The potential role of dried Sauvignon Blanc grape as a practical means of gastro-intestinal parasite and lung worm control in weaner deer

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Introduction

Following the encouraging results found with controlling parasitism in goats using dried and milled Sauvignon Blanc grape marc (Anderson and Batten December 2020 a further trial was undertaken on a group of weaner deer in Marlborough.

Tannins, complex phenolic compounds found in plants, protect plants against disease and discourage overconsumption by herbivores. Of all ruminants, goats and deer are adapted to and can neutralise this effect of tannins more effectively than other livestock and were thought to be a good species for further studies. However, we now know that dried and milled Sauvignon Blanc grape marc (GMS41) with its high tannin content is very palatable and accepted by all the other species (sheep, cattle and horses) tested.

Materials and Methods

On the 11th March 2021 weaning took place on a deer farm at Koromiko (Marlborough). The weaners were split into two even mixed sex mobs of 50 deer per mob (control and treatment mob) and the treatment mob (T group) started on feeding GMS41 at 100gm/head/day. This built up to 300gm/h/d over the next week. GMS41 was fed out in a simple half drum shaped feeder. While not all animals could get access to the feeder at any one time, they did not gorge on the GMS41 and moved off after getting what they seemed to require. There seemed to be some self-regulation so those not 'first in' got plenty of opportunity once others had had their fill and moved off.

In late April some of the stored GMS41, which had unfortunately earlier become damp, started to go mouldy. This seemed to affect its palatability as the deer stopped eating it. Fresh GMS41 was introduced on the 15th May and readily accepted.

Faecal samples were collected at set times and faecal egg counts (FECs) and Lungworm larval counts carried out.

On the 14th April 2021 coughing was noted in the C group and because of an increasing lung worm count this group was treated with a pour-on

anthelmintic (Cydectin PO). There was no obvious evidence of lung worm pneumonia in the T group.

Stock management required that the stags would eventually need isolating from the hinds within the trial groups so on the 3rd May 2021 hinds from T group joined those in C group with the same happening with the stags. The hinds then became C group and the stags T group. C group were then given a further anthelmintic (Cydectin PO) on the 15th May 2021 so that all in this group had had at least one anthelmintic treatment.

