

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

| Brand | Entry | Yield (bu/a) | | | |
|---------|----------|--------------|------|------|-----|
| | | 2006 | 2005 | 2004 | AVG |
| Kansas | RonL | 37 | 65 | 59 | 54 |
| AgriPro | NuHills | 38 | 62 | 59 | 53 |
| AgriPro | Jagalene | 35 | 59 | 56 | 50 |
| Kansas | Danby | 40 | 64 | 42 | 49 |
| Kansas | Overley | 34 | 55 | 57 | 48 |
| Kansas | Jagger | 32 | 60 | 49 | 47 |
| Kansas | Lakin | 31 | 49 | 52 | 44 |

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

| Brand | Entry | Test Weight (lbs/bu) | | | |
|---------|----------|----------------------|------|------|------|
| | | 2006 | 2005 | 2004 | AVG |
| Kansas | RonL | 59.8 | 62.6 | 62.6 | 61.6 |
| AgriPro | NuHills | 59.1 | 62.4 | 62.8 | 61.4 |
| Kansas | Danby | 60.1 | 63.6 | 60.1 | 61.3 |
| AgriPro | Jagalene | 58.2 | 62.0 | 62.6 | 61.0 |
| Kansas | Overley | 56.0 | 60.9 | 62.3 | 59.7 |
| Kansas | Lakin | 57.0 | 60.3 | 60.9 | 59.4 |
| Kansas | Jagger | 55.1 | 60.3 | 60.8 | 58.7 |

T. Joe Martin
Wheat Breeder
KSU Agricultural Research Center

Allan K. Fritz
Wheat Breeder
Department of Agronomy

Dallas Seifers
Plant Pathologist
KSU Agricultural Research Center

James P. Shroyer
Extension Specialist
Crop Production

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RonL is a new, hard white winter wheat variety developed and released by the Kansas Agricultural Experiment Station. Foundation seed was distributed to seed producers in 2006. Foundation, Registered, and Certified seed will be available in the fall of 2007. RonL was named to honor the contributions that Dr. Ron Livers made to the Kansas wheat industry by developing such wheat varieties as Eagle, Sage, and Larned during his tenure at the KSU Agricultural Research Center – Hays.

Origin and Development. RonL is a hard white winter wheat selected from the cross Trego/CO9600293. The cross was made in 1999 at the KSU Agricultural Research Center – Hays. CO960293 is a selection made from the cross PI222668/TAM 107//CO850034. RonL is best adapted to dryland production in western Kansas. It has been tested in replicated performance tests in Kansas since 2003 under its experimental designation of KS03HW158. It was tested region-wide in 2005 and 2006 in the Southern Regional Performance Nursery and in the 2006 Kansas Performance Tests with Winter Wheat Varieties. The development of RonL 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 RonL.

Agronomic Characteristics. RonL is an awned, white-chaffed hard white seeded wheat variety. It is medium-late in maturity (equal to Trego) and has slightly better straw strength compared to Trego. RonL's coleoptile length is average for a semi-dwarf variety. Its fall and winter grazing potential is average to below average and it does not break dormancy early in the spring like Jagger. RonL is non-shattering, but it is no better than Trego for sprouting tolerance. Ratings for agronomic characteristics of RonL compared to other varieties are given in Table 1.

Resistance to Pests. RonL has a high level of resistance to wheat streak mosaic virus (WSMV) which was derived from CO960293. This resistance is temperature-sensitive, so it can become susceptible to WSMV if it is exposed to high temperatures in the fall or early April. RonL should be planted about mid-planting season to avoid high temperatures in the fall. RonL also carries effective levels of resistance to stripe rust, stem rust, and soilborne mosaic virus. RonL is susceptible to leaf rust and Hessian fly. A summary of RonL's pest reactions and its agronomic characteristics is presented in Table 1.

Area of Adaptation. The primary area of adaptation for RonL is dryland production in western Kansas. It has equaled or bettered the performance of our best wheat varieties in that area since 2004 (Table 2 and 3). Its performance

under irrigation in western Kansas has not been thoroughly tested due to a number of failed irrigated tests. However, the improved straw strength relative to Trego should help in an irrigated environment. In some years, it has done well in central Kansas tests, but its yields have been erratic. Its lack of leaf rust resistance and non-rust foliar disease resistance are the reasons for its erratic performance in central Kansas.

