

HARRIS SEEDS BEDDING PLANT AND CUT FLOWER CULTURAL GUIDE

Tips for Producing Pack, Pot, Container Crops, and Cut Flowers from Seeds and Plugs

HOW TO USE THIS GUIDE

This information is to be used as a general guide only. In particular, the “Number of Weeks to Finish” may vary for individual crops due to environmental differences and cultural practices. Links to breeder websites are provided, when available, to access cultural information specific to the variety in question.

GERMINATION REQUIREMENTS

We suggest using a separate germination area to create the ideal conditions. Proper soil temperature and moisture are essential for optimum seed germination. Always begin with sterile, well-drained, high quality [seed starting media](#). Maintain strict sanitation practices in all germination and production areas.

Germ. Temp. °F

This refers to the recommended soil temperature in °F. Normal greenhouse temperatures are usually not high enough to provide the soil temperatures needed for seed starting. Generally air temperature is about 5° F higher than soil temperature. Therefore, one must provide additional, controlled bottom heat for proper seed germination. In order to accomplish this, a germination area should include [heat mats, heat cables](#), under bench heating, or another method of applying heat.

Light/Dark

Many vegetable and flower seeds require light for germination, so [proper lighting](#) in the germination area is required for best results. Some seeds germinate best in darkness. Covering the seed with a layer of vermiculite or seed starting media will provide darkness and also help maintain moisture around the seeds. Generally, very tiny seeds should not be covered. Also, seeds that require light should not be covered at all, or may be covered very lightly to help maintain moisture.

Days to Germ.

The indicated range is the average number of days to germinate for most varieties within the genus or species. Seedlings can be removed from the germination area after this time, or as soon as the majority of the seeds have

germinated. Seedlings left in the germination area too long are prone to stretching. Providing adequate and uniform moisture is critical. Do not allow flats to become waterlogged, as seeds do need oxygen to germinate. Either cover your flats with clear plastic domes, or provide a mist system. Plastic covers can be removed under sunny/warm conditions to prevent soil temperatures from rising too high and damaging the seed.

GROWING ON TEMPERATURE °F DAY/NIGHT

Optimum day and night temperature ranges are provided for growing on your plants once they leave the germination chamber, for example 66-75/64-66. Use a sterile, well-drained, soilless transplanting mix, and keep plants well-spaced during the growing-on stages. A production area should include a mist system to maintain proper humidity levels, and any artificial lighting should be placed within approx. 2-3” from the plants to ensure that the seedlings do not stretch.

NUMBER OF WEEKS TO FINISH

General time guidelines are provided for producing crops from seed and various plug/liner sizes. This information will vary depending on crop, environment, region of the country, and cultural practices. Note that the finish time is shorter for larger plug sizes because they have had a longer growing period before being shipped (the lower the number of plugs per tray, the larger the plant). Finish times for field cut flower are included. Be sure to keep records on sow dates, weather conditions, cultural practices, and harvest dates for future reference.

ABUTILON	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	72-75	-	3-5	65-70/60-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Bella Select Mix F1	http://www.panamseed.com			
General Cultural Information:				
Light is not needed for germination. Cover seed with coarse vermiculite to maintain moisture. Provide uniform but not saturated moisture levels. Do not allow the seedlings to wilt. No pinching is necessary for branching.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		-	9-15
288 Tray	4-6		-	6-10
128 Tray	-		-	5-7
				Container, 10" (3-5 ppp)
				15-17
				10-12
				7-9

AGERATUM	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	72-75	-	3-5	65-75/62-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Aloha Series F1	http://hemgenetics.com			
Blue Danube F1	http://www.benary.com			
Blue Diamond F1	http://hemgenetics.com			
Blue Hawaii 5.0 F1	http://www.benary.com			
Blue Horizon F1 (Cut Flower)	http://www.sakata.com			
Blue Planet F1 (Cut Flower)	http://hemgenetics.com			
Cloud Nine Series F1	http://www.floranova.co.uk			
General Cultural Information:				
Seed doesn't need to be covered w/vermiculite for germination. Ageratum is salt-sensitive, so feed plants lightly. Avoid severe wilting, as drought stress can cause leaf burn. Fluorescent light recommended. Reduce soil temp. 5°F when seedlings are well established.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		10-14	13-15
512 Tray	4-5		5-9	8-10
384 Tray	4-6		5-9	8-10
288 Tray	5-7		5-8	8-10
216 Tray	-		5-8	8-10
128 Tray	-		4-7	7-9
36 Tray	-		-	7-8
Approx. Weeks to Flower for Field Cut Flower: 12-15			-	-
				Container, 10" (3-5 ppp)
				-
				-
				-
				-
				-

ALTERNANTHERA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-76	L	3-5	65-75/62-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Purple Knight	http://www.panamseed.com				
General Cultural Information:					
Cover seed lightly with coarse vermiculite, germinates better with some light. Keep media moist for germination, then reduce soil moisture slightly. Do not allow seedlings to wilt. Pinching is not needed when growing on. Growing under high light conditions will result in deeper purple foliage.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		11-13	11-12	12-13
288 Tray	5-7		-	6-7	7-8
128 Tray	-		-	5-7	6-8
36 Tray	-		-	2	3-4

ALYSSUM	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-75	L	3-4	60-75/55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Clear Crystal Series	http://www.panamseed.com				
Snow Crystals	http://www.panamseed.com				
Wonderland Series	http://www.benary.com				
New Carpet of Snow	http://hemzaden.com				
North Face	http://www.floranova.co.uk				
General Cultural Information:					
Multiple sow 5-6 seeds per cell, or one multipellet, for best performance. A multi-seed pellet requires a thick layer of vermiculite and sufficient water to dissolve the pellet at sowing. Once dissolved, light is beneficial during germination. Grow on cool to preserve color intensity.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		6-9	10-11	12-14
512 Tray	4-5		4-5	6-7	8-10
384 Tray	4-6		4-5	6-7	8-10
288 Tray	5-6		4-5	6-7	8-10
216 Tray	-		3-4	5-6	7-9
128 Tray	-		3-4	5-6	7-9

<u>AMARANTHUS, CUT FLOWER</u>	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	D	7-10	60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Caudatus Red	http://www.applewoodseed.com/				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels. Seed can also be sown directly outdoors for cuts.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		9-10 (green)	11-12	-
Approx. Weeks to Flower for Field Cut Flower: 12-14			-	-	-

AMMI, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-71	-	7-14	55-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Graceland	http://www.panamseed.com				
Green Mist	http://www.sahin.nl/2012/assort2012-H.php				
General Cultural Information:					
Cover very lightly w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels. Transplant 4-6 weeks after germination. May be sown directly in the field for cut flowers, or in peat pots in the greenhouse (as it transplants with difficulty), and then transferred to the field. Low fertilizer requirement. Cut flowers when open. Provide plenty of water during production. Plant support may be needed.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10 (green)	-	-
288 Tray	4-6		4-5	-	-
Approx. Weeks to Flower for Field Cut Flower:	12-16		-	-	-

ANGELONIA	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	72-76	L	4-5	66-75 / 64-66
Variety	Link to Breeder Website for Specific Cultural Information:			
Serena Series F1	http://www.panamseed.com			
Serenita Series F1	http://www.panamseed.com			
General Cultural Information:				
Cover very lightly w/fine vermiculite for moisture control, needs light to germinate. Grow on the dry side, but do not allow to wilt. Do not pinch plants, they are self branching.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		14-15	15-16
288 Tray	6-7		8-9	9-10
128 Tray	-		6-7	7-8
36 Tray	-		-	4-5
				Container, 10" (3-5 ppp)
				16-18
				10-12
				8-10
				5-7

ASARINA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-75	L	14-21	65-70	
Variety	Link to Breeder Website for Specific Cultural Information:				
Red Dragon	http://www.sahin.nl/2012/assort2012-H.php				
General Cultural Information:					
Cover seed lightly with coarse vermiculite. Provide uniform but not saturated moisture levels. Transplant 1 plant per 4½" pot.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	12-15	-

ASCLEPIAS, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-71	-	14-21	59-63	
Variety	Link to Breeder Website for Specific Cultural Information:				
Silky Mix	http://www.panamseed.com				
General Cultural Information:					
Sow seed indoors using a seed starter mix. Cover seed very lightly w/fine vermiculite for moisture control. For cut flowers, transplant 3-5 weeks after sowing, after all danger of frost is past. Water sparingly to reduce vegetative growth and promote flowering					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		7-8 (green)	16-17	-
288 Tray	4-5		-	11-12	-
Approx. Weeks to Flower for Field Cut Flower: 15-17			-	-	-

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ASTER, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	-	8-10	60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Bonita Mix	http://www.sakata.com				
Bouquet Powderpuff Mixture	http://hemzaden.com				
Giant Ray Mixture	http://hemzaden.com				
Hulk	http://www.benary.com				
Matsumoto Series	http://www.sakata.com				
Perfection Mixture	http://hemzaden.com				
Standy Mix	http://www.benary.com				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Seed can be directly sown outdoors for cut flowers, after all danger of frost is past. Thin seedlings to 1 ft. apart. See Harris Seeds Aster Chart for flower details: Aster Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10 (green)	15-20	-
512 Tray	-		-	12-17	-
288 Tray	4		-	11-16	-
216 Tray	-		-	10-15	-
128 Tray	-		-	9-14	-
Approx. Weeks to Flower for Field Cut Flower: 13-16			-	-	-

BACOPA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-74	L	4-5	60-75/55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Bluetopia Blue	http://www.panamseed.com				
Snowtopia White	http://www.panamseed.com				
Utopia	http://www.panamseed.com				
General Cultural Information:					
Do not cover multi-seed pellet, needs light to germinate. Keep light levels as high as possible while maintaining adequate moisture levels.					
Bacopa can be grown at 50 °F, but crop time will be longer.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	8-9	12-13
512 Tray	-		-	7-8	10-12
288 Tray	3-5		-	6-7	9-10
216 Tray	-		-	6-7	9-10
128 tray	-		-	5-6	8-10

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BASIL, ORNAMENTAL CUT FLOWER		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		75-80	-	10-14	70/70	
Variety		Link to Breeder Website for Specific Cultural Information:				
Cardinal		http://www.genesisseeds.com/				
Aromato		http://www.genesisseeds.com/				
General Cultural Information:						
Use a sterile starter mix when seeding indoors in spring. Summer seedlings can be made outdoors.						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed		-		4-6 (green)	6-8	-
Approx. Weeks to Flower for Field Cut Flower: 8-10				-	-	-

BEAN, HYACINTH CUT FLOWER		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		68-72	-	8-10	65-75	
Variety		Link to Breeder Website for Specific Cultural Information:				
Ruby Moon		http://www.sahin.nl/2012/assort2012-H.php				
General Cultural Information:						
Sow directly in packs or pots. Cover very lightly w/fine vermiculite (for moisture control). If selling in pots, try using pot trellis supports to facilitate upward growth. Can be set outdoors 2-3 weeks after germination, or sown directly into outdoor garden soil after danger of frost.						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed				2-3 (green)	4	-
Approx. Weeks to Flower for Field Cut Flower: 13-21				-	-	-

BEGONIA, FIBROUS	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-80	L	15-20	62-72	
Variety	Link to Breeder Website for Specific Cultural Information:				
Ambassador Series F1	http://www.sakata.com				
Cocktail Series F1	http://www.benary.com				
Super Olympia Series F1	http://www.benary.com				
Big Series F1	http://www.benary.com				
General Cultural Information:					
Do not cover seed. Needs 12 hours light for plant development. Supplemental light in winter recommended. Place clear plastic or a dome over the flats to maintain humidity and temperature. Remove the flat covers for a few hours on sunny days or soil temperatures will rise too high. Mist lightly once per week with a soluble fertilizer mixed at 1/2 strength to promote growth.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		11-12	15-16	19-20
512 Tray	-		5-6	9-10	13-14
384 Tray	-		5-6	9-10	13-14
288 Tray	7-9		3-4	4-5	7-8
216 Tray	-		3-4	4-5	7-8
128 Tray	-		2-3	3-4	6-7

BEGONIA, TUBEROUS	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	75-78	L	7-14	68-72	
Variety	Link to Breeder Website for Specific Cultural Information:				
Bossa Nova Series F1	http://www.floranova.co.uk				
Illumination Mix F1	http://www.benary.com				
New Star Mix F1	http://www.benary.com				
Nonstop Series F1	http://www.benary.com				
Santa Cruz Sunset™ F1	http://www.benary.com				
San Francisco™ F1	http://www.benary.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Needs 14-16 hours light for flower initiation and plant development. Provide supplemental light from dusk to 11 pm from October to March to eliminate tuber growth and induce flowering. Either a continuous 14 hour light period or night interruption will work.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	16-18	20-22
288 Tray	7-9		-	8-10	12-14
216 Tray	-		-	6-8	10-12
128 Tray	-		-	6-8	10-12
72 Tray	-		-	5-6	9-11
36 Tray	-		-	4-6	8-10

BEGONIA, HYBRIDA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-78	L	7-12	65-70/60-67	
Variety	Link to Breeder Website for Specific Cultural Information:				
Dragon Wing Series F1	http://www.panamseed.com				
Gryphon	http://www.panamseed.com				
General Cultural Information:					
Sow pelleted seed on the soil surface, covering very lightly with fine vermiculite. Light is beneficial for germination. Keep the media moisture high during germination. Gryphon is very sensitive to drying out during early stages of germination.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	16-18	18-21
288 Tray	7-9		-	6-9	9-11
128 Tray	-		-	6-9	9-11
36 Tray	-		-	5-7	7-10

<u>BELLS OF IRELAND, CUT FLOWER</u>	Germination Requirements			Growing on Temperatures	
Moluccella	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	40-60	L	14-35	55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Bells of Ireland	http://www.panamseed.com				
General Cultural Information:					
Prechill seed for 5 days at 45°F prior to sowing. For best germination results, alternate the soil temperature from 60°F days to 40°F nights.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10 (green)	-	-
Approx. Weeks to Flower for Field Cut Flower: 14-19			-	-	-

<u>BUPLEURUM, CUT FLOWER</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	60-65	-	14-21	60-75
Variety	Link to Breeder Website for Specific Cultural Information:			
Griffitti	http://www.panamseed.com			
General Cultural Information:				
Cover very lightly w/fine vermiculite (for moisture control). For bedding production, transplant to pots 4-5 weeks after germination. For cut flower production, transplant green plants into field with 12 x 16" spacing.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		8-10 (green)	-
Approx. Weeks to Flower for Field Cut Flower: 12-16			-	-

CALENDULA	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	60-68	-	5-14	50-55
Variety	Link to Breeder Website for Specific Cultural Information:			
Costa Mix	http://www.floranova.co.uk			
Princess Series (Cut Flower)	http://www.benary.com			
General Cultural Information:				
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. Thrives under cool growing conditions.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		8-10	9-12
288 Tray	3-4		5-6	6-8
128 Tray	-		5-6	6-8
Approx. Weeks to Flower for Field Cut Flower:	9-13		-	-

CALIBRACHOA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-75	-	5-10	55-64	
Variety	Link to Breeder Website for Specific Cultural Information:				
KaBloom Series F1	http://www.panamseed.com				
General Cultural Information:					
Transplant from a pullable plug 5-8 weeks after germination. Minimum day length requirement is 10 -12 hours. Pinch at transplant: Soft pinch, leaving 4 basal nodes.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	12-13	14-15
288 Tray	5-6		-	7-8	9-11
128 Tray	7-8		-	5-6	7-9
72 Tray	7-8		-	5-6	7-9

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CAMPANULA, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-68	-	7-10	55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Champion Pro Series F1	http://www.sakata.com				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite. For 6" to gallon containers, pinch in week 12 to promote branching. For cut flower production, plant support is recommended. Additional lighting is required for fall and winter production to initiate flowering. For greenhouse, single stem production is recommended: space 4-6" apart. For field or high tunnel, multi-stem production is recommended:space 10-12" apart. Expect 8-10 stems per plant. If sowing after Feb. 15, no lighting is required. Plants generally start to flower 150 days from sowing. Cut stems when 2-3 lower buds are open. Finish cut flowers from seed in 22-25 weeks.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		9-11 (green)	-	19-22
288 Tray	5		-	-	12-15
216 Tray	-		-	-	11-14
Approx. Weeks to Flower for Field Cut Flower: 19			-	-	-

