

2011 NOW Agronomic Data

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	VARIETY	Tiller / plant	seed /tiller	seeds /plant	weight (10 heads)	seed weight/ plant	plants /1 lb seed	lb / acre	1000 kernel weight
1	Bezbanatskaja	21.3	58.4	1244	28.3	60.28	7.5	5,707	48.45
2	Banatka	24.4	40.2	981	18.8	45.87	9.9	4,324	46.77
3	Novo-Ukraina	17.4	44.2	769	24.7	42.98	10.55	4,057	55.88
4	Zyta	14.7	50.2	738	26.9	39.54	11.5	3,722	53.58
5	Rouge de Bordeaux	16.5	45.6	752	22.4	36.96	12.3	3,480	49.12
6	Lutescens	17.2	49.8	857	21.2	36.46	12.4	3,452	42.57
7	Canaan	22.6	33.7	762	14.9	33.67	13.5	3,170	44.21
8	Poltavka	15.7	41.7	617	19.5	28.86	15.7	2,726	46.76
9	Rogosa	10.3	56.5	582	25.7	26.47	17.1	2,503	45.49
10	Geza	11.0	43.4	477	23.0	25.3	17.9	2,391	52.99
11	Maxine	11.2	43.3	485	21.5	24.08	18.8	2,274	49.65
12	Red Lamas	12.8	40.9	524	18.2	23.3	19.5	2,195	44.5

Note: Yield can be viewed using the column on 'how many seeds will it take to produce one pound of seed, the 6th data column. *Mirbanatstaja yields 2.5 more than AC Maxine.*

Yield - Average Seed Weight Per Plant*

	REP 1	REP 2	REP 3	AVERAGE
Banatka	2.56	2.11	2.10	2 lb 2.5 oz
Bezbanat	2.11	2.82	2.20	2 lbs 3.7oz
Rogosa	1.14	1.15	1.72	1 lb 3.4oz
Poltavka	2.41	2.32	1.13	1 lb 9.5oz
Rouge de Bordeaux	1.10	2.5	2.47	2 lbs 0.2oz
Kavkaz	2.33	1.15	1.10	1 lb 5.2 oz
Zyta	1.14	1.42	1.14	1lb 2.3oz
Purple	1.58	1.40	1.51	1lb 4.9oz
Canaan Rouge	1.78	2.62	2.14	2 lbs 1.4oz
German	1.11	1.72	1.52	1 lb 4.5oz
Emmer				
Einkorn				

* Thirty random plants in three replicated plots were measured. Each plot was 4'x 50'.

Tillers per Plant / 30 Plants

	REP 1	REP 2	REP 3	Average Tillers per Plant
Banatka	495	571	613	559.6/30 = 18.6
Bezbanat	521	601	558	560/30 = 18.6
Rogosa	435	556	488	493/30 = 16.4
Poltavka	584	710	531	608/30 = 20.3
Rouge de Bordeaux	463	546	565	524/30 = 17.4
Kavkaz	514	526	586	542/30 = 18
Zyta	571	598	581	583/30 = 19.4
Purple	660	589	751	666.6/30 = 22.2
Canaan Rouge	534	732	624	630/30 = 21
German	690	571	649	63.6/30 = 21.2
Emmer	354	352	313	339.6/30 = 11
Einkorn				

Fusarium Test - 2011

sample #	ID	Wt (g)	mL extraction buffer	Fusarium ug/g seed	Fusarium rating
	Banatka – Cleaned	4.84	33.88	3.19	low
1	Zyta	5	30	4.14	low
2	Rogosa	4.9	34.3	4.46	low
3	Banatka-Eli	5	35	5.74	low
4	Rouge de Bordeaux	5	30	5.58	low
5	Canaan Rouge	5	35	6.38	low
6	Bezbanet	5	35	9.88	low
7	Canaan	5	35	11.64	low
8	Poltavka	5	30	12.75	low
9	Banatka-Tevis	5	35	16.58	low
10	Llamas	5	30	23.43	moderate
11	German	2.31	16.17	30.29	moderate
12	Kavkaz	5	35	34.43	moderate
13	Purple	3.15	22.05	35.55	moderate
14	Purple Barley	5	30	37.30	moderate
15	Melange	4.84	33.88	92.30	high
16	Emmer in hull	2.69	18.83	24.55	moderate
15	Einkorn in hull	0.71	4.97	43.84	moderate

