



1987

## Trial 86C63 rotation, deep ripping and water use and Trial 87GE97 cereal management trials

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EXPERIMENTAL SUMMARY 1987

TRIAL 86C63 (ROTATION, DEEP RIPPING AND WATER USE)

TRIAL 87GE97 (CEREAL MANAGEMENT TRIALS)

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Table 2: The effect of lime on early dry matter production (kg/ha) sampled 85 days after sowing for different depths of incorporation.

LIME	ROTARY HOE			SCARIFIER
RATE	5 cm	10 cm	20 cm	
L1	1219a	1337	1611	1062a
L2	1886b	1642	1663	1500b
L3	1732b	1745	1953	1599b
L4	-	-	1815	-
Mean + Lime	1809	1694	1810	1550
Mean	1612	1575	1761	1387

Treatments significant ( $P < 0.01$ ) LSD 5% = 422

Data in the same column followed by the same letter are not significantly different.

Table 3: The effect of lime on dry matter production (kg/ha) sampled at maturity (November 25) for different depths of incorporation.

LIME	ROTARY HOE			SCARIFIER
RATE	5 cm	10 cm	20 cm	
L1	2968	3350	3880	3175
L2	4177	3550	3984	3486
L3	3311	3704	4104	3746
L4	-	-	3820	-
Mean + Lime	3744	3627	3969	3616
Mean	3485	3535	3947	3469

Treatments not significant ( $P > 0.05$ ).

Table 4: The effect of lime on grain yield (kg/ha) for different depths of incorporation.

LIME	ROTARY HOE			SCARIFIER
RATE	5 cm	10 cm	20 cm	
L1	1186	1280	1381	1135
L2	1455	1206	1475	1330
L3	1424	1284	1467	1389
L4	-	-	1447	-
Mean + Lime	1440	1245	1463	1360
Mean	1355	1257	1443	1285

RH 5 cm, scarifier lime significant ( $P < 0.05$ ).

## 87GE97 - CEREAL MANAGEMENT TRIALS

AIM: To examine the value of a package approach to growing cereals in the northern agricultural region. Treatments included planting date, species (wheat v barley) and variety (differing in maturity), as well as deep ripping and fungicide spray. Spray topping in 1986 was included as a pre-treatment on the only pasture site. The trials were sown at 5 sites, from north to south these were: Balla, Tenindewa, Mingenew and Marchagee. At Mingenew 2 sites were used. One had pasture and one lupins in 1986. All the other sites were lupins in 1986.

DESIGN: 5 Sites

### MANAGEMENT DETAILS:

#### 1. CRIDDLES (BALLA) (Cropped to lupins in 1986)

Ripping - Deep ripped to 30 cms on 18/3/87.

Cultivation - All cultivated plots worked up at times of seeding.

Seeding - All varieties (5) seeded at 50kg/ha.  
- Early (Date 1) - 13/5/87 with Super + Cu & Zn @ 200kg/ha  
- Mid (Date 2) - 7/6/87 with DSP @ 100kg/ha.  
- Late (Date 3) - 29/6/87 with Super + Cu & Zn @ 200kg/ha.

All plots sown with 12.5kg/ha N at times of seeding.

Spraying - 13/5/87 1.0l/ha Sprayseed.  
- 7/6/87 2.0l/ha Sprayseed date 2.  
- 24/6/87 0.2l/ha Brodal over dates 1 and 2.  
- 24/6/87 0.2l/ha Brodal + 1.0l/ha Roundup on date 3.  
- 8/7/87 0.7l/ha Banex + 0.5l/ha 2,4-D Amine on date 1.  
- 8/7/87 0.5l/ha Diuron + 0.25l/ha 2,4-D Amine on date 2.

Fungicide - Tilt fungicide applied at 0.5l/ha.  
Spray - 8/7/87 dates 1 and 2.  
- 30/7/87 dates 1, 2 and 3.  
- 17/8/87 dates 1, 2 and 3.  
- 27/8/87 dates 1, 2 and 3.  
- 24/9/87 date 3 only.

### MEASUREMENTS:

Biological Yield at Maturity  
- 7/10/87 date 1.  
- 22/10/87 dates 2 and 3.

Machine Grain Yield  
- 21/10/87 date 1.  
- 22/10/87 date 2.  
- 13/11/87 date 3.

2. DESMOND (TENINDEWA) (Cropped to lupins in 1986)

Ripping - Deep ripped to 30 cms on 13/5/87.

Cultivation - All cultivated plots worked up at times of seeding.

Seeding - All varieties (5) seeded at 50kg/ha.  
- Early (Date 1) - 14/5/87 with Super + Cu & Zn @ 200kg/ha  
- Mid (Date 2) - 9/6/87 with DSP @ 100kg/ha.  
- Late (Date 3) - 30/6/87 with Super + Cu & Zn @ 200kg/ha.

All plots sown with 12.5kg/ha N at times of seeding.

Spraying - 13/5/87 1.0l/ha Sprayseed.  
- 24/6/87 1.0l/ha Hoegrass on dates 1 and 2.  
- 24/6/87 1.0l/ha Hoegrass + 1.0l/ha Roundup on date 3 (unsown area).  
- 22/7/87 1.4kg/ha SSH on rep 2 only.

Fungicide - Tilt fungicide applied at 0.5l/ha.  
Spray - 10/7/87 dates 1 and 2.  
- 30/7/87 dates 1, 2 and 3.  
- 17/8/87 dates 1, 2 and 3.  
- 27/8/87 dates 1, 2 and 3.  
- 24/9/87 date 3 only.

**MEASUREMENTS:**

Machine Grain Yield  
- 19 & 20/10/87 dates 1 and 2.  
- 10/11/87 date 3.

3. STOKES LUPIN (MINGENEW) (Cropped to lupins in 1986)

Ripping - Deep ripped to 30 cms on 19/5/87.

Cultivation - All cultivated plots worked up at times of seeding.

Seeding - All varieties (5) seeded at 50kg/ha.  
- Early (Date 1) - 21/5/87 with Super + Cu & Zn @ 200kg/ha  
- Mid (Date 2) - 8/6/87 with DSP @ 100kg/ha.  
- Late (Date 3) - 1/7/87 with Super + Cu & Zn @ 200kg/ha.

All plots sown with 12.5kg/ha N at times of seeding.

Spraying - 19/5/87 1.0l/ha Sprayseed.  
- 1/7/87 2.0l/ha Sprayseed on date 3.  
- 7/7/87 0.2l/ha Banvel + 2.0l/ha Combine dates 1 and 2.

Fungicide - Tilt fungicide applied at 0.5l/ha.  
Spray - 10/7/87 dates 1 and 2.  
- 30/7/87 dates 1, 2 and 3.  
- 17/8/87 dates 1, 2 and 3.  
- 28/8/87 dates 1, 2 and 3.  
- 24/9/87 dates 1, 2 and 3.

**MEASUREMENTS:**

Biological Yield at Maturity  
- 29/10/87 dates 1, 2 and 3.

Machine Grain Yield  
- 25 & 26/11/87 dates 1, 2 and 3.

4. STOKES PASTURE (MINGENEW) (Pasture in 1986)

Ripping - Deep ripped to 30 cms on 19/5/87.

Cultivation - All cultivated plots worked up at times of seeding.

Seeding - All varieties (5) seeded at 50kg/ha.  
- Early (Date 1) - 8 & 9/6/87 with DSP 100kg/ha.  
- Late (Date 2) - 1/7/87 with Super + Cu & Zn @ 200kg/ha.

All plots sown with 12.5kg/ha N at times of seeding.

Spraying - 9/9/86 0.5l/ha Fusilade.  
- 19/5/87 1.0l/ha Sprayseed.  
- 1/7/87 2.0l/ha Sprayseed on date 2.  
- 7/7/87 0.2l/ha Banvel + 2.0l/ha Combine date 1.  
- 7/7/87 0.5l/ha Decis on date 1.  
- 4/8/87 0.5l/ha Decis on dates 1 and 2.

Fungicide - Tilt fungicide applied at 0.5l/ha.  
Spray - 10/7/87 date 1 only.  
- 30/7/87 dates 1 and 2.  
- 17/8/87 dates 1 and 2.  
- 28/8/87 dates 1 and 2.  
- 24/9/87 dates 1 and 2.

**MEASUREMENTS:**

Biological Yield at Maturity  
- 29/10/87 dates 1 and 2.

Machine Grain Yield  
- 23 & 24/11/87 dates 1 and 2.

5. MARCHAGEE (MARCHAGEE) (Cropped to lupins in 1986)

Ripping - Deep ripped to 30 cms on 20/5/87.

Cultivation - All cultivated plots worked up at times of seeding.

Seeding - Early (Date 1) - 20/5/87 with Super @ 200kg/ha.  
- Mid (Date 2) - 10/6/87 with Super @ 200kg/ha.  
- Late (Date 3) - 6/7/87 with super @ 200kg/ha.

12.5kg/ha N applied to date 1 on 10/6/87 and dates 2 and 3 at times of seeding.

Spraying - 13/7/87 2.0l/ha Combine on dates 1 and 2.

**MEASUREMENTS:**

Machine grain Yield  
- 6/11/87 dates 1, 2 and 3.



