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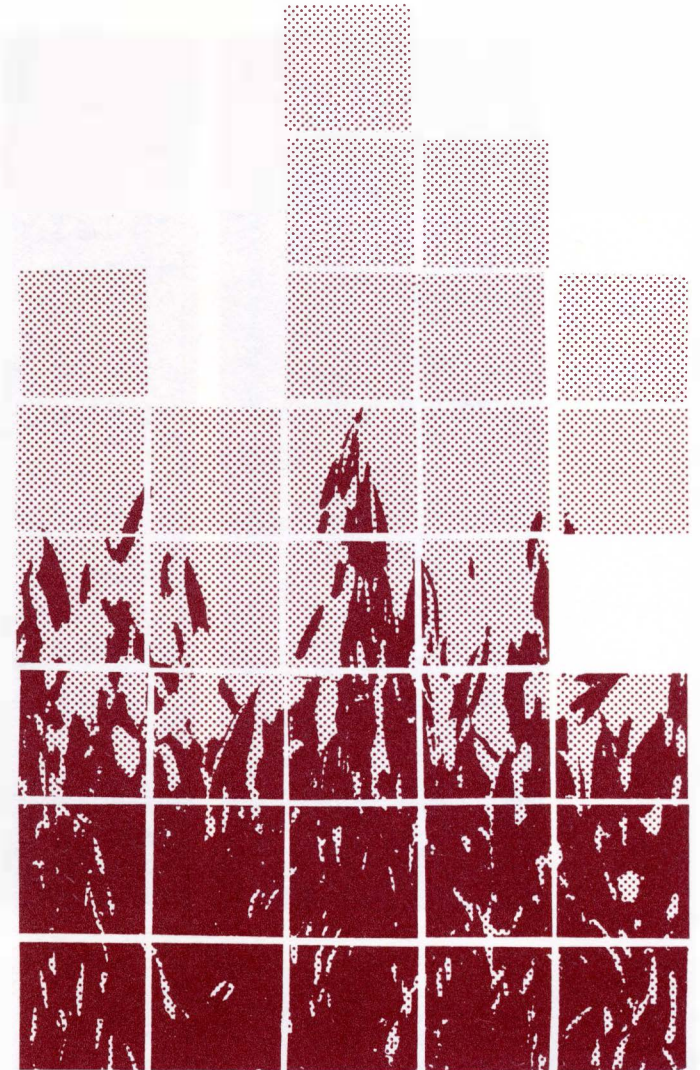

# A new oat: Hytest

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Hytest is a white kernel (cream color) spring oat variety named to reflect its excellent test weight record. These two characteristics are combined with a good yield record, and Hytest should meet the needs of many farmers.

It was developed by the South Dakota Agricultural Experiment Station and released in March 1986.

## Origin

Hytest is a selection from a Moore//Dal/Nodaway 70 cross with the final cross made in 1977. Hytest was obtained from a single third-generation panicle with selection for a fourth-generation head row. Named SD 810095, this selection was first yield-tested as a line in 1981. The Crop Performance Testing Project grew Hytest at all testing locations in South Dakota in 1984 and 1985. At the same time it was also grown in the Regional Uniform Midseason Oat Performance Nursery, which is coordinated by the USDA.

## Agronomic characteristics

Hytest is classified as a white oat and has large, cream-colored kernels. Most panicles have a few primary kernels with awns. These awns are usually short, thin, and light-colored, although mid-sized awns with a dark base are occasionally present.

Hytest is a midseason oat, similar in maturity to Lancer, Ogle, and Burnett. It is fairly tall, similar in height to Burnett, Wright, and Moore. Straw strength is good.

Hytest is moderately susceptible to crown (leaf) rust. Its resistance to crown rust appears to be better in adult, as opposed to young, plants. Seedling tests for crown rust show Hytest is susceptible to races 264A and 264B. The stem rust resistance of Hytest is comparable to most other adapted varieties, as it carries $Pg_2$ and $Pg_4$ genes.

Hytest is resistant to most loose smut races. It is susceptible to barley yellow dwarf, commonly called "red leaf" in oats.

Test weight of Hytest is exceptionally high. In South Dakota state-wide tests, the weight per bushel of Hytest was exceeded by other varieties at only three locations each year (14 locations in 1984 and 13 in 1985). Hytest had the highest test weight in 39 of the 40 regional Uniform Midseason Oat testing locations during 1984 and 1985.

