



HELIANTHUS

SELECTION



TAKII SEED

Creating Tomorrow Today



Takii formed a partnership with the Van Gogh Museum

We became the exclusive Sunflower partner of the Van Gogh Museum for three years beginning August 2015. The museum is located in Amsterdam and receives more than 1.6 million visitors annually.

The museum marks the 125th anniversary of Vincent van Gogh's death in 2015. In honor of this milestone the museum has many inspired events.

One of these events was to open a new entrance hall. The grand opening was held on September 4th, and featured a gigantic labyrinth outside the new entrance hall made up entirely of Takii's Sunflowers. We donated enough Sunflower "F1 Sunrich Orange" seeds to produce 125,000 blooming plants which were used to create the almost 2-meter high labyrinth.

Vincent Van Gogh's "Sunflowers" series are his most celebrated paintings and iconic of the maestro. Takii provides F1 Sunrich series worldwide to meet the market demand for high quality cut flower Sunflowers. We are very proud that the Van Gogh Museum recognized us as the world leading Sunflower breeding company as they approached us for the Sunflower Labyrinth project.

We continue our innovations to remain in the forefront in Sunflower breeding and to increase the interest in floriculture and related industries.



Cut Helianthus Selection



Cut Variety

Complete selection in total of 13 varieties



F1 Sunrich Orange DMR



F1 Sunrich Lime



F1 Sunrich Gold

- Non-branching type
- Produce pollenless, long-lasting cut flowers
- Flowering requires temperatures above 15°C / 60°F
- High seed quality standard



F1 Sunrich Orange



F1 Sunrich Lemon



F1 Sunrich Orange Summer



F1 Sunrich Lemon Summer



F1 Sunrich Limoncello Summer



F1 Tiffany



F1 Premier Orange



F1 Premier Lemon



F1 Premier Light Yellow



F1 Full Sun Improved

Takii's Helianthus Characteristics of the cut varieties

Variety	Petal	Disk	Days to bloom	Remark
F1 Sunrich Orange DMR (NEW)	Orange	Black	55-70 days	Downy mildew highly-resistant
F1 Sunrich Orange	Orange	Black		The quality standard in the market
F1 Sunrich Lemon	Yellow	Black		
F1 Sunrich Gold	Orange	Green		
F1 Sunrich Lime (NEW)	Yellow	Green	50-65 days	5-10 days earlier than Sunrich Orange
F1 Sunrich Orange Summer	Orange	Black		
F1 Sunrich Lemon Summer	Yellow	Black		
F1 Sunrich Limoncello Summer	Lemon with yellow base	Black		
F1 Premier Orange	Orange	Black	45-55 days	Extra-early varieties
F1 Premier Lemon	Yellow	Black		
F1 Premier Light Yellow	Light Yellow	Black		
F1 Tiffany	Orange	Black	60-80 days	Round orange flowers with dark disks
F1 Full Sun Improved	Dark Yellow	Black	55-100 days	Sufficient stem length even under short day conditions

The above data is based on trials completed in Japan. Actual results are dependent upon environmental conditions and local practices that may affect variety characteristics and performance.

55-70 day type

- Under optimum conditions, shortest crop time is approximately 55 days
- Non-branching, pollenless, densely-petaled flower

F1 Sunrich™ Orange FHM512

- Superb quality maintains its status as market leader among Helianthus



F1 Sunrich™ Lemon FHM511

- A refreshing petal color of lemon yellow with a contrasting black center



F1 Sunrich™ Lime FHM521

- Lemon yellow petal with green center
- Similar growth habit to F1 Sunrich Gold



F1 Sunrich™ Gold FHM515

- Helianthus with a fresh green center provides a different look
- Slightly taller than F1 Sunrich Orange



Disk maturation of F1 Sunrich Gold is slightly faster than the rest of the Sunrich series. Please refer to the pictures below as examples of the proper stage for harvest to provide the end user with fresh green-centered flowers.

