

Research of some wheat varieties (*Triticum aestivum* L.) from Hungary, Croatia and Slovenia in Climatic conditions of Kosovo

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Abstract

The object of study is investigation of suitability of certain cultivars of wheat (*Triticum aestivum* L.) of Hungary, Croatia and Slovenia. In research have been only 5 cultivars of wheat: Kolo, Marshall, Illyria, Super Zhitarka and Lara meanwhile as comparative cultivars was Evropa 90. Investigations were conducted in two agro-climatic regions of Kosovo (in Arbnesht the research farm of the Agricultural Institute of Kosovo, Peja - Dukagjini Plain, and in Pestova - Kosovo Plain, Research "Pestova" private property company, have been tested yield (kg / ha), weight (1000 seeds in gram), hectoliter weight (kg), protein content (%), humidity (%), gluten and sedimentation. Agro-climatic and pedological data in Kosovo, compared with obtained yields in culture wheat shows no use of genetic potential of cultivars that are cultivated in. For this reason should be applied a contemporary agrotechnics to be used genetical potential, and reached higher yields. The obtained results indicate that have been significant statistical differences of diverse levels for investigated features of all cultivars included in plots compared with the standard (Evropa 90) and between localities.

Key words: Gluten, winter wheat, yields, 1000 seed weight, hectoliter weight.

INTRODUCTION

Wheat (*Triticum aestivum* L.) arable crop year from family Poaceae (Gramine) Triticum sex belonging hexaploid group ($2n = 42$ chromosomes) [9].

Wheat in Kosovo, is strategic culture which annually planted in an area of 65 000 -72 000 ha by failing to meet the needs of this culture. Medium productivity realized in recent years is about circa 3.5 t / ha. Kosovo's agro-climatic and pedological data, compared with the yields obtained in the culture of wheat show no use of cultivated cultivars genetic potential [1], [12]. For this reason should be applied to a modern agro to exploit the genetic potential, and obtain higher yields [4] [5]. Kosovo has very good agro-ecological conditions for the cultivation of this culture.

OBJECT AND PURPOSE OF THE RESEARCH

The object of study is the investigation of suitability of some wheat cultivars originating from different countries [2] [3]: Hungary, Croatia and Slovenia.

In research has have been 5 wheat cultivars meanwhile as comparative standard cultivar is taken Evropa 90. Cultivar in modern agriculture is not a natural occurrence, but a group of plants, which is created or selected by man to serve a particular purpose [7] [8]. International term cultivar shows a pile of cultivated plants which is clearly distinguished from a character (morphological, physiological, or other chemical Cytological) which when reproduced (sexually or asexualisht), retains its distinctive characteristics.

MATERIALS AND METHODS

Plots were organized lines and cultivated land area of real property Agricultural Institute of Kosovo in location Arbnesht, 6 km from Peja. Soil type, soil brown lesivuar above sediments kuqremta, and the altitude are 488 meters and the Kosovo Plain (Pestova and Miradi) where type is smonic land, and the height is 560 meters. Experiments has been set according method of randomized blocks in three repetitions [6] [11]. Surface of each experiments plot was 10 m² (10 m length x 1 m width).

Research have been conduct in two agroclimatic region of Kosovo (in Arbnesht in research farm of Agricultural Institute of Kosovo, Peje-Dukagjini Plain , too in Pestove-Kosovo Plain , private property of company "Pestova"). Experimental plots were established by the method of Fisher randomizura blocks, three repeat [10] [13].

Planting plots have done with experimental plant machine type Hege 80.

RESULTS

Weight of 1000 seeds (gr), hectoliter weight (kg), productivity (kg/ha), content of humidity (%), protein content (%), Gluten, Sedimentation. Processing of data was presented in tables and graphs.

From upper table is notice that have been emphasize differences between test cultivars in relation to standard cultivars (Evropa 90) regarding weight of 1000 seeds. In general higher weight of 1000 seeds (absolute weight) was ascertain to cultivar Ilirija (49.60 gr) meanwhile low weight of 1000 seeds (absolute weight) was ascertain to cultivar Lara (45.60 gr). Beside standard (Evropa 90 with weight 45.20 gr)

Regarding hectoliter weight (kg), have been ascertain differences between searched cultivars and standard cultivars (Table.1) and in this course higher hectoliter weight, was the cultivar Kolo, Ilirija 81.70 kg, meanwhile low hectoliter weight the Lara 80.30 kg. Beside standard cultivar 78.90 kg.