87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

MEANED ACROSS SPRAY 1986 TREATMENT

BIOLOGICAL YIELD MATURITY (g/m2)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	262.0	117.7	300.2	129.8	202.4
2. GUTHA	274.1	180.4	312.4	166.0	233.3
3. IB286	346.4	244.2	383.5	176.8	287.7
4. MILLEWA	230.4	161.8	284.8	122.8	199.9
5. STIRLING	245.6	149.3	243.1	113.4	187.8
RIP MEAN	271.7	170.7	304.8	141.8	
TILT MEAN	221.2		223.3		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	283.7	202.2	308.3	195.8	247.5
2. GUTHA	347.2	269.5	396.5	206.8	305.0
3. IB286	350.2	246.1	346.4	271.4	303.5
4. MILLEWA	290.7	202.3	326.8	216.8	252.1
5. STIRLING	264.7	194.4	315.2	190.1	241.1
RIP MEAN	307.3	222.9	338.6	216.2	
TILT MEAN	265.1		277.4		

MAIN EFFECTS

VARIETY - 1. AROONA 224.9  
 2. GUTHA 269.1  
 3. IB286 295.6 S.E.D. = 10.6 \*\*\*  
 4. MILLEWA 229.5  
 5. STIRLING 214.5

TILT - + 243.1 - 250.3 S.E.D. = 6.7 NS  
 DATE - E 222.2 L 271.2 S.E.D. = 13.0 \*\*\*  
 RIP - + 305.6 - 187.9 S.E.D. = 13.0 \*\*\*  
 SPRAY86 - + 274.7 - 218.8 S.E.D. = 13.0 \*\*\*

87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

+ SPRAY 1986

BIOLOGICAL YIELD MATURITY (g/m<sup>2</sup>)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	388.6	135.0	436.2	168.3	282.0
2. GUTHA	358.0	414.4	444.8	172.0	297.3
3. IB286	468.9	258.9	541.6	160.5	357.5
4. MILLEWA	326.1	221.4	292.9	128.1	242.1
5. STIRLING	333.9	183.2	314.1	104.4	233.9
RIP MEAN	375.1	202.6	405.9	146.7	
TILT MEAN	288.8		276.3		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	316.8	212.4	254.0	175.2	239.6
2. GUTHA	369.9	269.3	402.5	211.3	313.3
3. IB286	311.7	246.9	365.6	305.3	307.4
4. MILLEWA	285.4	187.3	281.1	195.1	237.2
5. STIRLING	281.6	187.5	283.4	194.4	236.8
RIP MEAN	313.1	220.7	317.3	216.3	
TILT MEAN	266.9		266.8		

MAIN EFFECTS

VARIETY - 1. AROONA 260.8  
 2. GUTHA 305.3  
 3. IB286 332.4 S.E.D. = 18.6  
 4. MILLEWA 239.7  
 5. STIRLING 235.3

TILT - + 277.9 - 271.5 S.E.D. = 14.6

DATE - E 282.6 L 266.8 S.E.D. = 18.4

RIP - + 352.9 - 196.6 S.E.D. = 18.4

87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

- SPRAY 1986

BIOLOGICAL YIELD MATURITY (g/m2)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	135.4	100.3	164.2	91.3	122.8
2. GUTHA	190.3	146.5	180.1	160.0	169.2
3. IB286	223.9	229.4	225.4	193.0	217.9
4. MILLEWA	134.8	102.1	276.8	117.4	157.8
5. STIRLING	157.2	115.4	172.0	122.4	141.7
RIP MEAN	168.3	138.8	203.7	136.8	
TILT MEAN	153.5		170.3		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	250.6	191.9	362.6	216.4	255.3
2. GUTHA	324.4	269.6	390.4	202.4	296.7
3. IB286	388.8	245.3	327.3	237.4	299.7
4. MILLEWA	295.9	217.3	372.4	238.5	281.0
5. STIRLING	247.8	201.3	347.0	185.8	245.5
RIP MEAN	301.5	225.1	359.9	216.1	
TILT MEAN	263.3		288.0		

MAIN EFFECTS

VARIETY -	1. AROONA	189.1	
	2. GUTHA	233.0	
	3. IB286	258.8	S.E.D. = 18.6
	4. MILLEWA	219.4	
	5. STIRLING	193.6	

TILT -	+	208.4	-	229.1	S.E.D. = 14.6
DATE -	E	161.9	L	275.6	S.E.D. = 18.4
RIP -	+	258.3	-	179.2	S.E.D. = 18.4

87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

MEANED ACROSS SPRAY 1986 TREATMENT

MACHINE GRAIN YIELD (k/ha)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	908.1	208.5	839.1	286.1	560.5
2. GUTHA	1020.1	469.5	964.8	418.6	718.3
3. IB286	1313.8	652.6	1260.4	514.1	935.2
4. MILLEWA	864.7	449.6	844.1	283.9	610.5
5. STIRLING	906.2	436.6	938.9	258.3	635.0
RIP MEAN	1002.6	443.4	969.4	352.2	
TILT MEAN	723.0		660.8		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	1023.5	587.1	1076.9	536.8	806.1
2. GUTHA	1358.0	824.4	1311.9	698.5	1048.2
3. IB286	1265.3	866.8	1113.3	741.3	996.7
4. MILLEWA	1091.0	679.7	1028.4	721.1	880.1
5. STIRLING	1024.9	578.6	959.1	589.6	788.1
RIP MEAN	1152.5	707.3	1097.9	657.5	
TILT MEAN	929.9		877.7		

MAIN EFFECTS

VARIETY -	1. AROONA	683.3		
	2. GUTHA	883.2		
	3. IB286	965.9	S.E.D. =	23.4 ***
	4. MILLEWA	745.3		
	5. STIRLING	711.5		
TILT -	+	826.4	-	769.3 S.E.D. = 14.8 ***
DATE -	E	691.1	L	903.8 S.E.D. = 42.8 ***
RIP -	+	1055.6	-	540.1 S.E.D. = 42.8 ***
SPRAY86 -	+	903.2	-	692.5 S.E.D. = 42.8 ***

87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

+ SPRAY 1986

MACHINE GRAIN YIELD (k/ha)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	1362.8	224.0	1197.5	351.4	783.9
2. GUTHA	1414.5	589.5	1370.8	420.1	948.7
3. IB286	1754.8	754.2	1610.8	462.2	1145.5
4. MILLEWA	1248.8	574.9	1199.2	272.3	823.8
5. STIRLING	1245.3	654.9	1397.8	270.8	892.2
RIP MEAN	1405.2	559.5	1355.2	355.4	
TILT MEAN	982.4		855.3		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	1216.0	485.2	1201.9	436.5	834.9
2. GUTHA	1428.0	720.4	1385.4	684.3	1054.5
3. IB286	1173.2	746.5	1147.8	566.2	908.4
4. MILLEWA	1218.1	677.2	1024.6	619.8	884.9
5. STIRLING	1027.0	472.1	958.1	565.0	755.5
RIP MEAN	1212.5	620.3	1143.5	574.4	
TILT MEAN	916.4		858.9		

MAIN EFFECTS

VARIETY - 1. AROONA	809.4	
2. GUTHA	1001.6	
3. IB286	1027.0	S.E.D. = 52.0
4. MILLEWA	854.4	
5. STIRLING	823.8	

TILT - +	949.4	- 857.1	S.E.D. = 45.3
DATE - E	918.8	L 887.7	S.E.D. = 60.5
RIP - +	1279.1	- 527.4	S.E.D. = 60.5

87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

- SPRAY 1986

MACHINE GRAIN YIELD (k/ha)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	453.5	193.0	480.7	222.8	337.0
2. GUTHA	625.7	349.5	558.8	417.1	487.8
3. IB286	872.8	550.9	910.0	566.1	724.9
4. MILLEWA	480.5	324.3	488.9	295.4	397.3
5. STIRLING	567.1	218.4	480.0	245.8	377.9
RIP MEAN	599.9	327.2	583.7	349.1	
TILT MEAN	463.6		466.4		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	831.1	689.0	951.9	637.2	777.3
2. GUTHA	1287.9	928.3	1238.5	712.7	1041.8
3. IB286	1357.3	1078.8	987.0	916.4	1084.9
4. MILLEWA	964.0	682.2	1032.3	822.4	875.2
5. STIRLING	1022.7	685.1	960.2	614.3	820.6
RIP MEAN	1092.6	794.3	1052.3	740.6	
TILT MEAN	943.5		896.5		

MAIN EFFECTS

VARIETY - 1. AROONA 557.1  
 2. GUTHA 764.8  
 3. IB286 904.9 S.E.D. = 52.0  
 4. MILLEWA 636.2  
 5. STIRLING 599.2

TILT - + 703.5 - 681.4 S.E.D. = 45.3

DATE - E 465.0 L 920.0 S.E.D. = 60.5

RIP - + 832.1 - 552.8 S.E.D. = 60.5

87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

MEANED ACROSS SPRAY 1986 TREATMENT

SEED WEIGHT/100 SEEDS (g/100)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	3.84	3.43	3.78	3.36	3.60
2. GUTHA	4.25	3.57	4.00	3.60	3.86
3. IB286	5.78	5.86	6.08	5.74	5.86
4. MILLEWA	2.83	2.74	2.95	2.65	2.79
5. STIRLING	4.22	3.97	4.16	4.10	4.11
RIP MEAN	4.18	3.92	4.19	3.89	
TILT MEAN	4.05		4.04		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	4.15	4.34	4.11	4.28	4.22
2. GUTHA	4.09	4.20	4.12	4.08	4.12
3. IB286	5.66	5.96	5.20	6.16	5.74
4. MILLEWA	3.35	3.21	3.89	3.13	3.40
5. STIRLING	4.41	4.42	4.32	4.47	4.41
RIP MEAN	4.33	4.43	4.33	4.43	
TILT MEAN	4.38		4.38		

