So far, we have analyzed several hundred BC_1-selfed plants and diversified the backcross production over different wheat cultivars. The trend of *Th. bessarabicum* bivalent associations has remained the same. Listed in Table 4 are some derivatives with their cytological detail and plant fertility seed number.

Table 4. Cytological detail and the harvested seed progeny frequency of some BC_1, self-fertile progenies (II = bivalents and I = univalents).

Entry number	Mitotic count	Mitotic association	Total spike/ plant	Total seed number
87-4081	49	23 II + 3 I	8	261
87-4087	50	24 II + 2 I	4	141
87-4091	50	25 II	11	272
87-4102	49	24 II + 1 I	6	205
87-4106	48	24 II	6	164

The differential response to scab of the BC_1-selfed material is now explained by the absence/presence of the seven *Th. bessarabicum* chromosomes, although we initially determined in a separate test that the scab resistance is associated with up to three *Th. bessarabicum* chromosomes. The backcross, selfed derivatives with multiple disomics and superior type II scab resistance are good candidates for cytogenetic manipulation; a procedure currently underway.

References.

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Current status of D-genome based, synthetic, hexaploid wheats and the characterization of an elite subset.

A. Mujeeb-Kazi, G. Fuentes-Davila, R. Delgado, V. Rosas, S. Cano, A. Cortés, L. Juarez, and J. Sanchez.

Bridge crosses utilizing synthetic hexaploids *(T. turgidum/Ae. tauschii)* provide a potent means of improving bread wheats. The procedure enables incorporation of the genetic diversity of *T. turgidum* cultivars together with that contributed by the *Ae. tauschii* accessions. From the 521 SH wheats produced since 1995, an elite set of 95 synthetics was prepared and has been characterized for some morphological, growth, biotic, and abiotic attributes. All SH wheats are cytogenetically stable. The elite set possesses an agronomically more desirable grown habit under two Mexican locations; Obregon (27°20'N,105°55'W, 39 masl) and El Batan (19°31'N, 98°50'W, 2,249 masl). Growing the synthetics in these locations enabled selections to be made with the assistance of our breeding colleagues (S. Rajaram and R.L. Villareal) for the elite set of 95 SH entries. These SH entries were studied for several growth parameters and screened for diversity towards some stresses. Observations based on an Obregon planting were recorded for days-to-flowering, presence of pubescence on spikes, tiller anthocyanin pigmentation, plant height, awn color, days-to-physiological maturity, leaf and stem rust response, and 1,000-kernel weight. Reactions to stress evaluations associated with leaf/stem rust, *H. sativum, F. graminearum, S. tritici,* and *N. indica* conducted at various Mexico locations were tabulated. Quality parameters (HMW- and LMW-glutenin subunits) also were analyzed. These elite set attributes are elucidated here.

Establishing some descriptors. From the wide array of SH wheats produced, field plantings were utilized for the evaluation of agronomic parameters including the assessment of yield potential and its components. Based upon these characteristics, Villareal et al. (1994) demonstrated extensive genetic diversity for plant height, flowering date, grain-fill duration, days-to-physiological maturity, aboveground biomass at maturity, 1,000-kernel weight, spikes/m^2, and higher grain yield. The grain yield ranged from 0.89 up to 8.01 t/ha. Utilization of this select germ plasm for wheat improvement presumably will be an advantage, if the more agronomically desirable SH wheats are exploited that further express high levels of resistance to biotic/abiotic stresses as opposed to using resistant but poor agronomic types. Days-to-flowering ranged from 85 to 119, and physiological maturity between 115 to 152. Plant height was between 85 to 140 cm, and 1,000-kernel weight was from 30.2 to 67.6 g. Lodging was fairly common and was associated with the taller SH entries with higher 1,000-kernel weight.

Table 5. Some descriptors for 95 elite *Triticum turgidum* x *Aegilops tauschii* synthetic hexaploid wheats (2n = 6x = 42, AABBDD) produced in CIMMYT, Mexico.

