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NINTH INTERNATIONAL WINTER WHEAT PERFORMANCE NURSERY

1977

Preliminary Report

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NINTH INTERNATIONAL WINTER WHEAT PERFORMANCE NURSERY, (IWWPN)

1977

Preliminary Report

This report is intended to provide nursery cooperators and others the opportunity to evaluate data from cultivars in the 9th International Winter Wheat Performance Nursery at an early date. It will be especially useful for field observations and comparisons with current nursery plantings since 17 of the varieties also have been retained in the tenth IWWPN grown in 1978. Included are data on yield and nine other agronomic traits summarized from 51 cooperating stations in 30 countries.

The authors wish to express their appreciation to nursery cooperators for their excellent nursery management and cooperation in providing nursery data. Their efforts are invaluable to the success of the nursery. The work of Mr. Steve Waddington in preparing this report is acknowledged.

Detailed information from all cooperators concerning each trait on which data were collected and production conditions at each nursery site will be available in a final report at a later date when data from the Southern Hemisphere become available. Specific information concerning pedigrees, nursery management, and other environmental factors also will be included in that report.

THE NURSERY

The International Winter Wheat Performance Nursery Program was organized in 1969 by the Nebraska Agricultural Experiment Station in cooperation with the Agricultural Research Service, U.S. Department of Agriculture, under a contract with the Agency for International Development, U.S. Department of State.

Evaluation of the performance of important new winter wheat varieties grown in many environments is a prime objective of the nursery. It is hoped that the nursery will lead to early identification of superior winter wheat genotypes for use in breeding wheats with still higher productivity and improved nurtritional quality than are now available. Adaptation limits of varieties based upon their nursery performance can be valuable information for wheat breeders and other researchers.

Wheat varieties evaluated in the IWWPN have come from many different wheat regions of the world. A total of 110 wheat varieties and one variety of triticale originating from 25 countries were tested from 1969 to 1977. Candidate varieties for the nursery are welcomed. Seed of new varieties in the amount of 1500 grams should be sent to Dr. V. A. Johnson at the University of Nebraska before October 15 each year for quarantine increase at Yuma, Arizona. It requires two years after candidate varieties are received at Nebraska before they can be included in the IWWPN since the seed is normally packaged for mailing before the Arizona harvest is completed. Cultivars grown in the Ninth IWWPN are listed in Table 1.

The Ninth IWWPN was distributed to 66 locations in 37 countries. There were 60 locations in the Northern Hemisphere and six in the Southern. However, in South Africa two nurseries were planted at the same location with different dates of planting. The distribution of nursery sites is shown in Figure 1. A list of cooperators receiving the nursery seed and the location of each nursery site is given in Table 2.

CULTIVARS

TABLE 1. NINTH INTERNATIONAL WINTER WHEAT PERFORMANCE NURSERY

1977

Entry No.	Cultivar	Origin
1	Atlas 66	USA
2	Priboy	USSR
3	Blueboy	USA
4	Odesskaya 51	USSR
5	F26-70	Romania
6	WA5829	USA
7	Sage	USA
8	Bezostaya 1	USSR
9	GKF-8001	Hungary
10	Martonvasar 3	Hungary
11	NE68719	USA
12	Galiafen	Chile
13	Bordenave Puan Sag	Argentina
14	Oasis	USA
15	Flavio	Italy
16	Probstdorfer Karat, (WWP7147)	Austria
17	NE73640	USA
18	Lindon	USA
19	Mironovskaya 808	USSR
20	Krasnodarskaya 39	USSR
21	Sadovo-1	Bulgaria
22	F53-70	Romania
23	F54-70	Romania
24	Iulia	Romania
25	Yubiley, (2109-36)	Bulgaria
26	Zg 4240/73	Yugoslavia
27	Zg 887/73	Yugoslavia
28	Zg 4364/73	Yugoslavia
29	Zg 4293/73	Yugoslavia
30	Lerma Rojo 64	Mexico

Figure 1

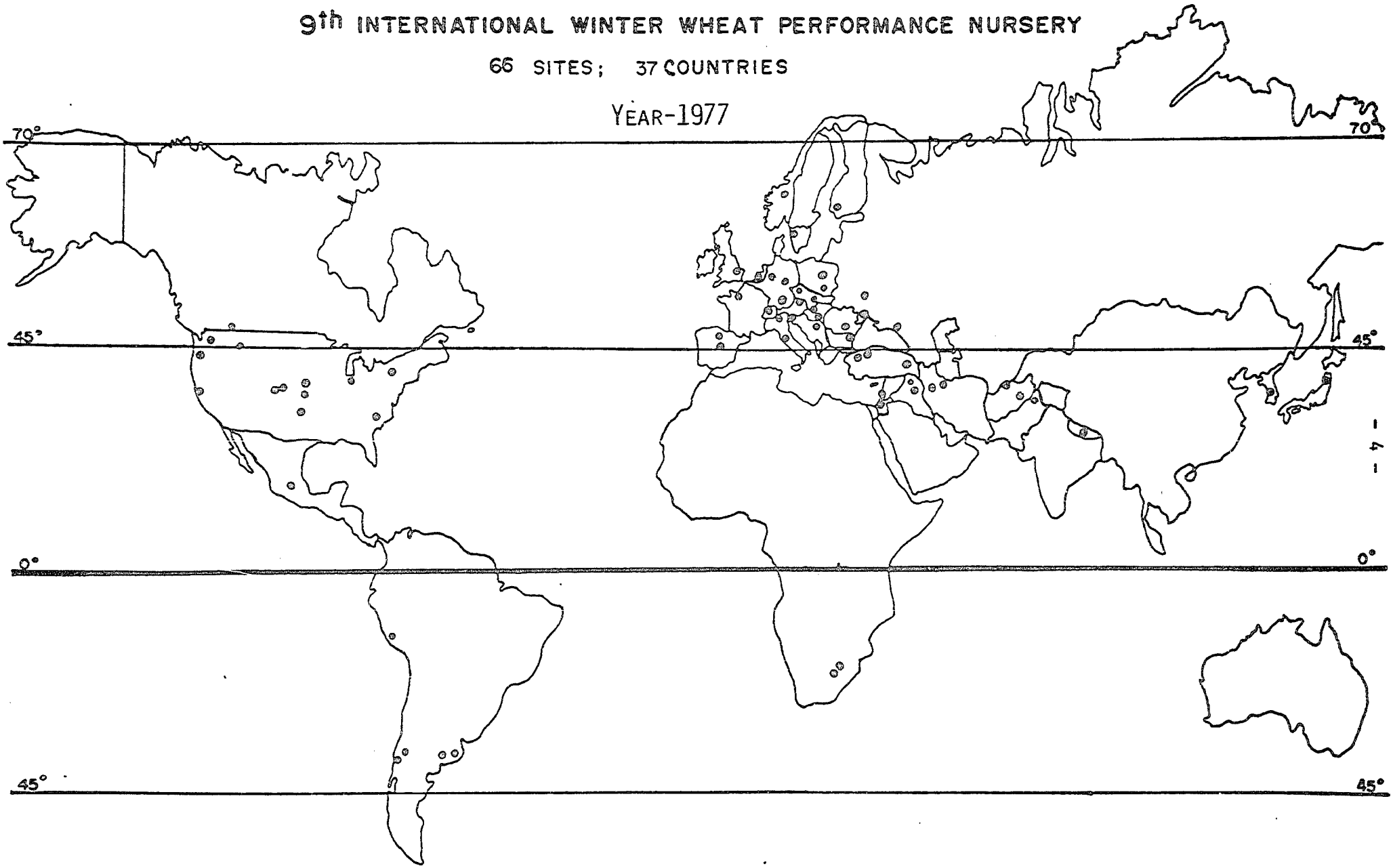
9th INTERNATIONAL WINTER WHEAT PERFORMANCE NURSERY
66 SITES; 37 COUNTRIES
YEAR-1977
70°
45°
0°
45°
70°
45°
0°
45°

TABLE 2. NURSERY SITES AND COOPERATORS

1977

Country	Station	Cooperator Receiving Seed
Afghanistan	Kabul	Mr. M. A. Noory
"	Kunduz	"
Algeria	Algiers	Mr. L. Hachemi
Argentina	Balcarce	Ing. Agr. Ernesto F. Godoy
"	Bordenave	" "
Austria	Vienna	Dr. R. Hron
Bulgaria	Tolbukhin	Dr. T. Rachinsky
Canada	Alberta, Lethbridge	Dr. Mark N. Grant
"	Prince Edward Island	Dr. Hans Nass
Chile	Chillan	Dr. Ignacio Ramirez A.
"	Temuco	" "
Czechoslovakia	Male Ripnany	Ing. Dezider Michalik
"	Sedlec	Ing. Jaroslav Maly
East Germany	Blankenburg-Bohnhausen	Dr. A. Meinel
England	Cambridge	Dr. F. G. H. Lupton
Finland	Jokioinen	Prof. Dr. Rolf Manner
France	Orgerus	Dr. J. P. Hardouin
Hungary	Martonvasar	Dr. S. Rajki
"	Szeged	Dr. I. Szaniel
Iran	Hamadan	Dr. H. Kaveh
"	Karaj	Dr. H. Kaveh
Iraq	Sulaimaniya	Dr. Mohammad Abdul Aziz
Italy	Florence	Prof. Mario Gasparini
"	Milano	Dr. Basilio Borghi
"	Rieti	Dr. Guiseppina Zitelli
Japan	Morioka Iwate	Dr. T. Gotoh
Jordan	Amman	Mr. Zulkifl Ghosheh
Korea	Suwon	Dr. Chang Hwan Cho
Mexico	Toluca	Dr. N. E. Borlaug
Nepal	Kathmandu	Mr. A. N. Bhattarai
Netherlands	Wageningen	Dr. Ir. A. C. Zeven
Norway	Vollebekk	Dr. Karl Ringlund
Pakistan	Islamabad	Dr. M. Tahir
Peru	Lima	Dr. Marino Romero
Poland	Przeclaw-Slupia Wielka	Dr. E. Bilski
"	Warsaw	Prof. Stanislaw Starzycki
Republic of South Africa*	Bethlehem	Dr. I. B. J. Smit
Romania	Fundulea	Prof. Dr. N. Ceapoiu
Spain	Logrono	Dr. P. de la Hera
"	Madrid (Alcala De Henares)	Ing. Javier Salazar
Sweden	Svalof	Dr. Bo Kristiansson

* Two sets of seed were distributed for different planting dates.

