REGISTRATION OF HOLLEY E
WHEAT GERMPLASM
(Reg. No. GP 85)

L. R. Nelson, M. J. Bitzer, and H. W. Dozier

Holley E, CI 17431 (Triticum aestivum L. em. Thell.), is a soft red winter wheat which was selected from the cultivar 'Holley'. From 1,000 Holley headrows grown during the 1972-73 season, 22 were selected which headed about 5 days earlier than the mean heading date. The seed from these headrows was bulked and tested as an experimental named Holley E. During the past two growing seasons this selection has matured from 2 to 5 days earlier than Holley depending on environmental condition. The pedigree of CI 17431 and Holley is 'Ga 1123' *2/'Knox 62'/'Suwon 92'/'Redcoat'/'Bledsoe'.

CI 17431 is similar to Holley with moderate resistance to leaf rust (Puccinia recondita F. sp. tritici) and resistance to powdery mildew (Erysiphe graminis tritici). CI 17431 may be slightly more susceptible to glume blotch (Septoria nodorum) than Holley; however, earliness may be involved. CI 17431 is susceptible to the prevalent races of Hessian fly (Mayetiola destructor Say) in Georgia. It has equal yield potential to Holley, producing yields as high as 3,680 kg/ha. The logical characteristics of CI 17431 are very similar to those of Holley.

This selection will not be released as a cultivar. We believe it has excellent potential as a germplasm source of earliness in wheat. Breeder seed will be available from the Agronomy Department, Georgia Experiment Station, GA 30212.

REGISTRATION OF EIGHT GERMPLASM LINES OF WHEAT
(Reg. Nos. GP 86 to GP 93)

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The Oklahoma Agricultural Experiment Station, Stillwater, and the ARS, USDA released eight spring wheat (Triticum aestivum L. em. Thell.) germplasm lines in 1976. ARS started the development of the lines at the Texas Agricultural Experiment Station, College Station, Tex., and completed it at Stillwater, Okla. Four of the lines were derived from crosses of 'Little Club' (CI 4066) with 'Agrus' (CI 13228), and four were derived from crosses of Little Club with 'Agent' (CI 13523). Agrus-derived lines were designated as LC-Ars 1 through 4; the Agent-derived ones as LC-Ag 1 through 4. Each line, with one exception, possesses a single dominant gene for resistance to the stem rust fungus, Puccinia graminis Pers. f. sp. tritici Eriks. & E. Henn., culture 111-SS2.

The lines were selected first as F1 families that segregated monogenically for reaction to culture 111-SS2. Selected F2 families were advanced to the F3, and retested for seedling reaction. Segregation ratios for resistance and susceptibility were established among families and among plants in heterozygous families. Those ratios that supported F2 data for single gene resistance were used to select homozygous resistant F3 families for seed increase.

Each line was subsequently crossed with Little Club and seven tester lines having designated Sr genes for resistance. Analysis of the inheritance of resistance to culture 111-SS2 in the F2 of these crosses, tests for resistance in cultures of P. graminis f. sp. tritici, and linkage of Lr genes for leaf rust resistance established the F3 for rust reaction for each line (Table 1). One line, LC-Ag 4, has two genes for resistance to culture 111-SS2. One gene was tentatively identified as Sr 10. Reaction to stem rust was the only criterion used to select the 11 lines; they are heterogeneous for several agronomic and morphologic traits. The lines will provide breeders with a source of genes for specific resistance and pathologists with material for the differentiation of rust cultures.

Small quantities of seed of each line are available from the Germplasm Resources Laboratory, Plant Germplasm Institute, ARS, USDA, Beltsville Agric. Research Center - West, Beltsville, MD 20705.

Table 1. Eight spring wheat lines derived from crosses of Little Club with Agrus and Agent and their reactions to four cultures of Puccinia graminis f. sp. tritici.†

<table>
<thead>
<tr>
<th>Registration no.</th>
<th>Parents and derived lines</th>
<th>CI nos.</th>
<th>Resistance gene‡</th>
<th>111-SS2</th>
<th>TBMH</th>
<th>HNL</th>
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<tr>
<td>Little Club</td>
<td>4066</td>
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<td>S(4)</td>
<td>S(4)</td>
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<tr>
<td>Agrus</td>
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<td>S(4)</td>
<td>S(4)</td>
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<td>Agent</td>
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