

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

in cooperation with

STATE AGRICULTURAL EXPERIMENT STATIONS

Results from the

UNIFORM OAT WINTER HARDINESS NURSERY

for 2003-04

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This is a joint progress report of an investigation underway in the State Agricultural Experiment Stations and the Agricultural Research Service of the U. S. Department of Agriculture. It contains preliminary data which have not been sufficiently confirmed to justify general release; interpretations may be modified with additional experimentation. Confirmed results will be published through established channels. The report is primarily a tool for cooperators, their staff and those with special interest in agricultural research program development.

This report was compiled by the Agricultural Research Service, U. S. Department of Agriculture, and is not intended for publication nor should it be referred to in literature citations or quoted in publicity or advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

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OAT WINTER HARDINESS NURSERY 2003-2004

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COOPERATING AGRICULTURAL EXPERIMENT STATIONS AND PERSONNEL

Country	State	AES Location	Personnel
USA	AR	Fayetteville	R.K. Bacon
USA	KS	Marion County	M.Hagny
USA	NC	Waynesville	J.P. Murphy
USA	SC	Clemson	B.Edge
USA	TN	Knoxville	D.West
USA	VA	Blacksburg	C.A. Griffey
Austria		Edelhof	E.Zechner
Czech. Rep		Kromeriz	L.Nedomova
Hungary		Martonvasar	O.B.Veisz
Lithuania		Lithuania	A.Sliesaravicius
Poland		Radzikow	W.Podyma
Sweden		Landskrona	R.Jonsson
Wales		Aberystwyth	J. Valentine,D.Jones
Turkey		Eskisehir	E.Ozdemir

NUMBER OF TESTS: 14 (6 US States and 8 foreign countries)
 NUMBER OF ENTRIES: 13
 EXPERIMENTAL DESIGN: Single-row, 5-foot plot
 Two replications
 Randomized complete block
 DATA RECORDED: Percent winter survival
 Data not used in analysis: Waynesville, NC : 100% Survival
 Clemson, SC : See comments below.
 Marion Co., KS : See comments below.

AES	Location	Comments
AR	Fayetteville	This winter we experienced several days with high temps in the teens to 20s.
NC	Waynesville	All plants survived. Percentages shown are for freeze damage estimates.
KS	Marion Co.	Due to late seeding (26 Nov) and cold winter, all of plots emerged in spring, in late Feb & early Mar. Seeds imbibed water in Nov and germinated in Dec/Jan but did not emerge until much later. Emergence and growth data only reported.. No winter survival data.
SC	Clemson	Our oats were actually sprayed with Hoelon, by mistake, so there is no data. One or two of them actually survived Hoelon quite well.
Austria	Edelhof	Seed: Oct 3rd. Lot of snow in winter and therefore saved. Feb.: short period of warm weather, afterwards cold and snow. Wet conditions all through autumn, winter and spring. Oct to Mar, temp ranged from 21.4°C to -17.4°C
Hungary	Martonvasar	Winter was typical, the temperature went down below zero with snow and without snow cover caused freezing damage
Poland	Radzikow	Very good year for winter oats in Poland.
Sweden	Landskrona	Better survival of winter oats than last year. Better establishment in fall and somewhat milder winter are the reasons. No snow cover. 2 rows a bit too little for us. 6 rows (12g per plot) would be better.
Turkey	Eskisehir	Winter was cold, temp down to -15°C with snow on the nurseries.

