

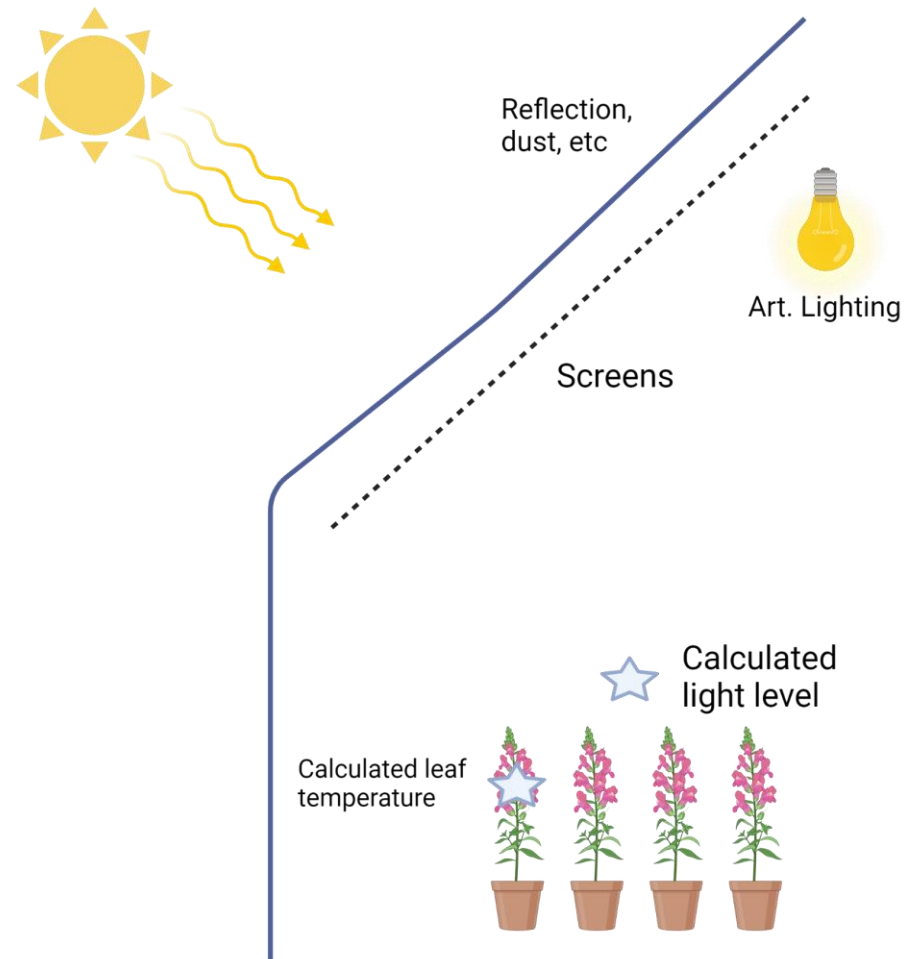
# Guidelines for using InfoGrow's light strategy

InfoGrow calculates the light level at plant height from

- Light level measured at the weather station
- Position of screens
- Use of artificial light
- Greenhouse covering material
- Internal shading
- Dust and other material on the covering

From this calculation, light sums are calculated.

Technical weather forecast is used to estimate light levels for the coming days.



Light at plant height = Sun + Lighting - Reflection etc. - Shading  
 Leaf temperature = Calculated from energy balance in three layers

# Guidelines for using InfoGrow's light strategy

The summary table provides an easy-to-use daily overview.



Hi jeaa@teknologisk.dk!

Log out

Selected period

Last received measurement  
29/08/2023 15:53:27

Start date 21. Aug 2023

End date 28. Aug 2023

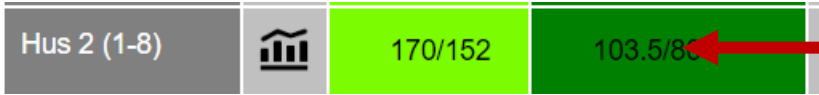
Last day value: 20.3

Greenhouse Compartments		Degree Sum (°C)	Indoors light sum (mole/m <sup>2</sup> leaf)	Photosynthesis sum (g CO <sub>2</sub> /m <sup>2</sup> )	Ligh use efficiency (g/kWh)	(g	Greenhouse Compartments		Degree Sum (°C)	Indoors light sum (mole/m <sup>2</sup> leaf)	CO <sub>2</sub> (m)
Hus 1 (1-8)		175/152	104.7/80	74/32	-		Hus 1 (1-8)		175/152	104.7/80	2
Hus 2 (1-8)		170/152	103.5/80	103/32	-		Hus 2 (1-8)		170/152	103.5/80	0
Hus 3 (9-18)		167/152	94.6/80	85/32	-		Hus 3 (9-18)		167/152	94.6/80	0
Hus 4 (9-18)		163/152	99.9/80	106/32	-		Hus 4 (9-18)		163/152	99.9/80	5
Hus 5 (19-36)		167/152	80.7/80	87/32	-		Hus 5 (19-36)		167/152	80.7/80	0
Hus 6 (19-36)		165/152	76.7/80	106/32	-		Hus 6 (19-36)		165/152	76.7/80	6

InfoGrow can help you to ensure that the plants receive the right amount of light.

