PRACTICE ABSTRACT No. 60

Target audience: public authorities, breeders, researchers

Usability of results from conventional trials for organic rye cultivation

Problems

Winter rye was cultivated in Austria 2019 on 15.899 ha on organic farms. That corresponds to an area of 36.4 % of the total cultivated rye area. Since 2015, this percentage increased continuously from 29.3%. Nevertheless, not in all regions results of organic 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 sometimes 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 (ORG) and conventional (CON) trials of two sites in the "Waldviertel" from 2016 to 2020 were taken into the correlation analysis, comparing the behavior of a collection of 22 usually grown varieties.

Practical recommendations

The data showed that:

- The mean values of most of the observed parameters were significantly different between ORG and CON (only heading and hectoliter weight showed the same level).
- However, the high correlations found in several parameters suggest that varieties behave nearly in the same way: date of heading, date of ripening, plant height, yield, protein content, amylograph values.
- The behaviour of other parameters are moderately to largely comparable between the two systems: lodging, hectolitre weight, falling number.
- Only at the thousand kernel weight no correlation was found.

Parameter	Convent. trials	Organic trials	Intervar. correlation, r=…
Yield, dt/ha	89,1	72,3	0,94**
Date of heading, days from 1st Jan.	138	138	0,93**
Date of ripening, days from 1st Jan.	202	196	0,94**
Plant height, cm	153	139	0,97**
Lodging, score 1-9	4,4	3,0	0,59**
Thousand kernel weight, g dm	27,0	27,7	0,38
Hectolitre weight, kg	74,2	74,7	0,71**
Protein content, % dm	9,5	8,8	0,84**
Falling number, s	254	277	0,67**
Amylograph gelatinization maximum, AU	1046	1363	0,85**
Amylograph gelatinization temperature, °C	71,7	74,4	0,72**

Table: *Comparison of results in rye under conventional and organic cultivation (10 trials per system 2016-2020, adjusted means, intervarietal correlation, 22 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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