Table 1. Plant characteristics of four pearl millet ergot resistant inbred lines recorded in the 1984 summer at ICRISAT Center, Patancheru.

Line	Reg. no.	Ergot severity†	Time to 50% flowering	Plant height	Tillers per plant	Head length	1000-grain mass
		%	d	cm	no.	cm	g
ICML 1	GP-5	3	57-59	149-165	3-5	21-23	5.6
ICML 2	GP-6	2	56-58	150-164	3-5	22-24	5.4
ICML 3	GP-7	3	54-56	133-149	3-4	27-29	6.5
ICML 4	GP-8	4	55-57	158-174	3-4	26-28	6.7
ICMS 7703		44‡	45-47	127-143	4-5	20-22	8.3
WC-C75		45‡	45-47	124-140	4-5	19-21	9.0

† Mean based on 2 to 4 yr of testing in the Int. Pearl Millet Ergot Nursery (IPMEN) at Samaru (Nigeria), Aurangabad, Jamnagar, Patancheru, Ludhiana, New Delhi, and Mysore (India).
‡ Based on screening at Patancheru in the 1984 rainy season.

In IPMEN testing, these populations showed 1 to 4% ergot severity compared with 66% on the susceptible check. At ICRISAT Center in the multiple disease nursery these lines were free of smut (65% severity in the susceptible check) and showed <1 to 3% downy mildew incidence (42% incidence in the susceptible check). In yield testing at seven locations in India (rainy season, 1984), ICMP 3 and ICMP 4 had grain yields of 2170 and 1970 kg ha^{-1}, respectively, compared with 1940 kg ha^{-1} of a standard check 'WC-C75'.

Compared to the 'ICMS 7703' and WC-C75 checks, the four populations are taller and later maturing, but they have greater head length and similar tillering capacity (Table 1). Seed color of the four populations varied from gray to deep gray to brown, seed shape from obovate to globular, and seed mass from 6.5 to 8.6 g per 1000 seed.

Seed of these populations are available on request from ICRISAT, Patancheru P.O., Andhra Pradesh 502324, India.

R. P. THAKUR,* S. D. SINGH, AND S. B. KING (1)

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REGISTRATION OF FOUR ERGOT RESISTANT GERMPLASMS OF PEARL MILLET

FOUR pearl millet [*Pennisetum americanum* (L.) Leeke] inbred lines, ICML 1 (Reg. no. GP-5) (PI 512045) (ICMPE 13-6-27); ICML 2 (Reg. no. GP-6) (PI 512046) (ICMPE 13-6-30); ICML 3 (Reg. no. GP-7) (PI 512047) (ICMPE 134-6-25); and ICML 4 (Reg. no. GP-8) (PI 512048) (ICMPE 134-6-34) were selected for stable resistance to ergot (incited by *Claviceps fusiformis* Lov.) at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India. These lines have been made available as resistance donors in breeding programs since January 1985.

ICML 1 and ICML 2 were derived from a J606-2 × J703-1 cross, and ICML 3 and ICML 4 from a J2238 × J2210-2 cross (J numbers are breeding lines from Jamnagar, India). These four lines are F_8/F_9 progenies of the above crosses that were screened and pedigree selected for resistance at each generation under high artificial ergot pressure at ICRISAT Center, Patancheru. Stability of resistance of these lines was tested in the International Pearl Millet Ergot Nursery (IPMEN) at 8 to 12 locations in India and West Africa for 2 to 4 yr (1). The mean ergot severities of these lines were between 1 and 3%, compared with 68% in the susceptible check. At ICRISAT Center, the lines were also resistant to downy mildew [caused by *Sclerospora graminicola* (Sacc.) Shroet.] and smut (caused by *Tolyposporium penicillariae* Bref.).

Table 1. Plant characteristics of six smut resistant pearl millet inbred lines recorded in the 1984 summer at ICRISAT Center, Patancheru.

