

# florist

## Patio Gerbera

### Cultivation Manual





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*When receiving ex-agar material:*

Please ask for the separate manual for cultivation from ex-agar to young plant material.

*When receiving young plant material in Jiffy substrate:*

Please follow the instructions of this cultivation manual.\*

(\* These culture advises are given as information and Florist Holland B.V. is not responsible for any harmful consequence of a wrong application of these advises - © Florist Holland B.V. 2012)

#### 1. Introduction

Patio Gerbera is a selection of gerbera plants, selected for their compactness, flower size and abundant flowering. Starting with a selection of 7 varieties, this series will develop within the future years. The varieties are suitable for outside as well as inside use and are all named after national parks. In several countries other brand names are applied such as Lollipop Gerbera (USA) and Lifestyle Gerbera (Australia)

The uniform plant material is multiplied through tissue culture and offered as hardened young plant material per 45 plants (Jiffy-6) or per 105 plants (Jiffy-4). These plants will be delivered after 5-6 weeks and they have to be potted after that time

All varieties are listed in the new pot plant catalogue of Florist Holland B.V.



## **2. Basic principles for Patio Gerbera cultivation**

This cultivation manual has been based on Western-European conditions. In this manual, guidelines are given about growing Patio Gerbera from young plant to fully flowering plant, which is ready to be delivered to garden centers, etc. First of all we want to explain some basis principles for professional Patio Gerbera cultivation:

### **2.1 Greenhouse conditions**

- Patio Gerberas are sensitive to water therefore it is important to make sure that irrigation is applied at the right time (in the morning). It is very important that the crop is dry when the night falls.

#### *2.1.1 Climate*

- Depending on the stage the young plant is in, the ideal situation for Patio Gerbera cultivation is reached when the greenhouse temperature lies between **15°C and 25°C**. This temperature should only reach a **minimum of 14°C during the flowering phase** and a maximum of **30°C**. The average temperature calculation for Patio Gerbera culture calculates **an average day temperature of 18/19°C** . If the temperature lies 1°C above the given heating temperature (heat-line) it is time to ventilate. The night temperature should not be too high, to stimulate bud induction. A temperature, which is too low, might cause a slower growth. The ideal night temperature lies around 15-18°C. High night temperatures can trigger a stress reaction in the plant, which means they are more susceptible to fungus infections at that time. High temperatures will also cause a more vegetative growth. **Please note it is very important to Patio Gerbera to keep a compact plant !**
- After potting the light intensity should read approx. 400 - 500 Watt (35.000 – 50.000 Lux). Above these figures screening must be applied to prevent higher light intensity/sun radiation.
- During wintertime it is recommended to use artificial lighting in order to maintain the necessary product quality. Approx. 5.500 Lux can be added to prolong the day length.

## 2.2 Used substrate

It is recommended to obtain a coarse substrate with good drainage, being not too moist. pH must be between 5,5 and 6,0 and an EC of 1,0 mS/ cm – 1,5 mS/ cm. These are ideal values to ease the intake of micro elements. When having a high pH the crop will start growing chlorotic (mainly yellow leaves).

The ideal substrate is composed of the following elements\*:

Description:	Amount per m <sup>3</sup>
Peat fraction 2	0,35 m <sup>3</sup>
Baltic middle	0,30 m <sup>3</sup>
Coarse coco	0,20 m <sup>3</sup>
Compost RHP 0 – 15 mm	0,15 m <sup>3</sup>
TBF 17-10-14-4	0,75 kg
TBF // 6-14-27 //	0,75 kg
Calcium	1,60 kg

Our substrate supplier, TREF BV from Holland (<http://www.trefgroup.nl>) will be able to give you exact information on the contents of this substrate.

A mixture with good drainage is of great importance.

The substrate analysis should read the following values:

Ec.	pH.	NH <sub>4</sub>	K	Ca	Mg	NO <sub>3</sub>	CL	SO <sub>4</sub>	H <sub>2</sub> PO	Fe	Mn	Zn	B	Cu	Mo
		mmol	mmol	mmol	mmol	mmol	mmol	mmol	mmol	umol	umol	umol	umol	umol	umol
1,5	5,8	0,5	3,5	2,0	1,0	5,0	1,0	1,5	1,2	15	3	3	12	0,5	0,5

## 2.3 Basic fertilization (fixed fertilizers)

Please check the EC and pH of the substrate beforehand in order to give the proper amount of fertilizers. The nutrient mix N:K is in summer 2 : 1 and in winter 1,5 : 1.

N mainly influences vegetative growth.

K mainly influences the flower size.

