REGISTRATION OF CROP GERMPLASMS

sources, they are distinct for endosperm and cob color (KyWVS, white endosperm and red cob; KyYVS, yellow endosperm with predominantly red cobs). Plant selections for both populations were made in environments that subjected them to natural infections of maize viruses. Both populations have a high frequency of plants with resistance to Maize Dwarf Mosaic Virus (MDMV) and/or Maize Chlorotic Dwarf Virus (MCDV). Inbred lines used to develop the synthetics were derived from breeding populations collected for use in the Kentucky breeding program by Dr. F.A. Loefel.

Kentucky Yellow Virus Synthetic (KyYVS) is composed of 10 lines. Source germplasm included: Iowa Synthetic B, six lines; Iowa Synthetic A, one line; NCIaDDC × Tamapaulis 3 yellow composite, one line; and Lancaster × Mexican Synthetic white composite, two populations. The population has yellow kernels and mostly red cobs although white cob segregates appear frequently. Maturity of KyYVS is about AES800 to AES900. Heterotic grouping was not determined although one cycle of half-sib recurrent selection using inbred B73 as tester (selection intensity = 0.15, N = 28) has increased combining ability with B73 and probably with other Stiff Stalk Synthetic derivatives. The CI synthetic was increased by bulk-sibbing.

Kentucky White Virus Synthetic (KyWVS) is composed of 11 lines. Source germplasm included: one line from Iowa Synthetic B, USDA South African Synthetic × white inbreds, Neal's Paymaster × white inbreds, Lancaster × Mexican Synthetic white composite, Lancaster Stalk Rot CI × South Carolina Composite, USDA Blight Resistant Synthetic, and NCIaDDC × Veracruz 15, plus two lines from NCIaDDC × Tamaulipas 3 and NCIaDDC × Coahilla 8. The population has predominantly white kernels and white cobs. Maturity of KyWVS is AES800 to AES900. Heterotic grouping was not determined.

The source breeding populations include exotic introductions and domestic populations. The USDA South African White Synthetic was obtained from Dr. M.T. Jenkins, at Beltsville, MD, in 1957. Mexican Synthetic yellow and white composites were obtained from Dr. L.H. Penny at Iowa State University, Ames, IA in 1957. Parentage of the Mexican composites has been traced to a synthetic of Tuxpeno collections at CIMMYT in 1955 and subsequently called BSTL or Tuxlan Synthetic, Reg. no. GP 9(1), at Iowa State. Coahilla 8, Veracruz 15, and Tamaulipas 3 crosses with U.S. germplasm were obtained from Iowa State in 1956 and trace to Tuxpeño collection crosses made in Mexico in 1955. Domestic populations include the open pollinated varieties Neal's Paymaster PI 221872 and Lancaster, PI 213697, and synthetics or composites of U.S. germplasms. The latter are South Carolina Composite (150 farmer varieties composites and open-pollinated for 20 yr) obtained from Dr. A. Manwiller at Pee Dee Experiment Station, Florence, SC in 1957; USDA Blight Resistant Synthetic, [(CI82B × CI83B)(CI85B × CI86A)] × [(CI88A × CI90A)(CI91B × CI93A)], obtained from Dr. Jenkins at Beltsville, MD, in 1957; Lancaster Oh7B, or Oh43 and the population BSSS) were identified lines with good general combining ability.

For each synthetic, selected lines were crossed to possible combinations and an equal amount of seed from each cross was composited. The composites of crosses were used to develop the synthetic for use in the Kentucky breeding program by Dr. F.A. Loefel.

Kentucky Yellow Virus Synthetic (KyYVS) is composed of 10 lines. Source germplasm included: Iowa Synthetic B, six lines; Iowa Synthetic A, one line; NCIaDDC × Tamapaulis 3 yellow composite, one line; and Lancaster × Mexican Synthetic white composite, two populations. The population has yellow kernels and mostly red cobs although white cob segregates appear frequently. Maturity of KyYVS is about AES800 to AES900. Heterotic grouping was not determined although one cycle of half-sib recurrent selection using inbred B73 as tester (selection intensity = 0.15, N = 28) has increased combining ability with B73 and probably with other Stiff Stalk Synthetic derivatives. The CI synthetic was increased by bulk-sibbing.

Kentucky White Virus Synthetic (KyWVS) is composed of 11 lines. Source germplasm included: one line from Iowa Synthetic B, USDA South African Synthetic × white inbreds, Neal's Paymaster × white inbreds, Lancaster × Mexican Synthetic white composite, Lancaster Stalk Rot CI × South Carolina Composite, USDA Blight Resistant Synthetic, and NCIaDDC × Veracruz 15, plus two lines from NCIaDDC × Tamaulipas 3 and NCIaDDC × Coahilla 8. The population has predominantly white kernels and white cobs. Maturity of KyWVS is AES800 to AES900. Heterotic grouping was not determined.

