ITEMS FROM TURKEY

TURKEY–CIMMYT–ICARDA
CIMMYT International Winter Wheat Improvement Center (IWWIP), Turkey Regional Office.

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The overall objective of IWWIP remained the same: development of high-yielding and drought-tolerant winter/facultative wheat cultivars resistant to prevailing diseases with suitable grain quality as well as facilitation of the global winter wheat germ plasm exchange. The 2007–08 season was characterized by further transition of the IWWIP towards a more focused research and cultivar development for irrigated and semiarid environments on one hand. On the other hand, substantial efforts continued for the program to be more responsive to the clients, more transparent, and more efficient. The recommendations of 2008 IWWIP Traveling Seminar served as a guide for focusing the program and restructuring the international nursery system. The IWWIP global survey was completed in 2008 (report available on request) demonstrating that out of 49 programs responding to survey, 95% were satisfied with the germ plasm provided and appreciated the diversity of the traits. Two important practical suggestions were made, provide the data with the international nurseries (implemented) and increase the amount of seed distributed for Facultative and Winter Wheat Observation Nursery (FAWWON; implemented). The IWWIP governing mechanism, including coördinators from Turkey, CIMMYT, and ICARDA; a technical committee; a steering committee; and an annual meeting, functioned well and contributed substantially to streamlining the program. The weather conditions of 2007–08 season were not as dry as in previous year but quite variable across locations some with excellent yield potential (Konya and Edirne), whereas others suffering almost complete failure due to drought (Dyiarbakir and Haymana). In general, the season was interesting and productive from the breeding point of view.

International nurseries. The new system of international nurseries is in place since 2007 and proved to serve the IWWIP community well. One important modification was made for the 2008–09 international nurseries. All the entries entering the IWWYT nursery were repeated in the respective FAWWON as the first block essentially under the same numbers, which provided the best germ plasm to FAWWON coöperators who did not receive the IWWYT. Table 1 lists the nurseries that have been distributed for 2008–09 season. For the 2009–10 season, the program plans to expand the IWWYT trials to 30–40 entries also including the best introduced germ plasm.

Table 1. The International Winter Wheat Improvement Program international nurseries distributed for the 2008–09 season.

Nursery	Number of entries	Reps	Amount of seed per entry (g)	% of introduced germ plasm	Number of sets distributed (Turkey/OSU)
16th Facultative and Winter Wheat Observation Nursery for Irrigated conditions (16th FAWWON–IRR)	90	1	30	67	86/30
16th Facultative and Winter Wheat Observation Nursery for Semiarid conditions (16th FAWWON–SA)	65	1	30	25	50/30
12th International Winter Wheat Yield Trial for Irrigated conditions (12th IWWYT–IRR)	20	2	180	0	35
11th International Winter Wheat Yield Trial for Semiarid conditions (12th IWWYT–SA)	20	2	160	0	30

Cultivars released. The collection of the data on released cultivars is challenging and only possible through coöperation and feedback from the region. Table 2 (p. 190) presents the list of winter facultative wheat germ plasm originating from the IWWIP and released in the region.

Table 2. The list of winter/facultative wheat varieties originating from International Winter Wheat Improvement Program and released in the CWANA region (* – the area is being updated presently).

