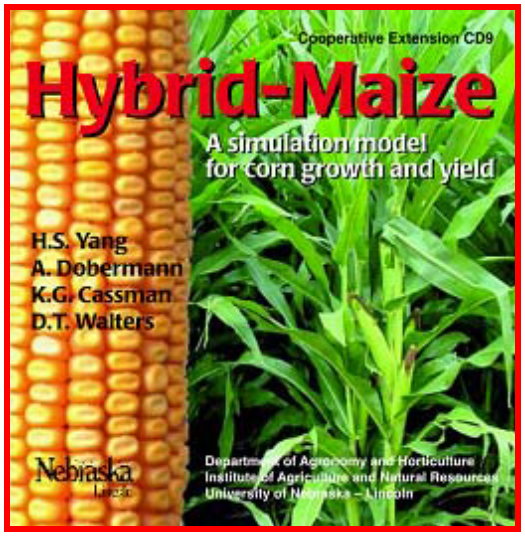
Hybrid-Maize

A simulation model for corn growth and yield



Website
www.hybridmaize.unl.edu

Hybrid Maize Software is available for online purchase at
http://estore.adec.edu

Pricing:
Download version, including User's Guide (pdf file) : **$35**
Expanded weather database (download): **$25**

University of Nebraska Lincoln

What does the Hybrid-Maize model do?

Hybrid-Maize is a computer program that simulates the growth of corn crop (Zea mays L.) under non-limiting or water-limited (rainfed or irrigated) conditions based on daily weather data. Specifically, it allows the user to:

- Assess the overall site yield potential and its variability;
- Evaluate changes in attainable yield using different combinations of planting date, hybrid maturity, and plant density;
- Explore options for optimal irrigation management;
- Conduct in-season simulations to evaluate actual growth and to forecast final yield scenarios.

Hybrid-Maize does NOT allow assessment of different options for nutrient management nor does it account for yield losses due to weeds, insects, diseases, lodging, and other stresses.

Hybrid-Maize has been evaluated primarily in rainfed and irrigated maize systems of the US Corn Belt. Caution should be exercised when applying this model to other environments as this may require changes in some of the default model parameters

Features of the Hybrid-Maize software

General

- Four simulation modes:
  - Single year
  - Single year with long-term runs
  - Long-term run
  - Current season yield prediction.
- Two water conditions:
  - Optimal water supply (for potential growth and yield), with the option of estimating irrigation requirement (timing and quantities).
  - Rainfed/Irrigation (for water-limited growth and yield).

- Intuitive and simple input settings
- Maturity set by total GDD/GDU, or actual date of physiological maturity, or relative maturity
- Option of setting date of silking or GDD-to-silking
- Option of English units or Metric units
- Input settings can be saved and re-used
- Complete help system
- Comprehensive user's guide with examples of applications.

Simulation outputs

- Graphic as well as numerical outputs
- Summary report as well as daily outputs
- Comprehensive results presentation to aid understanding of crop responses to weather conditions, soil properties and crop management.

Weather data format and preparations

- Easy preparation of weather data in a spreadsheet
- Flexible data format without need for alignment

- Built-in utility for automatic conversion of weather data downloaded from the High Plains Regional Climate Center (HPRCC)
- Built-in utility for checking weather data for erroneous or missing entries.

For scientific research

- Complete documentation for model formulation
- Transparent and modifiable internal parameters, with the option of restoring to default values by a mouse click
- One-click loading of results into spreadsheet programs.

System requirements: MS Windows 95 or later; installation requires about 14 MB of disk space; 800 x 600 screen resolution or better.

Additional product: Expanded Weather Database for use with the Hybrid-Maize model. Developed by the High Plains Regional Weather Center at the University of Nebraska-Lincoln to provide data for additional 116 sites in the U.S. Corn Belt (CO, IA, KS, MN, MO, MT, NE, ND, SD, WY) for use with the model program. Available separately or bundled with the Hybrid-Maize model (download only).

For questions, comments or suggestions, contact:

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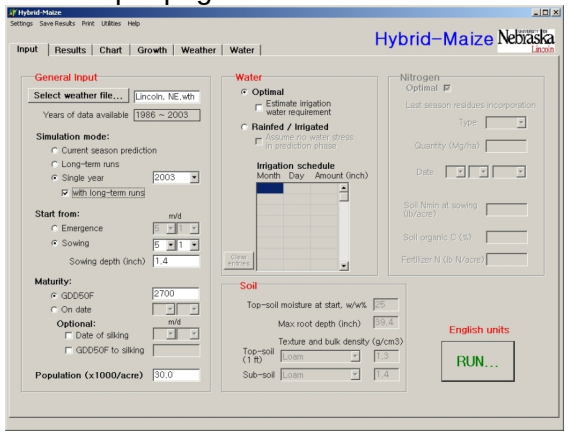
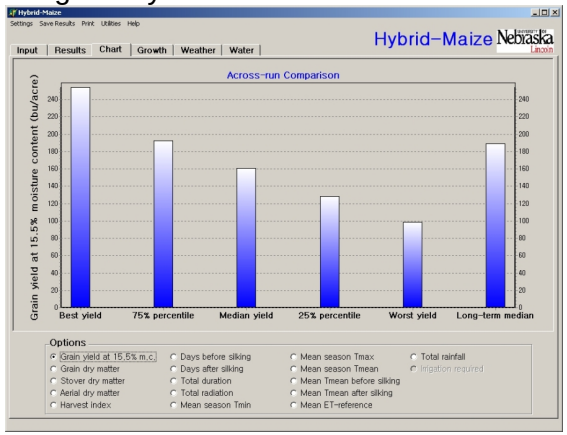
Screenshots of Hybrid-Maize Program

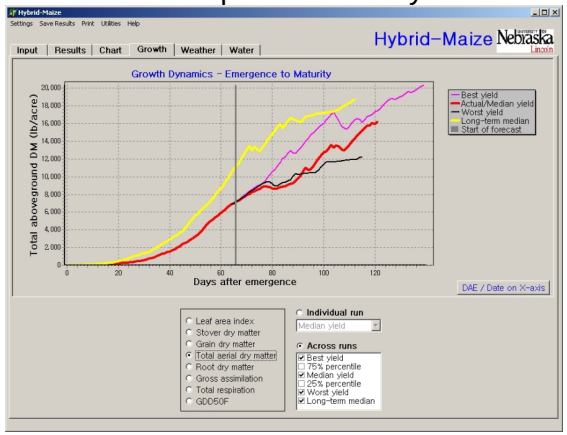
Front/ Input page



Long-term yield variation



Growth forecast prior to maturity



Soil water dynamics