Decision Support System for Agrotechnology Transfer

The Decision Support System for Agrotechnology Transfer (DSSAT) comprises dynamic crop growth simulation model for over 40 crops. The model simulates growth development; and yield as a function of the soil-plant-atmosphere dynamics.

* Model ID: DSSAT
* Model Maintainer: Cheryl Porter, cporter@ufl.edu
* Model Category: Agriculture

# Outputs

**HWAH:**

* Description: Harvested weight at harvest (kg/ha)
* Units: kg/ha

**HARVEST\_AREA:**

* Description: Amount of area harvested under all management practices for this point (ha)
* Units: ha

**Production:**

* Description: Production for the given point/management practice (kg)
* Units: kg

# Parameters

**season:**

* Description: The season for the given run. May supercede planting\_start and planting\_end.
* Type: ChoiceParameter
* Choices: Meher, Belg
* Default: meher

**crop:**

* Description: The crop for the given model run.
* Type: ChoiceParameter
* Choices: maize
* Default: maize

**samples:**

* Description: The number of pixel predictions DSSAT will make. Setting samples to 0 returns the entire geography (all Ethiopia) which is quite large.
* Type: NumberParameter
* Min/Max: None, 0
* Default: 0

**management\_practice:**

* Description: The management practice to model. rf\_highN corresponds to a high nitrogen management practice. irrig corresponds to a high nitrogen, irrigated management practice. rf\_0N corresponds to a subsistence management practice. rf\_lowN corresponds to a low nitrogen managemet practice. If set to combined, all practices are produced.
* Type: ChoiceParameter
* Choices: combined, rf\_highN, irrig, rf\_0N, rf\_lowN
* Default: combined

**start\_year:**

* Description: The year to begin the simulation. The earliest possible year to begin is 1984 and the latest is 2019.
* Type: TimeParameter
* Default: 1984

**number\_years:**

* Description: The number of years to run the simulation. If start\_year + number\_years - 1 > 2018 then this will be set such that your simulation runs through 2018.
* Type: TimeParameter
* Default: 35

**rainfall:**

* Description: The degree to perturb rainfall from the baseline model. This should be a real number, which, if 0, would indicate no rainfall in any district. If 1 it would indicate rainfall matching baseline estimates. 1.25 would indicate a 25% increase in rainfall from off the baseline estimate.
* Type: NumberParameter
* Min/Max: None, 2
* Default: 1

**fertilizer:**

* Description: This a scalar between 0 and 200 which represents fertilizer in kg/ha. 100 is considered the baseline amount (per management practice), so anything above 100 represents additional fertilizer usage/availability and anything below 100 represents decreased fertilzer (per management practice).
* Type: NumberParameter
* Min/Max: None, 200
* Default: 100

**planting\_start:**

* Description: This is the month and day in "mm-dd" format when planting should begin. This allows the modeler to simulate various planting seasons (such as Belg and Maher).
* Type: TimeParameter
* Default: 03-01

**planting\_end:**

* Description: This is the month and day in "mm-dd" format when planting should end. This allows the modeler to simulate various planting seasons (such as Belg and Maher). This must be after the planting\_start parameter.
* Type: TimeParameter
* Default: 05-20

**planting\_window\_shift:**

* Description: This is the number, in days, that the planting window was shifted
* Type: NumberParameter
* Min/Max: None, 30
* Default: 0