Country	Cultivar	Year	Pedigree	Area* (ha)
Afghanistan	Pamir 94	1994	YMH/TOB//MCD/3/LIRA	150,000
Afghanistan	Gul 96	1996	ID800994.W/VEE	
Afghanistan	Sultan 95	n.a.	AGRI/NAC	
Afghanistan	Solh 02	2002	OK 82282//BOW/NKT	
Armenia	Armcim	2006	1D13.1/MLT	300
Georgia	Mtshetskaya 1	2002	TAST/SPRW//ZAR	100
Iran	Tous	2002	SPN/MCD//CAMA/3/NZT	25,000
Iran	Zarrin	1996	NAI60/HEINE VII//BUC/3/F59.71/GHK	200,000
Kazakhstan	Egemen	2007	BHR/AGA//SNI/3/TRK13	500
Kyrghyzstan	Almira	2005	F.474S10.1	50
Kyrghyzstan	Azibrosh	2004	OK82282//BOW/NKT	3,000
Kyrghyzstan	Djamin	2005	NS55-58/VEE	3,000
Kyrghyzstan	Zubkov	2004	1D13/MLT//KAUZ	1,000
Tajikistan	Alex	2007	PYN/BAU	2,500
Tajikistan	Norman	2007	OR F1.158/FDL//BLO/3/SHI4414/CROW	2,500
Tajikistan	Ormon	2008	NWT/3/TAST/SPRW//TAW12399.75	1,700
Turkey	Alpaslan	2001	TX69A509-2//BLUEBOY II/FOX	6,500
Turkey	Alpu 2001	2001	ID800994.W/VEERY	20,000
Turkey	Bagci 02	2002	HN7/OROFEN//BEIJING 8/3/SERI M 82/4/ 74CB462/ TRAPPER//VONA	1,500
Turkey	Kinaci 97	1997	YMH/TOB//MCD/3/LIRA	20,000
Turkey	Cetinel 2000	2000	MALCOLM/4/VPM 1/MOISSON 951//HILL 81/3/ STEPHENS	1
Turkey	Daphan	2002	JUPATECO F 73/4/COLLAFEN/3/II14.53/ ODIN// CI13431/WA00477	26,000
Turkey	Goksu 99	1999	AGRI/NACOZARI F 76	100
Turkey	Gün 91	1999	FUNDALEA 35.70/MOCHIS 73	350,000
Turkey	Izgi	2001	CA8055/KUTLUK 94	1
Turkey	Karasu 90	1990	LOVRIN 11/BOLAL 2973// MIRONOVSKAYA 264	32,800
Turkey	Nenehatun	2001	NORD DEPREZ/PULLMAN SELECTION 101//BLUE-BOY	16,000
Turkey	Ozcan	2004	K8/MM2	50
Turkey	Sakin	2002	PITIC 62/FUNO*2//VALDIVIA/3/ CO723595	600
Turkey	Soyer	2002	ATAY 85/GALVEZ S 87	0
Turkey	Sultan 95	1995	AGRI/NACOZARI F 76	50,000
Turkey	Yildirim	2002	ID800994.W/VEERY	6,500
Turkey	Yildiz 98	1998	55.1744/PULLMAN SELECTION 101//MAYA 74/3/MUS-ALA/PRIMO//MAYA 74/ALONDRA	10,000
Turkey	Ekiz	2004	F885 K1.1/SXL	5,000
Turkey	Canik 2003	2003	ANZA/VRZ	250
Turkey	Hanli	2007	OK82282//BOW/NKT/3/F4105	0
Turkey	Beskopru	2007	362K2.111/6/NKT/5/TOB/CNO67// TOB/8156/3/CAL//BB/ CNO67/4/TRM	0
Turkey	Müfitbey	2006	NGDA146/4/YMH/TOB//MCD/3/LIRA/5/F130L1.12	1
Turkmenistan	Bitarap	2004	SN64//SKE/2*ANE/3/SX/4/BEZ/5/SERI	25,000
Uzbekistan	Dostlik	2002	YMH/TOB//MCD/3/LIRA	40,000

Table 3. Stem rust reaction of selected Internation Wheat Wheat Improvement Program entries in Njoro, Kenya, 2008. Rust reactions were recorded on two dates, 20 October 2008 and 31 October, 2008.