CANNA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	-	8-12	70-85/65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Tropical Series	http://www.takii.com				
South Pacific Scarlet	http://www.takii.com				
General Cultural Information:					
Soak seed 10-14 hrs prior to sowing to soften seed coat. Sow to depth 1½ x seed diameter to prevent germinating seed from pushing out of soil. Cover very lightly w/fine vermiculite. For best branching, transplant with first set of leaves at soil level and in 6" or larger pots 25-30 days after sowing. Days to flower: 90-120					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	12-16 (6")	-

CARNATION, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-70	-	8-10	59-64/45-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Can Can Scarlet F1	http://www.sakata.com				
General Cultural Information:					
Sow seed, covering completely. Keep medium uniformly moist, reducing moisture level upon emergence. Transplant at approx. 28 to 35 days. Flowering occurs approx. 105-135 days after transplanting. A cool season crop.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		11-14 (green)	15-18	21-23
288 Tray	5		7-11	10-13	16-18
216 Tray	-		6-8	9-12	15-17
128 Tray	-		5-9	8-11	14-16
Approx. Weeks to Flower for Field Cut Flower: 15-19			-	-	-

CELOSIA, PLUMED	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-77	L	2-14	65-75/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Arrabona Red	http://www.panamseed.com				
Dragon's Breath	http://www.sakata.com				
First Flame Mix	http://www.panamseed.com				
Fresh Look Series	http://www.benary.com				
Glorious Mix	http://www.benary.com				
Ice Cream Mix	http://www.panamseed.com				
Smart Look Red	http://www.benary.com				
Spiky Purple	http://www.panamseed.com				
Century Mix (Cut Flower)	http://www.sakata.com				
Sunday Mix (Cut Flower)	http://www.panamseed.com				
Celway Mix (Cut Flower)	http://www.panamseed.com				
Flamingo Series (Cut Flower)	http://www.econseeds.com/				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Celosia is sensitive to damp-off, so do not overwater. Gently transplant, avoiding damage to the root system. Water stress will also cause premature flower initiation.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10(green)	12-14	-
512 Tray	-		5-7	7-9	-
384 Tray	-		5-7	7-9	-
288 Tray	3-4		5-7	7-9	-
216 Tray	-		4-6	6-8	-
128 Tray	-		3-5	5-7	-
Approx. Weeks to Flower for Field Cut Flower: 10-18			-	-	-

CELOSIA, COCKSCOMB	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-78	L	3-12	60-75/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Amigo Mixture	http://www.benary.com				
Bombay Series (Cut Flower)	http://www.panamseed.com				
Spring Green (Cut Flower)	http://www.panamseed.com				
Kurume Mix (Cut Flower)	http://www.takii.com				
Tornado Red Organic (Cut Flower)	http://www.genesisseeds.com/				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Celosia is sensitive to damp-off, so do not overwater. Gently transplant, avoiding damage to the root system. Water stress will also cause premature flower initiation.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		6-8 (green)	12-14	-
512 Tray	-		5-7	7-9	-
384 Tray	-		5-7	7-9	-
288 Tray	2-3		5-7	7-9	-
216 Tray	-		4-6	6-8	-
128 Tray	-		3-5	5-7	-
Approx. Weeks to Flower for Field Cut Flower: 10-16			-	-	-

CENTAUREA, CUT FLOWER	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	D	5-10	70-85/60-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Classic Artist Mix	http://www.panamseed.com			
General Cultural Information:				
Cover seed with vermiculite. Provide uniform but not saturated moisture levels. Transplant 2-3 weeks after germination. Or sow directly into garden or field, cover with ¼" of soil. Avoid temperatures below 60°F. Crop times vary with climate, location.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		5-6 (green)	7-8
Approx. Weeks to Flower for Field Cut Flower: 7-8			-	-

CLEOME	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	D. 80/ N. 70	L	4-6	75-80/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Queen Mixture	http://hemzaden.com				
Sparkler Series F1	http://www.goldsmithseeds.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Alternating temps. during germination is beneficial. Drop night time temps. to 68-70°F during germination period.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		7-9	13-15	-
512 Tray	-		3-5	10-12	-
288 Tray	3-4		3-5	10-12	-
216 Tray	-		2-4	8-10	-
128 Tray	-		2-4	8-10	-

COLEUS, SHADE	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	L	4-6	65-75/57-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Kong Series	http://www.panamseed.com				
Rainbow Mixture	http://www.sakata.com				
Wizard Series	http://www.panamseed.com				
Giant Exhibition Mix	http://www.takii.com				
Under the Sun (Fuseable)	http://www.panamseed.com				
Chocolate Symphony (Fuseable)	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Place a clear cover over the flats to maintain humidity and temperature. Remove flat covers for a few hours on sunny days. Prevent damping off with a post-transplant fungicide drench.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10	12-14	14-16
512 Tray	-		3-5	7-9	9-11
384 Tray	-		3-5	7-9	9-11
288 Tray	4-6		2-4	6-8	8-10
216 Tray	-		1-3	5-7	7-9
128 Tray	5-6		1-3	4-6	6-8

COLEUS, SUN	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-75	L	4-6	65-75/57-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Chocolate Mint	http://www.panamseed.com				
Chocolate Covered Cherry	http://www.panamseed.com				
Flip Side	http://www.panamseed.com				
Mighty Mosaic	http://www.panamseed.com				
Watermelon	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Place a clear cover over the flats to maintain humidity and temperature. Remove flat covers for a few hours on sunny days. Prevent damping off with a post-transplant fungicide drench.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10	12-14	14-16
512 Tray	-		3-5	7-9	9-11
384 Tray	-		3-5	7-9	9-11
288 Tray	5-6		2-4	6-8	8-10
216 Tray	-		1-3	5-7	7-9
128 Tray	-		1-3	4-6	6-8

COSMOS	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-75	D	5-8	60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Cutesy Mix	http://hemgenetics.com				
Sonata Series	http://www.panamseed.com				
Cosmic Mix	http://www.benary.com				
Double Click Series (Cut Flower)	-				
Picotee (Cut Flower)	http://hemzaden.com				
Sensation Mixture (Cut Flower)	http://www.econseeds.com/				
Rubenza (Cut Flower)	-				
Versailles Mix (Cut Flower)	http://hemzaden.com				
General Cultural Information:					
Cover seed lightly with vermiculite after sowing. Provide uniform moisture levels. Direct sow for cuts.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		5-8 (green)	9-10	-
512 Tray	-		2-5	6-7	-
384 Tray	-		1-4	5-6	-
288 Tray	4-5		1-4	5-6	-
216 Tray	-		1-4	5-6	-
128 Tray	-		1-4	5-6	-
Approx. Weeks to Flower for Field Cut Flower: 10-13			-	-	-



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DAHLIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-72	D	7-10	65-70	
Variety	Link to Breeder Website for Specific Cultural Information:				
Figaro Mix	http://www.panamseed.com				
Harlequin Mix	http://www.goldsmithseeds.com				
Black Beauty	http://www.thompson-morgan.com/				
Fireworks Mix	http://www.thompson-morgan.com/				
General Cultural Information:					
Cover seed, needs dark to germinate. Needs a total of 12-14 hours of day length to avoid tuber formation.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	13-14	-
288 Tray	3-4		6-8	9-10	-
216 Tray	-		6-8	9-10	-
128 Tray	-		5-7	8-9	-

DAUCUS DARA, CUT FLOWER		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		60-65	-	12-18	60-70
Variety	Link to Breeder Website for Specific Cultural Information:				
Dara	http://www.sahin.nl/2012/assort2012-H.php				
General Cultural Information:					
Direct sow outdoors in spring to early summer. This crop requires moderate moisture and soil temperature of at least 60° F. Harvest when 80% of flowers in umbel are open.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10 (green)	-	-
Approx. Weeks to Flower for Field Cut Flower: 14-16			-	-	-

DIANTHUS (D. barbatus)	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-70	L	3-9	60-72/50-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Barbarini Mix F1	http://www.goldsmithseeds.com				
Diabunda Mix F1	http://www.goldsmithseeds.com				
Jolt Series F1	http://www.panamseed.com				
Amazon Series F1 (Cut Flower)	http://www.panamseed.com				
Sweet Series F1 (Cut Flower)	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Seeds need light to germinate. Provide uniform moisture levels. Temperatures can be lowered as seedlings mature. For cut flower production, a single layer of netting is recommended.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12 (green)	12-15	-
512 Tray	-		5-7	8-10	-
384 Tray	-		5-7	8-10	-
288 Tray	5-6		5-7	8-10	-
216 Tray	-		3-5	6-8	-
128 Tray	-		3-5	5-7	-
Approx. Weeks to Flower for Field Cut Flower: 15-20			-	-	-

DIANTHUS (D. chinensis)	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	2-4	60
Variety	Link to Breeder Website for Specific Cultural Information:			
Grace Series F1	http://hemgenetics.com			
Diana Series F1	http://hemgenetics.com			
General Cultural Information:				
Cover very lightly w/fine vermiculite (for moisture control). Maintain medium moisture conditions.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		12-14	14-16
512 Tray	-		7-8	9-10
384 Tray	-		7-8	9-10
288 Tray	5-6		7-8	9-10
216 Tray	-		5-7	7-9
128 Tray	-		4-6	6-8

DIANTHUS (D. hybrida)	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-74	L	3-7	60-75/50-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Ideal Select Mix F1	http://www.panamseed.com				
Super Parfait Series F1	http://www.goldsmithseeds.com				
Venti Parfait Series F1	http://www.goldsmithseeds.com				
Telstar Mix	http://www.takii.com				
General Cultural Information:					
Cover lightly with vermiculite. Light enhances germination. Maintain medium moisture conditions.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		14-17	14-18	-
512 Tray	-		9-11	10-13	-
384 Tray	-		9-11	10-13	-
288 Tray	5-6		9-11	10-13	-
216 Tray	-		7-9	8-10	-
128 Tray	-		6-8	7-9	-

DICHONDRA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-76	-	4-6	65-76/62-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Emerald Falls	http://www.panamseed.com				
Siver Falls	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Keep soil moisture high until emergence, then reduce, maintaining medium moisture conditions. Transplant approx. 3-4 weeks after sowing - 3 plants per 6" or higher container; 3-4 plants per 10"					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	14-16	14-16
288 Tray	6-7		-	8-9	8-9
128 Tray	-		-	6-8	6-8
36 Tray	-		-	3-4	3-4

DUSTY MILLER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	L	10-15	60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Cirrus	http://www.panamseed.com				
Silverdust					
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Reduce soil temperature about 5-10 degrees once seedlings are well established.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	12-13	-
512 Tray	-		4-6	6-8	-
384 Tray	-		4-6	6-8	-
288 Tray	4-6		3-5	5-7	-
216 Tray	-		3-5	5-7	-
128 Tray	-		2-4	4-6	-

EUCALYPTUS, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-75	L	14-20	61-64	
Variety	Link to Breeder Website for Specific Cultural Information:				
Silver Drop	http://www.panamseed.com				
General Cultural Information:					
Do not cover seeds as light is required to germinate. Keep significantly moist. Matures in 120-150 days for cuts. Transplant for cuts.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		4-5	6-8	10-14
Approx. Weeks to Flower for Field Cut Flower: 17-21			-	-	-

EUPHORBIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-72	-	3-6	65-77/65-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Glitz	http://www.panamseed.com				
Glamour	http://www.panamseed.com				
General Cultural Information:					
Cover seed lightly with vermiculite. Provide uniform but not saturated moisture levels. Transplant 4-5 weeks after germination. Transplant into 4" pots or larger. Do not pinch. Finishes in approx. 9-13 weeks.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	9-13	10-13
288 Tray	4-5		-	5-8	6-8

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GAZANIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-72	-	3-6	65-68/55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
New Day Series F1	http://www.panamseed.com				
Kontiki Stars & Stripes F1	http://www.panamseed.com				
Big Kiss Series F1	http://www.goldsmithseeds.com				
Kiss Series F1	http://www.goldsmithseeds.com				
General Cultural Information:					
Cover seed with coarse grade vermiculite. Maintain even moisture and do not overwater to prevent crown rot.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	14-15	-
512 Tray	-		7-9	9-10	-
288 Tray	5-6		7-9	8-10	-
216 Tray	-		4-6	8-9	-
128 Tray	-		3-5	7-8	-

GERANIUM, ZONAL	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-75	-	5-12	70-75/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Black Velvet Rose	http://www.sahin.nl/2012/assort2012-H.php				
Bullseye Series F1	http://www.goldsmithseeds.com				
Horizon Series F1	http://www.floranova.co.uk				
Maverick Series F1	http://www.goldsmithseeds.com				
Pinto Premium Series F1	http://www.goldsmithseeds.com				
White to Rose	http://www.goldsmithseeds.com				
Pinto Classic Pink F1	http://www.goldsmithseeds.com				
General Cultural Information:					
Cover lightly with vermiculite for germination. Keep flats uniformly moist. Growing on: provide supplemental lighting, and 1-2 applications of a PGR to advance flowering. See Harris Seeds Geranium Charts for seed and vegetative variety comparisons:					
Geranium (from seed) Chart					
Geranium (from cuttings) Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		13-15	15-18	17-18
288 Tray	4-5		-	7-10	9-12
216 Tray	-		-	7-10	9-12
128 Tray	-		-	6-8	8-10

GERANIUM, IVY		Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-75	-	5-12	70-75/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Tornado Mixture	http://www.goldsmithseeds.com				
General Cultural Information:					
Cover lightly with vermiculite for germination. Keep flats uniformly moist. See Harris Seeds Geranium Charts for seed and vegetative variety comparisons:					
Geranium (from seed) Chart					
Geranium (from cuttings) Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	12-16	17-18
128 Tray	7-8		-	7-8	9-10
288 Tray	5-6		-	8-9	10-11

GERBERA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-75	L	8-12	68-70/66-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Bengal Mix F1	http://www.goldsmithseeds.com				
Cartwheel Series F1	http://www.goldsmithseeds.com				
Elephant Scarlet F1	http://www.goldsmithseeds.com				
Festival Grower Select Mix F1	http://www.sakata.com				
Jaguar Mix F1	http://www.goldsmithseeds.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Needs 12-14 hours of light to promote flowering. Sow in early January for early May flowering.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	North:16-20 South:14-18	- -
288 Tray	-		-	North:10-14 South:8-12	- -
128 Tray	7		-	North:9-13 South:7-11	- -
36 Tray	-		-	North:8-12 South:6-10	- -

<u>GOMPHRENA, CUT FLOWER</u>		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		68-80	L	3-10	70-75/60
Variety	Link to Breeder Website for Specific Cultural Information:				
Audray Series	http://www.takii.com				
Strawberry Fields	http://hemgenetics.com/				
QIS Mix	http://www.panamseed.com				
Fireworks	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Germination may be slow and erratic at times. Do not overwater seedlings or transplants.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10 (green)	13-15	-
512 Tray	-		3-5	8-9	-
288 Tray	4-6		3-5	8-9	-
216 Tray	-		3-5	7-8	-
128 Tray	-		2-4	7-8	-
Approx. Weeks to Flower for Field Cut Flower: 11-13			-	-	-

<u>GRASS, ORN. - ISOLEPSIS</u>		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		64-75	L	6-7	62-74/59-64
Variety		Link to Breeder Website for Specific Cultural Information:			
Live Wire		http://www.panamseed.com			
General Cultural Information:					
Do not cover seed, needs light to germinate. Keep soil moisture high until emergence, then reduce, maintaining medium moisture conditions.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		11-12	11-12	12-14
288 Tray	5		6-7	6-7	7-8

GRASS, ORN. - JUNCUS		Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	71-76	-	7-8	62-74/59-64	
Variety	Link to Breeder Website for Specific Cultural Information:				
Twisted Arrow	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed. Keep soil moisture high until emergence, then reduce, maintaining medium moisture conditions.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		13-15	14-16	14-16
288 Tray	7-8		6-7	7-8	7-8
128 Tray	-		5-6	6-7	7-8

GRASS, ORN. - HORDEUM	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-70	-	3-5	-	
Variety	Link to Breeder Website for Specific Cultural Information:				
Variegated Cat Grass	http://www.panamseed.com				
General Cultural Information:					
Densely sow seed directly in 6-8"pots using a potting soil mix. Cover with approx. 1/8" soil. Provide uniform moisture levels. Seed will germinate quickly. Keep grass in pots, and trim occasionally to keep the pots neat in appearance.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	3	3-4

GYPSOPHILA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70	L	6-10	55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Gypsy Deep Rose	http://www.sakata.com				
Covent Garden (Cut Flower)	http://hemzaden.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. For cut flower production, direct seed or transplant into field in green stage.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		6-9 (green)	11-13	12-16
512 Tray	-		4-5	8-9	-
288 Tray	4		4-5	8-9	12
216 Tray	-		3-4	6-8	-
128 Tray	-		2-3	4-5	-
Approx. Weeks to Flower for Field Cut Flower: 7-10			-	-	-

