

PROVISIONAL.

C. S. O.

Original booked office 5/2/51 May 52

AGR/SHE/6#9

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SUBJECT:

SHEEP - Experimental drenchings with cobalt.

Number & Year.

CONNECTED FILES.

Port Stephens,
25. 5. 52.

Cobalt Dosing. 1951 - 52.

Dosing Plan. It was agreed that having dosed practically all sheep on the farm at least twice a year during the preceding 5 years, it would be well to discontinue dosing for a year in order to observe what effect this might have on the trend of the death rate and lambing percentage.

Figures for the years when dosing was carried out indicate that that the death rate was being lowered and the lambing in at least one flock (Carew Harbour Rincon) was being improved. Accordingly no dosing was done at the 1950-51 shearing, the 1951 dipping nor during the ensuing winter. Actually an exception to this was made in the case of Two Ponds gimmer flock; as it was firmly believed that this flock was benefitting from being dosed.

Results. Briefly the results following the cessation of dosing were bad. From shearing to dipping 1951 the death rate was 1834 sheep or 6.9% of sheep shorn, considerably higher than the death rate for the corresponding period in the years when dosing was undertaken. From dipping 1951 to shearing 1951-52 the death rate was 4682 sheep or 16.6%. This means a death rate from shearing 1950-51 to shearing 1951-52 of something like 25%, very much heavier than the annual death rate over the preceding 5 years.

Carew Harbour Rincon ewe flock gave a very poor lambing return compared with the lambing for the whole farm, reverting to the position it held before dosing was commenced in this flock. It must be admitted that the year under review was a poor one as regards weather, the summer and winter were very wet and the spring extremely cold and wet late, but even making due allowance for this it would appear that it might have been advantageous to have dosed the sheep at the 1950-51 shearing and dipping. Practically the only flock on the farm with at all a reasonable death rate from 1951 dipping to 1951-51 shearing was Two Ponds (7.7% which did receive two doses).

Dosing was recontinued at the 1951-52 shearing with apparently favourable results.

We may now review the position over the years.

The initial experiment carried out in 1946 dosing 36 pinner sheep in the same paddock as 36 undosed controls showed that some sheep on Port Stephens at least suffered from cobalt deficiency.

Table 1. gives the lambing percentage for Carew Harbour and the whole farm and in column 3 compares the two expressing the former as a percentage of the latter. From this it can be seen that prior to any dosing Carew Harbour Rincon always gave comparatively poor results. The first year the flock was dosed the result were startling and although in the following years results were not spectacular dosing did appear to be effecting some improvement. In 1951, with no dosing, the lambing percentage was again very poor.

Table 2. gives the death rates between shearing and dipping for a number of years. It can be seen that in the years when dosing was carried out this death rate has always been low (low that is for this particular farm) and that in all other recent years it has been high. This evidence, though fairly convincingly in favour of dosing, cannot be considered conclusively so since in 1936-38 and again in 1941 the death rate was equally low without the sheep having been dosed.

Table 3. gives the annual death rate for Port Stephens and for the whole of the Falklands and in column 3 expresses the former as a percentage of the latter. From this table it would appear that the "Normal" death rate of Port Stephens is almost always about 160% of that of the whole Falklands, and that dosing had the effect of bringing this death rate down considerably. The table, unfortunately is not complete as we shall have to wait several months before the Falklands figure for 1951-52 is available, but if, when it comes to hand, it shows Port Stephens to have gone back to the old "Normal" position the evidence that dosing has the effect of reducing losses on Port Stephens will be fairly conclusive.

From my own observations as well as from the figures given in the three tables I am absolutely convinced that there is a cobalt deficiency at Port Stephens and that dosing with cobalt is beneficial.

The shepherds here were all enthusiastic about the benefits of dosing to begin with but became lukewarm later when it became realized that dosing entails extra work. After one year with no dosing they are again enthusiastic supporters of dosing.

Future Action.

Practically all sheep were dosed at shearing and again at dipping this year and it is intended that Carew Harbour Rincon, Two Ponds, and Fox Point and Centre Camp will be dosed again during the winter or early spring.

Cobalt chloride only is being given, copper sulphate having been discontinued owing to its corrosive action on the drenching guns causing them to leak badly and this has resulted in the staining of some wool. I am fairly certain that it is cobalt which is the important deficiency, though copper sulphate might be an advantage, acting as a worm drench, particularly with Cape Orford and the Rocky lams.

