




1991

## The effect of nitrogen on pastures and subsequent sheep production.

L. Cransberg

Follow this and additional works at: <https://library.dpird.wa.gov.au/rqmsplant>

 Part of the [Agronomy and Crop Sciences Commons](#), [Organic Chemistry Commons](#), and the [Sheep and Goat Science Commons](#)

---

### Recommended Citation

Cransberg, L. (1991), *The effect of nitrogen on pastures and subsequent sheep production..* Department of Primary Industries and Regional Development, Western Australia, Perth. Report.

This report is brought to you for free and open access by the Agriculture at Digital Library. It has been accepted for inclusion in Experimental Summaries - Plant Research by an authorized administrator of Digital Library. For more information, please contact [library@dpird.wa.gov.au](mailto:library@dpird.wa.gov.au).

TITLE : The Effect Of Nitrogen On Pastures and Subsequent Sheep Production

PERSONNEL : L.Cransberg, P.Doyle

DATE : 1991

TRIAL NUMBER : 89MT1 ; 6004EX

DOS FILENAME : CRAL91b.DOC

AIMS : To measure the effect of autumn/winter application on :

1. Pasture growth rates and composition
2. Sheep production using pregnant/lactating ewes

TRIAL SITE : Mt.Barker Research Station

1990 TREATMENTS :

1. Control (1989 control plots)
  - Stocking rate 12 ewes/ha
2. Four applications of 50kg/ha Urea on 12 April, 8 June, 12 July, 6 September
  - Stocking rate 16 ewes/ha
3. Two applications of 100kg/ha Urea on 12 April and 12 July
  - Stocking rate 16 ewes/ha

PASTURE ASSESSMENT RESULTS :

1. Dry matter on offer (kg/ha) :

PLOT NO.	20-Apr	17-May	13-Jun	17-Jul	15-Aug	13-Sep	5-Nov	27-Nov	14-Feb
1.	1773	1696	1595	1614	1909	2616	4935	4303	1310
2.	1834	1793	1722	1791	1920	2650	4453	4890	1034
3.	2223	1764	1535	1373	1609	2253	3130	3089	632
4.	1784	1840	1688	1711	1823	2771	3872	4203	922
5.	1867	1925	1757	1655	1795	2613	4347	4755	1047
6.	1808	1549	1650	1530	1833	2981	4583	4575	652
7.	1678	1606	1861	1804	2009	3212	4785	5055	922
8.	1596	1680	1937	1798	2026	3272	4605	4863	770
9.	1971	1701	1800	1656	1975	3357	4818	5109	685
Means:									
Control	1851	1648	1681	1600	1906	2985	4779	4662	882
50N * 4	1895	1737	1695	1630	1814	2745	3929	4116	825
100N * 2	1766	1799	1805	1748	1914	2845	4468	4836	950

2. Pasture growth rates (kg/ha/day) :

PLOT	20-Apr to 17-May	17-May to 13-Jun	13-Jun to 17-Jul	17-Jul to 15-Aug	15-Aug to 13-Sep	13-Sep to 5-Nov
1.	8.3	13.6	9.8	18.9	83.	82.8
2.	-0.9	11.5	14.7	16.	64.7	68.3
3.	7.5	9.9	7.5	17.2	55.7	58.
4.	15.4	11.9	10.9	17.	61.7	72.8
5.	21.4	14.8	10.1	14.	72.8	83.9
6.	19.1	13.2	4.8	14.8	81.6	70.8
7.	17.7	20.1	8.8	21.1	86.4	70.3
8.	21.6	22.	8.4	27.7	90.5	76.2
9.	15.8	13.3	3.7	15.6	79.4	64.3
Means:						
Control	14.4	13.4	6.1	16.4	81.3	72.6
50N * 4	13.5	14.	9.1	18.4	67.9	67.
100N * 2	14.	16.1	11.	19.2	76.	76.1

### 3. Composition :

	20/4/90			13/9/90			6/6/91		
	Subs	Grass	Other	Subs	Grass	Other	Subs	Grass	Other
Control	46.1	15.5	38.1	69.6	26.3	4.1	32.1	24.4	43.5
50N * 4	17.4	31.9	50.7	38.5	58.7	2.7	37.6	29.9	32.6
100N * 2	21.	41.6	37.4	42.6	55.3	2.1	30.8	29.8	39.6

#### Comments :

1. There were no significant differences in either pasture dry matter on offer or in plant growth rates. However, the plots on which nitrogen was applied were carrying an additional 4 pregnant ewes per hectare, the number estimated on 1989 responses, and appeared to balance the effect of the nitrogen application. There were no differences between the nitrogen application strategies. This data should be assessed in conjunction with corresponding animal production data contained in the experimental summaries of P.Doyle.