PEDIGREE	Cross No.	FLOW	PUB	PIG	HT	AWN	P.MAT	LR	SR	GWT	H.SAT	SCAB	SEPT	KB	HMW	LMW
1. ALTAR 84/*Ae. tauschii* (188)†	CIGM87.2765	104			100	LB	144	20MSMR	R	52.3	9.5	22.9	3-2	0	5+10	2
2. DOY1/*Ae. tauschii* (188)	CIGM88.1175	89	+	+	110	LB	130	40MSMR	R	59.6	9.9	16.2	2-1	0	5+10	2
3. ALTAR 84/*Ae. tauschii* (192)	CIGM87.2767	102		+	95	LB	136	30MSMR	R	59.7	9.6	19.4	2-1	0	1.5+12	2
4. ALTAR 84/*Ae. tauschii* (193)	CIGM87.2775	85			115	W	120	30MSMR	R	43.0	9.6	28.5	5-4	0.8	2+12	-
5. ALTAR 84/*Ae. tauschii* (198)	CIGM87.2768	99			120	LB	140	30MSMR	R	57.0	9.6	19.4	2-1	1.7	1.5+12	-
6CROC 1/*Ae. tauschii* (205)	CIGM86.946	99	+		100	DB	136	40S	R	54.4	9.6	28.4	2-1	1.1	2.1+10	2
7ALTAR 84/*Ae. tauschii* (205)	CIGM87.2770	96			105	W	132	30MSMR	R	46.7	9.8	28.4	5-4	0	3+10.5/10	2
8CPI/GEDIZ/3/GOO//JO69/CRA/4/*Ae. tauschii* (208)	CIGM88.1194	100	+		110	W	132	30MSMR	R	59.4	9.3	13.5	3-2	0	5+10	2
9ALTAR 84/*Ae. tauschii* (211)	CIGM87.2771	96			135	W	134	30MSMR	R	53.7	9.6	20.8	2-1	0	1.5+12	2
10D67.2/P66.270//*Ae. tauschii* (211)	CIGM88.1197	117		+	85	DB	152	20MSMR	R	52.4	9.5	24.6	2-2	0	2+12/5+12	1
11D67.2/P66.270//*Ae. tauschii* (213)	CIGM88.1200	100		+	110	DB	144	30SMS	R	55.6	9.6	28.8	2-1	0	2.1+10/5+10	1
12ROK/KML//*Ae. tauschii* (214)	CIGM86.959	85		+	115	DB	127	30MSMR	R	62.2	9.7	27.9	2-1	2.6	2.1+10	2
13D67.2/P66.270//*Ae. tauschii* (217)	CIGM88.1209	110		+	105	DB	148	10MRMS	R	55.5	9.6	19.7	3-2	0	5+10/4+10	1
14YUK/*Ae. tauschii* (217)	CIGM90.561	93	+	+	115	W	130	30MSMR	R	59.0	9.3	12.1	2-1	0	5+10	2
15D67.2/P66.270//*Ae. tauschii* (218)	CIGM88.1211	106		+	115	B	144	40S	R	60.0	9.6	20	2-1	0	5+10/4+10	1
16ALTAR 84/*Ae. tauschii* (219)	CIGM86.940	100		+	95	W	134	40S	R	55.9	9.6	24.6	3-2	0	1.5+T1T2	2
17ALTAR 84/*Ae. tauschii* (220)	CIGM87.2760	99	+	+	100	DB	134	30MSMR	R	60.0	9.5	14.1	2-2	0	1.5+T2	2
18D67.2/P66.270//*Ae. tauschii* (220)	CIGM88.1212	110		+	105	B	148	30MRMS	R	58.8	9.6	42.9	6-5	0	1.5+T1T2	1
19DVERD 2/*Ae. tauschii* (221)	CIGM86.953	96	+		105	B	134	30MSMR	R	57.7	9.5	21.9	3-2	0	2.1+12	2
20ALTAR 84/*Ae. tauschii* (221)	CIGM87.2761	99		+	100	W	136	30MSMR	R	50.8	9.5	34.8	5-3	0.5	2.1+12	2
21D67.2/P66.270//*Ae. tauschii* (221)	CIGM88.1214	110		+	105	W	144	30MSMR	R	59.6	9.6	15.5	5-3	0	2.1+12/5+12	1
22D67.2/P66.270//*Ae. tauschii* (222)	CIGM88.1216	110		+	105	LB	148	30MRMS	R	53.1	9.6	18.8	3-2	0	1.5+T1T2/5+T1T2	1
23D67.2/P66.270//*Ae. tauschii* (223)	CIGM88.1219	106		+	105	DB	148	30MSMR	R	55.9	9.6	20.9	2-1	0	1.5+T1T2/5+T1T2	1