Milling and Baking Characteristics. RonL has produced hard white grain with excellent test weights (Table 4) and flour extraction rates. Its protein level has been equal to Trego's. RonL's bread-baking quality was evaluated in 2002 and 2003 by the Wheat Quality Council and was rated as having above average overall baking quality both years. RonL's mixing strength is stronger than Trego's and very similar to Jagger's. It has good mixing tolerance with acceptable loaf volumes. Crumb color, grain, and texture have been good.

The overall Asian noodle qualities of RonL are similar to Trego's, but not as good as Lakin's. 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 RonL in alkaline noodles. This is due to its fairly high level of the noodle-browning enzyme, polyphenol oxidase. The Lakin level of this enzyme is more desirable in alkaline noodles.

Table 2. Yield and test weight means for RonL and selected varieties from 2006 western Kansas dryland locations (5) of the Kansas Performance Tests with Winter Wheat Varieties.

| Brand | Entry | Yield (bu/a) | Test Weight (lbs/bu) |
|---------|-------------|--------------|----------------------|
| Kansas | RonL | 43 | 58.5 |
| Kansas | (W) Danby | 43 | 59.2 |
| AgriPro | Jagalene | 41 | 57.9 |
| Kansas | 2137 | 40 | 55.1 |
| Kansas | (W) Trego | 39 | 58.3 |
| AgriPro | (W) NuHills | 38 | 57.2 |
| Kansas | Jagger | 37 | 55.5 |
| Kansas | Overley | 37 | 56.4 |

Table 1. Agronomic and pest resistance characteristics for RonL and other varieties.¹

| | Class | Coleoptile rating | Winter hardiness | Maturity | Lodging resistance | Shatter resistance | Sprouting tolerance | Test weight | SBMV ² | SSMV ³ | WSMV ⁴ | BYDV ⁵ | Leaf rust | Stem rust | Stripe rust | Speckled leaf blotch | Glume blotch | Tan spot | Powdery mildew | Hessian fly |
|----------|-------|-------------------|------------------|----------|--------------------|--------------------|---------------------|-------------|-------------------|-------------------|-------------------|-------------------|-----------|-----------|-------------|----------------------|--------------|----------|----------------|-------------|
| RonL | HDWH | 6 | 3 | 3 | 4 | 3 | 5 | 2 | 2 | | 1 | | 8 | 2 | 1 | | | | 8 | 8 |
| Danby | HDWH | 6 | 3 | 3 | 4 | 3 | 3 | 2 | 8 | 8 | 4 | | 8 | 2 | 1 | 7 | | | 8 | 8 |
| NuHills | HDWH | 7 | 4 | 3 | 3 | 3 | 7 | 3 | 2 | | 4 | | 8 | | 1 | | | 6 | 8 | 9 |
| Jagger | HRW | 6 | 6 | 1 | 5 | 5 | 3 | 4 | 1 | 2 | 4 | 6 | 8 | 3 | 1 | 3 | 6 | 3 | 7 | 9 |
| Jagalene | HRW | 4 | 3 | 4 | 3 | 4 | 2 | 2 | 1 | 3 | 5 | 7 | 8 | 2 | 2 | 4 | | 5 | 8 | 9 |
| Ike | HRW | 7 | 3 | 2 | 4 | 3 | 2 | 3 | 1 | 5 | 9 | 6 | 9 | 3 | 5 | 8 | 6 | 7 | 6 | 1 |
| Overley | HRW | 5 | 6 | 1 | 3 | 6 | 2 | 3 | 1 | 2 | 4 | 7 | 2 | 3 | 1 | 3 | | 3 | 8 | 8 |
| Lakin | HDWH | 7 | 2 | 3 | 3 | 4 | 7 | 4 | 2 | 5 | 5 | 6 | 9 | 7 | 8 | 7 | 8 | 7 | 8 | 9 |

¹ 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.

² SBMV - Soilborne mosaic virus.

³ SSMV - Wheat spindle streak mosaic virus.

⁴ WSMV - Wheat streak mosaic virus.

⁵ BYDV - Barley yellow dwarf mosaic virus.

HDWH - Hard white wheat

HRW - Hard red wheat