2. In terms of composition, initial legume proportions of around 20% for the 1989 nitrogen treatments, were restored to around 35% with increased stocking rates. As a practical strategy, farmers should be able to manipulate through grazing management, back to an acceptable pasture legume component in either one or two years. The 1991 regeneration data was also influenced by a patchy start to the season, encouraging weeds.

3. It is important to consider this data as seasonal and site specific. While responses were recorded here, a widespread guarantee cannot be extended across environment and situation.

TITLE : Management Systems For Sheep

PERSONNEL : P.Doyle, L.Cransberg, P.Evans

DATE : 1991

TRIAL NUMBER : 89KA6

DOS FILENAME : CRAL91a.DOC

AIMS : To measure the effects of set stocking and strip (ration) grazing on:

- i) Pasture production, composition and quality;
- ii) Sheep production (liveweight, condition score, wool growth rate, fibre diameter, strength and vegetable matter contamination).

TRIAL SITE : R & J Young, Kojonup.

TREATMENTS :

- i) Set stocked at 20 DSE
- ii) Ration grazed at 20 DSE

PASTURE ASSESSMENT RESULTS 1990 :

1. Dry matter production :

TABLE 1 : 1990 DRY MATTER ON OFFER (KG/HA)

PLOT NO.	31-Jan	7-May	31-May	22-Jun	12-Jul	3-Aug	23-Aug	14-Sep	4-Oct	25-Oct	16-Nov
1	1242	787	990	1413	1143	1105	932	1505	1743	1899	1863
2	1745	726	1204	1909	1513	1541	1328	2522	3586	1773	1914
3	1006	693	980	1222	968	1042	890	1301	1421	1541	1613
4	1265	709	1090	1453	1261	1172	1220	2106	1095	1685	1752
5	1428	773	991	1307	1023	1130	948	1439	1885	1770	1826
6	866	835	1676	2061	1775	2113	1927	3248	2817	816	1411
7	1867	867	1146	1329	1038	1117	911	1419	1585	2002	1966
8	2857	1246	1902	2324	1149	1457	1156	2556	3582	1879	2213

Treatments :											
Set Stocked	780	1027	1318	1043	1098	920	1416	1659	1803	1817	
Ration Grazed	879	1468	1937	1424	1571	1408	2608	2770	1538	1822	

TABLE 2 : SILAGE PRODUCTION FROM RATION GRAZED PLOTS (KG/HA)

		7-Jul	2-Oct	8-Oct	10-Oct	TOTAL
PLOT 2				986.84		987
PLOT 4			1936.38			1936
PLOT 6				2051.72		2052
PLOT 8		860.11			2997.87	3858

TABLE 3 : PASTURE GROWTH RATES (KG/HA/DAY)

PLOT NO.	3-Aug. to 23-Aug	23-Aug to 14-Sep	14-Sep to 4-Oct	4-Oct to 25-Oct	25-Oct to 16-Nov
1	0.2	72.2	96.9	81.9	21.9
2	0.0	43.6	13.8	92.9	53.8
3	4.3	52.6	38.3	81.7	24.4
4	8.5	55.1	-54.7	44.9	19.8
5	0.6	57.6	62.9	60.5	19.5
6	-7.5	43.5	-26.6	53.2	26.4
7	3.0	48.2	57.5	89.9	43.3
8	14.7	91.2	25.0	6.9	1.0

Treatments :

Set Stocked	2.00	57.64	63.92	78.52	27.2
Ration Grazed	3.91	58.33	-10.65	49.47	25.26