

ID85-153  
Soft White Winter Wheat  
Proposed name: 'Lambert'

R.S. Zemetra, C.T. Liu, M. Lauver, W.E. Kronstad

### Description

ID85-153 is a common soft white winter wheat. It is a white chaffed, awned, semi-dwarf wheat. The wheat is blue-green in color with an erect to semi-erect flag leaf. The kernels are large, white, and soft.

### Pedigree and History

ID85-153 was selected from a cross of Stephens/Sprague. The cross was made at Oregon State University, Corvallis, Oregon, by W.E. Kronstad. It was selected from an early generation nursery at the Columbia Basin Agricultural Research Center, Pendleton, Oregon by C.T. Liu. ID85-153 was evaluated by C.T. Liu and R.S. Zemetra at the University of Idaho, Moscow, Idaho. It has been evaluated in yield trials in Idaho since 1987. ID85-153 has been evaluated for three years (1990, 1991, 1992) in the Western Regional White Winter Wheat Nursery. It has also undergone further evaluation in extension trials in Idaho (1991, 1992) and in advanced yield trials in Washington (1992). One thousand head rows were sown of ID85-153 in 1991. Uniform rows were harvested, bulked, and planted in 1992 to produce breeder seed. The breeder seed field was rouged by the Idaho Foundation Seed Program. The proposed name 'Lambert' was selected to recognize Dr. Lambert Erickson for his contribution to the University of Idaho as a weed science faculty member in the Plant, Soil, and Entomological Science Department.

### Area of Adaptation

ID85-153 is adapted in intermediate to high rainfall dryland areas in Northern Idaho, Eastern Washington and Eastern Oregon. It can be grown in irrigated regions but its height may preclude its use where wheel lines are the form of irrigation. Due to its susceptibility to dwarf bunt, ID85-153 should not be grown in regions with a high incidence of dwarf bunt without a seed treatment effective for that disease.

### Agronomic Traits

ID85-153 is 5-8 cm (2-3 in) taller than Stephens (Table 4). It has good straw strength (Table 22). ID85-153 is similar to Stephens for heading date (Table 5). Winter-hardiness is also similar to Stephens (Table 23).

### Yield and Testweight

ID85-153 has equalled or surpassed Stephens in yield in many

of the yield trials in Idaho and Washington. It averaged 96 to 109% of Stephens for yield in Idaho trials (Table 2, 6, 8, 10) totalling 48 location-years of testing in Idaho. Mean performance of ID85-153 equalled or exceeded the yield of Stephens in both Oregon and Washington trials (Table 17, 19, 21) totaling 19 location-years of evaluation between the two states. ID85-153 averaged 0.5-1.0 lb higher in testweight than Stephens in trials in Idaho and Washington (Table 3, 7, 9, 11, 20).

### Quality

ID85-153 averaged 0.5% less flour protein level than Stephens when averaged over 19 location-years (Table 12). Average percent flour yield of ID85-153 was 1.0% less than Stephens but greater than Daws, Lewjain, and Rod in the same trials (Table 13). Baking quality, as estimated by cookie diameter, was good for ID85-153, averaging 0.12 cm less than Stephens but greater than Daws and equivalent to Madsen and Rod (Table 14). Hardness evaluation based on near-infrared reflectance (NIR) of ID85-153 was greater than Stephens, equivalent to Madsen, and still within the acceptable range for soft white wheat based on FGIS guidelines (Table 15).

### Disease Reactions

ID85-153 has good resistance to stripe rust (Table 24, 25, 26). ID85-153 has better *Cephalosporium* stripe tolerance than Stephens based on leaf expression and yield in a *Cephalosporium* stripe infected extension yield trial (Table 8). It has also shown greater tolerance to snow mold compared to Stephens in testing in southern Idaho (Table 27). ID85-153 is susceptible to dwarf bunt (Table 28). It is also moderately susceptible to powdery mildew (Table 29).

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**FILE COPY****University of Idaho**

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September 19, 1984

**MEMORANDUM****SUBJECT: Lambert Wheat**

**TO: Mike Lancaster**  
 Idaho Foundation Seed

**FROM: R.S. Zemstra** *RSZ*  
 Associate Professor  
 Plant Breeding and Genetics

**Regarding the presence of red seed in foundation Lambert seed:**

1. The parents of Lambert are Stephens and Sprague. Sodium hydroxide screening was not used in the development of Lambert but neither parent have been known to produce red variants.
2. The two possible ways for the red seed to be present then are by seed contamination or out-crossing.
  - a. The contamination of the Lambert seed lot with red seed at planting, harvest or processing is a possibility but a remote possibility. I observed the production and processing of both the breeder and foundation seed and can not think of a time when contamination could have occurred. I also walked both fields and did not observe any major variants in either field.
  - b. The potential for out-crossing is low in wheat but red wheat was on the farm the same year as breeder seed production. Environmental conditions that year could have increased the potential for out-crossing. Seed color is a maternally controlled trait so its presence would not have been observed in the breeder seed at harvest.
3. The level of red seed should not substantially increase in the registered and certified seed. If the source of red seed was contamination and the genotypes have comparable levels of survival and reproduction the number of red seed should stay relatively constant through registered and certified. If the red seed originated from an out-cross the number of red seed should stay constant or decrease in subsequent generations due to segregation assuming equal survival and reproduction. Because of the low level and that the seed is most likely a result of an out-cross, the performance of the cultivar should not be reduced.

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4. Determination of the origin of the red variant will require further study (greenhouse evaluation, glutenin banding, and cytological evaluation).

Recommended action:

1. Allow a variance of 8 red seed/lb. in foundation Lambert seed for lot 94 Gent 1219-H. This would result in a variance of 9 red seed/lb. for registered and 10 red seed/lb. for certified seed.
2. Produce new breeder seed in 1994-95 and screen for red seed prior to using for foundation seed in 1995-96.
3. Evaluate red seeds in foundation Lambert to determine if outcrossing was the result and the segregation ratio of red-white for these red variants.