Halios® HD *High Density*

The new **Halios® HD** line, resulting from the Halios® range, groups together the Morel large-flower varieties adapted to pot sizes ranging from 12 to 17cm.
It is the ideal solution to obtain plants with a generous, dense and harmonious foliage and large flowers, from the end of summer and in autumn, while offering improved productivity.
Halios®, meanwhile, now groups together the varieties adapted to pots of 14 to 22 cm, ideal for the autumn and winter thanks to their strong growth in short days. These characteristics enable crops that are low in energy consumption.

I I – HD, HIGH DENSITY = GREATER PRODUCTIVITY

Crop surface areas

The compactness and volume of the **Halios® HD** vegetation optimise growth, gaining around 20% more plants for the same greenhouse surface area.
In a 14cm pot you will be able to arrange 12 plants per m², all the while offering them enough space for a successful crop. Only ten Halios® plants are to be recommended for the same pot size. *For the recommended crop density with other pot sizes, refer to the crop data in the 2013/14 technical leaflet.*

Pot size 12 - 17cm

The standard **Halios® HD** pot size is 14cm. However, the flexibility of the genetics means that, depending on the heat conditions, the varieties adapt very well to pots measuring from 12 to 17cm.

A 12cm pot offers a ratio of plant volume to flower size that is innovative and yet harmonious thanks to a vegetation that is low in volume but very lush.

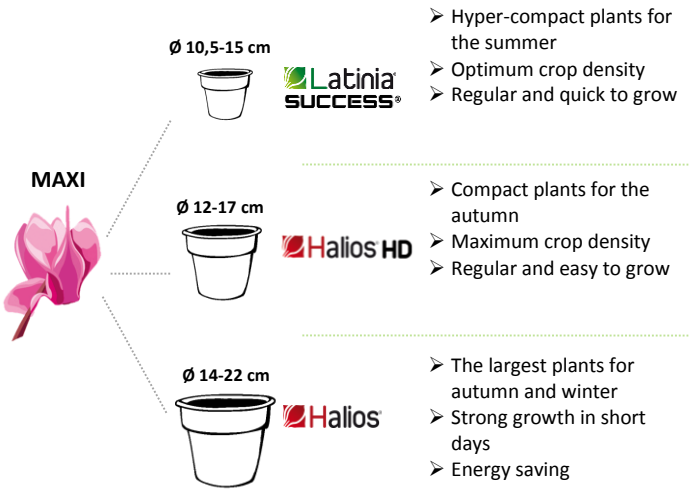
In a 17cm pot, **Halios® HD** offers a generous volume while retaining a round and compact plant structure.

Halios HD Neon rose ref. 2077 - on the left in a 14cm pot grown in the south of France, on the right in a 17cm pot grown in Holland.

II – HD, HIGH DEFINITION = LONG-LASTING COLOURS

The flowers of the HD varieties have a long life cycle and despite the heat in late summer and in autumn, the colours retain all of their intensity. This intensity also resists the natural ageing of the petal. The Deep magenta (2107), almost velvet, the electric Neon rose (2077), Salmon rose (2052), Light rose (2081) and the innovative Grenadine (2076) are striking examples.

III – POSITIONING HALIOS® HD IN MOREL'S GENETICS



IV – HALIOS® HD = EASY CROPS

Adapted to flowering periods presenting hotter temperatures than Halios®

The vegetation volume of the **Halios® HD** varieties is lesser than that of the Halios® varieties and their transpiration rate is also lower. This enables them to concentrate their energy on their flowering, despite the heat.

Vary pot sizes depending on the heat conditions

The compactness of this line associated with cold conditions offers the possibility of high-quality crops in **12cm** pots. In northern European climate types we find suitable temperatures from autumn onwards, but also in winter and in spring. In southern European climate types this will apply in winter and in spring.
The flexibility of these genetics also enables successful crops in a **17cm** pot. The optimum heat conditions will be in autumn and in winter in the South. In the North this will be the case as of summer.
You can easily identify each of the various possible adaptations in the tables below, and compare the differences between Halios® HD and Halios®, notably with the average daily temperature (ADT*) indications.

