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’/or Belar’/’Beedee’/A. sterilis L. accession, which contributed resistance (caused by Puccinia coronata Corda var. avenae W.P. Fraser & Ledingham) and was tested in regional trials but not released.

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 ‘Otie’ 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, SD 57007. Limited quantities of seed for research are available upon request from the corresponding author for at least 5 yr. Recipients of seed are asked to make appropriate recognition of the source of ‘Settler’ if it is used in the development of a new cultivar, germplasm, parental line, or genetic stock.

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 SD 840104 and was released in March 1991. The principal merit is improved yield potential and good resistance to barley yellow dwarf virus (BYDV).

‘Troy’ was derived from the cross WI X2221-74//MN 70’3//MN 78142 made in 1980 (1). The PI 78142 is ‘Otter’//’Garland’/PI 267989/3’/Avon’/’Avenae’ (caused by Puccinia coronata Corda var. avenae W.P. Fraser & Ledingham) and was tested in regional trials but not released.

‘Troy’ was selected as an F4 head row, derived from a single panicle. The seed was bulked each generation, with no further selection or purification. Replicated yield evaluations began in 1985. ‘Troy’ was tested statewide and in the Uniform Midseason Nursery from 1988 through 1990. ‘Troy’ is competitive with other cultivars of similar maturity.

When released, 90% of the plants of ‘Troy’ were resistant to prevalent races of crown rust. ‘Troy’ was rated superior to field crown rust infection in eastern South Dakota. Inoculated loose smut tests of Troy were rated resistant to loose smut. ‘Troy’ is competitive with other cultivars of similar maturity.

‘Troy’ matured late, heading approximately 1 day after ‘Dal’. Plants are tall, averaging >2 cm taller than ‘Dal’ in height. Straw strength is moderate. Panicles are medium sized and equilateral, and have branches of moderate length. A small percentage of panicles have kernels with small dark awns. ‘Troy’ is best adapted to yield potential in the Minnesota–North Dakota area.

‘Troy’ has white kernels, and most fluoresce under ultraviolet light. Up to 5% nonfluorescent seeds are permitted in registered classes of seed. Kernels are of medium size. Test weight of ‘Troy’ is moderately high; generally low, usually between 5 and 6%.

‘Troy’ 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, SD 57007. Limited quantities of seed for research are available upon request from the corresponding author for at least 5 yr. Recipients of seed are asked to make appropriate recognition of the source of ‘Troy’ if it is used in the development of a new cultivar, germplasm, parental line, or genetic stock.