

Northeast Organic Wheat Trials at UMass 2011

growseed.org/now.html - Funded by NESARE

Yield - Average Seed Weight Per 30 Plants/bed*

	REP 1	REP 2	REP 3	AVERAGE
Banatka	1.06	1.24	1.27	1.19
Bezbanat	1.23	1.14	0.97	1.11
Rogosa	0.86	0.87	0.53	0.75
Poltavka	1.03	1.00	1.01	1.01
Rouge de Bordeaux	0.74	1.05	1.04	0.94
Kavkaz	1.0	0.89	0.75	0.88
Zyta	0.86	0.57	0.86	0.76
Purple	0.62	0.40	0.34	0.45
Canaan Rouge	0.67	1.08	0.95	0.90
German	0.78	0.66	0.60	0.68

* Yield Data Methodology: Due to the variability of landrace genepools, as part of the breeding-selection process, we rogued out between 20% to 60% in each bed. Rogueing precludes spacial yield data since the plants that remain after roguing are not evenly spaced. Therefore we calculated yield by weighting the seed of thirty random plants in three replicated plots, then averaged the weight per plant. Each plot was 4'x 50'. See: Evolutional Ecological Plant Breeding and Report for methodology details and rationale.

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	$339.6/30 = 11$

Nutritional Analysis - 2011 Harvest

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	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

Nutritional analysis was conducted at the UMass Plant and Tissue Analysis Laboratory

Temperature and Rainfall for UMass Farm, Deerfield, MA, 2008-9, 2009-10

2009-10	September 2009	October 2009	March 2010	April 2010	May 2010	June 2010	July 2010
Av Temp	55.9	43	37	46.3	56.1	62	70.5
Inches of Rainfall	1.4	5.6	4.6	2.3	1.9	4.0	2.2
Growing Days	700	334	164	426	726	857	1182

2008-9	September 2008	October 2008	March 2009	April 2009	May 2009	June 2009	July 2009
Av Temp	63.4	49.9	25.2	58.6	59.9	65.7	69.6
Inches of Rainfall	7.66	3.20	2.72	3.12	4.00	6.34	9.67
Growing Days	600	330	159	547	735	840	1005

* National Weather Service data from Amherst, MA observer station near field trials. Lat: 42 23N, Long: 72 32W cdo.ncdc.noaa.gov/cgi-bin/climatenormals/climatenormals.pl and mass.gov/dcr/watersupply/rainfall/archive.htm

2010 Agronomic and Yield Data

	VARIETY	Tiller/ plant	seed/ tiller	seeds/ plant	weight (10 heads)	seed weight/ plant	plants/1 lb seed	lb /acre	1000 kernel weight
1	Bezbanat	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	Banatka	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	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.

Bezbanatstaja yields 2.5 more than AC Maxine.

Year 1 2008-9 UMass Small Plot Preliminary Screening

Seeds with accession numbers were sourced from the USDA GRIN genebank

1. 6401	1st ROW	2nd ROW
2. 281842	8. 272360	19. Red Lammas
3. 11463	9. 281842	20. McFadden 11463
4. RED LAMMAS 1 st wheat grown in colonial Mass	10. 272933	21. 94468
5. ZYTA Poland	11. VT WINTER – Read	22. 362024
6. EINKORN Haute Provence, France	12. 61103	23. 367702
7. SUKCES Poland	13. German Bio–Davrat	24. Italian Farro, Garfagnana, Italy
	14. 251908	25. Crete – Kostas
	15. 355500	26. Rouge de Bordeaux, France
	16. Estonia –Savinta	27. Poulard, France
	17. Rouge de Bordeaux,	28. Rouge de Bordeaux, France
	18. Melange genepool France	

<p>ROW 3 29. 5366 30. Zyta, Poland 31. 267147 32. 267135 33. 3737 34. 254826 35. 201121 36. 326309 37. 345685 1. 499965</p>	<p>ROW 4 39. Haute Provence, France einkorn 40. 208455 41. 316431 42. 295348 43. 277681 44. 352466 45. 290487 46. 285883 47. 294973 1. 304093</p>	<p>ROW 5 49. 55559651 50. 361857 51. Zyta, France 52. 285858 53. 262610 54. Sukces, Poland 55. Rouge de Bordeaux, France 1. Purple, Ethiopia</p>
<p>ROW 6 57. 5366 58. 592043 59. 262614 60. 254191 61. 499963 62. Black – Jean Francois Berthelois</p>	<p>ROW 7 63. Melange French landrace mixture 64. 6465 65. Turkey Red 66. 5493 67. 361879 68. 35502 1. 262610</p>	<p>ROW 8 70. 361879 71. Maxine 72. 201131 73. 267147 74. Rouge de Bordeaux, France 75. Kavkaz 1. 361879</p>
<p>ROW 9 77. Black Emmer, Hungary 78. 367709 79. 3737 80. 262610 81. Swiss Landrace 1. Alsacs – JF</p>	<p>ROW 10 83. 251908 84. German Davret 85. 15158 86. Poulard – JF 87. Polanka – Poland 1. Garfagnana- Farro</p>	<p>ROW 11 89. AC Maxine, Matt Williams 90. Melange – French Mixture 91. 306509 92. 292994 1. 6000 – Crimean</p>

ROW 12 94. Black emmer 95. Tall – Rouge de Roc 1. Melange French Mixture		
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2011 - How many plants produce one pound of seed:

Banatka 11.5
Bezbanat 12.2
Poltavka 13.1
Rouge de Bordeaux 14.5
Canaan Rouge 15.2
Kavkaz 15.5
Zyta 18
Rogosa 18.1
German 20
Purple 30