	Pot Ø cm	Ideal sales period for climate type South				North				Advised ADT* at flowering stage
HALIOS® HD	12									12° - 15°C
	14									12° - 20°C
	17									12° - 20°C
HALIOS®	14									12° - 20°C
	17									12° - 20°C
	22									12° - 15°C

Homogeneous crop times

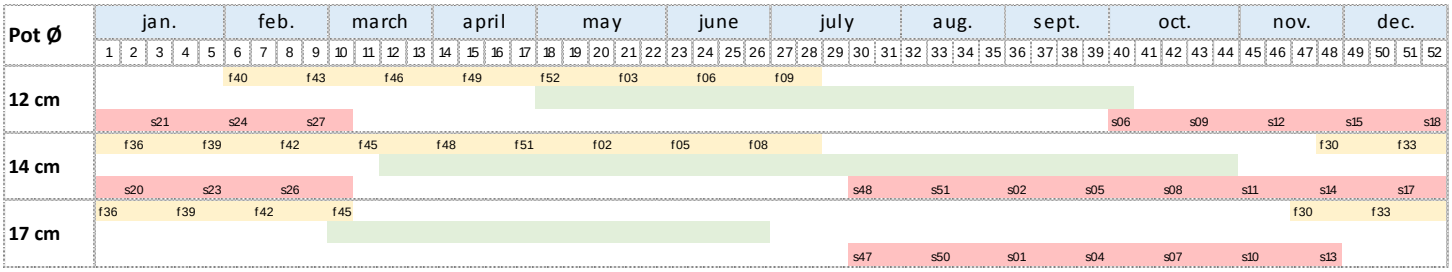
The crop times of the **Halios® HD** varieties are homogeneous with one another (between 32 and 34 weeks after sowing, for 12 or 14cm pots. For 17cm pots schedule 36 to 38 weeks). As such they make up a consistent group that facilitates crop scheduling.

(*) ADT : Average Daily Temperature.
To find out more about ADT, see our technical data sheet, available to download on our website: www.cyclamen.com.

Halios® HD *High Density*

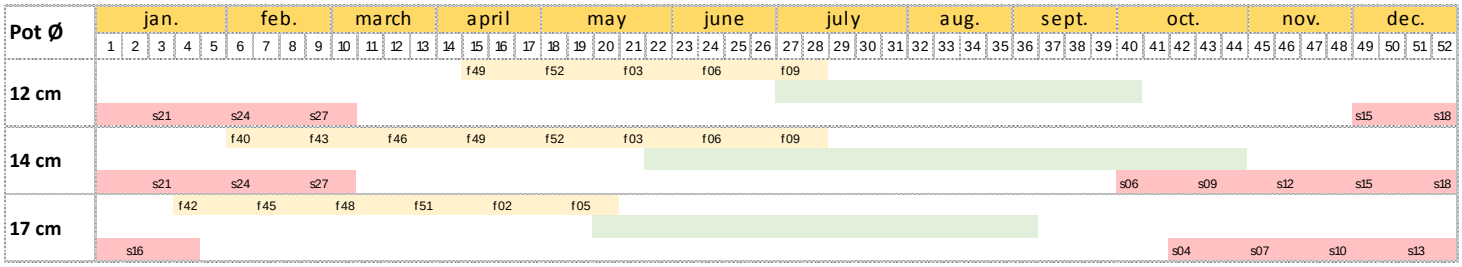
V – HALIOS® HD = GROWING SCHEDULE

Northern European climate type



Sowing Potting Flowering s = sowing f = flowering

Southern Europe climate type



VI – GROWING APPROACH FOR A CULTURE IN 12cm POTS

12 cm pot	ROOTING		GROWING			FLOWERING	
Culture time (young plant of 12 weeks)	4 - 5 weeks		16 - 18 weeks			2 - 3 weeks	
Temperature (ADT*)	<20°C	>20°C	15°C	20°C	25°C	<15°C	15°C
Maximum light (instant reading) **in W/m²**	400	300	>500	400	300	>500	400
Amount of water per pot per watering	From above, keeping the top dry		75 cc	75 cc	75 cc	75 cc	75 cc
Watering frequency per week	1 - 2 times	2 - 3 times	*MAXIMUM REQUIREMENTS (given as an indication only)*				
			3	4	5	3	4
Ppm N per watering	Baseline fertiliser 0,75 Kg/m³ PG Mix		75	50	50	75	50
N :K_2O ratio	1 :2	1 :2	1 :3	1 :3	1 :3	1 :2	1 :3

The data presented in the table is adapted to subirrigated crops with non-transpiring pots and a substrate composed of 25% blond peat, fraction 1 (10-20mm), 25% Irish peat, fraction 1 (10-20mm), 20% coir, 15% coco fibre, 15% perlite 3 (coarse fraction).

These indications may vary depending on other growing conditions and do not constitute a guarantee of harvest.