Dosing would appear to be the only feasible way of administering the cobalt. Sowing cobalt on the land is out of the question owing to the expense entailed. A few mineralised salt licks have been tried but although the imported rams did take some of the licks when put in their grain troughs they made very little use of those put up on posts in the paddocks and as far as I know licks put up in Rodney Bluff were not touched by the stock at all but finally dissolved away with the rain. The idea of the imported rams teaching the stud ewes to take the lick and they in their turn teaching the ram lambs, which in due course would teach the flock ewes would in any case take a long time to materialise. I am doubtful if we would ever get the flock sheep to take the licks with our present management.

Individual dosing of each sheep has of course the great advantage that every sheep does receive the cobalt, but the problem in practice is how to dose sufficiently often. Dosing at shearing and at dipping is comparatively easy as the sheep are already in hand. Dosing at any other time between the beginning of October and the end of April is not possible since the shepherds are fully occupied already between those times, as are the ewe shepherds during May and June when the rams are out. This only leaves July, August and September and it may be that as much harm as good would result from gathering and dosing sheep at this time especially if, as is quite probable a patch of bad weather was struck. It would also use up a lot of horse flesh. In practice then it comes down to dosing at shearing and at dipping and perhaps a few flocks in June and in September.

The standard dose of cobalt which has been given here is .05gms of cobalt chloride, which, though small, is considerably more than has been found to give good results elsewhere and is rather more than twice as much as was given in the original experiments here. Probably if we could give this dose every fortnight or even every month it would be ideal, but since we cannot do this the best thing to do is to increase the dose at the times when we can give it. Previously it was not generally believed that larger doses had any advantage over a smaller one, but opinion now seems to be that where regular monthly dosing cannot be carried out it is an advantage to increase the size of the dose when it can be administered. It is proposed from now on to increase the dose of cobalt up to eight times the previous dose.

In Scotland observations on over 100 farms indicate that ewes dosed with cobalt get in lamb more quickly and more surely than when not dosed, practically all lambing is the first three weeks of lambing time. If this is so it could be of great benefit here as it would be ideal if one could only delay the beginning of lambing until mid October and be sure that practically all ewes had lambed by the first week in November.

These are the lines on which it is intended to work, to carry on dosing using a larger dose and to put lambing back a fortnight, in an effort to get a higher percentage of lambs.

In most springs the beginning of October is too early to start lambing, there is very little growth of grass by then and ewes have been going back during the last month of pregnancy, lambs are small when born and the ewes have very little milk. At the beginning of September most ewes on this farm look fairly well

it is the last weeks of pregnancy which pulls them down, if lambing could be delayed they will have a better chance of feeding their lambs both before and after lambing. The big snag to a later lambing is of course the fact that we must perforce wean our lambs at shearing time and they must be old enough by the latter end of January to stand this, hence the need for a quick lambing if a late one.

In 1951 the rams were put out in Lucas Rincon on 16th. May, 15 to 9 days later than they were to the rest of the ewes. The lambing for Lucas Rincon was 39% as against 43% over all breeding ewes, this might be considered a comparatively good result for Lucas Rincon but of course is still very low and one would hesitate to claim any advantage for later lambing from these figures alone. Three flocks on the farm however, failed to mark 30% of lambs and I believe Lucas Rincon would have been equally low if the ewes there had been lambing at the usual time.

A. Beatty

Table 1.

Year	1. Carew Hbr. Bincon % age lambing	2. All other ewes % age lambing	3. Col. 1 as a % of Col. 2.
1930	27.1	45.0	60.2
1931	35.0	55.2	63.4
1932 ext. g	21.9	56.9	38.5
1933	35.1	60.2	58.3
1934	41.7	64.6	64.5
1935	25.5	55.2	46.2
1936	40.7	60.1	67.7
1937	33.6	59.1	56.8
1938	33.6	59.9	56.1
1939	26.7	51.4	51.9
1940	40.8	60.5	67.4
1941	44.9	64.0	70.1
1942	42.0	60.3	69.6
1943	46.3	63.3	73.1
1944	31.0	59.4	52.2
1945	37.0	57.6	64.2
1946	30.0	51.7	58.0
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17 years' average	34.9	57.9	59.9
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1947	58.4	54.9	106.4
1948	45.0	51.6	87.2
1949	50.1	55.4	90.4
1950	37.2	49.3	75.5
1951	19.3	42.2	45.5

X ewes dosed with cobalt

Table 2.

Death Rates Shearing to Dipping.

Year ending May	Numbers	Percentage of Sheep Shorn
1922	2654	8.5
1923	2146	6.9
1924	3564	11.4
1925	2231	8.2
1926	2648	9.6
1927	2772	10.4
1928	2002	7.7
1929	2831	10.1
1930	3205	11.9
1931	2256	8.9
1932	1572	6.1
1933	1005	4.1
1934	1418	5.3
1935	1685	7.0
1936	876	3.8
1937	1007	4.2
1938	950	3.9
1939	1741	6.9
1940	1153	4.6
1941	879	3.6
1942	1411	5.4
1943	1485	5.7
1944	1283	4.6
1945	1442	5.8
1946	1742	6.4
1947	1624	6.1
x 1948	1092	4.0
x 1949	1114	4.0
x 1950	974	3.64
1951	1834	6.9
x 1952	938	3.9

x Practically all sheep dosed at shearing

Table 3.

