Field time constraints for farm planning models

Martin N. Etyang, Paul V. Preckel, James K. Binkley, D. Howard Doster

Abstract

Resource limits for weather dependent constraints in farm planning models are often implemented as chance constraints. Procedures for setting right-hand sides for these constraints are often based on rules of thumb which are seldom updated. This paper presents an approach for validating these rules of thumb, and demonstrates the approach for a heavily used farm planning model. An evaluation of the robustness of chance constraints for equipment availability which are dependent on good (sufficiently dry) field time, is presented. Rules for setting constraints affected by good field time were found to be dependent on the tillage system(s) under consideration. These results imply a need for more research on setting availabilities of stochastic resources under alternative tillage systems.