TABLE 2. NURSERY SITES AND COOPERATORS (Continued)

Country	Station	Cooperator Receiving Seed
Switzerland	Zurich	Dr. F. Weilenmann
Syria	Aleppo	Dr. Jit Srivastava
Turkey	Ankara	Mr. Basri Devecioglu
"	Erzurum	Dr. F. Tosun
"	Eskisehir	Dr. M. Nuri Taysi
USA	Davis, CA	Dr. Cal Qualset
"	Fort Collins, CO	Dr. J. R. Welsh
"	Akron, CO	"
"	Brookston, IN	Dr. D. J. Baker
"	Manhattan, KS	Dr. Gary Paulsen
"	Billings, MT	Dr. Peter Salm
"	Lincoln, NE	Dr. V. A. Johnson
"	Ithaca, NY	Dr. N. F. Jensen
"	Rowan Co., NC	Dr. C. F. Murphy
"	Stillwater, OK	Dr. E. L. Smith
"	Corvallis, OR	Dr. W. E. Kronstad
"	Pullman, WA	Dr. R. E. Allan
USSR	Krasnodar	Dr. Y. M. Puchkov
"	Mironovski	Dr. V. N. Remeslo
"	Odessa	Dr. Agr. A. A. Sozinov
West Germany	Monsheim	Dr. Klaus Brunckhorst
"	Weihenstephen	Prof. Dr. G. Fischbeck
Yugoslavia	Novi Sad	Prof. Slavko Borojevic
"	Zagreb	Dr. Josip Potocanac

DATA RECEIVED

Data from all locations that returned completed field books to Lincoln, Nebraska by December 31, 1977 are included in this report. Data from field books received after December 31 will be included in the final report at a later date. A December 15 deadline for receiving data for analyses and inclusion in the Preliminary Report was established at the First Winter Wheat Conference held in Ankara, Turkey in 1972, but a 15 day extension was granted this year.

Statistical analyses were done for the most common traits from each location and over locations for selected traits. Individual cooperators will receive photocopies of their data analyses for most traits reported in the nursery field books, including tables of means, analyses of variance, and correlation coefficients. However, only yield data from individual nursery locations (Table 3) and the combined analyses by traits over locations (Table 4) are reported herein. Correlation coefficients between traits are presented in Table 5. Table 6 contains mean values, statistics and ranges by variety for 10 traits across test sites based on the total number of observations reported. Only those locations reporting four replications of data for all nursery cultivars have been included in the combined analysis for each trait. Winter survival of the spring wheat cultivar, Lerma Rojo 64, was generally good at most sites in 1977 and is included in all analyses.

The 10-gram seed samples from harvested plots for protein analyses have been received from most locations at the University of Nebraska quality laboratory. The quality data results will be included in the final report. Cooperators in both hemispheres should return their quality samples as soon as possible following harvest. General nursery information and disease data also will be included in the final report.

On the cut-off date for returning field books, 51 of 59 locations in the Northern Hemisphere had returned books which represents a 86% nursery completion rate. Harvesting of the Ninth IWWPN in the Southern Hemisphere soon should be completed, and data from there will appear in the final report.

Table 3. Average yield in quintals per hectare and rank for cultivars grown in the 9th IWWPN in 1977.

Cultivar	Kabul, Afghanistan		Kunduz, Afghanistan		Vienna, Austria		Tobukhin, Bulgaria		Lethbridge, Alberta, Canada		Prince Edward Island, Canada		Male Ripnany, Czeckos-lovakia		Sedlec, Czeckos-lovakia		Boehnshausen, East Germany	
	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank
Yubiley, (2109-36)	60.8	1	49.6	9	46.5	1	68.5	2	46.3	4	9.7	18	119.4	3	83.2	5	62.4	3
Sadovo-1	52.7	13	48.6	12	41.8	6	59.3	7	40.3	12	16.0	13	113.5	5	70.3	15	59.7	6
Friboy	54.6	6	45.5	17	45.4	3	56.0	12	42.5	6	24.7	7	103.9	12	82.8	7	61.2	4
Bezostaya 1	47.5	22	48.9	11	41.1	11	52.3	18	47.6	2	30.2	2	104.7	11	77.4	13	45.4	18
Blueboy	47.4	23	56.0	1	29.1	30	55.3	13	41.1	10	16.2	12	92.4	20	85.4	3	53.7	13
Probstdorfer Karat, (WWP7147)	49.1	20	37.0	26	37.3	14	56.3	11	47.1	3	26.1	4	107.5	9	87.1	2	55.3	11
Odesskaya 51	55.1	4	43.2	22	41.7	8	53.0	17	41.0	11	25.8	5	106.0	10	78.0	12	45.7	17
Martonvasar 3	54.4	9	47.3	15	37.8	13	46.5	23	42.1	8	15.3	14	110.5	8	80.6	8	55.2	12
Iulia	56.5	2	44.7	20	32.2	27	61.5	6	36.7	17	9.3	19	103.3	13	79.8	10	59.8	5
GKF-8001	55.7	3	52.1	4	36.1	15	56.5	10	47.7	1	14.8	16	112.5	7	80.2	9	56.7	9
Lindon	54.6	6	47.4	14	41.8	6	49.8	20	38.9	14	13.6	17	93.2	18	92.4	1	44.9	19
Zg 4364/73	55.1	5	46.6	16	34.3	20	69.8	1	37.7	16	3.4	22	115.1	4	66.7	17	67.9	1
Zg 4240/73	50.7	18	50.6	7	41.3	9	67.0	3	32.5	23	2.3	23	126.2	1	65.8	19	49.3	15
Zg 887/73	52.6	14	51.2	6	45.0	4	65.8	4	19.6	27	0.0	27	122.1	2	83.2	5	50.3	14
F53-70	46.0	26	49.5	10	32.4	26	57.3	9	35.2	21	20.7	9	98.1	15	53.4	24	56.8	8
Mironovskaya 808	45.9	27	36.0	28	35.8	16	43.5	25	42.5	6	42.7	1	97.1	16	76.0	14	56.0	10
F54-70	54.6	6	36.6	27	39.1	12	58.8	8	36.0	19	15.0	15	99.0	14	53.4	24	65.2	2
NE68719	44.9	28	50.4	8	34.1	21	51.3	19	39.7	13	25.7	6	91.4	21	6[illegible]	16	43.5	20
Zg 4293/73	50.8	17	52.7	2	41.2	10	65.0	5	30.4	24	2.0	25	113.3	6	7[illegible]	11	46.8	16
Krasnodarskaya 39	51.3	16	47.7	13	32.7	25	44.5	24	42.9	5	19.7	10	86.5	24	6[illegible]	21	39.4	25
F26-70	48.1	21	45.2	19	34.9	19	55.0	14	30.0	25	7.3	21	72.9	30	43.6	26	41.0	24
NE73640	44.2	29	42.1	23	45.5	2	39.3	28	38.9	14	22.2	8	92.7	19	65.8	19	30.5	29
WA5829	43.0	30	51.6	5	30.8	29	33.8	29	41.2	9	8.2	20	84.4	25	83.2	4	42.5	22
Sage	52.8	12	44.3	21	35.4	17	42.3	26	36.5	18	17.4	11	91.2	22	60.2	23	26.1	30
Flavio	53.8	10	45.4	18	44.0	5	54.5	15	0.0	28	0.0	27	89.5	23	42.7	27	57.6	7
Oasis	47.0	25	35.8	29	33.5	23	53.5	16	33.2	22	28.0	3	76.0	28	41.1	28	38.7	27
Atlas 66	47.4	23	29.5	30	31.4	28	49.3	22	28.4	26	2.2	24	77.0	27	66.[illegible]	18	39.3	26
Bordenave Puan Sag	51.9	15	41.2	25	35.1	18	39.8	27	35.4	20	0.3	26	82.9	26	62.4	22	37.6	28
Galiafen	50.0	19	41.5	24	34.1	21	49.8	20	0.0	28	0.0	27	93.9	17	15.9	30	41.6	23
Lerma Rojo 64	53.1	11	52.7	3	33.3	24	19.5	30	0.0	28	0.0	27	74.2	29	21.8	29	42.9	21
Mean	51.0		45.7		37.5		52.5		34.4		14.0		98.3		67.0		49.1	
L.S.D. of cultivar means (.05)	11.3		11.3		10.9		5.9		5.2		11.0		6.8		8.7		11.2	
Coefficient of variation (%)	15.8		17.7		20.7		7.9		10.9		56.0		4.9		9.3		16.2	

Table 3. Average yield in quintals per hectare and rank for cultivars grown in the 9th IWWPN in 1977. Continued.

Cultivar	Jokioinen, Finland		Orgerus, France		Martonvasar, Hungary		Szeged, Hungary		Karaj, Iran		Sulaimaniya, Iraq		Milano, Italy		Rieti, Italy		Morioka Iwate, Japan	
	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank
Yubiley, (2109-36)	1.7	15	78.6	3	63.1	8	65.3	10	68.6	9	51.6	4	41.7	1	27.7	17	50.2	4
Sadovo-1	1.4	18	77.6	4	62.2	9	63.4	13	84.3	1	57.5	1	36.3	6	31.9	10	47.0	8
Priboy	0.7	25	67.5	11	66.2	4	65.6	8	60.7	19	44.8	11	30.7	21	32.4	8	49.9	5
Bezostaya 1	1.4	18	69.0	8	52.7	26	59.1	19	64.9	14	47.9	6	35.7	8	31.8	11	48.7	6
Blueboy	2.1	10	58.9	19	52.9	25	58.6	20	70.0	7	42.8	13	39.8	3	31.6	12	56.0	1
Probstdorfer Karat,(WWP7147)	3.6	2	60.3	17	61.8	13	70.5	6	64.2	16	29.5	29	30.5	23	33.2	6	41.9	16
Odesskaya 51	1.7	15	66.8	12	61.0	14	60.5	17	69.0	8	43.1	12	36.8	5	27.5	20	46.8	10
Martonvasar 3	2.8	5	68.4	9	54.2	23	65.4	9	74.0	4	41.9	14	30.7	21	26.9	22	48.2	7
Iulia	3.7	1	74.1	5	59.4	16	62.0	15	67.4	10	36.2	21	33.6	13	26.3	25	45.7	12
GKF-8001	2.1	20	63.9	16	49.8	27	49.5	28	70.6	6	46.7	8	32.5	15	29.9	13	46.9	9
Lindon	2.1	10	66.1	14	69.7	2	64.5	12	67.4	10	39.4	16	34.0	12	36.3	3	52.1	3
Zg 4364/73	0.9	24	80.5	1	65.9	5	68.3	7	66.0	12	45.0	10	32.5	15	24.4	28	37.8	22
Zg 4240/73	0.6	26	71.8	6	67.1	3	78.9	1	75.8	3	47.3	7	36.2	7	27.7	17	29.3	26
Zg 887/73	1.8	13	67.7	10	71.7	1	70.8	5	78.4	2	49.2	5	30.4	24	25.0	27	13.2	28
F53-70	3.5	3	65.1	15	58.6	17	62.3	14	58.1	23	39.0	17	33.2	14	29.1	16	46.4	11
Mironovskaya 808	2.4	7	52.8	24	65.9	5	57.5	21	59.4	21	28.1	30	40.7	2	38.5	2	52.4	2
F54-70	2.1	10	59.8	18	57.6	19	53.3	26	54.6	28	37.3	19	35.2	9	32.6	7	43.9	14
NE68719	3.3	4	47.9	27	49.6	28	49.9	27	53.7	29	31.5	24	32.1	18	36.3	3	39.9	18
Zg 4293/73	1.0	22	66.4	13	62.2	9	65.0	11	63.6	17	39.8	15	24.4	30	33.7	5	34.6	25
Krasnodarskaya 39	2.8	5	45.7	30	39.8	30	45.0	30	71.1	5	33.4	23	30.2	25	26.6	23	45.4	13
F26-70	1.8	13	69.6	7	54.5	22	61.9	16	57.6	24	46.1	9	26.4	29	27.6	19	37.8	22
NE73640	2.2	8	55.3	22	65.1	7	55.6	23	59.3	22	35.3	22	29.4	27	29.6	14	40.1	17
WA5829	1.5	17	46.4	29	40.4	29	54.6	24	64.7	15	31.1	26	29.7	26	26.2	26	43.5	15
Sage	1.9	12	52.0	25	62.1	11	56.8	22	60.3	20	37.7	18	34.7	10	27.3	21	39.1	20
Flavio	0.4	28	80.3	2	57.9	18	73.4	2	65.6	13	52.4	3	39.0	4	24.0	29	22.7	27
Oasis	1.2	20	54.6	23	62.1	11	53.4	25	50.4	30	36.9	20	32.2	17	29.4	15	35.9	24
Atlas 66	0.1	29	50.7	26	60.3	15	71.6	4	57.5	27	29.7	28	30.8	20	38.8	1	37.9	21
Bordenave Puan Sag	1.0	22	46.6	28	53.8	24	46.1	29	62.9	18	31.3	25	31.3	19	23.7	30	39.4	19
Galiafen	0.1	29	58.7	20	56.6	20	60.3	18	57.5	25	30.8	27	34.2	11	32.2	9	6.7	30
Lerma Rojo 64	0.5	27	56.8	21	54.7	21	72.5	3	57.5	25	54.1	2	27.2	28	26.5	24	7.9	29
Mean	1.7		62.6		58.6		61.4		64.5		40.6		33.1		29.8		39.6	
L.S.D. of cultivar means (.05)	3.0		7.4		8.3		15.7		13.0		7.4		4.1		12.2		4.6	
Coefficient of variation (%)	124.2		8.4		10.1		18.2		14.4		12.9		8.8		29.1		8.3	

