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## ITEMS FROM CROATIA

**BC INSTITUTE FOR BREEDING AND PRODUCTION OF FIELD CROPS**  
**Rugvica, Dugoselska 7, 10370 Dugo Selo, Croatia.**  
**Department of Cereal and Forage Crops, Botinec, Zagreb, Croatia.**  
[www.bc-institut.hr](http://www.bc-institut.hr)

Slobodan Tomasović, Rade Mlinar, Ivica Ikić, Branko Palaveršić, Katarina Jukić, and Tomislav Ivanušić.

### *A study of the technological traits of high-quality, Bc wheat cultivars in different environments.*

The technological traits of the Bc winter cultivars Mihelca and Zdenka, which are widely grown in Croatia, Slovenia, and Bosnia and Herzegovina, as well as the newly registered cultivars Bc Mira and Bc Renata, were analyzed. Samples were taken partly from small-scale trials at locations in Botinec, Lovas, Rugvica, and Osijek (Table 1) and partly from wheat production fields throughout Croatia (Table 2, p. 45). Over a three-year period, each sample was tested for dough rheological traits using a farinograph and an extensograph. Preliminary results showed a high and stable quality for cultivars Mihelca, Zdenka, Bc Mira, and Bc Renata and during the following years it was confirmed in wide produc-

**Table 1.** Test results of bread-making quality for BC Institute wheat cultivars from small-scale trials at locations in Botinec, Lovas, Rugvica, and Osijek, Croatia.

Location	Farinogram							Extensogram			
	Water absorbance (%)	Dough develop time (min)	Stability (min)	Resistance (min)	Degree of softening (FJ)	Quality number	Quality group	Energy (cm <sup>2</sup> )	Extensibility (mm)	Resistance (EJ)	R/E
<b>Zdenka (2006–07)</b>											
Botinec	66.5	8.5	6.5	15.0	0	100.0	A1	135.3	190	313	1.65
Rugvica	65.8	2.0	1.7	3.7	24	77.7	A2	141.8	176	388	2.20
Lovas	65.9	7.0	2.7	9.7	16	88.0	A1	120.4	202	270	1.34
Osijek	65.1	2.1	1.9	4.0	65	61.5	B1	133.7	178	370	2.08
<b>Zdenka (2007–08)</b>											
Botinec	66.2	2.3	1.3	3.6	65	62.0	B1	130.9	178	360	2.02
<b>Mihelca (2006–07)</b>											
Botinec	57.9	6.8	8.2	15.0	0	100.0	A1	130.1	178	350	1.97
Rugvica	58.6	10.3	3.0	13.3	3	92.1	A1	125.7	185	308	1.66
Lovas	57.4	7.2	7.5	14.7	3	94.5	A1	106.5	190	260	1.37
Osijek	56.0	1.8	0.6	2.4	65	56.2	B1	136.3	180	350	1.94
<b>Mihelca (2007–08)</b>											
Botinec	57.2	1.6	0.7	2.3	70	57.7	B1	100.5	172	290	1.69

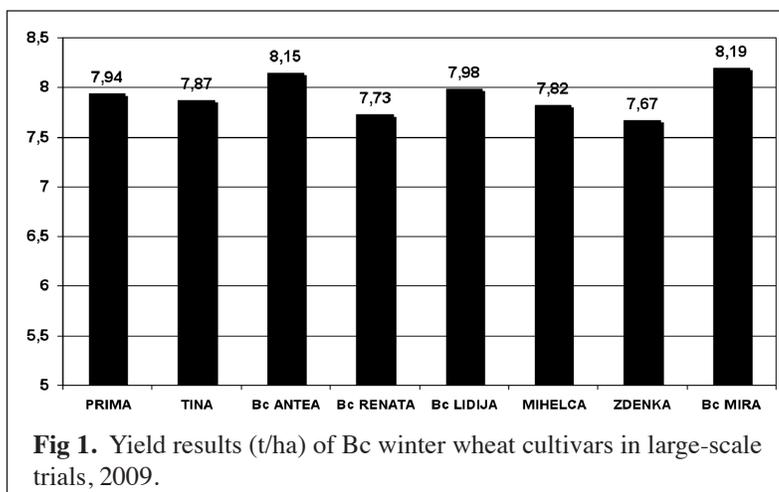
**Table 2.** Test results of bread-making quality for BC Institute wheat cultivars from wheat production fields throughout Croatia.