Top Ten Ranked Survival Entries

Rank	Ent No.	Entry	Pedigree	% Survival (across locations)
1	10	Win/Nor-1	Wintok x Norline	79.0
2	8	AR0289-9	TAMO 386/FL501	76.5
3	13	Win/Nor-10	Wintok x Norline	75.2
4	6	AR0213-3	Coker 84-16/AR 125-4A	73.8
5	9	AR0231-3	PA8017-26//Simpson/Coker716	73.7
6	4	Wintok (ck)	CI 3424	73.1
7	11	Win/Nor-4	Wintok x Norline	72.0
8	5	AR0258-7	Ozark/2/NC 81-333/PA 8017-26	71.1
9	7	AR0336-3	TAMO 386//Coker 86-13/T 81-1251	70.0
10	12	Win/Nor-9	Wintok x Norline	69.3
LSD (0.05)				13.3

Table 1. Entries in the 2003-2004 Uniform Oat Winter Hardiness Nursery

Entry No.	Entry Name	Pedigree	No. Yrs. in Nurs. Contributors		
1	Fulghum (ck)	CI 708	66		
2	Norline (ck)	CI 6903	43		
3	Winter Turf (ck)	CI 3296	63		
4	Wintok (ck)	CI 3424	63		
5	AR0258-7	Ozark/2/NC 81-333/PA 8017-26	2	Bacon	AR
6	AR0213-3	Coker 84-16/AR 125-4A	2	Bacon	AR
7	AR0336-3	TAMO 386//Coker 86-13/T 81-1251	1	Bacon	AR
8	AR0289-9	TAMO 386/FL501	1	Bacon	AR
9	AR0231-3	PA8017-26//Simpson/Coker716	1	Bacon	AR
10	Win/Nor-1	Wintok x Norline	1	Livingston, Murphy	NC
11	Win/Nor-4	Wintok x Norline	1	Livingston, Murphy	NC
12	Win/Nor-9	Wintok x Norline	1	Livingston, Murphy	NC
13	Win/Nor-10	Wintok x Norline	1	Livingston, Murphy	NC

Table 2. Winter Oat Survival Data Summary (%) at Various Stations (sorted by entry number)

Ent.	Entry	Ranked	Means	Faytvil	Edelhof	Kromeriz	Martnvasr	Radzkow	Landskrona	Knxvil	Esksehr	Blksbrg	Abrstwyth	
No.		Means	(across loc)	AR	Austria	Czech Rep	Hungary	Lithuania	Poland	Sweden	TN	Turkey	VA	Wales
1	Fulghum (ck)	13	54.1	90.0	55.0	0.6	12.8	45.3	62.8	30.0	75.0	70.0	80.0	74.1
2	Norline (ck)	11	66.9	100.0	45.0	28.0	50.0	87.8	84.9	15.0	100.0	30.0	97.5	97.7
3	Winter Turf (ck)	12	57.0	47.5	50.0	18.2	8.3	75.6	89.2	5.0	95.0	55.0	98.5	85.3
4	Wintok (ck)	6	73.1	82.5	12.5	30.9	65.3	93.4	100.0	35.0	100.0	92.5	98.5	93.6
5	AR0258-7	8	71.1	100.0	35.0	9.0	75.1	70.3	95.8	35.0	100.0	77.5	95.0	89.4
6	AR0213-3	4	73.8	100.0	35.0	22.0	76.3	70.8	92.8	50.0	100.0	90.0	97.0	78.3
7	AR0336-3	9	70.0	97.5	22.5	14.4	74.3	72.1	94.7	25.0	100.0	95.0	97.5	76.9
8	AR0289-9	2	76.5	100.0	40.0	35.7	66.9	93.8	99.0	25.0	100.0	100.0	98.5	83.1
9	AR0231-3	5	73.7	100.0	50.0	15.4	65.9	82.3	97.8	25.0	97.5	100.0	97.5	79.2
10	Win/Nor-1	1	79.0	100.0	12.5	70.1	72.4	85.0	97.8	55.0	100.0	82.5	98.5	95.2
11	Win/Nor-4	7	72.0	100.0	30.0	18.2	59.5	84.8	95.6	40.0	100.0	80.0	95.0	88.6
12	Win/Nor-9	10	69.3	97.5	20.0	16.5	61.5	92.3	98.9	15.0	100.0	80.0	95.0	85.1
13	Win/Nor-10	3	75.2	100.0	55.0	34.8	65.2	84.4	93.5	30.0	100.0	80.0	97.0	87.0
Location Averages			70.1	93.5	35.6	24.1	58.0	79.8	92.5	29.6	97.5	79.4	95.8	85.7
LSD (0.05)			13.3	11.1	21.0	15.9	14.1	20.5	9.8	18.3	*ns	24.0	8.4	*ns
CV(%)			10.8	5.5	27.0	30.2	11.2	11.8	4.9	28.4	6.4	13.9	4.0	9.0

*ns: Not significant.