Line	Reg. no.	Smut severity†	Time to 50% flowering	Plant height	Tillers per plant	Head length	1000-grain mass
		%	d	cm	no.	cm	g
ICML 5	GP-9	<1	48-52	130-150	1-3	20-25	9.0
ICML 6	GP-10	<1	51-55	85-100	4-7	25-30	6.0
ICML 7	GP-11	<1	42-46	135-145	1-3	20-24	9.8
ICML 8	GP-12	<1	51-55	140-160	2-4	20-24	8.1
ICML 9	GP-13	<1	43-47	150-160	1-3	25-28	7.6
ICML 10	GP-14	1	58-62	150-180	1-3	22-26	8.3
ICMS 7703		25‡	45-47	127-143	4-5	20-22	8.3
WC-C75		23	45-47	124-140	4-5	19-21	9.0

† Mean of 4 to 7 yr of testing in the Int. Pearl Millet Smut Nursery (IPMSN) at Hisar, Patancheru, Jamnager (India), and Bambey (Senegal).
‡ Mean based on screening at two locations (Hisar and Patancheru) in India during the 1984 rainy season.

Compared with 'ICMS 7703' and 'WC-C75', two standard check cultivars that have been released for cultivation in India, the four inbred lines are later maturing and somewhat taller, but they have comparable tillering capacity and longer heads (Table 1). Seed color of the lines varies from gray to brown, seed shape from globular to obovate, and seed mass from 5.6 to 6.7 g per 1000 seed.

Seed of these lines are available on request from ICRISAT, Patancheru P.O., Andhra Pradesh 502324, India.

R. P. THAKUR* AND S. B. KING (2)

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REGISTRATION OF SIX SMUT RESISTANT GERMPLASMS OF PEARL MILLET

SIX inbred lines of pearl millet [*Pennisetum americanum* (L.) Leeke] ICML 5 (Reg. no. GP-9) (PI 512049) (SSC FS 252-S-4); ICML 6 (Reg. no. GP-10) (PI 512050) (ICI 7517-S-1); ICML 7 (Reg. no. GP-11) (PI 512051) (EBS 46-1-2-S-2); ICML 8 (Reg. no. GP-12) (PI 512052) (EB 112-1-S-1-1); ICML 9 (Reg. no. GP-13) (PI 512053) (NEP 588-5690-S-8-4); and ICML 10 (Reg. no. GP-14) (PI 512054) (P 489-S-3) were selected for stable resistance to smut (caused by *Tolyposporium penicillariae* Bref.) at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India. These lines have been made available as resistance donors in breeding programs since June 1984.

The lines were selected from germplasm accessions/breeding lines originating from Uganda (SSC), India (ICI), Nigeria (EB/EBS), Lebanon (NEP), and Senegal (P). In each line, individual plant selection for smut resistance was carried out under artificial inoculation at Hisar and at ICRISAT Center, Patancheru, for four to five generations. Stability of resistance of these lines and others was tested for 4 to 7 yr in the International Pearl Millet Smut Nursery (IPMSN) at four to 6 locations in India and West Africa. The mean smut severities of these lines varied from <1 to 1%, compared

Table 1. Plant characteristics of six smut resistant pearl millet inbred lines recorded in 1984 summer at ICRISAT Center, Patancheru.

Line	Reg. no.	Smut severity†	Time to 50% flowering	Plant height	Tillers per plant	Head length	1000-grain mass
		%	d	cm	no.	dm	g
ICML 5	GP-9	<1	48-52	130-150	1-3	20-25	9.0
ICML 6	GP-10	<1	51-55	85-100	4-7	25-30	6.0
ICML 7	GP-11	<1	42-46	135-145	1-3	20-24	9.8
ICML 8	GP-12	<1	51-55	140-160	2-4	20-24	8.1
ICML 9	GP-13	<1	43-47	150-160	1-3	25-28	7.6
ICML 10	GP-14	1	58-62	150-180	1-3	22-26	8.3
ICMS 7703		25‡	45-47	127-143	4-5	20-22	8.3
WC-C75		23	45-47	124-140	4-5	19-21	9.0

† Mean of 4 to 7 yr of testing in the Int. Pearl Millet Smut Nursery IPMSN) at Hisar, Patancheru, Jamnager (India), and Bambey (Senegal).
‡ Mean based on screening at two locations (Hisar and Patancheru) in India during the 1984 rainy season.

with 46% in the susceptible check (1). These lines have also shown resistance to downy mildew [caused by *Sclerospora graminicola* (Sacc.) Shroet.] at the locations in India.

