



Lisianthus Voyage Series *Culture Tips*



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Lisianthus Voyage Series

The Lisianthus Voyage series features a beautiful large double fringed flower. Double flowers require additional energy to produce, compared with other Lisianthus varieties.



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Providing optimum culture techniques ensures full flower formation.
Cultural conditions to avoid:

Rosette - Tip burning - Abnormal flower shape



Standard Double Lisianthus variety



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Rosette

- In general, a rosette occurs under extreme conditions, too warm, too cold or too dry of conditions.
- Hot mid-day temperatures, (higher than 90°F/30°C), that is not offset by a cool night temperature, (below 60°F/16°C), promotes a rosette.



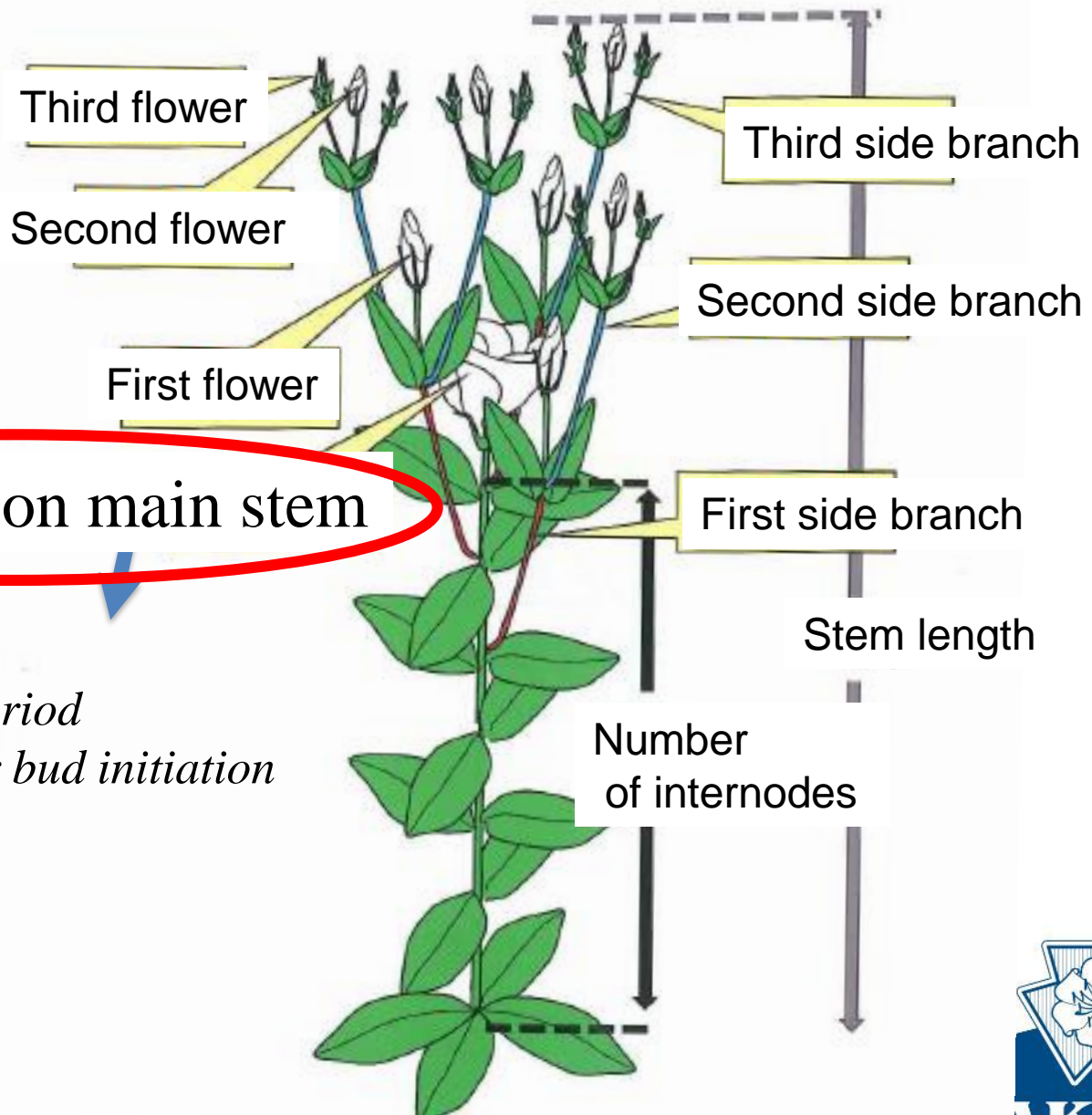
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Tip burning

- The most sensitive period is just before flower bud initiation on the main stem.
- At this developmental stage, plants begin absorbing more nutrients from the soil. This, combined with increased transpiration causes salt and moisture to accumulate on the leaf tips. making them more susceptible to burning; especially under conditions of warm temperatures, excess nitrogen and overly wet soil.
- Following cultural recommendations in this PowerPoint will help slow down rapid growth and improve calcium uptake.



