Registration of ‘Settler’ Oat

‘Settler’ oat (Avena sativa L.) (Reg. no. CV-350, PI 531187) is a spring cultivar developed by the South Dakota Agricultural Experiment Station. It was tested experimentally as SD 820045 and released in February 1989. The name was chosen in recognition of the state’s centennial and acknowledges the pioneers who came to this region. Settler was released due to improved grain yields of high quality white grain and improved disease resistance.

Settler was derived from the cross ‘Benson’/WI X2221-2/’Noble’ made in 1978 (1). The WI X2221-2 line had good resistance to crown rust (caused by Puccinia coronata Corda var. avenae W.P. Fraser & Ledingham) and was tested in regional trials but not released. The WI X2221-2 line was developed in Wisconsin and selected from the cross ‘Trispernia’/’Belar’/’Beede’/’Orbit’. Settler was derived from a single F3 panicle. Bulk seed from this panicle was used for testing throughout its early development. Additional selection in the F8 and F10 generations took place when segregants with darker kernels were removed.

Replicated yield evaluations began in 1983. Settler was tested statewide and in the Uniform Midseason Oat Performance Nursery from 1986 through 1989. In those tests, Settler was consistently one of the highest-yielding lines across South Dakota. Yields of Settler were 2.76 and 3.66 kg ha⁻¹ for 1986 and 1987, respectively, ranking third and second across eight locations in South Dakota. This compares with 2.3 and 2.9 kg ha⁻¹ for ‘Moore’ and 2.4 and 4.0 kg ha⁻¹ for ‘Wright’ in the same respective years.

At the time of release, Settler was rated as resistant to moderately resistant for crown rust. In inoculated loose smut (caused by Ustilago avenae (Pers.) Rostr.) tests, Settler was rated moderately resistant. Field readings for barley yellow dwarf virus (BYDV) rated Settler as being moderately resistant, slightly poorer than ‘Otee’ and ‘Porter’ but better than ‘Steele’ and Moore.

Settler is medium to medium late in maturity being similar to Wright. Plants are moderately tall, being equal to ‘Dal’ in height. Straw strength is moderate, with medium-sized stems, thus it is usually leaning. Panicles are medium sized and equilateral, and have spreading branches.

Grain of Settler is white and most kernels fluoresce under ultraviolet light, with less than 2% variants. Under some conditions, the palea exhibits black shading. At release, test weight of Settler was superior to most other cultivars being produced in the North-Central region of the United States, except ‘Hytest’ and Wright. Settler’s test weight averaged 435 kg m⁻³ over 24 location-years in 1986 to 1988 in South Dakota. This compares with 393.8 kg m⁻³ for Moore, 451.7 kg m⁻³ for Hytest, 423.4 kg m⁻³ for Wright, and 429.2 kg m⁻³ for ‘Don’. The kernels are of medium size. Settler’s average 1000-kernel weight was 25.7 g over 40 location-years in 1985 to 1987, compared with 23.9 g for Wright, 25.0 g for Moore, 27.2 g for Don, 26.3 g for Steele, and 29.9 g for Hytest. Groat protein of Settler is high, being intermediate between Don and ‘Kelly’. Groat oil percentage is about 6%.

Settler is not protected under the U.S. Plant Variety Protection Act. Breeder seed is maintained by the South Dakota Foundation Seed Stocks, South Dakota State University, Brookings. Limited quantities of seed for research are available outside South Dakota.

Registration of ‘Troy’ Oat

‘Troy’ oat (Avena sativa L.) (Reg. no. CV-349, PI 548769) is a spring cultivar developed by the South Dakota Agricultural Experiment Station. It was tested as SD 84104 and as Hytest, MO 70/3/’MN 78142’ made in 1980 (1). The accessions 78142 is ‘Otee’/’Garland’/PI 267989/’Avon’/’Parkway’/’Avena sterilis L. accession, which contributed resistance (caused by Puccinia coronata Corda var. avenae W.P. Fraser & Ledingham).

Troy was derived from the cross WI X2221-2//’Noble’/’Noda’/’MN 78142’ made in 1980 (1). The WI X2221-2//’Noble’/’MN 78142’ accession contributed resistance to crown rust. Troy was selected as an F4 head row, derived from a single panicle. The seed was bulked each generation, with selection or purification. Replicated yield evaluations began in 1985. Troy was tested statewide and in the Uniform Regional Nursery from 1988 through 1990. Troy was consistently competitive with other cultivars of similar maturity.

When released, 90% of the plants of Troy were resistant to the prevalent races of crown rust. Troy was rated susceptible to field crown rust infection in eastern South Dakota. Troy was released in March 1991. The principal merits of Troy are improved yield potential and good resistance to barley yellow dwarf virus (BYDV).

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