24CROC 1/*Ae. tauschii* (224)	CIGM86.950	99		+	90	LB	134	30MRMS	R	54.8	9.3	14.7	5-3	0	2.1+12	2
25ALTAR 84/*Ae. tauschii* (224)	CIGM86.942	100		+	105	LB	136	30MRMS	R	52.6	9.4	21.8	3-2	0	1.5+T2	2
26ACO89/*Ae. tauschii* (309)	CIGM90.525	85	+	+	125	DB	127	30MRMS	R	60.5	9.6	22.6	3-2	0	2.1+10	2
27GARZA/BOY//*Ae. tauschii* (311)	CIGM88.1270	117		+	90	B	152	20MSMR	R	53.2	9.6	16	7-6	0	2.1+10	2
2868.111/RGB-U//WARD/3/*Ae. tauschii* (316)	CIGM88.1273	119		+	100	LB	152	30MSMR	R	49.5	9.6	15.9	2-1	0	2.1+12	2
2968.111/RGB-U//WARD/3/*Ae. tauschii* (326)	CIGM88.1288	100		+	105	W	132	30MSMR	R	47.5	9.6	17.7	2-1	0.4	1.5+T1T2	2
3068112/WARD//*Ae. tauschii* (369)	CIGM88.1313	110		+	100	B	148	40S	R	38.0	9.3	15.7	2-1	0	2.1+12	-
3168112/WARD//*Ae. tauschii* (369)	CIGM88.1313	96	+		115	LB	134	40S	R	55.6	9.6	15.7	3-2	0	2.1+12	-
32DOY1/*Ae. tauschii* (447)	CIGM88.1344	99	+	+	100	W	134	40S	R	54.0	9.6	16.8	1-1	1.9	3+T2	2
33YAV3/SCO//JO69/CRA/3/YAV79/4/*Ae. tauschii* (498)	CIGM88.1356	96	+		120	W	134	TMR	R	33.4	9.2	24.7	1-1	1.1	1.5+12	1
34DOY1/*Ae. tauschii* (511)	CIGM88.1363	96		+	110	LB	130	40SMS	R	58.1	9.3	19.3	1-1	0	1.5+10	2
3568.111/RGB-U//WARD/3/*Ae. tauschii* (511)	CIGM88.1362	106		+	100	LB	148	40MSMR	R	32.5	9.6	12.5	3-2	0	5+10	-
36DOY1/*Ae. tauschii* (515)	CIGM90.566	96	+	+	110	LB	144	40S	R	60.1	9.5	11.6	6-4	0	5+10	2
3768.111/RGB-U//WARD/3/FGO/4/RABI/5/*Ae. tauschii* (629)	CIGM90.590	96	+		125	LB	134	30MRMS	R	58.9	9.2	9.5	5-3	0	2.1+12	2
38FGO/USA2111//*Ae. tauschii* (658)	CIGM89.506	99	+	+	110	LB	136	10MRMS	R	52.1	9.3	14.0	3-2	0	1.5+12	2
39CROC 1/*Ae. tauschii* (725)	CIGM89.525	99	+	+	100	LB	134	40MSMR	R	30.2	9.5	17.1	2-1	0	2.1+10	2
4068.111/RGB-U//WARD RESEL/3/STIL/4/*Ae. tauschii* (781)	CIGM89.537	100		+	115	LB	138	40MSMR	R	51.0	9.4	20.5	3-2	1.9	1.5+10/3+10	1
4168.111/RGB-U//WARD RESEL/3/STIL/4/*Ae. tauschii* (783)	CIGM89.538	99			120	LB	136	30MRMS	R	48.7	9.3	15.8	1-1	0	5+10	1
42YAR/*Ae. tauschii* (783)	CIGM90.686	96	+	+	105	LB	134	40SMS	S	46.5	9.5	12.3	5-4	1.5	5+10/3+10	2
43YUK/*Ae. tauschii* (864)	CIGM90.760	104	+	+	120	LB	144	30MRMS	R	50.7	9.5	12.7	3-2	0	1.5+12	2
4468.111/RGB-U//WARD/3/FGO/4/RABI/5/*Ae. tauschii* (878)	CIGM89.559	93	+	+	125	B	134	20MRMS	R	58.2	9.5	12.4	6-4	0	1.5+12	2
4568.111/RGB-U//WARD/3/FGO/4/RABI/5/*Ae. tauschii* (878)	CIGM89.559	93	+	+	125	B	130	5MRMS	R	55.4	9.2	12.9	3-2	0	1.5+12	-