Milling yields for Hytest in 1984 and 1985 were 147 and 155 lb, respectively. (Milling yield is equal to the pounds of raw oats needed to produce 100 lb of oat groats. Milling yields of 160 lb or less are considered very good in the industry.) Hytest milling yields were similar to those obtained with Lancer, Nodaway 70, and Kelly. The groat protein percentage is high.

## Performance data

Hytest has exhibited an excellent performance record state-wide (Tables 1-3) and regionally (Table 4). It is very competitive with other varieties for yield and usually excels in test weight. The yield potential is variable from one location to another; however, on the average, it is similar to Burnett and Nodaway 70 but slightly lower than Moore. High test weight is its major advantage when compared to other varieties. During 1984 and 1985, Hytest was highest at eight of 10 test locations.

Hytest has the potential to be a very competitive variety, whether it is grown as a cash crop, for the racehorse oat market, or for the milling industry. It appears that this variety will afford oat growers a good range of marketing flexibility.

Table 1. Two-year average yield and test weight comparisons for five eastern South Dakota locations.

| | *Brookings* | | *Watertown* | | *Beresford* | | *Highmore* | | *Selby* | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Variety* | *bu* | *tw* | *bu* | *tw* | *bu* | *tw* | *bu* | *tw* | *bu* | *tw* |
| Hytest | 94 | 38.7 | 117 | 39.4 | 77 | 39.1 | 68 | 40.2 | 83 | 39.8 |
| Burnett | 75 | 32.0 | 118 | 36.9 | 76 | 35.7 | 83 | 38.4 | 92 | 36.6 |
| Lancer | 91 | 33.2 | 127 | 35.9 | 82 | 34.9 | 86 | 36.8 | 83 | 36.0 |
| Moore | 107 | 35.3 | 116 | 36.1 | 92 | 35.4 | 84 | 37.1 | 90 | 35.4 |
| Nodaway 70 | 75 | 32.4 | 93 | 37.6 | 67 | 36.6 | 80 | 38.3 | 86 | 37.1 |

Table 2. Two-year average yield and test weight comparisons for five western South Dakota locations.

| | *Wall* | | *Bison* | | *Martin* | | *Ralph* | | *Plainview* | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Variety* | *bu* | *tw* | *bu* | *tw* | *bu* | *tw* | *bu* | *tw* | *bu* | *tw* |
| Hytest | 78 | 39.1 | 55 | 41.1 | 42 | 38.7 | 52 | 38.4 | 41 | 36.7 |
| Burnett | 74 | 36.6 | 53 | 39.0 | 40 | 36.5 | 51 | 37.9 | 46 | 36.3 |
| Lancer | 81 | 36.4 | 57 | 38.8 | 43 | 36.0 | 48 | 36.9 | 44 | 34.4 |
| Moore | 81 | 34.4 | 57 | 35.6 | 48 | 35.1 | 52 | 36.7 | 50 | 32.4 |
| Nodaway 70 | 85 | 37.8 | 63 | 38.8 | 43 | 37.1 | 42 | 39.8 | 45 | 36.9 |

Table 3. Two-year state-wide yield, test weight and protein comparisons (1984-85).

| Variety | Yield (bu) | TW (bu) | Groat protein (%) |
|---|---|---|---|
| | (10)* | (10) | (10) |
| Hytest | 71 | 39.1 | 16.8 |
| Burnett | 71 | 36.6 | 15.3 |
| Lancer | 74 | 35.9 | 16.5 |
| Moore | 78 | 35.4 | 15.9 |
| Nodaway 70 | 68 | 37.2 | 15.7 |

* Number of locations averaged.

Table 4. Agronomic characteristics from 1984-85 Uniform Midseason Oat Trials.

| Variety | Yield (bu) | Test weight (lb/bu) | Heading date in June | Crown rust (%) | Height (in) |
|---|---|---|---|---|---|
| | (4)* | (4) | (1) | (1) | (2) |
| Hytest | 107 | 40.6 | 21 | 15 | 43 |
| Ogle | 111 | 33.1 | 22 | 29 | 37 |
| Dal | 111 | 37.2 | 28 | 9 | 42 |

* Number of locations averaged.

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