



User Application Report

Produkt/Product:

penergetic k
penergetic p

Fachberater/Consultant:

Agrotrust Ltda. Chile
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Anwender/User:

Fundo Eduviges (Agrícola GM)
Chile

Datum/Date:

2015/2016

Application on perennial ryegrass in Chile

In irrigation, the grazing harvest yield of dry matter per acre (DM/acre) was evaluated by comparing Penergetic and 32% less Nitrogen (treatment 1 – C1) and full fertilization without Penergetic (Treatment 2 – C2). In rainfed, Penergetic and 27% less Nitrogen (Treatment 3 – C3) was compared to full fertilization without Penergetic (Treatment 4 – C4). The evaluation period is six months -- from the end of September until end of March. Three replicates were made, both in irrigated and rainfed areas.

Results – Comparison Irrigation and Rainfed Fields

- Irrigation and Penergetic: - 32% Nitrogen + 14.0% yield in total
- Rainfed and Penergetic: - 27% Nitrogen + 17.6% yield in total

Fertilization and Penergetic Applied

Date of application	Product	C1	C2	C3	C4
		I -32% N+P	I+U	R -27% N+P	R+U
		per acre	per acre	per acre	per acre
8/8/2015	Vitaterra (lbs.)	1,070	1,070	1,070	1,070
9/10/2015	Penergetic K (oz.)	5.6		5.6	
9/10/2015	Urea (lbs.)	44	44	44	44
10/8/2015	Penergetic P (oz.)	2.8		2.8	
10/8/2015	Urea (lbs.)	44	44	44	44
11/5/2015	Penergetic P (oz.)	2.8		2.8	
11/6/2015	Urea (lbs.)	44	44	44	44
12/7/2015	Urea (lbs.)	44	44		
1/8/2016	Urea (lbs.)	44	44		
2/2/2016	Urea (lbs.)	44	44		
3/8/2016	Urea (lbs.)	44	44		
	TOTAL NITROGEN (lbs.)	175.5	260.5	94.5	130.9

Results by cutting and season (spring and summer) in irrigation:

Irrigation with Penergetic (Spring)					Irrigation without Penergetic (Spring)				
Cutting	Date	Rep 1 (6)	Rep 2 (8)	Rep 3 (24)	Cutting	Date	Rep 1 (6)	Rep 2 (8)	Rep 3 (24)
1	17-09-15		831,5		1	17-09-15		666,00	
1	29-09-15			816,05	1	29-09-15			731,65
1	02-10-15	1036,60			1	02-10-15	839,20		
2	10-10-15		937,9		2	10-10-15		779,60	
2	18-10-15			916,6	2	18-10-15			764,65
2	22-10-15	869,75			2	22-10-15	692,25		
3	22-10-15		904,6		3	22-10-15		748,35	
3	06-11-15	970,20			3	06-11-15			846,70
3	06-11-15			970,2	3	06-11-15	801,15		
4	09-11-15		888,6		4	09-11-15		710,00	
4	19-11-15			751,15	4	19-11-15			642,40
4	23-11-15	729,12			4	23-11-15	577,70		
5	26-11-15		1025,3		5	26-11-15		848,20	
5	04-12-15			964,32	5	04-12-15			863,65
5	08-12-15	970,88			5	08-12-15	824,35		
6	10-12-15		876,2		6	10-12-15		689,70	
6	19-12-15			927,96	6	19-12-15			762,95
6	21-12-15	942,76			6	21-12-15	744,45		
		5519,31	5463,99	5346,28			4479,10	4441,85	4612,00
			5443,2					4511,0	

In tons/ acre: **5,998.4**

4,972.5

Irrigation with Penergetic (summer)					Irrigation without Penergetic (summer)				
Cutting	Date	Rep 1 (6)	Rep 2 (8)	Rep 3 (24)	Cutting	Date	Rep 1 (6)	Rep 2 (8)	Rep 3 (24)
7	21-12-15		895,4		7	21-12-15		831,75	
7	05-01-16			912,24	7	05-01-16			811,80
7	05-01-16	863,58			7	05-01-16	756,30		
8	09-01-16		893,2		8	09-01-16		836,95	
8	19-01-16			885,04	8	19-01-16			816,95
8	21-01-16	836,20			8	21-01-16	770,35		
9	24-01-16		965,0		9	24-01-16		898,35	
9	09-02-16	894,00			9	09-02-16	798,00		
9	14-02-16			972	9	14-02-16			906,75
10	17-02-16		953,3		10	17-02-16		864,00	
10	03-03-16			908,12	10	03-03-16			860,65
10	03-03-16	957,76			10	03-03-16	932,20		
11	08-03-16		1008,9		11	08-03-16		948,25	
11	19-03-16			895,71	11	19-03-16			833,65
11	25-03-16	937,32			11	25-03-16	873,10		
12					12				
12	19-03-16		905,93		12	19-03-16		851,20	
12					12				
		4488,86	5621,58	4573,11			4129,95	5230,50	4229,80
			4894,5					4530,1	

