Start

Browse by Section/Division of Interest

Author Index

230-5 Simulating Growth of Annual Ryegrass (Lolium multiflorum Lam.) Under Different Defoliation Regimes Using the Cropgro Forage Model.

See more from this Division: ASA Section: Climatology & Modeling
See more from this Session: Climatology & Modeling: I

Tuesday, November 4, 2014: 9:00 AM
Long Beach Convention Center, Room 203B

Share |

Leonardo Moreno[1], *Kenneth J Boote*[1], *Carlos G. S. Pedreira*[2], *Diego Pequeno*[1] *and Felipe Tonato*[3], *(1)University of Florida, Gainesville, FL*
(2)Dept. Zootecnia ESALQ-USP, University of Sao Paulo, Piracicaba, Brazil
(3)Embrapa - CPAA, Manaus-AM, Brazil

Livestock producers in temperate and sub-tropical areas have been using annual ryegrass for a long time, either grazed or conserved as hay or silage. The use of this grass is growing in importance in the southeastern USA and other regions as Brazil, Uruguay and Argentina. Complexity of interactions among system components (livestock, plant/feed supply and the environment) makes management of these systems difficult, and tools to assist the decision-making process as valuable as scarce. Forage grasses are particular when compared to annual crops due to multiple regrowth cycles that make up the final yield, and that the harvested portion is the photosynthetic apparatus. Thus, initial conditions (i.e. initial mass, initial leaf area and reserve compounds level) are expected to play an important role to define how fast the canopy will recover after each harvest. A four-season dataset from a set of experiments conducted in Piracicaba-SP, Brazil, at the University of São Paulo campus, including different defoliation frequencies, nitrogen fertilization and irrigation strategies, was used to calibrate the CROPGRO Forage Model. A version adapted to guineagrass was the starting point, with code improvements, including the MOW file, which defines the stubble mass (MOW), the proportion of leaves in the stubble (RSPLF) and the number of leaves left per tiller (MVS), resetting partitioning to a younger and less mature phase, to account for regrowth. Parameter initial values, such as maximum leaf photosynthesis (LFMAX), specific leaf area (SLA), specific leaf weight (SLW), and plant composition were obtained from literature. The MOW value was set to 1000 kg DM ha^{-1}; RSPLF to 20% and MVS to 2.0. Calibration results are showing good agreement with observed data throughout different regrowth scenarios.

See more from this Division: ASA Section: Climatology & Modeling
See more from this Session: Climatology & Modeling: I

<< Previous Abstract | Next Abstract >>