(Harvested in August in Japan, cut flowers kept inside)



Day of harvesting



1st day after harvest



2nd day



3rd day


SUNRICH

F1 Sunrich™ Orange DMR^{FHM457}

- The world's first downy mildew highly-resistant variety for ornamental Helianthus
 - Resistant to multiple strains of downy mildew (*plasmopara halstedii*)
 - Plant height, growing speed as well as flower shape and color are similar to F1 Sunrich Orange.
- F1 Sunrich Orange DMR flowers in 55-70 days after sowing, depending on conditions

**2015
NEW**


<Disclaimer>

*1. F1 Sunrich Orange DMR highly restricts the growth and development of the above stated pathogen and the damage they cause under normal pathogen pressure when compared to susceptible varieties. It may, however, exhibit some disease symptoms or damage under heavy pathogen pressure.

*2. New and / or atypical strains of the specified pathogen may overcome the resistance, sometimes completely.

What is Downy Mildew (*Plasmopara halstedii*)?



Plasmopara halstedii is one of the major plant pathogens that infect *Helianthus*. The symptom shows as light yellowish-green spots on the upper side of leaves alongside main veins.

It eventually grows and spreads to become a lesion, and on its underside light gray mold grows.

Severely infected plants will not have ornamental value.

The stems will not reach enough height and will not be good quality cut flowers.



50-65 day type

Cut Variety

- Under optimum conditions, shortest crop time is approximately 50 days
- Plant height is about 15-20% shorter than F1 Sunrich Orange

F1 Sunrich™ Orange Summer FHM520

- Flower shape and color is identical to F1 Sunrich Orange



F1 Sunrich™ Lemon Summer FHM501

- Flower shape and color is identical to F1 Sunrich Lemon



F1 Sunrich™ Limoncello Summer FHM456

- Dual coloring with a yellow base on lemon petals makes for a flower that provides a great accent in the Helianthus market



45-50 day type

Cut Variety

- Under optimum conditions, shortest crop time is approximately 45 days
- Cultivation is recommended under long-day conditions to keep sufficient stem length for cut use

F1 Premier™ Orange FHM455

- Plant height is about 30-40% shorter than F1 Sunrich Orange
- Flower shape and color is similar to F1 Sunrich Orange



SUNRICH



F1 Premier™ Lemon FHM517

- Plant height is about 30-40% shorter than F1 Sunrich Lemon
- Flower shape and color is similar to F1 Sunrich Lemon



F1 Premier™ Light Yellow FHM513

- Plant height is approximately 30-40% shorter than F1 Sunrich Orange and Lemon



60-80 day type Cut Variety

- Under optimum conditions, shortest crop time is approximately 60 days

F1 Tiffany™ FHMA14

- Round orange flowers with dark disks



55-100 day type Cut Variety

- Under optimum conditions, the shortest crop time is approximately 55 days

F1 Full Sun Improved™ FHMA13

- Tall variety
- Stem can reach sufficient length even under short-day conditions, but requires longer cultivation time



Sahin's Helianthus Selection For the Home Garden Market

SAHIN
A brand of TAKII

Cut Variety

F1 Buttercream™

FHMA01

- Semi-dwarf, spray type
- Helianthus with unique color



Height/100-120 cm, 40-47 inches

F1 Claret™

FHMA02

- Branching type
- Dark wine-red shaded flower



Height/180-200 cm, 70-80 inches

F1 Summer Breeze™

FHMA21

- Single stem, golden yellow with green disk
- Green part of disk color may vary from flower to flower



Height/160-180 cm, 63-70 inches

F1 Solar Power™

FHMA04

- Branching type
- Maroon disk at the base of orange-tipped mahogany petals



Height/150-170 cm, 60-67 inches

There is some variation in the bicolor pattern from flower to flower



Pot Helianthus Selection

Pot Variety

- When grown at temperatures above 15°C / 60°F, time from sowing to flowering is about 50-55 days in any season
- Under long-day conditions, the plant grows to a height of about 40-50 cm / 15-20 inches in the garden
- Under short-day conditions, the plant will finish as an attractive miniature, with a height of about 15 cm / 6 inches in a small pot

F1 Sunny Smile™ FHM411

- F1 hybrid pollenless dwarf Helianthus bred for its branching habit
- Very easy to grow



Cultivation Information for F1 Sunny Smile

Sowing

Optimal germination temperature: 25°C / 77°F

Days to emergence: 4-5 days (7-10 days under 15°C / 60°F conditions)

Branching Habit

Branching habit depends on pot size.

