

# Campanula Clockwise™ Series

*Campanula portenschlagiana*



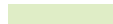



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 **Goldsmith**Seeds










syngenta *flowers*

# Legend






## Culture stages Cuttings / Seeds

	callus development / germ1, radicle emergence
	root development / germ2, cotyledon expansion
	leaf development / plug bulking
	plug finishing/ plug finishing






## Temperature zones

	1	32-41°F / 0-5°C
	2	41-46°F / 5-8°C
	3	46-53°F / 8-12°C
	4	53-57°F / 12-14°C
	5	57-60°F / 14-16°C
	6	60-64°F / 16-18°C
	7	64-68°F / 18-20°C
	8	68-72°F / 20-22°C
	9	> 72°F / 22°C

## Light zones

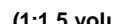
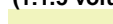
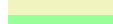



	1	total darkness
	2	short day <12 h/ short day treatment
	3	no-shading/ natural light
	4	supplemental light > 14 h / long day treatment
	5	night interruption

## Soil moisture level

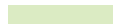





	5	Saturated: water is easily observed. When the substrate is touched , water moves
	4	Wet: water is not easily observed. When the substrate is touched , there is very
	3	Moist: the substrate is black but not glistening. When the substrate is touched,
	2	Medium: the substrate turns form dark to medium brown. There is no water
	1	Dry: the substrate changed color to very light brown.

## EC zones growing medium mS/cm


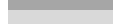
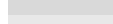
(1:1.5 volume extraction in water)

	1	0.5-0.75 mS/cm
	2	0.75-1.0 mS/cm
	3	1.0-1.25 mS/cm
	4	1.25-1.5 mS/cm
	5	1.75-2.20 mS/cm
	6	2.0-2.25 mS/cm

## EC zones feeding mS/cm

	1	0.5-1.0 mS/cm
	2	1.0-1.5 mS/cm
	3	1.5-2.0 mS/cm
	4	2.0-2.5 mS/cm
	5	2.5-3.0 mS/cm
	6	3.0-3.5 mS/cm

## Shading

	1	shading >250 W/m2
	2	shading >450 W/m2
	3	shading >750 W/m2

ST	Sticking URC
RD	Root development
SC <sub>0</sub>	Sowing no Vermiculite cover
SC <sub>1</sub>	Sowing plus light Vermiculite cover
SC <sub>2</sub>	Sowing plus medium Vermiculite cover
SC <sub>3</sub>	Sowing plus thick Vermiculite cover
RE	Radicle Emergence
Cot	Cotyledon
FC	Fleece cover
PC	Plastic cover
L	Lift cover
G	Gapping
TP	Transplanting
T	ypl transplanting
C	Cover to protect from frost
PGR	PGR treatment (spray)
PD	PGR treatment (drench) or heavy spray
⌘	Pinch
DB	Disbud
P	Potting
S	Spacing
F	Flowering
M	Misting

# Campanula portenschlagiana Clockwise™

## Plug Production

Tray Size: 128/ 288 / 264 cell or similar

Seeds per Cell: 3

Minimum Germ %: 80%

Plug Crop Time: 10 – 11 weeks

Days	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70				
Crop Profile	SC <sub>0</sub>			RE																																				
Handling	PC			L																																				
temp (ADT)	64°F (18°C)				69°F (21°C)												64-68°F (18-20°C)												58°F (15°C)											
Darkness / Day light	☀																																							
Light	Short day < 12 h																																							
Shading	500-600 W/m2																																							
Humidity (RH)	90-100%				80-90%												60-80%																							
Moisture Level	4				3												2																							
pH	6.0-6.4																																							
EC growing medium 1:1.5 volume extraction in water	0.7 mS/cm																1 mS/cm																							
EC feeding in mS/cm	0.8 mS/cm												1.6 mS/cm																											
Fertilizer	N :K 1 : 3 →																																							

Plant Growth Regulator (PGR) – Daminozide (B-Nine®)

Common Diseases – Botrytis, Pythium, Rhizoctonia

Common Pests – Aphids, whiteflies and spidermites

**Important – Sensitive to TMTD fungicides**

**Keep under short day during plug stage.**

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## Finished Production

Pot Size: Quarts, 4-inch, gallons

Weeks to Finish: 9 - 11 weeks (no vernalization required)

Flowering Mechanism: Daylengths >13hrs will initiate flowering

Flowering Time: June through August

Weeks	1	2	3	4	5	6	7	8	9	10	11
Handling Clockwise	P								F	F	F
Temp D/N	57-60°F (4-16°C)										
Light	Hatched			Yellow							
Humidity	60-80%										
Moisture	3-2										
pH	6.0-6.4										
EC growing medium 1:1.5 volume extraction in water	0.7 mS/cm										
EC feeding in mS/cm	1.6 mS/cm										
Fertilizer	N :K 1 : 3 →										

Plant Growth Regulator (PGR) – Daminozide (B-Nine®) + Cycocel®

Common Diseases – Botrytis, Pythium, Rhizoctonia

Common Pests – Aphids, whiteflies and spidermites

To fill larger pot sizes keep under 12 hour day length until leaves reach the edges of the pot.

***Avoid overly wet growing conditions.***

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