Annual Death rate Percentages.

Year	(a) Port Stephens	(b) Falklands	(a)/(b)
1921-22	18.1	12.1	150
22-23	18.8	11.7	161
23-24	23.24	13.9	168
24-25	19.6	11.1	176
25-26	19.9	13.1	152
26-27	19.8	13.0	152
27-28	16.7		
28-29	18.5	11.3	157
29-30	21.9	11.8	185
30-31	18.7	10.2	183
31-32	15.7	10.9	126
32-33	17.5	10.0	175
33-34	14.6	9.5	154
34-35	16.6	8.7	190
35-36	16.3	9.2	177
36-37	13.5	8.9	151
37-38	15.1	9.1	166
38-39	16.0	9.7	165
39-40	15.7	10.0	157
40-41	13.4	8.6	156
41-42	13.4	8.6	156
42-43	15.8	9.5	166
43-44	13.9	9.3	149
44-45	15.2	10.4	146
45-46	17.2	11.2	153
46-47	16.4	9.4	175
47-48	13.0	9.0	144
48-49	13.8	12.0	115
49-50	13.3	10.75	124
50-51	16.8	12.8	131
51-52	18.1		

average
about 160,
remarkably
constant

x Port Stephens sheep all dosed twice with copper and cobalt
y " " " " " once (at shearing) with copper & cobalt
z " " " " " once (at dipping) with

0821

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MARKAMPTON,
PORT STEPHENS,
WEST FALKLAND.

25 May 1953

OP

File & pen to A/O

for his comments to return
to me — I have not
yet read but have been
much interested in this
exposed.

MC 10/11
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ACS PWA. 12 9
1953

Your Excellency
Dear Sir,

1-6 I enclose
a copy of my latest
report on Eibalt doing,
which I know you will
be interested to have.

Yours faithfully,
A. Beatty

ao.

1-6 for comments, p.

file
1976.

Comments. Mr. Beaty's work has not had any spectacular results. At one time as may be inferred from his second paragraph on page 1 he and his directors did not firmly believe that all the sheep were benefiting from the dosing.

His best previous figures had been for gimmers, that is non-breeding sheep, in the Two Ponds camp which is mostly water-logged white grass valleys and drier rocky hills. These were considered sufficiently significant to be continued.

I would point out that intestinal worms have a greater debilitating effect on young sheep than old and that by using copper sulphate a known anthelmintic with the cobalt the effect of drenching after the starving involved in holding the sheep before both shearing and dipping would be to reduce the sheep treated's worm infestation: from which you would expect the most significant results in reduced mortality to be in young sheep.

At the top of page 2 he refers to the enthusiasm of his shepherds and its tailing off: this is I would say almost exactly reflected in his resultant figures at page 4 which I have pencilled round.

Mr. Beaty, young and energetic, through might I say his "cobalt phobia" has stirred up his men a little from the usual here lethargic apathy to which they descend and has stirred up and doctored his sheep. The results he has obtained in figures could be expected from such actions irrespective of the minerals used. Neither are his figures on page 5 significant as you will see his percentage death of sheep shorn in the years of dosing are no lower than the variation good weather and management could account for between season and season. For example note 1941, 1938, 1936. also you must remember as you go back along the years the total number of sheep on Port Stephens increases from his present 29-30 thousand to over 40 thousand.

None-the-less despite no spectacular results Mr. Beaty has started something which has stirred up the otherwise fatalistic attitude to the Islands alarming sheep losses in "unaccounted for deaths" and low lamb markings, and reducing numbers of total sheep.

In this he is the only person in years to put forward something progressive and to the general good and he should be encouraged to continue in his well doing.

John P. Collins

AO

20/11/62.

20/6

*Please send reply on my behalf regarding
content
my interest in this experiment and any suggestions.*

Dec. 20/VI

23rd June,

Sir,

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1-6 I am directed to acknowledge receipt of your letter of the 25th May, 1952, enclosing a copy of your latest report on Cobalt dosing.

2. I am to state that His Excellency has read it with much interest and wishes to extend his congratulations and best wishes for the final success of the experiment.

I am,
Sir,
Your obedient servant,

(Sgd) J.E. Briscoe.
ACTING COLONIAL SECRETARY

Mr. T. Beaty,
Port Stephens.

HTL
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