With direct sowing in a pot up to a size of 9 cm / 3.5 inches, the plant will generally produce one flower.

Branching can usually be induced in pots larger than 12cm / 5 inch.

Transplant to a finishing pot or bed approximately 10-14 days after sowing (when the plant has 6-8 true leaves).

Growing

Growing temperature: 15-35°C / 60-95°F

When growing from plugs, 200 cell plug trays or larger are recommended.

Transplant into finish pot / bed in approximately 10 days to 2 weeks from sowing (at the stage of 6 to 8 true leaves).

pH: 5.8-6.2

Irrigation: Slightly drier conditions are preferable.

Fertilization: Provide sufficient fertilization to avoid yellowing of bottom leaves.



Big Smile™ FHM313

- Adorable dwarf OP Helianthus



Growing Options



(photo on Aug.12)

Pinching

15 cm / 6 inch pot

June 7 Sown in 128-plug tray

June 20 Transplanted to pot

July 5 Pinched above four internodes

(sown on Sep.15, photo on Nov.13)



6 cm / 2.4 inch pot
(Plant height
12.5 cm / 5 inches)

9 cm / 3.5 inch pot
(Plant height
18 cm / 7 inches)

12 cm / 4.7 inch pot
(Plant height
19.5 cm / 7.7 inches)