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<u>HELENIUM</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-75	-	3-5	65-70/64-66
Variety	Link to Breeder Website for Specific Cultural Information:			
Dakota Gold	http://www.panamseed.com			
General Cultural Information:				
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		9-11	12-13
288 Tray	5		4-6	6-8
				Container, 10" (3-5 ppp)
				13-15
				8-10

HELICHRYSUM(microphyllum)	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	72-76	-	7-10	65-75/62-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Silver Mist	http://www.panamseed.com			
General Cultural Information:				
Do not cover the pellets. Maintain high humidity and soil moisture for approx. 3 weeks, then reduce. Do not allow seedlings to wilt. Higher light levels result in more silver foliage. Let plants dry slightly between waterings.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		-	13-16
288 Tray	7-8		-	7-8
128 Tray	-		-	6-8
36 Tray	-		-	6-8
				Container, 10" (3-5 ppp)
				-
				9-10
				-
				-

HELICHRYSUM (bracteatum)	Germination Requirements			Growing on Temperatures	
Strawflower	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-75	L	7-10	62-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Double Mixed Colors (Cut Flower)	http://www.applewoodseed.com/				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10 (green)	12-14	-
512 Tray	-		3-5	7-9	-
288 Tray	4-5		3-5	7-9	-
216 Tray	-		2-4	6-8	-
128 Tray	-		2-4	6-8	-
Approx. Weeks to Flower for Field Cut Flower: 12-14			-	-	-

Harris Seeds Ordering Information

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<u>HIBISCUS</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	71-76	-	3-5	65-70/62-67
Variety	Link to Breeder Website for Specific Cultural Information:			
Mahogany Splendor	http://www.panamseed.com			
General Cultural Information:				
Cover seed heavily with vermiculite to prevent seedlings from tipping over. Provide uniform but not saturated moisture levels. Maintain 95-				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		5-7	9-10
200 Tray	2-3		3-4	5-6
				10-12
				7-9

<u>HYPOESTES</u>	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	-	3-5	65-75/62-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Splash Select Mix	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	11-13	14-15
512 Tray	-		5-7	8-9	9-10
288 Tray	4-5		6-7	7-8	8-9
216 Tray	-		4-6	7-8	8-9
128 Tray	-		3-5	5-7	7-8

IMPATIENS, I.hawkerii	Germination Requirements			Growing on Temperatures
New Guinea	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	72-78	L	5-8	65-80/65-70
Variety	Link to Breeder Website for Specific Cultural Information:			
Divine Series F1	http://www.panamseed.com			
Florific Series F1	http://www.goldsmithseeds.com			
General Cultural Information:				
Cover very lightly w/coarse vermiculite (for moisture control), light helps promote germination. Maintain 100% relative humidity (RH) until radicles emerge. Provide uniform moisture levels. See Harris Seeds Impatiens Chart for variety comparisons:				
Impatiens Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		12-13	14-16
288 Tray	5-6		7-8	9-11
128 Tray	5-6		6-7	8-10
				15-17
				10-12
				9-11

Frequently Asked Questions

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IMPATIENS, <i>I. walleriana</i>	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-77	L	3-6	65-75/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Accent Series F1	http://www.goldsmithseeds.com				
Accent Premium Series f1	http://www.goldsmithseeds.com				
Super Elfin XP Series F1	http://www.panamseed.com				
Super Elfin Series F1	http://www.panamseed.com				
Tumbler Series F1	http://www.goldsmithseeds.com				
Xtreme Series F1	http://www.goldsmithseeds.com				
Athena Series F1	http://www.floranova.co.uk				
General Cultural Information:					
Cover very lightly w/coarse vermiculite (for moisture control), light helps promote germination. Maintain 100% relative humidity (RH) until radicles emerge. Provide uniform moisture levels. See Harris Seeds Impatiens Chart for variety comparisons:					
Impatiens Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		7-10	8-12	12-15
512 Tray	3-4		4-6	5-8	7-10
384 Tray	-		4-6	5-8	7-10
288 Tray	4-5		3-5	4-6	8-9
216 Tray	-		3-5	4-6	8-9
128 Tray	-		2-4	3-5	8-9

IPOMOEa (Morning Glory)	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	-	3-15	70	
Variety	Link to Breeder Website for Specific Cultural Information:				
Sunrise Serenade	http://www.takii.com				
Early Call Mix	http://hemzaden.com				
Moonflower Giant White	http://www.applewoodseed.com/				
Carnival	-				
Grandpa Ott	http://hemzaden.com				
Candy Pink	http://www.sahin.nl/2012/assort2012-H.php				
Heavenly Blue	http://hemzaden.com				
General Cultural Information:					
Direct seed in packs or baskets for best results, as morning glories are difficult to transplant.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		3-5	4-5	7-9

IRESINE	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-76	L	3-5	65-75/62-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Purple Lady	http://www.panamseed.com				
General Cultural Information:					
Cover seed lightly with coarse vermiculite, germinates better with some light. Keep media moist for germination, then reduce soil moisture slightly. Pinching is not needed when growing on.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	10-12	13-14
288 Tray	5-6		-	5-6	6-7
128 Tray	-		-	3-4	6-7
36 Tray	-		-	2-3	4-5

KALE, ORNAMENTAL	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-75	D	4-10	65-70/50-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Chidori Series F1	http://www.takii.com				
Glamour Red F1	http://www.takii.com				
Nagoya Series F1	http://www.sakata.com				
Crane Series F1 (Cut Flower)	http://www.takii.com				
Lucir Series F1 (Cut Flower)	http://www.takii.com				
Pigeon Series F1	http://www.takii.com				
General Cultural Information:					
Cover seed thoroughly, needs dark to germinate. Performs best when handled like late cabbage. Sow in June, set plants out in late July. Or sow indoors in February or March for spring decoration. Sow 1/4" deep and cover with starter mix. Provide fluorescent light for the indoor growth period. Reduce soil temperature to approx. 60°F. after germination is complete. Lower temperatures force leaves to color faster.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		5-7 (green)	10-12	12-14
512 Tray	-		2-4	7-9	9-11
384 Tray	-		1-3	6-8	8-10
288 Tray	3-5		1-3	6-8	8-10
128 Tray	-		1-3	6-8	8-10
Approx. Weeks to Flower for Field Cut Flower: 14-15			-	-	-

LARKSPUR, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	55-68	D	10-14	60-80/55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Sublime Series	http://www.takii.com				
Cannes Mix					
General Cultural Information:					
For best results, sow directly outdoors. If starting in the greenhouse, cover very lightly w/fine vermiculite. Transplant very carefully outdoors while soil is still cool, and avoid damaging the root system. Flowers in 120-140 days under long days, 160-180 days under short days. Harvest cuts at 8-10 flowers open per spray for maximum vase life.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12 (green)	-	-
216 Tray	6-7		4-6	-	-
Approx. Weeks to Flower for Field Cut Flower: 17-25			-	-	-

LAVENDER, L. stoechas	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-68	L	3-5	65-68/54-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Bandera Purple	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Maintain medium moisture conditions.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		11-14	14-19	16-21
288 Tray	5-6		6-8	9-13	11-15

Harris Seeds does not offer cut flower Lisianthus from seed, only from plugs. But here are links to cultural information for some of our popular varieties:

Lisianthus Variety	Link to Breeder Website for Specific Cultural Information
ABC	http://www.panamseed.com
Echo	http://www.sakata.com
Excalibur	http://www.sakata.com
Magic Champagne	
Mariachi	http://www.sakata.com
Mermaid	http://www.sakata.com
Rosanne	http://www.sakata.com
Sapphire Blue Chip	http://www.panamseed.com
Wonderous	http://www.sakata.com

LOBELIA	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	L	6-10	66-72/55-62
Variety	Link to Breeder Website for Specific Cultural Information:			
Crystal Palace	http://www.panamseed.com			
Riviera Series	http://www.panamseed.com			
Regatta Series	http://www.panamseed.com			
General Cultural Information:				
Do not cover seed, needs light to germinate. Provide uniform moisture levels to allow pellets to dissolve. If seed is sown when day length is less than 12 hours, use additional lighting to promote flowering.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		10-13	12-13
512 Tray	-		8-9	9-10
384 Tray	-		6-8	8-9
288 Tray	4-5		6-8	8-9
216 Tray	-		6-8	8-9
128 Tray	-		6-8	8-9
				Container, 10" (3-5 ppp)
				14-15
				11-12
				9-10
				9-10
				9-10
				9-10

MARIGOLD, AFRICAN	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	5-8	65-75/55-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Antigua Series F1	http://www.goldsmithseeds.com			
Inca II Series F1	http://www.goldsmithseeds.com			
Moonsong Deep Orange F1	http://www.goldsmithseeds.com			
Vanilla F1	http://www.panamseed.com			
Garland Orange (Cut Flower)	http://www.panamseed.com			
Marvel Series F1	http://www.panamseed.com			
Moonstruck Series F1	http://www.goldsmithseeds.com			
Perfection Series F1	http://www.goldsmithseeds.com			
Proud Mari Series F1	http://www.sakata.com			
General Cultural Information:				
Cover lightly with vermiculite for germination. For best results for flower initiation, sow seed prior to March 15th in northern regions, February 15th in southern regions. See Harris Seeds Marigold Chart for variety comparisons:				
Marigold Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		8-12	10-14
512 Tray	-		4-8	6-10
384 Tray	-		4-8	6-10
288 Tray	4-5		4-8	6-10
216 Tray	-		4-8	6-10
128 Tray	-		3-7	5-9
Approx. Weeks to Flower for Field Cut Flower: 10-13			-	-
				Container, 10" (3-5 ppp)
				13-15
				9-11
				9-11
				9-11
				8-10

MARIGOLD, FRENCH	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	-	5-8	65-70/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Boy Series	http://www.panamseed.com				
Bonanza Series	http://www.panamseed.com				
Chica Series	http://hemgenetics.com				
Cresta Series	http://www.goldsmithseeds.com				
Janie Series	http://www.panamseed.com				
Alumia Series	http://www.floranova.co.uk				
Durango Series	http://www.panamseed.com				
Safari Series	http://www.benary.com				
Golden Gate	http://www.panamseed.com				
Disco Series	http://www.benary.com				
Mr. Majestic	http://www.thompson-morgan.com/				
General Cultural Information:					
Cover seed with coarse vermiculite. Keep media uniformly moist until seedlings show, then dry down slightly. During growing on, use a balanced fertilizer and practice a good wet/dry moisture cycle. See Harris Seeds Marigold Chart for variety comparisons: Marigold Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-9	10-11	-
512 Tray	-		4-5	6-7	-
384 Tray	-		4-5	6-7	-
288 Tray	3-4		4-5	6-7	-
216 Tray	-		4-5	6-7	-
128 Tray	-		3-4	5-6	-

MARIGOLD, TRIPLOID	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-72	-	5-7	65-68/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Zenith Series	http://www.floranova.co.uk				
General Cultural Information:					
Cover seed with coarse vermiculite. Keep media uniformly moist until seedlings show, then dry down slightly. During growing on, use a balanced fertilizer and practice a good wet/dry moisture cycle. See Harris Seeds Marigold Chart for variety comparisons: Marigold Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		7-9	8-10	-
288 Tray	3-4		4-5	5-6	-

<u>MELOTHRIA, ORNAMENTAL</u>	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-80	-	6-10	65-70	
Variety	Link to Breeder Website for Specific Cultural Information:				
Mouse Melon	http://www.sahin.nl/2012/assort2012-H.php				
General Cultural Information:					
Seed can be direct sown outdoors, similar to cucumber culture. This crop requires moderate moisture and soil temperature of at least 70° F.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		6-8	-	-
Approx. Weeks to Ornamental Fruit: 9-10			-	-	-

MELAMPODIUM	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65	-	7-10	70-80/60-62	
Variety	Link to Breeder Website for Specific Cultural Information:				
Million Gold	http://www.takii.com				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10	9-11	-
512 Tray	-		5-7	6-7	-
288 Tray	3-5		4-6	5-7	-
216 Tray	-		2-4	3-5	-
128 Tray	-		3-5	4-6	-

MIMULUS	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-68	L	5-7	50-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Magic Mix F1	http://www.floranova.co.uk				
Maximus Mix F1	http://www.floranova.co.uk				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Provide high humidity during germination.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		7-9	8-11	11-12
512 Tray	3-4		4-5	5-6	7-8
288 Tray	4-5		4-5	5-6	6-7
216 Tray	-		4-5	5-6	6-7
128 Tray	-		-	3-4	5-6

MILLET, ORNAMNETAL	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	72-78	-	3-5	68-80/64-66
Variety	Link to Breeder Website for Specific Cultural Information:			
Purple Majesty F1	http://www.panamseed.com			
Jester F1 (Cut Flower)	http://www.panamseed.com			
General Cultural Information:				
Seed can be sown directly into pots or containers (3+ seeds). Cover seed with approx. ½” media to prevent seedlings from tipping over. Once established, keep light levels high for stronger growth.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		4-5 (green)	4-5 (green)
128 Tray	3-4		2-3 (green)	2-3 (green)
Approx. Weeks to Flower for Field Cut Flower: 15-16			-	-
				Container, 10" (3-5 ppp)
				5-6 (green) 11-13 (flower)
				3-4 (green) 9-11 (flower)
				-

<u>NASTURTIIUM</u>	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	64-70	D	2-6	59-68/54-61	
Variety	Link to Breeder Website for Specific Cultural Information:				
Alaska Mixture	http://hemzaden.com/				
Jewel Mix	http://hemzaden.com/				
Princess of India	http://www.sahin.nl/2012/assort2012-H.php				
Whirlybird Mixture	http://hemzaden.com/				
General Cultural Information:					
Seed may be sown directly in packs or pots. Cover seed with coarse vermiculite, needs dark to germinate. Keep media moist but not wet. Grow on using a well-balanced fertilizer.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		7-8	8-9	10-11

NICOTIANA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-75	L	7-10	62-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Avalon Mix F1	http://www.floranova.co.uk				
Perfume Mix f1	http://www.floranova.co.uk				
General Cultural Information:					
Do not cover seed, needs light to germinate. Provide uniform moisture levels to allow pellets to dissolve. After complete germination, reduce temp. 5-7°F.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	11-14	-
512 Tray	3-4		5-7	6-9	-
288 Tray	4-5		4-6	5-8	-
216 Tray	-		4-6	5-8	-
128 Tray	-		4-6	5-8	-

NIEREMBERGIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-72	-	8-14	60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
White Robe	http://www.goldsmithseeds.com				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Lower temp. slightly after 1st true leaves appear. After transplanting into cells or pots, lowering temperature slightly will improve habit, but slightly delay flowering.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	11-13	14-16
512 Tray	-		4-6	5-7	8-10
384 Tray	-		4-6	5-7	8-10
288 Tray	6-7		3-5	4-6	7-9
216 Tray	-		3-5	4-6	7-9
128 Tray	-		2-4	3-5	6-8

ORLAYA, CUT FLOWER		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		60-65	-	12-16	60-70
Variety		Link to Breeder Website for Specific Cultural Information:			
White Finch		http://www.econseeds.com/			
General Cultural Information:					
Direct sow outdoors in spring to early summer. This crop requires moderate moisture and soil temperature of at least 60° F. Harvest when 80% of flowers in umbel are open.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		6-8 (green)	-	-
Approx. Weeks to Flower for Field Cut Flower: 9-10			-	-	-

OSTEOSPERMUM		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		65-70	-	6-12	62-70/52-61
Variety		Link to Breeder Website for Specific Cultural Information:			
Akila Series F1		http://www.panamseed.com			
Asti Mix F1		http://www.goldsmithseeds.com			
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Grow on the slightly dry side. Cooler temperatures will promote a higher bud count, and a more compact plant habit.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		9-11	14-18	-
288 Tray	4		4-6	10-14	-
128 Tray	5		3-5	9-10	-

