



# BARLEY VARIETIES FOR IDAHO

LIBRARY

JUN 11 1970

UNIVERSITY OF IDAHO

*Descriptions and Comparisons  
Based on Observations  
at Aberdeen, Twin Falls,  
Tetonia and Soda Springs*

*Howard B. Roylance, D. M. Wesenberg,  
R. M. Hayes and H. C. McKay*

AGRICULTURAL EXTENSION SERVICE  
AGRICULTURAL EXPERIMENT STATION  
UNIVERSITY OF IDAHO

Barley is an important cereal crop in Idaho. The Idaho barley acreage is surpassed only by winter wheat. Idaho ranked fifth in the nation in barley acreage with an estimated 585,000 acres in 1969 and production of more than 30 million bushels. The major portion of the Idaho barley production is used for livestock feed; however, interest in Idaho malting barley appears to be increasing.

Approximately 60 percent of the 1969 Idaho acreage was two-rowed spring varieties; 34 percent six-rowed spring varieties; and 6 percent six-rowed winter varieties. Pirolina, a two-rowed malting variety, is currently the most popular in Idaho, occupying about 36 percent of the 1969 acreage. It performs well under irrigation and on dryland. Vale, Gem and Otis are other popular varieties.

Winter barley will survive most years in the Boise Valley, four out of five years in the Magic Valley and three or four out of five in the Aberdeen area. Winter barley is not recommended north of Idaho Falls in eastern Idaho because of the risk of winter kill. Adapted varieties of winter barley perform well under irrigation and satisfactory yields are reported on dryland.

Seeding of winter barley in marginal areas after October 1 is unlikely to produce satisfactory stands. Late seeding of spring varieties increases the risk from diseases such as barley yellow dwarf virus, and root, crown and foot rots, which results in lower yields and poorer quality grain. Certified seed reduces the loss risk from loose smut. Effective seed treatment controls the other two smuts affecting barley.

New barley varieties have been developed, tested, and released to meet changing conditions of production and marketing. Several varieties of importance in Idaho are described and compared in this publication.

## VARIETIES OF SIX-ROW SPRING BARLEY

### STEVELAND

Steveland is an early maturing, short, blue-kerneled feed barley with good threshing characteristics and rough awns. It is well-adapted to irrigated production. It has consistently outyielded Gem in irrigated trials at Aberdeen and Twin Falls.



It averaged 122 bushels per acre at Aberdeen compared to 117 bushels per acre for Vale, Trebi, and Traill and 114 bushels per acre for Woodvale. It averaged 4 to 5 bushels per acre more than Hiland and Bonneville at Aberdeen. The yield of Steveland under irrigation at Twin Falls was higher than Bonneville, Gem, Trebi and Traill, but less than Vale and Woodvale.

Steveland's test weight is higher than Vale or Woodvale and approximately equal to other commonly-grown varieties. It heads about the same time as Gem and about 12 days earlier than Vale. It averages 4 to 6 inches shorter than Gem and Vale. Steveland is not as stiff-strawed as Vale or Woodvale, but because of its short straw, resists lodging well under gravity irrigation at Aberdeen and Twin Falls. Heavy stands of Steveland and other varieties may lodge under sprinkler irrigation.

Steveland is susceptible to certain races of loose smut, but it has shown more resistance than Gem. It is resistant to local races of stem and leaf rust. It is not recommended for nonirrigated areas where rainfall is low, because under these conditions test weight is low.

Steveland was selected from a cross of Trebi x Lubin made in 1941 by Harland Stevens and cooperatively released in 1968 by the Idaho Agricultural Experiment Station, the Oregon Agricultural Experiment Station, and the U. S. Department of Agriculture.

#### VALE

Vale is a stiff-strawed, white-kerneled, smooth-awned feed barley. It is currently the most popular six-rowed barley in Idaho, occupying about 75,000 acres in 1969. It yields well under irrigation and resists lodging more than other commonly-grown barley varieties in Idaho. It has averaged 117 and 112 bushels per acre in irrigated trials at Aberdeen and Twin Falls, respectively. It has a lower test weight, but higher kernel weight than Steveland, Gem, Traill and Trebi. It heads about the same time as Bonneville and about 12 days later than Gem. Vale is resistant to several races of mildew. It is not recommended for dryland production.

Vale was developed at the Utah Agricultural Experiment Station and released by the Oregon Agricultural Experiment Station in 1961.