MAIN EFFECTS

VARIETY - 1. AROONA 3.91  
 2. GUTHA 3.99  
 3. IB286 5.80 S.E.D.= 0.064 \*\*\*  
 4. MILLEWA 3.10  
 5. STIRLING 4.26

TILT - + 4.21 - 4.21 S.E.D.= 0.040 NS

DATE - E 4.05 L 4.38 S.E.D.= 0.066 \*\*\*

RIP - + 4.26 - 4.16 S.E.D.= 0.047 NS

SPRAY86 - + 4.24 - 4.18 S.E.D.= 0.047 NS

87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

+ SPRAY 1986

SEED WEIGHT/100 SEEDS (g/100)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	3.79	3.28	3.83	3.44	3.58
2. GUTHA	4.29	3.61	4.06	3.58	3.88
3. IB286	5.58	5.82	6.20	5.67	5.82
4. MILLEWA	2.86	2.70	3.14	2.64	2.84
5. STIRLING	4.30	4.00	4.21	4.36	4.22
RIP MEAN	4.17	3.88	4.29	3.93	
TILT MEAN	4.02		4.11		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	4.11	4.44	4.19	4.43	4.29
2. GUTHA	4.04	4.23	4.08	4.26	4.15
3. IB286	5.73	5.98	5.96	6.24	5.98
4. MILLEWA	3.49	3.31	3.18	3.23	3.30
5. STIRLING	4.36	4.42	4.25	4.48	4.38
RIP MEAN	4.35	4.47	4.33	4.53	
TILT MEAN	4.41		4.43		

MAIN EFFECTS

VARIETY - 1. AROONA 3.94  
 2. GUTHA 4.02  
 3. IB286 5.90  
 4. MILLEWA 3.07  
 5. STIRLING 4.30  
 S.E.D. = 0.091

TILT - + 4.22 - 4.27 S.E.D. = 0.062

DATE - E 4.07 L 4.42 S.E.D. = 0.066

RIP - + 4.28 - 4.21 S.E.D. = 0.066



87GE97 - STOKES (MINGENEW) - PASTURE 1986

HARVEST DATA

- SPRAY 1986

SEED WEIGHT/100 SEEDS (g/100)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	3.89	3.57	3.74	3.29	3.62
2. GUTHA	4.20	3.54	3.94	3.62	3.83
3. IB286	5.98	5.90	5.96	5.81	5.91
4. MILLEWA	2.81	2.78	2.76	2.66	2.75
5. STIRLING	4.15	3.95	4.10	3.84	4.01
RIP MEAN	4.20	3.95	4.10	3.84	
TILT MEAN	4.08		3.97		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	4.19	4.23	4.03	4.13	4.14
2. GUTHA	4.13	4.18	4.15	3.91	4.09
3. IB286	5.58	5.94	4.45	6.07	5.51
4. MILLEWA	3.21	3.12	4.61	3.04	3.50
5. STIRLING	4.46	4.42	4.39	4.46	4.43
RIP MEAN	4.31	4.38	4.32	4.32	
TILT MEAN	4.34		4.32		

MAIN EFFECTS

VARIETY - 1. AROONA 3.88  
 2. GUTHA 3.96  
 3. IB286 5.71 S.E.D.= 0.091  
 4. MILLEWA 3.12  
 5. STIRLING 4.22

TILT - + 4.21 - 4.15 S.E.D.= 0.062  
 DATE - E 4.02 L 4.33 S.E.D.= 0.066  
 RIP - + 4.24 - 4.12 S.E.D.= 0.066

87GE97 - STOKES (MINGENEW) - LUPINS 1986

HARVEST DATA

BIOLOGICAL YIELD MATURITY (g/m<sup>2</sup>)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	478.9	444.3	539.9	372.8	459.0
2. GUTHA	555.6	439.4	529.1	330.6	463.7
3. IB286	611.6	625.3	685.4	516.0	609.6
4. MILLEWA	507.4	434.9	484.6	328.4	438.8
5. STIRLING	436.3	579.5	626.1	444.4	521.6
RIP MEAN	518.0	504.7	573.0	398.4	
TILT MEAN	511.3		485.7		

DATE - MID	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	400.4	339.4	352.4	315.5	351.9
2. GUTHA	420.0	346.1	413.3	314.8	373.5
3. IB286	460.2	491.4	510.4	321.9	446.0
4. MILLEWA	311.1	318.7	432.1	293.8	338.9
5. STIRLING	400.8	271.9	389.9	317.1	344.9
RIP MEAN	398.5	353.5	419.6	312.6	
TILT MEAN	376.0		366.1		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	242.4	269.9	223.5	185.3	230.3
2. GUTHA	325.1	277.2	302.1	209.7	278.5
3. IB286	348.8	303.9	278.9	228.0	289.9
4. MILLEWA	293.5	251.8	250.3	195.4	247.7
5. STIRLING	287.6	205.1	279.6	157.6	232.4
RIP MEAN	299.5	261.6	266.9	195.2	
TILT MEAN	280.5		231.0		

MAIN EFFECTS

VARIETY - 1. AROONA 347.1  
 2. GUTHA 371.9  
 3. IB286 448.5  
 4. MILLEWA 341.8  
 5. STIRLING 366.3

S.E.D. = 23.6 \*\*\*

TILT - + 389.3 - 360.9 S.E.D. = 14.9 NS

DATE - E 498.5 M 371.1 L 255.8 S.E.D. = 24.2 \*\*\*

RIP - + 412.6 - 337.7 S.E.D. = 19.7 \*\*

CULT - + 367.6 - 382.6 S.E.D. = 19.7 NS

87GE97 - STOKES (MINGENEW) - LUPINS 1986

HARVEST DATA

MACHINE GRAIN YIELD (k/ha)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	1698.5	1002.1	1916.3	1053.2	1417.5
2. GUTHA	1698.6	1149.0	1570.8	937.7	1348.0
3. IB286	2252.2	1846.8	2289.4	1788.4	2044.2
4. MILLEWA	1569.2	1160.8	1665.2	994.9	1347.5
5. STIRLING	1967.4	1301.5	2024.5	1418.6	1678.0
RIP MEAN	1837.1	1292.0	1893.2	1245.8	
TILT MEAN	1564.6		1569.5		

DATE - MID	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	1440.9	733.6	1409.7	718.9	1075.8
2. GUTHA	1385.5	769.9	1376.7	706.5	1059.7
3. IB286	1759.4	990.5	1664.9	1015.3	1357.5
4. MILLEWA	1188.2	717.8	1360.9	562.8	957.4
5. STIRLING	1194.7	634.7	1213.0	752.4	948.7
RIP MEAN	1393.8	769.3	1405.0	751.2	
TILT MEAN	1081.5		1078.1		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	801.2	637.5	799.3	581.9	705.0
2. GUTHA	1004.4	835.0	945.2	664.3	862.2
3. IB286	1058.0	795.3	864.6	733.2	862.8
4. MILLEWA	788.5	653.8	747.1	590.2	694.9
5. STIRLING	868.9	470.8	788.6	457.0	646.3
RIP MEAN	904.2	678.5	829.0	605.3	
TILT MEAN	791.3		717.1		

MAIN EFFECTS

VARIETY - 1. AROONA 1066.1  
 2. GUTHA 1090.0  
 3. IB286 1421.5  
 4. MILLEWA 1000.0  
 5. STIRLING 1091.0  
 S.E.D. = 31.3 \*\*\*

TILT - + 1145.8 - 1121.6 S.E.D. = 19.8 NS  
 DATE - E 1567.1 M 1079.8 L 754.2 S.E.D. = 64.9 \*\*\*  
 RIP - + 1377.1 - 890.3 S.E.D. = 53.0 \*\*\*  
 CULT - + 1141.5 - 1125.9 S.E.D. = 53.0 NS

87GE97 - STOKES (MINGENEW) - LUPINS 1986

HARVEST DATA

SEED WEIGHT/100 SEEDS (g/100)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	4.23	4.08	4.23	3.93	4.12
2. GUTHA	4.25	4.07	4.03	3.88	4.06
3. IB286	6.02	6.04	6.00	6.01	6.01
4. MILLEWA	3.26	3.02	3.28	3.20	3.19
5. STIRLING	4.44	4.50	4.34	4.43	4.43
RIP MEAN	4.44	4.34	4.37	4.29	
TILT MEAN	4.39		4.33		

DATE - MID	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	4.07	3.90	3.97	3.84	3.94
2. GUTHA	4.13	3.87	3.93	3.79	3.93
3. IB286	5.55	5.60	5.50	5.52	5.54
4. MILLEWA	2.82	2.81	2.89	2.71	2.81
5. STIRLING	4.30	4.36	4.19	4.08	4.23
RIP MEAN	4.17	4.11	4.09	3.99	
TILT MEAN	4.14		4.04		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	4.04	4.10	3.93	3.84	3.98
2. GUTHA	3.64	3.71	3.56	3.50	3.60
3. IB286	5.26	5.36	5.00	5.38	5.25
4. MILLEWA	2.95	2.94	3.03	2.93	2.96
5. STIRLING	4.05	4.16	3.94	4.13	4.07
RIP MEAN	3.99	4.06	3.89	3.96	
TILT MEAN	4.02		3.93		

