Name: Advanced_BBCH_Estimator
Author: Hlaszny dr., Edit
Version: 1-001
Created: 2015. 12. 22. 0:00:00
Updated: 2016. 08. 18. 22:30:15

PlantCT System | Advanced BBCH Estimator

The **Systems Engineering Model** captures the requirements, operating conditions and performance constraints of the Advanced BBCH Estimator. It captures the design of the (sub)system in terms of distinct, configurable, reusable components.

Technical Target

Phenological models are well proven tools to forecast phenological events of grapevine (Vitis vinifera L.), for example bud burst, flowering or veraison. The main variable is the temperature. The aim of this model is to estimate the calendar date of different BBCH values in case of grapevine.

Technical Concept

The Advanced BBCH estimator provides actual BBCH values to several plant disease forecast models. The estimator should be run from late autumn to the end of harvest, parametrized with different input 'target_heatsum'values. The model uses two algorithmical steps:

Summarizing chill units from the 'starting_date' to the calendar date when the daily minimum air temperature does not rise above a given value. Do that depending on the formal parameters 'variety_of_grapevine' and 'koeppen_climatic_class'.

Summarizing the heat_sum from the first day of the current year to the calendar date while the so summarized heat sum does not achieve the value of a given value. This 'target_heat_sum' is uniquely associated with a BBCH stage. The heat_sum grows continuously, so the current calendar date, when the previously mentioned match happens, is the output of the model

Requirements Model

+ Specifications
+ Use Cases
+ Interactions
+ State Machines
+ Constraints

The Requirements Model contains the defined system requirements, its desired behavior, and operating constraints the subsystem must conform to.

Operational Domain Model

+ Environment
+ OperatingConditions

The Operational Domain Model contains the SysML blocks that describe the operating conditions under which the design subsystem will operate.

Design Model

+ System Design
+ Software Design

The Design Model contains the SysML blocks that describe the subsystem's structure. It describes how reusable components fit together to fulfil the design needs.

Implementation Model

+ Component_1
+ Component_2
+ Component_3

The Implementation Model describes the computing hardware and software artifacts necessary to implement the actual embedded, software-intensive subsystem

Library

The Library would contain a collection of reusable SysML blocks to develop the design and constraints of this subsystem and others in this project.

Review Status: not reviewed yet

Review Date: yyyy/mm/dd
Reviewed by: -- | -- | --

Blank Parts

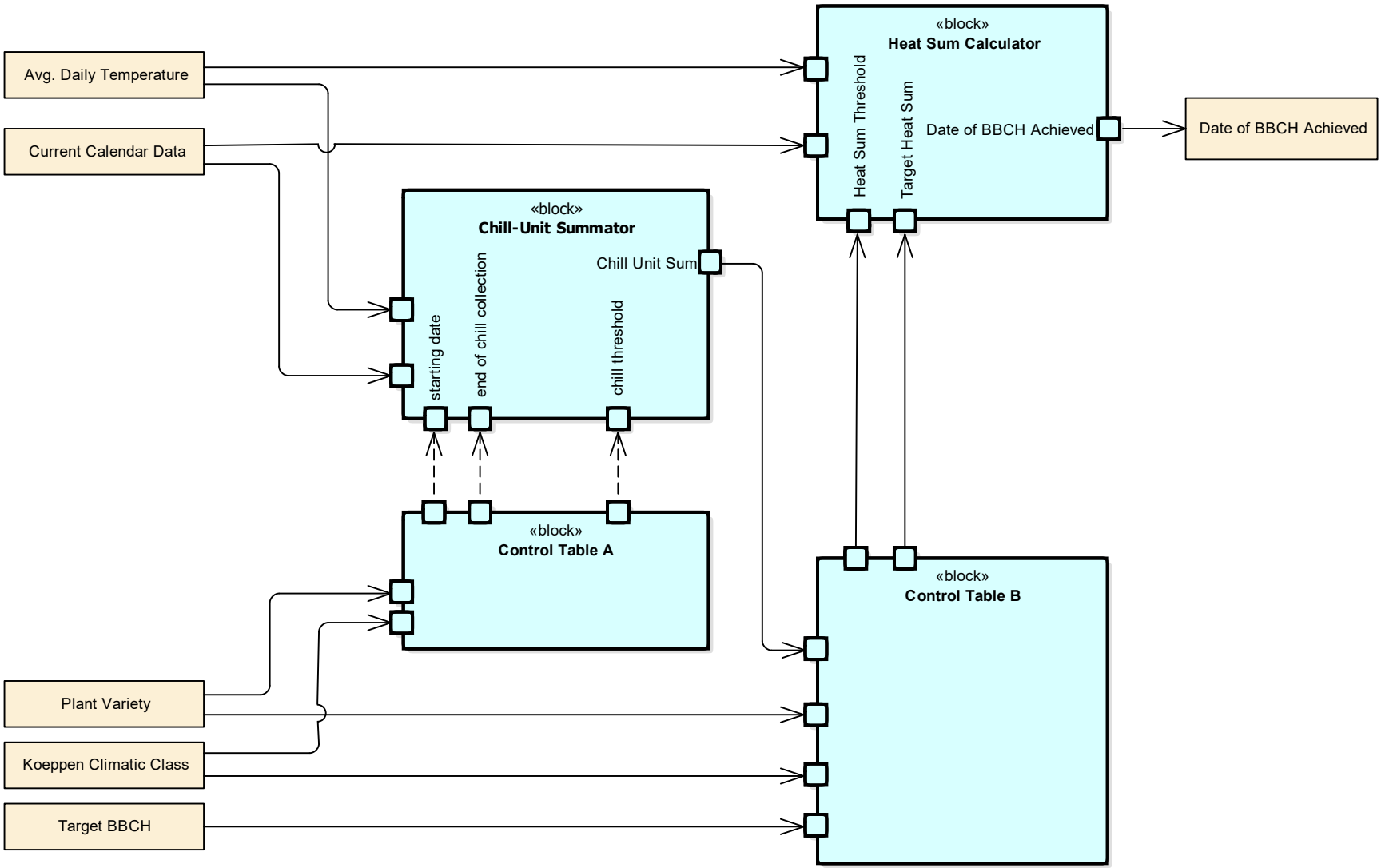
Elaborated Parts

Name: BBCH Estimator
Author: Dr Hlaszny, Edit
Version: 1-001
Created: 2016. 08. 16. 0:00:00
Updated: 2017. 07. 16. 20:35:10

Advanced BBCH Estimator for the Generic Infection Model

System Design

The **System Design** is focused on the (sub)system as a whole: It emphasizes its total operation. Its looks at the (sub)system from the outside, that is, and its interactions with other (sub)systems and the environment, as well as from the inside.



Review Status: implemented
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Elaborated Parts