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## Yields of the Field Experiments 1989

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### 89/R/M/1 Comparison of Combines - W. Wheat, Rye - Mixed Crops

#### Rothamsted Research

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89/R/M/1

MIXED 1

COMPARISON OF COMBINES

**Object:** To evaluate the suitability of three combines for plot work in respect of purity of sample and accuracy when working on slopes - White Horse I.

**Sponsors:** R. Moffitt, M.N. Rogers.

**Design:** A systematic split-plot design of 48 whole plots arranged as shown below.

R	W	R	W	R	W	R	W	Top of slope
W	W	W	W	W	W	W	W	
W	W	W	W	W	W	W	W	
R	R	R	R	R	R	R	R	
W	W	W	W	W	W	W	W	
W*	W	W	W	W	W	W	W	Bottom of slope

\* Combines started here (after harvesting a dummy wheat plot downhill), worked up the column of plots then down the next column etc.

R = rye            W = wheat

- NOTES:** (1) Each whole plot was systematically divided to compare the three combine harvesters.  
(2) There were 10 m headlands between contiguous rye and wheat plots. These were removed before combining the plots. There were 1 m paths between contiguous wheat plots.

**Whole plot dimensions:** 9.0 x 9.0.

**Treatments:**

Whole plots

- CROP**                      Crop:  
WHEAT                      W. wheat  
RYE                          W. rye
- DIRECTN**                    Combine direction in relation to slope:  
UP                            Up slope  
DOWN                        Down slope
- ORDER**                      Order of combining:  
BEGIN                        First plot in column  
STRAIGHT                    Central plots in column  
END                          Last plot in column

89/R/M/1

Sub plots

4. **COMBINE**                      Combine type:

CLAAS	Claas 25
DEUTZ-F	Deutz-Fahr 660
W STEIGER	Wintersteiger

**Basal applications:** Manure: 'Nitram' at 360 kg. Weedkillers:  
Methabenzthiazuron at 1.6 kg in 200 l. Bromoxynil at 0.27 kg and  
ioxynil at 0.27 kg in 200 l.

**Seed:** W. wheat: Avalon, sown at 180 kg.  
W. rye: Admiral, sown at 180 kg.

**Cultivations, etc.:-** Heavy spring-tine cultivated three times: 2 Nov,  
1988. Rotary harrowed, seed sown: 3 Nov. Methabenzthiazuron  
applied: 16 Nov. N applied: 19 Apr, 1989. Bromoxynil and ioxynil  
applied: 26 Apr. Combine harvested: 9 Aug. Previous crops: W. oats  
1987, potatoes 1988.

**NOTE:** The Claas combine was improperly adjusted and performed  
atypically. Yields from this machine have therefore been  
excluded from the analysis.

89/R/M/1

GRAIN TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

COMBINE		DEUTZ-F		W		STEIGER	
		7.31		7.01			
CROP	DIRECTN	UP		END	DOWN		END
	ORDER	BEGIN	STRAIGHT		BEGIN	STRAIGHT	
WHEAT		7.58	7.57	7.56		7.75	7.64
RYE			5.79		5.91	5.52	
CROP	DIRECTN	ORDER	COMBINE	DEUTZ-F	W	STEIGER	
WHEAT	UP	BEGIN		7.82		7.34	
		STRAIGHT		7.72		7.41	
		END		7.78		7.34	
DOWN	STRAIGHT	BEGIN		8.05		7.44	
		STRAIGHT		7.98		7.30	
		END		5.89		5.69	
RYE	UP	BEGIN		5.92		5.90	
		STRAIGHT		5.04		6.00	
		END					

\*\*\* Standard errors of differences of means \*\*\*

COMBINE	CROP	CROP	
	DIRECTN	DIRECTN	
	ORDER	ORDER	
		COMBINE	
0.055	0.170	0.217	min.rep
	0.139	0.177	max-min
	0.098	0.125	max.rep
Except when comparing means with the same level(s) of			
CROP.DIRECTN.ORDER		0.191	min.rep
		0.156	max-min
		0.110	max.rep

max.rep CROP WHEAT and ORDER STRAIGHT  
 min.rep any of the remainder  
 max-min CROP WHEAT and ORDER STRAIGHT v any of the remainder

\*\*\*\*\* Stratum standard errors and coefficients of variation \*\*\*\*\*

Stratum	d.f.	s.e.	cv%
WP	40	0.240	3.4
WP.SP	40	0.271	3.8

GRAIN MEAN DM% 89.3

SUBPLOT AREA HARVESTED DEUTZ-F 0.00207  
 SUBPLOT AREA HARVESTED W STEIGER 0.00144