



1 Maize

Properties (Outputs)

| Name | Description | Units | Type | Settable? |
|------------------------|--|--------------------------------|----------|-----------|
| AboveGround | Above ground weight | | IBiomass | True |
| AboveGroundHarvestable | Above ground weight | | IBiomass | False |
| CoverGreen | Total plant green cover from all organs | - | double | False |
| CoverTotal | Total plant cover from all organs | - | double | False |
| CultivarNames | Gets a list of cultivar names | | String | False |
| DaysAfterSowing | Number of days after sowing. | d | int32 | False |
| IsAlive | Return true if plant is alive and in the ground. | | boolean | True |
| IsEmerged | Return true if plant has emerged | | boolean | False |
| IsReadyForHarvesting | Returns true if the crop is ready for harvesting | | boolean | False |
| LAI | Leaf area index. | m ² /m ² | double | False |

| Name | Description | Units | Type | Settable? |
|----------------|---|-------|----------------------------------|-----------|
| NitrogenUptake | The nitrogen uptake | | double | False |
| PlantType | Used by several organs to determine the type of crop. | | String | True |
| Population | Gets or sets the plant population. | /m2 | double | True |
| SowingData | The sowing data | | SowingParameters | True |
| SowingDate | Holds the date of sowing | | datetime | True |
| WaterUptake | The sw uptake | | double | False |

Links (Dependencies)

| Name | Type | IsOptional? |
|-------------------|---------------------------|-------------|
| Arbitrator | IArbitrator | True |
| clock | IClock | False |
| Leaf | ICanopy | True |
| mortalityRate | IFunction | False |
| Phenology | Phenology | False |
| Root | IRoot | True |
| seedMortalityRate | IFunction | False |
| structure | IStructure | True |
| summary | ISummary | False |

Events published

| Name | Type |
|------------|--|
| Flowering | Void Flowering (Object sender, EventArgs e) |
| Harvesting | Void Harvesting (Object sender, EventArgs e) |

| Name | Type |
|---------------------|--|
| PlantEnding | Void PlantEnding (Object sender, EventArgs e) |
| PlantSowing | Void PlantSowing (Object sender, SowingParameters e) |
| Sowing | Void Sowing (Object sender, EventArgs e) |
| StartPodDevelopment | Void StartPodDevelopment (Object sender, EventArgs e) |

Methods (callable from manager)

| Name | Description |
|------------------|---|
| Document | ITag Document() |
| EndCrop | void EndCrop() |
| Harvest | void Harvest(boolean removeBiomassFromOrgans) <i>Harvest the crop.</i> |
| ReducePopulation | void ReducePopulation(double newPlantPopulation) <i>Reduce the plant population.</i> |
| Sow | void Sow(String cultivar, double population, double depth, double rowSpacing, double maxCover, double budNumber, double rowConfig, double seeds, int32 tillering, double ftn) <i>Sow the crop with the specified parameters.</i> |

2 SowingParameters

Parameters which control how a plant is sown.

Properties (Outputs)

| Name | Description | Units | Type | Settable? |
|-----------|--------------------------|-------|--------|-----------|
| BudNumber | The bud number | | double | True |
| Cultivar | The cultivar to be sown. | | String | True |
| Depth | The depth | mm | double | True |
| FTN | Fertile Tiller Number | | double | True |

| Name | Description | Units | Type | Settable? |
|------------------|--|-------|--------|-----------|
| MaxCover | The maximum cover | | double | True |
| Population | The population. | /m2 | double | True |
| RowSpacing | The row spacing | mm | double | True |
| Seeds | The number of seeds sown. | | double | True |
| SkipDensityScale | The skip plant seed density adjustment | | double | True |
| SkipPlant | The skip plant | | double | True |
| SkipRow | The skip row | | double | True |
| SkipType | The skip type | | double | True |
| TilleringMethod | Tillering Method to set Fixed or dynamic tillering | | int32 | True |

3 Phenology

The phenological development is simulated as the progression through a series of developmental phases, each bound by distinct growth stage.

