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Registration of 21 Sorghum Genetic Stocks with *ms3ms3*

Twenty-one sorghum [*Sorghum bicolor* (L.) Moench] male-sterile genetic stocks (Reg. no. GS-32 to GS-52, PI 595251 to PI 595271) were jointly developed by the USDA-ARS and the Agricultural Research Division, Institute of Agriculture and Natural Resources, University of Nebraska, and were released during April 1996. These genetic stocks contain the *ms3* gene obtained from Tx398*ms3ms3* or RTx430*ms3ms3*.

The 21 genetic stocks were developed by crossing each recurrent parent to the *ms3ms3* source (Table 1) followed by four backcross generations in the field at Lincoln, NE, during the years 1987 to 1995. Selfing generations between each backcross were made in the greenhouse each winter. The resultant genetic stocks closely resemble the recurrent parent (Table 1). Plants homozygous recessive for *ms3* were completely male-sterile in Lincoln and Mead, NE, as determined in the field by covering test panicles with pollinating bags prior to anthesis following each selfing generation. Sterility reactions in other environments have not been confirmed.

These genetic stocks significantly broaden the existing range of elite inbred lines with *ms3*. They have immediate application for basic research involving *ms3*. They also may be used as a base to directly synthesize random mating populations, or for integration of superior genes from other genetic sources into agronomically proven lines using population breeding techniques.

Seed distributed will be from a bulk of S1 seed from selfed BC_4 plants, and should segregate for *ms3*. Segregation ratios for these bulks as observed in the field in 1995 are shown in Table 1.

Seed of these genetic stocks will be maintained and distributed by the USDA-ARS Wheat, Sorghum, and Forage Research Unit, Dep. of Agronomy, Univ. of Nebraska, Lincoln, NE 68583-0937,

Table 1. Genetic stock designations of 21 grain sorghum lines with *ms3ms3*, observed segregation ratios for *ms3ms3*:*MS3*__, and phenotypic characteristics of the genetic stocks and their original recurrent parents *(MS3MS3)* grown at Lincoln, NE in 1994 and 1995.

Year	Genetic stock	Reg. no.	PI no.	Recurrent parent	Source	*ms3*	*ms3ms3*: *MS3*__	Days to anthesis	Height
								d	cm
1994	N221*ms3ms3*	GS-32	PI 595251	BKS57	Tx398†	*ms3ms3*	104:204	63	105
				—	BKS57	—	—	62	105
	N222*ms3ms3*	GS-33	PI 595252	BKS82	Tx398	*ms3ms3*	72:213	73	140
				—	BKS82	—	—	73	135
	N223*ms3ms3*	GS-34	PI 595253	BN32†	Tx398	*ms3ms3*	61:199	69	120
				—	BN32	—	—	71	115
	N224*ms3ms3*	GS-35	PI 595254	Tx3042		Tx398*ms3ms3*	90:294	59	140
				—	Tx3042	—	—	59	140
	N225*ms3ms3*	GS-36	PI 595255	BTx623	Tx398	*ms3ms3*	91:200	68	150
				—	BTx623	—	—	68	150
	N226*ms3ms3*	GS-37	PI 595256	BTx630†		Tx398*ms3ms3*	52:345	75	155
				—	BTx630	—	—	71	155
	N227*ms3ms3*	GS-38	PI 595257	Wheatland†	Tx398	*ms3ms3*	106:274	69	110
				—	Wheatland	—	—	69	110
	N228*ms3ms3*	GS-39	PI 595258	SC110-9‡		Tx398*ms3ms3*	33:221	69	115
				—	SC110-9	—	—	72	110
	N229*ms3ms3*	GS-40	PI 595259	Tx2737	Tx398	*ms3ms3*	33:221	72	120
				—	Tx2737	—	—	73	115
1995	N230*ms3ms3*	GS-41	PI 595260	BTx631†		Tx398*ms3ms3*	2:7	76	115
				—	BTx631	—	—	75	125
	N231*ms3ms3*	GS-42	PI 595261	BOK11†		Tx398*ms3ms3*	8:16	77	105
				—	BOK11	—	—	77	105
	N232*ms3ms3*	GS-43	PI 595262	MA4		Tx398*ms3ms3*	16:76	58	110
				—	MA4	—	—	59	110
	N233*ms3ms3*	GS-44	PI 595263	SD106	Tx398	*ms3ms3*	2:17	59	100
				—	SD106	—	—	60	100
	N234*ms3ms3*	GS-45	PI 595264	PTN	Tx398	*ms3ms3*	15:58	58	90
				—	PTN	—	—	57	95
	N235*ms3ms3*	GS-46	PI 595265	BN122†	Tx398	*ms3ms3*	18:97	73	100
				—	BN122	—	—	75	90
	N236*ms3ms3*	GS-47	PI 595266	RTx435†		Tx398*ms3ms3*	12:37	77	100
				—	RTx435	—	—	78	100
	N237*ms3ms3*	GS-48	PI 595267	Tx2741†	RTx430†	*ms3ms3*	9:46	73	100
				—	Tx2741	—	—	72	85
	N238*ms3ms3*	GS-49	PI 595268	IS7013	RTx430	*ms3ms3*	21:83	62	110
				—	IS7013	—	—	62	115
	N239*ms3ms3*	GS-50	PI 595269	BKS24		Tx398*ms3ms3*	—§	65	100
				—	BKS24	—	—	65	100
	N240*ms3ms3*	GS-51	PI 595270	BKS56	Tx398	*ms3ms3*	—§	67	90
				—	BKS56	—	—	67	90
	N241*ms3ms3*	GS-52	PI 595271	Tx2752†	Tx398	*ms3ms3*	—§	82	100
				—	Tx2752	—	—	83	100

† Registered varieties, parental lines, or germplasms (with corresponding reference number shown in parenthesis): N122 (1); Tx398 (2); Tx2737, Tx2741, Tx2752 (3); Wheatland (4); RTx430 (5); RTx435 (6); BTx623, BTx631 (7); N32 (8); BOK11 (9).

‡ SC110-9 is a sister line to TAM428, and PTN is a early-maturing line obtained from Paul Nordquist, Univ. of Nebraska.

§ Where *ms3ms3*:*MS3*__ is not shown, S_1 seed was not available and BC_4 seed was used.

and will be provided without cost to each applicant on written request. Seed has also been deposited in the National Seed Storage Laboratory. It is requested that appropriate recognition be made of the original source of the recurrent lines, and of this project as the source of these genetic stocks, if this germplasm contributes to the development of a new breeding line or cultivar.

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