ZINNIA ‘PROFUSION’

Carefree color all season long !

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Zinnia Profusion

Zinnia Profusion is an interspecific hybrid between *Z. elegans and Z angustifolia*.

- Compactness and flower quality (*Z.. elegans)*
- Vigor and disease resistance *(Z..angustifolia)*

Types

Profusion Single: 8 colors

Profusion Double: 7 colors

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Zinnia Profusion

The Profusion Series, created by SAKATA, is known the world over for satisfying consumers' demand for excellent garden performance…

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Key Characteristics of Zinnia Profusion

- Wide weather tolerance performing well over a wide range of climates and soil types.
- Profusion is a facultative short day plant. Flowers initiate and develop quicker when the day length is less than 12 hours.
- To ensure sufficient vegetative growth, especially for larger containers, provide long day conditions (>14 hours) in the plug stage.
- Profusion does well with cal/mag fertilizers with periodic applications of magnesium sulfate at 1 lb./100 gallons.
- Profusion is also sensitive to boron deficiency, characterized by tip abortion, crinkled foliage and leaf edge necrosis. Apply 0.25 ppm Boron at each watering and maintain a pH at 5.5 to 6.2.

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Producing consistent quality

- Optimum plug size is a 144 cell – 5 weeks
- Use a well aerated media with a pH between 5.5 and 6.2
- Prior to sowing, water the plug tray to the point of drip
- Sow the seed and cover with medium vermiculite
- Do not water after sowing or the day following sowing
- Then, water the seedlings as needed
- Germinate at 76ºF
- Provide long days (>14 hours) in the plug stage to build plant body
- Fertilize with cal/mag formulations starting at 50-100 ppm N and working up to 150-200 ppm, and supplement with MgSO4 as needed
- Supply 0.25 ppm Boron at each irrigation to avoid deficiency
- Optimum media EC is 1.0 – 1.2 mmhos (1:2 slurry)
- Optimum production temperature is 65-70ºF
- Provide high light at 5,000 – 7,000 foot candles
- Apply B-Nine at 0.25% - 0.35% as needed to tone the plants
- Not generally bothered by pests or disease

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Growing Protocol

Pot / Container	Finish Time	Plug Stage	Plug Size	Photoperiod - Long Days	Transplant PPP	PGR*	Crop Time	Regional Comments
	Flowering			January to Mid April		* as needed after plants are rooted and filled in		
Cell Pack	April to August	4 weeks	200	> 14 hours	One/cell	0.25% B-Nine	8-9 weeks from sowing	Sold Green
4 inch	April to August	5 weeks	144	> 14 hours	One	0.25% B-Nine	9-10 weeks from sowing	In warm summer climates where the day temperature regularly exceeds 90ºF and higher, applying short days (<11 hours) after the plants are established will shorten production time and promote a more compact plant.
Quart	April to August	5 weeks	144	> 14 hours	One	0.25% B-Nine	10-11 weeks from sowing	
6 inch	April to August	5 weeks	144	> 14 hours	Three	0.25% B-Nine	11-12 weeks from sowing	
1 gallon	April to August	5 weeks	144	> 14 hours	Three	0.25% B-Nine	11-12 weeks from sowing	
8 inch	April to August	5 weeks	144	> 14 hours	Four	0.25% B-Nine	12-13 weeks from sowing	
10-12 inch	April to August	5 weeks	144	> 14 hours	Five	0.25% B-Nine	12-13 weeks from sowing	
Nutrition	50-100ppm N for stage 2, 100-150ppm N for stage 3 to 4 and 150 -200 ppm N after transplanting - Cal/Mag fertilizer, alternating with 20-10-20 as needed to control pH. Sensitive to boron deficiency, supply 0.25 ppm B at each watering.							
pH	Optimum pH is 5.5 - 6.2							
E.C.	1.0 to 1.2 mmhos (1:2 slurry) 1 part media mixed with 2 parts distilled water. Stir and allow mixture to stand for 30 minutes, filter and take reading.							