Location/ Company	Farinogram							Extensogram			
	Water absorbance (%)	Dough develop time (min)	Stability (min)	Resist- ance (min)	Degree of softening (FJ)	Quality number	Quality group	Energy (cm <sup>2</sup> )	Extensi- -bility (mm)	Resist ance (EJ)	R/E
<b>Zdenka (2007–08)</b>											
Žito	62.6	3.0	6.5	9.5	30	88.0	A1	80.0	190	215	1.10
Novi Agrar	67.9	2.5	1.0	3.5	95	56.4	B1	84.6	178	245	1.38
<b>Zdenka (2008–09)</b>											
Županja	64.6	2.2	0.9	3.1	80	55.6	B1	126.2	173	360	2.08
<b>Bc Mira (2007–08)</b>											
Agrome- đimurje	61.9	9.5	5.5	15.0	0	100.0	A1	91.0	192	235	1.2
Bc Institut	61.2	3.5	4.0	7.5	51	74.6	A2	78.0	170	255	1.5
<b>Bc Mira (2008–09)</b>											
Županja	63.0	2.0	2.8	4.8	90	58.7	B1	53.8	178	160	0.9
<b>Bc Renata (2007–08)</b>											
Lovas	61.5	3.5	3.0	6.5	50	68.8	B1	95.0	214	220	1.03
<b>Bc Renata (2008–09)</b>											
Županja	62.2	2.7	0.9	3.6	75	61.0	B1	96.4	203	230	1.13
<b>Dora (2008–09)</b>											
Županja	64.7	2.2	0.5	2.7	80	53.2	B1	46.1	143	190	1.33
<b>Marina (2008–09)</b>											
Županja	59.4	2.0	0.7	2.7	85	56.0	B1	72.0	170	225	1.32

tion. We concluded from these analyses that the tested cultivars possess very good bread-making quality. Quality is our advantage, i.e., Zdenka, Mihelca, Bc Mira, Bc Renata, Dora and Marina are cultivars of very good bread-making quality. These cultivars possess divergent genetic parameters for the most important quality components. These results confirm that the Bc Institute possesses high-quality, winter wheat cultivars that can fully meet the requirements of the modern milling and baking industries.

### *The yield potential of Bc winter wheat cultivars.*

The Bc Institute conducted in large-scale trials at Županja and Lovas of winter wheat cultivars during the 2008–09 growing season (Table 3, p. 46). Large-scale trials also were conducted by companies at Belje, Orahovica, and Kutjevo (Table 4, p. 46) in which other cultivar present in the Croatian market also were included. Apart from the yield results in these large-scale trials, yield also is monitored from trials conducted at family farms (Fig., 1; Table 5, p. 46). This investigation tested the yield of the Bc cultivars in several trials.



**Fig 1.** Yield results (t/ha) of Bc winter wheat cultivars in large-scale trials, 2009.

**Table 3.** Yield results (t/ha) of 14 Bc winter wheat cultivars in large-scale trials at locations in Županja and Lovas, Croatia, in 2009.

Cultivar	Županja	Lovas	Average
Prime	8.53	7.60	8.06
Mihelca	7.69	7.80	7.74
Sana	8.40	8.32	8.36
Marija	9.13	8.37	8.75
Zdenka	8.09	8.13	8.11
Tina	8.58	8.25	8.41
Adriana	7.33	8.26	7.79
Bc Antea	8.74	8.22	8.48
Bc Elvira	7.67	6.73	7.20
Bc Renata	8.44	8.33	8.38
Bc Mira	8.93	9.47	9.20
Bc Lidija	8.82	7.54	8.18
Dora	8.14	9.22	8.68
Marina	8.48	9.17	8.82
Average	8.36	8.24	

**Table 4.** Yield results (t/ha) of Bc winter wheat cultivars in large-scale trials at locations Belje, Kutjevo and Orahovica, Croatia, in 2009.

Cultivar	Belje	Kutjevo	Orahovica
Prima	7.71	7.72	8.16
Tina	7.98	7.47	7.05
Bc Antea	8.44	7.92	7.43
Bc Renata	7.62	7.11	7.15
Bc Lidija	8.48	7.02	8.04
Mihelca	8.22	7.64	7.74
Zdenka	8.14	7.15	6.86
Bc Mira	7.07	7.64	7.85
Average	7.72	7.25	7.92
Number of cultivars in trial	51	40	20

The highest yielding ability was expressed by cultivars Bc Mira (8.19 t/ha), Bc Antea (8.15 t/ha), Bc Lidija (7.98 t/ha), and Prima (7.94 t/ha) (Fig. 1, p. 45). The average yield per location was considerably higher in trials conducted by the Bc Institute at locations Županja and

Lovas in comparison with other locations. In the trial at Lovas, Bc Mira produced 9.47 t/ha.

**Table 5.** Yield results (t/ha) of Bc winter wheat cultivars in trials conducted on family farms in east Croatia, 2009.

Cultivar	Prakaturović Privlaka	Đurić Đeletovci	Cerin Korod	Čosić Vrbanja	Average
Prima	7.76	7.01	8.93	7.39	7.77
Tina	7.35	6.14	8.20	7.82	7.38
Bc Antea	7.04	6.91	8.54	6.68	7.29

The result of breeding winter wheat in the Bc Institute is six new cultivars: Bc Mira, Bc Renata, Dora, Marina, Bc Lidija, and Bc Lira. These cultivars

represent genetically different material and are a breakthrough for some important agronomical traits. These cultivars guarantee high yielding ability, production stability and excellent quality.

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- Puškarčić K, Palaveršić B, Kozić Z, Ikić I, Buhiniček I, Lukić D, and Škoro D. 2010. Field crops breeding programs in the Zagreb Bc Institute and their results. *In: Proc 45th Croatian and 5th Internat Symp on Agriculture, Opatija, Croatia, 15-19 February.* Book of Abstracts, p. 22 – 25, Plenary Lectures (in Croatian with English Summary).
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