In tons/ acre: **5,395.2**

4,993.5

Results by cutting and season (spring and summer) in rainfed:

Rainfed with Penergetic (Spring)

Cutting	Date	Rep 1 (2)	Rep 2 (4)	Rep 3 (32)
1	17-09-15		824,1	
1	29-09-15			897,8
1	02-10-15	806,55		
2	02-10-15			904,6
2	10-10-15		784,6	
2	14-10-15	884,65		
3	21-10-15		661,0	
3	21-10-15			1045
3	29-10-15	779,60		
4	01-11-15		779,3	
4	06-11-15			910,9
4	14-11-15	937,10		
5	11-11-15		860,1	
5	19-11-15			934,78
5	26-11-15	1034,90		
6	26-11-15		994,8	
6	11-12-15			1349,355
6	11-12-15	825,36		
		5268,16	4903,83	6042,39
			5404,8	

Rainfed without Penergetic (Spring)

Cutting	Date	Rep 1 (2)	Rep 2 (4)	Rep 3 (32)
1	17-09-15		683,40	
1	29-09-15			757,10
1	02-10-15	646,10		
2	02-10-15			810,10
2	10-10-15		686,55	
2	14-10-15	817,20		
3	21-10-15		535,35	
3	21-10-15			876,15
3	29-10-15	621,25		
4	01-11-15		646,05	
4	06-11-15			752,30
4	14-11-15	768,45		
5	11-11-15		714,55	
5	19-11-15			795,40
5	26-11-15	940,15		
6	26-11-15		776,15	
6	11-12-15			981,75
6	11-12-15	722,20		
		4515,35	4042,05	4972,80
			4510,1	

In tons/ acre: 5,957.7

4,971.5

Rainfed with Penergetic (summer)

Cutting	Date	Rep 1 (2)	Rep 2 (4)	Rep 3 (32)
7	13-12-15		941,2	
7	27-12-15			1096,86
7	07-02-16	683,10		
8	31-12-15		832,6	
8	02-02-16			744,7
8	09-03-16	663,10		
9	11-02-16		751,3	
9	08-03-16			703
9	09-03-16			
10	14-03-16		699,2	
10				
10				
		1346,20	3224,30	2544,56
			2371,7	

Rainfed without Penergetic (summer)

Cutting	Date	Rep 1 (2)	Rep 2 (4)	Rep 3 (32)
7	13-12-15		746,65	
7	27-12-15			897,75
7	07-02-16	607,20		
8	31-12-15		819,05	
8	02-02-16			663,30
8	09-03-16	573,75		
9	11-02-16		660,00	
9	08-03-16			
9	09-03-16			650,75
10	14-03-16		684,95	
10				
10				
		1180,95	2910,65	2211,80
			2101,1	