MAIN EFFECTS

VARIETY - 1. AROONA 4.01  
 2. GUTHA 3.86  
 3. IB286 5.60  
 4. MILLEWA 2.99  
 5. STIRLING 4.24

S.E.D. = 0.039 \*\*\*

TILT - + 4.18 - 4.10 S.E.D. = 0.024 \*\*\*

DATE - E 4.36 M 4.09 L 3.97 S.E.D. = 0.033 \*\*\*

RIP - + 4.16 - 4.12 S.E.D. = 0.027 NS

CULT - + 4.11 - 4.17 S.E.D. = 0.027 \*

87GE97 - CRIDDLE (BALLA) - LUPINS 1986

### HARVEST DATA

BIOLOGICAL YIELD MATURITY (g/m<sup>2</sup>)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	478.1	556.6	482.1	448.4	491.3
2. GUTHA	443.1	541.0	305.5	424.9	428.6
3. IB286	592.6	614.0	422.6	422.9	513.0
4. MILLEWA	442.8	449.3	404.7	345.5	410.6
5. STIRLING	496.2	510.1	384.3	429.3	455.0
RIP MEAN	490.6	534.2	399.8	414.2	
TILT MEAN	512.4		407.0		

DATE - MID	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	465.1	384.4	323.1	315.2	371.9
2. GUTHA	431.6	374.3	277.3	303.8	346.7
3. IB286	383.8	451.0	316.4	415.9	391.8
4. MILLEWA	378.4	319.0	251.8	296.8	311.3
5. STIRLING	419.2	398.0	305.3	259.4	345.5
RIP MEAN	415.6	385.3	294.8	318.1	
TILT MEAN	400.5		306.4		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	330.2	320.4	235.8	259.6	286.5
2. GUTHA	312.2	316.5	217.3	263.5	277.4
3. IB286	370.9	283.3	196.6	242.5	273.3
4. MILLEWA	316.4	271.0	203.2	204.7	248.8
5. STIRLING	320.4	207.8	176.3	236.1	235.1
RIP MEAN	330.0	279.8	205.8	241.3	
TILT MEAN	304.9		223.6		

### MAIN EFFECTS

VARIETY -	1. AROONA	383.2
	2. GUTHA	350.9
	3. IB286	392.7
	4. MILLEWA	323.6
	5. STIRLING	345.2

S.E.D. = 15.5 \*\*\*

TILT - + 405.9 - 312.3 S.E.D.= 9.8 \*\*\*

DATE - E 459.7 M 353.4 L 264.2 S.E.D.= 26.1 \*\*\*

RIP - + 356.1 - 362.2 S.E.D. = 21.3 NS

CULT - + 360.3 - 358.0 S.E.D. = 21.3 NS

87GE97 - CRIDDLE (BALLA) - LUPINS 1986

HARVEST DATA

MACHINE GRAIN YIELD (k/ha)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	1242.9	1023.0	1351.8	1303.4	1230.3
2. GUTHA	1400.6	1352.2	1250.6	1238.2	1310.4
3. IB286	2262.8	2091.3	1987.9	1431.4	1943.3
4. MILLEWA	1422.2	1176.4	1263.8	1071.6	1233.5
5. STIRLING	1791.2	1825.9	1757.1	1762.0	1784.0
RIP MEAN	1623.9	1493.7	1522.2	1361.3	
TILT MEAN	1558.8		1441.8		

DATE - MID	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	1126.0	1014.5	938.5	835.6	978.7
2. GUTHA	1209.8	1042.0	1065.0	822.4	1034.8
3. IB286	1565.1	1748.4	1687.3	1549.7	1637.6
4. MILLEWA	1009.1	894.5	986.7	732.4	905.7
5. STIRLING	1224.0	1070.8	1169.0	932.7	1099.1
RIP MEAN	1226.8	1154.1	1169.3	974.6	
TILT MEAN	1190.4		1071.9		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	935.6	865.2	942.0	930.4	918.3
2. GUTHA	1237.8	867.0	1159.8	905.1	1042.4
3. IB286	1179.8	981.2	1135.7	1065.7	1090.6
4. MILLEWA	983.1	717.3	941.0	735.2	844.1
5. STIRLING	861.5	767.7	745.6	815.4	797.0
RIP MEAN	1039.6	839.3	984.8	890.4	
TILT MEAN	939.4		937.6		

MAIN EFFECTS

VARIETY - 1. AROONA 1042.4  
 2. GUTHA 1129.2  
 3. IB286 1557.2  
 4. MILLEWA 994.4  
 5. STIRLING 1226.7  
 S.E.D. = 38.2 \*\*\*

TILT - + 1229.6 - 1150.4 S.E.D. = 24.1 \*\*

DATE - E 1500.3 M 1131.2 L 938.5 S.E.D. = 131.1 \*\*

RIP - + 1261.1 - 1118.9 S.E.D. = 107.1 NS

CULT - + 1182.3 - 1197.7 S.E.D. = 107.1 NS

87GE97 - CRIDDLE (BALLA) - LUPINS 1986

HARVEST DATA

SEED WEIGHT/100 SEEDS (g/100)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	3.61	3.89	3.64	3.62	3.69
2. GUTHA	3.63	3.95	3.87	3.72	3.79
3. IB286	5.80	6.25	6.19	6.05	6.07
4. MILLEWA	2.95	3.01	2.99	2.98	2.98
5. STIRLING	4.26	4.44	4.33	4.31	4.33
RIP MEAN	4.05	4.31	4.21	4.14	
TILT MEAN	4.18		4.18		

DATE - MID	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	2.56	2.68	2.86	2.38	2.62
2. GUTHA	2.77	2.99	3.15	2.47	2.84
3. IB286	5.55	5.23	5.40	5.29	5.37
4. MILLEWA	2.15	2.18	2.21	1.95	2.12
5. STIRLING	3.25	3.29	3.29	3.12	3.24
RIP MEAN	3.26	3.27	3.38	3.04	
TILT MEAN	3.27		3.21		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	2.75	3.09	2.97	3.03	2.96
2. GUTHA	2.98	3.07	2.69	2.58	2.83
3. IB286	4.82	4.56	4.53	4.40	4.58
4. MILLEWA	2.41	2.32	2.64	2.14	2.38
5. STIRLING	3.52	3.37	3.44	3.21	3.38
RIP MEAN	3.30	3.28	3.25	3.07	
TILT MEAN	3.29		3.16		

MAIN EFFECTS

VARIETY - 1. AROONA 3.09  
 2. GUTHA 3.15  
 3. IB286 5.34  
 4. MILLEWA 2.50  
 5. STIRLING 3.65

S.E.D. = 0.05 \*\*\*

TILT - + 3.58 - 3.51 S.E.D. = 0.03 NS

DATE - E 4.17 M 3.24 L 3.23 S.E.D. = 0.82 \*\*\*

RIP - + 3.57 - 3.52 S.E.D. = 0.07 NS

CULT - + 3.56 - 3.54 S.E.D. = 0.07 NS

87GE97 - DESMOND (TENINDEWA) - LUPINS 1986

HARVEST DATA

MACHINE GRAIN YIELD (k/ha)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	735.1	832.8	533.1	687.6	697.1
2. GUTHA	713.4	831.9	453.3	514.4	628.3
3. IB286	1334.3	1309.7	1032.9	1080.7	1189.4
4. MILLEWA	620.1	687.6	323.0	604.1	558.7
5. STIRLING	806.1	1006.2	592.2	764.3	792.2
RIP MEAN	841.8	933.7	586.9	730.2	
TILT MEAN	887.7		658.6		

DATE - MID	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	581.6	703.4	415.0	719.9	605.0
2. GUTHA	666.6	754.4	407.8	656.9	621.0
3. IB286	1129.0	1034.0	751.8	918.6	958.3
4. MILLEWA	554.9	735.3	377.4	599.8	566.9
5. STIRLING	495.3	726.5	392.5	642.6	564.2
RIP MEAN	685.5	790.7	468.9	707.6	
TILT MEAN	738.1		588.2		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	953.2	834.5	855.1	834.2	869.2
2. GUTHA	932.8	809.0	836.7	814.2	848.2
3. IB286	962.5	788.6	878.7	758.0	846.9
4. MILLEWA	798.6	750.4	745.5	725.9	755.1
5. STIRLING	795.5	567.2	473.4	466.8	576.0
RIP MEAN	888.5	749.9	757.9	719.8	
TILT MEAN	819.2		738.8		

MAIN EFFECTS

VARIETY - 1. AROONA 723.8  
 2. GUTHA 699.3  
 3. IB286 998.2  
 4. MILLEWA 626.9  
 5. STIRLING 644.0

S.E.D. = 28.3 \*\*\*

TILT - + 815.0 - 661.9 S.E.D. = 17.9 \*\*\*

DATE - E 773.1 M 663.2 L 779.0 S.E.D. = 47.0 NS

RIP - + 704.9 - 772.0 S.E.D. = 38.4 NS

CULT - + 781.5 - 695.3 S.E.D. = 38.4 \*



87GE97 - DESMOND (TENINDELWA) - LUPINS 1986

HARVEST DATA

SEED WEIGHT/100 SEEDS (g/100)

DATE - EARLY	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	3.17	3.43	3.07	3.31	3.24
2. GUTHA	2.79	3.16	2.57	3.24	2.94
3. IB286	6.05	6.24	6.03	5.29	5.90
4. MILLEWA	2.51	2.49	2.26	2.28	2.38
5. STIRLING	3.87	4.02	3.60	3.81	3.82
RIP MEAN	3.68	3.87	3.50	3.58	
TILT MEAN	3.77		3.54		