Regarding weight productivity (kg), are ascertain differences between searched cultivars and among standard cultivars (Table.2) and in this direction higher productivity had been cultivar Marshall 7550 kg/ha, meanwhile low cultivar Lara 6800 kg/ha. Beside standard cultivar 6850 kg / ha.

From table.2 column1, is seen emphasized differences between tested searched wheat cultivars in relation to standard cultivar (Evropa 90) and regarding humidity in %. In general low weight (% of humidity) was ascertain Marshall 10.8% (Variety from Hungary) meanwhile higher variety Lara with 11.8 % (Variety from Slovenia) beside standard Evropa 90 (11.0 %).

From tab.no 2 column 2 regarding content of protein were ascertain low differences between searched cultivars and standard cultivar and in this course cultivar Kolo 13.9 % (Variety from Hungary) while Lara 12.9 % (Variety from Slovenia) beside standard cultivar Evropa 90 (13.2 %).

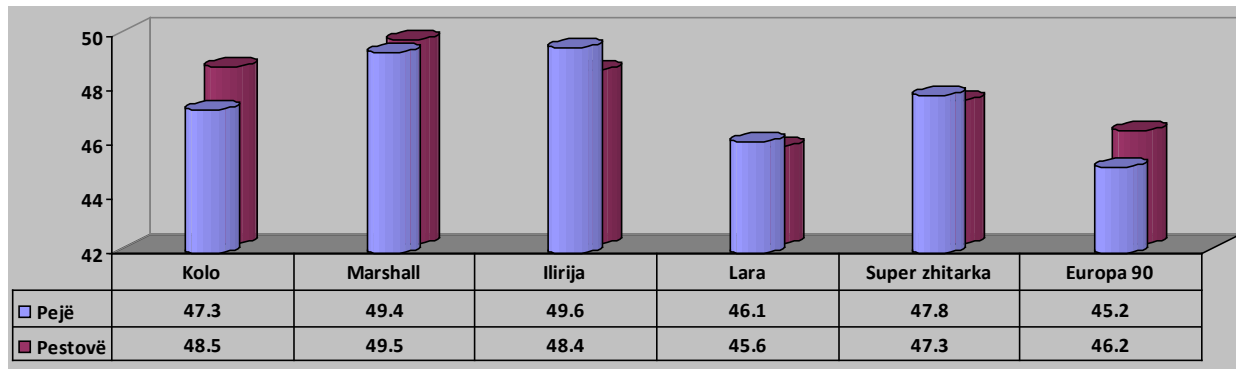
From table 2 column 3 regarding gluten were ascertain small differences between searched cultivars and among standard cultivar and in this course higher weight Kolo, 35.2 (Variety from Hungary), while low weight cultivar Lara 31.0 (Variety from Slovenia). Beside standard cultivar Evropa 90 (30.2).

From table. 2 column 4 regarding sedimentation were ascertain small differences between searched cultivars and among standard cultivar and in this course higher was Ilirija 56.9 (Variety from Croatia), meanwhile low the cultivar Lara 47.5 (Variety from Slovenia) beside standard cultivar Evropa 90 (51.7).

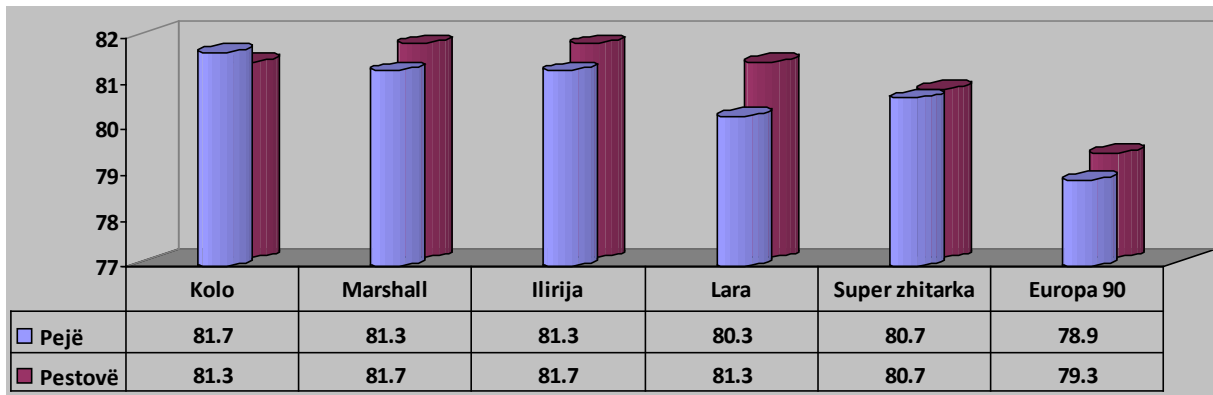
Table1. Wheat cultivars searched parameters.