Table 3. Average yield in quintals per hectare and rank for cultivars grown in the 9th IWWPN in 1977. Continued.

Cultivar	Amman, Jordan		Suwon, Korea		Toluca, Mexico		Kathmandu, Nepal		Wageningen, Netherlands		Nollebekk, Norway		Warzawa, Poland		Fundulea, Romania		Svalof, Sweden	
	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank
Yubiley, (2109-36)	15.4	4	35.9	13	0.0	22	18.9	19	54.4	10	13.5	13	29.5	3	53.3	1	42.5	9
Sadovo-1	14.0	7	39.0	10	26.2	12	25.3	5	60.0	4	16.1	9	24.0	16	47.9	9	36.7	18
Priboy	10.8	18	50.1	1	20.5	18	15.8	24	41.2	25	18.1	7	32.1	2	45.4	14	44.8	6
Bezostaya 1	8.5	23	41.4	7	26.5	11	23.7	6	48.1	18	20.5	2	25.7	14	43.7	19	37.3	16
Blueboy	15.4	4	35.9	13	20.8	17	30.5	1	60.2	3	19.3	4	26.2	12	38.2	25	48.2	2
Probstdorfer Karat, (WWP7147)	7.3	26	37.9	11	25.4	13	12.5	28	55.4	8	18.9	5	27.7	7	41.4	23	46.3	3
Odesskaya 51	8.8	22	48.8	2	28.9	7	25.7	3	55.4	8	8.0	15	26.4	11	44.8	15	38.8	14
Martonvasar 3	11.9	13	39.9	8	28.8	8	22.9	9	49.4	17	6.7	17	29.2	4	43.0	20	41.8	10
Iulia	7.7	25	32.5	18	39.7	2	12.8	27	51.1	14	15.8	10	35.9	1	50.6	6	38.6	15
GKF-8001	7.9	24	34.3	15	41.2	1	15.3	25	52.0	13	14.4	12	23.5	17	41.5	22	39.2	13
Lindon	14.1	6	31.9	19	24.2	14	21.3	12	50.8	15	6.7	17	26.7	10	52.6	2	45.1	4
Zg 4364/73	10.6	20	21.7	23	0.0	22	18.1	20	63.0	2	7.2	16	27.2	9	52.5	3	41.1	11
Zg 4240/73	12.1	12	9.4	26	0.0	22	20.6	15	52.9	11	2.9	23	27.6	8	51.1	5	39.3	12
Zg 887/73	18.5	2	13.6	24	0.0	22	16.2	23	65.8	1	0.0	26	19.9	21	44.8	15	43.6	7
F53-70	11.0	17	46.5	3	33.4	4	10.8	29	47.9	19	17.9	8	26.1	13	48.9	7	36.5	19
Mironovskaya 808	5.8	29	41.6	6	26.9	10	21.9	11	43.6	22	24.4	1	29.0	5	30.4	27	45.0	5
F54-70	9.0	21	44.4	4	32.8	5	8.3	30	47.6	20	20.0	3	27.8	6	48.6	8	31.6	26
NE68719	5.2	30	39.7	9	38.5	3	17.4	22	43.0	24	6.2	19	19.2	23	40.4	24	37.3	16
Zg 4293/73	12.5	10	5.3	27	0.0	22	21.0	14	59.1	5	0.0	26	16.2	27	51.3	4	33.8	22
Krasnodarskaya 39	6.7	27	43.4	5	21.8	15	19.6	18	43.9	21	18.7	6	18.9	24	37.5	26	36.4	20
F26-70	13.3	8	33.2	16	28.1	9	23.5	8	52.5	12	5.0	20	17.7	26	46.2	11	30.8	27
NE73640	11.5	16	30.4	20	14.7	19	21.2	13	27.1	30	3.3	22	23.2	18	45.9	12	32.5	25
WA5829	6.1	28	24.3	22	31.2	6	14.9	26	59.1	5	15.1	11	19.9	21	24.2	29	53.0	1
Sage	12.7	9	32.8	17	0.0	22	25.7	3	29.4	29	3.5	21	17.8	25	45.6	13	33.1	23
Flavio	17.5	3	0.0	28	4.1	21	22.5	10	58.1	7	0.0	26	21.5	19	47.8	10	28.6	28
Oasis	11.7	15	36.3	12	0.0	22	20.0	16	43.3	23	8.7	14	14.9	28	44.6	17	34.7	21
Atlas 66	10.8	18	11.0	25	14.5	20	17.8	21	39.8	26	2.1	24	24.8	15	42.9	21	43.0	8
Bordenave Puan Sag	12.5	10	25.6	21	0.0	22	27.8	2	35.7	28	0.3	25	20.5	20	44.0	18	32.6	24
Galiafen	11.9	13	0.0	28	21.2	16	23.7	6	49.7	16	0.0	26	10.6	29	28.5	28	10.9	29
Lerma Rojo 64	20.4	1	0.0	28	0.0	22	19.8	17	39.1	27	0.0	26	10.2	30	23.5	30	0.9	30
Mean	11.4		29.5		18.3		19.8		49.3		9.8		23.3		43.4		36.8	
L.S.D. of cultivar means (.05)	5.3		5.0		6.7		5.1		6.5		7.8		6.7		3.7		6.5	
Coefficient of variation (%)	33.1		11.9		25.9		18.3		9.4		57.0		20.3		6.1		12.5	

Table 3. Average yield in quintals per hectare and rank for cultivars grown in the 9th IWWPN in 1977. Continued.

Cultivar	Zurich, Switzerland		Aleppo, Syria		Ankara, Turkey		Erzurum, Turkey		Eskisehir, Turkey		Davis, California USA		Akron, Colorado USA		Fort Collins, Colorado USA		Brookston, Indiana USA	
	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank
Yubiley, (2109-36)	44.4	5	27.9	4	14.8	23	59.3	2	48.4	1	66.0	5	10.3	3	47.7	3	45.4	16
Sadovo-1	46.8	2	31.4	1	12.2	27	52.4	8	43.1	9	62.1	8	5.5	17	31.9	17	46.9	14
Priboy	41.4	11	28.6	3	23.6	7	43.2	20	38.7	25	58.3	13	6.6	13	47.2	4	61.3	1
Bezostaya 1	45.1	3	26.7	7	21.9	12	55.0	4	46.0	3	57.6	14	9.3	7	46.8	5	51.0	5
Blueboy	42.2	7	26.9	6	33.2	1	50.9	11	45.7	4	57.1	15	6.0	16	47.9	2	60.2	2
Probstdorfer Karat,(WWP7147)	34.6	20	20.6	16	22.6	9	50.7	12	42.3	12	55.[illegible]	17	5.2	19	40.5	9	48.0	11
Odesskaya 51	39.8	12	19.2	17	26.1	3	47.1	16	44.2	7	52.8	21	9.0	9	43.5	7	44.8	19
Martonvasar 3	33.7	22	22.3	14	13.1	25	50.3	13	44.3	6	52.8	20	6.2	15	33.7	14	45.2	17
Iulia	43.6	6	23.1	9	23.7	6	53.4	5	42.7	11	53.3	19	9.9	4	26.6	20	44.2	20
GKF-8001	36.0	17	22.9	11	23.4	8	60.0	1	43.6	8	57.1	15	5.4	18	31.0	18	50.7	6
Lindon	22.9	30	16.3	25	18.9	17	48.9	14	47.4	2	63.5	6	7.6	10	32.9	15	47.1	13
Zg 4364/73	41.6	9	23.1	9	22.2	10	46.4	17	41.1	17	59.1	12	6.3	14	19.2	24	36.7	27
Zg 4240/73	48.7	1	23.8	8	19.8	16	55.8	3	41.0	19	66.8	4	4.1	21	18.6	25	38.9	26
Zg 387/73	36.3	16	27.0	5	14.1	24	52.6	7	41.1	17	70.9	3	0.0	27	0.0	27	43.7	22
F53-70	42.0	8	16.8	22	17.6	19	51.5	9	42.1	14	48.7	26	9.4	6	34.2	13	45.2	17
Mironovskaya 808	45.0	4	11.0	28	21.7	13	38.1	25	40.8	21	37.6	29	10.5	2	48.4	1	50.3	7
F54-70	38.7	13	18.3	20	17.3	20	43.8	19	40.3	23	47.6	27	9.5	5	35.4	12	44.1	21
NE68719	23.0	29	16.4	24	21.0	15	53.2	6	41.8	21	61.4	10	3.6	23	42.5	8	54.7	3
Zg 4293/73	30.8	25	16.8	22	11.0	29	45.3	18	32.5	27	62.7	7	2.7	24	9.3	26	34.1	28
Krasnodarskaya 39	31.1	24	16.0	26	11.8	28	39.3	24	42.1	14	54.7	18	4.4	20	43.9	6	54.6	4
F26-70	37.9	14	17.4	21	12.6	26	41.6	22	42.9	10	51.0	24	12.5	1	22.0	23	40.4	24
NE73640	33.9	21	22.5	12	25.7	4	35.6	27	35.1	26	52.0	23	2.6	25	38.6	10	48.5	10
WA5829	27.6	27	6.4	30	17.9	18	26.9	30	45.1	5	75.2	2	6.7	11	32.9	15	50.2	8
Sage	35.9	18	18.6	19	22.1	11	36.8	26	40.2	24	48.8	25	2.5	26	36.6	11	45.6	15
Flavio	36.8	15	22.4	13	21.4	14	48.5	15	24.9	30	62.0	9	0.0	27	0.0	27	39.0	25
Oasis	27.7	26	10.1	29	15.8	22	30.0	28	41.8	16	45.4	28	9.1	8	27.6	19	48.9	9
Atlas 66	41.5	10	11.8	27	24.6	5	29.0	29	42.3	12	36.5	30	3.8	22	23.8	21	42.8	23
Bordenave Puan Sag	35.8	19	19.2	17	26.4	2	40.2	23	41.0	19	52.2	22	6.7	11	23.2	22	47.9	12
Galiafen	33.2	23	21.1	15	8.4	30	43.0	21	28.3	29	59.6	11	0.0	27	0.0	27	2.2	30
Lerma Rojo 64	26.5	28	29.6	2	16.8	21	51.1	10	31.9	28	75.9	1	0.0	27	0.0	27	30.0	29
Mean	36.8		20.5		19.4		46.0		40.7		56.8		5.8		29.5		44.7	
L.S.D. of cultivar means (.05)	5.1		8.1		11.1		6.5		2.3		8.4		5.7		10.6		7.4	
Coefficient of variation (%)	9.9		28.2		40.7		10.0		4.1		10.5		69.4		25.5		11.8	

Table 3. Average yield in quintals per hectare and rank for cultivars grown in the 9th IWWPN in 1977. Continued.