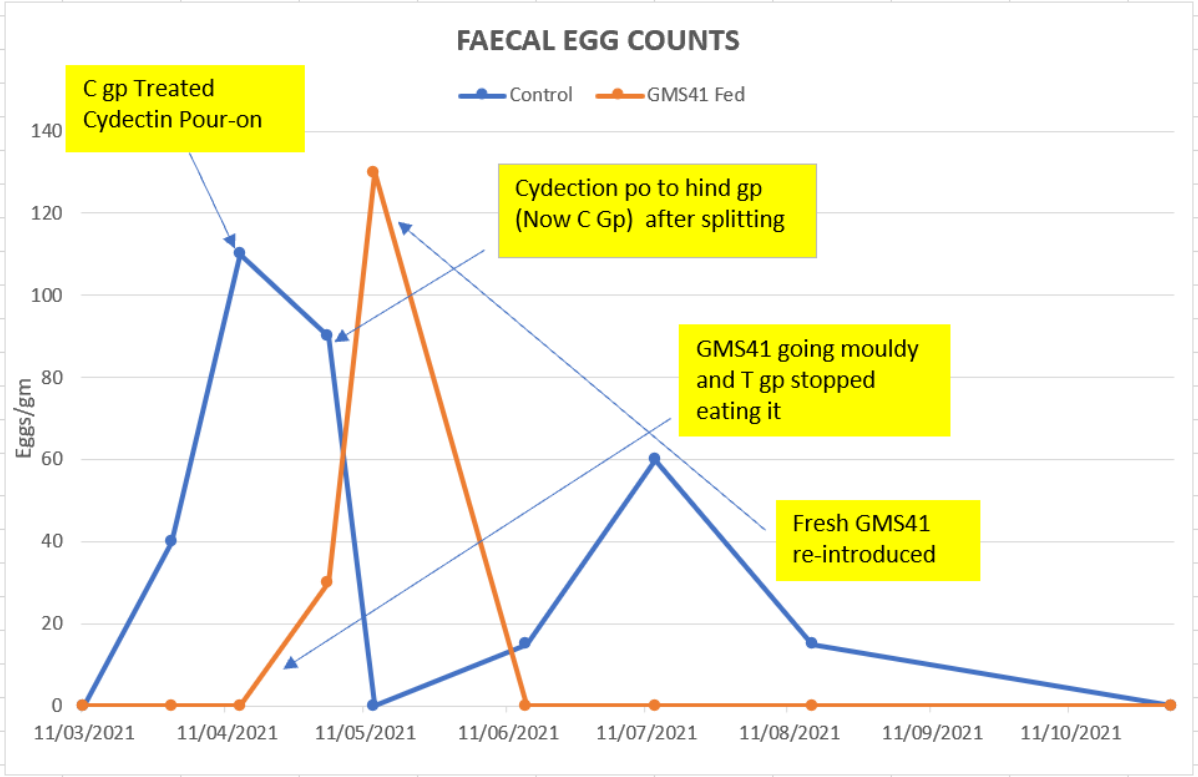
Results

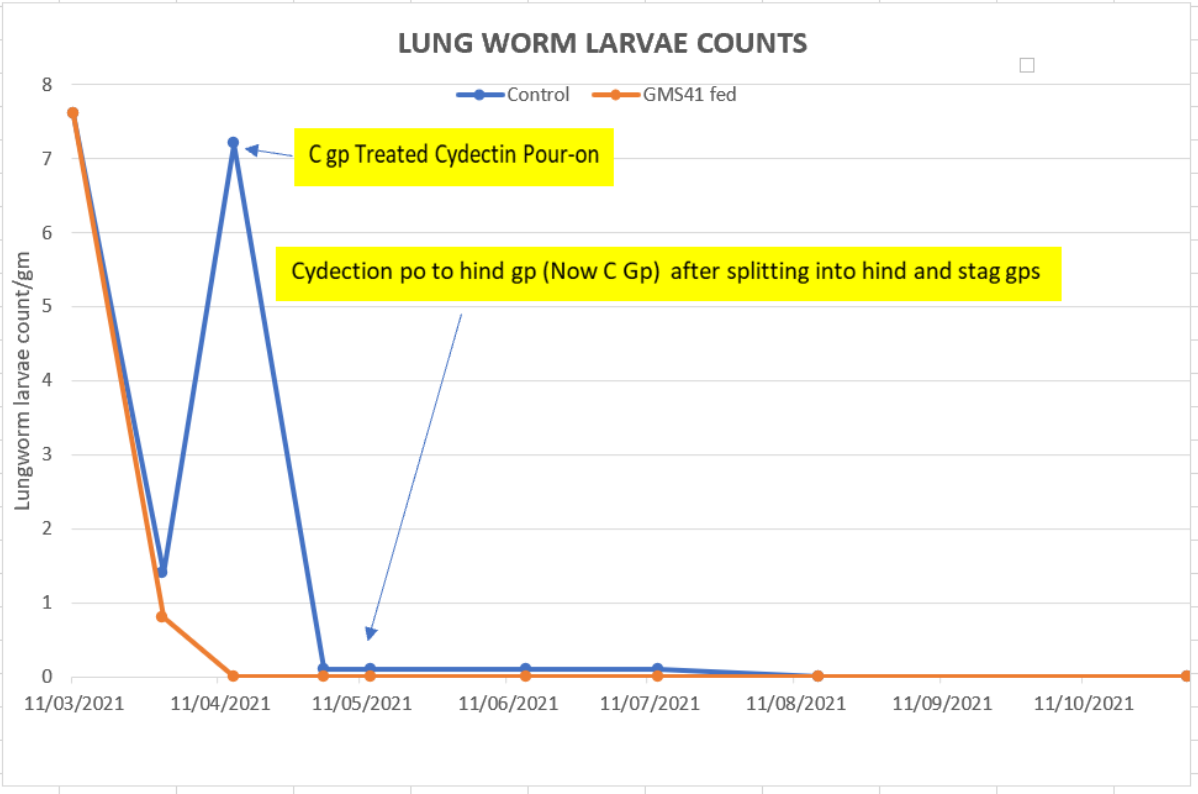
Control Gp Strongle epg (FEC) and Dictyocaulus Larvae/gm (L.W. C)