Nursery	Entry	Cname	Origin	Sr 20.10.08	Sr 31.10.08
08CBWF	19	VORONA//MILAN/SHA7/3/MV17	TCI	20MRMS	15MR, 30S
08CBWF	20	MOTAH/BOUHOUTH6	TCI	15MR	15MR
08CBWF	28	VORONA/OPATA//PYN/BAU	TCI	20MRMS	20MRMS
08CBWF	32	KS82W409/SPN//TAM106/TX78V3630	TCI	10MR	10MR
08CBWF	57	STARSHINA	RUS	20MRMS	20MRMS
08CBWF	72	NEMURA/CRDN//78014-40	OR–TCI	20MR	20MR
08CBWF	73	PYN/BAU	MX	RV	20MRMS
08CBWF	76	AGRI/BJY//VEE/3/BUL6687.12	TCI	RV	20MRMS
08CBWF	91	CITARI-9	TCI	20MR	20MRMS
08CBWF	98	POBEDA 50	RUS	RV	20MRMS
08CBWF	107	UN-49	UN	20MRMS	20MRMS
08CBWF	124	LC 909 MIMA	BG–KC	20MRMS	20MR, 40S
08CBWF	188	ICDW-9246	AFG	20MR	20MR
08CBWF	194	338-K1-1//ANB/BUC/3/GS50A	TCI	20MRMS	20MRMS
08CBWF	195	338-K1-1//ANB/BUC/3/GS50A	TCI	10MR	10MS
08CBWF	201	BILINMIYEN96.7	TCI	RV	10MRMS
08CBWF	269	DMN//SUT/AG(ES86-7)/3/OPATA/ 4/ TX71A1039-VI*3/AMI	TCI	20MRMS	20MRMS
10th EYT-SA	9,909	SABALAN/4/VRZ/3/OR F1.148/ TDL// BLO	TCI	10MS	10MS, 10M
10th EYT-SA	9,920	AGRI/BJY//VEE/3/GUN91/4/ CHAM6//1D13.1/MLT	TCI	30MS	100S
10th EYT-SA	9,923	SUBEN-7	SY	20MR	20MR
11th IWWYT-IRR	9,819	ID800994.W/KAUZ//ROLLER/4/ WN158/ NSD//4105W/3/TAM200	TCI	10MR	10MR
15th FAW-IRR	9	AGRI/NAC//KAUZ/3/1D13.1/MLT	TCI	20MS	20MRMS
15th FAW-IRR	34	KAUZ//ALTAR 84/AOS/3/F10S-1	TCI	20MR	20MR
15th FAW-IRR	39	ID800994.W/KAUZ//ROLLER/4/ WN158/ NSD//4105W/3/TAM200	TCI	15MR	15MR
15th FAW-IRR	40	SULTAN95	TCI	5MS	10MR
15th FAW-IRR	51	BONITO//KAREE/TUGELA	TCI	10MRMS	10MRMS
15th FAW-IRR	56	B.YAPEYU/P.QUINTAL	ARG	20MR	20MRMS
15th FAW-IRR	59	CONA/KLCRI/3/BPON/W000015//KL-CRI	ARG	10MRMS	10MRMS
15th FAW-IRR	61	CONA/KLCRI/3/BPON/W000015//KL-CRI	ARG	10MS	10MS
15th FAW-IRR	67	KL. ESCUDO	ARG	5MRMS	20M
15th FAW-IRR	97	F99419G4-1A12	RO	10MR	20MR
15th FAW-IRR	98	Od.Krasnok/DOR	RO	10MRMS	20MR
15th FAW-IRR	109	INIA TORCAZA	URU	10MR (1 PL-20S)	10MRMS
15th FAW-SA	10	ZARGANA-6	TCI	20MR	20MR
15th FAW-SA	16	MAHON DEMIAS/3/HIM/ CNDR// CA8055	TCI	10MR (1 PL-30S)	10MR
15th FAW-SA	28	PYN/BAU//VORONA/HD2402	TCI	20MR	20MR
15th FAW-SA	36	SUBEN/4/PKG16/OLV13// JSW3/3/ KVZ/./IDH2	TCI	RV	10MRMS
15th FAW-SA	43	UNKNOWN-3	IR	10MRMS	10MSMR
15th FAW-SA	48	059E//Jagger/Pecos	US–Agripro	10MS	10MS
15th FAW-SA	49	TAM 105/3/NE70654/BBY// BOW"S"/4/ Century*3/TA2450	US–AgriPro	10MRMS	10MRMS
16th FAW-IRR	63	MV-TALTOS	HUN	0	10MR
16th FAW-IRR	72	F00429GP1	ROM	TR	10MR
16th FAW-SA	121	TIRCHMIR1//71ST2959/CROW/4/ NWT/3/TAST/SPRW//TAW12399.75	TCI	15MS	20MRMS