The summary table shows the light sum at plant height and your setpoint. Numbers before the slash are received, and after is the setpoint for the selected period. Numbers are sums for the selected period.

# Define setpoint and colour levels



Click to start the setup menu shown below

Administration ▾ Manage ▾ Logs ▾ Production ▾ For developers 🇬🇧 Hi jeaa@teknologisk.dk! Log

Knud Jepsen - Norning ▾ Hus 1 (1-8) ▾

## Setup for radial gauge about Sum light at plante height

[Back to summary table](#)

Daily Target Sum  
IndoorsLight

 mol PAR/m<sup>2</sup>

Target for the  
light sum

If you want to save the changes to several compartments check them here before saving

Setup layout

Range values

Max. value:

High value:

Low value:

Min. value:

Range colors

High color range:

Medium color range:

Low color range:

Optimal range

Max. value for the optimal range:

Min. value for the optimal range:

Valid for compartments

<input type="checkbox"/>	Name
<input checked="" type="checkbox"/>	Hus 1 (1-8)
<input type="checkbox"/>	Hus 2 (1-8)
<input type="checkbox"/>	Hus 3 (9-18)
<input type="checkbox"/>	Hus 4 (9-18)
<input type="checkbox"/>	Hus 5 (19-36)
<input type="checkbox"/>	Hus 6 (19-36)

Set levels for the color coding

Chose color to each level

Remember to save your setup



# Light strategy

Click light strategy in the Production Menu to start the light strategy dialog

Administration ▾ Manage ▾ Logs ▾ Production ▾ For developers

Start date: 22. Aug 2023

End date: 29

Degree Sum (°C): 168/152

Indoors light sum (mole/m<sup>2</sup> leaf): 95.3/80

Avg. P Activity (g/h/m<sup>2</sup> leaf): 0.3


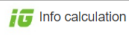

Degree Sum (°C): 163/152

Indoors light sum (mole/m<sup>2</sup> leaf): 94.3/80

Avg. P Activity (g/h/m<sup>2</sup> leaf): 0.5

- Batches
- Summary
- Dashboard
- Charts & Tables
- Light strategy**
- Power grid tariffs
- Admin. light setup for over management
- Weather prognose
- Today data
- VG data
- Data

Knud Jepsen - Norrning

Light strategy   

Nbr. days for last period of time: 4

Nbr. days for next period of time: 5

All values are by day

Greenhouse Compartments	Target light		Light		Growthlight		Avg. period required growthlight						
	At plant height [mol PAR/m <sup>2</sup> ]	At plant height [mol PAR/m <sup>2</sup> ]	Contribution Natural light [mol PAR/m <sup>2</sup> ]	Contribution Growthlight [mol PAR/m <sup>2</sup> ]	Hour capacity [mol PAR/m <sup>2</sup> /h]	Avg. period required growthlight	30/09/2023	31/09/2023	01/10/2023	02/10/2023	03/10/2023	04/10/2023	05/10/2023
Sun [mol PAR/m <sup>2</sup> ]			35.8			40	43	19	49	47	44	41	45
=>													
Hus 1 (1-8)	10	11.9	11.93	0	0.261	0	0	7 h	0	0	0	0	0
Hus 2 (1-8)	10	11.8	11.8	0	0.266	0	0	7 h	0	0	0	0	0
Hus 3 (9-18)	10	10.8	10.78	0	0.258	0	0	14 h	0	0	0	0	0
Hus 4 (9-18)	10	11.4	11.38	0	0.272	0	0	9 h	0	0	0	0	0
Hus 5 (19-36)	10	9.2	9.2	0	0.244	0	0	21 h	0	0	0	0	0
Hus 6 (19-36)	10	8.7	8.74	0	0.257	1 h	0	21 h	0	0	0	0	0

# Light strategy - Overview

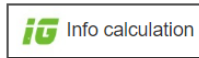
Help to understand the different columns in the table