Vegetative phase – fertilizer mix:

Ec.	pH.	NH <sub>4</sub>	K	Ca	Mg	NO <sub>3</sub>	CL	SO <sub>4</sub>	H <sub>2</sub> PO	Fe	Mn	Zn	B	Cu	Mo
		mmol	mmol	mmol	mmol	mmol	mmol	mmol	mmol	umol	umol	umol	umol	umol	umol
1,8 – 2,2	5,7	??	5	4,7	1,8	10,5	1,7	2	1,8	40	5	5	35	1	1

Depending on pH and water quality

Generative phase – fertilizer mix:

Ec.	pH.	NH <sub>4</sub>	K	Ca	Mg	NO <sub>3</sub>	CL	SO <sub>4</sub>	H <sub>2</sub> PO	Fe	Mn	Zn	B	Cu	Mo
		mmol	mmol	mmol	mmol	mmol	mmol	mmol	mmol	umol	umol	umol	umol	umol	umol
2,0 – 2,8	5,7	??	5,4	5,3	2	9,5	2,7	3	1,8	40	5	5	35	1	1

Depending on pH and water quality

When using an A/B unit, the following items have to be taken into account.

- Nutrient solution must be adjusted to the used water quality.
- The A-unit and B-unit solution must be evenly dosed.

**N.B. A personalized schedule can be sent to you on request.**

## 2.4 Cultivation plan

The production of Patio Gerbera from the moment of potting should follow this timetable (depending on your location):

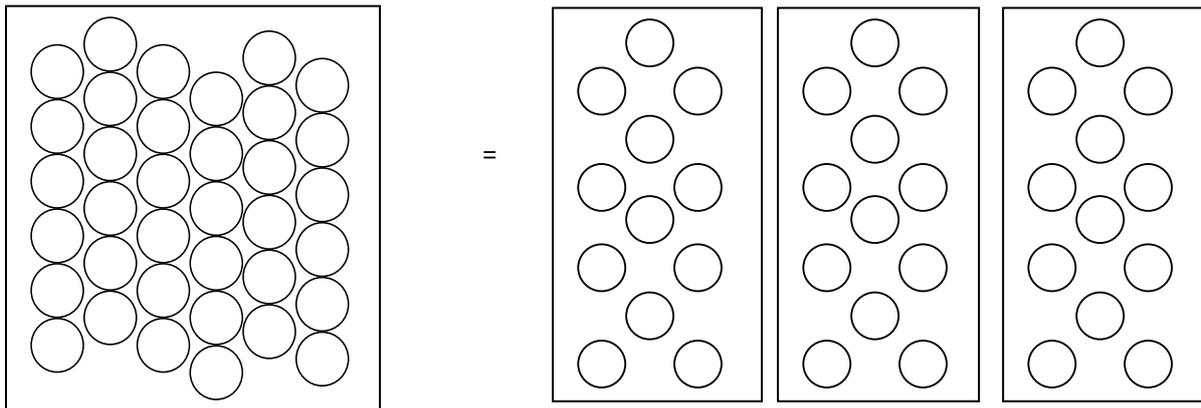
Summer: 12-16 weeks  
Winter: 16-20 weeks

Approx. 18.000 plants can be planted per 1000 m<sup>2</sup>. 2/3 of the available area should be left open for the next cycle. One cycle of Patio Gerbera takes approx. 18-20 weeks.

19 cm pot: (8-10 inch)      potted: 24 plants per m<sup>2</sup>      -      spaced: 8 plants per m<sup>2</sup>

Of course the number of plants is depending on the layout of each location / greenhouse.

In order to save space you can also perform an extra step to first space the plants in putting 12 plants per m<sup>2</sup>.



### 3. Potting

#### Timeline of growth

Week 1-----week 3-4-----week 7-9-----week 10-12

Potting in 19 cm pot and further on hardening of the young plants 300 w/m <sup>2</sup>	Spacing 400 w/m <sup>2</sup> – 500 w/m <sup>2</sup>	Flowering Patio Gerbera 500 – 600 w/m <sup>2</sup>
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#### Stage 2: Potting the Landscape young plants.

After the first hardening stage the landscape young plants can be further grown. The young plants are potted in 19-23 **cm** (= 7"-9" **Inch**) size pots (different per area/country) with the substrate mixture mentioned earlier. The young plant shouldn't be pressed too far into the substrate to maintain the airiness of the substrate. **Do not plant the plants too deep; the centre of the plants should remain 2 cm. above the substrate.** Place the plant in the middle of the pot to prevent botrytis development in the centre of the plant. You need to have pots with proper drain edges and at least 8 holes at the bottom, for good drainage.

After potting the plants are placed close together. The plants can be irrigated from above with an EC of 1,5 – 2,0 mS/cm and a pH of 5,8 (fertilization target values). The target values of the substrate should be around EC 1,2 – 1,5 and pH 5,4 - 5,8. When the roots reach the bottom of the pot you can start irrigation from below. You can do this through an ebb/flow system or a cultivation mat covered with a perforated foil and another option is a dripper irrigation system. During high temperatures it is eventually possible to water from above, if there is no other way. Please make sure the crop is dry before nightfall.