PANSY	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-70	D	4-15	60-70/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Mammoth Series F1	http://www.goldsmithseeds.com				
Majestic Giants II Series F1	http://www.sakata.com				
Delta Series F1	http://www.goldsmithseeds.com				
Spring Matrix Series F1	http://www.panamseed.com				
Joker Mix F2	http://www.benary.com				
Ultima Morpho F1	http://www.sakata.com				
Bolero Mix F1	-				
Desiderio Tricolor Orchid F1	-				
Karma Series F1	http://www.goldsmithseeds.com				
Halloween II F1	http://www.panamseed.com				
Imperial Antique Shades F1	http://www.takii.com				
General Cultural Information:					
Cover seed with coarse vermiculite, needs dark to germinate. Keep media moist for germination. Reduce soil temp for growing on as soon as possible to prevent seedlings from stretching. Please see our catalog for varieties suitable for fall production. Note that the timing is shorter than that for spring production. See Harris Seeds Pansy Chart for variety comparisons:					
Pansy Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed Spring	-		11-14	15-18	-
Seed Fall	-		10-12	13-15	-
512 Tray	-		7-9	9-11	-
384 Tray	-		7-9	9-11	-
288 Tray	4-7		4-7	5-8	-
216 Tray	-		4-7	5-8	-
128 Tray	-		4-6	6-7	-

PANSY, TRAILING	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-70	D	4-5	60-65/50-60
Variety	Link to Breeder Website for Specific Cultural Information:			
Cool Wave Series	http://www.panamseed.com			
Freefall Series F1	http://www.floranova.co.uk			
General Cultural Information:				
Cover seed with coarse vermiculite, needs dark to germinate. Keep media moist for germination. Reduce soil temp for growing on as soon as possible to prevent seedlings from stretching. Please see our catalog for varieties suitable for fall production. Note that the timing is shorter for fall than that for spring production. See Harris Seeds Pansy Chart for variety comparisons:				
Pansy Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed Spring	-		9-11	11-14
Seed Fall	-		6-8	8-10
288 Tray	4-6		5-6	6-8
128 Tray	6		5-6	6-8
				Container, 10" (3-5 ppp)
				-
				-
				9-10
				8-10

<u>PENTAS</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	72-77	L	10-14	65-70
Variety	Link to Breeder Website for Specific Cultural Information:			
Graffiti Series F1	http://www.benary.com			
General Cultural Information:				
Cover seed very lightly w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels. Transplant 3-4 weeks after germination. Avoid temperatures below 60°F. Fertilize weekly w/155 ppm nitrogen.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		14-17	15-19
288 Tray	8-10		6-9	7-12
216 Tray	-		6-9	7-12
128 Tray	-		5-8	6-10
				Container, 10" (3-5 ppp)
				18-22
				10-14
				10-14
				9-13

PEPPER, ORNAMENTAL	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-76	-	5-7	68-80/65-70	
Variety	Link to Breeder Website for Specific Cultural Information:				
Black Pearl	http://www.panamseed.com				
Chilly Chili F1	http://www.panamseed.com				
Medusa	http://www.panamseed.com				
Purple Flash	http://www.panamseed.com				
Sangria F1	http://www.panamseed.com				
Pumpkin Pepper (Cut Flower)	-				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels. Finishing times listed for 4" pots are to fruiting.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10	18-22	-
288 Tray	4-5		4-6	16-20	-
128 Tray	-		3-5	13-17	-
Approx. Weeks to Flower for Field Cut Flower: 12-16			-	-	-

PETUNIA, FUSEABLE	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-76	L	4-14	61-75/57-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Blue Dawn	http://www.panamseed.com				
Healing Waters	http://www.panamseed.com				
Silk 'N Satin	http://www.panamseed.com				
Blueberry Lime Jam	http://www.panamseed.com				
Lime Coral	http://www.panamseed.com				
Pleasantly Blue	http://www.panamseed.com				
Burgundy Starlight	http://www.panamseed.com				
Ooh La La	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed pellet, needs light to germinate. Keep light levels as high as possible while maintaining adequate moisture levels (near saturation) to allow pellets to dissolve. If seed is sown when day length is less than 12 hours, use additional lighting to promote flowering. See Harris Seeds Petunia Chart for variety comparisons:					
Petunia Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	9-11	10-12
288 Tray	4		-	6-7	8-9
128 Tray	5		-	5-6	7-8
72 Tray	5-6		-	4-5	6-7

PETUNIA, HEDGE	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-76	L	4-12	61-75/57-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Tidal Wave Series F1	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Maintain adequate moisture levels during germination. Requires day length >12 hrs for flower initiation. See Harris Seeds Petunia Chart for variety comparisons:					
Petunia Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	12-14	14-16
288 Tray	5-6		4-6	6-8	8-10
216 Tray	-		4-6	6-8	8-10
128 Tray	-		4-6	6-8	8-10



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PETUNIA, SPREADING	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-76	L	4-12	61-75/57-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Easy Wave Series F1	http://www.panamseed.com				
Wave Series F1	http://www.panamseed.com				
Shockwave Series F1	http://www.panamseed.com				
Opera Supreme Series F1	http://www.takii.com				
Picobella Cascade Series F1	http://www.goldsmithseeds.com				
Trilogy Series F1	http://www.takii.com				
Ramblin' Series F1	http://www.goldsmithseeds.com				
Success Series F1	http://www.benary.com				
African Sunset F1	http://www.takii.com				
Rapide Sunshine F1	http://www.floranova.co.uk				
General Cultural Information:					
Do not cover seed, needs light to germinate. Provide adequate moisture near saturation for good germination. Requires day length >10-12 hrs for flower initiation. See Harris Seeds Petunia Chart for variety comparisons:					
Petunia Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	12-14	14-16
512 Tray	-		4-6	6-8	8-10
288 Tray	5-6		4-6	6-8	8-10
216 Tray	-		4-6	6-8	8-10
128 Tray	-		3-5	5-7	7-9



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PETUNIA, UPRIGHT	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-76	L	4-12	65-75/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Glorious Mix F1	http://www.panamseed.com				
Valentine F1	http://www.panamseed.com				
Pirouette Series F1	http://www.panamseed.com				
Double Cascade Series F1	http://www.panamseed.com				
Daddy Series F1	http://www.panamseed.com				
Dream Series F1	http://www.panamseed.com				
Limbo GP Series F1	http://hemgenetics.com				
Sophistica Collection F1	http://www.panamseed.com				
Alladin Nautical Mix F1	http://www.benary.com				
Hulahoop Blue F1	http://www.sakata.com				
Prism Sunshine F1	http://www.floranova.co.uk				
Celebrity Series F1	http://www.benary.com				
Mambo GP Series F1	http://hemgenetics.com				
Picobella Mix F1	http://www.goldsmithseeds.com				
Merlin Series F1	http://www.sakata.com				
Tritunia Series F1	http://www.goldsmithseeds.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Provide adequate moisture but do not saturate. Use of PGR's and/or cool growing temps. Water stress will help to keep plants dwarf. For genetically dwarf varieties, use of PGR's is not necessary. Provide good air circulation. See Harris Seeds Petunia Chart for variety comparisons:					
Petunia Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-13	12-14	16-18
512 Tray	-		4-6	11-13	10-12
384 Tray	-		4-6	6-8	10-12
288 Tray	5-6		4-6	6-8	10-12
216 Tray	-		4-6	6-8	10-12
128 Tray	-		4-6	6-8	10-12

PHLOX	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-70	D	5-10	55-60/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Century Mix F1	http://www.panamseed.com				
Grammy Pink and White F1	http://www.panamseed.com				
General Cultural Information:					
Cover seed completely with coarse vermiculite, needs dark to germinate. Keep media moist for germination, then reduce moisture slightly after radical emergence.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-11	11-13	-
512 Tray	-		4-8	9-10	-
288 Tray	4-5		2-6	7-8	-
216 Tray	-		2-6	7-8	-
128 Tray	-		1-5	6-7	-

PORTULACA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-77	L	3-10	68-75/65-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Happy Hour Series	http://www.panamseed.com				
Happy Trails Series	http://www.panamseed.com				
Stopwatch Mix	http://www.benary.com				
Sundial Mix	http://www.benary.com				
Sundial Series	http://www.benary.com				
Toucan Hot Mix	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed or cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. If seed is sown when day length is less than 11 hours, use additional lighting to promote flowering.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	13-14	14-15
512 Tray	-		6-7	8-9	9-10
384 Tray	-		6-7	8-9	9-10
288 Tray	4-5		5-6	6-7	7-8
216 Tray	-		5-6	6-7	7-8
128 Tray	-		3-5	6-7	7-8

PRIMULA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	60-65	L	8-14	45-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Danova Growers Select Mix F1	http://www.sakata.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite, needs light to germinate. Transplant after 5-7 weeks. After germination, cool down to 55°F for 3 weeks, then reduce to 45°F to grow on. After buds are showing, raise to 52-57°F two weeks before bloom is desired.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		14	18-22	20-24
512 Tray	-		7-8	11-15	13-17
288 Tray	7-8		6-7	10-14	12-16
216 Tray	-		5-6	9-13	11-15
128 tray	-		4-5	8-12	10-14
36 Tray	-		-	6-10	8-12

PILOTUS		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		76-80	L	5-7	68-75
Variety		Link to Breeder Website for Specific Cultural Information:			
Joey		http://www.benary.com			
General Cultural Information:					
Seed needs light to germinate. Excess moisture results in poor germination. Before transplanting apply a fungicide treatment against soil-borne diseases. Seedling stage: Fertilize moderately, allow to dry out between watering. Avoid plants becoming root bound.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-11	12-16	-
128 Tray	6-8		4-5	6-8	-

RUDBECKIA hirta	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-72	-	7-14	60-65/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Denver Daisy	http://www.benary.com				
Tiger Eye F1	http://www.goldsmithseeds.com				
Autumn Colors (Cut Flower)	http://www.benary.com				
Cappuccino (Cut Flower)	-				
Cherry Brandy (Cut Flower)	http://www.thompson-morgan.com/				
Cherokee Sunset (Cut Flower)	http://www.thompson-morgan.com/				
Indian Summer (Cut Flower)	-				
Irish Spring (Cut Flower)	-				
Prairie Sun (Cut Flower)	http://www.benary.com				
General Cultural Information:					
R. hirta cultivars are best treated as annuals. Cover seed very lightly w/fine vermiculite for moisture control. Provide long days (14-16 hours) for flower initiation (night interruption from 10PM-2AM is fine). See Harris Seeds Rudbeckia Chart for flower details: Rudbeckia Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		3-4 (green)	12-15	14-18
288 Tray	5-8		-	5-8	8-12
128 Tray	-		-	5-8	7-11
36 Tray	-		-	3-6	5-9
Approx. Weeks to Flower for Field Cut Flower: 12-17			-	-	-

SALPIGLOSSIS	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	72-75	D	12-15	62-68
Variety	Link to Breeder Website for Specific Cultural Information:			
Royale Mixture F1	http://www.floranova.co.uk			
General Cultural Information:				
Sow on media surface and do NOT cover with vermiculite. Place black plastic over the flat to satisfy the germination darkness requirement. Remove it completely after about 12 days. Daylength of 14 hours or above will improve seedling quality.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		10-14	11-15
512 Tray	3-4		7-9	8-10
288 Tray	4-5		7-9	8-10
				Container, 10" (3-5 ppp)



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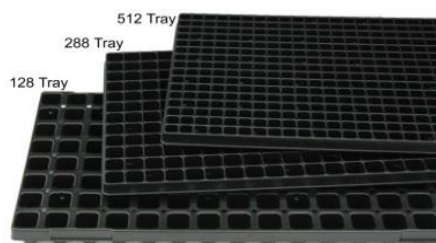
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SALVIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-76	L	5-14	62-70	
Variety	Link to Breeder Website for Specific Cultural Information:				
Mojave	http://www.floranova.co.uk				
Reddy Series	http://hemgenetics.com				
Sizzler Series	http://www.floranova.co.uk				
Vista Red	http://www.panamseed.com				
Bonfire	http://econseeds.com/				
Flare	http://www.panamseed.com				
Evolution Violet	http://www.benary.com				
Fairy Queen	http://www.benary.com				
Victoria Blue	http://www.floranova.co.uk				
Lady in Red	http://www.takii.com				
Summer Jewel Series	http://www.takii.com				
Blue Angel	http://www.benary.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Soak transplant medium well prior to transplanting to reduce soluble salt levels. Maintain medium moisture conditions after transplanting. See Harris Seeds Salvia Chart for flower details:					
Salvia Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-12	9-17	-
512 Tray	-		5-7	7-10	-
384 Tray	-		5-7	7-10	-
288 tray	4-7		4-6	6-10	-
216 Tray	-		4-6	6-10	-
128 Tray	-		3-6	5-8	-

SCABIOSA, CUT FLOWER		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		65-70	-	10-12	60-70	
Variety		Link to Breeder Website for Specific Cultural Information:				
QIS Mix		http://www.econseeds.com/				
General Cultural Information:						
Sow indoors 4-6 weeks prior to last frost date using a seed starting mix. Cover lightly w/coarse vermiculite (for moisture control). Reduce soil temp for growing on to prevent seedlings from stretching. Transplant outdoors after danger of frost is past. May be direct seeded.						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed		-		6-8 (green)	-	-
Approx. Weeks to Flower for Field Cut Flower: 10-12				-	-	-



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SCHIZANTHUS	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	62-65	-	7-14	60-63/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Atlantis Mix F1	http://www.goldsmithseeds.com				
General Cultural Information:					
Cover very lightly w/coarse vermiculite (for moisture control). After transplanting, grow on at 60-63°F for several days to promote root growth, then drop temperatures to 50-60 °F for finishing.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		9-12	12-14	-
288Tray	4-5		5-7	7-9	-
128 Tray	6-7		4-5	6-7	-

SNAPDRAGON	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-72	-	4-14	60-70/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Floral Showers Mixture F1	http://www.sakata.com				
Montego Series F1	http://www.goldsmithseeds.com				
Twinny Series F1	http://hemgenetics.com				
Arrow Mix F1	http://www.goldsmithseeds.com				
Liberty Classic Mix F1	http://www.goldsmithseeds.com				
Sonnet Mixture F1	http://www.sakata.com				
Rocket Series F1 (Cut Flower)	http://www.panamseed.com				
General Cultural Information:					
Cover seed lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. Reduce soil temp. at night during germination. After 1st true leaves appear, reduce soil temp. to keep plants stocky. Days less than 12 hours will promote vegetative growth and delay flowering. Total crop time is 16 – 18 weeks for spring sales and 12 – 14 weeks for fall sales. Dwarf varieties have quicker finishing times, and a total crop time of 9-12 weeks. Plants may be sold green in packs in 8-9 weeks. See Harris Seeds Snapdragon Chart for flower details: Snapdragon Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-9 (green)	14-18	-
512 Tray	-		7-9	12-14	-
384 Tray	-		7-9	12-14	-
288 Tray	5-7		5-8	7-11	-
216 Tray	-		5-8	7-9	-
128 Tray	-		4-7	6-8	-
Approx. Weeks to Flower for Field Cut Flower: 17-22			-	-	-

SNAPDRAGON, TRAILING	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65	L	8-10	60-65/50-55
Variety	Link to Breeder Website for Specific Cultural Information:			
Candy Showers Series F1	http://www.sakata.com			
General Cultural Information:				
Do not cover the seed or cover seed very lightly w/fine vermiculite (for moisture control), but allow light. Provide uniform moisture levels. Reduce soil temp. slightly at night during germination. After 1st true leaves appear, reduce soil temp. to keep plants stocky. Days less than 12 hours will promote vegetative growth and delay flowering. Providing long days (>14 hours) along with supplemental lighting will hasten development and flowering. See Harris Seeds Snapdragon Chart for flower details:				
Snapdragon Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		8	11
200 Tray	5		4	5-6
				Container, 10" (3-5 ppp)
				15
				8-10

STATICE, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	-	3-14	55-60/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
QIS Series	http://www.panamseed.com				
Suworowii	http://econseeds.com/				
General Cultural Information:					
Cover seed with coarse vermiculite. Keep media moist for germination. Grow on cool for earlier flowering. Finish times for 4" pots are to flowering without vernalization.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-	10-12 (green)		22-29	-
512 Tray	-	6-8 (green)		19-26	-
288 Tray	4-5	4-6 (green)		18-24	-
216 Tray	4-5	4-6 (green)		18-24	-
128 Tray	-	3-5 (green)		18-24	-
Approx. Weeks to Flower for Field Cut Flower: 18-24 (12-15 with vernalization)		-		-	-

STOCK, CUT FLOWER		Germination Requirements			Growing on Temperatures
Matthiola	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65	-	10-18	52-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Lucinda Mix	http://www.panamseed.com				
General Cultural Information:					
Lucinda Mix is for cut flower production (Spring Flowering, Group 2, also suitable for Fall flowering) and can be direct seeded or grown in a light, well-ventilated greenhouse. After seedling emergence, sort and select only the light green seedlings for transplanting, as they will be the double flowering plants. Space 5"x 5". Finishing time decreases from Spring to Fall.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10 (green)	14-22	-
200 Tray	5-6		-	9-18	-
Approx. Weeks to Flower for Field Cut Flower: 20-22			-	-	-