Properties (Outputs)

| Name | Description | Units | Type | Settable? |
|------------------------|--|-------|---------|-----------|
| AccumulatedEmergedTT | The Thermal time accumulated tt following emergence | | double | True |
| AccumulatedTT | The Thermal time accumulated tt | | double | True |
| CurrentPhase | A utility property to return the current phase. | | IPhase | False |
| CurrentPhaseName | This property is used to retrieve or set the current phase name. | | String | False |
| CurrentStageName | Return current stage name. | | String | False |
| Emerged | The emerged | | boolean | False |
| FractionInCurrentPhase | Gets the fraction in current phase. | | double | False |
| Stage | A one based stage number. | | double | True |

| Name | Description | Units | Type | Settable? |
|------------|---|-------|--------|-----------|
| StageCodes | List of numerical stage codes | | int32 | False |
| StageNames | List of stages in phenology | | String | False |
| Zadok | Gets the current zadok stage number. Used in manager scripts. | | double | False |

Links (Dependencies)

| Name | Type | IsOptional? |
|-------------|-------------------------------|-------------|
| age | Age | True |
| plant | Plant | False |
| thermalTime | IFunction | False |
| zadok | ZadokPMFWheat | True |

Events published

| Name | Type |
|---------------|---|
| PhaseChanged | Void PhaseChanged (Object sender, PhaseChangedType e) |
| PlantEmerged | Void PlantEmerged (Object sender, EventArgs e) |
| PostPhenology | Void PostPhenology (Object sender, EventArgs e) |
| StageWasReset | Void StageWasReset (Object sender, StageSetType e) |

Methods (callable from manager)

| Name | Description |
|-------------|--|
| BeforePhase | boolean BeforePhase(int32 phaseIndex) <i>A utility function to return true if the simulation is before the specified phaseIndex.</i> |
| Between | boolean Between(int32 startPhaseIndex, int32 endPhaseIndex) <i>A utility function to return true if the simulation is currently between the specified start and end stages.</i> |

| Name | Description |
|--------------------|--|
| Between | boolean Between(String start, String end) <i>A utility function to return true if the simulation is currently between the specified start and end stages.</i> |
| Beyond | boolean Beyond(String start) <i>A utility function to return true if the simulation is at or past the specified start stage.</i> |
| BeyondPhase | boolean BeyondPhase(int32 phaseIndex) <i>A utility function to return true if the simulation is at or past the specified start stage.</i> |
| Document | ITag Document() |
| EndStagePhaseIndex | int32 EndStagePhaseIndex(String stageName) <i>Look for a particular stage and return its index or -1 if not found.</i> |
| GetPhaseTable | DataTable GetPhaseTable() |
| IndexFromPhaseName | int32 IndexFromPhaseName(String name) <i>Look for a particular phase and return its index or -1 if not found.</i> |
| InPhase | boolean InPhase(String phaseName) <i>A utility function to return true if the simulation is currently in the specified phase.</i> |
| OnCreated | void OnCreated() |
| OnStartDayOf | boolean OnStartDayOf(String stageName) <i>A utility function to return true if the simulation is on the first day of the specified stage.</i> |
| PhaseStartingWith | IPhase PhaseStartingWith(String start) <i>A utility function to return the phenological phase that starts with the specified start stage name.</i> |

| Name | Description |
|----------------------|---|
| ResetCampVernParams | void ResetCampVernParams(FinalLeafNumberSet overRideFLNParams) <i>Resets the Vrn expression parameters for the CAMP model</i> |
| SetAge | void SetAge(double newAge) <i>Allows setting of age if phenology has an age child</i> |
| SetEmergenceDate | void SetEmergenceDate(String emergenceDate) <i>Force emergence on the date called if emergence has not occurred already</i> |
| SetGerminationDate | void SetGerminationDate(String germinationDate) <i>Force germination on the date called if germination has not occurred already</i> |
| SetToEndStage | void SetToEndStage() |
| SetToStage | void SetToStage(double newStage) <i>A function that resets phenology to a specified stage</i> |
| StartStagePhaseIndex | int32 StartStagePhaseIndex(String stageName) <i>Look for a particular stage and return it's index or -1 if not found.</i> |