

**Table 3. Yield summary for Trego and selected varieties in Kansas breeding program performance tests at dryland locations in western Kansas.**

|            | Yield (bu/a) |      |      |      |
|------------|--------------|------|------|------|
|            | 1996         | 1997 | 1998 | 1999 |
| Trego      | 48           | 58   | 67   | 87   |
| Vista      | —            | 53   | 65   | 79   |
| 2137       | —            | 52   | 61   | 75   |
| Jagger     | 31           | 52   | 59   | 76   |
| Ike        | 40           | 50   | 61   | 80   |
| TAM107     | 39           | 49   | 57   | —    |
| Heyne      | 27           | 46   | 58   | —    |
| Betty      | 37           | 47   | 56   | 70   |
| Oro Blanco | 35           | 46   | 57   | —    |
| Arlin      | 22           | 49   | —    | 77   |

**Table 4. Test weight of grain produced by Trego and selected varieties in Kansas breeding program performance tests on dryland western Kansas locations.**

|            | Yield (bu/a) |      |      |      |
|------------|--------------|------|------|------|
|            | 1996         | 1997 | 1998 | 1999 |
| Trego      | 62.1         | 62.3 | 62.5 | 60.8 |
| Vista      | —            | 59.5 | 60.1 | 57.4 |
| 2137       | —            | 60.2 | 61.2 | 58.5 |
| Jagger     | 58.5         | 61.0 | 61.0 | 57.4 |
| Ike        | 60.4         | 61.0 | 61.3 | 59.6 |
| TAM107     | 60.6         | 60.5 | 60.6 | —    |
| Heyne      | 57.8         | 60.5 | 62.1 | —    |
| Betty      | 60.1         | 60.6 | 61.5 | 59.3 |
| Oro Blanco | 60.2         | 62.0 | 61.9 | —    |
| Arlin      | 58.9         | 61.6 | —    | 59.9 |

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**Trego** is a new, hard white winter wheat variety developed by the Kansas Agricultural Experiment Station. Agricultural Experiment Stations at Nebraska, Colorado, and Oklahoma joined Kansas in the release of Trego. Seed was distributed in these states for fall planting in 1999. Foundation, Registered and Certified seed will be available in 2000.

**Origin & Development.** Trego was selected from the cross KS87H325/Rio Blanco, made at the KSU Agricultural Research Center-Hays in 1988. KS87H325 was a leaf rust resistant line selected at Hays from the cross RL6005 (Thatcher\*6/Exchange)/RL6008 (Thatcher\*6/Klien Lucero)//2\*Larned/3/Cheney/ Larned/4/Bennett sib/5/TAM 107. Trego has been tested statewide in breeding nurseries since 1994 and in the 1998 and 1999 USDA Southern Regional Performance Nursery. Trego has been tested in Kansas Performance Tests with Winter Wheat Varieties since 1998. The development of Trego was supported by Kansas wheat producers' check-off dollars administered by the Kansas Wheat Commission. The Kansas Crop Improvement Association also provided partial support for the operation of disease screening nurseries during the development of Trego.

**Agronomic Characteristics.** Trego is an awned, white-chaffed, hard white wheat variety. It is medium late in maturity (equal to 2137) and has only moderate straw strength

(equal to Jagger but weaker than 2137). Trego's coleoptile length is average for a semi-dwarf variety and it has good winter hardiness. Fall and winter grazing potential for Trego is average to below average and it does not break dormancy early in the spring like Jagger. Trego is non-shattering and has a moderate level of sprouting tolerance (equal to Rio Blanco but better than Heyne and Betty). Ratings for agronomic characteristics of Trego compared to other varieties are given in Table 1.

**Resistance to Pests.** Trego has effective levels of resistance to leaf rust, stem rust, soilborne mosaic virus, and wheat streak mosaic virus. The Hessian fly reaction of Trego is mixed. Approximately half the plants in Trego are resistant. Trego is susceptible to the wheat curl mite and the Russian wheat aphid. A summary of Trego's pest resistance is presented in Table 1.

**Area of Adaptation.** The primary area of adaptation for Trego is dryland production in western Kansas. It has equaled or bettered the performance of our best wheat varieties in that area since 1996 (Tables 2 and 3). It also has performed well in eastern Colorado and southwest Nebraska. Its performance under irrigation in western Kansas has been equal to the best of the hard red varieties available, but it has not demonstrated the yield advantages that it has on dryland.

In addition, its straw strength would be a disadvantage under irrigation. In some years Trego has done well in central Kansas tests, but its yields have been erratic. Moderate lodging tolerance and susceptibility to foliar diseases, other than leaf rust, are the most likely reasons for its inconsistent performance in central Kansas.

**Milling and baking properties.** Trego has produced hard white grain with excellent test weights (Table 4) and flour extraction rates. Its protein level has been equal to 2137. Trego's bread baking quality was evaluated in 1997 and 1998 by the Wheat Quality Council. They rated Trego as having above average overall baking quality both years. Trego's mixing strength is stronger than 2137 but weaker than Karl. It has good mixing tolerance with acceptable loaf volume. Crumb color, grain, and texture have been good.