Proper use of cut varieties

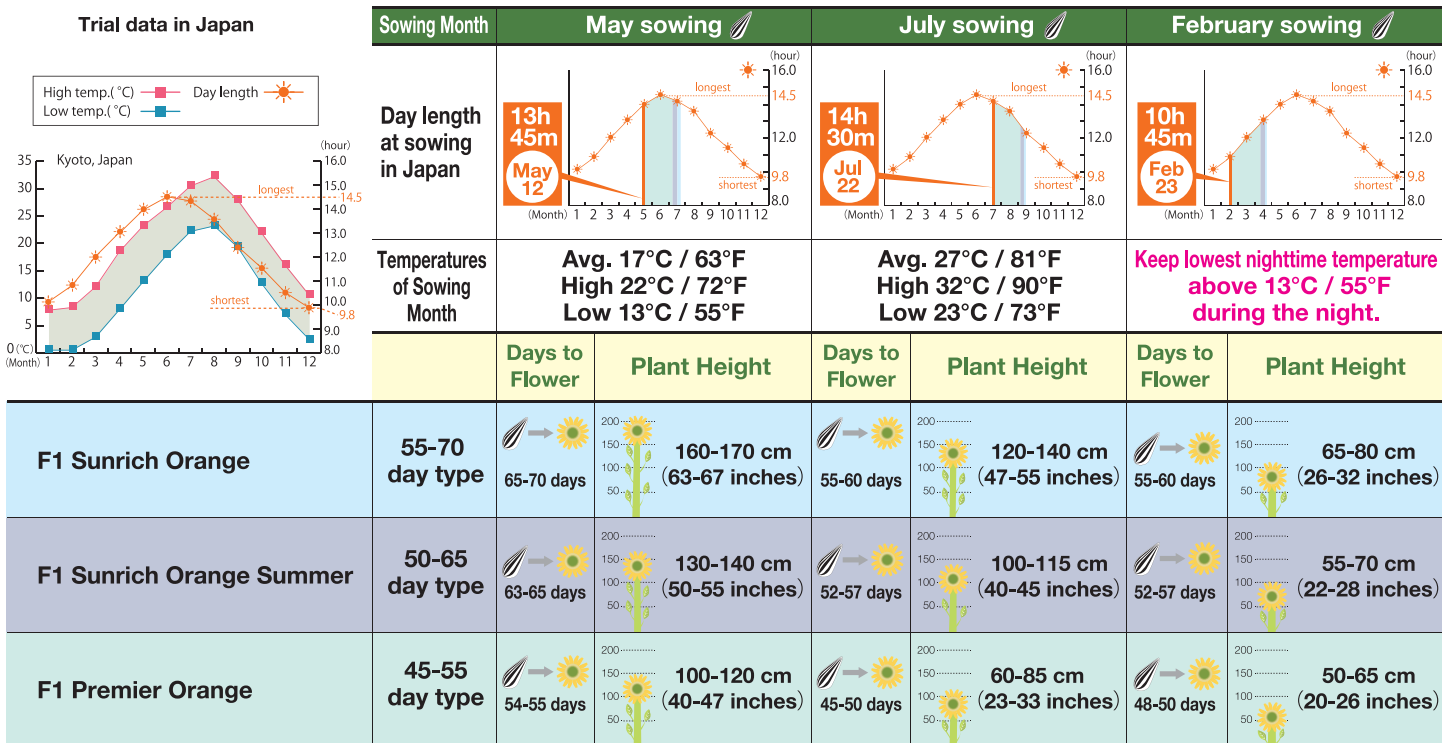


F1 Sunrich and F1 Premier Series

1: Comparison by variety

Series	Flower Color	Days to Flower	Time Ratio	Stem Length	Height Ratio
F1 Sunrich	Orange DMR 2015 NEW Lemon Lime 2016 NEW Gold	55-70	100%	160-170 cm (63-67 inches)	100%
	Orange Summer Lemon Summer Limoncello Summer	50-65	90%	130-140 cm (50-55 inches)	80%
F1 Premier	Orange Lemon Light Yellow	45-55	80%	100-120 cm (40-47 inches)	60%

2: Effects of day length and temperature on plant height and days to flower



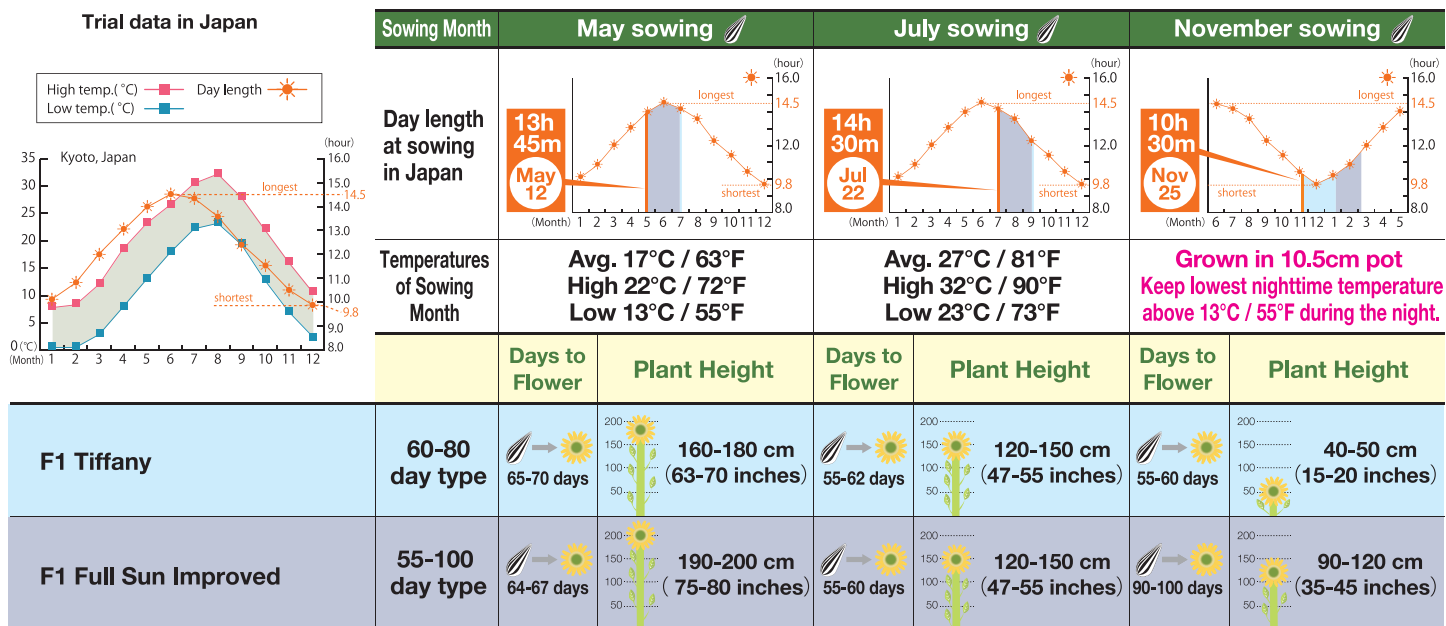
All information is based on trials completed in Japan. Actual results are dependent upon environmental conditions and local practices that may affect variety characteristics and performance.

