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1971 Long term rotation trials

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PLANT RESEARCH DIVISION

SUMMARY OF TRIAL RESULTS

1971 GROWING SEASON

I.C. Rowland

LONG TERM ROTATION TRIALS

For a brief summary of objectives, site history and treatments see the 1969 summary of results.

The results shown are of the yield of grain harvested from crops grown under various rotations of pasture ley. Quality (grain protein) is to be assessed on samples taken at harvesting. Plots on four of the trials are soil sampled before the start of the growing season and give an indication of nutrients available for crop growth. The trial W56H has the top 7.6 cms sampled and the other three the top 10 cms. Results of samples taken in 1970 have not been received from Government Chemical Laboratory.

W56H/604EX

Locality : Pdk 3E on Wongan Hills Res. Station.

Soil type: Wongan sandy loam

This trial was started on a virgin site in 1956. After a fallow and two initial crops, subclover (cv Dwalganup) was sown and cropped four years in succession after 2,3,5 & 7 years of clover ley.

Wheat yields (Gamenya) in Kg/Ha

		1st	2nd	3rd	4th	crop
Years clover	2	2117	1673	1546	1828	
	3	2097	1452	1425	1861	
	5	1976	1572	1546	1660	
	7	1808	1720	1236	1465	

Rainfall during May - October

May	June	July	Aug	Sept.	Oct.	Total
15.5	28.7	28.4	27.4	31.2	23.9	155.2 m.m.

66M29/2083EX

Locality : Pdk 5AE on Merredin Res. Station

Soil type: Merredin sandy clay loam

The trial is on old land which was sown to Cyprus Barrel medic the year before commencement (i.e. 1965). Medic is allowed to regenerate after each cropping phase.

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Wheat yields (Gamenya) in Kg/Ha.

Stage of Rotation						Kg/Ha
6th continuous crop						1304
1st crop after 1 year medic						766
1st	"	"	2	"	"	732
1st	"	"	3	"	"	719
1st	"	"	4	"	"	625
2nd	"	"	2	"	"	1364
2nd	"	"	3	"	"	1411
2nd	"	"	5	"	"	1794
3rd	"	"	4	"	"	1378

Rainfall during May - October growing season.

May	June	July	Aug.	Sept.	Octob.	Total
20.6	29.0	17.5	29.2	25.4	16.5	138.2 m.m.

Also of importance was the 151.6 mm of rain received in late March and the scattered light falls after seeding (14th June). This resulted in a very patchy germination where the crop was sown on plots ploughed from pasture, which resulted in lower yields from these compared to crops sown on stubble plots.

67C13/2332EX

Locality : Pdk 19B on Chapman Res. Stn.

Soil Type : Red brown loamy sand.

This is an old land site sown to Dwalganup subclover in 1964. Doublegees are a serious problem in the crop plots and these are sprayed with Linuron each year.

Wheat yields (Gamenya) Kg/Ha.

Stage of Rotation						Kg/Ha
5th successive crop						2325
1st crop after 1 year clover						2890
1st	"	"	2	"	"	3125
1st	"	"	3	"	"	2883
1st	"	"	7	"	"	3192
2nd	"	"	2	"	"	2970
3rd	"	"	5	"	"	3165

Rainfall during May - October growing season

May	June	Jul	Aug	Sept.	Oct.	Total
46.0	50.6	73.4	71.4	36.8	50.0	328.2 m.m.

67N4/2333EX

Locality : Experimental Pdk on Newdegate Res. Station.

Soil type : Sandy soil over gravel at 20-30.5 m.m.

An old land site sown to Dwalganup subclover in 1962. The old pasture plots which have not yet started into their rotation have become dominated by *Erodium* (80%).

Wheat yields (Gamenya)

Stage of Rotation	Kg/Ha
5th Successive crop	1243
1st crop after 1 year clover	1788
1st " " 2 " "	1633
1st " " 3 " "	1740
1st " " 9 " "	1660
2nd " " 2 " "	1626
2nd " " 8 " "	1680
3rd " " 7 " "	1667

Rainfall during the May - October growing season

May	June	Jul	Aug	Sept	Oct	Total
48.5	29.2	25.7	35.6	35.8	27.2	202.0 m.m.

68E5/2474EX

Locality : Pdk NIB on Esperance Downs Res. Stn.

Soil type : Fleming gravelly sand

An old land site sown to Woogenellup and Brome Grass in 1963. The brome still presents some problems in crop establishment. Cropping was changed from linseed and wheat to rape (Turret) and Barley (Dampier) in 1971.

Barley yields

Stage of Rotation	Kg/Ha
1st barley after 3 yrs wheat	1478
1st " " 1 yr.linseed after 7 yrs clover	1876
1st barley after 1 yr.clover	1921
1st " " 8 " "	2576

Rape yields

Stage of Rotation	Kg/Ha
1st rape after 3 linseed	376
1st " " 1 yr clover	1004
1st " " 2 " "	1581
1st " " 8 " "	1681

Rainfall during the May to October growing season

May	June	July	Aug.	Sept.	Oct.	Total
141.7	31.0	47.5	73.9	44.2	79.8	418.1 mm

68SG5/2475EX

Locality : Pdk H5 on Salmon Gums Res. Stn.

Soil type : Nth two blocks are on Circle Valley sand,
the Sth two blocks on Kumarl.

The site was first cropped in 1964 and Cyprus barrel medic was sown in 1968, at commencement of the trial, on two of the blocks. The other two were left to regenerate volunteer pasture. 1970 was the first year that the medic was successfully started.

Yields were reduced 40-50% by hail, however, damage was considered uniform enough to harvest and report the results.

All crop plots are sprayed with Avadex to control the buildup of Wimmera Rye Grass.

Wheat yields (Gamenya)

Stage of Rotation	Kg/Ha
4th successive crop + 56 Kgs urea/Ha	459
4th " " + 0 Kgs urea/Ha	358
1st crop after 1 yr medic	506
1st " " 3 " "	540
2nd " " 2 " "	439
3rd " " 1 " "	405
1st " " 1 " volunteer	500
1st " " 3 " "	594
2nd " " 2 " "	331
3rd " " 1 " "	344

Rainfall during May - October growing season

May	June	July	Aug.	Sept.	Oct.	Total
47.8	28.7	21.1	33.0	30.7	23.6	184.9 m.m.

69 GE 20/2466EX

Locality : H.R. Bridgeman, Horrocks Beach

Soil type: Heavy, red loamy soil

Prolific weed growth on this old land site is a problem in the crop and in maintenance of a bare fallow during the growing season. In 1971 Lasso was used to help control Wimmera rye grass in all crop plots, which were also sprayed to control broadleaf weeds. Control of W.R.G. was reasonable with approximately a 75% reduction.

The pasture plots are sown to Daliak sub-clover.

Wheat yields (Gamenya)

Stage of Rotation	Kg/Ha	Belworm
3rd crop + 123 Kg urea/Ha	925	very heavy
1st crop after 1 yr fallow	2205	very light
2nd " " 1 " "		
1st " + 84 Kg urea/Ha	1573	very light
1st " after 1 year pasture	2077	light
1st " " 2 " "	1861	very light
2nd " " 1 " "		
+ 84 Kg urea/Ha	1088	heavy

February 22, 1972.
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