Compared with the two standard check cultivars, 'ICMS 7703' and 'WC-C75', these six lines have similar maturity range except ICML 6, ICML 8, and ICML 10, which are later maturing. ICML 6 is short statured and has more tillers and a longer head (Table 1). Seed color of the lines varies from gray to gray-brown to cream, seed shape from obovate to globular to lanceolate, and seed mass from 6.0 to 9.8 g per 1000 seed.

Seed of these lines are available on request from the ICRISAT, Patancheru P.O., Andhra Pradesh 502324, India.

R. P. THAKUR* AND S. B. KING (2)

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REGISTRATION OF CU-2 TOBACCO GERMPLASM

TOBACCO (*Nicotiana tabacum* L.) breeding line CU-2 (Reg. no. GP-29) (PI 511808) is an insect resistant tobacco breeding line developed and released 26 May, 1986 by Clemson University at the Pee Dee Research and Education Center.

Early studies have shown that Tobacco Introduction (TI) 1112 was resistant to the tobacco budworm [*Heliothis virescens* (F.)] and the green peach aphid [*Myzus persicae* (Sulzer)] (1, 4, 5) and that a breeding line (I-35) derived from it was resistant to the tobacco hornworm [*Manduca sexta* (L.)] (9).

In 1980, a commercial cultivar 'Coker 347' was crossed with TI 1112 at the Pee Dee Research and Education Center. TI 1112 is a primitive type tobacco and has leaf trichomes without glandular heads or exudates (8). This lack of trichome secretions has been shown to be responsible for aphid and budworm resistance (3, 6, 7) and is probably responsible for hornworm resistance.

CU-2 was derived from a 1980 cross of Coker 347 × TI 1112. Plant selections were made from segregating populations from 1982–1985 based on tobacco budworm and aphid resistance and flue-cured tobacco plant type. CU-2 was evaluated as JB-3, and individual plant selections were made through the F_5 generation. CU-2 was released in the F_7 generation. It has pink flowers and a flue-cured tobacco appearance. Agronomic characteristics in 1985–1986 revealed that the yield and grade price of CU-2 tobacco in the absence of insecticides was comparable to 'NC 2326'. CU-2 yielded 2718 kg/ha and was graded a season price of $3.30/kg. NC 2326 yielded 2205 kg/ha and was graded a season price of $3.17/kg. Both tobaccos averaged 26 leaves/plant, but plant heights for CU-2 and NC 2326 were 152 and 125 cm, respectively.

Cu-2 was resistant to tobacco budworm, hornworm, and aphid in the field, and sustained 83 and 33% less budworm and hornworm damage, respectively, than NC 2326. Aphid infestations were 85% less on CU-2 than on NC 2326.

Cu-2 has leaf trichomes without glandular heads or exudates, which may be a disadvantage since the exudates have been associated with tobacco flavor (2). CU-2 also was a nicotine converter, and 80% of the total alkaloid level (1.41% dry wt of cured leaf) was nornicotine. This undesirable characteristic may be removed with additional breeding selections.

Seed for research and breeding purposes will be maintained and distributed by the Clemson University Pee Dee Research and Education Center, Florence, SC 29501.

ALBERT W. JOHNSON* (10)

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REGISTRATION OF CU-5 TOBACCO GERMPLASM

CU-5 (Reg. no. GP-30) (PI 511809) is an aphid [*Myzus persicae* (Sulzer)] resistant tobacco (*Nicotiana tabacum* L.) breeding line developed and released 26 May 1986 by Clemson University at the Pee Dee Research and Education Center. CU-5 offers a source of aphid resistance to plant breeders, experiment stations, and other organizations that is much more advanced in agronomic qualities than some of the early sources of aphid resistance. It was derived from a 1980 cross between 'Clemson PD-4' (a commercial cultivar) and Tobacco Introduction (TI) 1132, a primitive tobacco from Ven-