Cultivars	Locality	Weight of 1000 seeds (gr)	Hectoliter weight (kg)	Productivity(kg/ha)
Kolo	Pejë	47.30	81.70	7200
	Pestovë	48.50	81.30	7300
Marshall	Pejë	49.40	81.30	7400
	Pestovë	49.50	80.70	7550
Ilirija	Pejë	49.60	81.30	7350
	Pestovë	48.40	81.70	7450
Lara	Pejë	46.10	80.30	6800
	Pestovë	45.60	81.30	6950
Super zhitarka	Pejë	47.80	80.70	6850
	Pestovë	47.30	80.70	7050
Europa 90	Pejë	45.20	78.90	6850
	Pestovë	46.20	79.30	6950

Graph 1. Weight of 1000 seeds of explored varieties



Graph 2. hectoliter weight of explores varieties



Graph 3. productivity of explored varieties

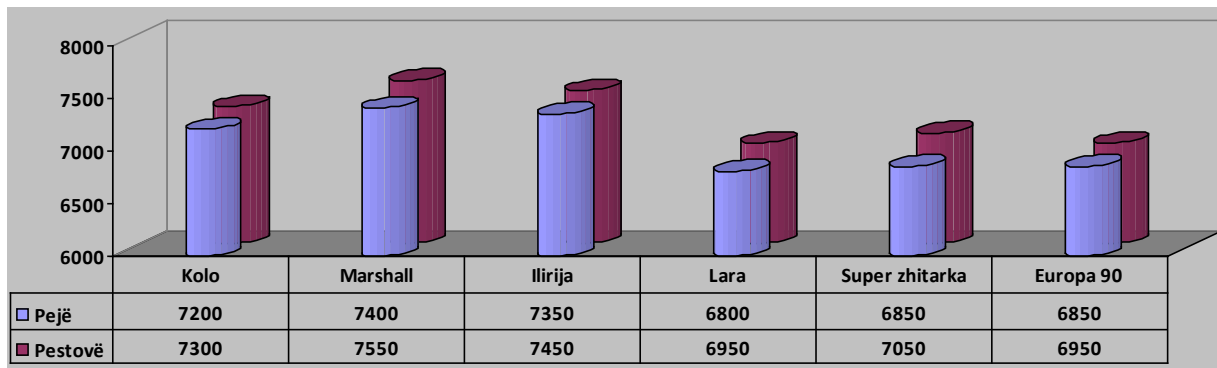
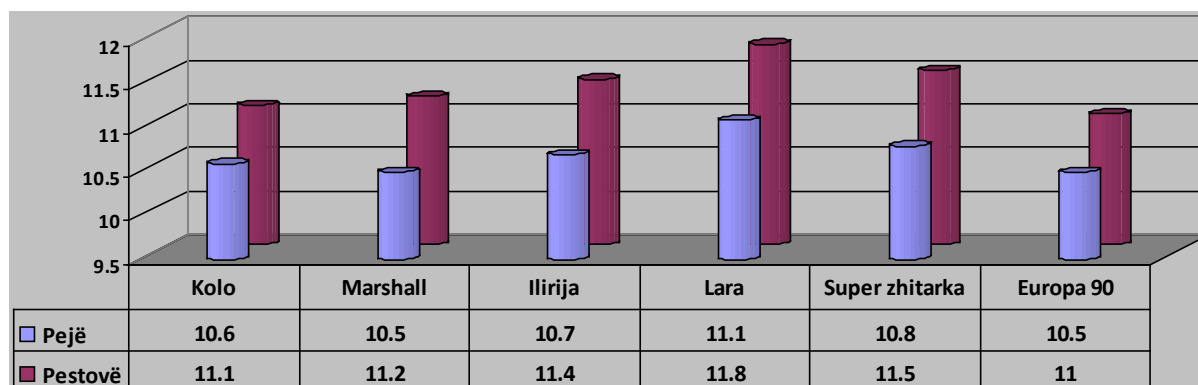