The calculation used is explained

Electricity price for the next 24 hours

Yellow row are light data from the weather station

## Light strategy



Nbr. days for last period of time

Nbr. days for next period of time

All values are by day

Greenhouse Compartments	Target light		Light		Growthlight		Days						
	At plant height [mol PAR/m <sup>2</sup> ]	At plant height [mol PAR/m <sup>2</sup> ]	Contribution Natural light [mol PAR/m <sup>2</sup> ]	Contribution Growthlight [mol PAR/m <sup>2</sup> ]	Hour capacity [mol PAR/m <sup>2</sup> /h]	Avg. period required growthlight	30/08/2023	31/08/2023	01/09/2023	02/09/2023	03/09/2023	04/09/2023	05/09/2023
Sun [mol PAR/m <sup>2</sup> ]			35.8			40	43	19	49	47	44	41	45
Hus 1 (1-8)	10	11.9	11.93	0	0.261	0	0	7 h	0	0	0	0	0
Hus 2 (1-8)	10	11.8	11.8	0	0.266	0	0	7 h	0	0	0	0	0
Hus 3 (9-18)	10	10.8	10.78	0	0.258	0	0	14 h	0	0	0	0	0
Hus 4 (9-18)	10	11.4	11.38	0	0.272	0	0	9 h	0	0	0	0	0
Hus 5 (19-36)	10	9.2	9.2	0	0.244	0	0	21 h	0	0	0	0	0
Hus 6 (19-36)	10	8.7	8.74	0	0.257	1 h	0	21 h	0	0	0	0	0

Average for the last days

Hour's light needed to reach the setpoint day by day (no sums)

Hours needed for the following days (per day)



# Light data – More details

InfoGrow also presents light information in a chart. Select *Charts and tables* from the Production menu or from the summary table. Select *Light* to see the below chart

The chart presents details about the light together with the weather forecast.

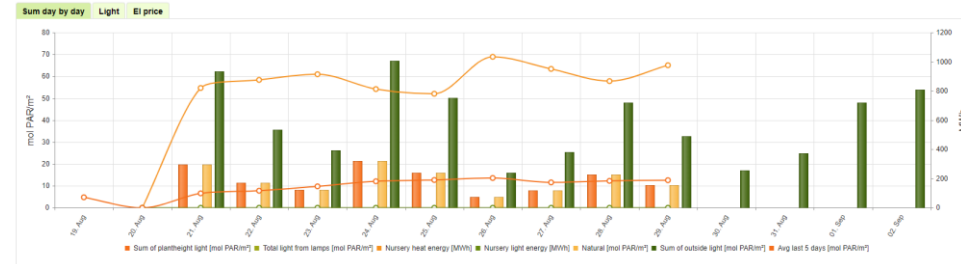
## Light

[Back to charts menu](#)

Start date: 19 Aug 2023

End date: 29 Aug 2023

Current Conditions		Conditions for selected period	
Heat power	777.10 Wh/m <sup>2</sup>	Heat energy	216158 Wh/m <sup>2</sup>
Growth light power	0.00 Wh/m <sup>2</sup>	Growth light energy	0 Wh/m <sup>2</sup>
Photosynthesis	1.6 g/m <sup>2</sup>	Total photosynthesis	78 g/m <sup>2</sup>
Plantheight light	487.00 μmol PAR/m <sup>2</sup>	Sum of plantheight light	116.00 mol PAR/m <sup>2</sup>
Temperature	24.2 °C	Average temperature	20.7 °C



The weather forecast used in the calculations can be found in the *Production menu, Weather Prognose*.

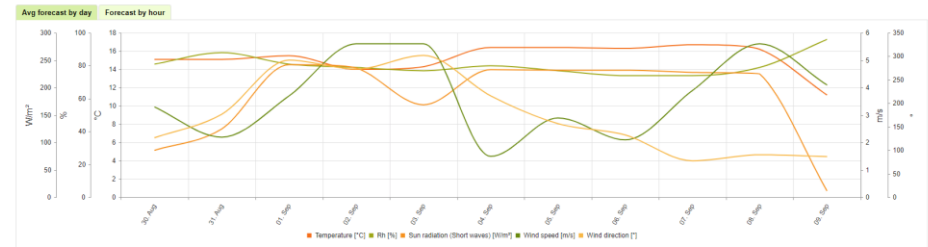
The weather prognosis is made for the latitude and longitude in your nursery setup in InfoGrow.

## Weather forecast

- Latitude: 56.24°  
- Longitude: 13.03°

Avg forecast by day

	30/08/2023	31/08/2023	01/09/2023	02/09/2023	03/09/2023	04/09/2023	05/09/2023	06/09/2023	07/09/2023	08/09/2023	09/09/2023	10/09/2023
Temperature (°C)	16.1	15.1	15.6	14	14.3	16.4	16.4	16.3	16.7	16.3	16.2	11.3
Sun radiation (Wh/m²)	88	125	242	236	160	233	232	232	226	225	225	12
Rh (%)	81	86	81	79	77	88	77	74	74	76	76	86
Wind speed (m/s)	3.3	2.2	3.7	5.6	5.5	1.5	2.9	2.1	3.9	5.6	5.6	4.1
Wind direction	SE		W	W	NW	SW	SE	SE	E	E	E	E



# Light strategy – Important notes

- Check if the light levels calculated are correct!
  - The calculation is correct, but the input data might be wrong
- The calculation depends on several input values
  - Screens types
  - Light types and amount
  - Values for internal shading
- The period used
  - Be careful not to choose too many days back in time. Three days is a good start
  - Three days for the future is also a good start