SY Clearstone 2CL

‘SY Clearstone 2CL’ is a Clearfield hard red winter wheat (*Triticum aestivum* L.) developed by the Montana Agricultural Experiment Station which was licensed to Syngenta Seeds and released in September 2012. SY Clearstone 2CL is a two-gene Clearfield backcross-derivative of ‘Yellowstone’ hard red winter wheat. The pedigree of SY Clearstone 2CL is Yellowstone*4/3/MTCL01158/Teal 11A/Jagalene. Yellowstone is a high-yielding hard red winter wheat released by MAES in 2006. MTCL01158 is an unreleased breeding line (TX12588*4/FS2/Tiber) which served as the source of mutant gene TaAHASL1D [AHAS = acetoxyacid synthase] mutant gene (FS2, BASF). BASF proprietary line, Teal 11A served as the source of mutant gene TaAHASL1B. Jagalene is a widely adapted hard red winter wheat developed by Syngenta Seeds. Alone and in combination these AHAS mutant genes confer tolerance to imidazolinone herbicide in wheat.

Breeder seed development of MTCL1077 was initiated in 2009 when 8 F$_3$-derived F$_4$ headrows were grown at Fort Ellis with selection for Beyond herbicide resistance and visual uniformity. In 2010, four line row plots of MTCL1077 were grown at the Post Farm in Bozeman and two phenotypically uniform line rows bulked as a source of breeder seed. In 2011 breeder seed of MTCL1077 was increased at the Fort Ellis Farm near Bozeman. Foundation seed of MTCL1077 was grown at the Bozeman Lutz farm in 2012. MTCL1077 was licensed to Syngenta Seeds, named ‘SY Clearstone 2CL’, and released in September 2012.

SY Clearstone 2CL is an awned, white-chaffed, medium maturity, conventional height hard red winter wheat with imidazolinone herbicide resistance and high yield potential in Montana. SY Clearstone is similar in appearance and most characteristics to recurrent parent Yellowstone. SY Clearstone 2CL is a backcross 4, F$_2$ derived line. The cultivar has been shown to be true-breeding, genetically uniform, and stable over four generations of seed increase with visually obvious heterogeneity for plant height under environmental conditions favorable for height expression. SY Clearstone 2CL contains a tall plant variant at a frequency less than 25 per 10,000 plants and a red-chaffed variant at a frequency less than 3 per 10,000 plants.

SY Clearstone 2CL is licensed to Syngenta Seeds. Foundation seed of SY Clearstone 2CL will be maintained by the Montana Agricultural Experiment Station, Montana State University, Bozeman, MT 59717.