Published July, 1966

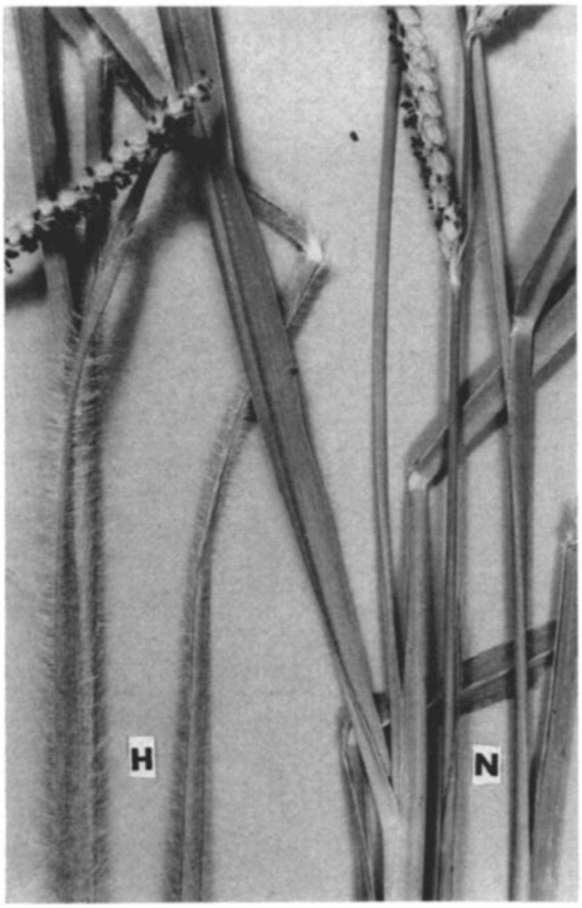

Figure 1. Hirsute ecotype (H) and normal dallisgrass (N).

The cytological behavior of this grass, determined by E. C. Bashaw,[3] was reported to be identical with common. No evidence was found of the formation of normal embryo sacs; thus, obligate apomixis was assumed. Bashaw further stated that the occurrence of this ecotype was evidence that some extensive natural mutations are possible in dallisgrass. Burton (3) suggested that the occurrence of off type plants in dallisgrass may be accounted for by the presence of 10 univalent chromosomes from which gene mutations may have immediate expression. The original clone of this grass is being preserved in the greenhouse at Louisiana State University. The forage value of this grass as compared with normal common dallisgrass has not been determined. Its use in breeding investigations with this species will probably surpass its value for forage.

[3] Report by correspondence from Dr. Bashaw, November 15, 1965. ARS, USDA, Texas A & M University.

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INHERITANCE OF A PALE-GREEN COLOR MUTANT IN COTTON[1]

Jay C. Murray and L. A. Brinkerhoff[2]

FOR SEVERAL generations, we observed abnormal light-green plants growing in populations of a breeding strain designated 4-11. Strain 4-11 is a blight resistant selection from the stormproof line CA 122 developed by D. L. Jones of the Texas Agricultural Experiment Station.

These mutant plants are characterized by apparent complete normality until they reach the 6-8 node stage, when the plants gradually develop a light-green color and their growth rate begins to lag behind that of the normal plants. As growth proceeds, the plants become dwarfed and the leaves become slightly crinkled. The stems and lower sides of the petioles are rather white while the upper sides of the petioles develop a pink color. The reduced growth rate and the coloration of the stems are probably a result of decreased chlorophyll content. The phenotype of this mutant is referred to as pale green.

In 1963, flowers of several mutant plants were self-pollinated. In 1964, approximately 75 plants were grown from these self-pollinated seeds, all of which developed the mutant pale-green phenotype.

Several mutant plants were crossed with plants of the commercial varieties, 'Parrott' and 'Acala 44.' These F_1's were self-pollinated and backcrossed to both parents to provide seeds for F_2 and backcross populations. We encountered difficulty crossing the pale-green parental and the F_1 populations with all strains used in the experiment.

Table 1. Classification of parental, F_1, F_2, and backcross populations grown in the field in 1965.

Population	Number of plants		X^2	P
	Normal	Mutant		
4-11	0	90		
F_1 Acala 44 × 4-11	15	0		
F_1 Parrott × 4-11	10	0		
F_2 Parrott × 4-11	936	301	0.293	0.5- .7
F_2 Acala 44 × 4-11	781	260	0.0	1.0
Pooled F_2	1717	561	0.06	0.8- .9
Heterogeneity			0.233	0.8- .9
Bc_1 (Parrott × 4-11) × 4-11	27	23	0.32	0.5- .7
Bc_1 (Acala 44 × 4-11) × 4-11	21	21	0.0	1.0
Pooled Bc_1	48	44	0.17	0.5- .7
Heterogeneity			0.15	0.9-1.0

All plants in the F_1, F_2, and backcross populations appeared normal until they reached approximately the 6- to 8-node stage. After this stage, the plants homozygous for the mutant genes gradually became light-colored, and their comparative growth rates decreased. Segregation in the F_2 and backcross to the pale-green parent populations was readily apparent.

The segregation data indicate that pale green is the result of a mutation at a single locus. The F_1 populations remained normal to maturity, indicating that the pale-green mutant allele is recessive. Since the results indicate that a new gene is involved, the mutant allele is assigned the symbol *pg* and the normal allele *Pg*, which correspond to the proposed name pale green.

[1] Contribution from the Departments of Agronomy, Botany and Plant Pathology, Oklahoma Agricultural Experiment Station, Stillwater, Oklahoma. Published with the approval of the director as Paper No. 1230 of the Journal Series and with the Approval of the Crops Research Division, ARS, USDA. Received Nov. 29, 1965.

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