REGISTRATION OF STADLER WHEAT

(Reg. No. 458)

Charles Hayward and J. M. Poehlman

"STADLER," *Triticum aestivum* L. em Thell., C.I. 13704, is a soft red winter wheat variety developed cooperatively by the Missouri Agricultural Experiment Station and the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture. Selection No. 6992, which later became Stadler, originated as a single plant selected from a spaced population in 1957. The basic population was a selection from the cross "Thorne" x "Clarkan" made in 1942. Seed of the basic population had been irradiated with thermal neutrons at Brookhaven National Laboratory in 1955. Seed from R1 plants was again irradiated in 1956 and the population from which Stadler was selected was grown in 1957.

Stadler is of winter habit, early, mid-tall; stem white, midstrong; spike fusiform, awnleted, middense, inclined; glumes glabrous, white, midlong, midwide; shoulders midwide, rounded; cheeks rounded, brush mid-sized and midlong.

Stadler has a very good performance record in Missouri (Table 1). It is high in yield, resistant to prevalent races of leaf rust and loose smut, has good test weight, and is moderately resistant to stem rust (early maturity of Stadler is of value in escaping damage), powdery mildew, and to hessian fly. Stadler is one of the more winterhardy varieties adapted to Missouri. It is similar in height to 'Knox' but has stiffer straw.

Stadler has excellent soft wheat milling and baking properties. The flour is well-suited for cookies and cakes. Foundation seed was distributed in 1964 by the Missouri Agricultural Experiment Station, Columbia, Mo., and seed is being maintained by this Agency.

Table 1. Mean performance of Stadler, Lewis, and three other recommended wheat varieties grown in Missouri at four locations in 1961-1965.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Date Lodged</th>
<th>Ht., in.</th>
<th>Lodging, %</th>
<th>Test wt.</th>
<th>Yield, bu/ku</th>
<th>Leaf rust, %</th>
<th>Loose smut, Ht./Rt.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stadler</td>
<td>5/13</td>
<td>57.2</td>
<td>43.7</td>
<td>65.5</td>
<td>44.1</td>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>Lewis</td>
<td>5/13</td>
<td>57.1</td>
<td>42.8</td>
<td>65.0</td>
<td>44.6</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Monon</td>
<td>5/13</td>
<td>57.9</td>
<td>42.2</td>
<td>65.5</td>
<td>44.1</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Knox</td>
<td>5/13</td>
<td>58.5</td>
<td>43.0</td>
<td>66.5</td>
<td>45.1</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Pawnee</td>
<td>5/13</td>
<td>59.0</td>
<td>43.2</td>
<td>67.5</td>
<td>45.0</td>
<td>24</td>
<td>0</td>
</tr>
</tbody>
</table>

* Heads per 10^3 row. † Number in parenthesis refers to number of observations.

REGISTRATION OF LEEDS DURUM WHEAT

(Reg. No. 460)

K. L. Lebsock, F. J. Gough, and L. D. Sibbitt

'LEEDS,' *Triticum durum* Desf. C.I. 13758, is a variety developed and released May 15, 1966, cooperatively by the North Dakota Agricultural Experiment Station and the Crops Research Division, Agricultural Research Service, U.S.D.A. Department of Agriculture. Leeds originated from the cross ('Ld 357' x 'St 464 -- Ld 357') x 'Wells' made at Fargo, N. D., in 1957. Leeds was bulked as selection 60-115 in the F2 generation, which was grown at the Mexican Ministry of Agriculture Experiment Station near Ciudad Obregon, Mexico, in 1961, and entered in preliminary yield trials in North Dakota in 1961.

Leeds is a spring variety with an erect, oblong, dense and awnless spike. The stem is mid-tall and strong, often white in color, but some red to purple coloration occurs at times. Its glumes are glabrous, midlong, midwide to long with narrow, elevated shoulders, and wide beaks 2 to 3 mm long. Kernels of Leeds are amber, hard, midlong, elliptical, and essentially brushless.

Major agronomic advantages of Leeds over the predominating variety, Wells, are its larger, heavier kernels and its higher test weight. The average 1000-kernel weight of Leeds is about 25% heavier than Wells, and it has exceeded Wells by about 25 pounds per bushel (3.22 kg/hl). Leeds has been slightly more resistant to lodging than Wells, but similar in grain yield, maturity, and straw height. It is expected to perform satisfactorily throughout the traditional durum-producing areas of the north central United States.

Leeds has been highly resistant to prevalent cultures of the stem rust organism when tested under field conditions and as seedlings in the greenhouse in North Dakota. It also has been highly resistant to stem rust in many of the countries in which the International Spring Wheat Rust Nursery has been grown. Milling and macaroni processing characteristics of Leeds have been evaluated. It has been better than Wells in test weight, market grade, vitreous kernel content, weight per 1000 kernels, kernel-size distribution, wheat and semolina protein content, and color of the finished macaroni product. Leeds has been similar to Wells in milling yield and gluten characteristics.

The generations of Leeds for the production of certified seed are breeder, foundation, registered, and certified. The North Dakota State University.

REGISTRATION OF LEWIS WHEAT

(Reg. No. 459)

Charles Hayward and J. M. Poehlman

'LEWIS', *Triticum aestivum* L. em Thell., C.I. 13705, is a soft red winter wheat variety developed by the Missouri Agricultural Experiment Station. The variety originated as a single R1 plant, selected in 1957, which had both awned and awnleted spikes. In 1958 a reselection was made in R2 for the awnleted characteristic. This was a true-breeding line which was designated as Mo. 7008, and which eventually became Lewis. The original population, selected in 1951 and irradiated at Brookhaven National Laboratory in 1955, came from the following cross which was made in 1946: ('Kawvale' x 'White Federation - Early Premium') x ('Mediterranean 1 x 'Clarkan').

Lewis is of winter habit, early, short; stem white, midstrong to strong; spike fusiform, awnleted, middense, erect; glumes glabrous, white, midlong, midwide; shoulders midwide, midrounded; beaks midwide, obtuse, 0.5 to 1 mm long; awnlets white, 2 to 6 mm long; kernels red, midlong, soft; ovate; germ mid-sized; crease midwide, middeep to deep; cheeks rounded; brush mid-sized, midlong.

Lewis has compared favorably in yield to other commercial varieties grown in Missouri at four locations in the central United States. Lewis has been slightly more resistant to powdery mildew, stem rust, and loose smut, has good test weight, and is moderately resistant to leaf rust, stem rust, powdery mildew, soilborne mosaic, and to hessian fly. Because of early maturity, it generally escapes severe rust damage. It has good resistance to prevalent races of loose smut in Missouri.

Kernel texture of Lewis is slightly harder than that of Knox. It does not measure up to Knox or Stadler in soft wheat milling and baking characteristics. Flour from Lewis performs well in cakes but is less desirable for cookies.

Foundation seed of Lewis was distributed in 1964 by the Missouri Agricultural Experiment Station, Columbia, Mo., and seed is being maintained by this Agency.