

DPX 3778, an experimental compound from E. I. Dupont De Nemours and Company, Inc., was applied to inbred A632Ht as an over-the-top spray at rates of 0.06, 0.12, 0.25, 0.50, 1.0, 2.0 and 4.0 pounds/A at daily intervals beginning 30 days prior to anticipated pollen shed.

DPX 3778 at 1.0, 2.0 and 4.0 pounds/A applied 30 days prior to pollen shed induced a plant growth regulator response in the form of staminate production of silks and kernels in addition to normal ear development. DPX 3778 at 4.0 pounds/A produced undesirable plant growth for the duration of the experiment, ranging from bent or curved tassels when applied 5 days prior to pollen shed to the severe malformation already described at 30 days before pollen shed.

The maximum time interval between application and pollen shed for sterilization at the various rates tested was approximately 7 days at 0.5 pounds/A, 21 days for 1.0 pounds/A and 30 days for 2.0 and 4.0 pounds/A. The lower tested rates of DPX 3778 at 0.06, 0.12 and 0.25 pounds/A were ineffective in preventing pollen shed. Untreated plants shed pollen from two to ten days earlier than plants treated with 4.0 pounds/A. No data on ear morphology were obtained.

A water application study was conducted in which DPX 3778 at 1.0 and 2.0 pounds/A was applied to A632Ht as an over-the-top treatment at spray volumes of 5, 10, 20 and 40 gallons/A when tassels were beginning to show. Application of the compound at 1.0 and 2.0 pounds/A prevented pollen shed and was equally effective at all spray volumes. No immediate symptoms of phytotoxicity were observed with 1.0 or 2.0 pounds DPX 3778/A; however, one or two percent of the plants sprayed with 2.0 pounds/A remained permanently bent following windy weather (20 mph) five and six days after application. Untreated plants reached ten percent silk stage two to five days earlier than plants treated with 1.0 or 2.0 pounds/A DPX 3778.

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Bicentennial corn — There will be interest across the United States regarding the Bicentennial Birthday of our nation in 1976. A bicentennial O. P. variety of corn (Carswell White) that has been maintained by the Carswell family for 200 years was compared in 1974 with two hybrid checks.

The average yield of the hybrids was 52% more (130.6 vs 86.0 bu/a) than the Carswell White. The hybrid checks also yielded an average of 61% more corn than seven other long-time O.P. varieties of the Southeast. The average percent of

erect plants for the hybrids was 81%, compared with 54% for the O.P. varieties. These data indicate the progress that has been made in corn genetics and corn breeding.

A. A. Fleming

Bacterial leaf blight of corn — Bacterial Leaf Blight caused by Pseudomonas alboprecipitans is on the increase in the South. Some of the inbred lines that had resistance or tolerance under conditions of natural infection in 1974 were GA 222, GA 69:223, GA 69:244, GA 69:218, Mo 18W, CI 90C, Mo 20W and Oh 513.

A. A. Fleming

Cytoplasmic-genotypic effects in maize inbreds — Different cytoplasm were incorporated into well-established inbred lines through several generations of backcrossing. Significant differences were obtained among sources of cytoplasm within the inbreds for such characteristics as germination, vigor, color (chlorophyll), leaf rolling, plant height, ear height, silking, tasseling and yield. Certain combinations of cytoplasm and genomes gave more desirable agronomic performances than others.

A. P. Rao and A. A. Fleming

A cytoplasmic effect on the occurrence of northern corn leaf blight — Seed with the genotype of the long-time maize inbred CI 21 (Athens) was prepared with the cytoplasm of inbreds GA 199, GT 112 and CI 21 (A) in separate backcross programs; thus, each lot of seed had the same genotype but a different cytoplasm.

The cytoplasm were classified in the field for reaction to Helminthosporium turcicum Pass. on a 1 - 5 rating scale. The results indicated a highly significant difference between the GA 199 and GT 112 cytoplasm. All cytoplasm were moderately susceptible, but the ranking in order of resistance was GA 199, CI 21 (A) and GT 112. The GA 199 cytoplasm with CI 21 (A) nuclear genes offered more resistance, resulting in a favorable cytoplasmic-genotypic interaction.

A. P. Rao and A. A. Fleming

Differential reaction of four corn cytoplasm to a herbicide — Four maize cytoplasm with the genotype of inbred GT 112 were compared for reaction to the pre-emerge herbicide butylate (S-ethyl di-isobutylthiocarbamate) applied at the rate of 3.5 kg/ha. Herbicidal injury was measured on 12-day-old seedlings. Differences were significant in three paired comparisons. GA 199 cytoplasm in the GT 112 genotype was more susceptible to injury than GA 172 and GT 112 cytoplasm.

The susceptibilities occurring here may be due to plasmon-sensitive effects. The tolerance in certain cytoplasm may be due to a favorable cytoplasmic-genotypic interaction and the cytoplasm's ability in the plant cells to absorb lesser amounts of the herbicide.

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