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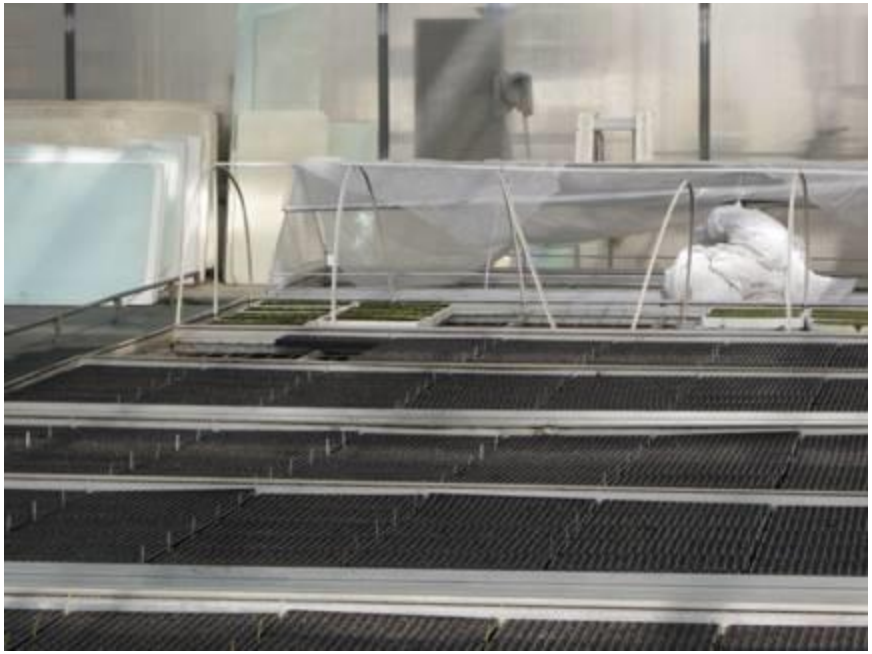
Stage 1 – Sowing to radicle emergence (days 1-5)

- Plug Tray – 144*
- Well aerated media
  pH 5.5 - 6.2
  EC < 0.6 mmhos (1:2 slurry)
- Prior to sowing, water in plug tray to the point of drip.
- Sow seed and lightly cover with coarse vermiculite.
- *4 inch and larger, for cell packs use a 288 tray and plan on 4 weeks.



Stage 1 – Sowing to radicle emergence (days 1-5)

- Do not water in the tray following sowing or the day after sowing.
- Then, water the trays as needed to maintain even moisture, but not saturated.
- Maintain a consistent temperature of 76ºF
- Radicle emergence in 4-5 days.

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Stage 2 – Cotyledons (days 6-12)

- Temperature:
  70ºF Day
  65ºF night
- 3,000 - 4,000 foot candles to prevent stretching
- Good air circulation
- Fertilize with 75 ppm N using a well balanced Cal/Mag formulation (13-2-13-6Ca-3Mg).
- Provide long days by extending the day length to 16 hours or with night interruption* (10pm-2am). Minimum 10 foot candles.

**It is important to keep the night temperature at 62-65F when using incandescent lights to prevent excess stretching.*

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Stage 2 – Photoperiod

- Zinnia Profusion is a facultative short day plant. A dark period greater than 12½ hours promotes flower bud initiation.
- To extend the juvenile phase and achieve optimum vegetative growth, apply long day conditions in the plug stage when sowing prior to April 1st.
- This is especially important for producing plants in larger containers.

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Stage 3 – Development of true leaves (days 13-28)

- Fertilize as needed to maintain the EC at 1.0 – 1.2 mmhos (1:2 slurry).
- Watering just before wilt is recommended to avoid lush growth.
- Water thoroughly to prevent high EC (>1.5 mmhos).
- Water early in the morning to allow time for foliage to dry.
- If necessary, apply B-Nine (daminozide) at 0.25% / 2,500 ppm 17-21 days after sowing to check growth.

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Stage 4 – Toning (7 days)

- Reduce the temperature to 62ºF but do not go below 60ºF.
- Fertilize every 2nd or 3rd watering to tone the plants and prepare them for tranplanting.

Optimal plug with 2-3 sets of true leaves, good green color, good leaf expansion and juvenile development (non initiated).

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Transplanting

- Well drained media.
- pH 5.5 – 6.2
- EC > 0.6 mmhos
- Set plugs slightly “high” to avoid stem rot.