46CROC 1/*Ae. tauschii* (879)	CIGM89.479	96	+	+	100	LB	144	5MRMS	R	57.4	9.2	16.1	1-1	0	1.5+12	2
4768.111/RGB-U//WARD/3/FGO/4/RABI/5/*Ae. tauschii* (882)	CIGM89.561	96	+	+	125	LB	130	40S	S	55.9	9.8	11.1	9-9	0	2+12	2
48SORA/*Ae. tauschii* (884)	CIGM90.543	100	+	+	100	LB	148	30MSMR	R	54.9	9.6	12.2	3-2	1.4	5+10	-
4968.111/RGB-U//WARD/3/FGO/4/RABI/5/*Ae. tauschii* (890)	CIGM89.564	76	+		135	DB	115	30MSMR	R	44.7	9.6	13	3-2	0	2+12/3+12	1
50CROC 1/*Ae. tauschii* (518)	CIGM86.944	85		+	110	LB	127	30MSMR	R	57.8	9.6	9.4	2-1	0	2.1+10	2
51PBW114/*Ae. tauschii*	-0B-0PR-0B	85			110	LB	127	30MSMR	R	51.2	9.5	14.2	2-1	0	2.1+10	2
52ALTAR 84/*Ae. tauschii* (JBANGOR)	CIGM86.3277	99	+		105	LB	134	30MSMR	R	54.2	9.2	18.8	3-2	0	2.1+10	2
53YAV 2/TEZ//*Ae. tauschii* (249)	CIGM88.1239	96	+		90	LB	127	30MSMR	R	53.4	9.5	18.0	5-3	0	3+10	2
54CETA/*Ae. tauschii* (895)	CIGM89.567	110			120	LB	148	5MRMS	R	42.3	9.7	12.3	2-1	0	2.1+12/3+12	1
55GAN/*Ae. tauschii* (180)	CIGM90.799	99	+		125	LB	144	40SMS	R	54.7	9.3	9	2-1	7.6	5+10	2
56D67.2/P66.270//*Ae. tauschii* (257)	CIGM90.808	112		+	115	LB	148	30MSMR	R	54.8	9.6	28.2	3-2	0	1.5+T1T2/5+T1T2	-
57LCK59.61/*Ae. tauschii* (313)	CIGM90.812	112		+	110	LB	148	30SMS	R	50.0	9.6	11.5	3-2	0	4+10	1
58LCK59.61/*Ae. tauschii* (324)	CIGM90.815	110		+	115	LB	144	30MSMR	R	49.0	9.6	12.5	3-2	0	2.1+12	1
59SRN/*Ae. tauschii* (358)	CIGM90.818	99	+		90	B	134	30SMR	R	49.5	9.3	15.6	3-2	3.5	2.1+12	2
60SCOOP 1/*Ae. tauschii* (358)	CIGM90.820	96	+		120	B	134	40MSMR	R	52.4	9.3	13	2-1	0	2.1+10	2
61GAN/*Ae. tauschii* (408)	CIGM90.824	100	+		115	LB	144	40MSMR	R	54.1	9.2	11	1-1	0	2.1+10	2
62SCA/*Ae. tauschii* (518)	CIGM90.845	96	+		110	LB	136	60S	R	52.8	9.2	14.7	2-1	0	1.5+12	-
63YAR/*Ae. tauschii* (518)	CIGM90.846	96	+		115	LB	136	40S	R	52.7	9.2	16.2	1-1	0	2.1+12	2
64BOTNO/*Ae. tauschii* (617)	CIGM90.863	100		+	115	LB	152	40MSMR	R	38.8	9.6	14.7	5-4	2.6	1.5+T2	1
65BOTNO/*Ae. tauschii* (620)	CIGM90.864	117		+	125	LB	152	40S	R	43.8	9.6	28.2	4-3	0	1.5+T2	1
66BOTNO/*Ae. tauschii* (625)	CIGM90.865	106	+	+	115	LB	152	30MSMR	R	41.4	9.6	23.8	2-1	3.5	2.1+10	1
67SNIPE/YAV79//DACK/TEAL/3/*Ae. tauschii* (629)	CIGM90.869	106	+	+	110	B	144	30SMS	R	67.6	9.4	20.1	3-2	0	2.1+12	1
68D67.2/P66.270//*Ae. tauschii* (633)	CIGM90.871	117	+	+	105	LB	150	30MSMR	R	58.3	9.6	30.2	7-7	0	1.5+T1T2/5+T1T2	1
69D67.2/P66.270//*Ae. tauschii* (659)	CIGM90.878	112		+	120	LB	144	30MSMR	R	59.5	9.6	28.3	2-1	0	5+10	2
70SNIPE/YAV79//DACK/TEAL/3/*Ae. tauschii* (700)	CIGM90.897	99	+		115	LB	134	40SMS	R	57.9	9.3	19.2	2-1	0	1.5+T2	-
