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Oat Varieties for Idaho

Idaho's oat production was estimated at about 3 million bushels for 1973 by the Idaho Crop and Livestock Reporting Service. This compares with a 1962-1972 average of 4.4 million bushels. In addition to grain production, an estimated 15 to 20,000 acres were harvested as forage in 1973.

Over 70 named oat varieties were tested in replicated trials at Aberdeen and other locations in Idaho from 1969 through 1973. Varieties which have performed well in these trials are described in this publication. Cayuse and Park are currently the most readily available varieties in Idaho and account for most of the oat acreage.

Diseases and Cultural Problems

Compared with other cereal crops in Idaho, diseases have relatively little adverse effect on oat production. Leaf and stem rust, serious oat diseases in most areas of the United States, seldom occur in Idaho. Proper seed treatment will control smuts in susceptible varieties and may also reduce the incidence of certain foot rots. Early seeding will reduce the risk of infection by barley yellow dwarf virus and root, crown and foot rots.

Oats are generally resistant to strains of take-all (**Ophiobolus graminis**) which infect wheat and barley. Rotation of oats with wheat and barley may not significantly reduce the level of inoculum in the soil, however, so these crops following oats may be damaged by take-all. Ergot is less prevalent in oats than in barley and wheat.

Oat yields are reduced significantly on certain soils due to gray speck. It is a problem primarily in extreme northern Idaho and typically occurs on soils with high content of organic matter. Gray speck is caused by a deficiency of available manganese — either an absolute soil deficiency or a deficiency which results from chemical or biological fixation of manganese in the soil.

Research in northern Idaho has demonstrated that manganese fertilization or foliar applications will reduce or virtually eliminate symptoms of gray speck. Cayuse is very susceptible; Park and Random are relatively resistant. Producers should contact their county agents for more detailed information concerning varietal selection and control measures for areas where gray speck is a problem.

Grain Quality

Test weight or bushel weight has been widely used as a measure of oat quality. The farmer and grain buyer both consider weight to be the most important quality characteristic. Groat percent is a measure of the groat or caryopsis content of the oat kernel. Oat varieties with heavy hulls or oats produced under stress tend to be relatively low in groat content.

IRRIGATED TRIALS

Variety	Yield (bu/A)	Test weight (lb/bu)	Height (in)	Heading date (June)	Lodging (%)	Groat (%)	Protein (%)
Aberdeen (1970 and 1972-73)							
Cayuse	161.3	39.5	29	22	——	70.2	15.4
Park	151.5	40.0	33	26	——	72.0	17.9
Random	162.7	38.8	30	22	——	72.0	15.0
Twin Falls (1970 and 1972-73)							
Cayuse	200.9	38.5	33	——	8*	70.4	14.1
Park	177.1	38.7	37	——	32*	72.5	16.5
Random	191.4	37.4	35	——	11*	72.8	14.1

* 1970 data only.

NONIRRIGATED TRIALS

Variety	Yield (bu/A)	Test weight (lb/bu)	Height (in)	Heading date (June)	Lodging (%)	Groat (%)	Protein (%)
Tetonia (1971-73)							
Cayuse	59.1	37.9	25	16	——	70.7	15.8
Park	43.6	38.6	28	19	——	71.3	19.4
Random	56.2	37.0	26	15	——	72.3	17.2
Bonners Ferry (1971-73)					Gray+ Speck (0-10)		
Cayuse	91.7	37.8	32	——	8.4		
Park	92.7	36.2	38	——	2.2		
Random	111.7	36.2	36	——	2.3		
St. Maries (1971-72)					Lodging (%)		
Cayuse	90.6	36.4	——	20	15	69.5	17.4
Park	69.9	33.1	——	22	45	72.1	21.0
Random	80.2	32.9	——	17	15	70.9	17.7

\+ 0 = no visible symptoms and 10 = most severe.

The biochemical aspects of oat quality, especially protein content, have received increased attention recently. Protein data given in this publication are for protein content (N x 6.25) of groats. Whole kernel protein content is usually 5 to 6 percentage points lower than the groat protein value. In general, varieties which are high in yield tend to be lower in protein content than varieties which are intermediate or low in yield.

