



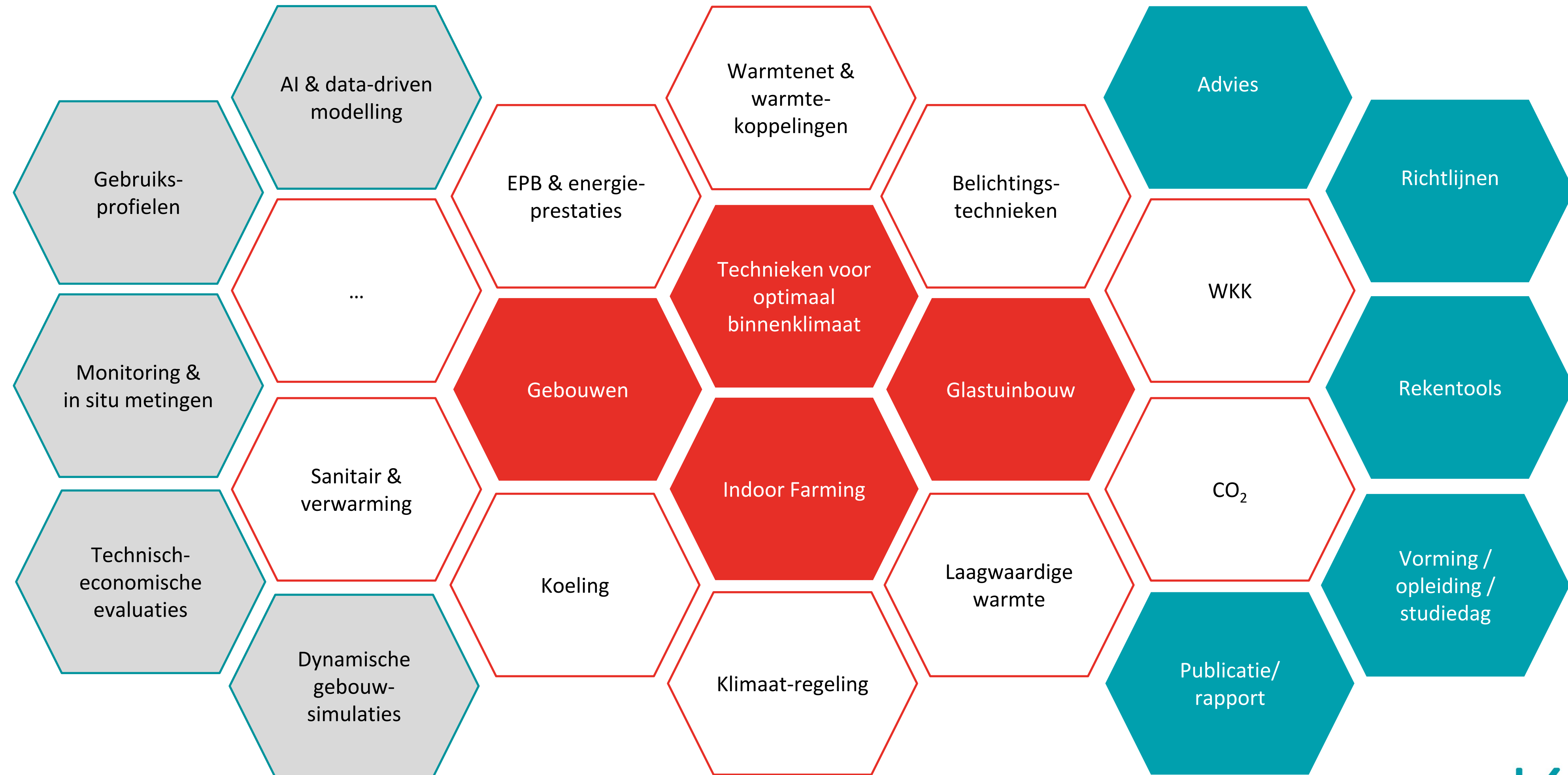
GLITCH

Lichtintegratie in de praktijk: een energetische analyse

Jeroen van Roy Thomas More

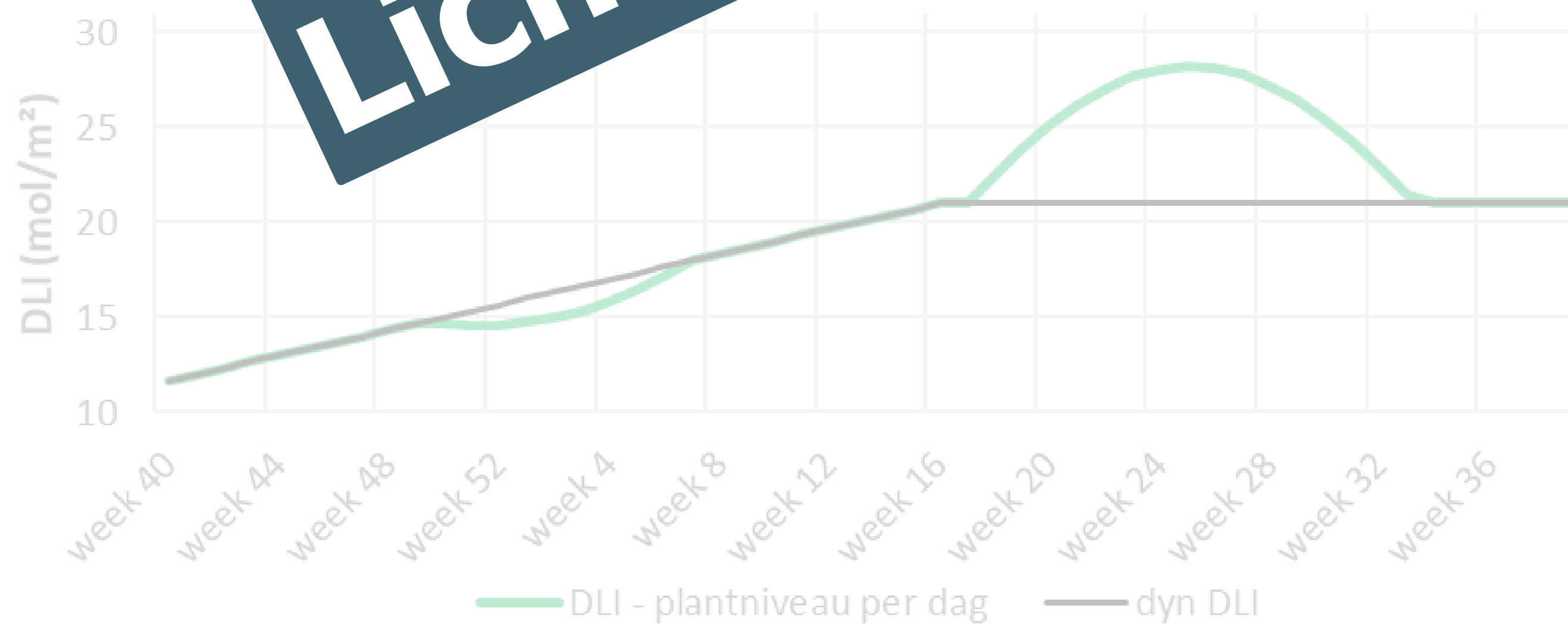
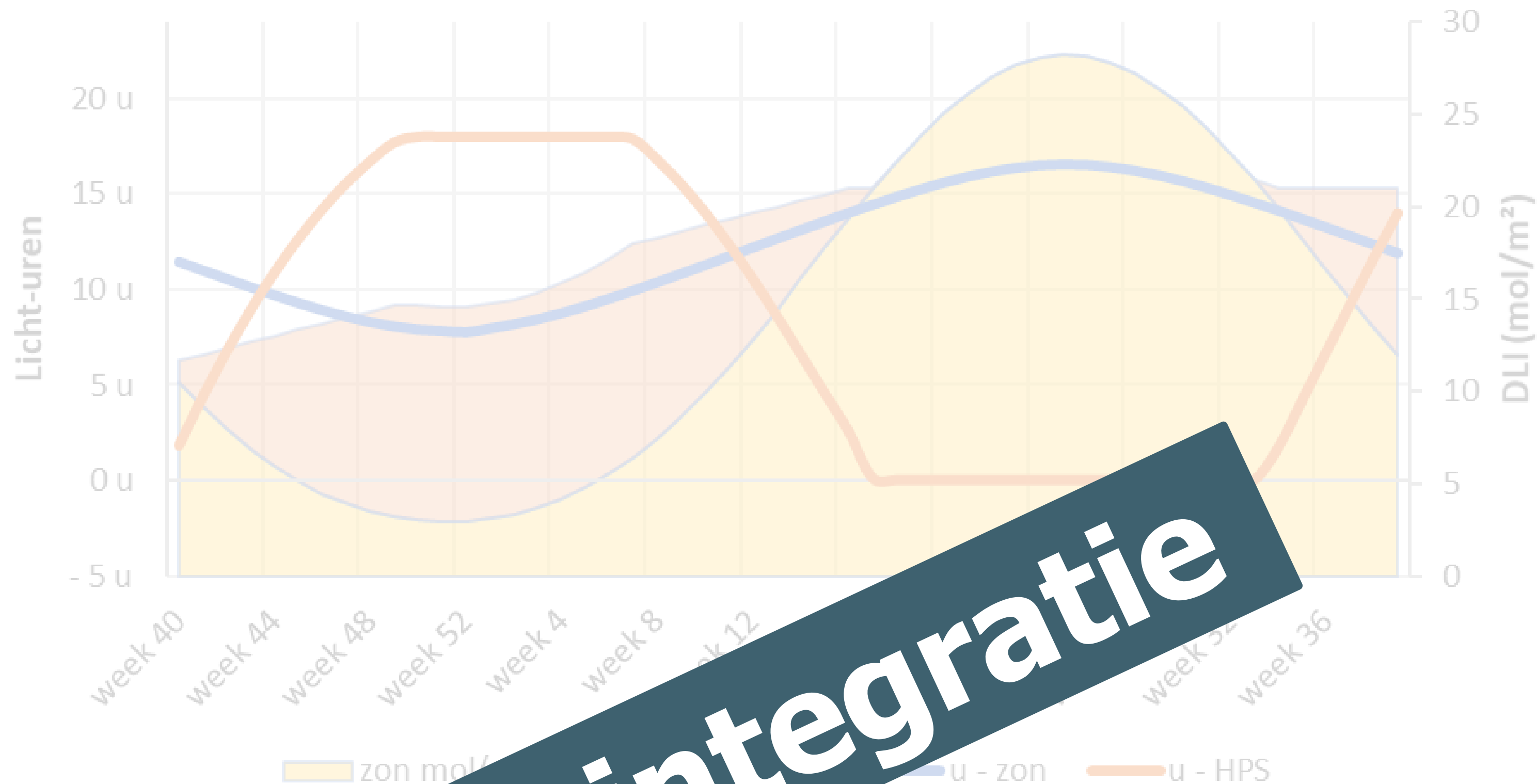


