

# VEGETABLE & HERB PLUGS GROWING RECOMMENDATIONS

CROP	Tray Size <sup>1</sup>	STAGE 1*				STAGE 2**				STAGE 3***				STAGE 4****					Total Plug Crop Time (weeks) <sup>5</sup>	CULTURAL COMMENTS	
		Cover <sup>2</sup>	Soil Temperature	Moisture	Days	Soil Temperature	Fertilizer	Moisture	Days	Soil Temperature	Fertilizer (ppm) <sup>3</sup>	Moisture	Soil EC <sup>4</sup>	Days	Soil Temperature	Fertilizer (ppm) <sup>3</sup>	Moisture	Soil EC <sup>4</sup>			Days
<b>Basil</b> <i>(Ocimum basilicum)</i>	288- to 72-cell	Yes	68-75°F (20-24°C)	5	2-4	65-72°F (18-22°C)		3-4	7	65-72°F (18-22°C)	100-150 1/wk	2-4	0.5-1.5	7-10	62-68°F (16-20°C)	100-150 1/wk	2-4	<0.75	7	4-5	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light. Direct sowing into the final container can reduce crop time and costs.
<b>Borage</b> <i>(Borago officinalis)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	5-7	62-68°F (16-20°C)	50-75 1/wk	3-4	5-7	62-68°F (16-20°C)	100 1/wk	2-4	0.5-1.5	7	55-62°F (12-16°C)	100-150 1/wk	2-4	<1.0	7	3-4	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light.
<b>Broccoli</b> <i>(Brassica oleracea Botrytis group)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	2-4	62-68°F (16-20°C)	50-75 1/wk	2-3	5-7	62-68°F (16-20°C)	75-100 1/wk	2-3	0.7-1.2	14-21	62-68°F (16-20°C)	100-150 1/wk	2-3	0.7-1.2	7-10	4-6	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light.
<b>Brussels Sprouts</b> <i>(Brassica oleracea Gemmifera group)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	3-5	62-68°F (16-20°C)		2-4	5-8	62-68°F (16-20°C)	75-100 1/wk	2-3	0.5-1.5	17-21	62-68°F (16-20°C)	100 1-2/wk	2-3	0.5-1.0	7-10	6-8	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light.
<b>Cabbage</b> <i>(Brassica oleracea Capitata group)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	3	62-68°F (16-20°C)		2-4	5-8	62-68°F (16-20°C)	75-100 1/wk	2-3	0.5-1.5	17-21	62-68°F (16-20°C)	100 1-2/wk	2-3	0.5-1.0	7-10	5-6	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light.
<b>Cauliflower</b> <i>(Brassica oleracea Botrytis group)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	3	62-68°F (16-20°C)		2-4	5-8	62-68°F (16-20°C)	75-100 1/wk	2-3	0.5-1.5	17-21	62-68°F (16-20°C)	100 1-2/wk	2-3	0.5-1.0	7-10	5-6	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light.
<b>Celery</b> <i>(Apium graveolens var. dulce)</i>	288- to 72-cell	Yes	72-78°F (22-25°C)	5	5-10	68-75°F (20-24°C)	50-75 1/wk	3-4	10-14	68-75°F (20-24°C)	100-150 1/wk	2-4	0.7-1.2	28-35	68-75°F (20-24°C)	100-150 1/wk	2-3	0.7-1.2	7-10	8-9	Do not grow below 60°F (15°C) to prevent bolting. Crop can be mowed before shipping.
<b>Chives</b> <i>(Allium schoenoprasum)</i>	288- to 72-cell	Yes Lightly	72-78°F (22-25°C)	4	4-8	68-75°F (20-24°C)	50-75 1/wk	3-4	5-7	68-75°F (20-24°C)	100-150 1/wk	2-4	0.7-1.2	21-35	68-75°F (20-24°C)	100-150 1/wk	2-4	<1.0	7	7-8	Can mow crop for height control. Control foliar diseases with moisture control, air movement and approved fungicides. Direct sowing into the final container can reduce crop time and costs.
<b>Cilantro</b> <i>(Coriandrum sativum)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	4-8	65-72°F (18-22°C)		3-4	5-7	62-68°F (16-20°C)	100-150 1/wk	2-4	0.5-1.5	7-10	55-62°F (12-16°C)	100-150 1/wk	2-4	<1.0	7	5-6	Direct sowing into the final container can reduce crop time and costs.
<b>Collard</b> <i>(Brassica oleracea var. acephala)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	3-4	68-75°F (20-24°C)		2-4	5-8	62-68°F (16-20°C)	75-100 1/wk	2-3	0.5-1.5	17-21	62-68°F (16-20°C)	100 1-2/wk	2-3	0.5-1.0	7-10	5-6	
<b>Cucumber</b> <i>(Cucumis sativus)</i>	Direct-sow or 72-cell	Yes	72-78°F (22-25°C)	4	2-4	65-72°F (18-22°C)	<100 1/wk	3-4	3-5	65-72°F (18-22°C)	<100 1/wk	2-3	<0.75	5-7	65-72°F (18-22°C)	<100 1/wk	2-3	<0.75	3-5	1-3	Control foliar diseases with moisture control, air movement and approved fungicides. Decrease night temperature after germination to minimize stretch. Avoid over-feeding to control height. Direct sowing into the final container can reduce crop time and costs.