Cultivar	Hutchinson, Kansas USA		Billings, Montana USA		Lincoln, Nebraska USA		Ithaca, New York USA		Rowan Co. North Carolina USA		Stillwater, Oklahoma USA		Corvallis, Oregon USA		Pullman, Washington USA		Krasnodar, USSR	
	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank
Yubiley, (2109-36)	33.4	7	78.6	17	20.4	17	38.7	1	36.2	1	38.2	15	59.2	2	42.0	10	58.8	5
Sadovo-1	37.3	1	82.9	11	18.5	18	27.3	7	33.1	4	41.7	4	43.0	12	43.8	6	56.6	9
Priboy	28.7	16	80.7	14	30.9	9	27.6	6	32.0	6	43.6	1	35.4	16	40.7	11	60.7	4
Bezostaya 1	32.2	10	84.3	8	31.7	8	24.4	15	30.3	11	40.2	10	54.5	6	44.9	5	52.6	12
Blueboy	36.5	2	84.3	8	18.1	20	30.8	3	35.7	2	43.1	2	33.4	20	43.2	7	52.6	12
Probstdorfer Karat, (7147)	30.2	14	100.7	1	30.1	10	26.5	9	31.8	8	38.0	16	63.9	1	51.1	2	57.2	8
Odesskaya 51	36.2	3	84.7	6	35.3	5	27.0	8	29.4	14	41.2	5	30.7	24	37.7	14	58.4	7
Martonvasar 3	28.3	17	93.7	3	35.7	4	24.8	14	33.3	3	41.0	6	49.0	9	45.4	4	49.2	19
Iulia	35.3	4	77.0	18	5.3	21	29.5	5	29.6	13	35.1	19	55.5	5	40.4	12	53.6	11
GKF-8001	21.3	22	84.4	7	28.5	12	25.4	12	30.7	10	40.6	8	38.0	15	51.2	1	52.6	12
Lindon	31.6	13	86.5	4	32.9	7	29.7	4	31.9	7	40.2	10	17.6	28	42.8	9	46.2	23
Zg 4364/73	24.7	19	84.3	8	0.0	22	31.1	2	30.0	12	31.0	22	56.3	4	36.9	15	61.0	3
Zg 4240/73	19.6	25	81.7	12	0.0	22	22.2	18	22.8	26	27.0	24	54.3	7	34.4	16	64.5	2
Zg 887/73	12.2	27	98.8	2	0.0	22	0.0	26	23.4	24	3.9	27	47.0	10	31.7	21	69.9	1
F53-70	33.5	6	61.2	26	30.0	11	21.6	21	26.4	21	39.8	12	35.2	17	34.1	17	49.5	18
Mironovskaya 808	25.0	18	79.3	15	28.2	13	25.9	11	32.4	5	32.6	21	32.3	22	21.1	27	44.7	25
F54-70	32.2	11	58.6	27	27.0	14	25.2	13	24.7	22	40.3	9	43.8	11	33.3	18	47.9	20
NE68719	29.8	15	73.2	21	38.8	3	21.5	22	28.3	16	39.7	13	34.9	19	38.5	13	44.6	26
Zg 4293/73	20.2	23	84.9	5	0.0	22	20.5	24	23.9	23	26.3	25	42.4	13	32.3	19	58.8	5
Krasnodarskaya 39	32.1	12	78.8	16	40.6	1	21.9	20	31.1	9	40.7	7	35.1	18	43.1	8	42.9	27
F26-70	32.8	9	72.4	22	25.8	15	26.2	10	27.6	19	34.2	20	57.3	3	27.8	25	52.0	15
NE73640	35.3	4	74.1	20	33.8	6	23.9	17	27.6	19	37.4	17	18.6	27	30.9	22	47.3	22
WA5829	19.3	26	81.2	13	18.4	19	24.2	16	28.2	17	41.8	3	32.6	21	50.7	3	42.7	28
Sage	24.4	20	76.6	19	39.7	2	22.0	19	28.8	15	36.2	18	25.1	26	32.3	19	51.2	17
Flavio	0.0	28	42.9	28	0.0	22	0.0	26	11.6	29	0.0	28	50.3	8	9.6	29	54.8	10
Oasis	33.4	7	70.2	24	23.1	16	18.9	25	28.0	18	38.7	14	9.7	30	14.0	28	42.3	29
Atlas 66	19.9	24	62.4	25	0.0	22	21.0	23	21.7	27	22.6	26	26.3	25	25.7	26	51.9	16
Bordenave Puan Sag	22.7	21	72.1	23	0.0	22	0.0	26	22.9	25	29.0	23	14.7	29	29.8	23	45.1	24
Galiafen	0.0	28	30.1	30	0.0	22	0.0	26	5.3	30	0.0	28	42.1	14	28.0	24	39.8	30
Lerma Rojo 64	0.0	28	33.1	29	0.0	22	0.0	26	17.4	28	0.0	28	32.1	23	7.3	30	47.6	21
Mean	25.6		75.1		19.7		21.3		27.2		32.1		39.0		34.8		51.9	
L.S.D. of cultivar means (.05)	5.3		10.8		4.5		7.9		4.2		4.2		9.7		5.3		7.7	
Coefficient of variation (%)	14.7		10.2		16.2		22.7		11.1		9.3		17.7		10.9		10.5	

Table 3. Average yield in quintals per hectare and rank for cultivars grown in the 9th IWWPN in 1977. Concluded.

Cultivar	Odessa, USSR		Monsheim, West Germany		Weihenstephen, West Germany		Novi Sad, Yugoslavia		Zagreb, Yugoslavia		Mean yield over 48 locations[a]	
	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank	q/ha	rank
Yubiley, (2109-36)	23.5	4	56.9	5	64.9	10	73.9	4	59.3	2	46.8	1
Sadovo-1	15.4	22	58.3	4	67.1	6	59.8	18	58.5	3	45.3	2
Priboy	15.4	22	58.4	3	65.2	8	66.1	8	46.4	11	44.7	3
Bezostaya 1	15.2	25	52.9	14	59.6	16	61.8	16	43.6	18	44.0	4
Blueboy	24.3	2	51.4	16	49.7	23	58.1	23	45.1	15	43.6	5
Probstdorfer Karat, (WWP7147)	17.8	17	52.4	15	50.7	21	68.4	6	38.2	23	43.6	5
Odesskaya 51	15.2	25	54.8	11	63.0	11	64.9	10	37.2	26	43.2	7
Martonvasar 3	16.9	20	55.4	8	65.2	9	61.2	17	43.7	17	43.0	8
Iulia	22.0	6	56.5	6	65.6	7	63.2	14	55.1	6	42.9	9
GKF-8001	14.0	28	53.6	13	60.5	15	64.2	12	35.9	27	42.7	10
Lindon	21.3	8	55.4	8	62.3	13	63.5	13	45.5	14	42.3	11
Zg 4364/73	19.6	11	54.9	10	70.9	5	71.4	5	51.8	8	42.1	12
Zg 4240/73	18.6	14	46.9	22	75.8	2	76.0	3	54.0	7	41.6	13
Zg 887/73	17.9	16	58.6	2	81.9	1	83.4	1	61.2	1	40.6	14
F53-70	20.3	9	49.7	18	50.1	22	67.6	7	51.3	9	40.5	15
Mironovskaya 808	23.0	5	56.1	7	52.6	20	59.7	19	38.8	21	40.3	16
F54-70	25.4	1	49.4	19	53.2	19	64.4	11	49.8	10	39.8	17
NE68719	15.2	25	49.1	20	46.0	26	52.9	25	40.3	19	38.7	18
Zg 4293/73	18.6	14	40.7	28	74.5	3	80.1	2	55.9	5	38.5	19
Krasnodarskaya 39	13.9	29	54.1	12	45.3	27	53.7	24	37.6	25	38.2	20
F26-70	20.3	9	43.7	24	62.4	12	59.3	20	45.7	12	37.8	21
NE73640	12.8	30	46.6	23	44.7	29	51.5	26	38.7	22	37.0	22
WA5829	17.8	17	58.9	1	54.4	18	40.4	29	26.6	30	36.9	23
Sage	19.1	13	50.4	17	44.9	28	44.6	28	39.4	20	36.3	24
Flavio	21.5	7	48.4	21	71.4	4	65.7	9	56.4	4	34.4	25
Oasis	17.4	19	41.7	26	55.1	17	58.7	21	44.4	16	34.4	25
Atlas 66	19.6	11	37.8	29	47.2	25	51.0	27	34.5	28	33.2	27
Bordenave Puan Sag	23.8	3	43.4	25	39.3	30	38.6	30	27.5	29	32.6	28
Galiafen	16.6	21	41.4	27	62.1	14	63.0	15	45.6	13	28.1	29
Lerma Rojo 64	15.3	24	35.2	30	48.0	24	58.3	22	37.8	24	27.5	30
Mean	18.6		50.4		58.4		61.5		44.8		39.3	
L.S.D. of cultivar means (.05)	4.7		3.3		6.3		8.8		7.4		3.6	
Coefficient of variation (%)	18.1		4.7		7.7		10.1		11.8		14.5	

[a] Yield data from Eskisehir, Turkey and Odessa, USSR were not included in means over locations. Cambridge, England did not provide yield data.

Table 4. Summary of agronomic data and combined analysis by trait over locations for cultivars grown in the Ninth International Winter Wheat Performance Nursery in 1977.