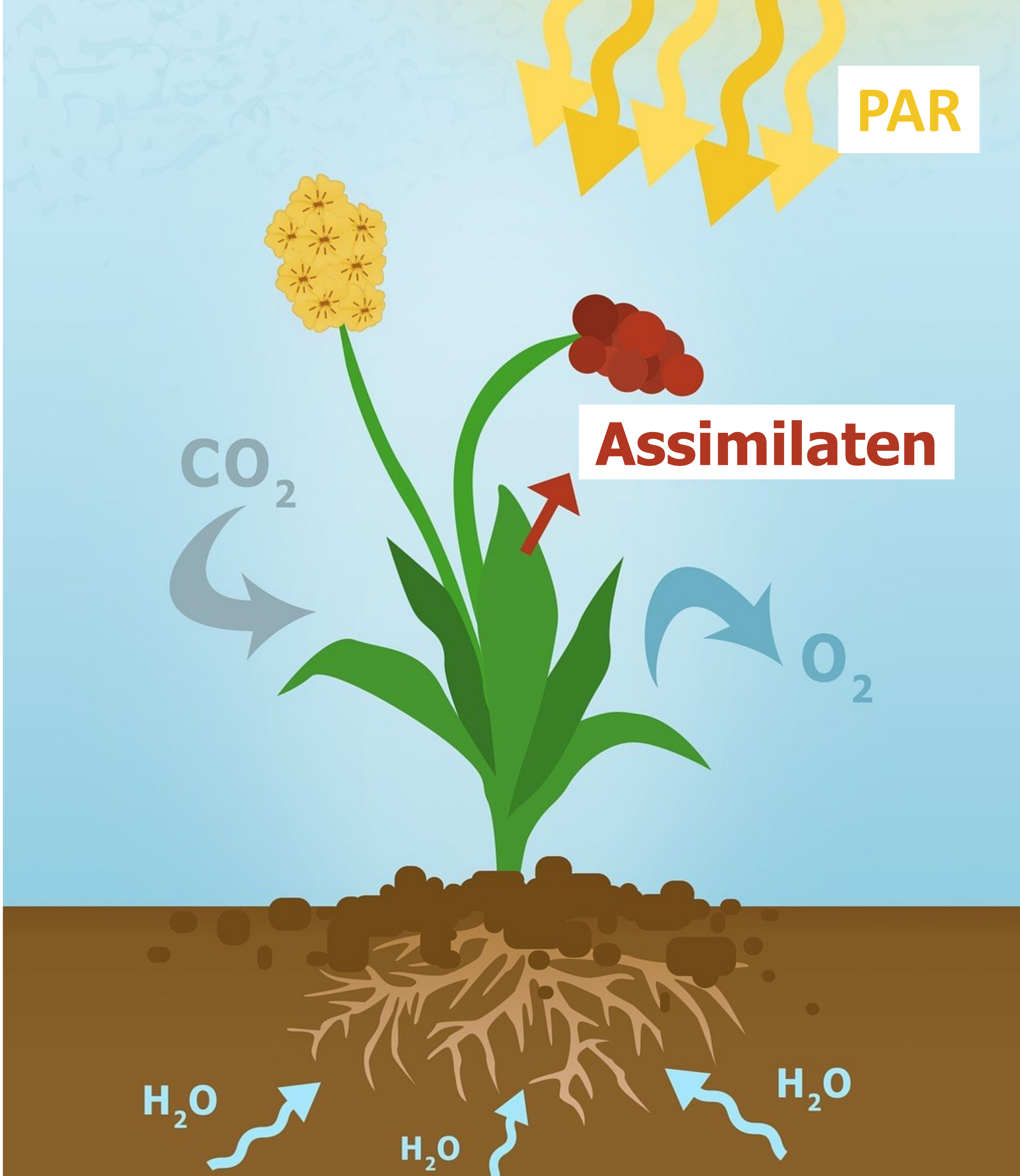
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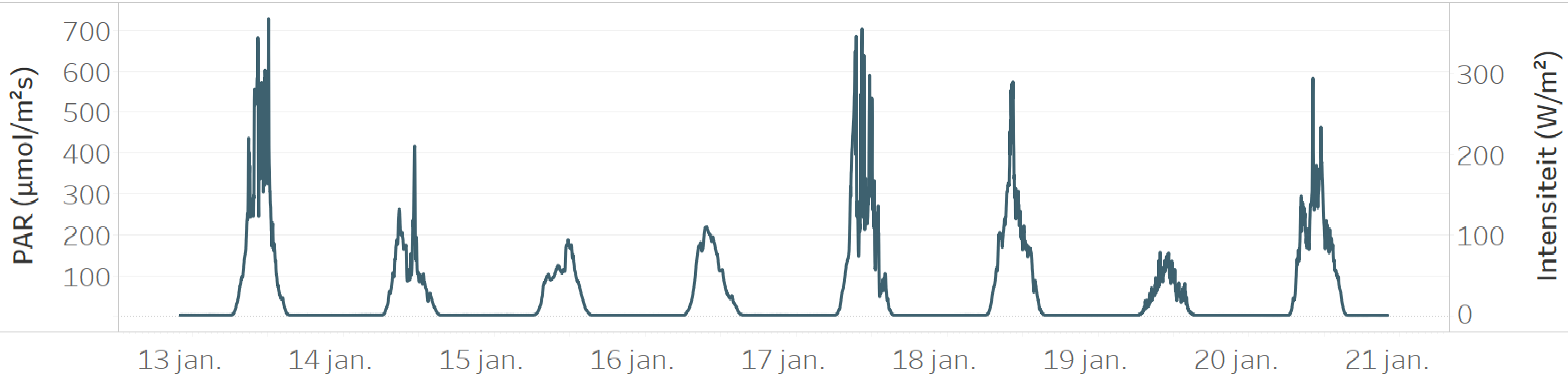
GLITCH