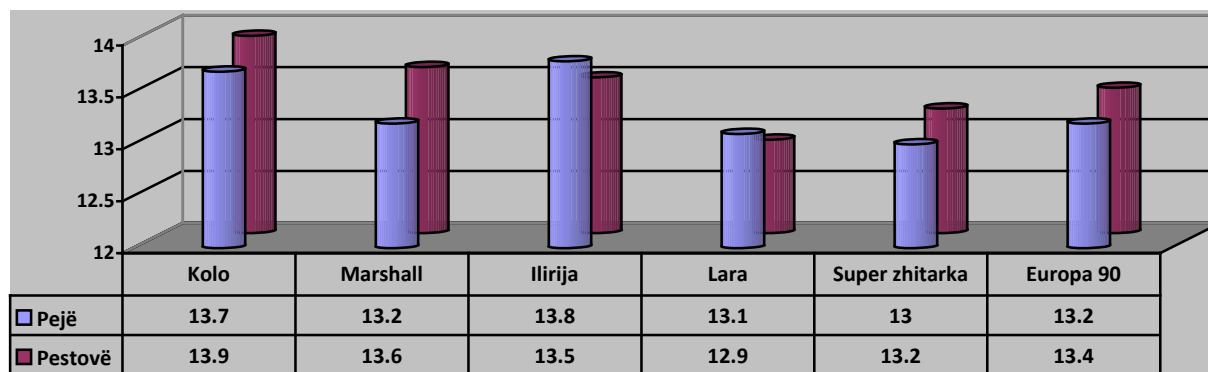
Table. 2. content of protein, gluten and productivity to wheat cultivars

Cultivars	Locality	Humidity(%)	Protein(%)	Gluten	Sedimentation
Kolo	Pejë	10.6	13.7	35.2	55.4
	Pestovë	11.1	13.9	34.7	56.5
Marshall	Pejë	10.5	13.2	33.4	56.0
	Pestovë	11.2	13.6	32.8	56.8
Ilirija	Pejë	10.7	13.8	34.0	55.0
	Pestovë	11.4	13.5	34.5	56.9
Lara	Pejë	11.1	13.1	31.0	48.7
	Pestovë	11.8	12.9	31.5	47.5
Super zhitarka	Pejë	10.8	13.0	32.4	54.0
	Pestovë	11.5	13.2	33.7	56.0
Europa 90	Pejë	10.5	13.2	30.2	51.7
	Pestovë	11.0	13.4	31.0	52.2

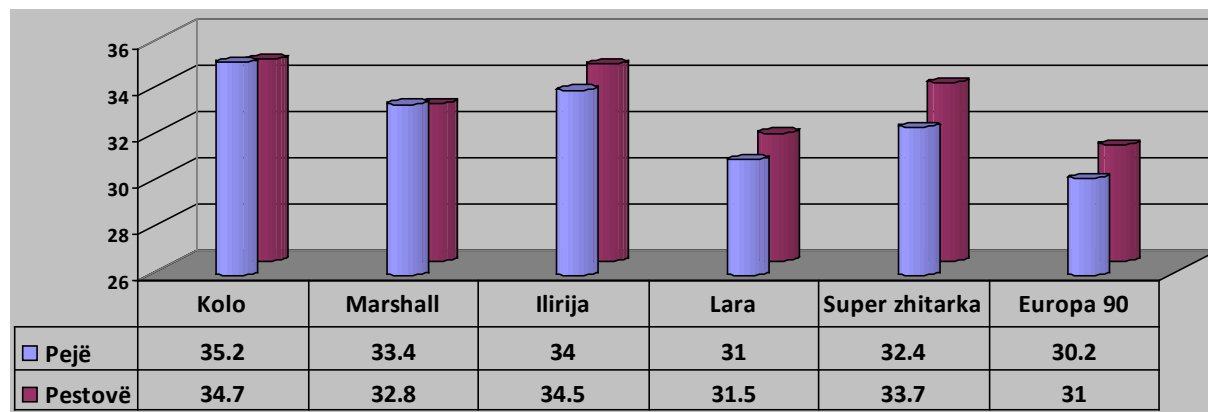
Graph 4. Presentation of parameters of humidity, searched varieties.