Cultivar	Flowering: Days from Jan.1	Flowering: rank	Ripening: Days from Jan.1	Ripening: rank	Plant height: cm	Plant height: rank	Lodging: %	Lodging: rank	Shattering: %	Shattering: rank	Frost damage: 0-9	Frost damage: rank	Winter survival: %	Winter survival: rank	Test weight: kg/ha	Test weight: rank	1000-kernel weight: gm	1000-kernel weight: rank	Mean yield over 48 locations[a]: q/ha	Mean yield over 48 locations[a]: % of Bezostaya 1
Number of locations	28		18		27		19		7		5		24		17		17		48	
Yubiley, (2109-36)	140.6	9	179.6	8	83.1	9	19.1	6	7.6	13	1.5	18	87.4	18	78.1	13	42.7	6	46.6	105.9
Sadovo-1	139.7	7	179.3	6	88.7	11	21.5	8	8.3	17	1.8	21	85.8	20	77.8	16	48.6	1	45.3	103.0
Priboy	143.3	20	183.0	25	98.3	19	48.1	23	4.6	2	1.1	5	89.6	6	79.3	4	44.8	2	44.7	101.6
Bezostaya 1	142.7	8	182.1	17	94.9	17	38.2	19	4.5	1	1.3	12	91.4	1	79.3	4	43.4	4	44.0	100.0
Blueboy	143.3	20	183.0	24	102.2	25	36.6	17	6.6	11	1.5	18	87.1	19	74.1	28	38.0	16	43.6	99.1
Probstdorfer Karat, (WWP7147)	148.5	30	186.1	30	110.0	28	34.8	16	5.1	5	1.3	12	89.3	9	79.4	2	42.0	10	43.6	99.1
Odesskaya 51	142.9	18	181.5	14	97.6	18	45.8	22	5.1	5	1.1	5	89.1	10	78.9	8	41.7	11	43.2	98.2
Martonvasar 3	141.9	12	181.1	11	93.4	16	37.2	18	9.0	20	1.3	12	88.4	15	78.4	9	42.6	7	43.0	97.7
Iulia	141.4	10	181.5	15	90.4	12	28.3	11	13.2	25	1.3	12	85.0	21	79.7	1	43.8	3	42.9	97.5
GKF-8001	143.8	23	182.3	19	68.6	2	11.1	3	4.9	4	1.6	20	87.7	17	78.1	13	39.4	14	42.7	97.1
Lindon	142.1	13	181.8	16	92.2	15	54.7	24	6.3	9	1.2	8	88.7	12	78.4	9	31.9	28	42.3	96.1
Zg 4364/73	139.7	7	179.4	7	73.4	5	10.1	2	5.2	7	2.3	25	78.5	22	75.6	23	35.7	24	42.1	95.7
Zg 4240/73	137.5	2	178.5	4	71.4	3	14.2	4	8.0	15	2.1	22	76.2	24	74.0	29	36.2	22	41.6	94.5
Zg 887/73	139.2	6	178.3	3	71.8	4	21.2	7	8.0	15	2.9	26	61.3	27	74.8	27	34.7	25	40.6	92.3
F53-70	142.6	14	182.3	21	99.6	22	30.1	13	20.0	29	1.3	12	90.1	4	79.4	2	42.1	9	40.5	92.1
Mironovskaya 808	147.8	29	183.8	27	120.1	30	58.1	25	17.9	27	0.8	2	91.2	2	76.3	22	42.3	8	40.3	91.6
F54-70	142.8	17	182.9	23	100.1	24	27.8	10	29.8	30	1.2	8	89.7	5	79.1	6	41.7	11	39.8	90.5
NE68719	145.2	26	182.3	20	81.5	8	34.3	15	6.5	10	0.6	1	90.5	3	75.2	24	30.7	30	38.7	88.0
Zg 4293/73	138.1	3	178.8	5	63.2	1	9.8	1	4.7	3	2.2	24	72.4	25	75.2	24	33.7	27	38.5	87.5
Krasnodarskaya 39	145.9	27	183.4	26	99.9	23	43.8	21	5.7	8	0.9	4	89.6	6	77.5	17	38.7	15	38.2	86.8
F26-70	138.2	4	180.1	10	90.8	14	24.5	9	9.6	21	1.2	8	89.1	10	78.3	11	43.2	5	37.8	85.9
NE73640	142.6	14	181.4	13	99.2	20	59.4	27	7.3	12	0.8	2	89.5	8	78.2	12	37.4	21	37.0	84.1
WA5829	147.6	28	186.0	29	79.5	6	31.5	14	8.5	18	1.1	5	87.9	16	73.2	30	31.7	29	36.9	83.9
Sage	143.6	22	182.1	18	104.3	26	59.9	28	14.2	26	1.3	12	88.7	12	77.8	15	37.9	17	36.3	82.5
Flavio	139.1	5	178.0	2	81.1	7	16.3	5	11.0	22	3.3	28	46.8	28	76.8	21	37.8	18	34.4	78.2
Oasis	141.6	11	180.0	9	99.5	21	59.0	26	18.4	28	1.2	8	88.6	14	77.0	20	37.6	20	34.4	78.2
Atlas 66	144.4	25	182.8	22	114.8	29	61.3	29	11.6	23	2.9	26	68.8	26	77.3	19	37.7	19	33.2	75.5
Bordenave Puan Sag	143.0	19	181.2	12	108.3	27	75.5	30	7.8	14	2.1	22	76.8	23	79.0	7	36.1	23	32.6	74.1
Galiafen	143.9	24	183.9	28	90.5	13	28.8	12	8.5	18	4.3	29	34.5	30	74.9	26	34.7	25	28.1	63.9
Lerma Rojo 64	133.8	1	177.3	1	88.5	10	42.6	20	11.6	23	4.4	30	41.0	29	77.5	17	41.0	13	27.5	62.5
Mean	142.2		181.5		91.9		36.1		9.6		1.7		80.7		77.3		39.0		39.3	
L.S.D. of cultivar means (.05)	1.4		1.9		3.2		12.5		10.8		1.3		9.3		1.2		1.8		3.6	
Coefficient of variation (%)	1.6		1.2		6.2		35.4		91.8		53.4		10.0		1.9		6.9		14.5	

[a] Yield data from Eskisehir, Turkey and Odessa, USSR were not included in means over locations. Cambridge, England did not provide yield data.

Table 5. Correlation coefficients for yield and other agronomic traits over all locations for cultivars grown in the Ninth International Winter Wheat Performance Nursery in 1977 (The number of observations is given in parentheses).

Traits	Flowering	Ripening	Plant height	Lodging	Winter survival	Yield	Test weight	Shattering	Frost damage
Ripening	.93** (3046)								
Plant height	.06** (4225)	-.04 (2998)							
Lodging	.07** (3074)	.16** (2174)	.31** (2903)						
Winter survival	-.15** (2590)	-.33** (1904)	.40** (2694)	.03 (2154)					
Yield	.06** (4708)	.10** (3164)	.37** (4494)	.11** (3238)	.28** (3120)				
Test weight	.11** (2699)	.05* (1868)	.24** (2420)	.01 (2070)	.29** (1454)	-.01 (2735)			
Shattering	.02 (948)	.07* (888)	.24** (894)	-.07* (867)	.11** (711)	.01 (951)	-.09* (507)		
Frost damage	-.001 (660)	.22** (778)	-.40** (778)	.05 (615)	-.69** (600)	-.45** (780)	-.28** (270)	-.13* (240)	
1000 kernel weight	.10** (2684)	.23** (2022)	.07** (2482)	-.05* (1895)	.12** (1585)	.22** (2696)	.30** (1869)	-.16** (538)	.10 (331)

* Denotes significance at the .05 level.

** Denotes significance at the .01 level.

Table 6. Mean values and statistics for 10 traits of individual varieties evaluated in the IWWPN in 1977.

VARIABLE[1/]	N[2/]	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
VARIETY=1, Atlas 66									
FLW	158	146.037975	19.907393	396.304281	23074.000000	62219.772152	67.000000	187.000000	13.632
RIPN	107	189.009346	26.493323	701.896138	20224.000000	74400.990654	103.000000	235.000000	14.017
PHT	150	107.953333	23.401754	547.642103	16193.000000	81598.673333	30.000000	143.000000	21.678
LODG	109	49.091743	36.316648	1318.898913	5351.000000	142441.082569	0.0	99.000000	73.977
WSURV	104	69.451923	33.450697	1118.949122	7223.000000	115251.759615	0.0	100.000000	48.164
YIELD	193	32.845492	19.593026	383.886664	6339.180000	73700.239450	0.0	97.000000	59.652
TWT	91	76.530769	2.871186	8.243709	6964.300000	741.933846	69.200000	81.500000	3.752
SHAT	32	10.312500	12.789707	163.576613	330.000000	5070.875000	0.0	50.000000	124.021
FROST	26	2.769231	2.388434	5.704615	72.000000	142.615385	0.0	8.000000	86.249
TKW	87	36.779310	5.018087	25.181195	3199.800000	2165.582759	24.800000	48.700000	13.644
VARIETY=2, Priboy									
FLW	162	144.265432	18.807555	353.724139	23371.000000	56949.586420	83.000000	181.000000	13.037
RIPN	107	188.093458	24.467743	598.670428	20126.000000	63459.065421	131.000000	234.000000	13.008
PHT	154	94.519481	19.343547	374.172621	14556.000000	57248.441558	30.000000	150.000000	20.465
LODG	111	42.405405	34.067681	1160.606880	4707.000000	127666.756757	0.0	99.000000	80.338
WSURV	104	89.740385	15.424099	237.902819	9333.000000	24503.990385	5.000000	100.000000	17.187
YIELD	193	44.211741	21.721974	471.844151	8532.866000	90594.076935	0.0	108.800000	49.132
TWT	94	78.935106	2.330707	5.432195	7419.900000	505.194149	72.300000	84.500000	2.953
SHAT	32	4.031250	5.573465	31.063508	129.000000	962.968750	0.0	20.000000	138.256
FROST	26	1.076923	1.230385	1.513846	28.000000	37.846154	0.0	4.000000	114.250
TKW	92	43.490217	5.345308	28.572321	4001.100000	2600.081196	32.000000	54.700000	12.291
VARIETY=3, Blueboy									
FLW	162	144.401235	20.123673	404.962234	23393.000000	65198.919753	65.000000	182.000000	13.936
RIPN	107	188.439252	25.982642	675.097690	20163.000000	71560.355140	111.000000	236.000000	13.788
PHT	154	97.350649	19.020640	361.784738	14992.000000	55353.064935	30.000000	140.000000	19.528
LODG	110	29.336364	32.338030	1045.748207	3227.000000	113986.554545	0.0	99.000000	110.232
WSURV	104	87.490385	16.852873	284.019324	9099.000000	29253.990385	20.000000	100.000000	19.263
YIELD	193	43.149005	20.416802	416.845823	8327.758000	80034.398081	0.0	97.400000	47.317
TWT	94	73.736170	3.416967	11.675667	6931.200000	1085.837021	65.000000	82.300000	4.634
SHAT	32	5.937500	7.607032	57.866935	190.000000	1793.875000	0.0	30.000000	128.118
FROST	26	1.461538	1.333590	1.778462	38.000000	44.461536	0.0	4.000000	91.246
TKW	92	36.852174	5.843273	34.143841	3390.400000	3107.089565	26.000000	56.000000	15.856
VARIETY=4, Odesskaya 51									
FLW	162	143.790123	19.080552	364.067479	23294.000000	58614.864198	34.000000	188.000000	13.270
RIPN	107	186.906542	25.571776	653.915712	19999.000000	69315.065421	105.000000	233.000000	13.682
PHT	154	93.136364	19.488246	379.791741	14343.000000	58108.136364	30.000000	125.000000	20.924
LODG	110	39.627273	34.854049	1214.804754	4359.000000	132413.718182	0.0	99.000000	87.955
WSURV	104	89.278846	15.187793	230.669063	9285.000000	23758.913462	25.000000	100.000000	17.012
YIELD	193	42.772902	21.056068	443.358016	8255.170000	85124.739079	0.0	113.900000	49.220
TWT	93	78.803226	3.053631	9.324663	7328.700000	857.869032	70.000000	85.000000	3.875
SHAT	32	4.437500	6.021132	36.254032	142.000000	1123.875000	0.0	20.000000	135.687
FROST	26	1.076923	1.440085	2.073846	28.000000	51.846154	0.0	6.000000	133.722
TKW	92	40.765217	5.676778	32.225810	3750.400000	2932.548696	31.000000	54.000000	13.926

1/ FLW = flowering, RIPN = ripening, PHT = plant height, LODG = lodging, WSURU = winter survival, TWT = test weight, SHAT = shattering, TKW = 1000-kernel weight.