3: Proper varietal cultivation

- Day length and light intensity are factors that influence the stem length of the Sunrich and Premier series.
- Long-day cultivation will produce longer stems, short-day cultivation will result in shorter stems.
- If F1 Sunrich Orange (55-70 day type) grows too tall, F1 Sunrich Orange Summer (50-65 day type) may present a better choice as its plant height is 15%-20% shorter.
- F1 Sunrich Orange Summer (50-65 day type) can save approximately 5-10 days in cultivation time over F1 Sunrich Orange.
- The F1 Premier series (45-55 day type) offers a very short crop time. Sowing is recommended under long-day conditions for an early summer harvest to yield sufficient cut stem length.
- For the F1 Premier series, short-day conditions at the sowing and young plant stage may result in insufficient height for cut flower use.

F1 Tiffany and F1 Full Sun Improved

1: Effects of day length and temperature on plant height and days to flower



All information is based on trials completed in Japan. Actual results are dependent upon environmental conditions and local practices that may affect variety characteristics and performance.

Sufficient stem length can be ensured even under short-day conditions

2: Proper varietal cultivation

- Day length and light intensity are factors that influence the stem length of F1 Tiffany.
- For F1 Tiffany, long-day cultivation will produce longer stems, short-day cultivation will result in shorter stems.
- If F1 Tiffany grows too short under short-day conditions, the use of F1 Full Sun Improved is recommended as it has a taller plant height.
- Short-day cultivation of F1 Full Sun Improved is possible if temperatures are warm enough to promote growth. Low temperatures and other conditions can result in longer cultivation times than the 90-100 days indicated above.

Cultivation Information for Cut Varieties

Sowing

Germination temperature: 20-25°C / 68-77°F

Days to emergence: 3-4 days (7-10 days under 15°C / 60°F conditions)

pH: 5.5-6.5

Growing

Growing temperature: above 15°C / 60°F at night and under 35°C / 95°F during the day

Irrigation: Slightly drier conditions are preferable

Fertilization: Provide sufficient fertilization to avoid yellowing of bottom leaves

Common Problems

Insects: Aphids, caterpillars, mites, slugs

Diseases: Downy mildew, gray mold, leaf spot, powdery mildew, sclerotinia rot



HELIANTHUS

SELECTION



SUNRICH

TAKII & CO., LTD.

180 Umekoji-Inokuma, Shimogyo-ku Kyoto, 600-8686 CPO Box 7, Japan
Tel. 81-(0)75-365-0123 Fax. 81-(0)75-365-0110
www.takiiseed.com

AMERICAN TAKII, INC.

301 Natividad Road Salinas, CA 93906 USA Tel. 1-(0)831-443-4901 Fax. 1-(0)831-443-3976
www.takii.com

TAKII EUROPE B.V.

Hoofdweg 19 1424 PC De Kwakel The Netherlands Tel. 31-(0)297-345700 Fax. 31-(0)297-345658
www.takii.eu



TAKII SEED