Table 3. Winter Oat Survival Data Summary (%) at Various Stations (sorted by rank)

Ent.	Entry	Ranked	Means	Faytvil	Edelhof	Kromeriz	Martnvasr	Radzkow	Landskrona	Knxvil	Esksehr	Blksbrg	Abrstwyth	
No.		Means	(across loc)	AR	Austria	Czech Rep	Hungary	Lithuania	Poland	Sweden	TN	Turkey	VA	Wales
10	Win/Nor-1	1	79.0	100.0	12.5	70.1	72.4	85.0	97.8	55.0	100.0	82.5	98.5	95.2
8	AR0289-9	2	76.5	100.0	40.0	35.7	66.9	93.8	99.0	25.0	100.0	100.0	98.5	83.1
13	Win/Nor-10	3	75.2	100.0	55.0	34.8	65.2	84.4	93.5	30.0	100.0	80.0	97.0	87.0
6	AR0213-3	4	73.8	100.0	35.0	22.0	76.3	70.8	92.8	50.0	100.0	90.0	97.0	78.3
9	AR0231-3	5	73.7	100.0	50.0	15.4	65.9	82.3	97.8	25.0	97.5	100.0	97.5	79.2
4	Wintok (ck)	6	73.1	82.5	12.5	30.9	65.3	93.4	100.0	35.0	100.0	92.5	98.5	93.6
11	Win/Nor-4	7	72.0	100.0	30.0	18.2	59.5	84.8	95.6	40.0	100.0	80.0	95.0	88.6
5	AR0258-7	8	71.1	100.0	35.0	9.0	75.1	70.3	95.8	35.0	100.0	77.5	95.0	89.4
7	AR0336-3	9	70.0	97.5	22.5	14.4	74.3	72.1	94.7	25.0	100.0	95.0	97.5	76.9
12	Win/Nor-9	10	69.3	97.5	20.0	16.5	61.5	92.3	98.9	15.0	100.0	80.0	95.0	85.1
2	Norline (ck)	11	66.9	100.0	45.0	28.0	50.0	87.8	84.9	15.0	100.0	30.0	97.5	97.7
3	Winter Turf (ck)	12	57.0	47.5	50.0	18.2	8.3	75.6	89.2	5.0	95.0	55.0	98.5	85.3
1	Fulghum (ck)	13	54.1	90.0	55.0	0.6	12.8	45.3	62.8	30.0	75.0	70.0	80.0	74.1
Location Averages			70.1	93.5	35.6	24.1	58.0	79.8	92.5	29.6	97.5	79.4	95.8	85.7
LSD (0.05)			13.3	11.1	21.0	15.9	14.1	20.5	9.8	18.3	*ns	24.0	8.4	*ns
CV(%)			10.8	5.5	27.0	30.2	11.2	11.8	4.9	28.4	6.4	13.9	4.0	9.0

. *ns: Not significant.

Table 4. Freeze Damage Data (%) at Waynesville, NC

Entry No	Entry Name	Freeze Damage[@] (%)
1	Fulghum (ck)	17.5
2	Norline (ck)	7.5
3	Winter Turf (ck)	10.0
4	Wintok (ck)	7.5
5	AR0258-7	15.0*
6	AR0213-3	15.0
7	AR0336-3	12.5
8	AR0289-9	22.5
9	AR0231-3	30.0
10	Win/Nor-1	30.0
11	Win/Nor-4	22.5
12	Win/Nor-9	22.5
13	Win/Nor-10	30.0

@ Percentages shown are average freeze damage estimates based on tip- burning and stunting.

* Value from one rep only.