The overall Asian noodle qualities of Trego have not been good. However, it has done a satisfactory job in Chinese raw noodles (salt noodle), but it is not outstanding. Color stability has been a problem for Trego in alkaline noodles. This is probably due to its intermediate level of the noodle-browning enzyme, polyphenol oxidase. Arlin has high levels of this enzyme while Australian wheat, usually used in Asian noodle production, has low levels of polyphenol oxidase.

**Table 2. Yield summary for Trego and selected varieties from western Kansas dryland locations of the Kansas Performance Tests with Winter Wheat Varieties.**

|            | Yield (bu/a) |      |             |
|------------|--------------|------|-------------|
|            | 1998         | 1999 | 2-Year ave. |
| Trego      | 71           | 80   | 76          |
| Jagger     | 73           | 72   | 73          |
| Vista      | 68           | 76   | 72          |
| 2137       | 71           | 70   | 71          |
| TAM 107    | 67           | 72   | 70          |
| Oro Blanco | 68           | 70   | 69          |
| Ike        | 68           | 70   | 69          |
| Heyne      | 67           | 64   | 66          |
| Betty      | 63           | 63   | 63          |

**Table 1. Agronomic & pest resistance characteristics for Trego and other varieties.**

|            | Class | Coleoptile rating | Winter hardiness | Maturity | Lodging resistance | Shatter resistance | Sprouting tolerance | Test weight | SBMV <sup>2</sup> | SSMV <sup>3</sup> | WSMV <sup>4</sup> | BYDV <sup>5</sup> | Leaf rust | Stem rust | Speckled leaf blotch | Glume blotch | Tan spot | Powdery mildew | Hessian fly |
|------------|-------|-------------------|------------------|----------|--------------------|--------------------|---------------------|-------------|-------------------|-------------------|-------------------|-------------------|-----------|-----------|----------------------|--------------|----------|----------------|-------------|
| Trego      | HDWH  | 6 <sup>1</sup>    | 3                | 3        | 5                  | 3                  | 5                   | 2           | 2                 | 4                 | 5                 | 6                 | 2         | 2         | 7                    | 5            | 7        | 8              | 5           |
| Betty      | HDWH  | 7                 | 5                | 4        | 2                  | 4                  | 7                   | 3           | 1                 | 2                 | 6                 | 6                 | 7         | 6         | 3                    | 5            | 3        | 4              | 9           |
| Heyne      | HDWH  | 6                 | 6                | 3        | 2                  | 4                  | 7                   | 4           | 1                 | 2                 | 4                 | 7                 | 5         | 2         | 4                    | 5            | 4        | 5              | 9           |
| Arlin      | HDWH  | 6                 | 7                | 0        | 1                  | 4                  | 8                   | 2           | 5                 | 5                 | 6                 | 8                 | 7         | 2         | 9                    | 9            | 7        | 8              | 9           |
| Oro Blanco | HDWH  | 8                 | 3                | 3        | 1                  | 5                  | 6                   | 3           | 2                 | 5                 | 7                 | 7                 | 8         | 7         | 7                    | 7            | 6        | 7              | 7           |
| Vista      | HRW   | 8                 | 2                | 3        | 4                  | 4                  | 5                   | 5           | 8                 | 7                 | 9                 | 7                 | 7         | 6         | 5                    | 6            | 8        | 4              | 1           |
| 2137       | HRW   | 7                 | 3                | 3        | 1                  | 5                  | 2                   | 4           | 1                 | 5                 | 4                 | 6                 | 6         | 6         | 4                    | 7            | 4        | 4              | 2           |
| Jagger     | HRW   | 6                 | 6                | 1        | 5                  | 5                  | 3                   | 4           | 1                 | 2                 | 4                 | 6                 | 7         | 3         | 3                    | 6            | 3        | 7              | 9           |
| Ike        | HRW   | 7                 | 3                | 2        | 4                  | 3                  | 2                   | 3           | 1                 | 5                 | 9                 | 6                 | 9         | 3         | 8                    | 6            | 7        | 6              | 1           |
| TAM107     | HRW   | 5                 | 2                | 1        | 3                  | 3                  | 2                   | 4           | 8                 | 7                 | 5                 | 8                 | 9         | 3         | 6                    | 6            | 7        | 1              | 9           |

<sup>1</sup> Ratings based on 1-9 scale where 1=resistance or the best and 9=susceptible or poorest, except for maturity where 0=earliest and 9=latest.

<sup>2</sup> SBMV – Soilborne mosaic virus.

<sup>3</sup> SSMV – Wheat spindle streak mosaic virus.

<sup>4</sup> WSMV – Wheat streak mosaic virus.

<sup>5</sup> BYDV – Barley yellow dwarf mosaic virus.

HDWH – Hard white wheat.

HRW – Hard red winter wheat.