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Fertilizer

- Optimum EC is 1.0-1.2 mmhos.
- Fertilize weekly with Cal/Mag blends at 200-250 ppm N or as needed to achieve optimum EC.
- Sensitive to boron deficiency so target 0.25 ppm B at each irrigation.
- 15-3-20 Pansy Special is a good choice for constant liquid feed as it supplies higher amounts of minor elements at lower nitrogen rates (0.25 B at 125 ppm N). Also, higher potassium promotes strong and sturdy plants.

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Temperature

- Optimal temperature is 65-70ºF.
- Avoid temperatures below 60ºF which invites disease.
- Above 75ºF promotes plant stretching.

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Phosphorus and macro element deficiencies

- Phosphorus, nitrogen and magnesium a mobile elements and a deficiency manifests in the lower foliage.

Zinc, calcium and minor element deficiencies

- Zinc along with all trace elements and calcium are immobile so a deficiency manifests in the upper foliage.

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Boron deficiency

- Boron is necessary for calcium metabolism and translocation of sugars from leaf canopy to root zone.
- Within 24 hours of a deficiency damage is evident at root caps.
- Boron deficiency is characterized by leaf cupping and puckering.
- Boron is immobile so a deficiency leads to necrosis of upper leaf edges.

Growth Regulation

- Water stress
- Calcium nitrate based fertilizer
- Proper plant spacing
- Reduced Humidity
- High Light (5,000 -7,000 foot candles)
- B-Nine at .025 – 0.5% (2,500-5,000 ppm)
- Bonzi drench at ½ to 1 ppm
- Short day conditions (> 13 hours of darkness)
- Pinching

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Photoperiod and height control.

•After transplanting, when the plants are established and filled in, an application of daminozide (B-Nine®) at 0.25% to 0.35% will tone the plants.
•In spring a negative DIF is effective in reducing stem stretch.
•During summer, when the temperature is elevated and the photoperiod is long, subjecting the plants to short days (<11 hours) will promote earlier flowering and compact plants.

•Pinching the plants after establishment is also an option to promote fuller pots.

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Effect of photoperiod on plant and flower development

Short Day Plug Short Day Finish	Long Day Plug Short Day Finish	Long Day Plug Long Day Finish

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Effect of photoperiod on plant and flower development

Complete Short Days vs. Complete Long days

Finishing under long day conditions will require more attention to growth regulation.

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Effect of pinching on plant height and branching

Unpinched vs. Pinched

Pinching significantly increases branching and reduces plant height.

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Zinnia Profusion

Pinching after establishment will promote faster branching with less plugs needed per pot.

- 8 inch bulb pan
- 3 plants per pan
- Sow mid May
- Transplant mid June
- Pinch early July
- 1 application of 0.25% B-Nine
- Flower mid August

Natural photoperiod, Salinas, CA

Profusion Apricot

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Zinnia Profusion

Growing Profusion similar to a Chrysanthemum

For pots and color bowls Profusion can be grown similar to a pot mum.

Method	Plug Time in Weeks*	Pot Size	PPP	Pinch	Day Length	Comments
1	Five	8 inch	Three	3 weeks after transplant	11 hour day at pinch	Starting point for trialing
2	Five	8 inch	Three	3 weeks after transplant	11 hour day one week prior to pinch	Use if method 1produces plants that are too vigorous
3	Five	8 inch	Three	3 weeks after transplant	11 hour day one week after pinch	Use if method 1 produces plants that are too compact

*Long day condiitons

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Zinnia Profusion

Profusion is as easy to grow as it is beautiful!

- Coated seed for improved sowing process
- Easy and rapid germination
- Grows easily with minimum care
- Does well over a wide pH and temperature range
- Can be easily controlled with B-Nine or photoperiod manipulation
- Not generally attacked by pests
- Highly disease tolerant, but will not tolerate wet feet or poor drainage
- Highly suitable as a pot, bedding and patio plant
- Drought and heat tolerant
- Unexcelled garden performance
- Available in single, double and knee high types
- Perfect for mass plantings
- Constant color all season long
- Consistent seed quality and availability
- All-America Selections and Fleuroselect Gold Medal Winner

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Thank you!

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