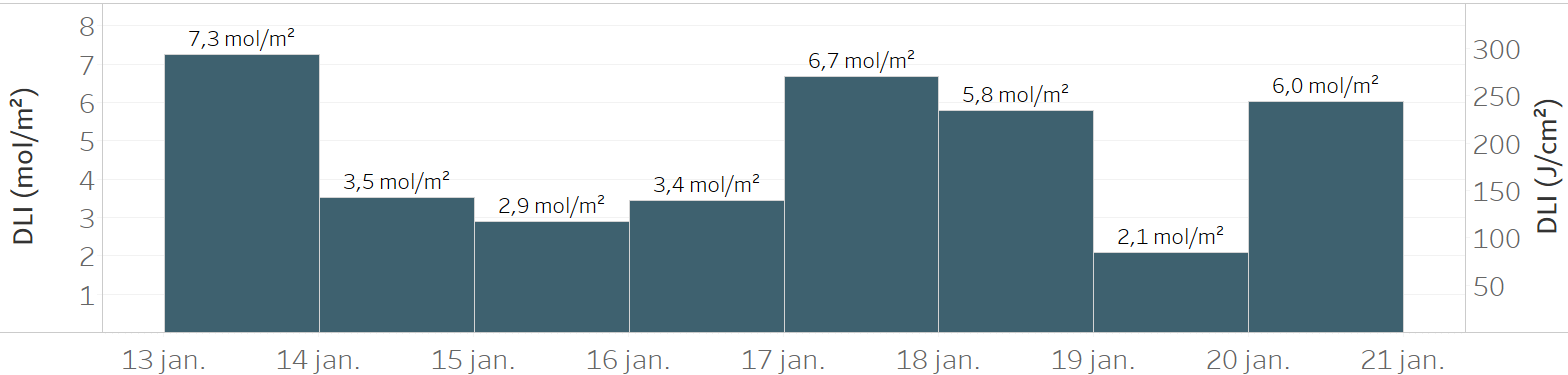


Ontvangen lichthoeveelheid

Buiten de serre

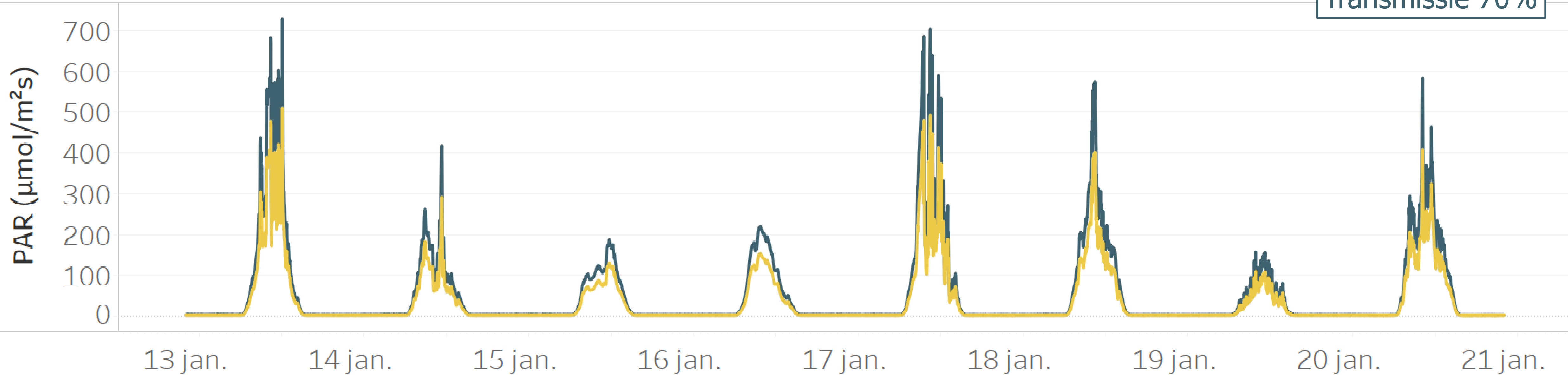


DLI

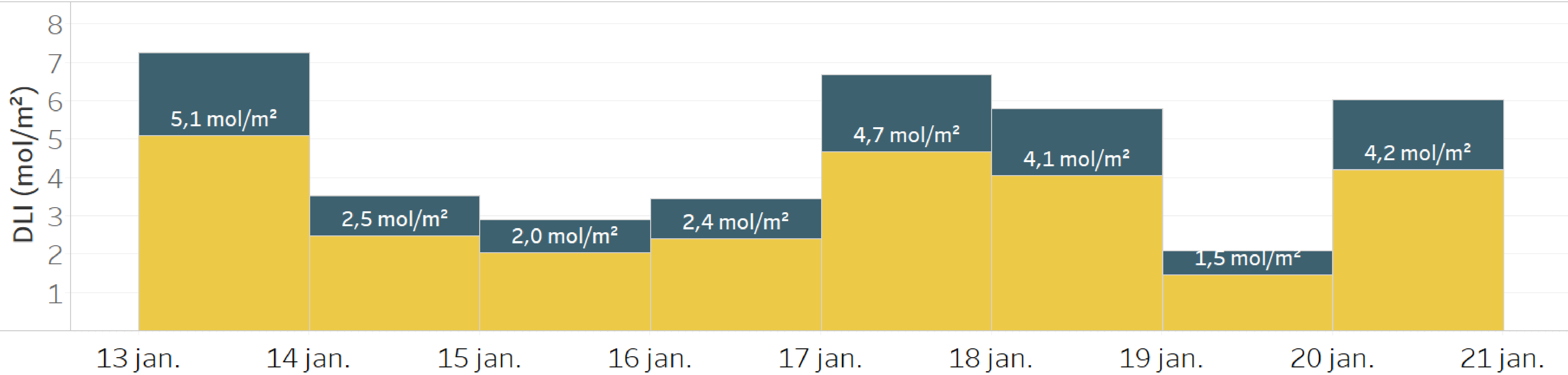


Ontvangen lichthoeveelheid

In de serre
Transmissie 70%

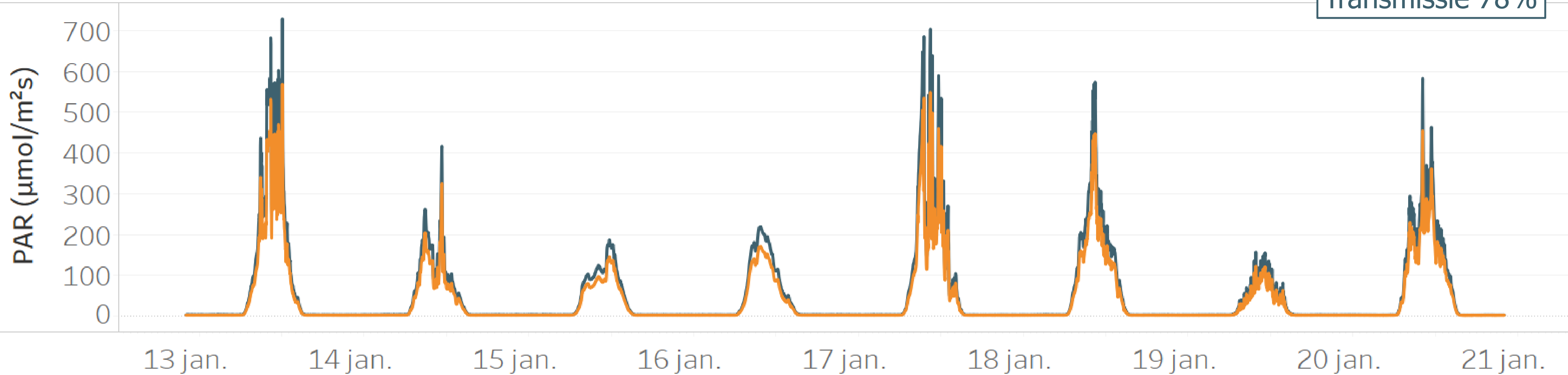


DLI

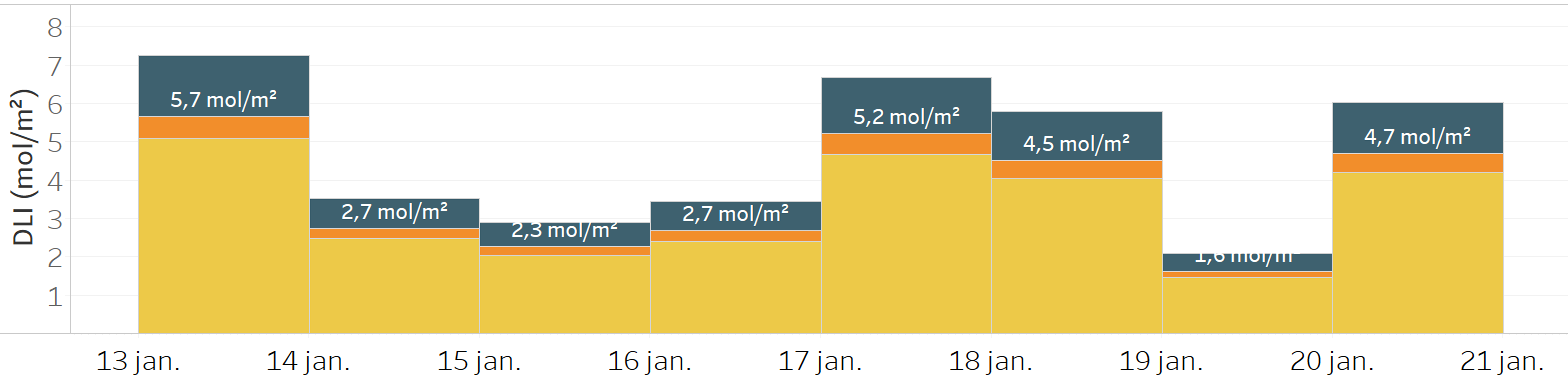


Ontvangen lichthoeveelheid

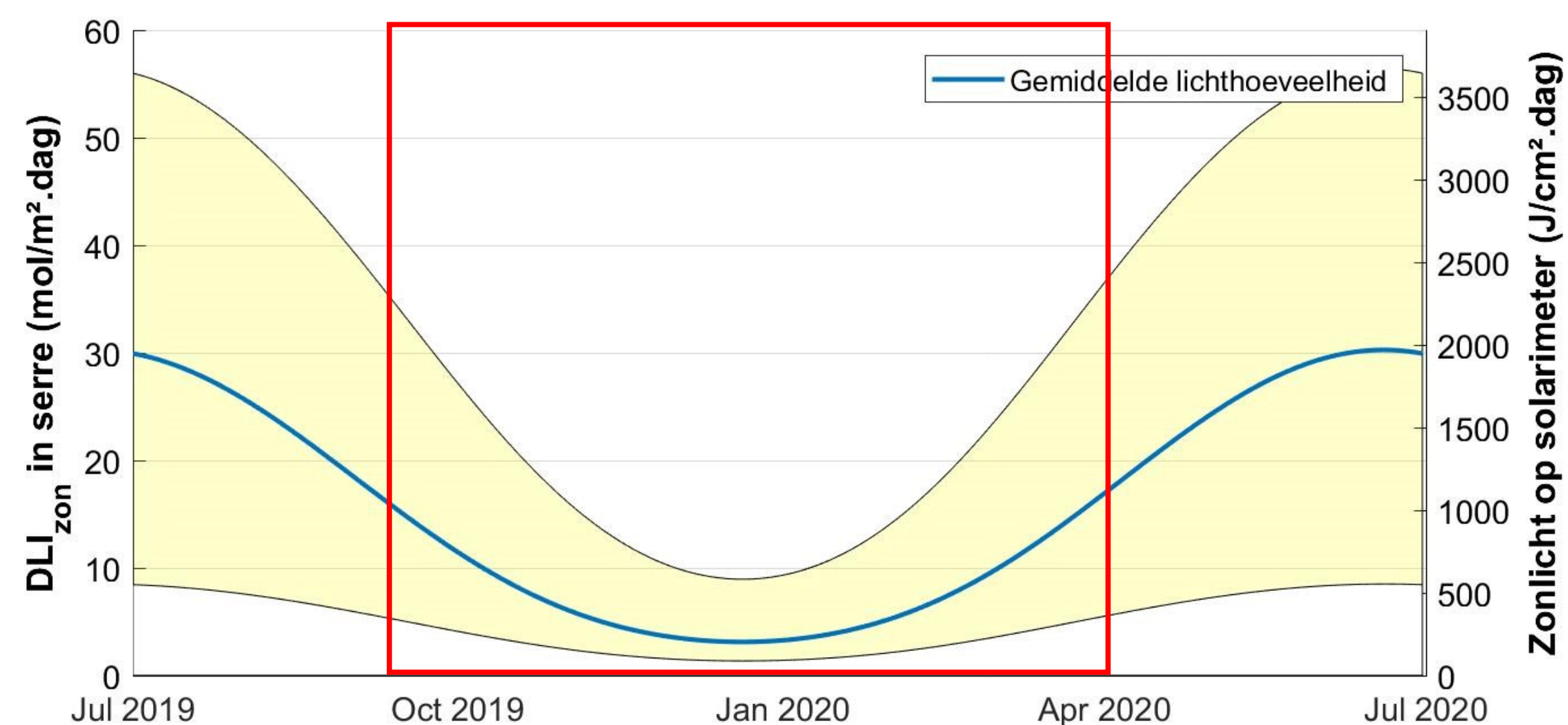
In de serre
Transmissie 78%



DLI



Evolutie DLI doorheen het jaar



Periode	Maand	DLI buiten (J/cm ²)	DLI binnen (mol/m ²)
Najaar	September	1044	15,0
	Oktober	648	9,3
	November	324	4,1
Week 44 tem 10	December	180	2,6
	Januari	252	3,6
	Februari	468	6,7
Voorjaar	Maart	864	12,4
	April	1368	19,6