DATE - MID	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	2.63	2.97	2.35	3.04	2.75
2. GUTHA	2.49	3.11	2.29	3.03	2.73
3. IB286	5.31	5.11	4.90	4.99	5.08
4. MILLEWA	2.09	2.37	1.96	2.18	2.15
5. STIRLING	2.37	3.16	2.31	2.96	2.70
RIP MEAN	2.98	3.34	2.76	3.24	
TILT MEAN	3.16		3.00		

DATE - LATE	+TILT		-TILT		VARIETY
VARIETY	+RIP	-RIP	+RIP	-RIP	MEANS
1. AROONA	3.75	3.32	3.55	3.51	3.53
2. GUTHA	3.13	2.98	3.11	3.31	3.13
3. IB286	5.10	4.69	4.61	4.60	4.75
4. MILLEWA	3.00	2.77	2.75	2.56	2.77
5. STIRLING	4.09	3.64	3.92	3.59	3.81
RIP MEAN	3.81	3.48	3.59	3.51	
TILT MEAN	3.65		3.55		

MAIN EFFECTS

VARIETY - 1. AROONA 3.17  
 2. GUTHA 2.93  
 3. IB286 5.24  
 4. MILLEWA 2.43  
 5. STIRLING 3.44

S.E.D. = 0.074 \*\*\*

TILT - + 3.53 - 3.36 S.E.D. = 0.047 \*\*\*

DATE - E 3.66 M 3.08 L 3.60 S.E.D. = 0.062 \*\*\*

RIP - + 3.39 - 3.50 S.E.D. = 0.050 \*

CULT - + 3.45 - 3.44 S.E.D. = 0.050 NS

87GE97 - MARCHAGEE (MARCHAGEE) - LUPINS 1986

HARVEST DATA

MACHINE GRAIN YIELD (k/ha)

DATE - EARLY	-TILT		VARIETY
VARIETY	+RIP	-RIP	MEANS
1. AROONA	1618.8	1826.1	1722.4
2. GUTHA	1596.6	1803.9	1700.2
3. IB286	1344.8	1219.0	1281.9
4. MILLEWA	1685.4	1937.1	1811.3
5. STIRLING	1381.8	1285.6	1333.7
RIP MEAN	1525.5	1614.3	

DATE - MID	-TILT		VARIETY
VARIETY	+RIP	-RIP	MEANS
1. AROONA	1711.1	1755.6	1733.4
2. GUTHA	1659.3	1566.7	1613.0
3. IB286	1377.8	1407.4	1392.6
4. MILLEWA	1733.4	1818.5	1775.9
5. STIRLING	1129.6	1179.9	1154.8
RIP MEAN	1522.2	1545.6	

DATE - LATE	-TILT		VARIETY
VARIETY	+RIP	-RIP	MEANS
1. AROONA	225.9	422.2	324.1
2. GUTHA	300.0	214.8	257.4
3. IB286	575.8	451.9	513.8
4. MILLEWA	129.6	277.8	203.7
5. STIRLING	440.7	438.8	439.8
RIP MEAN	334.4	361.1	

MAIN EFFECTS

VARIETY - 1. AROONA 1260.0  
 2. GUTHA 1190.2  
 3. IB286 1062.8  
 4. MILLEWA 1263.6  
 5. STIRLING 976.1  
 S.E.D. = 57.5 \*\*\*

DATE - E 1569.9 M 1533.9 L 347.8 S.E.D. = 75.8 \*\*\*

RIP - + 1127.4 - 1173.7 S.E.D. = 61.9 NS

CULT - + 1115.2 - 1185.9 S.E.D. = 61.9 NS

87GE97 - STOKES NITROGEN TRIAL (MINGENEW) - PASTURE 1986

HARVEST DATA

BIOLOGICAL YIELD MATURITY (g/m2)

N RATE	+HERB 86		-HERB 86	
	+RIP	-RIP	+RIP	-RIP
0	494.8	79.5	155.4	95.8
12.5	445.4	151.8	158.1	128.6
25.0	480.6	155.6	258.8	107.9
50.0	369.9	215.1	242.5	213.3
100.0	502.4	186.9	298.4	165.9
RIP MEAN	458.6	157.8	222.6	142.3

MAIN EFFECTS

N RATE -	0	206.3		
	12.5	221.0		
	25.0	250.7	S.E.D.= 20.1 **	
	50.0	260.2		
	100.0	288.4		
RIP -	+	340.6	-	150.0
			S.E.D.= 24.83 **	
HERB 86 -	+	308.2	-	182.5
			S.E.D.= 24.83 **	

87GE97 - STOKES NITROGEN TRIAL (MINGENEW) - PASTURE 1986

HARVEST DATA

MACHINE GRAIN YIELD (k/ha)

N RATE	+HERB 86		-HERB 86	
	+RIP	-RIP	+RIP	-RIP
0	1023.3	235.3	269.1	154.1
12.5	1235.2	420.1	429.7	364.3
25.0	1148.2	314.3	459.6	347.7
50.0	1000.2	562.2	650.5	534.3
100.0	750.7	383.6	483.1	310.9
RIP MEAN	1031.5	383.1	458.4	342.2

MAIN EFFECTS

N RATE -	0	420.4		
	12.5	612.3		
	25.0	567.5	S.E.D.= 31.8 ***	
	50.0	686.8		
	100.0	482.1		
RIP -	+	745.0	-	362.7
			S.E.D.= 46.9 **	
HERB 86 -	+	707.3	-	400.3
			S.E.D.= 46.9 **	

87GE97 - STOKES NITROGEN TRIAL (MINGENEW) - PASTURE 1986

HARVEST DATA

SEED WEIGHT/100 SEEDS (g/100)

N RATE	+HERB 86		-HERB 86	
	+RIP	-RIP	+RIP	-RIP
0	4.04	3.65	3.92	3.71
12.5	4.00	3.68	3.83	3.74
25.0	4.04	3.61	3.96	3.61
50.0	4.18	3.57	3.86	3.57
100.0	3.46	3.24	3.67	3.28
RIP MEAN	3.94	3.55	3.84	3.58

MAIN EFFECTS

N RATE -	0	3.82		
	12.5	3.81		
	25.0	3.80		
	50.0	3.79		
	100.0	3.41		
			S.E.D. = 0.07 ***	
RIP -	+	3.89	-	3.56
			S.E.D. = 0.112 NS	
HERB 86 -	+	3.75	-	3.71
			S.E.D. = 0.112 NS	

87GE97 - STOKES NITROGEN TRIAL (MINGENEW) - LUPINS 1986

HARVEST DATA

BIOLOGICAL YIELD MATURITY (g/m<sup>2</sup>)

N RATE	+RIP	-RIP	N RATE MEAN
0	202.1	199.5	200.8
12.5	148.5	210.1	179.3
25.0	251.3	302.0	276.6
50.0	248.8	351.9	300.3
100.0	322.1	383.3	352.7
RIP MEAN	234.6	289.4	

MAIN EFFECTS

N RATE -	0	200.8	
	12.5	179.3	
	25.0	276.6	S.E.D. = 49.2 *
	50.0	300.3	
	100.0	352.7	
RIP -	+ 234.6	- 289.4	S.E.D. = 15.3 NS

87GE97 - STOKES NITROGEN TRIAL (MINGENEW) - LUPINS 1986

HARVEST DATA

MACHINE GRAIN YIELD (k/ha)

N RATE	+RIP	-RIP	N RATE MEAN
0	742.3	505.6	624.0
12.5	834.7	479.3	657.0
25.0	793.0	696.6	744.8
50.0	740.9	604.3	672.6
100.0	669.6	568.2	618.9
RIP MEAN	756.1	570.8	

MAIN EFFECTS

N RATE -	0	624.0	
	12.5	657.0	
	25.0	744.8	S.E.D. = 56.2 NS
	50.0	672.6	
	100.0	618.9	
RIP -	+ 756.1	- 570.8	S.E.D. = 73.6 NS

87GE97 - STOKES NITROGEN TRIAL (MINGENEW) - LUPINS 1986

HARVEST DATA

SEED WEIGHT/100 SEEDS (g/100)

N RATE	+RIP	-RIP	N RATE MEAN
0	3.75	3.72	3.74
12.5	3.86	3.49	3.67
25.0	3.65	3.52	3.58
50.0	3.62	3.61	3.61
100.0	3.48	3.46	3.47
RIP MEAN	3.67	3.56	

MAIN EFFECTS

N RATE -	0	3.74	
	12.5	3.67	
	25.0	3.58	S.E.D. = 0.13 NS
	50.0	3.61	
	100.0	3.47	
RIP -	+ 3.67	- 3.56	S.E.D. = 0.06 NS

### TRIAL 86C63 - ROTATION AND RIPPING

**AIM:** To examine the effect of different rotational histories, particularly residual water, on following crops.

**DESIGN:** In 1986 the trial was set up on the bulk area at East Chapman Research Station cropped to barley in 1985. The trial involved 2 factors (crop species and ripping). The factors used were: crop: wheat (W), barley (B), lupins (L), medic (M) in 1986 and Rip 86, Rip 87, Rip 86 and 87 and No Ripping. In 1986 there were essentially only 2 ripping treatments: + and - rip. The plots were double runs of 30m x 1.4m on 1.85m centres. The design was a split plot with ripping being the whole plots and species being the sub plots. A neutron access tube was placed in one run of each double plot and there were 3 replicates. The management details, measurements and comments for 1986 are available in the 1986 Annual Report of J. Hamblin.