SUNFLOWER, DWARF	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	D	4-8	55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Firecracker F1	http://www.seedssense.co.uk				
Little Becca F1	http://www.seedssense.co.uk				
Rio Carnival F1	http://provegseeds.com/				
Solar Chocolate Gold F1	http://provegseeds.com/				
Sunny Smile F1	http://www.takii.com				
Teddy Bear	http://www.benary.com				
General Cultural Information:					
Sow seed directly into container or field.Cover seed, needs dark to germinate. See Harris Seeds Sunflower Chart for maturity days: Sunflower Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		4-5	7-9	8-10

SUNFLOWER, CUT FLOWER	Germination Requirements			Growing on Temperatures
Single Stem	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	D	4-8	55-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Zohar F1 OG	http://www.genesisseeds.com/			
Premier Series F1	http://www.takii.com			
Sunrich Series F1	http://www.takii.com			
Sunrich Summer Series F1	http://www.takii.com			
Helios Flame F1	http://provegseeds.com/			
Dafna F1	-			
Pro Cut Series F1	http://www.seedsense.co.uk			
Sunbright Supreme F1	http://www.sakata.com			
Vincent F1	http://www.sakata.com			
General Cultural Information:				
Seed can be sown directly in the field or started in the greenhouse and transplanted. Cover seed, needs dark to germinate. Not recommended for plugs. Field spacing 4-9" apart. See Harris Seeds Sunflower Chart for maturity days:				
Sunflower Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		-	-
Approx. Weeks to Flower for Field Cut Flower: 6-9			-	-

SUNFLOWER, CUT FLOWER	Germination Requirements			Growing on Temperatures
Branching	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	D	4-8	55-60
Variety	Link to Breeder Website for Specific Cultural Information:			
Buttercream F1	http://www.takii.com			
Copper Queen F1	http://www.sahin.nl/2012/assort2012-H.php			
Ring Of Fire	http://www.benary.com			
Peach Passion F1	http://www.seedsense.co.uk			
Giant Sungold	http://www.benary.com			
Goldy F1 OG	http://www.genesisseeds.com/			
Valentine	http://www.benary.com			
Frilly F1	http://www.seedsense.co.uk			
Greenburst F1	http://www.seedsense.co.uk			
Autumn Beauty Mixture	http://hemzaden.com			
Infrared Mixture F1	http://www.seedsense.co.uk			
Lemon Aura	http://www.seedsense.co.uk			
Monet's Palette F1	http://www.seedsense.co.uk			
Moulin Rouge F1	http://www.seedsense.co.uk			
Soraya	http://www.benary.com			
Apricot Daisy F1	http://www.seedsense.co.uk			
Terra Cotta F1	http://www.seedsense.co.uk			
The Joker F1	http://www.seedsense.co.uk			
General Cultural Information:				
Seed can be sown directly in the field or started in the greenhouse and transplanted. Cover seed, needs dark to germinate. Not recommended for plugs. Field spacing 12-24" apart. See Harris Seeds Sunflower Chart for maturity days:				
Sunflower Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		-	-
Approx. Weeks to Flower for Field Cut Flower: 6-13			-	-

SUNFLOWER, HEDGE	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	D	4-8	55-60
Variety	Link to Breeder Website for Specific Cultural Information:			
Mammoth	http://www.applewoodseed.com/			
American Giant F1	http://www.seedssense.co.uk			
General Cultural Information:				
Seed can be sown directly in the field or started in the greenhouse and transplanted. Cover seed, needs dark to germinate. Not recommended for plugs. Field spacing 12-24" apart. See Harris Seeds Sunflower Chart for maturity days:				
Sunflower Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		-	Container, 10" (3-5 ppp)
			-	-

SWEET PEA, CUT FLOWER	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-70	D	14	60-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Elegance Mixture	http://hemzaden.com			
Royal Mixture	http://hemzaden.com			
High Scent	http://hemzaden.com			
Incense Mix	http://hemzaden.com			
General Cultural Information:				
Sow directly in packs, containers or hanging baskets. Cover seed with coarse vermiculite, needs dark to germinate. Can be direct sown outdoors approximately 6 weeks before your last frost for cut flower production. Seedlings not damaged by frost.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		4-6 (green)	14-16
Approx. Weeks to Flower for Field Cut Flower: 10-16			-	-

TALINUM	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-74	-	4-6	66-74/62-66	
Variety	Link to Breeder Website for Specific Cultural Information:				
Limon	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Keep media moist for germination, radical emerges, then reduce soil moisture slightly. Growing on under slightly shady conditions will promote the chartreuse foliage color.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		-	9-12	-
512 Tray	-		-	7-8	-
384 Tray	-		-	7-8	-
288 Tray	5		-	6-7	-

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TANACETUM, CUT FLOWER		Germination Requirements			Growing on Temperatures
Matricaria	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-68	-	7-10	60-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Crown White	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). For cuts, transplant to field 8-9 weeks after sowing. Grow at close density for best results. Harvest when 2/3 of flowers are open approx. 100 days from transplanting. Finishing time from plug stage is 8-9 weeks in Spring, 3-5 weeks in Summer, and 4-7 weeks in Fall.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		4-5 (green)	-	-
200 Tray	4-5		-	-	-
Approx. Weeks to Flower for Field Cut Flower: 7-14			-	-	-

THUNBERGIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	-	7-10	60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Alata Mixture	http://econseeds.com/				
Blushing Susie	http://www.thompson-morgan.com/				
Spanish Eyes	http://www.thompson-morgan.com/				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). After germination, reduce growing temp to 55-60°F. Pinching of young plants promotes flowering. Sow directly in final container for a quick sale item.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		6-7	8-10	9-11
512 Tray	-		2-3	5-7	6-8
288 Tray	4-5		2-3	4-6	5-7
128 Tray	-		-	3-5	4-6

TITHONIA, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-70	L	5-10	55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Torch	http://econseeds.com/				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. After germination, reduce temps to 60°F for 4 weeks. Finish plants at 55-60°F. Direct sow recommended.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		8-10 (green)	12-15	-
288 Tray	4-5		4-6	8-11	-
128 Tray	-		3-5	7-10	-
Approx. Weeks to Flower for Field Cut Flower: 14-17			-	-	-

TORENIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	71-76	L	4-8	65-70/62-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Kauai Mix	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Reduce temps to 65-68°F after radical emergence. Provide uniform moisture levels.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		12-13	13-15	-
512 Tray	-		5-6	6-7	-
288 Tray	5-6		5-6	6-7	-
216 Tray	-		5-6	6-7	-
128 Tray	-		4-5	5-6	-

TRACHELIUM, CUT FLOWER	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	62-70	L	5-7	65-70/60-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Lake Louise Purple	http://www.panamseed.com			
General Cultural Information:				
Do not cover or bury the seed, needs light to germinate. Provide uniform moisture levels. Transplant into packs approx. 4-5 weeks after sowing. Needs supplemental lighting when day length is less than 16 hours. Harvest the cuts when 3/4 of the flowers on the umbels are open.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		8-10 (green)	21-27
288 Tray	7-9		7-9 (green)	14
128 Tray	-		7-9 (green)	12
Approx. Weeks to Flower for Field Cut Flower: 17-27			-	-

VERBENA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-75	-	6-21	60-75/60-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Imagination	http://www.benary.com				
Obsession Series	http://www.goldsmithseeds.com				
Quartz XP Series	http://www.panamseed.com				
Santos	http://www.panamseed.com				
Tuscany Series	http://www.goldsmithseeds.com				
General Cultural Information:					
Cover seed very lightly w/medium vermiculite for moisture control. Provide uniform but not saturated moisture levels, over watering can lead to poor germination.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-13	11-16	14-16
512 Tray	-		5-8	6-9	9-11
384 Tray	-		5-8	6-9	9-11
288 Tray	5-7		5-8	6-9	9-11
216 Tray	-		3-5	4-6	7-9
128 Tray	-		3-5	4-6	7-9

VINCA, TRAILING	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-78	D	4-8	75-78/65-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Cora Cascade Series F1	http://www.goldsmithseeds.com				
Mediterranean XP Mix	http://www.panamseed.com				
General Cultural Information:					
Cover seed with coarse vermiculite, needs dark to germinate. Keep media very moist for germination. Keep ammonium levels below 10 ppm during germination as vinca is very sensitive to high salts at this stage.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		10-12	14-16	18-20
512 Tray	-		4-6	8-10	12-14
384 Tray	-		4-6	8-10	12-14
288 Tray	5		4-6	8-10	12-14
216 Tray	-		3-5	7-9	11-13
128 Tray	-		3-5	7-9	11-13

VINCA, UPRIGHT	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-78	D	4-7	75-78/65-68	
Variety	Link to Breeder Website for Specific Cultural Information:				
Cora Series F1	http://www.goldsmithseeds.com				
Jams 'N Jellies Blackberry	http://www.panamseed.com				
Jams 'N Jellies Blueberry	http://www.panamseed.com				
Solar Mix F1	http://hemgenetics.com				
Titan Mix F1	http://www.panamseed.com				
Valiant Mix F1	http://www.panamseed.com				
Victory Blue	http://www.sakata.com				
Pacifica XP Series	http://www.panamseed.com				
General Cultural Information:					
Cover seed with coarse vermiculite, needs dark to germinate. Keep media very moist for germination. Keep ammonium levels below 10 ppm during germination as vinca is very sensitive to high salts at this stage. Solar Mix F1 requires almost double the finishing time from the plug stage as those listed below.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		9-11	10-12	12-14
512 Tray	-		4-6	5-7	7-9
384 Tray	-		4-6	5-7	7-9
288 Tray	5-6		4-6	5-7	7-9
216 Tray	-		3-5	4-5	5-7
128 Tray	-		3-5	4-5	5-7

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VIOLA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-70	D	3-4	60-65/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Angel Series F1	http://www.floranova.co.uk				
Penny Series F1	http://www.goldsmithseeds.com				
Sorbet XP Series F1	http://www.panamseed.com				
Velour Professional Mix	http://www.floranova.co.uk				
General Cultural Information:					
Cover seed with coarse vermiculite, needs very little light or dark to germinate depending on variety. Keep media moist for germination. Reduce soil temp for growing on as soon as possible to prevent seedlings from stretching. Finishing time from the plug stage for Fall production is approx. 3-4 weeks shorter than those listed below.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed Spring	-		12-14	13-16	-
Seed Fall	-		8-10	9-12	-
512 Tray	4-5		8-9	9-12	-
384 Tray	-		8-9	9-12	-
288 Tray	4-6		8-9	9-12	-
216 Tray	-		8-9	9-12	-
128 Tray	-		7-9	8-11	-

ZINNIA, CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-72	D	5-10	60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Cut & Come Again	http://hemzaden.com				
Edwardian Mix	http://www.thompson-morgan.com/				
Macarenia	-				
Mazurkia	-				
Zowie! Yellow Flame F1	http://www.goldsmithseeds.com				
Giant Cactus Mix	-				
Inca	http://www.thompson-morgan.com/				
Pinca	http://www.thompson-morgan.com/				
Magnificent Mix	http://hemzaden.com				
Oklahoma Mix	http://www.benary.com				
Peppermint Stick	http://hemzaden.com				
State Fair Mixture	http://hemzaden.com				
Uproar Rose F1	http://www.goldsmithseeds.com				
Benary's Giant Series	http://www.benary.com				
General Cultural Information:					
Cover seed with vermiculite. Provide uniform but not saturated moisture levels. Transplant 2-4 weeks after germination. Or sow directly into garden or field, cover with ¼" of soil. Direct seed into final container as Zinnias transplant with difficulty.Avoid temperatures below 60°F. Crop times vary with climate, location and time of year. See Harris Seeds Zinnia Chart for flower details: Zinnia Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (3-5 ppp)
Seed	-		5-8	8-10	-
128 Tray	3-4		2-4	4-6	-
Approx. Weeks to Flower for Field Cut Flower: 9-12			-	-	-

ZINNIA, LANDSCAPE BEDDING	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	68-76	D	4-10	65-75/60-65
Variety	Link to Breeder Website for Specific Cultural Information:			
Crystal White	http://www.takii.com			
Profusion Series	http://www.sakata.com			
Profusion Double Series	http://www.sakata.com			
Zahara Series	http://www.panamseed.com			
Zahara Double Series	http://www.panamseed.com			
Magellan Series F1	http://www.goldsmithseeds.com			
Zinnita Mix	http://www.benary.com			
Dreamland Series F1	http://www.takii.com			
Short Stuff Mixture F1	http://www.goldsmithseeds.com			
Swizzle Series F1	http://www.goldsmithseeds.com			
General Cultural Information:				
Cover seed with coarse vermiculite. Provide uniform but not saturated moisture levels. Transplant 2-3 weeks after germination. Avoid temperatures below 60°F. Crop times will vary depending on climate, location and time of year. See Harris Seeds Zinnia Chart for flower details: Zinnia Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		9-10	11-14
512 Tray	-		5-6	7-10
384 Tray	-		4-6	6-9
288 Tray	2-5		4-6	6-9
216 Tray	-		3-4	5-8
128 Tray	-		4-5	6-9
				Container, 10" (3-5 ppp)
				-
				-
				-
				-
				-



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HARRIS SEEDS QUICK CULTURAL GUIDE FOR LINERS

rev. 12/2015

There has been an explosion in the selection and breeding of annuals and perennials grown from cuttings. With so many new varieties available, you may not be familiar with all their cultural requirements. This "Quick Cultural Guide" can help you determine how they will fit into your production regime, and help you plan your order. The chart is specifically for popular **cutting grown liners**, and does not cover plugs, which are grown from seed.