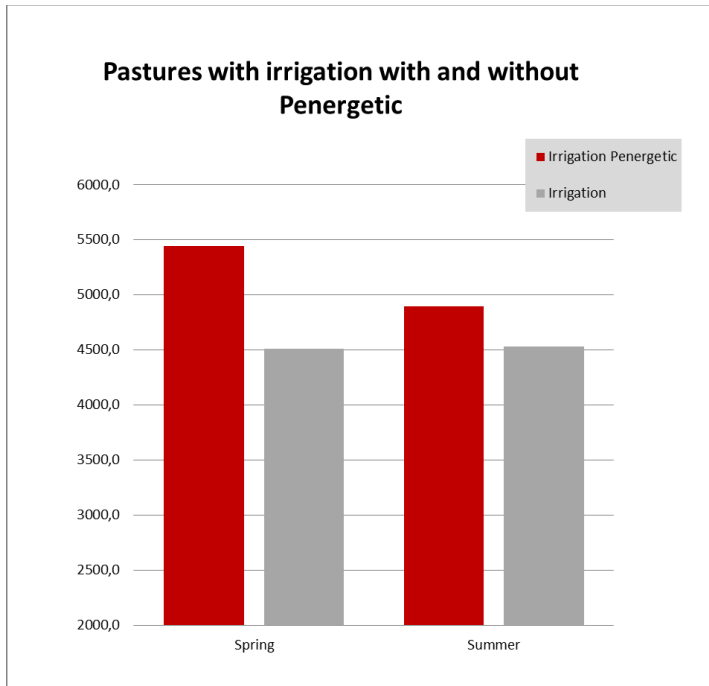
In tons/ acre: 2,614.4

2,316.0

Irrigation

Spring: Difference of 932.2 kg/ha [820.3 lb/ac], which represents a 20.7% more.

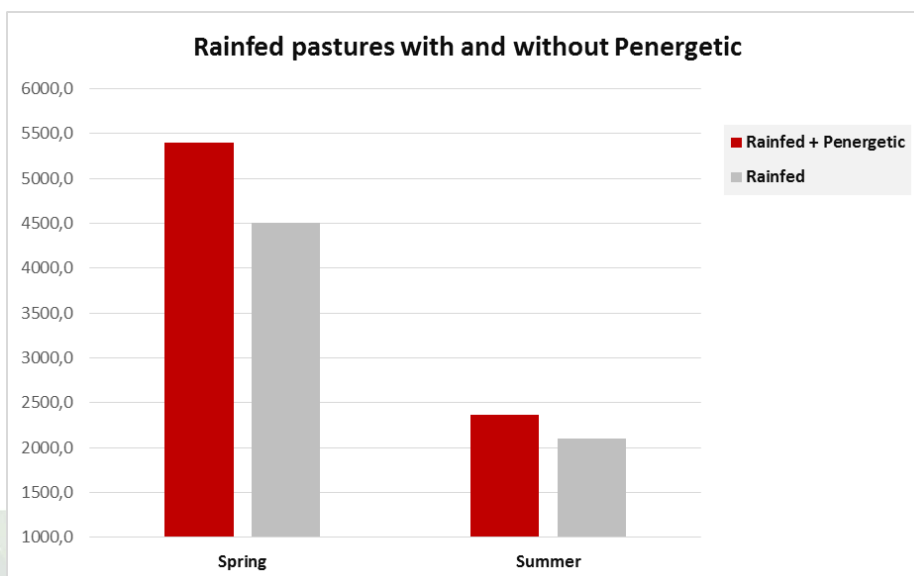
Summer: Difference of 364.4 kg/ha [320.7 lb/ac], which represents an 8% more.