In 1987 the plots were divided into 6 x 10m sub plots by 1.4m on 1.85m centres. These 6 sub plots included one sub plot that had a neutron access tube. The whole area was cropped to Gutha wheat and 5 rates of N were applied to the sub plots and the neutron tube plot had a replicate of one N rate (either 12.5kg/ha N when the 1986 crop was a legume or 50.0kg/ha N when 1986 crop was a cereal). The design was a split/split plot with + and - ripping being the whole plots, species 86 being the split plots and N rates being the split/split plots. The rates of N used were 0, 12.5, 25, 50, 100kg/ha of N.

#### **MANAGEMENT DETAILS 1987:**

Ripping - Deep ripped to 30cms with Agraplow on 18/5/87.

Seeding - All plots sown with Gutha wheat at 50kg/ha on 9/6/87.  
DSP at 100kg/ha applied on 9/6/87.  
N rates applied 9/6/87.

#### **OTHER MANAGEMENT DETAILS:**

27/5/87 - sprayed 1l/ha Roundup.  
8/6/87 - sprayed 2l/ha Sprayseed.  
24/6/87 - sprayed 0.2l/ha Brodal.  
10/7/87 - sprayed 0.5l/ha Diuron + 0.25l/ha 2,4-D Amine.

#### **MEASUREMENTS:**

Biological Yield - Anthesis 7/9/87.  
- Maturity 28/10/87.

Grain Yield - Hand harvested on 28/10/87 and yield components obtained.  
- Machine harvested on 3, 4 and 5/11/87.

Water Use - Neutron moisture readings on 18/6/87, 17/7/87, 7/9/87 (anthesis), 3/11/87 (maturity).

## COMMENTS:

The effects of the previous rotation were marked. Wheat following both lupins and medic had significantly higher biological yields at both anthesis and maturity and higher grain yields than wheat following either wheat or barley.

This difference was not due to differences in harvest index, but primarily to there being more heads/m<sup>2</sup>.

Rotation also had a significant effect on the level of brome grass in the plots, with the legume plots having low levels and the cereal plots high levels of weed infestation in the following wheat year. The level of applied N in the wheat crop did not influence the level of weed infestation.

Deep ripping in 1987 had a highly significant effect on wheat yields, however there was little residual from ripping in 1986, which did not differ significantly from the un-ripped treatment.

Rate of applied N has a highly significant effect on yield, but there was also a significant rotational history x N rates interaction. This is not surprising as two of the rotational pre-treatments involved legumes and two involved cereals.

The water use results were more difficult to determine. The 1986 results showed that the medics used less water than the lupins, and that the barley used less water than the wheat. 1987 was a very dry season and all treatments used more water than fell between planting and harvest. The wheat growing on lupins used slightly less water than the crop growing on medic, it also yielded slightly but significantly less.

Barley in 1986 used less water than wheat, but the wheat plot yields in 1987 were not significantly different but the water use was marginally greater on the plots growing on barley stubble.

The trial showed that ripping in 1987 increased the water use of the current crop slightly.



**86C63 - ROTATION AND RIPPING TRIAL**

**BIOLOGICAL YIELD MATURITY (g/m<sup>2</sup>)**

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	157.3	106.7	218.0	52.2	133.5
	12.5	256.8	172.2	337.5	158.1	231.1
	25.0	369.0	207.9	350.8	143.8	267.9
	50.0	360.3	198.3	412.3	188.8	289.9
	100.0	283.1	252.8	235.7	177.6	237.3
RIP MEAN		285.3	187.5	310.9	144.1	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	342.3	208.3	347.8	216.8	278.8
	12.5	367.8	218.0	353.9	275.6	303.8
	25.0	377.6	251.7	431.3	263.2	330.9
	50.0	410.2	297.3	447.7	257.1	353.1
	100.0	377.9	168.9	390.4	245.1	295.6
RIP MEAN		375.2	228.9	394.2	251.6	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	375.6	289.4	429.6	240.9	333.9
	12.5	389.1	255.1	462.0	260.2	341.6
	25.0	438.2	320.7	378.5	234.9	343.1
	50.0	473.5	248.8	438.3	272.0	358.1
	100.0	426.7	321.7	374.2	282.1	351.1
RIP MEAN		420.6	287.1	416.5	258.0	

86C63 - ROTATION AND RIPPING TRIAL

BIOLOGICAL YIELD MATURITY (g/m2)

CROP 1986		RIPPING 1986-1987				N RATE
WHEAT		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	221.7	87.5	259.1	116.0	171.1
	12.5	306.2	149.5	244.4	121.7	205.4
	25.0	308.6	155.6	383.8	141.4	247.4
	50.0	282.5	197.1	442.5	122.8	261.2
	100.0	348.2	230.3	516.4	133.2	307.0
RIP MEAN		293.4	164.0	369.3	127.0	

MAIN EFFECTS

RIP -        1. 343.6   2. 216.9   3. 372.7   4. 195.2   S.E.D.= 34.4 \*\*

CROP86 -   B. 231.9   L. 312.4   M. 345.6   W. 238.4   S.E.D.= 13.4 \*\*\*

N RATE -        0        229.3  
                   12.5      270.5  
                   25.0      297.3  
                   50.0      315.6  
                   100.0     297.8

S.E.D.= 15.0 \*\*\*

**86C63 - ROTATION AND RIPPING TRIAL**

**BIOLOGICAL YIELD ANTHESIS (g/m<sup>2</sup>)**

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	89.5	60.0	122.8	41.5	78.5
	12.5	136.2	99.3	175.3	81.4	123.0
	25.0	214.3	101.8	187.3	104.8	152.0
	50.0	209.5	120.3	182.4	125.6	159.5
	100.0	241.1	176.7	156.8	101.3	168.9
RIP MEAN		178.1	111.6	164.9	90.9	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	268.8	154.3	206.6	129.2	189.7
	12.5	313.9	150.3	339.5	147.8	237.9
	25.0	272.8	185.8	287.3	158.6	226.4
	50.0	330.3	220.0	317.6	175.2	260.8
	100.0	326.6	173.2	361.8	195.9	264.4
RIP MEAN		302.5	176.7	302.6	161.3	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	220.5	150.4	266.9	116.3	188.5
	12.5	255.0	172.1	316.3	137.3	220.4
	25.0	288.2	249.9	284.6	151.0	243.4
	50.0	236.0	182.3	322.5	147.8	222.1
	100.0	300.7	144.9	276.8	151.7	218.5
RIP MEAN		260.2	179.9	293.4	140.8	

# 86C63 - ROTATION AND RIPPING TRIAL

BIOLOGICAL YIELD ANTHESIS (g/m2)

CROP 1986		RIPPING 1986-1987				N RATE
WHEAT		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	120.3	48.8	103.2	34.0	76.5
	12.5	167.1	85.0	148.7	32.9	108.4
	25.0	194.5	81.3	187.5	62.3	131.4
	50.0	219.6	99.7	209.3	68.8	149.4
	100.0	218.1	146.4	259.6	95.6	179.9
RIP MEAN		183.9	92.2	181.7	58.7	

## MAIN EFFECTS

RIP - 1. 231.2 2. 140.1 3. 235.6 4. 112.9 S.E.D.= 12.6 \*\*\*

CROP86 - B. 136.4 L. 235.8 M. 218.6 W. 129.1 S.E.D.= 7.1 \*\*\*

N RATE - 0 133.3  
 12.5 172.4  
 25.0 188.2  
 50.0 197.9  
 100.0 207.9

S.E.D.= 7.9 \*\*\*

**86C63 - ROTATION AND RIPPING TRIAL**

**MACHINE GRAIN YIELD (kg/ha)**

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	599.8	256.3	693.5	125.4	418.8
	12.5	712.3	398.0	934.6	422.8	616.9
	25.0	799.5	372.7	846.3	420.1	609.6
	50.0	804.2	502.9	631.5	336.2	568.7
	100.0	735.9	631.4	649.2	325.9	585.6
RIP MEAN		730.3	432.2	751.0	326.1	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	982.9	560.8	1009.4	793.4	836.6
	12.5	973.0	590.7	1046.3	788.4	849.6
	25.0	967.2	655.0	1118.2	682.3	855.6
	50.0	891.6	681.7	1071.9	611.1	814.1
	100.0	938.8	577.8	1073.6	522.5	778.2
RIP MEAN		950.7	613.2	1063.9	679.5	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	916.5	680.6	1037.0	677.7	828.0
	12.5	1041.3	801.8	1062.7	682.1	897.0
	25.0	1099.4	775.0	1076.5	689.8	910.2
	50.0	965.0	705.8	1087.4	695.2	863.4
	100.0	1007.5	720.2	1106.1	750.6	896.1
RIP MEAN		1005.9	736.7	1073.9	699.1	

86C63 - ROTATION AND RIPPING TRIAL

MACHINE GRAIN YIELD (kg/ha)

CROP 1986		RIPPING 1986-1987				N RATE
WHEAT		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	627.3	211.1	573.1	125.5	384.3
	12.5	819.5	366.1	752.1	140.6	519.6
	25.0	883.9	269.7	871.7	226.4	562.9
	50.0	839.2	290.4	787.3	273.0	547.5
	100.0	864.4	522.9	715.6	259.9	590.7
RIP MEAN		806.9	332.0	740.0	205.1	