71TRN/*Ae. tauschii* (700)	CIGM90.898	110			105	LB	144	30S	R	47.1	9.5	13.4	2-1	0	1.5+T2	-
72SNIPE/YAV79//DACK/TEAL/3/*Ae. tauschii* (877)	CIGM90.906	100	+		105	LB	136	30MRMS	R	60.8	9.3	18.5	4-3	0	1.5+T2	-
73GAN/*Ae. tauschii* (897)	CIGM90.911	96		+	120	LB	130	20MRMS	R	56.8	9.4	19.3	2-1	0	2.1+12	2
74YAV 2/TEZ//*Ae. tauschii* (895)	CIGM90.910	96	+		105	LB	130	20MRMS	R	57.6	9.3	17.1	2-1	0	2.1+12	2
75ARLIN/*Ae. tauschii* (283)	CIGM92.1647	99	+		95	LB	130	30MSMR	R	53.7	9.5	11.1	8-7	0	3+10	2
76FALCIN/*Ae. tauschii* (312)	CIGM92.1665	96			90	LB	134	30MSMR	R	48.7	9.6	21.0	2-1	0	2.1+10	2
77RASCON/*Ae. tauschii* (312)	CIGM92.1666	99	+		95	LB	134	30MRMS	R	49.3	9.4	26.6	5-4	0	1.5+T1T2	2
78SCOT/MEXI 1//*Ae. tauschii* (314)	CIGM92.1667	100	+	+	95	LB	136	30MRMS	R	49.1	9.4	18.7	2-1	0	1.5+T1T2	2
79DOY1/*Ae. tauschii* (333)	CIGM92.1682	108	+		90	DB	140	30MRMS	R	55.7	9.3	11.1	4-3	1.4	2+T2	2
80DOY1/*Ae. tauschii* (428)	CIGM92.1713	99	+	+	140	LB	134	30SMS	R	59.0	9.5	18.9	3-2	0	2.1+10	2
8168.111/RGB-U//WARD/3/*Ae. tauschii* (452)	CIGM92.1721	115		+	110	LB	152	20MRMS	R	46.8	9.6	19.8	2-1	0	5+10	2
8268.111/RGB-U//WARD/3/*Ae. tauschii* (454)	CIGM92.1723	115		+	105	LB	152	TMR	R	45.0	9.7	25	5-4	0	2.1+T2	2
83DOY1/*Ae. tauschii* (458)	CIGM92.1727	96	+		135	LB	130	40SMS	R	60.4	9.2	15.6	3-2	0	2.1+10	-
84GREEN/*Ae. tauschii* (458)	CIGM92.1871	89			95	LB	127	30MRMS	R	56.9	9.2	37.1	5-3	0	1.5+T2	2
85CETA/*Ae. tauschii* (174)	CIGM93.183	102		+	100	LB	138	30MRMS	R	56.8	9.3	22.8	8-7	0	1.5+T2	1
86DOY1/*Ae. tauschii* (372)	CIGM93.229	99	+	+	105	LB	136	30MSMR	R	55.7	9.2	12.8	4-3	0	3+10/4+10	2
87SCA/*Ae. tauschii* (409)	CIGM93.237	96	+		100	LB	138	40S	S	54.4	9.2	24.8	3-2	0	1.5+12	-
88CPI/GEDIZ/3/GOO//JO69/CRA/4/*Ae. tauschii* (409)	CIGM93.388	96			120	LB	134	60S	S	49.0	9.2	14.8	3-2	0	2.1+12	-
89STY-US/CELTA//PALS/3/SRN 5/4/*Ae. tauschii* (502)	CIGM93.261	108	+	+	110	DB	146	TMR	R	58.1	9.2	19.2	1-1	0	1.5+12	2
90ALTAR84/*Ae. tauschii* (502)	CIGM93.395	84			140	B	137	60S	S	63.2	9.3	15	3-2	0	2.1+12	2
91CROC 1/*Ae. tauschii* (517)	CIGM93.266	96	+		90	LB	134	40SMS	S	57.1	9.5	17.1	9-9	0	4+10	2
92CETA/*Ae. tauschii* (1024)	CIGM93.297	96			115	LB	134	30MRMS	R	57.2	9.4	12.9	2-1	0	2.1+12	1
93DVER2/*Ae. tauschii* (1027)	CIGM93.300	77			127	145	119	5MRMS	R	48.4	9.3	15.3	1-1	0	1.5+12	2
94CETA/*Ae. tauschii* (1027)	CIGM93.406	106		+	105	LB	138	10MSMR	R	56.1	9.3	13.3	1-1	0	2.1+12	1
95DOY1/*Ae. tauschii* (1030)	CIGM93.306	99	+	+	105	LB	138	30MRMS	R	62.0	9.3	17.8	3-2	0	1.5+T1T2/2+T1T2	2