Vale 70 is a selection from Vale made at the Malheur Field Experiment Station, Ontario, Oregon. It has not been tested in southern Idaho and seed is not currently available. Vale 70 is similar to Vale and may have a slight yield advantage.

#### WOODVALE

Woodvale is a stiff-strawed, white-kerneled, smooth-awned feed barley. It is a selection from Vale with a semi-club head similar to Vale. Woodvale and Vale have a number of similar characteristics, but Woodvale foliage is light-green compared to the blue-green Vale foliage. In irrigated trials at Aberdeen it averaged 114 bushels per acre compared to 117 for Vale. In irrigated trials at Twin Falls it averaged about 9 bushels per acre less than Vale. It is about 6 days earlier in heading than Vale and 1

to 3 inches shorter, but similar in lodging resistance, test weight, and kernel weight.

Woodvale was cooperatively released in 1969 by the Utah Agricultural Experiment Station and the U. S. Department of Agriculture.

#### GEM

Gem is an early-maturing, semi-smooth-awned, white-kerneled feed barley. It continues to be a popular variety in Idaho on both irrigated and non-irrigated sites, occupying approximately 10 percent of the 1969 barley acreage. It generally yields less than other commonly-grown six-rowed barley varieties under irrigation at Aberdeen and Twin Falls. It is early in heading and has a good kernel weight and adequate test weight. It is less resistant to lodging than Vale, but superior to Trebi.

Gem was selected from a cross of Atlas x Vaughn made in 1927 by V. H. Florell at the California Agricultural Experiment Station in cooperation with the U. S. Department of Agriculture. The final selection was made at the Idaho Agricultural Experiment Station and released in 1947.

#### TRAILL

Traill is a white-kerneled, rough-awned malting barley. Pure carlots of sound, bright, plump, low moisture Traill in an acceptable protein range will command premium prices over feed barley when delivered to market. Under irrigation it has yielded as well as Trebi and Vale at Aberdeen, but less than those varieties at Twin Falls. It has moderate resistance to lodging, but compared to Vale is more susceptible to lodging and 6 inches taller.

Traill is high in test weight but lower in kernel weight than other commonly-grown varieties. It heads about 7 days later than Gem and about the same as Trebi. It is more likely to shatter than other six-rowed varieties commonly grown in southern Idaho. It is moderately susceptible to the smuts and powdery mildew and resistant to stem rust.

Traill was developed at the North Dakota Agricultural Experiment Station and released in 1956.

#### TREBI

Trebi is a weak-strawed, blue-kerneled, rough-awned feed barley. It has less resistance to lodging than other commonly-grown varieties in Idaho. Under irrigation at Aberdeen it has yielded about the same as Vale and Traill, but under irrigation at Twin Falls its yield has been less than Vale, Woodvale and Steveland. It heads about 7 days later than Gem and about 5 days earlier than Vale.

Trebi was selected from a bulk lot of barley introduced from Turkey. It was tested for several years and released in 1918 from the Aberdeen Branch Experiment Station of the University of Idaho.

#### BONNEVILLE

Bonneville is a stiff-strawed, white-kerneled, smooth-awned feed barley with a compact head. It has yielded about the same as Hiland, Trebi, Vale and Woodvale, but less than Steveland under irrigation at Aberdeen. These varieties have generally equaled or exceeded Bonneville in yield under irri-



gation at Twin Falls. It has good resistance to lodging, but less resistance than Vale under most conditions. It is about the same height as Trebi. It heads about the same time as Vale and about 12 days later than Gem. Bonneville is not recommended for production under dryland conditions.

Bonneville was developed at the Utah Agricultural Experiment Station in cooperation with the U. S. Department of Agriculture and cooperatively released by the Utah and Oregon Agricultural Experiment Stations in 1950.

#### *HILAND*

Hiland is a blue-kerneled, semi-smooth-awned feed barley. It is well-adapted to irrigated areas of southern Idaho. Under irrigation at Aberdeen it has yielded more than Gem, but less than Steveland and Vale. It has yielded about the same as Steveland at Twin Falls under irrigation, but less than Vale. It has more resistance to lodging than Trebi, but less resistance than Bonneville, Steveland, and Vale. It is about the same in height and heading as Trebi.

Hiland was developed at the Wyoming Agricultural Experiment Station and released in 1954.