2/ Number of observation in each trait.

Table 6. Mean values and statistics for 10 traits of individual varieties evaluated in the IWWPN in 1977. Continued.

VARIETY=5, F26-70

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	139.117284	18.792884	353.172494	22537.000000	56860.771605	80.000000	180.000000	13.507
RIPN	107	185.439252	24.425929	596.625992	19842.000000	63242.355140	126.000000	229.000000	13.172
PHT	154	86.694805	16.859019	284.226509	13351.000000	43486.655844	30.000000	125.000000	19.446
LCDG	109	18.853211	30.065307	903.922698	2055.000000	97623.651376	0.0	99.000000	159.470
WSURV	104	89.451923	16.164734	261.298637	9303.000000	26013.759615	0.0	100.000000	18.071
YIELD	193	37.450570	18.658301	348.132179	7227.960000	66941.378381	0.0	79.300000	49.821
TWT	94	77.927660	3.106407	9.649764	7325.200000	897.428085	68.100000	83.900000	3.986
SHAT	32	8.375000	12.553755	157.596774	268.000000	4885.500000	0.0	50.000000	149.896
FROST	26	1.153846	0.967153	0.935385	30.000000	23.384615	0.0	3.000000	83.820
TKW	92	41.942391	4.599337	21.153898	3858.700000	1925.004674	32.000000	54.100000	10.966

VARIETY=6, WA5829

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	157	148.121019	18.123278	328.453209	23255.000000	51238.700637	84.000000	182.000000	12.235
RIPN	107	191.233645	23.386248	546.916593	20462.000000	57973.158879	126.000000	237.000000	12.229
PHT	154	75.844156	15.481437	239.674900	11680.000000	36670.259740	30.000000	135.000000	20.412
LCDG	110	26.272727	34.951318	1221.594662	2890.000000	133153.818182	0.0	99.000000	133.033
WSURV	104	88.211538	16.599610	275.547050	9174.000000	28381.346154	20.000000	100.000000	18.818
YIELD	193	36.496705	21.698001	470.803227	7043.864000	90394.219640	0.0	101.400000	59.452
TWT	93	72.800000	5.316606	28.266304	6770.400000	2600.500000	51.900000	84.800000	7.303
SHAT	32	7.406250	10.736911	115.281250	237.000000	3573.718750	0.0	40.000000	144.971
FROST	26	1.192308	1.414757	2.001538	31.000000	50.038462	0.0	6.000000	118.657
TKW	92	30.434783	7.621160	58.082074	2800.000000	5285.468696	16.100000	50.700000	25.041

VARIETY=7, Sage

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	144.277778	18.230495	332.350932	23373.000000	53508.500000	82.000000	180.000000	12.636
RIPN	107	187.299065	24.380713	594.419150	20041.000000	63008.429907	110.000000	234.000000	13.017
PHT	154	99.162338	21.825652	476.359095	15271.000000	72882.941558	20.000000	140.000000	22.010
LCDG	110	50.636364	36.250334	1314.086739	5570.000000	143235.454545	0.0	99.000000	71.590
WSURV	104	88.990385	15.478451	239.582431	9255.000000	24676.990385	30.000000	100.000000	17.393
YIELD	193	35.951813	18.987384	360.520746	6938.700000	69219.983137	0.0	95.500000	52.813
TWT	94	77.522340	3.204974	10.271861	7287.100000	955.283085	69.300000	84.200000	4.134
SHAT	32	12.437500	15.636683	244.512097	398.000000	7579.875000	0.0	60.000000	125.724
FROST	26	1.307692	1.667794	2.781538	34.000000	69.538462	0.0	6.000000	127.537
TKW	92	36.821739	4.068529	16.552929	3387.600000	1506.316522	26.700000	45.000000	11.049

VARIETY=8, Bezostaya 1

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	161	143.534161	19.398786	376.312888	23109.000000	60210.062112	79.000000	187.000000	13.515
RIPN	107	187.607477	24.957986	622.901076	20074.000000	66027.514019	126.000000	238.000000	13.303
PHT	154	91.149351	17.533081	307.408921	14037.000000	47033.564935	30.000000	125.000000	19.236
LCDG	111	29.621622	33.726993	1137.510074	3288.000000	125126.108108	0.0	99.000000	113.859
WSURV	104	91.480769	11.174677	124.873413	9514.000000	12861.961538	40.000000	100.000000	12.215
YIELD	193	43.555057	20.085489	403.426871	8406.126000	77457.959312	0.0	110.700000	46.115
TWT	94	79.030851	2.346263	5.504952	7428.900000	511.960532	72.500000	84.300000	2.969
SHAT	32	3.906250	6.055439	36.668347	125.000000	1136.718750	0.0	20.000000	155.019
FROST	26	1.307692	1.225373	1.501538	34.000000	37.538462	0.0	4.000000	93.705
TKW	92	42.067391	4.797919	23.020024	3870.200000	2094.822174	30.000000	56.200000	11.4[illegible]

Table 6. Mean values and statistics for 10 traits of individual varieties evaluated in the IWWPN in 1977. Continued.

VARIETY=9, GKF-8001

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	161	144.577640	19.352209	374.507997	23277.000000	59921.279503	78.000000	185.000000	13.385
RIPN	107	187.831776	25.014142	625.707283	20098.000000	66324.971963	105.000000	235.000000	13.317
PHT	154	65.357143	13.791481	190.204949	10065.000000	29101.357143	20.000000	115.000000	21.102
LODG	111	8.819820	21.528923	463.494513	979.000000	50984.396396	0.0	99.000000	244.097
WSURV	104	88.009615	16.003334	256.106703	9153.000000	26378.990385	10.000000	100.000000	18.184
YIELD	193	42.262249	22.125841	489.552030	8156.614000	93994.144876	0.0	127.000000	52.354
TWT	93	77.676344	3.260748	10.632478	7223.900000	978.187957	63.500000	84.000000	4.198
SHAT	32	4.281250	6.456976	41.692540	137.000000	1292.468750	0.0	25.000000	150.820
FROST	26	1.615385	1.498717	2.246154	42.000000	56.153846	0.0	6.000000	92.778
TKW	92	38.163043	4.659711	21.712905	3511.000000	1975.874348	27.300000	51.200000	12.210

VARIETY=10, Martonvasar 3

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	161	142.906832	19.451478	378.360016	23008.000000	60537.602484	75.000000	187.000000	13.611
RIPN	107	186.570093	25.555383	653.077588	19963.000000	69226.224299	120.000000	233.000000	13.697
PHT	154	88.720779	17.694021	313.078389	13663.000000	47900.993506	30.000000	120.000000	19.943
LODG	110	29.700000	36.560256	1336.652294	3267.000000	145695.100000	0.0	99.000000	123.099
WSURV	104	88.750000	15.221823	231.703883	9230.000000	23865.500000	5.000000	100.000000	17.151
YIELD	193	42.527202	22.381913	500.950016	8207.750000	96182.403001	0.0	116.200000	52.630
TWT	94	78.011702	2.623133	6.880829	7333.100000	639.917128	70.400000	85.000000	3.362
SHAT	32	7.843750	11.262583	126.845766	251.000000	3932.218750	0.0	40.000000	143.597
FROST	26	1.269231	1.079173	1.164615	33.000000	29.115385	0.0	4.000000	85.026
TKW	92	41.719565	4.944244	24.445547	3838.200000	2224.544783	32.400000	57.000000	11.851

VARIETY=11, NE68719

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	161	145.515528	17.884737	319.863820	23428.000000	51178.211180	79.000000	195.000000	12.291
RIPN	107	187.439252	23.522040	553.286369	20056.000000	58648.355140	122.000000	230.000000	12.549
PHT	154	77.889610	15.972019	255.105382	11995.000000	39031.123377	20.000000	115.000000	20.506
LODG	111	24.603604	33.934771	1151.568714	2731.000000	126672.558559	0.0	99.000000	137.926
WSURV	104	90.721154	12.814931	164.222461	9435.000000	16914.913462	40.000000	100.000000	14.126
YIELD	193	38.292860	18.406845	338.811944	7390.522000	65051.893333	0.0	96.100000	48.069
TWT	93	75.091398	3.120711	9.738838	6983.500000	895.973118	66.600000	83.500000	4.156
SHAT	32	5.781250	7.778110	60.498992	185.000000	1875.468750	0.0	30.000000	134.540
FROST	26	0.615385	0.752432	0.566154	16.000000	14.153846	0.0	2.000000	122.270
TKW	92	30.021739	5.047441	25.476665	2762.000000	2318.376522	21.100000	49.600000	16.813

VARIETY=12, Galiafen

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	128	145.335938	20.591366	424.004368	18603.000000	53848.554688	70.000000	182.000000	14.168
RIPN	94	191.074468	26.220422	687.510524	17961.000000	63938.478723	103.000000	236.000000	13.723
PHT	123	88.983740	17.329490	300.311209	10945.000000	36637.967480	30.000000	125.000000	19.475
LODG	88	26.193182	35.797277	1281.445010	2305.000000	111485.715909	0.0	99.000000	136.666
WSURV	104	33.355769	39.306591	1545.008122	3469.000000	159135.836538	0.0	100.000000	117.840
YIELD	193	27.864767	23.908657	571.633440	5377.900000	109753.620415	0.0	97.900000	85.803
TWT	76	74.669231	4.197380	17.618002	5824.200000	1356.586154	63.400000	81.200000	5.621
SHAT	29	8.172414	10.843263	117.576355	237.000000	3292.137931	0.0	30.000000	132.651
FROST	26	4.192308	2.713216	7.361538	109.000000	184.038462	0.0	9.000000	64.719
TKW	82	34.469512	5.015647	25.156713	2826.500000	2037.693780	22.900000	49.000000	14.551

Table 6. Mean values and statistics for 10 traits of individual varieties evaluated in the IWWPN in 1977. Continued.

