WOFOST

Description	WOFOST simulates the daily growth of a specific crop, given the selected weather and soil data. Each simulation is conducted for selected specific boundary conditions, which comprise the crop calendar and the soil's water and nutrient status. WOFOST follows the hierarchical distinction between potential and limited production. Light interception and CO_2 assimilation are the growth driving processes, and crop phenological development is the growth controlling process. WOFOST can be used to estimate crop production, indicate yield variability, evaluate effects of climate changes or soil fertility changes, and determine limiting biophysical factors. The following crop models are available: wheat, grain maize, barley, rice, sugar beet, potato, field bean, soybean, oilseed rape, and sunflower.
Appropriate Use	WOFOST considers only ecological factors under the assumption that optimum management practices are applied.
Scope	WOFOST is one-dimensional, mechanistic, and site-specific. Its application to regions relies on the selection of representative points, followed by spatial aggregation or interpolation (e.g., linked to a GIS).
Key Output	Crop yield and variability for different climate change scenarios.
Key Input	Rainfall, temperature, wind speed, global radiation, air humidity, soil moisture content at various suction levels, and data on saturated and unsaturated water flow. Data on site-specific soil and crop management.
Ease of Use	For trained agronomists.
Training Required	No formal training required, but advanced knowledge of plant growth and soil processes is needed.
Training Available	Training and support is available for a fee.
Computer Requirements	Windows-based PC.
Documentation	Hijmans R.J., I.M. Guiking-Lens, and C.A. van Diepen. 1994. WOFOST 6.0: User's Guide for the WOFOST 6.0 Crop Growth Simulation Model. Technical Document 12. ISSN 0928-0944. DLO Winand Staring Centre, Wageningen, The Netherlands.
Applications	WOFOST has been used to study the impact of climate change on crop yield potentials and water use in the Rhine basin. WOFOST has also been incorporated in the European Crop Growth Monitoring System (CGMS) of the MARS project (Monitoring Agriculture with Remote Sensing).
Contacts for Framework, Documentation, Technical Assistance	Kees van Diepen, Department of Land Evaluation Methods, The Winand Staring Centre for Integrated Land, Soil and Water Research (SC-DLO), Marijkeweg 11/22 P.O. Box 125, 6700 AC Wageningen, The Netherlands; Tel: +31.317.474230; e-mail: diepen@sc.dlo.nl.
Cost	Not identified.
References	Boogaard, H.L., C.A. van Diepen, R.P. Rötter, J.M.C.A. Cabrera, and H.H. van Laar. 1998. User's Guide for the WOFOST 7.1 Crop Growth Simulation Model and WOFOST Control Center 1.5. DLO-Winand Staring Centre, Wageningen, Technical Document 52. Supit, I., A.A. Hooijer, and C.A. van Diepen (eds.). 1994. System Description of the WOFOST 6.0 Crop Simulation Model Implemented in CGMS. Volume 1: Theory and Algorithms. Catno: CL-NA-15956-EN-C. EUR 15956, Office for Official Publications of the European Communities, Luxembourg.