

Usability of results from conventional trials for organic triticale cultivation

Problems

Winter triticale was cultivated in Austria 2019 on 17.293 ha on organic farms. That corresponds to an area of 28.9 % of the total cultivated triticale area. Since 2012, this percentage increased continuously from 17.6 %. Nevertheless, not in all regions results of organic exact trials are available.

Solutions

In Austria, organic trial results from randomised plots are available in the “Waldviertel”, in the Northern foothills, in the Carinthian basin and in alpine regions of Styria. In other regions often only conventional trials are performed. The research question was, whether those trials could be used as a decision base for organic farming as well. That is why organic and conventional trials with commonly grown varieties of two sides in the “Waldviertel” and one of the Northern foothills from 2016 to 2020 were taken into the correlation analysis.

Practical recommendations

The data showed that:

- The mean values of grain and protein yield, heading and ripening date, plant height, hecto-litre weight and protein content are significantly lower in organic than in conventional farming. The mean values of the decesses and the thousand kernel weight were indiscernible.
- However, the high correlations found in most of the parameters suggest that varieties behave nearly in the same way: date of heading, date of ripening, plant height, lodging, thousand kernel weight, hectolitre weight.
- At other parameters the behaviour of the varieties is highly comparable between the two systems: yield, brown and yellow rust, *Rhyncho-sporium*, falling number, protein content.
- The lowest correlations were found in protein yield.

Parameter	Intervar.		Intervar. correlation, r=...
	Convent. trials	Organic trials	
Yield, dt/ha	98,6	67,1	0,81**
Protein yield, dt/ha	11,1	6,5	0,50*
Date of heading, days from 1 st Jan.	144	140	0,92**
Date of ripening, days from 1 st Jan.	198	194	0,88**
Plant height, cm	115	103	0,99**
Lodging, score 1-9	2,8	1,8	0,95**
Yellow rust, score 1-9	2,8	2,5	0,78**
Brown rust, score 1-9	3,5	3,3	0,84**
Rhynchosporium leaf blotch, score 1-9	2,7	2,1	0,86**
Thousand kernel weight, g dm	38,4	38,2	0,92**
Hectolitre weight, kg	72,8	71,3	0,87**
Protein content, % dm	13,1	11,1	0,75**
Falling number, s	109	97	0,79**

Table: Comparison of results in triticale under conventional and organic cultivation (15 trials per system 2016-2020, adjusted means, intervarietal correlation, 14-20 varieties)

Further information

1. BAES (2020): 12_Cereals in organic farming (available only in German). In: Austrian Descriptive list of varieties 2020 – Agricultural species. <https://bsl.baes.gv.at/pdf-version/>
2. Oberforster M (2006): Ist die Sortenzulassungsprüfung biogerecht? Bericht Österreichische Fachtagung für biologische Landwirtschaft, 15-20.

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