### VARIETIES OF TWO-ROW SPRING BARLEY

#### *PIROLINE*

Piroline is a white-kerneled, rough-awned malting barley with good threshing characteristics. Pure carlots of sound, bright, plump, low moisture Piroline in an acceptable protein range will command premium prices over feed barley when delivered to market.

Piroline performs well on both irrigated and dryland sites. It averaged 49.2 bushels per acre in dryland trials at Tetonia and out-yielded Otis, Betzes, and Munsing. It has also yielded well in dryland trials at Soda Springs. Under irrigation at Aberdeen it averaged 113 bushels per acre compared to 115 for Betzes. Under irrigation at Twin Falls Betzes averaged about 6 bushels per acre more than Piroline. It has good test weight and kernel weight and is superior to Betzes in lodging resistance. It heads 1 or 2 days earlier than Betzes and is about the same in height. It is moderately-resistant to barley yellow dwarf virus and resistant to powdery mildew.

Piroline was developed in Germany and introduced into the United States in 1954 by the U. S. Department of Agriculture and approved by the Idaho Agricultural Experiment Station in 1964.

#### *OTIS*

Otis is an early-maturing, short-strawed, white-kerneled, smooth-awned feed barley. It is a popular variety in certain dryland areas of southeastern Idaho, occupying about 47,000 acres. In dryland trials at Soda Springs it has yielded more than Piroline, Betzes, and Munsing. In dryland trials at Tetonia it has yielded more than Munsing, but less than Piroline. It heads about 5 days earlier than

Piroline at Tetonia. Otis has good test and kernel weight on dryland at Tetonia and Soda Springs.

Otis is from a cross of Munsing x Spartan made in 1939 by D. W. Robertson and cooperatively released in 1951 by the Colorado Agricultural Experiment Station and the U. S. Department of Agriculture.

#### *BETZES*

Betzes is a white-kerneled, rough-awned barley classified as acceptable for malting in Montana, Colorado, and Wyoming when produced east of the Continental Divide. It occupied about 27,000 acres in Idaho in 1969. Under irrigation at Aberdeen and Twin Falls it has yielded more than Piroline, but is less resistant to lodging. In dryland trials at Tetonia it has yielded more than Otis or Munsing, but less than Piroline. It is susceptible to smuts.

Betzes was introduced from Poland in 1938 by the U. S. Department of Agriculture and released by the Montana and Idaho Agricultural Experiment Stations in 1957.

#### *MUNSING*

Munsing is a blue- or grey-kerneled, rough-awned feed barley adapted to dryland production. Piroline, Betzes, and Otis have out-yielded Munsing in dryland trials at Tetonia and Soda Springs. It has good kernel and test weight and heads about 4 days earlier than Piroline at Tetonia. About 20,000 acres of Munsing were grown in Idaho in 1969.

Munsing was selected from a plot of Blackhull at the U. S. Dryland Field Station in Akron, Colorado, in 1920 and released in 1944.

### SIX-ROW WINTER BARLEY

#### *LUTHER*

Luther is a stiff-strawed, rough-awned feed barley. It is well adapted for irrigated production and satisfactory yields also have been reported on dryland. It is shorter than Alpine, which may be a disadvantage on dryland in certain seasons. It averaged 7 inches shorter than Alpine at Aberdeen under irrigation and is more resistant to lodging than Alpine. Under irrigation it averaged 112 bushels per acre at Aberdeen and 121 at Twin Falls. Luther is similar to Alpine in test weight, but it has a lower kernel weight, which may be a disadvantage under certain circumstances. Luther was grown on about 20,000 acres in Idaho in 1969.

Luther was developed by Washington State University and originated from the treatment of seeds of Alpine with a chemical mutagen. The mutant plant from which Luther was derived was selected in 1962. Luther was cooperatively released by the Washington Agricultural Experiment Station and the Idaho Agricultural Experiment Station in 1966.

The trials reported in this publication were conducted in cooperation with M. J. LeBaron, Twin Falls; B. A. McCallum and H. C. McKay, Tetonia; and E. W. Owens and F. C. Petr, Aberdeen.