Waarden zijn gemiddelden per dag



Foto door Darwis Alwan via Pexels

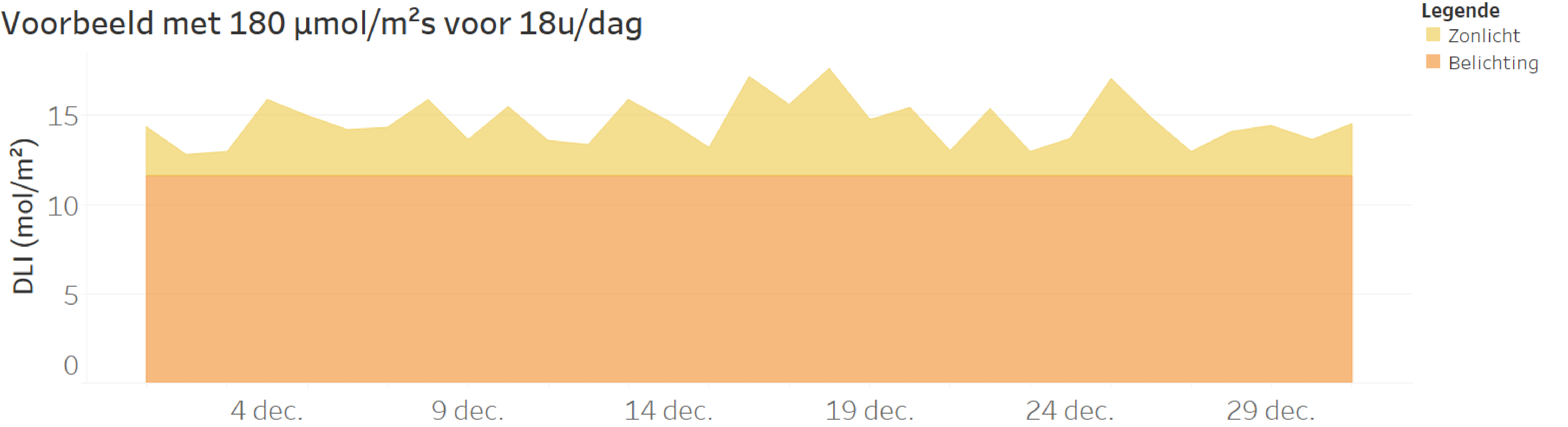


Foto via Pexels

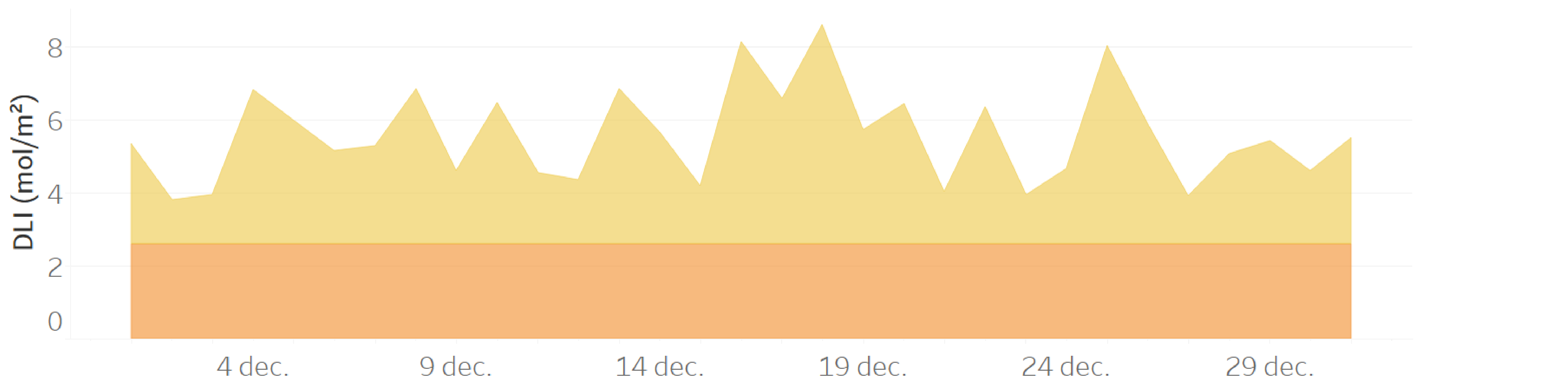


Foto door Wendy Vanlommel (PCH)

Voorbeeld met 180 $\mu\text{mol}/\text{m}^2\text{s}$ voor 18u/dag



Voorbeeld met 45 $\mu\text{mol}/\text{m}^2\text{s}$ voor 16u/dag



Lichtintegratie

Optimale inzet van de belichting

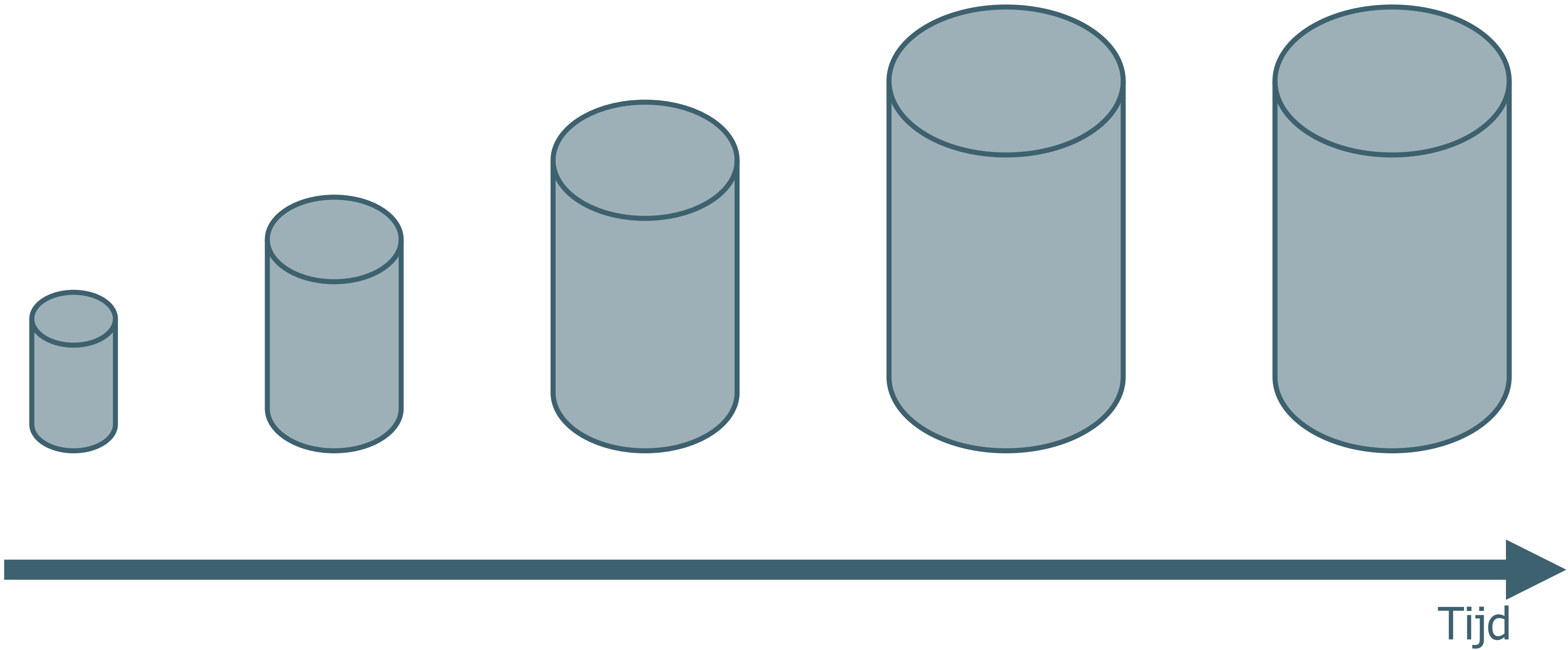


Goede, kwalitatieve productie

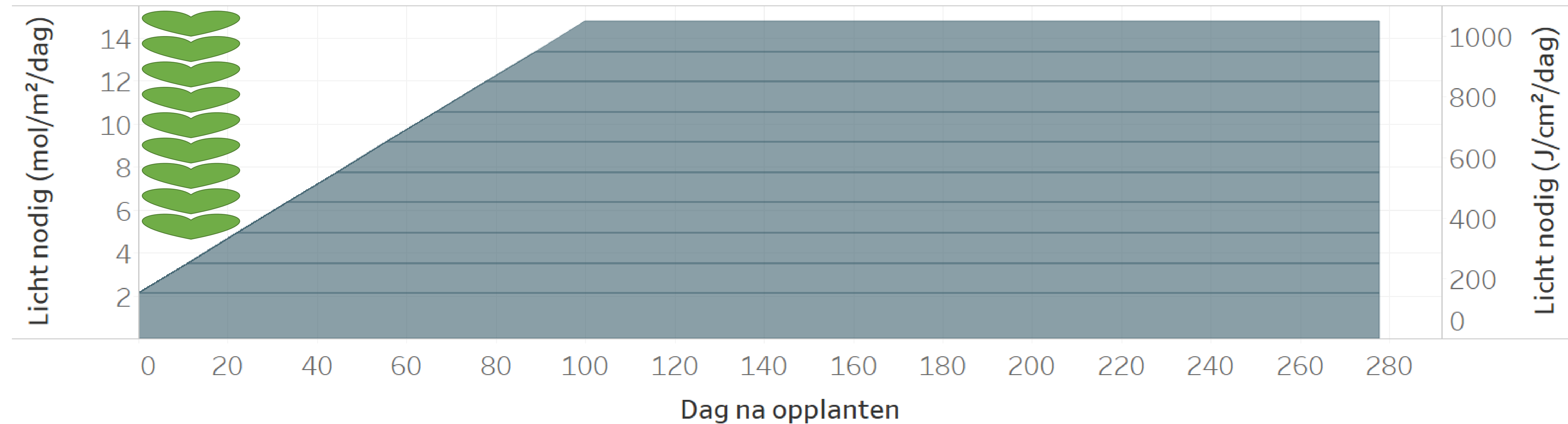
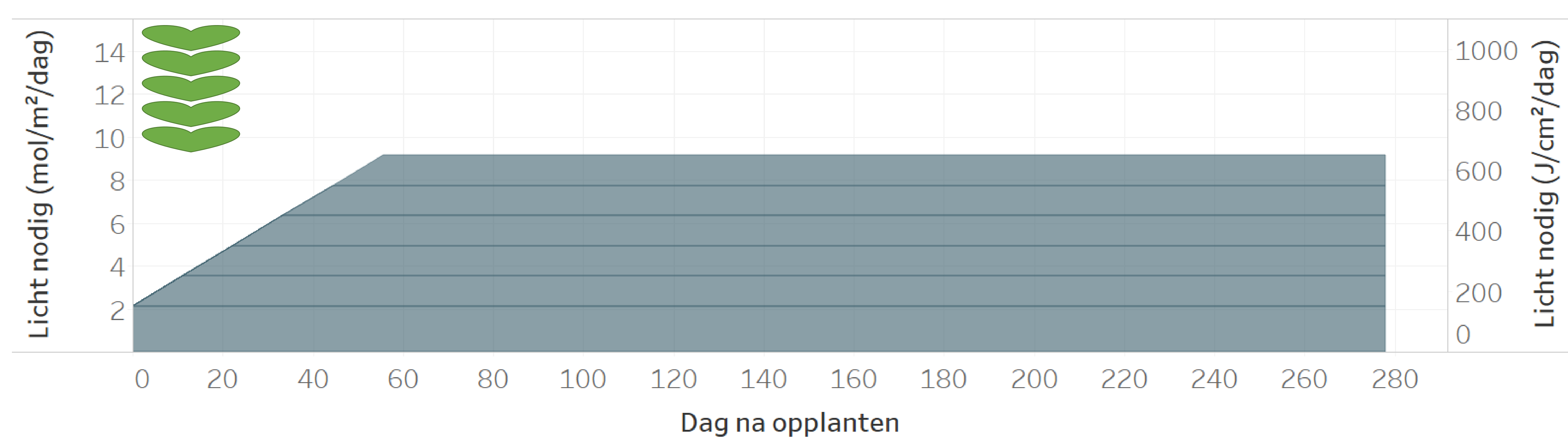
Concept 1