The source breeding populations include exotic introductions and domestic populations. The USDA South African White Synthetic was obtained from Dr. M.T. Jenkins, at Beltsville, MD, in 1957. Mexican Synthetic yellow and white composites were obtained from Dr. L.H. Penny at Iowa State University, Ames, IA in 1957. Parentage of the Mexican composites has been traced to a synthetic of Tuxpeno collections made at CIMMYT in 1955 and subsequently called BSTL or Tuxlan Synthetic, Reg. no. GP 9(1), at Iowa State. Coahilla 8, Veracruz 15, and Tamaulipas 3 crosses with U.S. germplasm were obtained from Iowa State in 1956 and trace to Tuxpeño collection crosses made in Mexico in 1955. Domestic populations include the open pollinated varieties Neal's Paymaster PI 221872 and Lancaster, PI 213697, and synthetics or composites of U.S. germplasms. The latter are South Carolina Composite (150 farmer varieties composites and open-pollinated for 20 yr) obtained from Dr. A. Manwiller at Pee Dee Experiment Station, Florence, SC in 1957; USDA Blight Resistant Synthetic, [(CI82B × CI83B)(CI85B × CI86A)] × [(CI88A × CI90A)(CI91B × CI93A)], obtained from Dr. Jenkins at Beltsville, MD, in 1957; Lancaster

REFERENCES AND NOTES

1. Defined synthetic populations were derived from breeding populations collected for use in the Kentucky breeding program by Dr. F.A. Loefel.

2. C.G. Poneleit, K.O. Evans, and F.A. Loefel (2)

Published May, 1990

REGISTRATION OF Mp708 Germplasm Line of Maize

MAIZE (Zea mays L.) germplasm line Mp708 (1987, PI 536520) was released jointly by the USDA and the Mississippi Agricultural and Forestry Experiment Station in September 1988. It was released primarily for resistance to leaf feeding by the southwestern corn borer, Diatraea grandiosella Dyar, and fall armyworm, Spodoptera frugiperda (J.E. Smith). It has also exhibited resistance to leaf feeding by the southwestern corn borer, and the southern root-knot nematode, Meloidogyne incognita, and Meloidogyne arenaria (Neal) Chitwood, and to corn nematode, M. arenaria (Neal) Chitwood.

Mp708 was developed by selfing selections of Mp704 (1) and Tx601 for eight generations. It was selected for resistance to leaf feeding by the southwestern corn borer and fall armyworm. Plants in the whole population were infested with 30 neonate larvae, and damage was visually rated on a scale of 0, no damage, to 9, extensive damage. When evaluated for resistance to southwestern corn borer leaf feeding in 1988 and 1989, mean ratings for Mp704, Tx601, and Ab24E (susceptible check) were 4.9, 5.1, and 8.2, respectively. When evaluated for resistance to fall armyworm in 1988 and 1989, they rated 6.6, and 6.2, respectively, and 6.6, and 7.4, respectively.

Mp708 is superior to Mp704 in pollen abortion. It has yellow-orange kernels and is medium to late. Its maturity classification is AES1100. Limiting three-way crosses with Ab24E × Mp305 indicate combining ability for yield.

C. G. PONELEIT,* K. O. EVANS, AND F. A. LOEFFEL

Summary: Mp708 is superior to Mp704 in pollen abortion. It has yellow-orange kernels and is medium to late. Its maturity classification is AES1100. Limiting three-way crosses with Ab24E × Mp305 indicate combining ability for yield.

C. G. PONELEIT,* K. O. EVANS, AND F. A. LOEFFEL

C. G. PONELEIT,* K. O. EVANS, AND F. A. LOEFFEL


REGISTRATION OF Mp708 Germplasm Line of Maize

MAIZE (Zea mays L.) germplasm line Mp708 (1987, PI 536520) was released jointly by the USDA and the Mississippi Agricultural and Forestry Experiment Station in September 1988. It was released primarily for resistance to leaf feeding by the southwestern corn borer, Diatraea grandiosella Dyar, and fall armyworm, Spodoptera frugiperda (J.E. Smith). It has also exhibited resistance to leaf feeding by the southwestern corn borer, and the southern root-knot nematode, Meloidogyne incognita, and Meloidogyne arenaria (Neal) Chitwood, and to corn nematode, M. arenaria (Neal) Chitwood.

Mp708 was developed by selfing selections of Mp704 (1) and Tx601 for eight generations. It was selected for resistance to leaf feeding by the southwestern corn borer and fall armyworm. Plants in the whole population were infested with 30 neonate larvae, and damage was visually rated on a scale of 0, no damage, to 9, extensive damage. When evaluated for resistance to southwestern corn borer leaf feeding in 1988 and 1989, mean ratings for Mp704, Tx601, and Ab24E (susceptible check) were 4.9, 5.1, and 8.2, respectively. When evaluated for resistance to fall armyworm in 1988 and 1989, they rated 6.6, and 6.2, respectively, and 6.6, and 7.4, respectively.

Mp708 is superior to Mp704 in pollen abortion. It has yellow-orange kernels and is medium to late. Its maturity classification is AES1100. Limiting three-way crosses with Ab24E × Mp305 indicate combining ability for yield.

C. G. PONELEIT,* K. O. EVANS, AND F. A. LOEFFEL

C. G. PONELEIT,* K. O. EVANS, AND F. A. LOEFFEL

C. G. PONELEIT,* K. O. EVANS, AND F. A. LOEFFEL

Summary: Mp708 is superior to Mp704 in pollen abortion. It has yellow-orange kernels and is medium to late. Its maturity classification is AES1100. Limiting three-way crosses with Ab24E × Mp305 indicate combining ability for yield.

C. G. PONELEIT,* K. O. EVANS, AND F. A. LOEFFEL

C. G. PONELEIT,* K. O. EVANS, AND F. A. LOEFFEL