**Use case 3: Can we grow teff in the maize-growing regions of Ethiopia?**

A general modeler, Ava, wants to use DSSAT-pythia to determine if teff production can be expanded into the maize-growing regions of Ethiopia. An expert modeler has already produced data layers for teff, including planting dates and other management information. A calibrated cultivar is also available for use with DSSAT.

Ava selects the crop suitability option for DSSAT-pythia. This option allows only two selections, the base crop (maize) and the hypothetical crop (teff). This will trigger teff simulations which use the maize area distribution maps. She understands that this is a hypothetical simulation, but that it might reveal areas where teff production could be expanded. All historical weather years are used in the simulation to give an estimate of the variability due to weather.

**Processing workflow**

* 1. **SuperMaas pre-processor:** Modify the pythia config file to conduct teff simulations using maize harvested area data layers.
  2. **DSSAT-pythia container:** Run the model using modified pythia config file. Data layers for both maize and teff are needed.
  3. **SuperMaaS post-processor:**

Post-processer outputs for this use case:

* 1. DSSAT-pythia per pixel outputs – no post-processing
  2. Yield maps for teff for all four management categories, plus the weighted average for all managements.
  3. Aggregated total production estimates by region.
  4. Estimates of interannual variability of crop yields and crop production (e.g., standard deviation).