11/03/2021		30/03/2021		14/04/2021		3/05/2021		13/05/2021		15/06/2021		13/07/2021		16/08/2021		2/11/2021	
FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C
0	10	100	2	50	4	100	0	0	0	0	0	0	0	0	0	0	0
0	8	100	2	100	4	100	0	0	0	0	0	100	0	0	0	0	0
0	8	50	4	100	10	50	0	0	0	0	0	50	0	0	0	0	0
0	6	50	6	100	8	0	0	0	0	0	0	50	0	50	0	0	0
0	12	50	0	150	10	150	0	0	0	0	0	150	0	0	0	0	0
0	4	50	0	50	4	50	0	0	0	50	0	0	0	0	0	0	0
0	10	0	0	200	6	0	0	0	0	0	0	0	0	0	0	0	0
0	6	0	0	100	8	200	0	0	0	0	0	150	0	100	0	0	0
0	4	0	0	150	12	100	0	0	0	100	0	50	0	0	0	0	0
0	8	0	0	100	6	150	0		0	0	0	50	0	0	0	0	0
0	7.6	40	1.4	110	7.2	90	0	0	0	15	0	60	0	15	0	0	0

GMS41 T Gp Strongle epg (FEC) and Dictyocaulus Larvae/gm (L.W. C)

11/03/2021		30/03/2021		14/04/2021		3/05/2021		13/05/2021		15/06/2021		13/07/2021		16/08/2021		2/11/2021	
FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C	FEC	L.W. C
0	10	0	2	0	0	0	0	100	0	0	0	0	0	0	0	0	0
0	8	0	2	0	0	0	0	150	0	0	0	0	0	0	0	0	0
0	8	0	4	0	0	50	0	50	0	0	0	0	0	0	0	0	0
0	6	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0
0	12	0	0	0	0	100	0	200	0	0	0	0	0	0	0	0	0
0	4	0	0	0	0	50	0	100	0	0	0	0	0	0	0	0	0
0	10	0	0	0	0	50	0	150	0	0	0	0	0	0	0	0	0
0	6	0	0	0	0	0	0	250	0	0	0	0	0	0	0	0	0
0	4	0	0	0	0	50	0	100	0	0	0	0	0	0	0	0	0
0	8	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0
0	7.6	0	0.8	0	0	30	0	130	0	0	0	0	0	0	0	0	0


FAECAL EGG COUNTS
Control
GMS41 Fed
C gp Treated Cydectin Pour-on
Cydection po to hind gp (Now C Gp) after splitting
GMS41 going mouldy and T gp stopped eating it
Fresh GMS41 re-introduced
Eggs/gm
140
120
100
80
60
40
20
0
11/03/2021
11/04/2021
11/05/2021
11/06/2021
11/07/2021
11/08/2021
11/09/2021
11/10/2021


LUNG WORM LARVAE COUNTS
Control
GMS41 fed
C gp Treated Cydectin Pour-on
Cydection po to hind gp (Now C Gp) after splitting into hind and stag gps
Lungworm larvae count/gm
8
7
6
5
4
3
2
1
0
11/03/2021
11/04/2021
11/05/2021
11/06/2021
11/07/2021
11/08/2021
11/09/2021
11/10/2021

Discussion

Whenever the T Group deer were eating the GMS41 their FECs were low or eggs were undetected in faecal samples. No FECs were recorded within 3 weeks of first being introduced to the supplement while C animals were rising. The only brief period when C FECs were lower than T was after C had had an anthelmintic treatment and while T did not have access to GMS41.

Within a month of first introducing GMS41 to T deer they did not have any Lungworm larvae detected in their faeces while C deer did. This C group required an anthelmintic treatment because of rising FECs and Lungworm larvae counts and increasing signs of a significant lung worm burden. At no time did the treated animals show any symptoms of lungworm.

These results suggest that deer fed GMS41on a regular basis from weaning could be successfully managed without the need for any synthetic anthelmintic treatment at any stage. This could be a very significant finding for an industry where resistance to anthelmintics has become a major problem and where deaths in young deer from lungworm without routine anthelmintic use is common. It would also make an attractive option for farmers with its ease of use and where the logistics of mustering and handling to administer anthelmintics potentially an issue for the health and safety of both operator and animal.

Acknowledgement

1. Farmer involved (A Fishburn Koromiko)
2. AgMardt for Funding

Parasite Study in goats (2020)
Young goats feeding from troughs containing their daily Grape Marc supplement.

Deer Study at koromiko.