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First flower on main stem

*For tip burning,
the most sensitive period
is during first flower bud initiation*



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Abnormal flower shape

To produce flowers with fringed petals, maintain the night temperature below 60°F/16°C.

If the night temperature is greater than 73°F/23°C, the flowers develop too quickly with lower petal count and less fringed.



First flower on main stem with fringe grown under recommended moderate temperatures.



First flower on the main stem is less fringed petals grown under higher temperatures.

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Recommendations

The following slides summarize the key culture techniques to optimize the production of Voyage 2 flowers.

- ❖ *Irrigation*
- ❖ *Temperature management*
- ❖ *Ventilation*
- ❖ *Fertilization*
- ❖ *Raised Beds*



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Irrigation Recommendation

In general, for cut flower production the plants are irrigated frequently after transplanting. Lisianthus requires enough soil moisture before transplanting and plenty of water is required until stem elongation. Then, irrigation frequency is gradually reduced, (larger intervals between irrigations), as the flower buds begin to form.

For Voyage:

Before the first flower bud initiates on the main stem:

Longer interval of irrigation compared to other varieties to avoid tip burning from over watering.

After several flowers buds have initiated:

Maintain a shorter interval of irrigation than for other varieties to avoid malformed flowers due to a lack of moisture.

A large fringed flower requires more water!



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Temperature management

- Maintain the day time temperature below 82°F/28°C and the night temperature below 60°F/16°C* to avoid rosette, tip burn and abnormal flower shape.
- The risk of rosette can be reduced if a cooler night temperature, (below 60°F/16°C*), even if the maximum day temperature is warmer than 82°F/28°C.
- To keep good fringed flower shape, do not allow the night temperature to exceed 68°F/20°C.



** Maintain a minimum night temperature at 50°F/10°C because a temperature below 50°F/10°C increases the possibility of rosette and is too cold for Lisianthus. In the case of a night temperature below 50°F/10°C, a day time temperature greater than 82°F/28°C is required.*



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Temperature management

After Transplanting:	Day time Temperature		Night time Temperature
Optimum temperature*	72°-82°F / 22°-28°C		59°F / 15°C
Warm area**	Above 82°F / 28°C	Compensate with 	50°-59°F / 10°-15°C
Cool area***	Above 82°F / 28°C	Compensate with 	Below 50°F / 10°C
*To avoid rosette, tip burn and abnormal flower shape (less petals and less fringe).			
**Daytime temperatures above 82°F/28°C cause rosette (too warm). To prevent, compensate with a night temperature between 59°F/15°C.			
***Night temperatures below 50°F/10°C results cause rosette (too cold). To prevent, compensate with a day time temperature above 82°F/28°C			