GLITCH



Hoeveel licht heeft het gewas nodig?

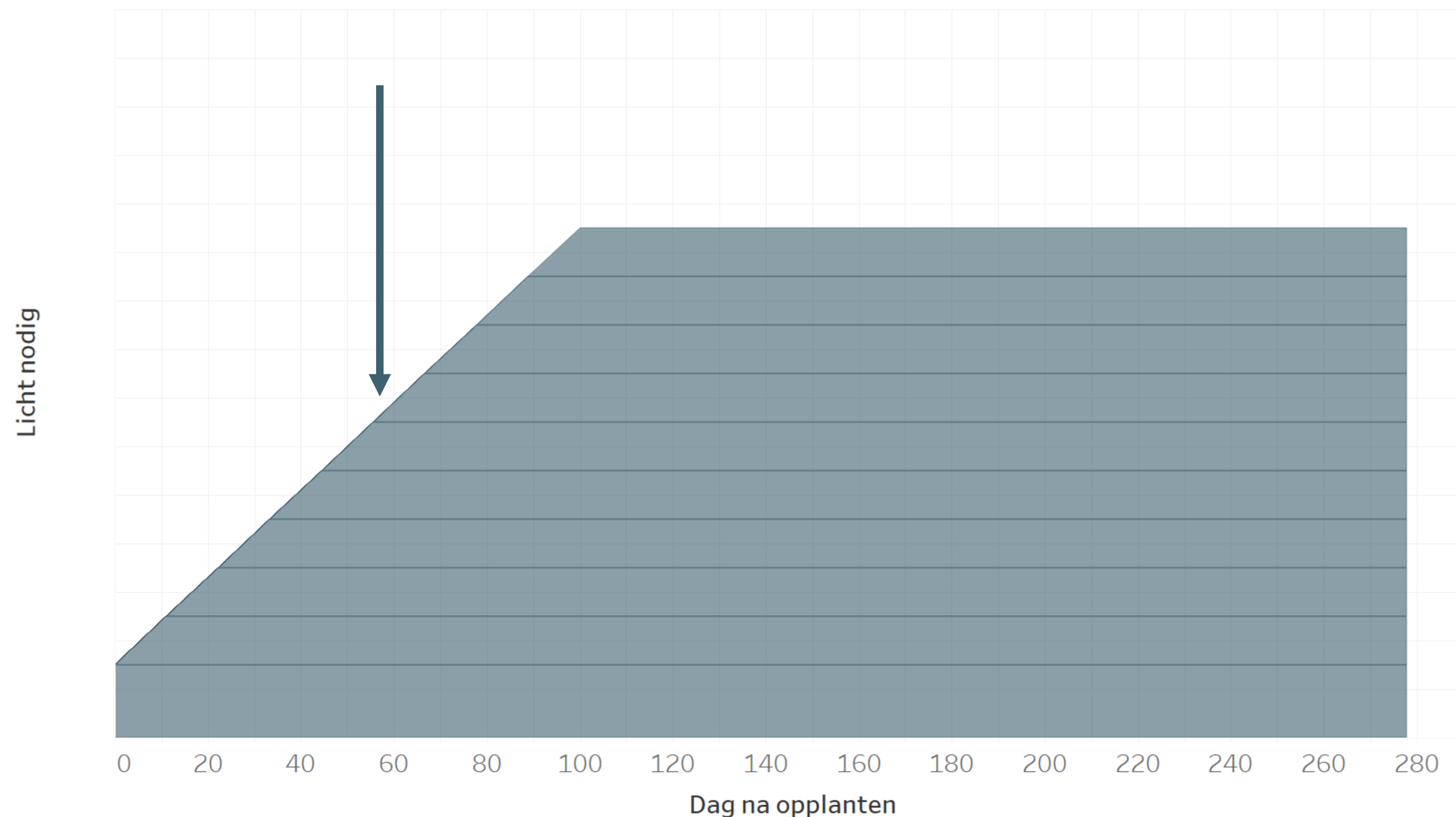


Rekenvoorbeeld 1

- Half november

Belichting van $180 \mu\text{mol}/\text{m}^2\text{s}$

Gewenste DLI	$975 \text{ J}/\text{cm}^2$
Gewenste DLI	$13,7 \text{ mol}/\text{m}^2$
Zonlicht in de serre	$4,1 \text{ mol}/\text{m}^2$
Hoeveelheid licht van belichting nodig	$9,6 \text{ mol}/\text{m}^2$
<u>Aantal uren belichting</u>	<u>14,8 u</u>

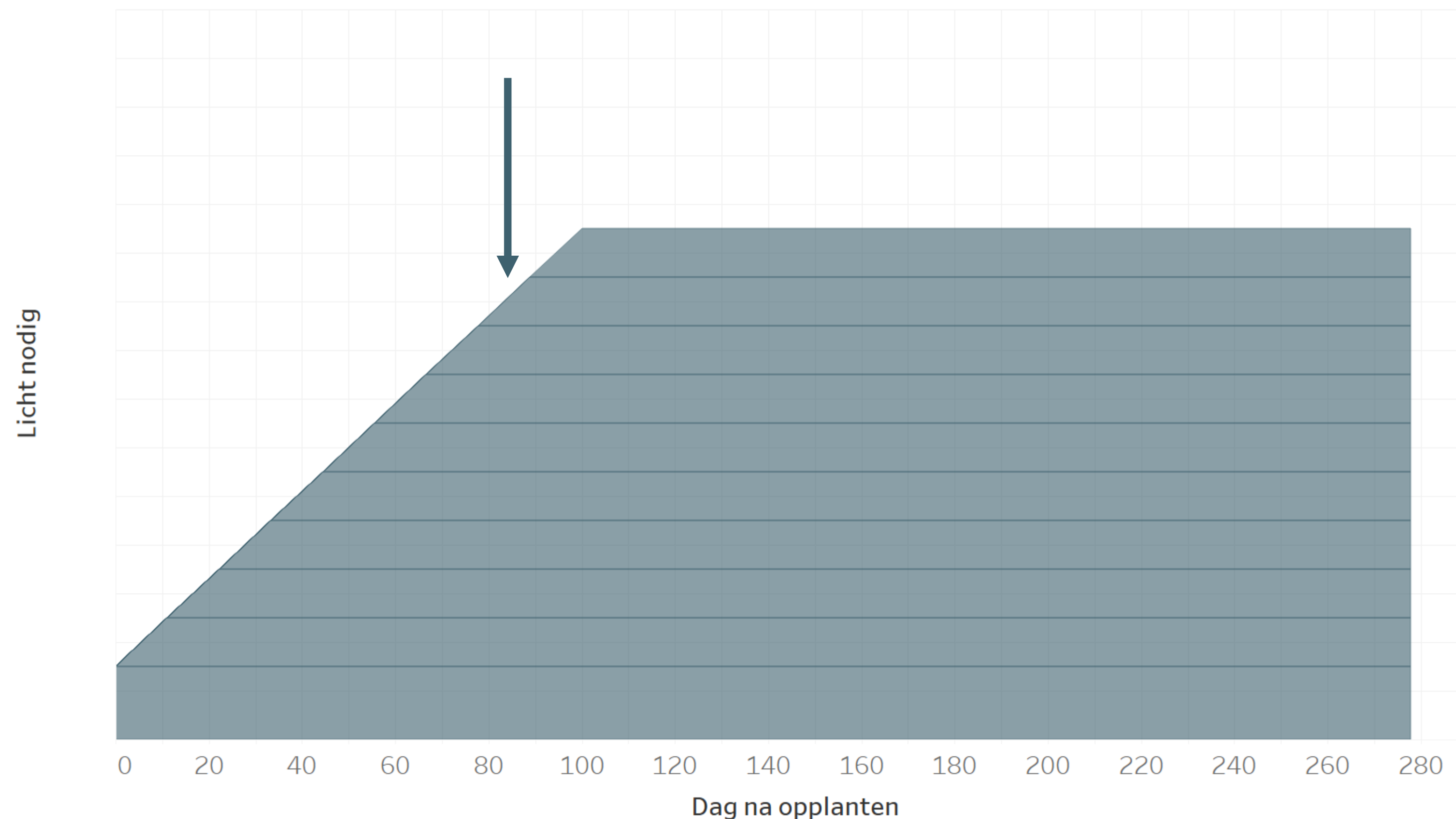


Rekenvoorbeeld 2

- Half januari

Belichting van $180 \mu\text{mol}/\text{m}^2\text{s}$

Gewenste DLI	$1150 \text{ J}/\text{cm}^2$
Gewenste DLI	$16,2 \text{ mol}/\text{m}^2$
Zonlicht in de serre	$3,6 \text{ mol}/\text{m}^2$
Hoeveelheid licht van belichting nodig	$12,6 \text{ mol}/\text{m}^2$
<u>Aantal uren belichting</u>	19,4 u