**SIX-ROW SPRING BARLEY  
IRRIGATED TRIALS**

VARIETY	AVERAGE YIELD (bu/A)	TEST WEIGHT (lbs/bu)	LODGING (%)	HEIGHT (in)	HEADING DATE (June)	KERNEL WEIGHT (gms/1000)
<b>ABERDEEN (1965-69)</b>						
Steveland	122.1	50.2	10	29	9	43.1
Vale	117.4	49.8	1	33	21	53.7
Woodvale	113.7	49.8	1	30	15	51.8
Gem	105.9	50.0	14	33	9	53.1
Traill	117.2	52.3	11	39	16	37.5
Trebi	117.3	50.5	49	36	16	45.0
<b>ABERDEEN (1965-68)</b>						
Steveland	115.9	49.8	13	29	10	42.5
Bonneville	111.7	49.1	4	35	22	46.8
Hiland	110.3	50.5	23	36	18	43.0

**SIX-ROW SPRING BARLEY  
IRRIGATED TRIALS**

VARIETY	AVERAGE YIELD (bu/A)	TEST WEIGHT (lbs/bu)	LODGING (%)	HEIGHT (in)	KERNEL WEIGHT (gms/1000)
<b>TWIN FALLS (1965-69)</b>					
Steveland	98.6	50.2	12	27	44.9
Vale	111.7	49.4	7	31	52.7
Woodvale	102.8	49.9	3	30	54.1
Gem	93.0	50.6	36	33	52.4
Traill	87.6	52.2	19	37	38.8
Trebi	94.7	50.4	72	32	48.0
<b>TWIN FALLS (1965-68)</b>					
Steveland	94.9	49.6	15	26	43.0
Bonneville	90.2	49.2	23	33	48.6
Hiland	95.1	50.3	35	34	44.0

**TWO-ROW SPRING BARLEY  
IRRIGATED TRIALS**

VARIETY	AVERAGE YIELD (bu/A)	TEST WEIGHT (lbs/bu.)	LODGING (%)	Height (in)	HEADING DATE (June)	KERNEL WEIGHT (gms/1000)
<b>ABERDEEN (1965-69)</b>						
Piroline	113.3	55.6	15	34	16	43.8
Betzes	115.2	54.9	24	35	17	42.2
<b>TWIN FALLS (1965-69)</b>						
Piroline	87.1	56.0	21	32		45.8
Betzes	93.2	55.0	46	32		42.8

**TWO-ROW SPRING BARLEY  
DRYLAND TRIALS**

VARIETY	AVERAGE YIELD (bu/A)	TEST WEIGHT (lbs/bu)	HEIGHT (in)	HEADING DATE (July)	KERNEL WEIGHT (gms/1000)
<b>TETONIA (1966-69)</b>					
Piroline	49.2	50.9	30	7	41.4
Otis	46.8	52.1	28	2	45.2
Betzes	47.6	49.7	33	7	36.9
Munsing	45.1	50.6	28	3	43.8

**TWO-ROW SPRING BARLEY  
DRYLAND TRIALS**

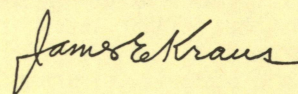
VARIETY	AVERAGE YIELD (bu/A)	TEST WEIGHT (lbs/bu)	KERNEL WEIGHT (gms/1000)
<b>SODA SPRINGS (1966 and 1968-69)</b>			
Piroline	46.0	48.9	36.0
Otis	47.1	48.9	37.4
Betzes	46.0	49.5	33.5
Munsing	44.9	48.6	38.4

**SIX-ROW WINTER BARLEY  
IRRIGATED TRIALS**

VARIETY	AVERAGE YIELD (bu/A)	TEST WEIGHT (lbs/bu)	LODGING (%)	HEIGHT (in)	KERNEL WEIGHT (gms/1000)
<b>ABERDEEN (1966-67 to 1968-69)</b>					
Alpine	107.4	50.2	19	40	38.0
Luther	112.1	50.2	2	33	33.9
<b>TWIN FALLS (1966-67 to 1968-69)</b>					
Alpine	111.9	49.3	—	—	35.6
Luther	120.9	49.6	—	—	31.5

**About the authors:** Howard B. Roylance is extension agronomist, University of Idaho, Boise; D. M. Wesenberg is research agronomist and R. M. Hayes is agricultural research technician, Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, Aberdeen; and H. C. McKay is superintendent, Tetonia Branch Experiment Station, University of Idaho, Tetonia.

PUBLISHED AND DISTRIBUTED IN FURTHERANCE OF THE ACTS OF MAY 8 AND JUNE 30, 1914 BY THE UNIVERSITY OF IDAHO AGRICULTURAL EXTENSION SERVICE, JAMES E. KRAUS, DIRECTOR; AND THE U.S. DEPARTMENT OF AGRICULTURE, COOPERATING.



JAMES E. KRAUS, Director