THE EVALUATION OF RYE AND TRITICALE VARIETIES ON LIGHT LAND, 1992

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Summary

Four varieties each of rye and triticale were grown as a first cereal after sugar beet on a light soil at Little Witchingham, Norfolk. Lodging was restricted to small areas in the triticale variety Lasko and is not thought to have affected yield. No significant diseases were recognised and yields ranged from 6.6 to 8.9 t/ha with the rye tending to be higher yielding.

Introduction

A limited market exists in the UK for rye to be used in the manufacture of crispbreads and for addition to other speciality products. Since the crop has been shown to be more tolerant of drought and some stem base diseases than wheat or barley it has found a place on light soils and on other sites where take-all is a risk.

Triticale is a cross of wheat and rye, aiming to combine the disease resistance of rye with the greater yield potential of wheat.

Object

To monitor the performance of a range of rye and triticale varieties when grown as a first cereal on the sandy loam soil at Little Witchingham.

* Not for publication without the Director's consent. This report deals primarily with only one year's work, so any conclusions given are only provisional.

Method

Four varieties of rye and four varieties of triticale as shown in Table 1, were sown at a seedrate of 400 seeds/m^2 on 12 November 1991 in four randomised blocks. Most varieties had a Rappor type of seed treatment but Luchs was only available with Baytan. Normal inputs of fungicide, fertiliser, insecticide and growth regulator were applied overall, as on the adjoining farm crop of winter wheat. The trial was conducted according to normal Morley procedures. The crop was observed to establish and grow satisfactorily. No significant disease was seen at this site and only straw length was recorded during the season. Lodging was at a low level when the crop was harvested on 19 August.

Table 1. *Rye and triticale varieties in trial in 1992 on light land*

Rye	Triticale
Amando	Almo
Halo	Cumulus
Luchs	Lasko
Marder	Purdy

Results and discussions

Table 2. *Straw length, yield and quality*

Variety	Straw length (cm)	Yield (t/ha at 85% dm)	1000 grain weight (g at 85% dm)	Specific weight (kg/hl at 85% dm)
Rye				
Amando	108	8.94	36.1	76.7
Halo	126	8.08	38.5	77.2
Lucks	111	8.57	34.3	75.2
Marder	115	8.84	36.8	75.4
Triticale				
Almo	93	7.57	47.1	76.2
Cumulus	95	6.84	42.6	72.0
Lasko	88	6.94	36.5	70.8
Purdy	100	6.55	52.6	72.6
LSD	3.4	0.257	1.38	0.72
SE per plot (21 df)	±2.3	±0.175	±0.494	±0.49
or as % GM	2.2%	2.2%	2.3%	0.7%

The rye was significantly taller than the triticale and outyielded it by at least 0.5 t/ha. The new hybrid rye varieties outyielded Halo, the absence of brown rust at this site allowing them to demonstrate their yield potential.

Yields of almost 9.0 t/ha from rye sown on light land on 12 November confirm the yield potential of modern hybrid varieties in the absence of lodging or brown rust. An appropriate growth regulator programme and the recently introduced cyproconazole and tebuconazole should allow this potential to be regularly achieved. Rye, therefore, appears to be an attractive crop for light land provided that the restricted market is not oversupplied.

Triticale yield was at a level comparable with the adjoining wheat variety trial and seems less able than rye to cope with light land conditions.

The following information is presented as an appendix and is available on request.

1. Field details
2. Method
3. Experiment diary

Field details

Site: Church Farm, Little Witchingham, Norfolk

Field reference: Wood Field

Crop: Winter wheat surrounding rye/triticale trial

Previous crop:
1991 Sugar beet
1990 Winter barley
1989 Winter barley

Soil type and series: Sandy loam (Attlebridge series)

Soil analysis:

	pH	P	K	Mg	OM
Autumn 1991	7.9	3	1	1	3.7

Seed: C1 direct from agents except Amando which was from Morley bulk supply

Seedrate: 400 seeds/m^2

Date sown: 12 November 1991

Nutrients applied:

	Rate (kg/ha)	
11 March 1992	N	43
23 April	N	160
Total N		**203**

Cultivations: Cultivated after beet lifting, then ploughed and pressed

Applications to crop

Overall husbandry followed recommendations made by the field-walking service of the local agrochemical supplier and precise details are not available for reporting. However, the crop did receive spring treatments of growth regulator, herbicide and fungicide that adequately controlled lodging and diseases.

Method

Plot layout

Plots were sown at 400 seeds/m^2 with an Oyjord drill. The drilled plots were 12 m long and 1.66 m wide from outside row to outside row (14 rows at 12.8 cm spacing). Plots were drilled 51 cm apart giving an effective plot width of 2.17m which was used for harvest yield calculations.

Agronomic factors

Straw length was determined by measuring the average height to the base of the ear of a group of plants at 10 sites per plot.

Harvest details

Plots were harvested using a Claas Compact combine which was modified for plot work and used electronic weighing (Novatech M864 Loadmeter). Trials were harvested by replicate.

Post harvest determinations

Moisture content was determined using a Burrows digital moisture computer. A minimum of two samples were tested from each plot, with a tolerance of 0.2% required between samples.

The grain samples were pre cleaned using a Rational sample cleaner to remove any chaff or straw before further assessments (specific weight or 1000 grain weight) were carried out.

Specific weight was determined using a Farm-Tec Easi-Lab chondrometer and electronic balance. A minimum of two samples were tested from each plot, with a tolerance of 2.0 g required between samples.

1000 grain weight was determined by counting 200 grains from a well mixed sample and weighing on an electronic balance. A minimum of two samples were counted from each plot with a tolerance of 0.2 g required between samples.

Experiment diary

Date	Treatment applied or action
12 November 1991	Plots drilled into ploughed and pressed land
7 May 1992	Terpal (mepiquat chloride, 308g+2 - chloroethylphosphonic acid, 155g) applied at 2l/ha + wetter as additional growth regulator
30 July	Straw length recorded
19 August	Harvested with lodging restricted to small areas in plots of Lasko