VARIETY=13, Bordenave Puan Sag

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	157	143.248408	22.080754	487.559693	22490.000000	76059.312102	31.000000	185.000000	15.414
RIPN	107	187.242991	25.953457	673.561908	20035.000000	71399.682243	105.000000	238.000000	13.861
PHT	148	101.898649	23.506473	552.554284	15081.000000	81225.479730	15.000000	135.000000	23.068
LODG	111	61.459459	35.780082	1280.214251	6822.000000	140823.567568	0.0	99.000000	58.217
WSURV	104	75.250000	33.858285	1146.383495	7826.000000	118077.500000	0.0	100.000000	44.994
YIELD	193	32.292373	19.429749	377.515138	6232.428000	72482.906533	0.0	92.900000	60.168
TWT	91	78.651648	2.751539	7.570969	7157.300000	681.387253	71.800000	84.700000	3.498
SHAT	32	7.093750	9.267910	85.894153	227.000000	2662.718750	0.0	40.000000	130.649
FROST	26	2.153846	1.759371	3.095385	56.000000	77.384615	0.0	7.000000	81.665
TKW	87	35.436782	5.104128	26.052120	3083.000000	2240.482299	25.000000	50.000000	14.403

VARIETY=14, Oasis

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	142.345679	20.048488	401.941876	23060.000000	64712.641975	71.000000	181.000000	14.084
RIPN	107	185.383178	26.184990	685.653677	19836.000000	72679.209720	109.000000	233.000000	14.125
PHT	154	93.629870	21.548532	464.339233	14419.000000	71043.902597	20.000000	130.000000	23.015
LODG	110	47.363636	37.449104	1402.435363	5210.000000	152865.454545	0.0	99.000000	79.067
WSURV	104	88.903846	15.260533	232.883869	9246.000000	23987.038462	0.0	100.000000	17.165
YIELD	193	34.083078	18.307935	335.180471	6578.034000	64354.650496	0.0	77.500000	53.716
TWT	93	77.004301	3.208512	10.294547	7161.400000	947.098280	69.600000	82.100000	4.167
SHAT	32	19.843750	20.795641	432.458669	635.000000	13406.218750	0.0	70.000000	104.797
FROST	26	1.192308	0.938903	0.881538	31.000000	22.038462	0.0	3.000000	78.747
TKW	92	36.654348	5.173950	26.769761	3372.200000	2436.048261	23.100000	48.600000	14.116

VARIETY=15, Flavio

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	132	140.045455	21.379116	457.066620	18486.000000	59875.727273	57.000000	181.000000	15.266
RIPN	95	186.473684	28.474640	810.805151	17715.000000	76215.684211	96.000000	242.000000	15.270
PHT	128	79.296875	15.206898	231.249754	10150.000000	29368.718750	29.000000	120.000000	19.177
LODG	92	14.663043	28.647642	820.687410	1349.000000	74682.554348	0.0	99.000000	195.373
WSURV	104	45.278846	42.291971	1788.610810	4709.000000	184226.913462	0.0	100.000000	93.403
YIELD	193	34.074611	26.373683	695.571175	6576.400000	133549.665596	0.0	94.200000	77.400
TWT	79	76.598734	3.109147	9.666793	6051.300000	754.009873	68.100000	81.700000	4.059
SHAT	29	10.655172	15.213424	231.448276	309.000000	6480.551724	0.0	50.000000	142.780
FROST	26	3.192308	2.926011	8.561538	83.000000	214.038462	0.0	9.000000	91.658
TKW	81	37.302469	4.627931	21.417744	3021.500000	1713.419506	27.200000	46.200000	12.407

VARIETY=16, Probstdorfer Karat, (WWP7147)

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	148.469136	18.974705	360.039414	24052.000000	57966.345679	56.000000	183.000000	12.780
RIPN	107	191.196262	23.405950	547.838476	20458.000000	58070.878505	130.000000	240.000000	12.242
PHT	154	104.500000	22.086653	487.820261	16093.000000	74636.500000	30.000000	145.000000	21.136
LODG	110	25.972727	32.426758	1051.494662	2857.000000	114612.918182	0.0	99.000000	124.849
WSURV	104	89.875000	15.650111	244.925971	9347.000000	25227.375000	0.0	100.000000	17.413
YIELD	193	43.130166	22.673874	514.104554	8324.122000	98708.074347	0.0	113.100000	52.571
TWT	93	78.947312	2.565812	6.583389	7342.100000	605.671828	71.000000	83.300000	3.250
SHAT	32	4.593750	5.768990	33.281250	147.000000	1031.71[illegible]750	0.0	25.000000	125.583
FROST	26	1.307692	1.892495	3.581538	34.000000	89.538462	0.0	9.000000	144.720
TKW	92	40.466304	6.003960	36.047533	3722.900000	3280.325543	28.000000	52.700000	14.837

Table 6. Mean values and statistics for 10 traits of individual varieties evaluated in the IWWPN in 1977. Continued.

VARIETY=17, NE73640

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	143.370370	17.906551	320.644582	23226.000000	51623.777778	81.000000	165.000000	12.490
RIPN	107	186.401869	24.142994	582.884147	19945.000000	61785.719626	120.000000	231.000000	12.952
PHT	154	94.305195	20.358656	414.474875	14523.000000	63414.655844	20.000000	140.000000	21.588
LODG	111	45.720721	38.060758	1448.621294	5075.000000	159346.342342	0.0	99.000000	83.246
WSURV	104	89.826923	13.518375	182.746453	9342.000000	18822.884615	45.000000	100.000000	15.049
YIELD	193	36.601865	18.636970	347.336634	7064.160000	66688.633752	0.0	96.900000	50.918
TWT	94	77.923404	2.624427	6.887618	7324.800000	640.548511	68.500000	84.100000	3.368
SHAT	32	6.375000	8.146838	66.370968	204.000000	2057.500000	0.0	25.000000	127.794
FROST	26	0.923077	1.262476	1.593846	24.000000	39.846154	0.0	4.000000	136.768
TKW	92	36.020652	5.685214	32.321657	3313.900000	2941.270761	26.200000	56.100000	15.783

VARIETY=18, Lindon

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	143.030864	18.987548	360.526992	23171.000000	58044.845679	84.000000	190.000000	13.275
RIPN	107	187.112150	24.456479	598.119379	20021.000000	63400.654206	123.000000	234.000000	13.070
PHT	154	87.383117	19.327990	373.571216	13457.000000	57156.396104	20.000000	130.000000	22.119
LODG	110	43.527273	37.253338	1387.811176	4788.000000	151271.418182	0.0	99.000000	85.586
WSURV	104	89.336538	15.705179	246.652633	9291.000000	25405.221154	25.000000	100.000000	17.580
YIELD	193	41.822062	22.269038	495.910050	8071.658000	95214.729695	0.0	99.000000	53.247
TWT	94	78.455319	3.052607	9.318412	7374.800000	866.612340	68.100000	86.000000	3.891
SHAT	32	5.593750	7.889803	62.248992	179.000000	1929.710750	0.0	30.000000	141.047
FROST	26	1.153846	1.084152	1.175385	30.000000	29.384615	0.0	4.000000	93.960
TKW	92	31.128261	5.956792	35.483368	2863.800000	3228.986522	19.300000	48.100000	19.136

VARIETY=19, Mironovskaya 808

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	148.259259	17.721992	314.069013	24018.000000	50565.111111	84.000000	182.000000	11.953
RIPN	107	188.971963	24.863574	618.197320	20220.000000	65528.915888	105.000000	239.000000	13.157
PHT	154	114.311688	23.546233	554.425091	17604.000000	84827.038961	30.000000	160.000000	20.598
LODG	111	45.036036	36.510255	1332.998690	4999.000000	146629.855856	0.0	99.000000	81.069
WSURV	104	91.211538	10.668594	113.818895	9486.000000	11723.346154	60.000000	100.000000	11.697
YIELD	193	39.919223	19.160237	367.114682	7704.410000	70486.018879	0.0	106.200000	47.998
TWT	93	75.522581	3.579657	12.813941	7023.600000	1178.802581	66.900000	81.500000	4.740
SHAT	32	16.031250	25.448854	647.644153	513.000000	20076.968750	0.0	90.000000	158.745
FROST	26	0.807692	1.020558	1.041538	21.000000	26.038462	0.0	4.000000	126.355
TKW	92	40.814130	7.372068	54.347381	3754.900000	4945.611630	25.000000	57.500000	18.063

VARIETY=20, Krasnodarskaya 39

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	158	146.063291	18.511378	342.671128	23078.000000	53799.367089	86.000000	182.000000	12.674
RIPN	107	188.308411	24.633315	606.800212	20149.000000	64320.822430	124.000000	238.000000	13.081
PHT	154	95.577922	19.597179	384.049444	14719.000000	58759.564935	30.000000	133.000000	20.504
LODG	110	35.736364	33.795575	1142.140867	3931.000000	124493.354545	0.0	99.000000	94.569
WSURV	104	89.894231	15.575010	242.580937	9349.000000	24985.836538	5.000000	100.000000	17.326
YIELD	193	37.771098	18.452930	340.510622	7289.822000	65378.039351	0.0	90.600000	48.855
TWT	93	77.276344	3.204324	10.267695	7186.700000	944.627957	65.100000	84.700000	[illegible]
SHAT	32	5.000000	7.260143	52.709677	160.000000	1634.000000	0.0	20.000000	145.203
FROST	26	0.923077	1.128648	1.273846	24.000000	31.846154	0.0	4.000000	122.270
TKW	92	38.086957	4.266847	18.205982	3504.000000	1656.744348	27.100000	47.000000	11.203

Table 6. Mean values and statistics for 10 traits of individual varieties evaluated in the IWWPN in 1977. Continued.

