REGISTRATION OF HOLLEY E WHEAT GERMPLASM\(^1\)
(Reg. No. GP 85)

L. R. Nelson, M. J. Bitzer, and H. W. Dozier\(^2\)

**Holley E**, CI 17431 (*Triticum aestivum* L. em. Thell), is a soft red winter wheat which was selected from the cultivar 'Holley\(^3\). 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 conditions. The pedigree of CI 17431 and Holley is 'Ga 1123' **2*/'Knox 62'/*Suwon 92'3/'Redcoat'/*Bledsoe'.

CI 17431 is similar to Holley with moderate resistance to leaf rust (*Puccinia recondita* F. sp. *triticina*) 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. Morphological characteristics of CI 17431 are very similar to Holley\(^4\).

This selection will not be released as a cultivar and we believe it has excellent potential as a general-purpose spring wheat variety, especially for early maturity. Breeder seed will be supplied by the **ARS, USDA**.

\(^1\) Registered by the Crop Science Society of America from Dep. of Agronomy, Univ. of Georgia, College Stn., Georgia Stn., Experiment, GA 30212. Accepted 20 May 1977.

\(^2\) Former assistant professor of agronomy, Georgia Stn., Georgia Station.

\(^3\) Em. assistant professor, Univ. of Kentucky; research technician, Overton, TX 75684; assistant extension professor, Univ. of Kentucky; presently associate professor, Texas A&M Univ. Agric. Res. and Ext. Ctr. Overton, TX 75684.

\(^4\) Registering authority is the Crop Science Society of America. Registration is cooperative, with contributions from the ARS, USDA; Oklahoma State Univ., Stillwater, OK 74074; Texas A&M Univ. Agric. Res. and Ext. Ctr., Overton, TX 75684.

---

REGISTRATION OF EIGHT GERMPLASM LINES OF WHEAT\(^1\)
(Reg. Nos. GP 86 to GP 93)

F. J. Gough and O. G. Merkle\(^2\)

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* Ericks. \& E. Henn., culture 111-SS2.

The lines were selected first as F\(_2\) families that segregated monogenically for reaction to culture 111-SS2. Selected F\(_2\) families were advanced to the F\(_3\) 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 F\(_2\) data for single gene resistance were used to select homozygous resistant F\(_3\) families for seed increase.

Each line was subsequently crossed with Little Club to seven tester lines having designated Sr genes for resistance. Analysis of the inheritance of resistances in F\(_2\) for each of these crosses, tests for resistance to seven test cultures of *P. graminis* f. sp. *tritici*, and linkage analysis for *Lr* genes for leaf rust resistance established the presence or absence of specific resistance and pathologists would be able to infer a genetic basis for the differentiation of rust cultures.

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

\(^1\) Registered by the Crop Sci. Soc. Am. from the lines developed by the ARS, USDA and the Oklahoma Agricultural Experiment Station. Journal Article J. 3232, Oklahoma Agric. Exp. Stn., Journal Article J. 3232, Oklahoma Agric. Exp. Stn., Stillwater, Okla. Accepted 20 May 1977.

\(^2\) Research plant pathologist and research technician, USDA; Oklahoma State Univ., Stillwater, OK 74074.

---

### Table 1. Eight spring wheat lines derived from crosses of Little Club with Agrus and Agent and their reactions to some tester lines 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 genes</th>
<th>111-SS2</th>
<th>TBMH</th>
<th>HNL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents</td>
<td>Little Club</td>
<td>4066</td>
<td>S(4)</td>
<td>S(4)</td>
<td>S(4)</td>
<td>S(4)</td>
</tr>
</tbody>
</table>

†Registered by the Crop Sci. Soc. Am. Contributions from the ARS, USDA and the Oklahoma Agricultural Experiment Station. Journal Article J. 3232, Oklahoma Agricultural Experiment Station, Stillwater, Okla. Accepted 20 May 1977.