Rekenvoorbeeld 2

- Half januari

Belichting van 180 $\mu\text{mol}/\text{m}^2\text{s}$

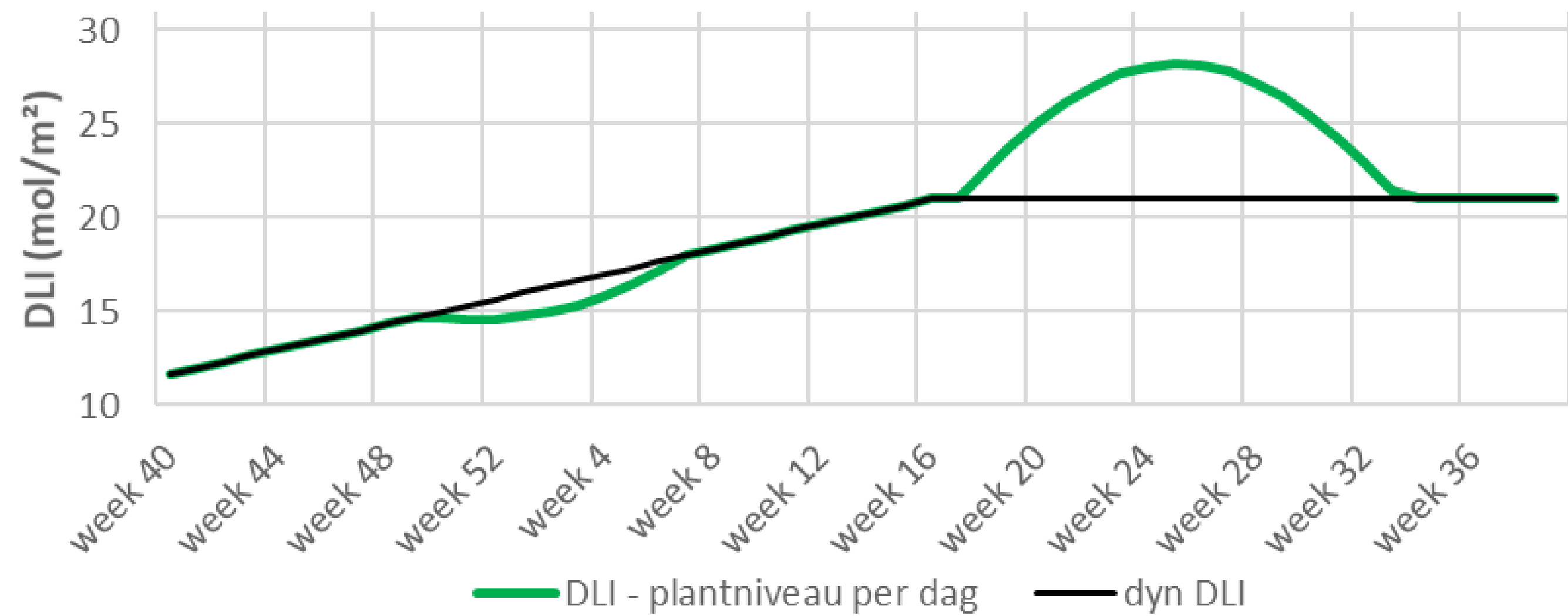
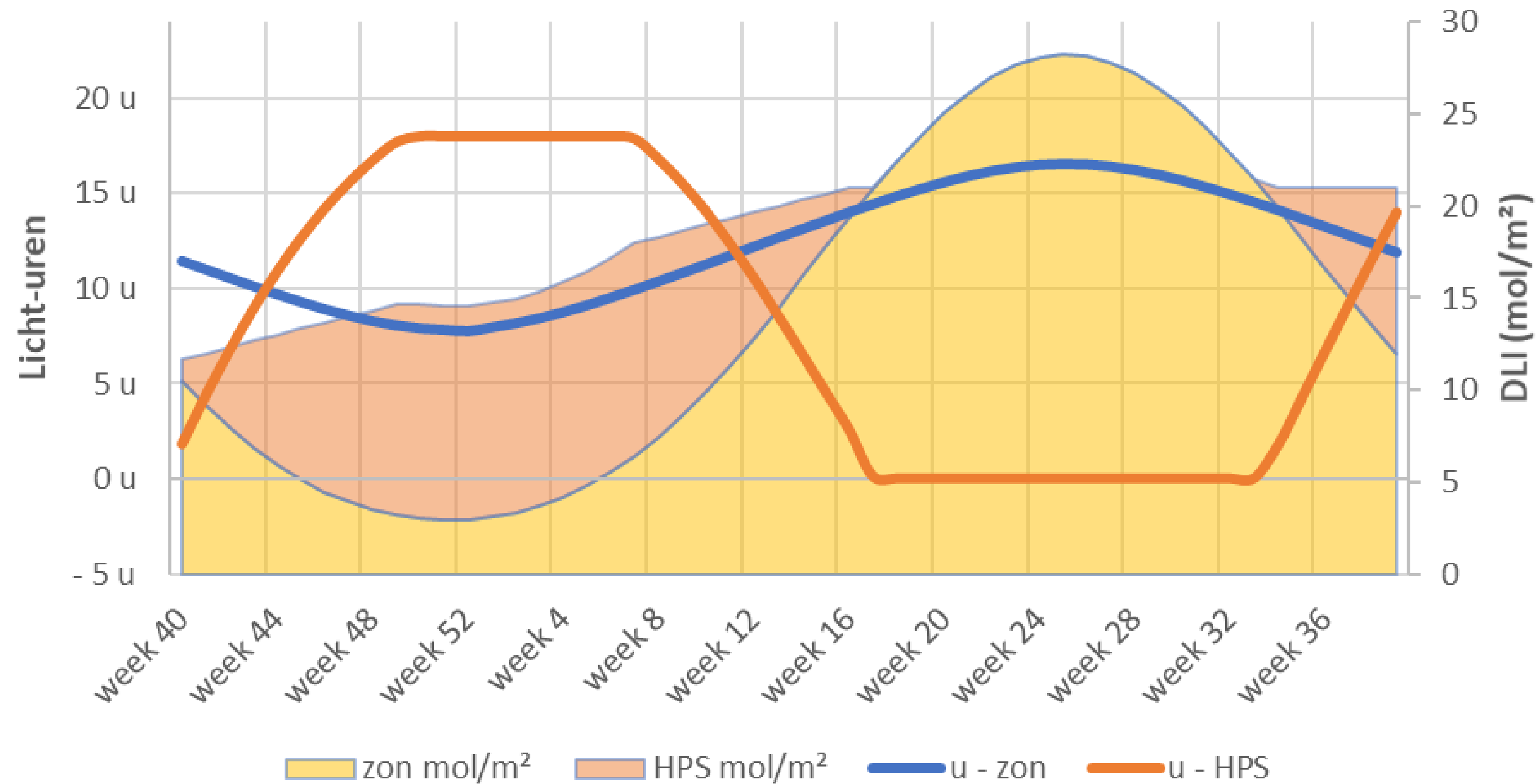
Gewenste DLI	1150 J/cm ²
Gewenste DLI	16,2 mol/m ²
Zonlicht in de serre	3,6 mol/m ²
Hoeveelheid licht van belichting nodig	12,6 mol/m ²
Aantal uren belichting	19,4 u

Belichting van 230 $\mu\text{mol}/\text{m}^2\text{s}$

Gewenste DLI	1150 J/cm ²
Gewenste DLI	16,2 mol/m ²
Zonlicht in de serre	3,6 mol/m ²
Hoeveelheid licht van belichting nodig	12,6 mol/m ²
Aantal uren belichting	15,2 u

