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Vitamin A supplements for sheep

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GRAZING animals build up their reserves of Vitamin A from the carotene present in green plants. In the West Australian wheatbelt most stock have to subsist mainly on dry feed during summers which last from five to seven months. It seems unlikely that any appreciable amount of edible greenstuff is available during this "annual drought." It is not surprising, therefore, that stock losses which have occurred in the late summer months have been attributed to lack of Vitamin A.

The possibility that sheep, in particular, are likely to suffer from this prolonged lack of greenfeed, has been suggested many times. However, as the result of investigations carried out in this State by Underwood and his associates, and by other workers in South Australia, it has been accepted that sheep can conserve sufficient Vitamin A in the liver to supply all requirements for at least 5-6 months.

A trial carried out at Walebing some years ago appeared to confirm this conclusion when breeding ewes on dry feed showed no obvious benefit from dosage with Vitamin A supplements (Underwood, 1953).

However, in November, 1952, the C.S.I.R.O. released a preliminary report on trials carried out in New South Wales. These suggested that Vitamin A supplements could be of considerable value to sheep on dry cereal rations. This report has received considerable publicity and the results have been used to encourage the supply of Vitamin A supplements to breeding ewes and "weaner" lambs. It has become important, therefore, to determine if these supplements are likely to be of value to flocks in Western Australia.

First and foremost, it should be stressed that the investigations of the C.S.I.R.O. confirm the conclusion of earlier workers that breeding ewes carry a considerable reserve of Vitamin A in their livers. The experimental ewes were able to rear normal healthy lambs although kept for a full year on a Vitamin A-deficient ration of cereal chaff and cereal grain.

It was only when the ewes were mated a second time that the reserves of Vitamin A became so depleted that many of the second crop of lambs were born dead or died soon after death. Fortunately, flocks in the West Australian wheatbelt are never required to go without green food for as long as twelve months.

When weaner lambs in New South Wales were kept for seven months on cereal hay and cereal grain, heavy losses occurred among those not receiving a Vitamin A supplement. But here again it will be noted that the need for Vitamin A became apparent only after many months on a deficient diet. Thus during the first four months on dry feed 13 of the weaners receiving the supplement died (there were 125 animals in the group). There were 20 deaths among the controls. As the experiment continued, however, the losses became severe among the controls and one must conclude that Vitamin A supplements may become essential where weaners are forced to subsist on dry feed for four months or longer.

LOCAL EXPERIMENTS

In order to obtain further information concerning the possible value of Vitamin A supplements under local conditions an experiment is now under way at the Wongan Hills Research Station. This is similar in design to the trial carried out by the C.S.I.R.O. At Wongan Hills no green feed has been available since late October so the experimental animals have already subsisted on a Vitamin A-deficient diet for six months.
Breeding Ewes.—Two hundred Merino ewes are being used in the trial. These were run through a race on February 18 and every second animal received a dose of high potency shark oil containing 500,000 Int. Units of Vitamin A. The ewes all carry numbered ear tags and ran together as one flock until lambing commenced. If the supplement is of any value this should be reflected in the number and/or quality of the lambs at marking time.

Healthy lambs are now being born in both groups and it is still too early to judge whether the supplement has produced any effect.

Weaners.—50 Merino x Border Leicester wethers are being used in this trial. As was the case with the ewes, the weaners were run through a race on February 18 and each alternate one received 500,000 Int. Units of Vitamin A. The experimental animals carry ear tags and are weighed every three weeks. The sheep are handfed three times a week on chaffed cereal hay and oat grain at the rate of 2 lb. of chaff and 1 lb. of grain per head daily. Very little roughage is available in the paddock.

To date no significant difference can be seen between the treated and untreated wethers. On February 22 and 25 controls averaged 81.9 lb. in liveweight (range 59-98 lb.) while the supplemented group averaged 82.5 lb. (range 68-98 lb.). On April 29 the respective averages were 84.7 lb. and 86.6 lb.

FUTURE WORK

It is anticipated that detailed work over a period of years will be necessary in order to obtain authoritative information on the value of Vitamin A supplements in various parts of this State. It may be important to carry out experiments on a number of research stations because the sheep at Wongan Hills, for example, may have access to some insignificant but all-important source of Vitamin A. A hardy perennial weed which escapes observation or the leaves from assumedly inedible shrubs could possibly supply the small amount of greenstuff needed to tide the animals over the summer months. Obviously many factors will have to be considered in designing future experiments.

Reference.