Genus	Temperature:	Light	Fertility (ppm N)	# Liners/pot:			Weeks to finish:			Comments
	day/night			4"	6"	10"	4"	6"	10"	
Ageratum	65-72/65-72	high	150-200	1	2	5	4-6	5-7	10-12	pinching not recommended
Angelonia	65-72/70-75	high	150-200	1	2	4	5-7	7-8	10-14	pinch at planting
Argyranthemum	65-72/55-65	high	150-200	1	2	4	4-6	5-7	10-12	pinch when actively growing
Asparagus sprengeri	65-72/65-72	low-med	100-150	1	2	4	5-6	7-9	13-15	no pinching, keep moist
Bacopa (Sutera)	65-72/65-72	med-high	150-200	1	2	4	4-6	5-7	10-12	do not allow to dry out
Begonia, Hiemalis	67-69/63-65	med-high	125-150	-	1	3	6-8	8-10	9-11	pinch 2 weeks after planting
Begonia, tuberous	65-72/70-75	low-med	100-150	1	2	4	5-6	6-8	10-12	provide good air circulation
Bidens	65-72/55-65	high	150-200	1	2	4	4-6	5-7	10-12	pinch at planting
Brachyscome	65-72/65-72	high	150-200	1	2	4	4-6	6-8	12-14	pinch optional, PGRs not needed
Bracteantha	65-72/55-65	high	100-150	1	2	4	4-6	5-7	10-12	provide good air circulation
Calibrachoa	65-72/55/65	high	150-200	1	2	4	4-6	5-7	10-12	keep pH between 5.5 and 5.8
Clematis	65-72/60-67	med-high	150-200	-	1	1	-	6-8	6-8	Use 2 year plants for 10" pots
Coleus	65-72/65-72	medium	150-200	1	2	4	5-6	6-8	10-12	pinch 1 week after planting
Dahlia	65-72/65-72	high	150-200	1	2	4	5-6	6-8	10-12	pinch 1 week after planting
Diascia	65-72/55-65	high	150-200	1	2	4	4-6	5-7	10-12	pinch at planting
Digiplexis	50-60	high	150-200	-	1	1	-	8-10	9-11	needs vernalization to bloom
Dracaena indivisa	65-72/55-65	med-high	150-200	1	-	-	12-14	-	-	do not bury crown, avoid high salts
Euphorbia	65-72/65-72	high	200	1	2	4	4-6	5-7	10-12	moderate to moist soil
Fuchsia	65-72/65-72	medium	150-200	1	2	4	6-8	8-10	12-14	pinch at planting & at 5-6 weeks
Gaura	65-72/55-65	high	150-200	1	2	5	6-8	7-10	12-14	pinch 2 weeks after planting
Geranium, Regal	71-73/61-63	high	175-200	1	1	3-4	7-8	9-10	11-12	Light shade at end growth cycle
Geranium, Zonal	75-77/64-66	high	200-250	1	1	3	6-8	9-12	10-12	Apply growth reg. as needed
Geranium, Ivy	75-77/64-66	high	200-250	1	1	4	6-8	9-12	10-12	Apply growth reg. as needed
Gypsophila	65-72/60-67	high	200	1	1	4	4-6	7-8	11-13	no pinching; maintain pH 5.8-6.2
Hedera (Ivy)	65-72/60-67	medium	150-200	1	2	4	5-7	7-8	11-13	no pinching required
Helichrysium	65-72/65-72	med-high	150-200	1	2	4	5-6	6-8	10-12	avoid wet soil, pinch 2 wks after
Heliotrope	65-72/60-67	med-high	150-200	1	2	4	6	7-9	9-10	pinch at planting
Heuchera	65-72/60-67	medium	150-200	1	2	4	4-6	5-7	10-12	no pinching required
Hosta	65-72/60-67	medium	150-200	1	2	4	4-6	5-7	10-12	holding temp. 40-50 outdoors
Impatiens, Double	75-80/60-65	low-med	150-200	1	2	4	6-10	7-11	8-12	pinch at planting
Impatiens, New Guinea	72-78/65-68	medium	150-200	1	2	4	4-8	6-10	12-14	pinch 10" pots after 3-4 weeks
Impatiens, Sunpatiens	65-70/65-70	high	65-100	1	1	3	4-5	5-6	9-10	do not pinch
Ipomoea, Sweet Potato Vine	65-72/60-67	med-high	200-300	1	2	3	5-6	6-8	10-12	pinch 2 weeks after planting
Isolepis (Scirpus)	65-72/60-67	medium	100-150	1	2	4	6-7	8-10	10-12	no pinching dry to moderate soil
Lamium, Lamiastrum	65-72/55-65	medium	150-200	1	2	4	4-5	5-6	10-12	pinch at planting & as needed
Lantana	68-75/63-70	high	150-250	1	2	4	4-6	5-7	10-12	pinch at planting and 3-4 weeks
Lavender	60-70/55-65	high	100-150	1	2	3-4	5-6	6-8	8-12	pinch at planting
Lobelia	65-72/60-67	high	150-200	1	2	4	6-8	8-10	10-12	no pinching required
Lysimachia	65-72/60-67	medium	150-200	1	2	4	4-5	5-6	6-8	pinch at planting
Mecardonia	65-72/55-65	high	150-200	1	1-2	3-4	4-6	5-7	10-12	pinch at planting
Nemesia	65-72/60-67	high	150-200	1	2	4	4-6	5-7	10-12	Florel at 500 ppm for branching
Osteospermum	65-72/60-67	high	150-200	1	2	4	4-6	5-7	10-12	Plant Jan.-Mar. for spring flw'g.
Pennisetum	65-72/60-67	high	100-150	1	2	4	4-8	6-9	10-14	no pinching or PGRs required
Petchoa	60-70/60	high	250-350	1	1	3	2-5	4-7	6-8	pinch at planting,
Petunia	65-72/60-67	high	200-300	1	2	4	4-6	5-7	8-10	pinch at planting; feed heavily
Phlox	65-72/60-67	high	150-200	1	1	3-4	4-6	5-7	10-12	pinch at planting
Portulaca	65-72/60-67	high	150-200	1	1-2	3-4	4-6	5-7	10-12	no pinching or PGRs required
Scaevola	65-72/60-67	high	150-200	1	3	5	4-6	5-7	10-12	pinch at planting
Snapdragon	60-70/55-60	high	150-200	1	2	4	4-7	6-9	10-14	pinch at planting
Strobilanthes	65-72/60-67	high	150-200	1	2	4	6-8	8-10	12-14	pinch 1 week after planting
Torenia	65-72/60-67	medium	150-200	1	2	4	4-6	5-7	10-12	pinch at planting
Verbena	65-72/60-67	high	150-200	1	2	4	4-6	5-7	10-12	pinch at planting
Vinca vine	65-72/60-67	medium	150-200	1	2	3	5-6	6-7	10-12	pinch at planting

Grower/Supplier Webpage and Order Form	Grower Contact Information for Growing/Cultural Issues
Barone Gardens Four Star Gro 'N Sell Mast Young Pleasant View Plug Connection Raker	Contact with Questions Contact their Grower Experts Contact with Questions Mast Young provides cultural information that you can access through their webpage Our Grower-On-Call is available 24/7 to help you solve any growing issues or concerns: VeronicaL@pwpvg.com or 603-556-2848 If you experience any issues with our plant material, please contact Plug Connection at 760-631-0992. With immediate attention, our team may be able to recommend a solution. If you ever have questions or concerns regarding your plant products, please feel free to contact Raker at 517-542-2316

Harris Seeds
355 Paul Rd.
Po Box 24966
Rochester, NY 14624-0966

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These guidelines may vary based on your growing conditions

Call Toll Free: 800-544-7938
FAX Toll Free: 877-892-9197
www.harrisseed.com
growers@harrisseed.com

ACHILLEA (YARROW)	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-70	L	10-15	50-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Summer Pastels	http://www.takii.com				
Flowerburst Red Shades	http://www.takii.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Reduce soil temperature slightly at night during germination. Sowings made from late October to early December can be ready for blooming sales from April to June. Sowings made in February will produce saleable green packs (32 cells per flat) in about 9 weeks at 50°F night temperature. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1ppp)
Seed	-		10-12	14-15	17-18
288 Tray	-		4-6	8-9	11-12
200 Tray	6-8		3-5	7-8	10-11
128 Tray	-		2-4	6-7	9-10
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		-	6-7	9-10
72 Tray	-		-	5-6	8-9
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	4-5	5-8
36 Tray	-		-	4-5	7-8
Big Burly (32 Tray Vernalized)	-		-	-	3-8

AGASTACHE	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-72	-	5-10	60-70/	
Variety	Link to Breeder Website for Specific Cultural Information:				
Arizona Mix	http://www.takii.com				
Astello Indigo	-				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels during germination and after transplanting. Temperatures can be lowered as seedlings mature. First year flowering. Days to flower from sow: long days 13-15 weeks, short days 17-20 weeks. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		7-9	9-12	11-14
288 Tray	4-5		-	5-7	7-9
128 Tray	-		-	3-5	5-8
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		-	3-5	5-8
72 Tray	-		-	2-4	4-8
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	2-4	4-8
36 Tray	-		-	2-4	4-8
Big Burly (32 Tray Vernalized)	-		-	-	3-8

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AQUILEGIA (COLUMBINE)		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		70-72	L	8-10	65-68/60-65
Variety		Link to Breeder Website for Specific Cultural Information:			
Origami Mixture F1		http://www.goldsmithseeds.com			
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Provide uniform moisture levels. Can be vernalized once root system is established after 6-8 weeks: reduce night temps to 40-45°F. Transplant at 9-10 weeks. Increase night temps. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		16-18	20-24	-
288 Tray	9-10		9-11	11-13	13-15
128 Tray	-		7-9	9-11	11-13
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		7-9	9-11	11-13
72 Tray	-		-	8-10	10-12
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	5-7	7-9
36 Tray	-		-	7-9	9-11
Big Burly (32 Tray Vernalized)	-		-	-	3-8

COREOPSIS (TICKSEED)		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		68-72	-	5-7	60-70/55-60
Variety		Link to Breeder Website for Specific Cultural Information:			
Presto		http://www.panamseed.com			
Sunfire					
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Sow 1-2 seeds per cell in 288 tray; 2-4 seeds per cell in larger plug tray. Provide uniform moisture levels. Reduce soil temperature at night slightly during germination stage. Coreopsis is long-day crop with critical day length from 12.5 to 14 hours. Flowers 8-10 weeks after transplanting. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		12-14	14-16	18-20
288 Tray	5-6		5-7	7-9	11-13
128 Tray	-		3-5	5-7	9-11
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		3-5	5-7	9-11
72 Tray	-		-	4-6	8-10
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	3-4	5-8
36 Tray	-		-	3-5	7-9
Big Burly (32 Tray Vernalized)	-		-	-	3-8

USDA Hardiness Zone Map

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CRASPEDIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	64-68	-	10-14	54-64	
Variety	Link to Breeder Website for Specific Cultural Information:				
Billy Buttons (Cut Flower)	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/vermiculite (for moisture control). Provide uniform moisture levels. Transplant outdoors after danger of frost is past. Space on 9" centers for cut flower production.First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		8-10 (green)	11-15	15-17
128 Tray	6-8		-	5-7	8-10
Approx. Weeks to Flower for Field Cut Flower: 17-18			-	-	-

DELPHINIUM, CUT FLOWER		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		65-75	-	7-20	60-75/45-60	
Variety		Link to Breeder Website for Specific Cultural Information:				
Guardian Mix F1		http://www.panamseed.com				
Aurora Mix F1		http://www.takii.com				
Magic Fountains Mix		http://www.benary.com				
General Cultural Information:						
Cover seed w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels. Germination often is not uniform. About a week before transplant, lower temps. to 65-70°F to help tone plants. February to May plantings will flower during the summer and fall. For greenhouse production, sow seeds in the fall (Oct. to Dec.) for a March to May flowering time. Best suited to 6-in. to 8-in. pot production. Use 1 plug for either size. For cuts plant in 10 x 10" space (annual production) or 20 x20" (perennial production). First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:						
Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		-	13-19	17-23
288 Tray		5-7		-	8-12	12-16
128 Tray		-		-	6-10	10-14
Baby Burly (125 Tray						
Vernalized/Nonvernalized)		-		-	6-10	10-14
72 Tray		-		-	4-8	8-12
Burly Jr. (70 Tray						
Vernalized/Nonvernalized)		-		-	4-8	8-12
36 Tray		-		-	3-5	7-9
Big Burly (32 Tray Vernalized)		-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 16-23				-	-	-



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DIGITALIS (FOXGLOVE), CUT FLOWER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-70	L	6-9	60-65/45-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Candy Mountain	http://www.takii.com				
Camelot Mix F1	http://www.goldsmithseeds.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Provide uniform moisture levels. Reduce soil temperature at night during germination. Camelot Mix F1 is first year flowering. Harvest for cuts when the lower 1/3 of flowers have opened. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		-	19-21	20-24
288 Tray	4-6		-	14-16	16-20
128 Tray	-		-	12-14	13-16
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		-	12-14	13-16
72 Tray	-		-	11-13	12-15
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	11-13	12-15
36 Tray	-		-	10-12	11-14
Big Burly (32 Tray Vernalized)	-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 20-24			-	-	-

ECHINACEA (CONEFLOWER)	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-76	L	8-20	65-75/60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Pow Wow Series	http://www.panamseed.com				
Primadonna Deep Rose (Cut Flower)	http://www.benary.com				
Cheyenne Spirit Mix (Cut Flower)	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly with vermiculite for moisture control. Light is optional. Provide uniform moisture levels. Reduce soil temperature at night slightly during germination stage. Sow by January for spring flowering.First year flowering (except Primadonna). See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		10-12 (green)	14-16	18-23
288 Tray	5-6		4-6 (green)	8-10	13-17
128 Tray	-		2-4 (green)	6-8	10-13
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		-	6-8	10-13
72 Tray	-		-	5-7	9-12
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	5-7	9-12
36 Tray	-		-	4-6	8-10
Big Burly (32 Tray Vernalized)	-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 18-23			-	-	-

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ECHINOPS (GLOBE THISTLE)	Germination Requirements			Growing on Temperatures		
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night		
	65-72	L	14-20	60-65/55-60		
Variety	Link to Breeder Website for Specific Cultural Information:					
Ritro (Cut Flower)	http://econseeds.com/					
General Cultural Information:						
Sow on media surface and do NOT cover with vermiculite, needs light to germinate. Keep media slightly moist, but not wet for germination. Seed sown in January will be ready for sale in late April to early May. Plants will not bloom the same season they were sown. Plants sown in June - August will bloom the following July to August. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		8-12 (green)	10-14 (green)	18-22
288 Tray		4-6		4-6	6-8	14-16
128 Tray		-		2-4	4-6	12-14
Baby Burly (125 Tray						
Vernalized/Nonvernalized)		-		2-4	4-6	12-14
72 Tray		-		-	3-4	6-10
Burly Jr. (70 Tray						
Vernalized/Nonvernalized)		-		-	3-4	6-10
36 Tray		-		-	3-4	10-12
Big Burly (32 Tray Vernalized)		-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 48-52				-	-	-

ERYNGIUM (SEA HOLLY)	Germination Requirements			Growing on Temperatures		
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night		
	72-75	-	7-10	60-70		
Variety	Link to Breeder Website for Specific Cultural Information:					
Blue Glitter (Cut Flower)	http://www.benary.com					
General Cultural Information:						
Cover very lightly w/fine vermiculite (for moisture control). For bedding production, transplant to pots 6-9 weeks after germination. For cut flower production, transplant green plants into field with 12 x 16" spacing. Sow December-March for flowering plants from June-August, or July-August for larger flowering plants in the following year. For cut flower production warmer temperatures result in longer stem length. Temperatures near 75° yield long strong stems. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		9-13 (green)	16-20 (green)	24-28
288 Tray		6-9		3-4	10-13	18-22
128 Tray		-		3-4	10-11	18-20
Baby Burly (125 Tray						
Vernalized/Nonvernalized)		-		3-4	10-11	18-20
72 Tray		-		-	4-6	6-9
Burly Jr. (70 Tray						
Vernalized/Nonvernalized)		-		-	4-6	6-9
36 Tray		-		-	-	3-8
Big Burly (32 Tray Vernalized)		-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 24-28				-	-	-

Frequently Asked Questions

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GAILLARDIA (BLANKET FLOWER)	Germination Requirements			Growing on Temperatures		
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night		
	68-75	L	8-12	59-70/50-65		
Variety	Link to Breeder Website for Specific Cultural Information:					
Arizona Series	http://www.benary.com					
Mesa Peach F1	http://www.panamseed.com					
General Cultural Information:						
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Reduce soil temperature at night during germination period. Provide uniform moisture levels. Sown in January as Spring production, will flower naturally in late May to early June. Sown from July to early September for overwinter production, will flower late April of the following year. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:						
Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		10-12	13-15	16-22
288 Tray		5-7		5-6	7-8	11-14
128 Tray		-		3-5	5-6	7-8
Baby Burly (125 Tray						
Vernalized/Nonvernalized)		-		3-5	5-6	7-8
72 Tray		-		-	4-5	5-6
Burly Jr. (70 Tray						
Vernalized/Nonvernalized)		-		-	4-5	5-6
36 Tray		-		-	4-5	5-6
Big Burly (32 Tray Vernalized)		-		-	-	3-8

GAURA		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		65-68	-	5-6	59-70/50-64
Variety		Link to Breeder Website for Specific Cultural Information:			
Sparkle White		http://www.panamseed.com			
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Maintain 95%+ relative humidity (RH) until radicles emerge. Increase temp. to 66-70 degrees after germination, reduce soil moisture slightly. Sown in January for Spring production, will flower naturally in early May to early June. Sown in July to early September for overwinter production, will flower mid to late May of the following year. Note: Gaura seed is a nutlet and may have up to 4 seeds, so there may be greater than one seedling per cell. For cold production (55° F) add 4-5 weeks onto finishing times. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		8-10	12-14	13-16
288 Tray	5-6		3-4	7-8 (@68° F)	8-10 (@68° F)
Big Burly (32 Tray Vernalized)	-		-	-	3-8



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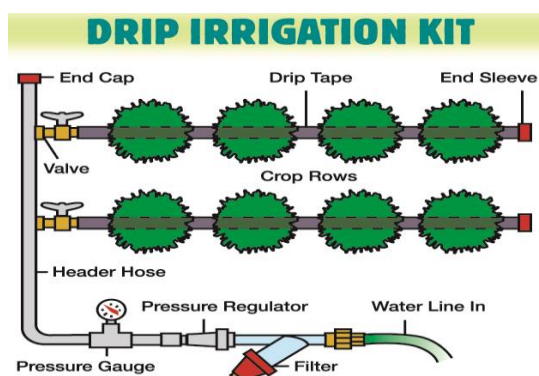
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GRASS, ORNAMENTAL	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	64-75	L	5-12	66-74/64-66	
Variety	Link to Breeder Website for Specific Cultural Information:				
Blue Arrows (Juncus)	http://www.panamseed.com				
Sirocco (Stipa)	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Keep soil moisture high until emergence, then reduce, maintaining medium moisture conditions. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		11-14	11-14	11-14
288 Tray	5-7		6-8	6-8 (3 ppp)	6-8 (3 ppp)
128 Tray	-		4-6	4-6 (3 ppp)	4-6 (3 ppp)
72 Tray	-		4-6	4-6 (3 ppp)	4-6 (3 ppp)