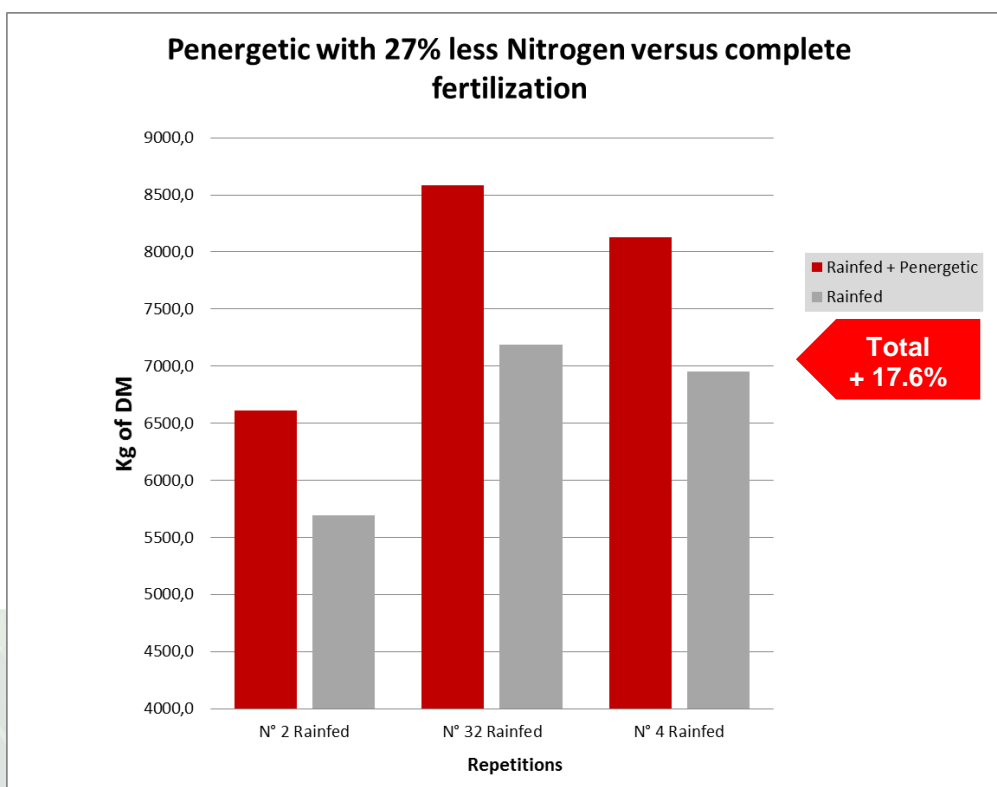
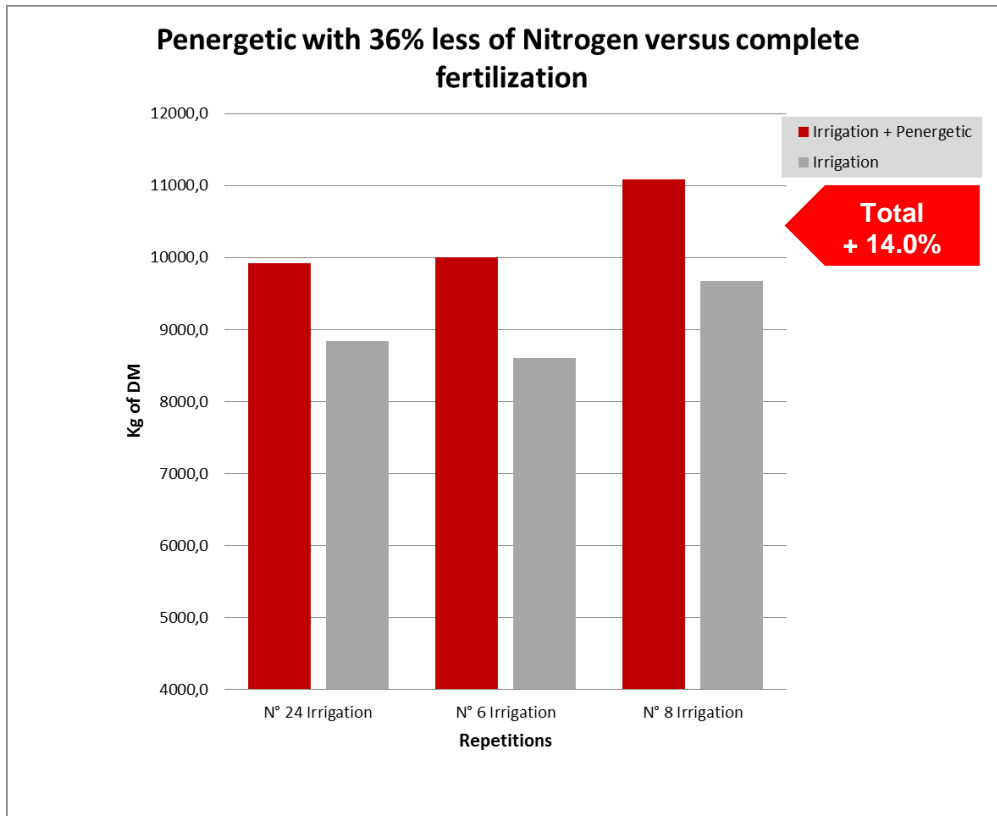
Rainfed

Spring: Difference of 894.7 kg/ha [787.3 lb/ac], which represents a 19.8% more.

Summer: Difference of 270.6 kg/ha [238.1 lb/ac], which represents a 12.9% more.



Total performance irrigation and rainfed



Conclusion

During spring, Penergetic-treated plants' performances show more or less the same increase in irrigation and rainfed (20.7% and 19.8%) compared to the untreated plants (under similar conditions).

However, a bigger difference was evident during the summer period. During the summer period, rainfed ryegrass (treated with Penergetic) yield 12.9% more than untreated; whereas, irrigated ryegrass yields 8% more than untreated. This provides evidence that plants under stressful conditions (e.g. irregular and less rain), when treated with Penergetic comparatively perform better than under more regulated conditions (adequate and regulated water supply). The implication is that Penergetic has a strengthening effect on plants.

