Cobalt deficiency in sheep and cattle

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The problem of supplying cobalt supplements to sheep and cattle running on cobalt-deficient country has been greatly simplified by the cobalt "bullets" or pellets recently developed by officers of the C.S.I.R.O. The "bullets" consist of cobalt oxide combined with a special clay mixture by firing at a high temperature, and when lodged in the animals' digestive system they gradually release the small quantities of cobalt required to maintain good health.

Although it is only required in minute quantities, cobalt is a vitally essential element in the diet of ruminants such as sheep and cattle.

It is necessary to ensure the production of vitamin B₁₂ by the bacteria inhabiting the rumen or paunch. This vitamin is essential for normal growth and main-
tenance of life and for the production of red blood cells. Where the necessary intake of cobalt is not provided by the vegetation grazed by the animals—and there are extensive cobalt-deficient areas in several Australian States—some form of cobalt supplement must be given. The cobalt bullet provides a continuous well-regulated supply.

Where stock are suffering from a cobalt deficiency they lose condition and become weak and anaemic. Wool growth is affected in the case of sheep, and the animals literally starve to death although feed may be abundant.

Young stock and lactating females require vitamin B₁₂ to be continually available and are therefore particularly susceptible to cobalt deficiency. Due to the non-development of the rumen in young animals, however, lambs and calves under eight weeks of age should not be dosed with cobalt bullets.

The cobalt bullets are administered by means of specially designed "guns" as shown in the illustrations. These place the bullet in the animal's gullet where it can be swallowed quickly.

Due to its density, the bullet usually enters the reticulum (also known as the "second stomach" or "honeycomb") where it remains. In a small proportion of cases, the bullets are regurgitated and the animal will require to be dosed again.

Where these instruments are not available, a satisfactory substitute can be easily made from a length of plastic hose with a piece of cane or similar flexible material to serve as a plunger to eject the pellet.
The bullets used for cattle are four times the weight of those used for sheep. Sheep bullets should not be used for cattle as research has shown that they are not retained long enough for the treatment to be reliable.

Dosing is best carried out in a crush with a ball gate at the end—especially in the case of beef cattle. Dairy cattle can usually be dosed satisfactorily in the milking bails whether they be of the yoke or walk-through type.

The special Bainbridge cattle cobalt bullet gun (illustrated) may be used, or alternatively a simple home-made gun can be constructed from a 2 ft. length of 3/8 in. (internal diameter) plastic hose with a suitable piece of cane or other plastic material sliding inside it to eject the pellet. The hose should have the end rounded to avoid injury to the membranes of the gullet and the cane plunger should be fitted with a suitable stop to ensure that it does not project beyond the end of the hose when the pellet is ejected.

The conventional balling gun as commonly used for administering physic balls to horses, could also be used to dose cows with cobalt bullets, but as this only places the pellet at the back of the tongue, the animals should be observed for a few minutes to ensure that the pellets are swallowed.

Do not dose calves until they are at least two months old, but dose both beef and dairy stock as soon as convenient after this age.

Milking cows are best dosed twice yearly—at drying-off and three months after calving. It is recommended that first-calf heifers should be dosed about three months before calving and thereafter as recommended for cows.

The symptoms of cobalt deficiency in cattle are much less obvious than is the case with sheep. Where there is unthriftiness, harsh, staring coat, falling-off in con-
dation, lack of appetite, anaemia and lowered production, the possibility of cobalt deficiency should be considered, together with other possible causes such as worm infestation.

Under such circumstances, stock-owners could test for cobalt deficiency by dosing half the herd and comparing the progress of the supplemented and unsupplemented animals over the next few months.

**SHEEP**

For many years it has been known that sheep could never be successfully depastured for long periods on certain areas in many countries of the world. Despite the fact that these areas often carried pasture growth which appeared to be adequate in both quantity and quality, sheep running on such country rapidly declined in condition and died if not moved on to other pastures. Various names such as “pining,” “bush sickness,” “salt sick,” “coast disease” and other terms were coined to describe this mysterious illness and it is only within the last few decades that the ailment was shown to be due to lack of cobalt and/or copper in the vegetation of these districts. Special licks and drenches or the supplementing of the water supplies to make good these deficiencies helped in overcoming the problem, but the development of the cobalt bullet marks an important advancement in supplementary feeding.

To be effective, the cobalt supplement must be available continually and it was found that not all animals consumed the
licks regularly and in sufficient quantities to ensure adequate supplies of cobalt. Supplementing the water supplies presented certain problems and drenching had to be carried out at not more than weekly intervals to be fully effective. The cobalt bullet has been shown to supply the required quantities of cobalt over long periods.

Several types of pellet guns are available commercially for administering cobalt bullets to sheep and two types are shown in the accompanying illustrations.

A cheap and effective gun can be made from a 12 in. length of plastic hose with an internal diameter of $\frac{3}{8}$ in. A cane or other flexible plunger is used to eject the pellet. The plunger should be fitted with a stop, such as a rubber or metal collar or a short length of No. 8 fencing wire passing through the cane.

The ends of the hose should be rounded and the stop should be positioned to ensure that the plunger, when depressed, does not project beyond the end of the hose.

To administer the bullet, the plunger is withdrawn slightly and the bullet slipped into the end of the hose. Wet the hose if the pellet is too tight. The hose is then slipped into the sheep's mouth and gently pressed into the gullet. The plunger is depressed as far as the stop, thus placing the bullet where it may be readily swallowed.

It has been found that occasionally—particularly in suckling lambs—the bullets in the reticulum become coated with calcium phosphate to such an extent that the cobalt is unavailable to the animals. Following treatment with the bullets, the animals should be observed at fortnightly intervals for two months or more. Any which fail to show the usual dramatic response should be re-dosed.

![Diagram of the home-made pellet administrator](image-url)

**Fig. 8.** A diagram showing details of construction for the home-made gun as used for sheep.
Victorian Farmer

reaps benefits from own invention

This device was constructed by Mr. Loveday from pieces of steel he had on his farm. His own portable welding plant and a few S.A.E. spanners were the only pieces of equipment used in construction. The implement consists of an onion skimmer, onion rakes and front wheel clearing rakes. The skimmer is made of two 3' x 4" cambered high-tensiled steel blades welded on two mild steel plates mounted on the belly equipment of the tractor and raised and lowered hydraulically. The onion rakes consist of mild steel rods attached to the rear hydraulic assembly and are set 5' apart immediately behind the tractor closing to 2' apart at the end of the rakes. The rakes move the onions into 2' rows for maturing and easy collection.

The front wheel clearing rakes are constructed from mild steel rods welded to a tubular steel spring-loaded frame. The rakes clear a path for the tractor wheels preventing damage to the onions during sowing and harrowing.

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