GYPSOPHILA (BABY'S BREATH)	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	64-70	L	7-10	60-65/50-58
Variety	Link to Breeder Website for Specific Cultural Information:			
Snowflake (Cut Flower)	http://econseeds.com/			
General Cultural Information:				
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. For cut flower production, transplant into field in green stage. Requires vernalization to flower - approx. 8 weeks with a temperature below 39° F. Sowing in early July will give natural flowering from late April to May the following year. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:				
Perennial Chart				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)
Seed	-		12-14 (green)	14-16 (green)
288 Tray	5-6		6-8	8-10
128 Tray	-		4-6	6-8
Baby Burly (125 Tray				
Vernalized/Nonvernalized)	-		4-6	6-8
72 Tray	-		-	5-7
Burly Jr. (70 Tray				
Vernalized/Nonvernalized)	-		-	5-7
36 Tray	-		-	4-6
Big Burly (32 Tray Vernalized)	-		-	-
Approx. Weeks to Flower for Field Cut Flower: 40-46			-	-



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HELIOPSIS	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-75	-	10-14	65-70/60-62	
Variety	Link to Breeder Website for Specific Cultural Information:				
Summer Sun (Cut Flower)	http://econseeds.com/				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels. A January/February sowing will produce spring saleable plants. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		12-14	14-16	16-18
288 Tray	-		4-6	6-8	8-10
128 Tray	9		3-5	5-7	7-9
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		3-5	5-7	7-9
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-		5-8
36 Tray	-		-	3-5	5-8
Big Burly (32 Tray Vernalized)	-				3-8
Approx. Weeks to Flower for Field Cut Flower: 17-19			-	-	-

HIBISCUS	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	68-70	-	5-7	70-85/65-70	
Variety	Link to Breeder Website for Specific Cultural Information:				
Luna Mix	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. Grow on under high light levels if possible. If seed is sown when day length is less than 14 hours, use additional lighting to promote flowering. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		-	9-11	12-15
128 Tray	3-4		-	7-9	9-11
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		-	7-9	9-11
36 Tray			-	5-7	7-9
Big Burly (32 Tray Vernalized)	-		-	-	3-8



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<u>HOLLYHOCK</u>	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-75	-	10-15	65-70/55-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Spring Celebrities Mix	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite for moisture control. Provide uniform moisture levels. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		8-11	12-15	15-17
288 Tray	-		4-6	8-9	11-12
128 Tray	4-5		4-6	8-10	11-12
Baby Burlly (125 Tray Vernalized/Nonvernalized)	-		4-6	8-10	11-12
Burlly Jr. (70 Tray Vernalized/Nonvernalized)	-		-	7-9	9-11
36 Tray	-		-	5-7	
Big Burlly (32 Tray Vernalized)			-	-	3-8

KNAUTIA, CUT FLOWER		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		66-70	-	10-14	50-55	
Variety		Link to Breeder Website for Specific Cultural Information:				
Melton Pastels		http://www.thompson-morgan.com/				
General Cultural Information:						
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. Grow on as cool as possible, shading from extremes of sunlight. Sow from May to July for flowering plants in June the following year or sow in January for a late flowering crop in July/August. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:						
Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		12-14 (green)	16-18 (green)	-
Big Burlly (32 Tray Vernalized)		-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 32-52				-	-	-

<u>KNIPHOFIA, CUT FLOWER</u>		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		65-72	L	14-20	60-65	
Variety		Link to Breeder Website for Specific Cultural Information:				
Flamenco		http://www.benary.com				
General Cultural Information:						
Do not cover seed, needs light to germinate. After germination cover very lightly w/fine vermiculite for moisture control. Provide uniform moisture levels. Transplant to pots 3-4 weeks after germination. Sow January for flowering in pots from July onwards, June-August for flowering in pots the following year. First year flowering. Cut when two lowest flower tubes on spike are fully open. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:						
Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		-	12-14 (green)	18-20
288 Tray		8		-	4-6	10-12
128 Tray		-		-	2-4	8-10
36 Tray		-		-	2-3	6-8
Approx. Weeks to Flower for Field Cut Flower: 28-36				-	-	-

LAVENDER	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-72	L	4-20	60-72/55-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Hidcote Blue	http://www.benary.com				
Mini Blue	http://www.panamseed.com				
General Cultural Information:					
Lavender is sometimes slow to germinate, thus prechilling the seed at 40-45°F. for 3-4 weeks may help germination. Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. Sow January-March for green pots, June-August for flowering in pots the following year. Crop time is 10-12 months. Vernalization is required for flower initiation. After vernalization, begin forcing plants at temperatures of 60-65 °F for 6-7 weeks under long days to promote flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		11-17	14-20	18-23
288 Tray	5-9		6-8	9-11	13-14
128 Tray	-		4-6	7-9	11-12
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		4-6	7-9	11-12
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	6-8	7-9
36 Tray	-		-	5-7	9-10
Big Burly (32 Tray Vernalized)	-		-	-	3-8

LEUCANTHEMUM (SHASTA DAISY)	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-75	-	9-14	65-70/58-60	
Variety	Link to Breeder Website for Specific Cultural Information:				
Crazy Daisy (Cut Flower)	http://www.benary.com				
Snow Lady F1	http://www.sakata.com				
General Cultural Information:					
Cover seed very lightly w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels. Snow Lady F1 is first year flowering. Sow time January-April for green pots and cut flower production outdoors; June-August for flowering in pots the following year; June-August for cut flower production indoors with wintering. Vernalization is required for flower initiation. After vernalization, begin forcing plants at 60-65 °F for 7-8 weeks under long days. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		10-12 (green)	12-14 (green)	14-16 (green)
288 Tray	6		4-6	6-8	8-10
128 Tray	-		2-4	4-6	6-8
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		2-4	4-6	6-8
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	3-5	5-7
36 Tray	-		-	2-4	4-6
Big Burly (32 Tray Vernalized)	-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 40-52			-	-	-

LIATRIS (BLAZING STAR)	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-72	Light/Dark	7-22	55-60/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Spicata (Cut Flower)	http://hemzaden.com/				
General Cultural Information:					
Do not cover seed, needs light to germinate. Reduce soil temperature at night during germination period. Provide uniform moisture levels. Transplant 5-7 weeks after sowing into cells. Seed sown in January will be ready for sale (green) in late April to early May. Plants sown in June - August will bloom the following July to August. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		9-13 (green)	11-15 (green)	13-17 (green)
288 Tray	5-7		4-6	6-8	8-10
128 Tray	-		2-4	4-6	6-8
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		2-4	4-6	6-8
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	3-5	5-7
36 Tray	-		-	2-4	4-6
Big Burly (32 Tray Vernalized)	-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 48-52			-	-	-

LOBELIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	64-70	L	14-21	60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Fan Scarlet F1	http://www.benary.com				
Starship Rose F1	http://www.panamseed.com				
General Cultural Information:					
Do not cover seed, needs light to germinate. Provide uniform moisture levels to allow pellets to dissolve. If seed is sown when day length is less than 12 hours, use additional lighting to promote flowering. January-March for flowering in pots from July onwards, August-October for flowering in pots the following year, April-May for cut flower production outdoors. Total crop time is 18-20 weeks. Vernalization is not required for flower initiation.First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		14-16 (green)	16-18 (green)	19-20
288 Tray	10		4-6	6-8	9-10
128 Tray	-		2-4	4-6	7-8
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		2-4	4-6	7-8
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	4-5	6-8
36 Tray	-		-	3-4	5-8
Big Burly (32 Tray Vernalized)	-		-	-	3-8

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LUPINE	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	70-75	D	4-15	55-60/50-55	
Variety	Link to Breeder Website for Specific Cultural Information:				
Russell Supreme Mixture	http://hemzaden.com/				
General Cultural Information:					
Soak seed overnight for faster germination. Cover seed with coarse vermiculite, germinates better with darkness. Keep media moist for germination, then reduce soil moisture slightly. Transplant to pots 4-6 weeks after germination. Seed sown in January will be ready for sale in late April to early May. Plants sown in June - August will bloom the following June to July. Plants will not bloom the same season they were sown. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		11-13	14-16	16-18
288 Tray	4-5		7-9	10-12	12-14
128 Tray	-		6-8	9-11	11-13
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		6-8	9-11	11-13
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	8-10	10-12
36 Tray	-		-	8-10	10-12
Big Burly (32 Tray Vernalized)	-		-	-	3-8

PEROVSKIA (RUSSIAN SAGE)		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		68-72	-	7-20	60-65	
Variety		Link to Breeder Website for Specific Cultural Information:				
Taiga		http://www.panamseed.com				
General Cultural Information:						
Cover seed very lightly w/fine vermiculite for moisture control. Provide uniform but not saturated moisture levels. After 8-14 days, drop temp. to 61°F for another 8-14 days. Transplant into cells or pots, keeping soil on dry side. Sow Feb.-April to finish in July-Sept. Flowers 14-16 weeks from transplant. Sow July-Aug. to finish the following May-June. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:						
Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		11-14 (green)	19-23	21-25
288 Tray		7-9		4-5	12-14	14-16
128 Tray		-		-	7-10	10-12
Baby Burly (125 Tray						
Vernalized/Nonvernalized)		-		-	7-10	10-12
Burly Jr. (70 Tray						
Vernalized/Nonvernalized)		-		-	6-7	9-10
36 Tray		-		-	4-6	6-8
Big Burly (32 Tray Vernalized)		-		-	-	3-8

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RUDBECKIA (BLACK EYED SUSAN)		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		85	-	14-20	50-65	
Variety		Link to Breeder Website for Specific Cultural Information:				
Goldsturm (Cut Flower)		http://www.benary.com				
General Cultural Information:						
Pre-chilling the seed at 40-45°F. for two to four weeks will enhance germination. Cover seed lightly with vermiculite for moisture control. Sow January for flowering in pots from July onwards (limited flowering). Sow June-August for flowering in pots the following year. A chilling period (vernalization) for 10-12 weeks is recommended for flower initiation. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		12-14 (green)	14-16 (green)	23-25
288 Tray		6-7		5-7	7-9	16-18
128 Tray		-		3-5	5-7	14-16
Baby Burly (125 Tray						
Vernalized/Nonvernalized)		-		3-5	5-7	14-16
Burly Jr. (70 Tray						
Vernalized/Nonvernalized)		-		-	4-6	13-15
36 Tray		-		-	2-4	11-13
Big Burly (32 Tray Vernalized)		-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 25-52				-	-	-

SALVIA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-77	L	10-21	60-72/50-59	
Variety	Link to Breeder Website for Specific Cultural Information:				
New Dimension Series	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control), needs light to germinate. Provide uniform moisture levels. Sown in mid-March as Spring production will flower naturally in middle to late June. Vernalization not required. Sown from mid to late July for overwintering production will flower late May to early June of the following year. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		9-12 (green)	11-14	13-17
288 Tray	5-6		4-6	6-8	8-11
128 Tray	-		2-4	4-6	7-9
Baby Burly (125 Tray Vernalized/Nonvernalized)	-		2-4	4-6	7-9
Burly Jr. (70 Tray Vernalized/Nonvernalized)	-		-	2-4	5-7
36 Tray	-		-	2-4	5-7
Big Burly (32 Tray Vernalized)	-		-	-	3-8



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SCABIOSA (PINCUSHION FLOWER)		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		60-65	L	10-18	60-65	
Variety		Link to Breeder Website for Specific Cultural Information:				
Fama Deep Blue		http://www.benary.com				
General Cultural Information:						
Cover very lightly w/coarse vermiculite (for moisture control), needs light to germinate. Provide uniform moisture levels. Once transplanted, keep light levels high to promote flower initiation. Total crop time is 15-20 weeks. For cut flower production, space Fama at 16 x 20" between plants. Cut at bud stage or half-open stage. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		12-15	14-17	17-19
288 Tray		6-7		6-8	8-10	11-12
128 Tray		-		5-7	7-9	10-11
Baby Burly (125 Tray Vernalized/Nonvernalized)		-		5-7	7-9	10-11
Burly Jr. (70 Tray Vernalized/Nonvernalized)		-		-	4-6	7-8
36 Tray		-		-	4-6	7-8
Big Burly (32 Tray Vernalized)		-		-	-	3-8

VERBASCUM, CUT FLOWER		Germination Requirements			Growing on Temperatures	
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
		65-68	-	4-8	64-67/62-65	
Variety		Link to Breeder Website for Specific Cultural Information:				
Southern Charm F1		http://www.panamseed.com				
General Cultural Information:						
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. Best sold green in 4"+ pots, or in bloom in 1-2 gallon containers (8 to 10-in. pots). No vernalization needed for flowering. Sow Feb.-April to finish May-July. Total crop time is 16-18 weeks. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart						
Number of Weeks to Finish From:		Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed		-		10-12 (green)	13-15	16-18
288 Tray		4-5		5-7	8-10	11-13
128 Tray		-		3-5	6-8	9-11
Baby Burly (125 Tray Vernalized/Nonvernalized)		-		3-5	6-8	9-11
Burly Jr. (70 Tray Vernalized/Nonvernalized)		-		-	5-7	8-10
36 Tray		-		-	4-6	7-9
Big Burly (32 Tray Vernalized)		-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 16-18				-	-	-

VERBENA, CUT FLOWER		Germination Requirements			Growing on Temperatures
bonariensis	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	72-75	-	14-21	60-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Finesse	http://www.benary.com				
General Cultural Information:					
Soak seed in water 24 hours prior to sowing. Cover very lightly w/fine vermiculite. Verbena germinates best in media that is only slightly moist to dry. Providing long days with additional high intensity lighting will improve flowering response time. Sow Feb-April. Vernalization is not required for flower initiation. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones: Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		10-11	12-14	13-15
288 Tray	5		5-6	7-9	8-10
128 Tray	-		3-4	4-6	6-8
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		3-4	4-6	6-8
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	3-4	5-6
36 Tray	-		-	3-4	5-6
Big Burly (32 Tray Vernalized)	-		-	-	3-8
Approx. Weeks to Flower for Field Cut Flower: 12-14			-	-	-

VERONICA	Germination Requirements			Growing on Temperatures	
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night	
	65-75	L	10-16	55-65	
Variety	Link to Breeder Website for Specific Cultural Information:				
Blue Bouquet	http://www.panamseed.com				
General Cultural Information:					
Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. Transplant into packs approx. 5-6 weeks after sowing No vernalization required. Sow in Feb-April to finish May-Aug. Total crop time is 19-22 weeks. First year flowering. See Harris Seeds Perennial Chart for flower details, bloom time, and hardiness zones:					
Perennial Chart					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack	Pot, 4" (1 ppp)	Container, 10" (1-3 ppp)
Seed	-		12-15	15-18	18-21
288 Tray	5-6		7-9	10-12	13-15
128 Tray	-		5-7	8-10	11-13
Baby Burly (125 Tray					
Vernalized/Nonvernalized)	-		5-7	8-10	11-13
Burly Jr. (70 Tray					
Vernalized/Nonvernalized)	-		-	6-8	8-10
36 Tray	-		-	6-8	8-10
Big Burly (32 Tray Vernalized)	-		-	-	3-8



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<u>ARUGULA</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	3-6	65
General Cultural Information:				
Grow arugula in the fall and early spring garden. Usable leaves should be ready in 4-6 weeks. The best leaves are from plants grown fast in cool weather. For a continual supply, plant every 2-3 weeks until 1 month prior to first average frost date. Grows quickly and thrives from outdoor sowings in spring and late summer.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		-	3-4

<u>BASIL</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75-80	-	10-14	70-75/60-65
General Cultural Information:				
Basil germination may be adversely affected if planted in soil with temperature below 70° F. Usually sown indoors and transplanted, but can be sown outdoors after the threat of frost has passed and soil temp. is at least 60° F				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		6-8	8-9
288 Tray	3-5		2-4	4-5
128 Tray	3-5		1-3	4-5
51 Tray	-		-	1-2
36 Tray	-		-	1-2

<u>BROCCOLI</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	4-10	65-70/55-60
General Cultural Information:				
For early season cole crops, seed in a 50-72 tray and aim for 5 - 6 week old field-ready plants. For mid-to-late season cole crops, you can seed in a 128 tray and aim for 4 -5 week old field-ready plants. To prevent premature seeding or bolting in the field, avoid exposing transplants to temperatures below 50°F for long periods (week or more). The cold temperatures cause the development of premature heads or "buttoning" in cauliflower and broccoli. Harden off for a few days at 60° F before planting into the garden. Seed may be sown directly in the garden in June for fall crops. See Harris Seeds Broccoli Chart for variety comparisons: Broccoli Chart See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		4-6	-
512 Tray	-		1-3	-
288 Tray	-		0-2	-
128 Tray	5-6		0-2	-
51 Tray	-		-	-