In rooting phase:
- a plug of 16 to 20mm is recommended
- It is important to keep the vegetation growth contained. A baseline fertiliser of around 0.5Kg/m³ is sufficient

In growing phase:
- excessive temperatures (ADT*) (≥25°C) offer conditions that are too powerful to contain the plant volume
- applications of fertiliser must be limited

In flowering phase:
- to obtain high-quality flowering, the ideal heat conditions (ADT*) are around 15°C. Beyond these temperatures the vegetation will continue to develop to the detriment of the flowering

(*) ADT : Average Daily Temperature
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Halios® HD *High Density*

VII – GROWING APPROACH FOR A CULTURE IN 14cm POTS

14 cm pot	ROOTING		GROWING				FLOWERING	
Culture time (young plant of 15 weeks)	4 - 5 weeks		13 - 15 weeks				2 - 3 weeks	
Temperature (ADT*)	<20°C	>20°C	15°C	20°C	25°C	≥25°C	15°C	20°C
Maximum light (instant reading) **in W/m²**	400	300	>500	400	300	250	>500	400
Amount of water per pot per watering	From above, keeping the top dry		100 cc	100 cc	100 cc	100 cc	100 cc	100 cc
Watering frequency per week	1 - 2 times	2 - 3 times	*MAXIMUM REQUIREMENTS (given as an indication only)*					
			3	4	5	>5	3	>4
Ppm N per watering	Baseline fertiliser 1 Kg/m³ PG Mix		100	75	50	<50	100	75
N :K_2O ratio	1 :2	1 :2	1 :2	1 :3	1 :3	1 :3	1 :2	1 :3

This is the standard pot size for the **Halios® HD** series.

In growing phase:
As the **Halios® HD** varieties are compact, the nitrogen-potassium balance should not exceed 1:3. Too much potassium would limit plant growth.

To obtain very generous plant growth, it will be recommended to place the plants under conditions close to the approach recommended for the culture in 17cm pots.

The data presented in the table is adapted to crops with non-transpiring pots and a substrate according to the irrigation type:

- in subirrigation, 25% white peat, fraction 1 (10-20mm), 25% Irish peat, fraction 1 (10-20 mm), 20% coir, 15% coco fibre, 15% perlite 3 (coarse fraction)
- in drip-by-drip, 30% white peat, fraction 0 (0-40mm), 30% white peat, fraction 2 (20-40mm), 15% coco fibre, 10% frozen black peat, 10% perlite 3 (coarse fraction) and 5% granulated clay

These indications may vary depending on other culture conditions and do not constitute a guarantee of harvest.

VIII – GROWING APPROACH FOR A CULTURE IN 17cm POTS

17 cm pot	ROOTING		GROWING			FLOWERING	
Culture time (young plant of 15 weeks)	6 - 8 weeks		15 - 17 weeks			2 - 3 weeks	
Temperature (ADT*)	<20°C	>20°C	20°C	25°C	≥25°C	15°C	20°C
Maximum light (instant reading) **in W/m²**	400	300	400	300	250	>500	400
Amount of water per pot per watering	From above, keeping the top dry		150 cc	150 cc	150 cc	150 cc	150 cc
Watering frequency per week	1 - 2 times	2 - 3 times	*MAXIMUM REQUIREMENTS (given as an indication only)*				
			4	5	>5	3	>4
Ppm N per watering	Baseline fertiliser 1,5 Kg/m³ PG Mix		100	75	75	125	100
N :K_2O ratio	1 :2	1 :2	1 :3	1 :3	1 :3	1 :2	1 :3

The data in the table are suitable for drip-by-drip crops with non-transpiring pots and a substrate consisting of 30% white peat, fraction 0 (0-40mm), 30% white peat, fraction 2 (20-40mm), 15 % coir, 10% frozen black peat, 10% perlite 3 (coarse fraction) and 5% granulated clay.

These indications may vary depending on other crop parameters and do not constitute a guarantee of harvest.

In rooting phase:

- the roots must colonise a larger substrate volume than for 12 or 14 cm pots. It is therefore necessary to wait between 6 and 8 weeks before spacing
- a baseline fertiliser of 1.5Kg/m³ is recommended to give the vegetation a satisfactory boost and to feed the plants sufficiently while awaiting the first applications of fertiliser

In growth phase:

- excessively low temperatures (ADT*), around 15°C, prevent the vegetation from developing sufficiently and from being harmonious with the size of the pot
- the Halios® HD are compact plants; in order to accompany the plant growth it is important to apply larger amounts of nitrogen than those recommended for pots of 12 to 14cm. This way you will obtain a substantial volume that is dense and well-structured.

(*) ADT : Average Daily Temperature
To find out more about ADT, see our technical data sheet, available to download on our website: www.cyclamen.com.