Student 3: Low Merit

NZQA Intended for teacher use only

Pro Gibb

***Aim*:** The aim of this investigation is to determine the optimum application rate of the gibberellic acid for optimum pasture growth and measure what plot has the most percentage change and highest dry matter.

Hypothesis: I think the rate of 0.003g will produce the most dry matter and grass and then next will be the rate of 0.002g that is the recommended rate for the pro gibb. Then the two rates that I think will not perform well will be the rate 0.001g because it does not have much pro gibb and the rate of 0.004g will be too strong and will stunt the growth of pasture for some time. Then behind all of them is the controlled rate of 0.000g.

Method: To start I chose an area that got the same sun light and rain and the soil type was all the same and there was no organic matter left that would affect this test. I then mowed five plots of 1×4m and marked them out so they were all 1×1m sections so that I would get a fair test and a good result. To make sure no stock got near I fenced that area off. I did this on the 27/8/12. 1

Stock solution : We had to make a stock solution because we were not able to get the scales to read the very small amount of pro gibb.

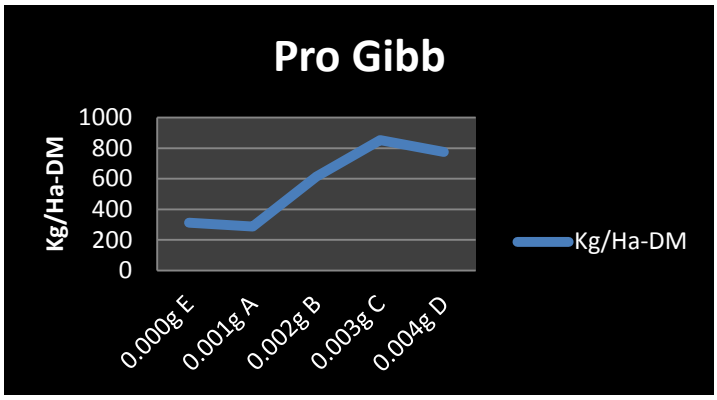
1) 5L of water to 0.5g of pro gibb and then 5ml of country mile organ silicon.
2) 5L of water to 1.0g of pro gibb and then 5ml of country mile organ silicon.
3) 5L of water to 1.5g of pro gibb and then 5ml of country mile organ silicon.
4) 5L of water to 2.0g of pro gibb and then 5ml of country mile organ silicon.

When all of these stock solutions were made I took 40ml of each rate and kept all of the rates in different jars. Then once home I added 250mL of water to 10ml of our solution and applied it onto the 1×1m section with a fine mist rose sprayer that had a boom 1m wide and repeated this 3 more times to make up the area of 1×4 plot and then repeated this 3 times for the other plots. I cleaned out the sprayer each time when I used a different rate of application. For plot 5 I just applied 250mL of water to the 4 x 1×1m sections to make sure it was all a fair and even test, this was all done on the 3/9/12.

I collected the data on the 16/9/12 using the push mower. I cleaned it out so there was no left over grass that could change my results and then mowed a 1×1m section. I then put the clippings onto Mum's baking scales and measured the "wet weight" of the grass and recorded my results. I then put the grass into a plastic bag named with the section where the grass came from and repeated this 20 times to gather all the information from my trial.

I took the grass into school on the 17/9/12 and opened the bags and put one bag at a time on to a plate and put it into the microwave. I cooked the grass for one minute at a time and then turned the grass over after each minute and kept doing this till the grass was dry and crisp. I then weighed the grass to get the dry matter on baking scales measured in grams and then recorded the results and repeated this each time for each bag to get my results and recorded the data in my field work book.

Results:		**1**	**2**	**3**	**4**	**Average**
Plot 1 (a) *0.001g Pro Gibb Rate*	**Wet Weight**	75g	95g	80g	95g	**87g**
	Dry Weight	25g	25g	35g	30g	**28.75g**
	Kg/Ha-DM					***287.5***
Plot 2 (b) *0.002g Pro Gibb Rate*	**Wet Weight**	150g	145g	125g	135g	**138.75g**
	Dry Weight	61g	63g	54g	68g	**61.5g**
	Kg/Ha-DM					***615***
Plot 3 (c) *0.003g Pro Gibb Rate*	**Wet Weight**	180g	230g	220g	175g	**201.25g**
	Dry Weight	81g	87g	90g	83g	**85.25g**
	Kg/Ha-DM					***852.5***
Plot 4 (d) *0.004g Pro Gibb Rate*	**Wet Weight**	170g	140g	145g	160g	**153.75g**
	Dry Weight	80g	73g	76g	81g	**77.5g**
	Kg/Ha-DM					***775***
Plot 5 (e) *0.000g Pro Gibb Rate*	**Wet Weight**	70g	50g	85g	75g	**70g**
	Dry Weight	30g	29g	34g	32g	**31.25g**
	Kg/Ha-DM					***312.5***



Conclusion: In my investigation I had to determine the optimum rate of application for the gibberellic acid. To do this I did a trial on some old rye grass with the different rates of pro gibb that where 0.000g, 0.001g, 0.002g, 0.003g, 0.004g. These were the rates of pro gibb and the controlled rate was 0.000g that was made up of no pro gibb just water. Once I finished the trial and the data was recorded I found that the rate of 0.003g of pro gibb produced the most grass. That was the wet weight and then its average dry matter was 853.5kg/Ha-DM. (3)

This rate produced the most grass by far out of all the other rates and this made it the optimum rate of pro gibb. (2)

Discussion: *Independent trials conducted at Massey University by Wayne Hofmann showed an increase of 200kg/ha DM from the Pro Gibb SG application over a 28-day period from 1-29th September 2008.*

Percentage response rate can vary hugely depending on the amount of grass growing at the time, but Hofmann says his data shows the gain in 200kg DM/ha after Pro Gibb application could be lost the following month when grass growth could be depressed by a similar amount. (http://www.country-wide.co.nz/article/10424.html)

The trials done by Wayne Hofmann on pro gibb, show his results are very similar to my results in the trials that I did. The grass that had Pro Gibb did grow more than the controlled with no pro gibb. The plots with Pro Gibb did produce more dry matter per hectare but I can see what Wayne Hofmann was saying that the grass could grow more at this time. But then after a few grazing's the grass might not produce as much dry matter because it has used up a lot of its food reserves and energy because pro gibb was applied to make the grass grow more and produce more dry matter. We did not cut the grass again after we cut it the first time so I do not have any data to back this theory but it does make sense through biological terms. (4)