Oats for Forage

Oats are sometimes used to advantage in Idaho for green-chop, silage or dry hay. In general, taller adapted varieties of medium to late maturity will produce the highest dry matter yields per acre. Park and Rodney have performed well as forage varieties in Idaho. However, preliminary trials in adjacent states suggest that in favorable environments Cayuse will produce forage yields equal to Park.

To spread the harvest period, growers may wish to consider planting their acreage with two or more varieties which differ in maturity. A seeding rate of 100 - 125 pounds per acre is recommended for forage production. Oats should be harvested for forage at the late-milk to mid-dough state of maturity. Harvest at this stage of maturity will produce maximum dry matter yields of forage which is relatively high in protein content.

VARIETIES

Cayuse

Cayuse is a high-yielding, short, stiff-strawed, lodging-resistant variety with tolerance to barley yellow dwarf virus (red leaf). It is susceptible to gray speck or manganese deficiency in northern Idaho. The kernels are pale yellow. It has consistently outyielded Park in irrigated trials at Aberdeen and Twin Falls and dryland trials at Tetonia. Cayuse is 2 to 5 days earlier heading and averages 3 to 6 inches shorter than Park.

Cayuse is adapted over a wide area. It has the highest average yield among named varieties in irrigated trials in 6 northwestern states from 1965 to 1972. Cayuse also yields well in dryland trials. It has equaled or exceeded Park, Bingham and Overland in yield in most dryland comparisons. It has had the highest average yield among named varieties in dryland trials in 5 northwestern states in several years of testing.

Cayuse is a selection from the cross Craig x Alamo made in 1952 by N. F. Jensen of Cornell University. The Washington and Idaho Agricultural Experiment Stations jointly released Cayuse in 1966.

Park

Park is a high-yielding, stiff-strawed variety with plump white kernels. It is moderately resistant to gray speck or manganese deficiency in northern Idaho. It usually yields less than Cayuse, but it is generally superior to Cayuse in test weight, groat percent and protein content. Park is taller than Cayuse and therefore is preferred by some growers for green-chop, silage or hay.

Park is a selection from the cross Clinton x[2] Overland. Developed cooperatively by the Idaho Agricultural Experiment Station and the U.S. Department of Agriculture, it was released by the Montana Agricultural Experiment Station in 1953. It was released in Idaho in 1958.

Random

Random is a high-yielding, stiff-strawed, white-kerneled variety with moderate to good resistance to gray speck in northern Idaho. Random has an excellent yield record in trials at Bonners Ferry. It has also averaged higher in yield than Park in trials at Aberdeen, Twin Falls, Tetonia and St. Maries. Random has averaged lower in yield than Cayuse at Twin Falls, Tetonia and St. Maries. It is 1 to 4 inches taller than Cayuse and heads about the same time or slightly earlier. It has generally averaged lower than Park in test weight and protein content.

Random was developed at the Lacombe Research Station, Alberta, Canada, from the cross Glen x Pendex. It was licensed for sale in Canada in 1971. Limited quantities of seed may be available in Idaho in 1974.

Rodney

Rodney has plump white kernels and high test weight. It yielded less than Cayuse in trials conducted at one dryland and two irrigated locations in southern Idaho in 1967. Rodney has also yielded less than Park in most irrigated trials at Aberdeen and Twin Falls. It has approximately the same heading date as Park and is taller than Park when grown under irrigation at Aberdeen. Rodney is favored for oat-hay in certain areas of southern Idaho because of its tall straw and mid-season to late maturity. Rodney was released in 1953 by the Dominion Laboratory of Cereal Breeding of the Canada Department of Agriculture.

Oat investigations in Idaho are conducted cooperatively by the Western Region, Agricultural Research Service, U.S. Department of Agriculture, and the University of Idaho Agricultural Experiment Station. Trials reported in this publication were conducted in cooperation with College of Agriculture research personnel at Twin Falls, Tetonia, Aberdeen and Moscow. Protein determinations were made at the University of Idaho Wheat Quality Laboratory, Aberdeen, and the USDA Oat Quality Laboratory, Madison, Wis.

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