



1978

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DEPARTMENT OF AGRICULTURE  
Western Australia

SUMMARY OF RESULTS  
MINIMUM TILLAGE TRIAL, 1978

Take-all and Root rot assessments

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NOTE:

A) In all results recorded below, treatments 1 to 4 were as follows:

- |                            |   |
|----------------------------|---|
| 1. D.D. with T.D.D.        | - Sprayseed followed by direct drilling with triple disc drill.         |
| 2. Cult + D.D. with T.D.D. | - Plough, sprayseed followed by direct drilling with triple disc drill. |
| 3. D.D. with combine       | - Sprayseed followed by direct drilling with combine.                   |
| 4. District practice       | - See project sheets.   |

B) In 1978, all assessments for take-all have been made on the standard N treatment.

C) Experiments not assessed in 1978 were:-

78BA42  
77M13  
77M56  
78M25  
77WH17  
77WH88

MINIMUM TILLAGE TRIALS 1978

General Comment: In 1978 there has been a tendency for the District practice treatment to have a higher level of take-all than the minimum tillage treatments. At this stage it is too early to determine whether this is a real effect. However continue assessments of these experiments for take-all and other root rots seems very desirable.

SUMMARY

Expt.	Type	Crop	1977 Take-all* Level	Crop	1978 Take-All* Level
77A16	C	Wheat	V. low	Wheat	V. low
77A43	R	Wheat	Low to mod	Wheat	Mod to high
78BA42	C	-	-	Wheat	NA
77E18	C	Wheat	Low to mod	Barley	Mod
77E52	R	Wheat	NA	Wheat	High
77M13	C	Wheat	NA	Wheat	NA
77M56	R	Wheat	NA	Wheat	NA
78M25	C	-	-	Wheat	NA
77MT15	C	Barley	Mod to high	Oats	Low
77MT51	R	Barley	High	Barley	High
77WH17	C	Wheat	V. low	Wheat	NA
77WH88	R	Wheat	V. low	Wheat	NA

\* Take-all levels based on results from District Practice Treatment.

AVONDALE RESEARCH STATION

77A16 CONTINUOUS SITE

Comments: Wheat 1978. Take-all level very low. At time of printing, only one replication had been assessed for take-all. In replication 2 there was only 1 positive and several doubtfuls from 824 plants examined.

77A42 ROTATIONAL SITE

Comments: Wheat 1978. There was a moderate to high level of take-all with a tendency for treatment 4 (District practice) to have more take-all. Considerable variability between replications reduced the possibility of results being significant. Some of the reduction in yield in treatment 4 could be attributed to take-all. No Rhizoctonia present.

Results:

Treat	Take-all Incidence %						Yield kg/ha
	1977 Mod + Severe	Nil	Light	1978 Mod	Severe	Mod + Severe	
1.	29	42 <sup>A</sup>	22	15	21	36	1537 <sup>A</sup>
2.	9	53 <sup>A</sup>	27	19	2	21	1540 <sup>A</sup>
3.	10	39 <sup>A</sup>	36	18	7	25	1719 <sup>A</sup>
4.	26	10 <sup>B</sup>	33	34	23	57	1056 <sup>B</sup>
LSD	†	*	NS	NS	NS	NS	**

† Due to an error, the treatments assessed had a mixture of nitrogen levels, and consequently no analyses of variance was possible on 1977 results.

ESPERANCE DOWNS RESEARCH STATION

77E18 CONTINUOUS SITE

Comments: Barley 1978. There was a moderate level of both take-all and Rhizoctonia. There was a tendency towards less take-all in treatment 4 (District practice). Treatment 1 (D.D. with T.D.D.) had significantly less take-all than the other 3 treatments. The reason for the significantly lower level of Rhizoctonia in Treatment 2 is unknown.

Results:

Treat	Take-all Incidence %						Rhizoctonia % Mod + Sev.	Yield kg/ha
	1977 Wheat mod + Sev.	1978 Nil	1978 Light	1978 Mod	1978 Severe	1978 Mod + Sev.		
1	12	88 <sup>C</sup>	6 <sup>A</sup>	3	3	6	22 <sup>B</sup>	2037
2	14	55 <sup>AB</sup>	24 <sup>B</sup>	11	10	21	5 <sup>A</sup>	1989
3	5	64 <sup>AB</sup>	24 <sup>B</sup>	7	5	12	15 <sup>B</sup>	2080
4	12	44 <sup>A</sup>	36 <sup>B</sup>	14	6	20	13 <sup>B</sup>	1791
LSD	NS	**	***	NS	NS	NS	*	NS

77E52 ROTATIONAL SITE

Comments: Wheat 1978. There was a high level of take-all and a low level of Rhizoctonia. Treatment 4 (District Practice) had significantly more take-all than the other treatments. However the level of take-all appears to have had no affect on yield.

Results:

Treat	Take-all Incidence %					Rhizoctonia % Mod + Sev.	Yield kg/ha
	Nil	Light	Mod.	Sev.	Mod + Sev.		
1	50 <sup>BC</sup>	24	14 <sup>A</sup>	12	26 <sup>A</sup>	10	2088 <sup>A+</sup>
2	39 <sup>BC</sup>	36	16 <sup>A</sup>	9	25 <sup>A</sup>	6	2827 <sup>B</sup>
3	24 <sup>B</sup>	45	15 <sup>A</sup>	16	31 <sup>A</sup>	2	2579 <sup>B</sup>
4	1 <sup>A</sup>	45	30 <sup>B</sup>	24	54 <sup>B</sup>	2	2961 <sup>B</sup>
LSD	**	NS	**	NS	*	NS	*

+ Cutworm damages

MOUNT BARKER RESEARCH STATION

77MT15 CONTINUOUS SITE

Comments: In 1977 this experiment was sown to barley. There was a moderate to high level of take-all. In 1978 it was sown to oats. There was a low level of take-all. Tests are being carried out to determine whether the take-all was due to Gaeumannomyces graminis var. avenae or an oat attacking strain of G. graminis var. tritici. There was significantly more take-all in treatment 4 (District practice) than in the other treatments.

Results:

Treat	Take-all Incidence %				Yield kg/ha
	1977 (Barley) mod + Sev	Nil	1978 Light	Mod + Sev.	
1	36	70 <sup>BC</sup>	27 <sup>AB</sup>	3	2868
2	20	77 <sup>C</sup>	23 <sup>A</sup>	0	2683
3	27	61 <sup>AB</sup>	36 <sup>B</sup>	3	2600
4	26	47 <sup>A</sup>	53 <sup>C</sup>	0	2605
LSD	NS	*	**	NS	NS

77MT51 ROTATIONAL SITE

Comments: Barley 1978. There was a high level of take-all in 1978. No plants without take-all. No plants with Rhizoctonia. No significant differences between treatments.

Results:

Treat	Take-all Incidence %						Yield kg/ha
	1977 Mod + Sev.	Nil	Light	1978 Mod.	Sev.	Mod + Sev.	
1	66	0	17	53	30	83	1569
2	87	0	40	39	21	60	1745
3	70	0	32	46	22	68	1374
4	72	0	30	42	28	70	1636
LSD	NA	-	NS	NS	NS	NS	NS