VARIETY=21, Sadovo-1

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	140.746914	19.809437	392.413810	22801.000000	63178.623457	70.000000	179.000000	14.075
RIPN	107	185.056075	26.417130	697.864750	19801.000000	73973.663551	97.000000	232.000000	14.275
PHT	154	84.064935	16.697883	278.819285	12946.000000	42659.350649	30.000000	120.000000	19.863
LODG	111	16.234234	29.511463	870.926454	1802.000000	95801.909910	0.0	99.000000	181.735
WSURV	104	86.298077	19.038479	362.463686	8975.000000	37333.759615	15.000000	100.000000	22.061
YIELD	193	44.824228	22.923665	525.494407	8651.076000	100894.926118	0.0	118.000000	51.141
TWT	94	77.453191	3.478187	12.097785	7280.600000	1125.094043	67.700000	84.100000	4.491
SHAT	32	7.250000	10.429487	108.774194	232.000000	3372.000000	0.0	40.000000	143.855
FROST	26	1.730769	1.778937	3.164615	45.000000	79.115385	0.0	5.000000	102.783
TKW	92	46.719565	6.176902	38.154118	4298.200000	3472.024783	25.100000	59.000000	13.221

VARIETY=22, F53-70

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	143.456790	18.606784	346.212407	23240.000000	55740.197531	80.000000	180.000000	12.970
RIPN	107	187.654206	24.811023	615.586845	20079.000000	65252.205607	113.000000	240.000000	13.222
PHT	154	94.597403	19.553687	382.346660	14568.000000	58499.038961	30.000000	135.000000	20.670
LODG	110	23.781818	30.251054	915.126272	2616.000000	99748.763636	0.0	99.000000	127.202
WSURV	104	90.298077	13.203324	174.327763	9391.000000	17955.759615	30.000000	100.000000	14.622
YIELD	193	40.066435	19.125602	365.788644	7732.822000	70231.419683	0.0	100.400000	47.735
TWT	94	78.822340	2.692609	7.250141	7409.300000	674.263085	71.500000	83.100000	3.416
SHAT	32	17.531250	25.243312	637.224798	561.000000	19753.968750	0.0	90.000000	143.990
FROST	26	1.307692	1.158248	1.341538	34.000000	33.538462	0.0	4.000000	88.572
TKW	92	40.792391	5.028102	25.281810	3752.900000	2300.644674	30.000000	58.400000	12.326

VARIETY=23, F54-70

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	143.697531	18.650126	347.827199	23279.000000	56000.179012	80.000000	185.000000	12.979
RIPN	107	188.168224	24.823713	616.216717	20134.000000	65318.971963	112.000000	231.000000	13.192
PHT	154	95.214286	18.371961	337.528945	14663.000000	51641.928571	30.000000	140.000000	19.295
LODG	111	21.063063	31.603590	998.786896	2338.000000	109866.558559	0.0	99.000000	150.043
WSURV	104	89.817308	15.432134	238.150765	9341.000000	24529.528846	0.0	100.000000	17.182
YIELD	193	39.408725	18.816061	354.044149	7605.884000	67976.476682	0.0	105.500000	47.746
TWT	94	78.595745	2.592127	6.719121	7388.000000	624.878298	69.000000	83.200000	3.298
SHAT	32	26.187500	29.331737	860.350806	838.000000	26670.875000	0.0	90.000000	112.007
FROST	26	1.230769	1.069867	1.144615	32.000000	28.615385	0.0	4.000000	86.927
TKW	92	40.552174	4.973545	24.736149	3730.800000	2250.989565	30.000000	52.000000	12.265

VARIETY=24, Iulia

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	161	142.260870	18.414166	339.081522	22904.000000	54253.043478	79.000000	190.000000	12.944
RIPN	107	186.813084	24.412775	595.983601	19989.000000	63174.261682	117.000000	234.000000	13.068
PHT	153	85.980392	17.744707	314.874613	13155.000000	47860.941176	30.000000	125.000000	20.638
LODG	111	21.333333	30.620354	937.606061	2368.000000	103136.666667	0.0	99.000000	143.533
WSURV	104	85.759615	22.526142	507.427091	8919.000000	52264.990385	5.000000	100.000000	26.267
YIELD	193	42.457005	22.064763	486.853773	8194.202000	93475.924417	0.0	105.200000	51.970
TWT	93	79.440860	2.760602	7.620921	7388.000000	701.124731	69.600000	85.000000	3.475
SHAT	32	11.562500	17.232635	296.963710	370.000000	9205.875000	0.0	80.000000	149.039
FROST	26	1.307692	1.225373	1.501538	34.000000	37.538462	0.0	4.000000	93.705
TKW	91	41.936264	6.034043	36.409670	3816.200000	3276.870330	25.400000	52.500000	14.389

Table 6. Mean values and statistics for 10 traits of individual varieties evaluated in the IWWPN in 1977. Continued.

VARIETY=25, Yubiley, (2109-36)

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	162	142.049383	20.089490	403.587608	23012.000000	64977.604938	65.000000	180.000000	14.143
RIPN	107	185.420561	26.000014	676.000705	19840.000000	71656.074766	108.000000	238.000000	14.022
PHT	154	78.629870	15.000197	225.005899	12109.000000	34425.902597	30.000000	105.000000	19.077
LODG	110	14.200000	27.908040	778.858716	1562.000000	84895.600000	0.0	99.000000	196.535
WSURV	104	87.942308	16.619574	276.210232	9146.000000	28449.653846	20.000000	100.000000	18.898
YIELD	193	46.099907	24.457423	598.165528	8897.282000	114847.781378	0.0	121.900000	53.053
TWT	94	77.559574	2.681410	7.189961	7290.600000	668.666383	69.600000	83.500000	3.457
SHAT	32	6.718750	11.933240	142.402218	215.000000	4414.468750	0.0	60.000000	177.611
FROST	26	1.500000	1.334166	1.780000	39.000000	44.500000	0.0	4.000000	88.944
TKW	92	40.913043	5.945064	35.343784	3764.000000	3216.284348	28.300000	53.700000	14.531

VARIETY=26, Zg 4240/73

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	158	138.879747	20.659619	426.819842	21943.000000	67010.715190	68.000000	179.000000	14.876
RIPN	107	184.626168	27.088089	733.764592	19755.000000	77779.046729	103.000000	232.000000	14.672
PHT	150	67.386667	14.220123	202.211902	10108.000000	30129.573333	24.000000	120.000000	21.102
LODG	110	10.545455	23.242888	540.231860	1160.000000	58885.272727	0.0	99.000000	220.407
WSURV	104	77.211538	30.714682	943.391710	8030.000000	97169.346154	0.0	100.000000	39.780
YIELD	193	41.155969	27.553829	759.213491	7943.102000	145768.990324	0.0	129.300000	66.950
TWT	89	73.523596	4.266919	18.206596	6543.600000	1602.180449	58.800000	81.700000	5.803
SHAT	32	7.000000	14.522508	210.903226	224.000000	6538.000000	0.0	80.000000	207.464
FROST	26	2.115385	2.006528	4.026154	55.000000	100.653846	0.0	6.000000	94.854
TKW	87	35.214943	4.686659	21.964774	3063.700000	1888.970575	2[illegible].000000	50.300000	13.309

VARIETY=27, Zg 887/73

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	149	139.959732	21.313262	454.255124	20854.000000	67229.750389	60.000000	178.000000	15.228
RIPN	103	186.281553	26.711023	713.478774	19187.000000	72774.834951	96.000000	230.000000	14.339
PHT	141	68.921986	13.663335	186.686727	9718.000000	26136.141844	25.000000	124.000000	19.824
LODG	103	16.252427	31.257225	977.014087	1674.000000	99655.436893	0.0	99.000000	192.323
WSURV	104	59.250000	39.263548	1541.626214	6162.000000	158787.500000	0.0	100.000000	66.268
YIELD	193	40.135233	30.944291	957.549169	7746.100000	183849.440415	0.0	124.300000	77.100
TWT	86	74.546512	3.088754	9.540399	6411.000000	810.933953	64.200000	81.500000	4.143
SHAT	32	6.968750	10.240603	104.869960	223.000000	3250.968750	0.0	40.000000	146.950
FROST	26	2.807692	2.209420	4.881538	73.000000	122.038462	0.0	7.000000	78.692
TKW	86	34.052326	5.831269	34.003700	2928.500000	2890.314535	22.000000	49.800000	17.124

VARIETY=28, Zg 4364/73

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	159	141.000000	19.612383	384.645570	22419.000000	60774.000000	68.000000	180.000000	13.909
RIPN	107	184.943925	25.172174	633.638335	19789.000000	67165.663551	102.000000	232.000000	13.611
PHT	150	69.306667	14.118362	199.328143	10396.000000	29699.893333	20.000000	103.000000	20.371
LODG	110	7.900000	20.985338	440.384404	869.000000	48001.900000	0.0	99.000000	265.637
WSURV	104	79.625000	29.468162	868.372573	8281.000000	89442.375000	0.0	100.000000	37.009
YIELD	193	41.651710	25.997375	675.863485	8038.780000	129765.789136	0.0	119.500000	62.416
TWT	93	75.125806	3.762946	14.159762	6986.700000	1302.698065	63.700000	82.300000	5.009
SHAT	32	4.562500	6.743874	45.479839	146.000000	1409.875000	0.0	25.000000	147.811
FROST	26	2.230769	1.795721	3.224615	58.000000	80.615385	0.0	6.000000	80.498
TKW	87	34.797701	4.550670	20.708599	3027.400000	1780.939540	26.500000	47.200000	13.078

Table 6. Mean values and statistics for 10 traits of individual varieties evaluated in the IWWPN in 1977. Concluded.

VARIETY=29, Zg 4293/73

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	155	139.309677	20.546611	422.163217	21593.000000	65013.135484	69.000000	181.000000	14.749
RIPN	107	184.971963	26.400207	696.970905	19792.000000	73878.915888	110.000000	240.000000	14.273
PHT	148	59.932432	11.810673	139.492002	8870.000000	20505.324324	20.000000	93.000000	19.707
LODG	108	7.555556	21.365678	456.492212	816.000000	48844.666667	0.0	99.000000	282.721
WSURV	104	72.730769	33.588380	1128.179238	7564.000000	116202.461538	0.0	100.000000	46.162
YIELD	193	38.116870	26.876764	722.360426	7356.556000	138693.201806	0.0	116.800000	70.511
TWT	87	74.742529	3.640938	13.256426	6502.600000	1140.052644	61.300000	82.600000	4.871
SHAT	32	4.187500	5.811210	33.770161	134.000000	1046.875000	0.0	20.000000	138.775
FROST	26	2.192308	1.811502	3.281538	57.000000	82.038462	0.0	6.000000	82.630
TKW	86	33.269767	4.782691	22.874134	2861.200000	1944.301395	24.300000	48.600000	14.375

VARIETY=30, Lerma Rojo 64

VARIABLE	N	MEAN	STANDARD DEV	VARIANCE	SUM	CORRECTED SS	RANGE LOW	RANGE HIGH	C.V.
FLW	124	133.927419	22.339645	499.059730	16607.000000	61384.346774	55.000000	177.000000	16.680
RIPN	90	183.833333	28.849182	832.275281	16545.000000	74072.500000	98.000000	238.000000	15.693
PHT	123	87.317073	14.720520	216.693723	10740.000000	26436.634146	35.000000	130.000000	16.859
LODG	89	38.067416	39.300936	1544.563585	3388.000000	135921.595506	0.0	99.000000	103.240
WSURV	104	39.269231	41.044667	1684.664675	4084.000000	173520.461538	0.0	100.000000	104.521
YIELD	193	27.258031	23.503022	552.392032	5260.800000	106059.270052	0.0	83.000000	86.224
TWT	75	77.332000	3.323591	11.046259	5799.900000	817.423200	67.900000	85.700000	4.298
SHAT	29	11.206897	19.685708	387.527094	325.000000	10850.758621	0.0	80.000000	175.657
FROST	26	4.576923	2.995638	8.973846	119.000000	224.346154	0.0	8.000000	65.451
TKW	81	40.903704	5.666005	32.103611	3313.200000	2568.288889	29.400000	51.600000	13.852