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Temperature management

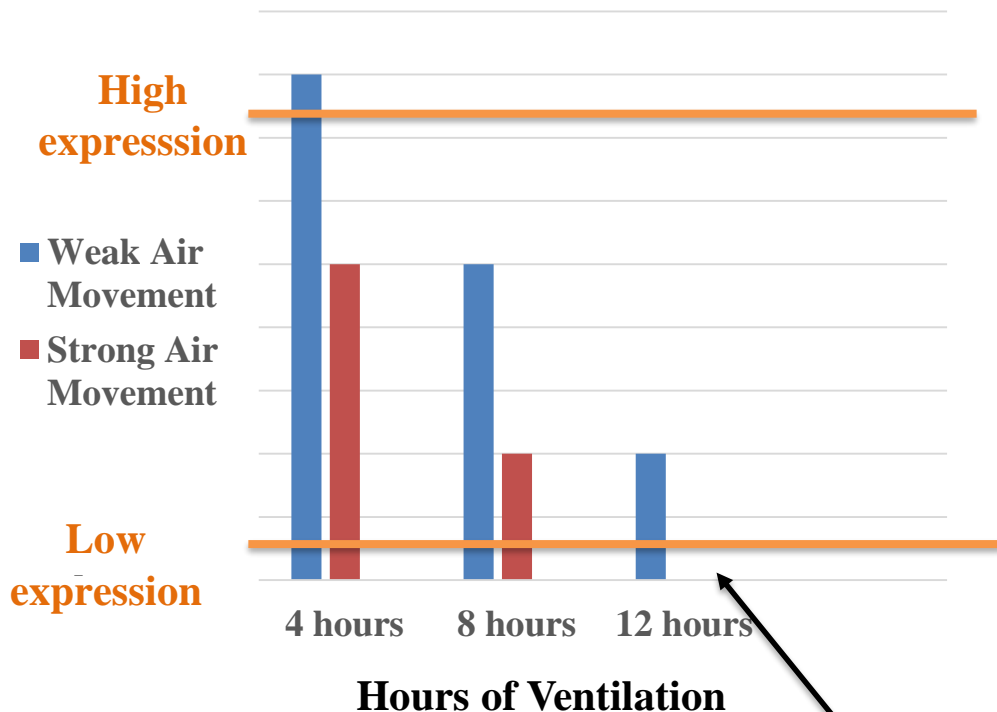


Open the side vents when the temperature rises above 77°F/25°C to reduce the temperature.

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Ventilation recommendation

Expression of tip burn



- Strong air movement is effective in preventing tip burn
- Ventilation optimizes transpiration.
- Ideally, have strong air movement at 3-6 feet / 1-2 meters per second (3-5 miles / 5-8 kilometers per hour) for 12 hours in the day time.

12 hours of strong air movement completely prevented tip burn.



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Ventilation recommendation



Large exhaust fans help to reduce the day temperature



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Fertilization recommendation



- Cal/Mag formulations produce strong plants. Avoid ammonium nitrate, which promotes soft growth and makes tissue more prone to tip burning.
- A moderate EC of 1.0 – 1.2 mmhos (1:2 dilution) maximizes calcium absorption and prevents soft growth.



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Fertilization recommendation

- To avoid tip burn, top dress with organic calcium at 700-1,400 ppm, (120 cc* / square yard or 140 cc per square meter applied at an interval of 3 days for 3 weeks) to increase the calcium leaf content.
- Foliar sprays of calcium chloride* at 325 – 350 ppm are also effective to increase the calcium leaf content.

* 4 ounces by volume

** more details are found on the following slide



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Foliar Application of Calcium

1. Weekly applications supply enough calcium for rapidly expanding tissue.
2. Test a few plants first as any damage usually shows itself in 3-4 days.
3. Use an approved spreader sticker for plants.
4. Do not apply to buds showing color or open flowers.

Amount of Final Spray Solution	Calcium Chloride Dihydrate $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$	Calcium Chloride Anhydrous CaCl_2
	~ 27% Calcium	~ 39% Calcium
100 gallon	1 lb.	12 oz.
25 gallon	4 oz.	3 oz.
3 gallon	1/2 oz.	3/8 oz.
Approximate ppm of calcium in the solution	324 ppm	357 ppm

Amount of Final Spray Solution	Calcium Chloride Dihydrate $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$	Calcium Chloride Anhydrous CaCl_2
	~ 27% Calcium	~ 39% Calcium
500 liters	600 grams	450 grams
100 liters	120 grams	90 grams
10 liters	12 grams	9 grams
Approximate ppm of calcium in the solution	324 ppm	357 ppm

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Raised Beds



- In heavy clay soils that lack organic matter and oxygen, it is necessary to raise the level of the cultivated bed to improve drainage and aeration for the optimum root development and calcium absorption.



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How to avoid abnormal flower color and formation

Normal flower



Green center instead of blue



Normal flower



Abnormal flower center formation



Voyage 2 Pink

- **Voyage 2 Blue and Voyage 2 Pink** are bred for increased heat tolerance, with the ability to maintain a high petal count with fringed petals even under higher temperatures. In general, the number of petals is reduced under high temperatures ($>82^{\circ}\text{F}/28^{\circ}\text{C}$). These 2 varieties perform well under warmer conditions but require different management compared to other Voyage 2 colors for high quality.
- Grow at $64^{\circ}\text{-}86^{\circ}\text{F}/18^{\circ}\text{-}30^{\circ}\text{C}$ with long days (more than 12 hours).
- Increase the irrigation intervals after flower initiation.

Lisianthus Voyage Success!



For further information
www.sakataornamentals.com



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