MAIN EFFECTS

RIP -        1. 873.5   2. 528.5   3. 907.2   4. 477.8   S.E.D.= 76.9 \*\*

CROP86 -   B. 559.9   L. 827.1   M. 878.9   W. 521.0   S.E.D.= 23.0 \*\*\*

N RATE -        0        619.3  
                   12.5       724.2  
                   25.0       725.4  
                   50.0       698.4  
                   100.0      716.4

S.E.D.= 25.7 \*\*\*

# 86C63 - ROTATION AND RIPPING TRIAL

## HARVEST INDEX

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+RIP	-+RIP	--RIP	MEAN
N RATE	0	0.43	0.47	0.43	0.50	0.45
	12.5	0.44	0.44	0.43	0.40	0.43
	25.0	0.41	0.40	0.38	0.47	0.41
	50.0	0.33	0.41	0.30	0.41	0.36
	100.0	0.40	0.39	0.43	0.41	0.41
RIP MEAN		0.40	0.42	0.39	0.44	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+RIP	-+RIP	--RIP	MEAN
N RATE	0	0.41	0.47	0.42	0.47	0.44
	12.5	0.38	0.40	0.37	0.46	0.40
	25.0	0.37	0.43	0.38	0.46	0.41
	50.0	0.40	0.38	0.39	0.44	0.40
	100.0	0.40	0.44	0.44	0.41	0.42
RIP MEAN		0.39	0.42	0.40	0.45	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+RIP	-+RIP	--RIP	MEAN
N RATE	0	0.43	0.41	0.43	0.47	0.44
	12.5	0.39	0.43	0.43	0.44	0.42
	25.0	0.42	0.43	0.43	0.42	0.42
	50.0	0.35	0.42	0.43	0.44	0.41
	100.0	0.33	0.42	0.47	0.43	0.41
RIP MEAN		0.38	0.42	0.44	0.44	

# 86C63 - ROTATION AND RIPPING TRIAL

HARVEST INDEX (g/m2)

CROP 1986		RIPPING 1986-1987				N RATE
WHEAT		++RIP	+--RIP	--+RIP	---RIP	MEAN
N RATE	0	0.45	0.49	0.36	0.47	0.44
	12.5	0.46	0.47	0.45	0.46	0.46
	25.0	0.43	0.42	0.40	0.45	0.43
	50.0	0.39	0.34	0.41	0.39	0.38
	100.0	0.38	0.37	0.31	0.39	0.36
RIP MEAN		0.42	0.42	0.39	0.43	

## MAIN EFFECTS

RIP - 1. 0.40 2. 0.42 3. 0.40 4. 0.44 S.E.D.= 0.02 NS

CROP86 - B. 0.41 L. 0.42 M. 0.42 W. 0.41 S.E.D.= 0.01 NS

N RATE - 0 0.44

12.5 0.43

25.0 0.42

50.0 0.39

100.0 0.40

S.E.D.= 0.01 \*\*\*



**86C63 - ROTATION AND RIPPING TRIAL**

**SEED WEIGHT/100 SEEDS (g/100)**

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	3.73	3.37	3.67	3.26	3.51
	12.5	3.74	3.42	3.65	3.58	3.60
	25.0	3.43	3.03	3.36	3.43	3.31
	50.0	3.17	3.27	3.72	3.37	3.38
	100.0	3.20	3.16	3.30	3.26	3.23
RIP MEAN		3.45	3.25	3.54	3.38	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	3.33	3.36	3.38	3.40	3.37
	12.5	3.17	3.34	3.10	2.99	3.15
	25.0	3.05	3.15	2.95	3.27	3.11
	50.0	3.15	3.06	3.07	3.06	3.09
	100.0	3.17	3.15	3.25	3.10	3.17
RIP MEAN		3.17	3.21	3.15	3.16	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	3.30	3.45	3.54	3.28	3.39
	12.5	3.03	3.24	3.23	3.07	3.14
	25.0	3.06	3.36	3.11	3.18	3.18
	50.0	3.01	2.78	3.45	3.31	3.14
	100.0	3.24	3.34	3.57	3.25	3.35
RIP MEAN		3.13	3.23	3.38	3.22	

**86C63 - ROTATION AND RIPPING TRIAL**

**SEED WEIGHT/100 SEEDS (g/100)**

CROP 1986		RIPPING 1986-1987				N RATE
WHEAT		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	3.58	3.90	3.41	3.08	3.49
	12.5	3.43	3.37	3.37	3.30	3.37
	25.0	3.26	2.97	3.45	3.23	3.23
	50.0	3.08	3.02	3.24	2.95	3.07
	100.0	2.97	2.90	3.40	2.75	3.00
RIP MEAN		3.26	3.23	3.37	3.06	

**MAIN EFFECTS**

RIP -        1. 3.26    2. 3.23    3. 3.36    4. 3.21    S.E.D. = 0.80 NS

CROP86 -   B. 3.41    L. 3.18    M. 3.24    W. 3.23    S.E.D. = 0.60 \*\*\*

N RATE -        0        3.44  
                   12.5      3.32  
                   25.0      3.21  
                   50.0      3.17  
                   100.0     3.19

S.E.D. = 0.06 \*\*\*

# 86C63 - ROTATION AND RIPPING TRIAL

SEED NUMBER (/m2)

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	1782	1453	2569	748	1638
	12.5	3054	2193	3731	1783	2690
	25.0	4403	2599	3931	1758	3173
	50.0	3427	2440	3127	2212	2801
	100.0	3514	3160	3222	2185	3020
RIP MEAN		3236	2369	3316	1737	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	4231	2897	4322	3008	3614
	12.5	4386	2624	4245	4218	3868
	25.0	4568	3419	5610	3675	4318
	50.0	5145	3629	5495	3573	4460
	100.0	4786	2309	5293	3278	3917
RIP MEAN		4623	2976	4993	3550	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+RIP	-RIP	--RIP	MEAN
N RATE	0	5033	3479	5204	3481	4299
	12.5	5088	3382	6108	3697	4569
	25.0	5928	4130	5194	3122	4594
	50.0	5571	3671	5400	3492	4533
	100.0	4386	4087	4866	3613	4238
RIP MEAN		5201	3750	5355	3481	

# 86C63 - ROTATION AND RIPPING TRIAL

SEED NUMBER (/m2)

CROP 1986		RIPPING 1986-1987				N RATE
WHEAT		++RIP	+-RIP	-+RIP	--RIP	MEAN
N RATE	0	2752	1165	2752	1733	2100
	12.5	3480	2095	3233	1584	2598
	25.0	4089	2029	4495	1954	3142
	50.0	3639	2408	5493	1581	3280
	100.0	4447	2951	4670	1832	3475
RIP MEAN		3681	2130	4128	1737	

## MAIN EFFECTS

RIP - 1. 4185 2. 2806 3. 4448 4. 2626 S.E.D.= 322 \*\*

CROP86 - B. 2665 L. 4036 M. 4447 W. 2919 S.E.D.= 169 \*\*\*

N RATE - 0 2913  
12.5 3431  
25.0 3806  
50.0 3769  
100.0 3662

S.E.D.= 189 \*\*\*

**86C63 - ROTATION AND RIPPING TRIAL**

**HAND HARVEST GRAIN YIELD (g/m<sup>2</sup>)**

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+--RIP	-+RIP	--RIP	MEAN
N RATE	0	66.5	49.3	95.2	24.6	58.9
	12.5	114.3	75.9	134.6	62.9	96.9
	25.0	153.0	83.6	129.6	62.1	107.1
	50.0	110.3	79.5	118.2	75.5	95.9
	100.0	113.4	99.7	105.2	72.8	97.8
RIP MEAN		111.5	77.6	116.5	59.6	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+--RIP	-+RIP	--RIP	MEAN
N RATE	0	140.4	97.3	147.8	100.8	121.6
	12.5	139.3	87.6	132.2	126.3	121.4
	25.0	139.1	107.4	162.3	119.9	132.2
	50.0	165.5	111.1	170.8	109.7	139.3
	100.0	153.2	74.0	172.8	101.2	125.3
RIP MEAN		147.5	95.5	157.2	111.5	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+--RIP	-+RIP	--RIP	MEAN
N RATE	0	164.9	119.9	183.5	113.6	145.5
	12.5	151.4	109.4	196.6	114.2	142.9
	25.0	182.4	137.8	161.4	100.2	145.5
	50.0	165.3	104.9	186.5	115.9	143.2
	100.0	139.8	136.8	173.4	119.6	142.4
RIP MEAN		160.8	121.8	180.3	112.7	

86C63 - ROTATION AND RIPPING TRIAL

HAND HARVEST GRAIN YIELD (g/m<sup>2</sup>)

CROP 1986		RIPPING 1986-1987				N RATE
WHEAT		++RIP	+-RIP	-+RIP	--RIP	MEAN
N RATE	0	100.8	42.8	94.8	52.3	72.7
	12.5	138.3	70.6	108.9	51.9	92.4
	25.0	131.3	65.3	154.8	64.7	104.0
	50.0	110.0	73.7	177.8	47.8	102.3
	100.0	131.8	90.8	157.8	52.3	108.2
RIP MEAN		122.4	68.6	138.9	53.8	

