

Available Forage & Cover Crop Legume Varieties & Germplasms

Heathcliffe Riday, U.S. Dairy Forage Research Center
Neal Tilhou, U.S. Dairy Forage Research Center
Lisa Kissing Kucek, U.S. Dairy Forage Research Center
Charles Brummer, University of California-Davis
Virginia Moore, Cornell University
Nancy Ehlke, University of Minnesota
Chris Reberg-Horton North Carolina State University
Steven Mirsky, USDA-ARS
Kenneth Albrecht, University of Wisconsin-Madison
Mark Smith, S&W Seed Company
John Grabber, U.S. Dairy Forage Research Center
Solveig Hanson, Cornell University
Brian Irish, USDA-ARS

Many new forage legume and cover crop varieties and germplasm are available from the U.S. Dairy Forage Research Center (DFRC) in collaboration with the Cover Crop Breeding Network (CCB), University partners and regional project committees (NE1010, NE1710, and NE2210). We are eager to explore utilization, evaluation, and further development of any of this material.

Five alfalfa subsp. *falcata* populations are available selected out of plant introductions (PI) and land races originally evaluated in Iowa, with further selection from progeny in Wisconsin (IAMF101 [2006], IAMF102 [2006], IAFAL-C3 [2007], HC2 [2012], and PFALTM [Exp]). One additional subsp. *falcata* population Larry15 [Exp.] is available from decades old Wisfal plants selected from pastures on the Larry Smith Farm south of Viroqua, WI.

Nineteen alfalfa subsp. *sativa* improved germplasms are available out of the 2013 initiated pre-breeding program utilizing PIs from USDA national plant germplasm system (NPGS). PIs (cultivars and landraces status) were divided into four breeding pools: EURO (Northeastern Europe to Ural Mountains), SIBR (Siberia), OTTM (regions around the Black Sea, Balkans, Turkey, and Iran), CASIA (Central Asia). Multiple PI selection rounds and cycles are available. Project participants include Pioneer HiBred, NE1010, NE1710, NE2210, and NIFA-AFRP grants) with plant selection sites in Alberta, California, New York, Quebec, and Wisconsin. Available germplasms (12) are: R1C1-CASIA (Exp), R1C1-EURO (Exp), R1C1-OTTM (Exp), R1C1-SIBR (Exp), R2C1-CASIA (2026), R2C1-EURO (2026), R2C1-OTTM (2026), R2C1-SIBR (2026), R1C2-CASIA (Exp), R1C2-EURO (Exp), R1C2-OTTM (Exp), and R1C2-SIBR (Exp). A more recent project (NIFA-AFRP) used genomic selection models based on historic NPGS collection phenotyping to determine superior PIs for seven traits. Internated selected PI plants generated seven germplasms (all Exp): PI25-Digest, PI25-Disease1, PI25-Disease2, PI25-Insect1, PI25-Insect2, PI25-Salt, and PI25-SeedVig.

Alfalfa germplasms that establish under corn silage are available (all Exp): AVC9 (C1), AVC14 (C1), INTALF20 (C2), INTALFC3-Bulk (C3) (lbs. of seed available for large plot studies), 25C4IntAlf20-Bulk (C4). Alfalfa germplasms selected out of kernza intercropping plot in Wisconsin and Minnesota are available (all Exp.): IWAF-H-MN1, IWAF-L-MN1, IWAF-H-MN1, IWAF-H-WI1, and IWAF-L-WI1.

Twenty-eight commercial grade experimental red clover cultivars (DFRC11 to DFRC42) are available from the DFRC red clover breeding program bred for generations throughout Wisconsin for improved persistence, biomass yield, and seed production. Four best in class experimental kura clover cultivars are available: Everlast14, ARL16-K01, ARL16-K09, ARL16-K14. The material was developed in collaboration with the Univ. of Wisconsin out of global PIs, experimentals, and varieties for establishment speed, biomass yield, height, spreading ability, and seed production. One birdsfoot trefoil experimental varieties H-TAN is available selected for high tannin content out of elite European germplasm with two cycles of selection for persistence and biomass production in Wisconsin.

Finally, numerous winter annual legume cover crops experimental varieties are available developed through the CCB. These include: four new Austrian winter pea lines (14WPX1551-1-3-0-0, 18PodWP-41-0, 14WPX1541-1-0-0P-1T-0, and 16WPX1761-0-A-0-1T-0) selected for winter survival, fall and spring vigor, and biomass; five hairy vetch experimental varieties (21MDS, 14NCL, 22OR, 23WI, and 22 MDS) selected for biomass yield, seed yield, winter survival, and in some cases softseed; and finally four crimson clover experimental varieties (20NCCCLH, 20WICC, 17MDCCS, and 20NCCCE) selected for winter survival, and early or late maturity. Descriptions of available cover crop material are available online (covercropbreeding.com/resources).