Geophysical Research Abstracts
Vol. 18, EGU2016-2671-1, 2016
EGU General Assembly 2016

Relationships between NDVI and Leaf Area Index for spring and winter camelina in Northeastern Montana

Jay Jabro (1), Brett Allen (2), Dan long (3), Terry Isbell (4), Russ Gesch (5), Jack Brown (6), Jerry Hatfield (7), David Archer (8), Emily Oblath (9), Merle Vigil (10), and Jim Kiniry (11)

(1) NPARL USDA-ARS, Sidney, United States (jay.jabro@ars.usda.gov), (2) NPARL USDA-ARS, Sidney, United States (brett.allen@ars.usda.gov), (3) USDA-ARS-CPCRL, Adams, OR 97801, USA (dan.long@ars.usda.gov), (4) USDA-ARS-NCAUR, Peoria, IL USA (terry.isbell@ars.usda.gov), (5) USDA-ARS-NCSCRL, Morris, MN, USA (russ.gesch@ars.usda.gov), (6) University of Idaho, Moscow, ID 83844, USA (jbrown@uidaho.edu), (7) USDA-ARS-NLAE, Ames, IA 50011, USA (jerry.hatfield@ars.usda.gov), (8) USDA-ARS-NGPRL, Mandan, ND 58554, USA (david.archer@ars.udsa.gov), (9) USDA-ARS-NCAUR, Peoria, IL USA (emily.oblath@ars.usda.gov), (10) USDA-ARS-CGPRL, Akron, CO 80720, USA (merle.vigil@ars.usda.gov), (11) USDA-ARS-GSWRL, Temple, TX 76502, USA (jim.kiniry@ars.usda.gov)

To our knowledge no research has been reported on the relationship between the normalized difference vegetation index (NDVI) and leaf area index (LAI) in spring and winter camelina. Relationships between NDVI and LAI for winter camelina (Camelina sativa) “Joelle” and spring camelina “CO46” were determined and evaluated in a 3-yr field study conducted in Sidney Montana under dryland conditions. The NDVI and LAI were measured weekly throughout the growing season. The NDVI was continually measured at one sample per second across the whole plot using a Crop Circle ACS-470 active crop canopy sensor. The LAI was measured at two locations at 12 samples per plot using an AccuPar model LP-80 Ceptometer. Treatments were replicated four times in a randomized complete block design in plots of 3 m×9 m. Temporal dynamics of NDVI and LAI in various growth stages of both spring and winter camelina were evaluated throughout 2013, 2014 and 2015 growing seasons. Significant linear relationships between NDVI and LAI were obtained for both spring and winter camelina when all the measurements were pooled across three growing seasons. Coefficients of determination (R2) of linearity were 0.77 and 0.79 for spring and winter camelina, respectively.