MAIN EFFECTS

RIP -        1. 135.6   2. 90.9   3. 148.2   4. 84.4   S.E.D.= 10.4 \*\*

CROP86 -   B. 91.3   L. 127.9   M. 143.9   W. 95.9   S.E.D.= 5.6 \*\*\*

N RATE -        0        99.7  
                   12.5      113.4  
                   25.0      122.2  
                   50.0      120.2  
                   100.0     118.4

S.E.D.= 6.3 \*\*

# 86C63 - ROTATION AND RIPPING TRIAL

NUMBER OF HEADS (/m2)

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	81.7	65.8	125.0	46.7	79.8
	12.5	139.2	109.2	132.7	105.8	121.7
	25.0	185.0	123.3	149.2	90.0	136.9
	50.0	138.0	100.8	123.0	103.3	116.3
	100.0	145.8	131.7	105.8	98.3	120.4
RIP MEAN		137.9	106.2	127.1	88.8	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	204.2	151.7	204.2	154.2	178.5
	12.5	220.0	146.7	190.0	212.5	192.3
	25.0	186.7	180.8	213.3	199.2	195.0
	50.0	198.3	185.8	209.2	186.7	195.0
	100.0	166.7	99.2	183.3	150.3	149.9
RIP MEAN		195.2	152.8	200.0	180.6	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	215.8	168.3	242.5	195.8	205.6
	12.5	205.0	157.5	242.5	180.0	196.3
	25.0	236.7	199.2	219.2	173.3	207.1
	50.0	238.6	148.3	205.8	163.3	189.0
	100.0	190.1	173.3	155.8	152.5	167.9
RIP MEAN		217.2	169.3	213.2	173.0	

# 86C63 - ROTATION AND RIPPING TRIAL

NUMBER OF HEADS (/m2)

CROP 1986		RIPPING 1986-1987				N RATE
WHEAT		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	137.5	75.8	130.0	94.2	109.4
	12.5	176.7	100.0	150.0	94.2	130.2
	25.0	145.8	110.0	209.2	109.2	143.5
	50.0	155.8	117.5	203.3	100.8	144.4
	100.0	175.0	148.3	208.3	85.8	154.4
RIP MEAN		158.2	110.3	180.2	96.8	

## MAIN EFFECTS

RIP - 1. 177.1 2. 134.7 3. 180.1 4. 134.8 S.E.D.= 11.7 \*\*

CROP86 - B. 115.0 L. 182.1 M. 193.2 W. 136.4 S.E.D.= 6.7 \*\*\*

N RATE - 0 143.3  
 12.5 160.1  
 25.0 170.6  
 50.0 161.2  
 100.0 148.1

S.E.D.= 7.5 \*\*



# 86C63 - ROTATION AND RIPPING TRIAL

## BROME GRASS RATING (SCALE 0-5)

CROP 1986		RIPPING 1986-1987				N RATE
BARLEY		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	2.33	3.00	1.67	4.33	2.83
	12.5	3.00	2.00	1.00	3.33	2.33
	25.0	2.33	3.67	2.33	3.67	3.00
	50.0	2.33	3.33	3.00	3.67	3.08
	100.0	2.67	3.00	3.00	4.33	3.25
RIP MEAN		2.53	3.00	2.20	3.87	

CROP 1986		RIPPING 1986-1987				N RATE
LUPIN		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	0.00	0.33	0.00	0.33	0.17
	12.5	0.00	0.67	0.00	0.33	0.25
	25.0	0.33	0.00	0.00	0.33	0.17
	50.0	0.00	0.00	0.00	0.33	0.08
	100.0	0.00	0.67	0.00	0.67	0.33
RIP MEAN		0.07	0.33	0.00	0.40	

CROP 1986		RIPPING 1986-1987				N RATE
MEDIC		++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE	0	0.33	0.00	0.33	0.33	0.25
	12.5	0.00	0.00	0.00	0.33	0.08
	25.0	0.00	0.33	0.33	1.00	0.42
	50.0	0.33	1.00	0.00	1.00	0.58
	100.0	0.33	0.00	0.00	0.33	0.17
RIP MEAN		0.20	0.27	0.13	0.60	

86C63 - ROTATION AND RIPPING TRIAL

BROME GRASS RATING (SCALE 0-5)

CROP 1986	RIPPING 1986-1987				N RATE
WHEAT	++RIP	+ - RIP	- + RIP	--RIP	MEAN
N RATE 0	1.00	3.33	3.00	3.67	2.75
12.5	0.33	2.67	1.33	4.67	2.25
25.0	1.00	3.67	1.00	4.33	2.50
50.0	1.00	4.00	2.00	4.33	2.83
100.0	1.67	2.67	2.33	4.33	2.75
RIP MEAN	1.00	3.27	1.93	4.27	

\* SCALE = 0 - NIL  
5 - HEAVY INFESTATION

MAIN EFFECTS

RIP - 1. 0.95 2. 1.72 3. 1.07 4. 2.28 S.E.D.= 0.15 \*\*\*

CROP86 - B. 2.90 L. 0.20 M. 0.30 W. 2.62 S.E.D.= 0.16 \*\*\*

N RATE - 0 1.50  
12.5 1.22  
25.0 1.52  
50.0 1.65  
100.0 1.63

S.E.D.= 0.18 NS

86C63 - ROTATION AND RIPPING TRIAL

TOTAL WATER USE (mm)

TOP 2 METRES - 18/6/87 -> 7/9/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+ - RIP	- + RIP	--RIP	
BARLEY (N50.0)	116	99	110	109	109
LUPIN (N12.5)	116	113	119	117	116
MEDIC (N12.5)	112	113	120	115	115
WHEAT (N50.0)	114	107	112	111	111

\* Rainfall was 87mm

86C63 - ROTATION AND RIPPING TRIAL

TOTAL WATER USE (mm)

TOP 2 METRES - 18/6/87 -> 3/11/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+ - RIP	- + RIP	--RIP	
BARLEY (N50.0)	148	133	152	135	142
LUPIN (N12.5)	138	138	144	142	141
MEDIC (N12.5)	142	134	152	144	143
WHEAT (N50.0)	146	137	143	135	140

\* Rainfall was 108mm

86C63 - ROTATION AND RIPPING TRIAL

TOTAL SOIL WATER CONTENT (mm)

TOP 1 METRE - 3/11/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+ - RIP	- + RIP	--RIP	
BARLEY (N50.0)	42	38	41	39	40
LUPIN (N12.5)	39	34	42	37	38
MEDIC (N12.5)	37	38	46	37	40
WHEAT (N50.0)	38	37	40	40	39

TOTAL SOIL WATER CONTENT (mm)

TOP 2 METRES - 3/11/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+ - RIP	- + RIP	--RIP	
BARLEY (N50.0)	90	88	90	93	91
LUPIN (N12.5)	78	75	84	74	78
MEDIC (N12.5)	82	80	92	80	84
WHEAT (N50.0)	79	82	92	93	87

TOTAL SOIL WATER CONTENT (mm)

TOP 3 METRES - 3/11/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+ - RIP	- + RIP	--RIP	
BARLEY (N50.0)	157	151	156	158	156
LUPIN (N12.5)	134	131	144	130	135
MEDIC (N12.5)	144	138	156	140	145
WHEAT (N50.0)	141	142	159	157	150

# 86C63 - ROTATION AND RIPPING TRIAL

## TOTAL SOIL WATER CONTENT (mm)

TOP 1 METRE - 7/9/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+RIP	-RIP	--RIP	
BARLEY (N50.0)	47	53	56	47	51
LUPIN (N12.5)	38	36	47	39	40
MEDIC (N12.5)	39	37	46	40	41
WHEAT (N50.0)	46	45	51	48	48

## TOTAL SOIL WATER CONTENT (mm)

TOP 2 METRES - 7/9/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+RIP	-RIP	--RIP	
BARLEY (N50.0)	105	104	118	105	108
LUPIN (N12.5)	78	76	99	80	83
MEDIC (N12.5)	91	82	106	90	92
WHEAT (N50.0)	95	91	114	100	100

## TOTAL SOIL WATER CONTENT (mm)

TOP 3 METRES - 7/9/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+RIP	-RIP	--RIP	
BARLEY (N50.0)	174	170	186	167	174
LUPIN (N12.5)	136	133	163	137	142
MEDIC (N12.5)	154	143	176	151	156
WHEAT (N50.0)	156	152	183	165	164

# 86C63 - ROTATION AND RIPPING TRIAL

## TOTAL SOIL WATER CONTENT (mm)

TOP 1 METRE - 18/6/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+ - RIP	- + RIP	--RIP	
BARLEY (N50.0)	76	65	79	69	72
LUPIN (N12.5)	67	62	79	69	69
MEDIC (N12.5)	64	63	79	68	69
WHEAT (N50.0)	73	65	76	72	72

## TOTAL SOIL WATER CONTENT (mm)

TOP 2 METRES - 18/6/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+ - RIP	- + RIP	--RIP	
BARLEY (N50.0)	130	113	134	120	124
LUPIN (N12.5)	108	105	122	108	111
MEDIC (N12.5)	116	106	136	116	119
WHEAT (N50.0)	117	111	127	120	119

## TOTAL SOIL WATER CONTENT (mm)

TOP 3 METRES - 18/6/87

CROP 1986	RIPPING 1986-1987				MEAN
	++RIP	+ - RIP	- + RIP	--RIP	
BARLEY (N50.0)	201	180	203	186	193
LUPIN (N12.5)	170	164	187	167	172
MEDIC (N12.5)	184	172	205	180	185
WHEAT (N50.0)	182	178	196	186	186