Snelheid verlagen

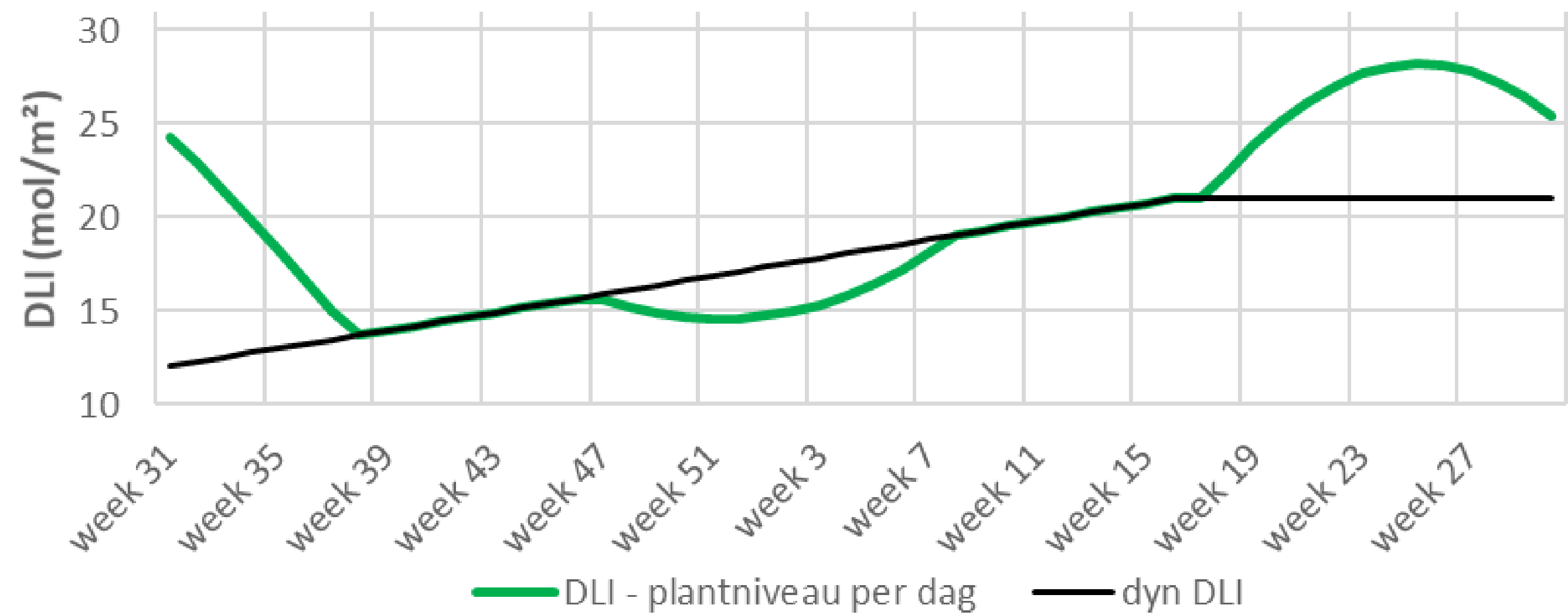
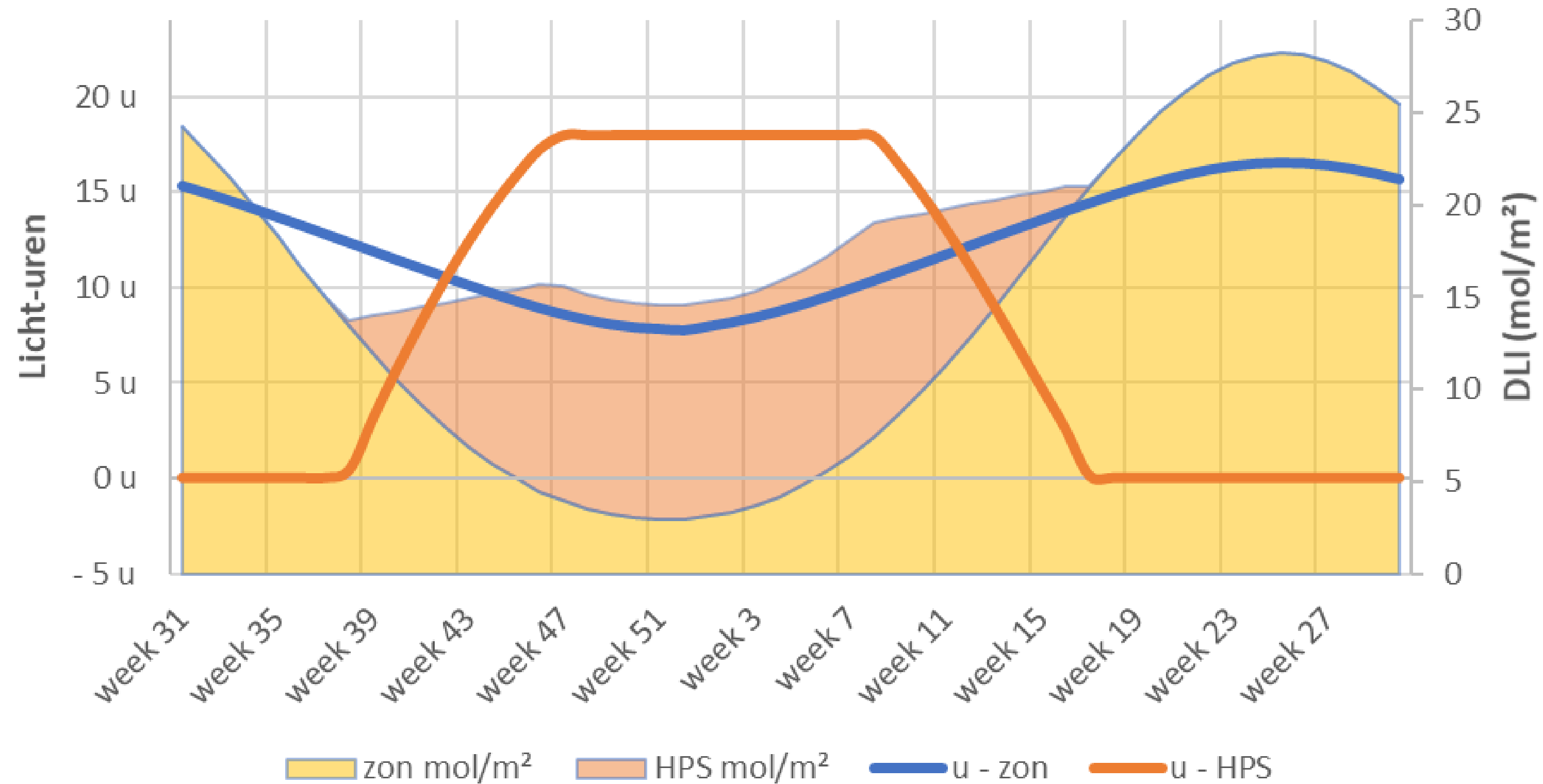
In theorie



In theorie

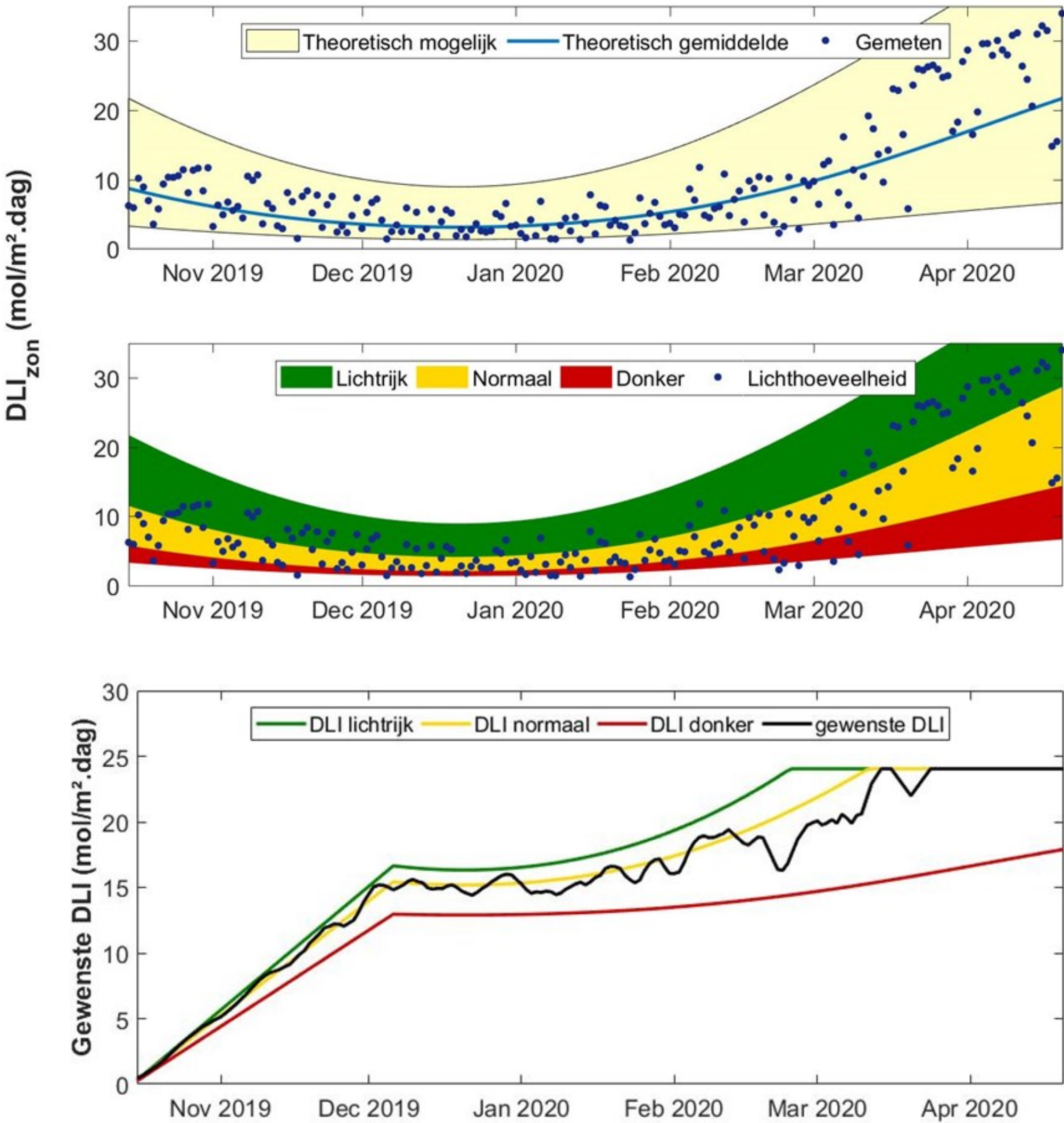
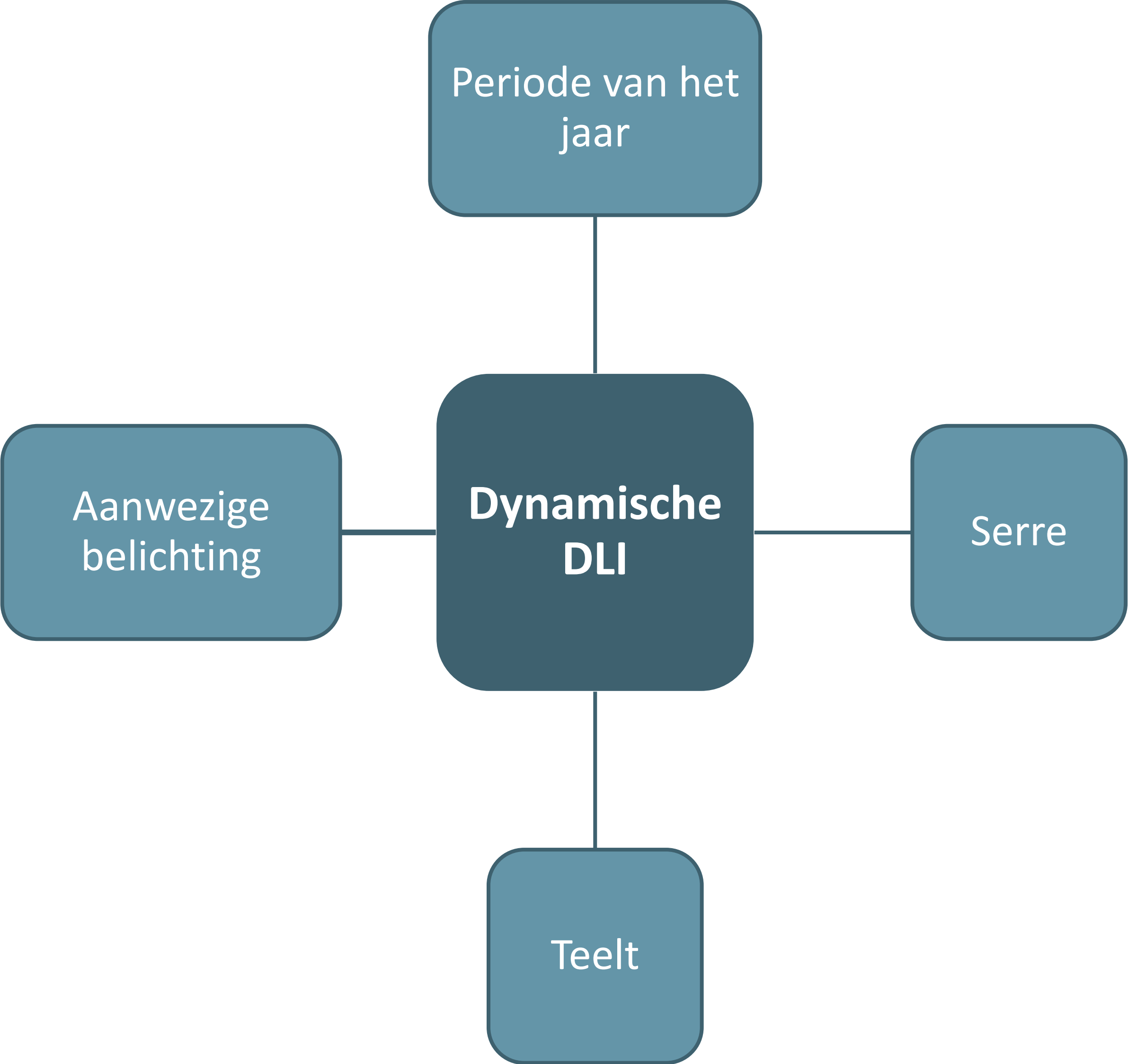