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BRUSSELS SPROUTS		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		70-75	-	4-10	60
General Cultural Information:					
For early season cole crops, seed in 50-72 tray and aim for 5 - 6 week old field-ready plants. For mid-to-late season cole crops, you can seed in a 128 tray and aim for 4 -5 week old field-ready plants. Culture is similar to fall broccoli. Time plantings for Oct/Nov. harvest as eating quality is much better after cool, frosty weather. See Harris Seeds Brussels Sprouts Chart for variety information:					
Brussels Sprouts Chart					
See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:					
Vegetable Seed Planting Guide					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)	
Seed	-		4-6	-	
128 Tray	5-6		0-2	-	

CABBAGE		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		70-75	-	4-10	65-70/55-60
General Cultural Information:					
For early season cole crops, direct-seed in 50-72 tray and aim for 5 - 6 week old field-ready plants. For mid-to-late season cole crops, you can direct-seed in a 128 tray and aim for 4 -5 week old field-ready plants. Culture is similar to broccoli. See Harris Seeds Cabbage Chart for variety comparisons:					
Cabbage Chart					
See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:					
Vegetable Seed Planting Guide					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)	
Seed	-		4-6	-	
512 Tray	-		1-3	-	
288 Tray	-		0-2	-	
128 Tray	5-6		0-2	-	
51 Tray	-		-	-	

CATNIP		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		70-75	-	7-21	65
General Cultural Information:					
Early spring sowings can be made indoors. Early summer seedlings can be made directly into the garden.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)	
Seed	-		9-11	11-13	

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CAULIFLOWER	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	4-10	65-70/55-60
General Cultural Information:				
<p>For early season cole crops, direct-seed in 50-72 tray and aim for 5 - 6 week old field-ready plants. For mid-to-late season cole crops, you can direct-seed in a 128 tray and aim for 4 -5 week old field-ready plants. To prevent premature seeding or bolting in the field, avoid exposing transplants to temperatures below 50°F for long periods (week or more). The cold temperatures cause the development of premature heads or "buttoning" in cauliflower and broccoli. Harden off for a few days at 60 °F before planting into the garden. Culture is similar to broccoli. See Harris Seeds Cauliflower Chart for variety comparisons: Cauliflower Chart</p> <p>See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide</p>				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		4-6	-
512 Tray	-		1-3	-
288 Tray	-		0-2	-
128 Tray	5-6		0-1	-
51 Tray	-		-	-

CHIVES	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-70	D	10-14	60
General Cultural Information:				
<p>Usually sown indoors and transplanted. Late summer to fall sowings can be made directly into the garden. Plants dug and potted in late fall should be allowed to freeze before brought indoors for winter use.</p>				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		9-12	15-17
288 Tray	-		3-6	9-11
128 Tray	7-8		2-5	8-10
36 Tray	-		-	5-7

CILANTRO, CORIANDER	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	55-65	D	10-12	55
General Cultural Information:				
<p>Sow seed directly into final sale pots as cilantro is difficult to transplant. Can be sown directly outdoors as soon as danger of frost has passed through July. Plants can be potted and brought in for winter.</p>				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		-	6-8
288 Tray	-		-	3-5
128 Tray	5-6		-	2-4
51 Tray	-		-	1-3
36 Tray	-		-	1-3

How Many Plants/Seeds are Required per Acre?

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COLLARDS	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	6-10	60
General Cultural Information:				
Culture is similar to broccoli. Can be direct seeded in May through mid-July. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		4-6	-

CUCUMBER	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-80	-	6-10	70-75/60-65
General Cultural Information:				
Sow in trays and aim for 3 -4 week old transplants from 24 or 38 trays, and 2 -3 week old transplants from smaller 128 trays. Do not allow plants to stretch in the greenhouse. Can be sown directly in June through July in the Northeast. See Harris Seeds Cucumber Chart for variety comparisons: Cucumber Chart See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		3-4	-
128 Tray	2-4		0-2	-

DILL	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	D	7-21	60-65
General Cultural Information:				
Sow seed directly into final sale pots as dill is difficult to transplant.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		-	4-6
288 Tray	3-4		-	1-3
128 Tray	3-6		-	1-2
36 Tray	-		-	1-2



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EGGPLANT	Germination Requirements			Growing on Temperatures
Solanaceae Technical Bulletin	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75-80	-	8-14	70-80/60
General Cultural Information:				
Sow into 50 trays to shorten the time needed to produce transplants by approximately one week. Susceptible to chilling injury and should not be grown below 40°F. Any stress or check in growth will result in tough woody stems and transplants that will have a tough time getting started later in the field or garden. Harden off at 60°F for several days before transplanting to the field. Smokers should wash their hands well to deactivate any tobacco mosaic virus before handling plants. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		6-8	10-12
512 Tray	-		2-4	6-8
288 Tray	4-5		1-3	5-7
128 Tray	6-7		1-3	3-5
51 Tray	-		-	2-4

ENDIVE	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	60-65	-	5-10	60
General Cultural Information:				
May sow seed directly outdoors in early spring through July. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		5-7	-

KALE	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	6-10	60-65
General Cultural Information:				
Kale is commonly started indoors and transplanted into the garden when seedlings are 4 to 6 weeks old. May sow directly outdoors through July. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		4-6	-
512 Tray	-		1-3	-
288 Tray	3-4		0-2	-

KOHLRABI	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	5-10	60
General Cultural Information:				
May sow directly outdoors until mid-summer. Tolerates light freezes in fall. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		4-6	-

LAVENDER, ENGLISH	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-72	L	4-30	60-72/55-65
General Cultural Information:				
Lavender is sometimes slow to germinate, thus prechilling the seed at 40-45°F. for 3-4 weeks may help germination. Cover very lightly w/fine vermiculite (for moisture control). Provide uniform moisture levels. Sow January-March for green pots, June-August for flowering in pots the following year. Crop time is 10-12 months. Vernalization is required for flower initiation. After vernalization, begin forcing plants at temperatures of 60-65 °F for 6-7 weeks under long days to promote flowering.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		11-17	14-20
288 Tray	5-9		6-8	9-11
128 Tray	-		4-6	7-9
51 Tray	-		-	5-7
36 Tray	-		-	5-7

LEEK	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	7-12	65-70/55-60
General Cultural Information:				
Leek is a slow growing crop. Sow seed indoors in late winter or early spring. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		5-7	10-12

LEMON BALM	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75-80	L	7-14	70
General Cultural Information:				
Seed germinates best when sown indoors. Ready to transplant 9-12 weeks from seeding.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		9-12	13-15

LETTUCE	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-70	-	6-10	60-65/50
General Cultural Information:				
Light is required for germination on certain cultivars and is indicated on seed packages. May sow directly outdoors from spring through July. See Harris Seeds Lettuce Chart for variety comparisons: Lettuce Chart See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		4-5	-
36 Tray	4-5		-	-

<u>MARJORAM, SWEET</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-70	L	7-14	60
General Cultural Information:				
Seedlings grow slowly and are fragile until established. Transplant once or twice for stalkier growth. Pinch back before they bloom the first year to develop stronger plants.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		8-10	10-12
288 Tray	-		3-5	5-7
128 Tray	5-7		2-4	4-6
51 Tray	-		-	2-3
36 Tray	-		-	2-3

<u>MELON</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75-80	-	4-12	70-75/60-65
General Cultural Information:				
Sow in trays and aim for 3 -4 week old transplants from 24 or 38 trays, and 2 -3 week old transplants from smaller 128 trays. Do not allow plants to stretch in the greenhouse. Planting in wet, cool soils may reduce germination. May be directly sown outdoors in May and June in warmer regions. See Harris Seeds Melon Chart for variety comparisons: Melon Chart See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		3-5	-
36 Tray	3-5		-	-

<u>MINT</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	L	10-14	65
General Cultural Information:				
Sow seed indoors on the surface of a seed starter mix as light is required for germination. Ready to transplant in 7-8 weeks from seeding.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		10-11	12-13
288 Tray	7-8		4-5	6-7
128 Tray	-		2-3	4-5
51 Tray	-		-	2-3
36 Tray	-		-	2-3

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<u>MUSTARD</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	70-75	-	6-10	60-65
General Cultural Information:				
May sow directly outdoors in spring and summer for summer and fall harvests. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		4-6	-
512 Tray	-		1-3	-
288 Tray	2-4		0-2	-

<u>OKRA</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75-80	-	8-14	70
General Cultural Information:				
It is best to seed indoors in the Northern U.S. Ready to transplant outdoors 6-8 weeks from seeding. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		6-8	-
128 Tray	4-5		2-3	-

<u>ONION</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	60-65	-	6-12	65-70/55-60
General Cultural Information:				
Sow in a 128-288 tray. Seedlings should be clipped several times to produce a stocky plant. Aim for 8 -10 week old transplants. Bunching varieties can be sown directly outdoors in early spring through mid-July in the North. Seed started indoors in February can be transplanted in April, and will mature in September. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		5-9	10-12
128 Tray	8-9		1-2	2-4

<u>OREGANO</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-70	L	14-21	60
General Cultural Information:				
Sow seeds indoors on the surface of a seed starting mix as light is required for germination. Seedlings grow slowly and are fragile until established. Transplant at least once to promote stockier growth.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		10-12	12-13
288 Tray	4-5		4-6	6-7
128 Tray	6-8		3-5	5-6
51 Tray	-		-	2-3
36 Tray	-		-	2-3

PARSLEY	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75	-	14-28	65-70
General Cultural Information:				
Sow seed indoors. Seed is slow to germinate (2-4 weeks). Ready to transplant 10-13 weeks from seeding. Can be sown directly outside in spring. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		9-10	11-12
288 Tray	4-5		1-3	3-5
128 Tray	6-8		0-2	2-3
51 Tray	-		-	1-2
36 Tray	-		-	1-2

PEPPER	Germination Requirements			Growing on Temperatures
Solanaceae Technical Bulletin	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75-85	-	10-20	70-75/60-65
General Cultural Information:				
Note that germination is very slow at lower temperatures. Seeds may be sown into 50-72 trays for early production. Aim for an 8-9 week old field-ready plant. For mid-to-late season peppers, you can direct seed in a 128 tray and aim for a 7-8 week old field-ready transplant. Peppers are prone to damping off diseases especially if the media is compacted. They are also susceptible to transplant shock. Smokers should wash their hands well to deactivate any tobacco mosaic virus before handling plants. See Harris Seeds Pepper Chart for variety comparisons:				
Pepper Chart				
Scoville Hot Pepper Rating Chart				
See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		6-8	8-10
512 Tray	-		1-3	3-7
288 Tray	5-6		1-2	2-4
128 Tray	7-8		0-2	1-3
51 Tray	-		-	0-2

PUMPKIN	Germination Requirements			Growing on Temperatures
Pumpkin Cultural Guide	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75-80	-	6-10	70-75/65
General Cultural Information:				
Sow in trays and aim for 3 -4 week old transplants from 24 or 38 trays, and 2 -3 week old transplants from smaller 128 trays. Do not allow plants to stretch in the greenhouse. Planting in wet, cool soils may reduce germination. Can be directly sown outside in early June. See Harris Seeds Pumpkin Chart for variety comparisons:				
Pumpkin Chart				
See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		2-3	4-6
36 Tray	3-5		-	0-2

ROSEMARY		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		60-65	L	14-28	60
General Cultural Information:					
Sow seed in late winter indoors on the surface of a seed starting mix as light is required for germination. Both germination and seedling growth are slow. Ready to transplant outside 16-21 weeks from seeding.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)	
Seed	-		15-20	16-21	
288 Tray	4-5		7-9	11-13	
128 Tray	6-8		5-6	9-10	
51 Tray	-		-	4-6	
36 Tray	-		-	4-6	

SAGE		Germination Requirements			Growing on Temperatures
		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		70-75	-	10-18	60
General Cultural Information:					
Sow seed indoors. Ready to transplant outside 7-10 weeks from seeding. May be directly sown outdoors in early summer.					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)	
Seed	-		10-12	12-14	
288 Tray	3-4		5-7	7-9	
128 Tray	7-8		4-6	6-8	
51 Tray	-		-	4-6	
36 Tray	-		-	4-6	

SQUASH, SUMMER		Germination Requirements			Growing on Temperatures
SQUASH, WINTER		Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
		75-80	-	6-10	70-75/65
General Cultural Information:					
Sow in trays and aim for 3 -4 week old transplants from 24 or 38 trays, and 2 -3 week old transplants from smaller 128 trays. Do not allow plants to stretch in the greenhouse. Planting in wet, cool soils may reduce germination. May sow directly outdoors after soil has warmed in June. See Harris Seeds Squash Charts for variety comparisons:					
Summer Squash					
Winter Squash					
See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:					
Vegetable Seed Planting Guide					
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)	
Seed	-		2-3	4-6	
51 Tray	3-4		-	2-3	
36 Tray	3-5		-	1-2	

Sweet Corn and Other Vegetable Growing Guides/Resources

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STEVIA	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	68-75	-	7-21	65-70
General Cultural Information:				
Start seeds indoors 6-8 weeks before last frost date. Transplant to 3-4" pots when seedlings are large enough to handle. Do not over-water. For bushier plants, pinch back growing tips every few weeks for the first 1-2 months after germination.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		7-8	8-10

SWISS CHARD	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-75	D	7-14	60/50
General Cultural Information:				
May be sown directly outdoors in May and July for summer and fall harvests. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations: Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		3-4	4-6
288 Tray	2-3		-	2

THYME	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	65-70	-	18-24	55-60
General Cultural Information:				
Sow seed indoors in early spring. Ready to transplant outdoors 11-13 weeks from seeding.				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		10-12	13-15
288 Tray	4-5		3-5	6-8
128 Tray	6-7		2-4	5-7
51 Tray	-		-	2-4
36 Tray	-		-	2-4

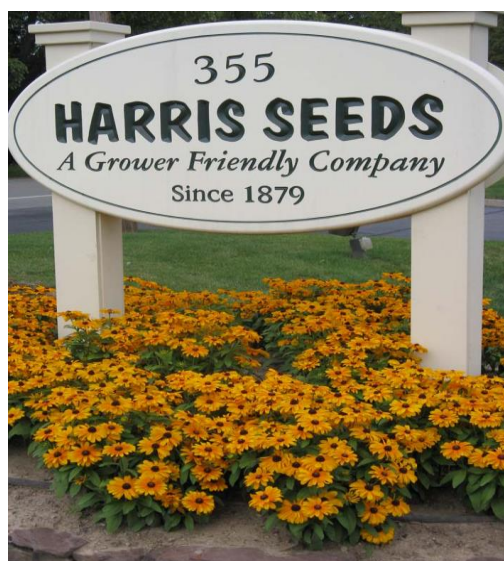


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<u>TOMATO</u>	Germination Requirements			Growing on Temperatures
Tomato Grafting Guide	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
Solanaceae Technical Bulletin	75-80	-	6-14	65-75/60
General Cultural Information:				
For early market tomatoes, you can seed in 288 trays and transplant to larger tray (50) at first true leaf. Aim for approx. 8-week-old field-ready plant. For mid-to-late season tomatoes, direct-seed in 128 tray. Plants should be 6 to 7 weeks old for mid-to-late May plantings; 5 weeks old for June plantings. Smokers should wash their hands well to deactivate any tobacco mosaic virus before handling plants. See Harris Seeds Tomato Chart for variety comparisons:				
Tomato Chart				
See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		5-8	8-10
512 Tray	-		2-3	5-7
288 Tray	3-4		1-2	4-6
128 Tray	6-8		0-1	2-4
51 Tray	-		-	1-2
36 Tray	-		-	1-2

<u>WATERMELON, SEEDED</u>	Germination Requirements			Growing on Temperatures
	Germ Temp, °F	Light/Dark	Days to Germ	°F, Day/Night
	75-80	-	4-14	70-80/65-70
General Cultural Information:				
As they require a long growing season, watermelons are best started indoors approximately 3-4 weeks prior to the last frost of the season. Or you may direct-seed 1 to 2 weeks after average last frost when soil is 70° F or warmer. See Harris Seeds Vegetable Seed Planting Guide for planting recommendations:				
Vegetable Seed Planting Guide				
Number of Weeks to Finish From:	Plug Crop Weeks	To:	Pack (Seed to Sale)	Pot, 4" (1 ppp)
Seed	-		3-5	6-8
36 Tray	5-6		-	1-2



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