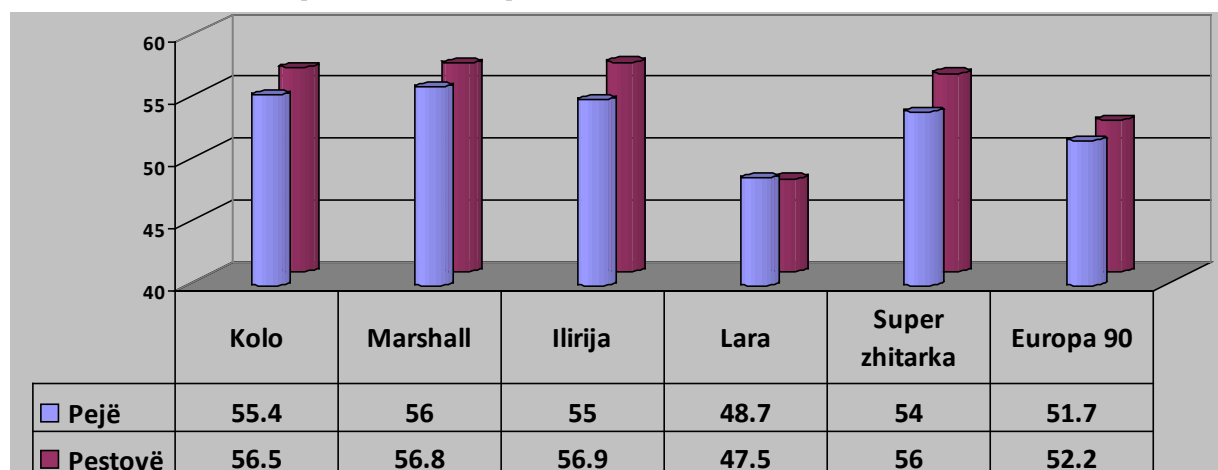
Graph 5. Presentation of parameters of protein to searched varieties



Graph 6. Presentation of parameters of gluten to searched varieties



Graph 7. Presentation of parameters of sedimentation to searched varieties



DISCUSSION

Based on the research can be concluded:

- Regarding weight of 1000 seeds. In general higher weight of 1000 seeds (absolute weight) was asceratin to cultivar Ilirija (Variety from Croatia) (46.60 gr) meanwhile low weight of 1000 seeds (absolute weight) was asceratin to cultivar Lara (Variety from Slovenia) (45.60). Beside standard (Europa 90, 45.20 gr).
- Regarding hectoliter weight (kg), were ascertain small differences between searched cultivar and among standard cultivar and in this direction higher hectoliter weight was to cultivar Kolo and Ilirija 80.30 kg (Variety from Hungary and Croatia) while hectoliter weight to cultivar Lara (Variety from Slovenia) 80.30 kg . Beside standard cultivar Evropa 90,78.90 kg.
- Regarding weight productivity (kg), were ascertain differences between searched cultivars and among standard cultivars (Table.1) and in this direction higher productivity was cultivar Marshall 7550 kg/ha, while low productivity cultivar Lara 6800 kg/ha. Beside standard cultivar 6850 kg/ha.
- Regarding humidity in % (Table.2). in general low weight (% of humidity) was ascertain the Marshall 10.8% (Variety from Hungary) while higher the variety Lara with 11.8 % (Variety from Slovenia) beside standard Evropa 90 (11.0 %).
- Regarding content of protein were asceratin small differences between searched cultivars and among standard cultivar and in this direction Kolo 13.9 % (Variety from Hungary) while Lara 12.9 % (Variety from Slovenija) beside standard cultivar Evropa 90 (13.2 %).
- Regarding gluten were ascertain small differences between searched cultivars and among standard cultivar and in this direction higher weight Kolo, 35.2 (Variety from Hungary), while low weight cultivar Lara 31.0 (Variety from Slovenia). Beside standard cultivar Evropa 90 (30.2).
- Regarding sedimentation were ascertain small differences between searched cultivars and among standard cultivar and

in this direction higher Ilirija 56.9 (Variety from Croatia), meanwhile low the cultivar Lara 47.5 (Variety from Slovenia) beside standard cultivar Evropa 90 (51.7).

- Kosovo's agro-climatic and pedological data , compared with obtained productivity in wheat culture shows for no use of genetic potential of cultivars cultivated in. For this reason should be applied contemporary agrotechnics to be use genetic potential and to get higher productivity.

Kosovo has very good agro-ecological condition for cereals cultivation .

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