In this phase the cultivation temperature is 20°C (day/night). When the temperature reaches above 21 - 23°C, ventilation is required. Plants shouldn't get weak leaves once they have been potted. If the plants are touching each other they can be separated, after approximately 3 weeks. Make sure this happens in time, otherwise there is a chance the plants will stretch too much, causing a delay and/or decrease in growth.

If the plants are growing too quick and tend to lose the compactness, you can consider the option of using a growth regulation product. You can decide on this matter measuring the length of the leaves. **Please make small trials before deciding on the use of a growth regulator. Always spray the growth regulator mixture in the evening when it is darker. Be careful not to use too much and do not use it on the flower buds! Ask your local supplier for the available products (f.e. ALAR®) Please be careful taking this kind of measures and consult our cultivation specialists when required.**

#### Week 1-3

Greenhouse temp. : 19-20 °C day + night, RV = < 80% , EC = 1,5, pH = 5,8

#### Week 8-9

Greenhouse temp. : 18-19 °C day + night, RV = < 80% , EC = 1,5, pH = 5,8

#### Week 10-14

Greenhouse temp. : Day 18-19 °C, Night 15-16 °C, RV = < 80% , EC = max. 2, pH = 5,8

## 4. Flowering

### Stage 3: Flowering of Patio Gerbera plants.

During nights, the greenhouse temperature can only drop to the bare minimum of 15°C in this flowering phase; the day temperature should remain at 18-19 °C. At 20°C ventilation should start. The greenhouse temperature cannot be under 15°C. Screening should be applied at a light intensity of 450/500 W/m<sup>2</sup> (40.000 – 50.000 Lux). RV is kept under 80% to keep an active crop. This can be realized with a minimum required water temperature within the pipe of 40°C.

In the 9-10<sup>th</sup> week of growth the first flowers will appear. **Our advise is to pick the first flowers/buds from the plant to make sure the plant can make some more buds for abundant flowering at once.**

The plants are ready for sale when at least 3 flowers (with some buds) are open. Sorting is done looking at the number of flower per plant. The plants can be sold within 2-4 weeks, depending on the season and type. The plants can be sold per tray and/or packed separately in a sleeve. This makes a nice presentation, marketing wise and also creates protection at the same time. On the sleeve / tag you can also show cultivation tips to consumers and information on your company.

## 5. Pests and diseases in gerbera cultivation

Most pest and diseases occurring in gerbera cut flower cultivation, can also occur in Patio Gerbera cultivation. The major plagues are:

- **Leaf miner:** Please check for this insect using yellow signaling plates. If leaf miner is present in the greenhouse, you should spray every week in wintertime and every 5 days in summertime with Vertimec® (abamectine), Trigard® (cyromazin) or Milbenock (milbemectine).
- **White fly:** When noticing this insect, spray with Admire® (imidacloprid) or Aseptacarex® (pyridaben). The last product can also cause discolouring on the flowers petals of lighter coloured varieties. Other products which can be used are Admiral®, Decis® and Methomex®.
- **Thrips:** When noticing this insect (white spots on the flowers), spray with Mesuroi® and/or Conserve®.
- **Mildew:** Causes a sort of white fungus on the leaves. In a later stage it can cause damaging of the leaves. Prevention of mildew can also be accomplished through watering from below and to make sure the greenhouse is heated to a dry level.  
If mildew happens to be found you can spray with Rocket® (triflumizool) or you can precautionary install sulfur burners.

**When the crop is flowering, please bear in mind to spray from underneath, to avoid damage to the flowers.**

Spray during wintertime only when you have determined a plague or disease. Whenever you have doubts, please contact your sales manager or cultivation consultant.

- Ask for a complete overview of pests and diseases in gerbera cultivation for our CD-ROM “Recognising pests and diseases in gerbera cultivation” and for the “advisory card Gerbera” for combined biological and chemical control.
- We can also assist you in making a year program concerning the planning of Patio Gerbera cultivation, if applicable in combination with other products.

### **Frequently asked questions (FAQ):**

- If the crop/foilage turns yellow, which cultivation measures have to be taken ?  
*Check the pH level (too low or too high?) and the manganese and/or iron levels (too low?)*
- Which action needs to be taken upon a too vegetative development of the crop, causing less flowers per plant?  
*Check the nitrogen levels (too high?)*  
*Check the light intensity (too low?)*  
*Nutrition level and climate.*
- What is happening when the crop is not flowering?  
*The growth is too vegetative (check fertilization) or the day/night temperature is too high (check climate).*
- How can bud induction be stimulated?  
*Keep the night temperature sufficiently low.*
- In how many weeks can I harvest a greenhouse filled with Patio Gerbera?  
*From first flowering in 3-4 weeks.*
- How can I prevent the creation of fungus?  
*Try to realize and maintain an active climate.*  
*Keep the RV under 80%.*  
*Do not cultivate too wet.*

For custom made cultivation advise, please contact our sales support department through e-mail: [support@gerbera.com](mailto:support@gerbera.com) . They will take care of your request so our cultivation specialists can answer to your demands.

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