GLITCH



In praktijk

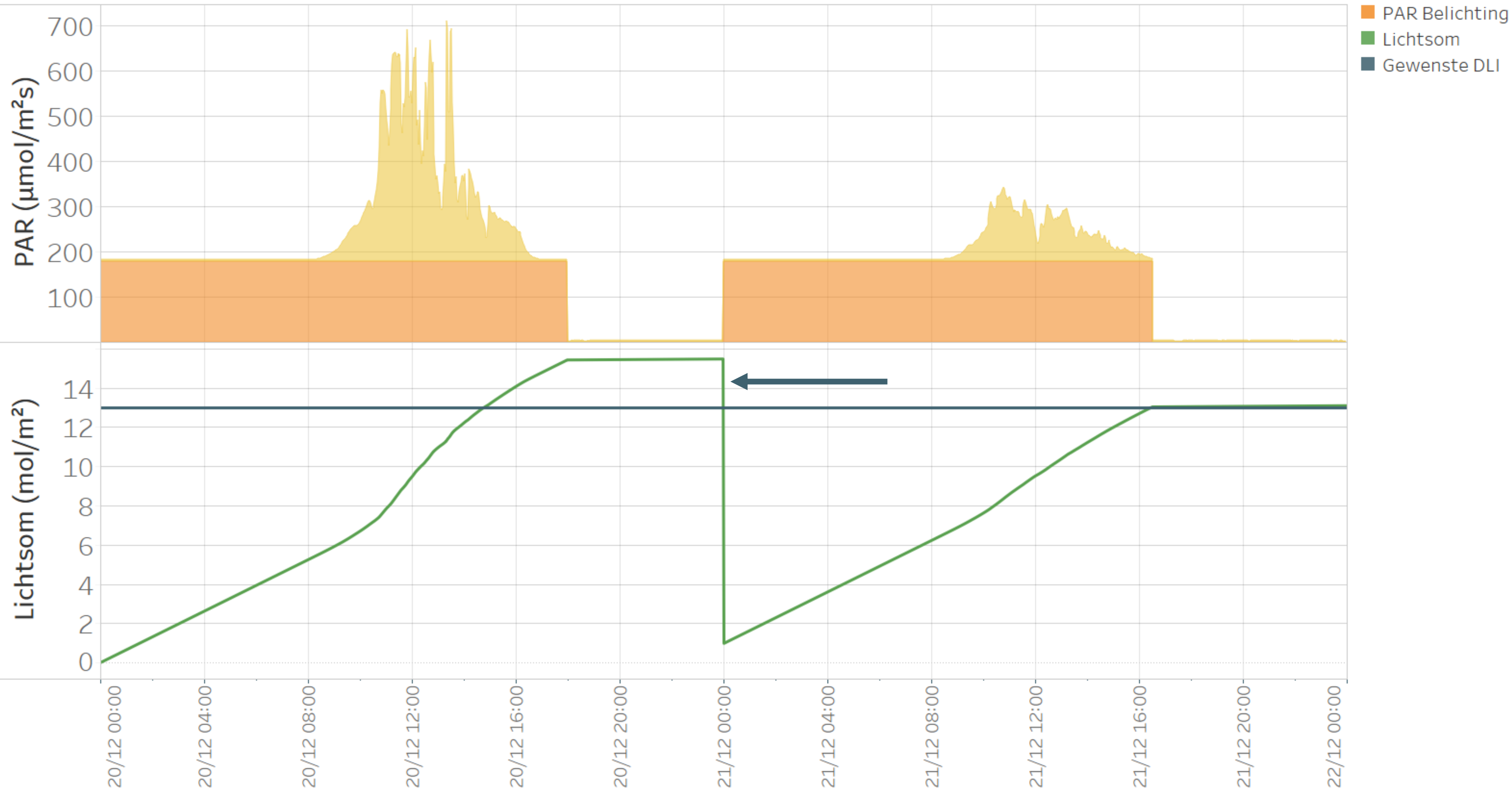
Gewenste DLI = Dynamisch



Concept 2

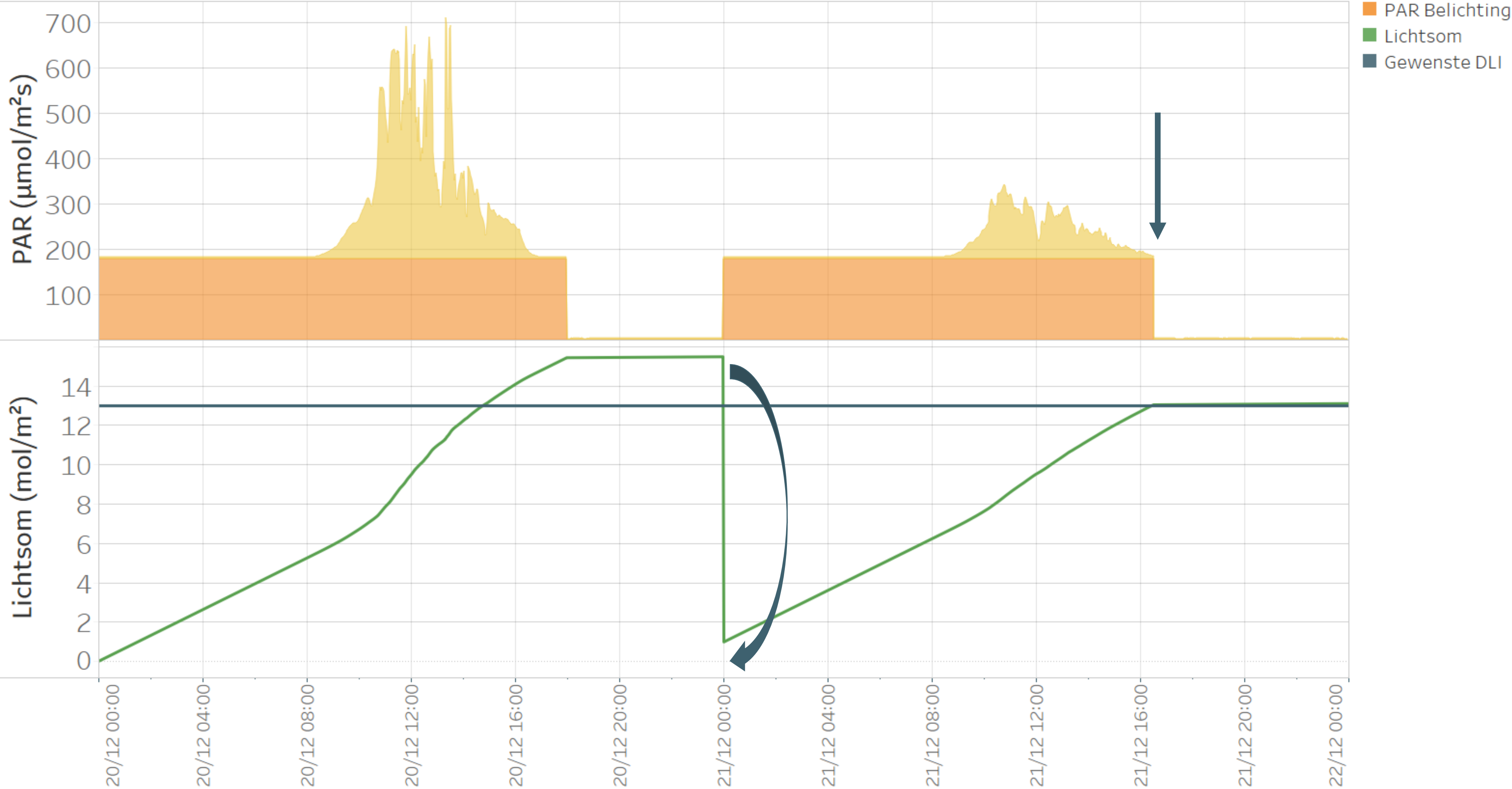


Inzicht lichtintegratie



Concept 2

Inzicht lichtintegratie



Samenvatting van bedrijfsresultaten

- Voorlopige resultaten

DLI	Energiebesparing	Licht
Minimum	- 2,4 %	+ 0,2 %
Gemiddeld	- 6,9 %	- 3,1 %
Maximum	- 10,9 %	- 4,5 %

Lichtintegratie	Energiebesparing	Licht
Minimum	- 1,2 %	+ 0,6 %
Gemiddeld	- 6,3 %	- 2,9 %
Maximum	- 10,4 %	- 10,9 %



Jeroen van Roy
Jeroen.vanroy@thomasmore.be



www.glitch-innovatie.eu