Stem rust evaluation in Kenya. During the off-and regular season of 2008 a good evaluation of resistance to stem rust in Kenya was conducted. The previous two years failed to produce reliable data. In 2008, more than 700 IWWIP entries were evaluated and approximately 120 entries were identified that possess variable degrees of resistance (a sample is presented in Table 3, p. 191). Personally conducting the evaluation in Kenya was very important, because it allowed a good feel for the germ plasm and confidence in selection. The data singled out F_2 and F_3 segregating populations, tracing their pedigree to resistant parents. Respectively, a stem rust Ug99-resistant F_3 was assembled and distributed in Turkey and outside (Iran, Azerbaijan, and Kazakhstan). The selected entries are being multiplied in Turkey and Oregon, USA, for international distribution. Subsets were sent to Cornell University for haplotyping and to the Cereal Disease Laboratory for seedlings tests to identify possible genes. The selected entries will be used for targeted crosses.

ITEMS FROM THE UKRAINE

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Change in the climate and sowing dates of winter wheat.

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The best conditions for winter wheat yields are at emergence during the 55–60 days in autumn. Winter wheat, planted at both early and late sowing dates, have insufficient winter hardiness and considerably reduced yield ability. When sown earlier than the optimal date, plants develop a heavy aboveground mass and, thus, loose more moisture and nutrients in the autumn than those sown at the optimal date. On the contrary, late-sown plants fail to develop sufficient vegetation and root systems and can not fully use water and nutrients (Zubets MV 2004). The sowing date also influences the phytosanitary state of the wheat crop.

Early sown plants are damaged by Hessian and other flies, cereal aphids, cicadas, and also, to a greater degree, by root rots, brown leaf rust, powdery mildew, Septoria, and virus diseases (Rakhmaninov 1925; Bockman and Knout 1971; Pavlov 1976; Susidko et al. 1976). At the same time, later sown plants are damaged more severely by spring generations of flies (Zagovora 1953) and wheat sawflies (Begzadyan 1984; Peresypkin 1976).

The dependence of winter wheat yield on sowing date was studied at the Plant Production Institute nd. a. V. Ya. Yuriev of the UAAS (the eastern Forest-Steppe of Ukraine) from 1914-17, 1937-41 (Solodkyi 1959), 1970-72 (Matushkin 1985), 1987-90 (Budyennyi et al. 1992), and 2001-07 (Krasilovets et al. 2007). According to these multi-year studies, particularly 1914-90 in the latitude of Kharkov, maximum grain yield in winter wheat after fallow forecrops was obtained when sown on the 25 August (Table 1). When the sowing took-place on 15-18 August, crop yield was 94–96 % compared to the 25th. Sowing on 1, 10, and 20 September reduced this index to 97–99%, 90–92%, and 75–81%,

Table 1. Average yield of winter wheat on fallow at different sowing dates in experiments at the Plant Production Institute nd. a. V. Ya. Yuriev, Ukraine, % of maximum (* maximum yield, t/ha).

Sowing date	1914–17	1937–41	1970–72	1987–90	2001–04	2004–07
15–18 August	94	99	—	97	—	—
25 August	100 (2.55)*	100 (2.20)*	100 (4.54)*	100 (5.21)*	—	—
1 September	—	97	98	99	—	96
10 September	92	90	92	92	96	100 (5.36)*
20 September	75	—	78	81	100 (6.51)*	9-6
25 September	50	—	—	68	98	—