Fusarium causes serious crop damage to Northeast wheats due to our typical rainy weather, susceptible cultivars and crop residues that host Fusarium. Mycotoxin (DON) content is important for farmers who produce seed. Fusarium resistance testing is important for breeders. When moisture is high at wheat's flowering and grain filling stage, the tiny spores of Fusarium infect the spike. Fusarium contaminates the grain with deoxynivalenol (aka DON or vomitoxin) that reduces grain quality, favor and yield. Ben Gleason, an organic wheat grower in Vermont, states, '*Fusarium is the greatest pressure faced by New England's organic wheat growers.*' To prevent contamination of wheat food products with vomitoxin, four mills test wheat and will reject grain with more than 2 parts per million of DON. Growers recognize fusarium in the field by the bleached-out, white spikes oozing orange-pinkish spores. During wet weather, there may also be white or pink fluffy mold on infected heads. Seed can be infected with out any visible signs. Infected grain heads produce shriveled, discolored, lighter weight kernels.

Nutritional Analysis - 2011

Protein and Minerals - 2011 UMass Lab

Variety	Protein	Phosp	Potass	Calcium	Mag	Zinc	Copper	Man	Iron	Boron
Emmer	18.47	0.51	0.44	0.04	0.16	45	5	32	53	1
Kavkaz	18.24	0.47	0.5	0.04	0.16	32	9	35	43	2
Maxine	18.13	0.48	0.47	0.04	0.15	47	5	38	47	2
Ukrainka	17.44	0.5	0.39	0.04	0.17	37	6	38	53	2
German	17.16	0.5	0.49	0.04	0.17	47	7	18	38	2
Lutescens	16.93	0.47	0.42	0.04	0.15	38	7	35	48	2
Freedom	16.93	0.51	0.47	0.05	0.17	43	7	37	53	2
Poltavka	16.7	0.49	0.41	0.04	0.18	37	6	36	48	2
Einkorn	16.47	0.45	0.41	0.04	0.16	67	7	51	51	3
Hungary	15.62	0.47	0.39	0.04	0.16	31	6	34	44	2
Lamas	15.5	0.46	0.45	0.03	0.15	25	6	31	43	2
Bordeaux	15.5	0.46	0.39	0.03	0.16	30	6	38	52	2
Zyta	15.28	0.45	0.47	0.04	0.15	33	8	35	49	2
Einkorn J	15.22	0.47	0.42	0.04	0.15	64	5	55	42	2
Canaan	14.93	0.46	0.38	0.04	0.16	46	6	14	38	1

Analysis was conducted at the UMass Plant and Tissue Analysis Laboratory

Protein - 2011 USDA Lab - Abdullah Jaradat

number	Variety	Winter Wheat Description	N %	C %	C:N
1	Zyta	Zyta, Poland modern	16.06	41.9	2.61
2	Canaan Rouge	Canaan Rouge, French-Maine landrace	15.43	41.7	2.70
3	Banatka	Banatka, Hungarian landrace	15.37	41.8	2.72
4	Rogosa	Rogosa genepool	15.32	41.8	2.77
5	Bezbanat	Rogosa genepool	15.31	41.7	2.78
6	Rouge	Rouge de Bordeaux, French landrace	15.12	42.0	2.78
7	Purple	Ethiopian	15.06	41.9	2.78
8	Poltavka	Ukrainian Landrace	14.43	41.7	2.89
9	Purple Barley	Ethiopian	13.56	42.0	3.10
10	German BD	German Biodynamic	13.12	41.6	3.17
11	Melange	French Melange "mixture"	12.25	41.7	3.41
12	German	Davert German modern	11.93	41.6	3.48

Protein is a critical factor in baking quality, influencing gluten elasticity and stretching strength, for dough with desired rheological¹ properties, ie: water absorption capacity to produce the maximum torque.

Density/test weight is an indicator of baking quality. Generally the greater the test weight, the higher the flour quality.²

¹ *Rheology* is the study of viscoelasticity, the flow of matter in a liquid state.

² Handbook of Cereal Science and Technology, Karel Kulp, Joseph G. Ponte p.8, Bread making: improving quality. Stanley P. Cauvain