

**Subject:** RE: Sv: FAW Egg DD Model description

**From:** Ritter Guimapi <ritter.guimapi@nibio.no>

**Date:** 19/11/2020, 11:45

**To:** Bhabesh Bhabani Mukhopadhyay <bhabesh.mukhopadhyay@nibio.no>, Tor-Einar Skog <tor-einar.skog@nibio.no>

**CC:** Brita Linnestad <brita.linnestad@nibio.no>

Hi Tor-Einar,

I agree with you, using the hourly data for degree-day calculation uncommon (Even the article where I took this one was published just recently in 2018 here:

[https://www.nature.com/articles/s41598-018-28392-z?WT.feed\\_name=subjects\\_plant-ecology](https://www.nature.com/articles/s41598-018-28392-z?WT.feed_name=subjects_plant-ecology) )

One of the main reason is that it is not easy/common to have hourly weather data from a location. Daily data a more available. Then having only the daily min/max data, approaches such single/double sine wave are used to approximate and take into consideration the fluctuation of temperature values occurring during the day and improve the accuracy.

Now about the precision/Information we might lose, At this moment I think I cannot answer. My idea is that we use an approach to will make us fully explore/use the resources and data we have from the field. Given that we can have the hourly record directly from weather station, my assumption is that using them directly will make the resulting daily DD output more accurate as we will really capture all temperature fluctuation of the day compared to the others method trying to approximate.

And Finally, It would be also a good opportunity for us to explore and compare both approach, I was even considering that we could use that also for maize, then the field experiment planned next year can help us to compare based on the planting date .

We can also plan a teamtalk to discuss more about

Regards  
Ritter

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**From:** Bhabesh Bhabani Mukhopadhyay <bhabesh.mukhopadhyay@nibio.no>  
**Sent:** 19 November 2020 09:33  
**To:** Tor-Einar Skog <tor-einar.skog@nibio.no>; Ritter Guimapi <ritter.guimapi@nibio.no>  
**Cc:** Brita Linnestad <brita.linnestad@nibio.no>  
**Subject:** Re: Sv: FAW Egg DD Model description

Hi Ritter,

I well received your email yesterday and related email from Tor today. I am going through the both article. Hoping for some outcome from Tor's query regarding DTT function vs single sine wave with cutoff.

Sincerely

Bhabesh

On 19/11/2020 08:31, Tor-Einar Skog wrote:

Ritter,

thanks. I just have one simple question: How much information/precision would you lose if you replaced the DTT function with something like the single sine wave with cutoff (se attached article and implementation here: <https://gitlab.nibio.no/VIPS/VIPSCCommon/-/blob/develop/src/main/java/no/nibio/vips/model/maths/NonLinearCurves.java>)? I'm asking because using hourly data for day degree calculation is quite uncommon and that would complicate the current phenology model a bit. Of course, if it's important to do it your way, we will.

Med vennlig hilsen / Sincerely  
Tor-Einar Skog  
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**Fra:** Ritter Guimapi <[ritter.guimapi@nibio.no](mailto:ritter.guimapi@nibio.no)>

**Sendt:** onsdag 18. november 2020 16:57

**Til:** Bhabesh Bhabani Mukhopadhyay

<[bhabesh.mukhopadhyay@nibio.no](mailto:bhabesh.mukhopadhyay@nibio.no)>

**Kopi:** Brita Linnestad <[brita.linnestad@nibio.no](mailto:brita.linnestad@nibio.no)>; Tor-Einar Skog <[tor-einar.skog@nibio.no](mailto:tor-einar.skog@nibio.no)>

**Emne:** FAW Egg DD Model description

Hi Bhabesh,

Find attached the description of the model description for FAW degree day estimation.

Just let me know if you need more detail or explanation

Regards

Ritter