Footnotes to Table 5.

*FLOW = flowering, PUB = pubescence, PIG = pigmentation,HT = height, AWN = awn color (LB = light brown, W = white, DB = dark brown, and B = black), P.MAT = physiological maturity,LR = reaction to leaf rust, SR = reaction to stripe rust, GWT = grain weight,H.SAT = reaction to *H. sativum*, SCAB = reaction to Scab, SEPT = reaction to Septoria, KB = reaction to Karnal bunt, HMW = high-molecular-weight glutenin subunits, LMV = low-molecular-weight glutenin subunit.

Locations in Mexico from where data was obtained: *H. sativum* = Poza Rica; Scab = Toluca; Septoria = Toluca; Karnal bunt = Obregon; FLOW, PUB, PIG, HT, AWN, P.MAT, and LR = Obregon; SR = Toluca; GWT = Obregon; and HMW and LMW = Batan.

† *Ae. tauschii* accession number in CIMMYT Wheat Wide Crosses working collection.

Scoring scales:
H. sativum and *S. tritici* = Two-digit scoring system: first digit = height of infection; 5 = up to mid-plant, and 9 = up to flag leaf; second digit indicates disease severity on infected leaves, where 1 = low and 9 = total leaf destroyed.
Scab = percentage of infected florets (Type 2).
Karnal bunt = percentage of grain infected.

None of the SH wheats were free-threshing. There was great diversity for pubescence on the spikes. Awn color ranged from white to a light and dark brown to black. Variation for anthocyanin pigmentation was well distributed. Similar diversity was observed for leaf and stem rusts in the SH elite set. From a screening of 95 SH wheats in Poza Rica for *H. sativum*, we observed diversity of resistance in the elite SH wheats. The durum cultivars involved in these SH combinations were susceptible both for the leaf infection and seed blemish parameters. Hence, resistance in an SH wheat was interpreted as being due to the involvement of the respective *Ae. tauschii* accession.

Those SH wheats with a leaf score of 95 or less and a seed damage of 3 or less (data not shown) are the preferred resistance-gene donors for wheat improvement. Scores for the respective durum parents involved in the SH wheats were 97 to 99 for leaf damage and 3 to 5 for grain blemish. This SH bridge is advantageous for crop improvement, because it not only allows the *Ae. tauschii* resistance to be exploited but also incorporates the genetic diversity of the A and B genomes of the respective durum wheat cultivars. Desirable levels for scab are 15 % or less (Type II), *S. tritici* 5–4 and less, and *N. indica* less than 3 %. The scoring scales are elaborated in the footnote of Table 5.

Conclusions.

—Crosses between *T. turgidum* cultivars and several accessions of *Ae. tauschii* have so far led to the production of 790 synthetic hexaploid wheats.

—An elite set of 95 SH wheats based upon growth habit under two locations in Mexico has been prepared, and seed has been increased and transferred to our germ plasm bank for global distribution.

—Several stress descriptors are being established that should facilitate utilization of SH wheats in crop improvement. Some of these descriptors are elucidated along with a few morphological features.

Reference.

Villareal RL, Mujeeb-Kazi A, Rajaram S, and Del Toro E. 1994. Morphological variability in some synthetic hexaploid wheats derived from *Triticum turgidum* x *T. tauschii*. J Genet Breed **48**:7-16.

New synthetic hexaploids (Triticum dicoccum/Aegilops tauschii): their production, cytology, and utilization as a source for Russian Wheat Aphid resistance.

A. Mujeeb-Kazi, B. Skovmand, M. Henry, R. Delgado, and S. Cano.

Use of the dicoccom group in wheat improvement has been limited but recently received attention in our program, particularly because potent Russian wheat aphid resistance was identified in several accessions. *Triticum dicoccum* accessions were hybridized with some *Ae. tauschii* diploids, and fertile synthetics derived and screened for RWA resistance. This screening led to a candidate set of SHs for utilization in transferring the resistance to bread wheat cultivars (Table 6). These aspects of the germ plasm characterization and utilization are described.