to test the effectiveness of some commercial drenches.

The minimally parasitised Wapiti hybrid group was treated with pour-on ivermectin at 1500 mg/kg liveweight — triple the cattle dose — at 21-day intervals. The triple dose regime was used in an attempt to reduce *Ostertagia*-type larvae.

The minimally parasitised Red deer were treated with albendazole at the rate of 10 mg/kg liveweight at 21-day intervals. Moderately parasitised groups were identically treated for each species with albendazole at 35-day intervals.

### Wapiti thrive on drench

Despite the small sample groups, it was clear that Wapiti hybrids made significant liveweight gains when stringently treated with ivermectin.

What can farmers do to control parasites in Wapiti hybrids? Dr Mackintosh says that in other research done at Invermay it was

found that normal doses of injectable ivermectin work well at controlling adult parasites.

However, a double dose is needed to kill the earlier stages — the parasite's habit of burrowing into the gut lining and hibernating makes it harder to kill.

On the other hand, normal doses of moxidectin pour-on kill both young and adults, roughly halving the costs of using ivermectin.

For Red deer on the other hand, there were no significant differences in liveweight between moderately and minimally infected animals.

This supports the long held belief that Wapiti-type deer are more susceptible to parasites than Red deer in New Zealand. Why this is so is not yet totally understood, but may be related to genetic factors. □

*Craig Matthews is TDF's technical writer*

## Parasites the culprit in fading Elk?

INVERMAY SCIENTISTS may have found a link between gut parasites and fading Elk Syndrome.

But the syndrome is not a simple matter of parasites sucking the "goodness" out of deer. Although partly true, the process is more subtle than that.

It's all to do with gain or loss of proteins in the plasma, the clear liquid which, among other things, transports the red blood cells around the body.

Within the plasma there are three proteins which form the basis of this story: albumin, globulin, and acute inflammatory proteins.

Albumin maintains acid balance and acts as a binding agent. Vital to the animal's survival, this protein is produced by the liver. If albumin levels drop the liver has to utilise other proteins to produce the albumin.

### Acid

Protein can come either from food or directly from muscle tissue. Another effect of parasitism — decreasing production of stomach acid — complicates matters even further.

Stomach acid is essential for good digestion of food, so less stomach acid means poorer diges-

tion. The second protein, globulin, fights infection and parasitism. Sometimes a third protein — acute inflammatory protein — is released.

### Inflamed

As the name suggests this protein is released in response to inflammation.

Depending on what the body needs at any time, the proportion of each protein produced varies. However, it's vital that the total amount of all three proteins remains the same.

For example, if acute inflammatory proteins are released, albumin and globulin levels will drop. It's a bit like a barman pouring a glass of gin, lime and lemonade.

Usually it's OK to vary amounts of each liquid, but patrons would be the first to complain if the barman presented them with a half-filled glass.

Back to parasites. When they attach to the gut lining they cause small ulcer-type lesions to develop.

Unlike the one or two ulcers found in humans, there may be many thousands of these small lesions in a deer.

Waldrup and Mackintosh think that these sores cause proteins —

especially albumin — to literally seep out of the lesions into the gastrointestinal tract; where they are lost to the animal. Burn your finger badly, and sometimes a clear liquid seeps out at the burn site — it's the same thing.

### Topped up

As mentioned before the total amount of protein must be kept topped up, so the deer is forced to try to replace the protein that seeps out.

But because the animal is not getting the amount of protein from food that it normally would — because of the decreased stomach acidity — the albumin has to be produced largely from muscle protein. This causes the muscles to waste away, leading to the characteristic fading.

A final word about drenches. Some oral drenches, particularly white drenches, depend on stomach acidity.

If stomach acidity falls — by the kind of parasitism mentioned above — the absorption of the drench and its effectiveness is reduced.

That's why injectable and pour-on drenches are favoured over oral drenches for treating parasitised deer.

*- Craig Matthews*