<b>Dill</b> <i>(Anethum graveolens)</i>	288- to 72-cell	No	65-72°F (18-22°C)	4	5-7	62-68°F (16-20°C)	<100 1/wk	3-4	5-7	62-68°F (16-20°C)	100-175 1/wk	2-4	0.7-1.2	17-21	55-62°F (12-16°C)	<100 1/wk	2-4	<1.0	7	6-7	Direct sowing into the final container can reduce crop time and costs.
<b>Eggplant</b> <i>(Solanum melongena)</i>	288- to 72-cell	Yes	72-78°F (22-25°C)	4	5-6	68-75°F (20-24°C)		2-4	5-10	62-68°F (16-20°C)	100 2/wk	2-3	0.5-1.5	24-27	62-68°F (16-20°C)	100 1-2/wk	2-3	0.5-1.0	7-10	6-7	Avoid cool, wet conditions. Control height with DIF, moisture and light uniconazole-P (follow label usage carefully). Control foliar diseases with moisture control, air movement and approved fungicides.
<b>Kohlrabi</b> <i>(Brassica oleracea var. gongyolodes)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	3-4	68-75°F (20-24°C)		2-4	5-8	62-68°F (16-20°C)	75-100 1/wk	2-3	0.5-1.5	17-21	62-68°F (16-20°C)	100 1-2/wk	2-3	0.5-1.0	7-10	5-6	
<b>Lettuce</b> <i>(Lactuca sativa)</i>	288- to 72-cell	Yes Lightly	65-72°F (18-22°C)	4	3-5	65-72°F (18-22°C)	50-75 1/wk	3-4	5-7	62-68°F (16-20°C)	100-150 1/wk	2-3	0.7-1.2	5-7	62-68°F (16-20°C)	100-150 1/wk	2-3	0.7-1.2	7	3-4	Control foliar diseases with moisture control, air movement and approved fungicides. Direct sowing into the final container can reduce crop time and costs.
<b>Mint</b> <i>(Mentha spp.)</i>	288- to 72-cell	Yes Lightly	65-72°F (18-22°C)	4	3-6	68-75°F (20-24°C)	50-75 1/wk	3-4	7	62-68°F (16-20°C)	100-150 1/wk	2-4	<1.0	21-28	62-68°F (16-20°C)	<100 1/wk	2-4	<1.0	7	7-8	Control foliar diseases with moisture control, air movement and approved fungicides. Maintain constant media moisture, avoiding excessive wet or dry periods.
<b>Okra</b> <i>(Abelmoschus esculentus)</i>	288- to 72-cell	Yes Lightly	72-78°F (22-25°C)	4	4-8	>75°F (24°C)	50-75 1/wk	3-4	7	68-75°F (20-24°C)	100-150 1/wk	2-4	0.5-1.5	7-10	68-75°F (20-24°C)	100-150 1/wk	2-4	<1.0	7	4-5	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture and light.
<b>Onion</b> <i>(Allium cepa)</i>	288- to 72-cell	Yes Lightly	72-78°F (22-25°C)	4	4-8	68-75°F (20-24°C)	<100 1/wk	3-4	5-7	68-75°F (20-24°C)	100-150 1/wk	2-3	0.7-1.2	35-42	68-75°F (20-24°C)	100-150 1/wk	2-3	0.7-1.2	7	8-9	Can mow crop for height control. Control foliar diseases with moisture control, air movement and approved fungicides. Direct sowing into the final container can reduce crop time and costs.
<b>Oregano</b> <i>(Origanum vulgare)</i>	288- to 72-cell	Yes Lightly	68-75°F (20-24°C)	4	4-8	68-75°F (20-24°C)	<100 1/wk	3-4	7-10	62-68°F (16-20°C)	100-150 1/wk	2-4	0.5-1.5	10-14	55-62°F (12-16°C)	100-150 1/wk	2-4	<1.0	7	6-8	Control foliar diseases with moisture control, air movement and approved fungicides.
<b>Parsley</b> <i>(Petroselinum crispum)</i>	288- to 72-cell	Yes	72-78°F (22-25°C)	4	10-18	68-75°F (20-24°C)		3-4	7	62-68°F (16-20°C)	100-150 1/wk	2-4	0.5-1.5	10-14	55-62°F (12-16°C)	100-150 1/wk	2-4	<1.0	7	6-8	Direct sowing into the final container can reduce crop time and costs.
<b>Pepper</b> <i>(Capsicum annuum)</i>	288- to 72-cell	Yes	72-78°F (22-25°C)	4	5-7	>75°F (24°C)		2-4	5-10	68-75°F (20-24°C)	100 2/wk	2-3	0.5-1.5	28-35	68-75°F (20-24°C)	100-150 1-2/wk	2-3	0.5-1.0	7-10	7-8	Avoid cool, wet conditions. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light uniconazole-P (follow label usage carefully). Control foliar diseases with moisture control, air movement and approved fungicides.
<b>Pumpkin</b> <i>(Cucurbita maxima)</i>	Direct-sow or 72-cell	Yes	72-78°F (22-25°C)	4	3-7	65-72°F (18-22°C)	<100 1/wk	3-4	7	65-72°F (18-22°C)	<100 1/wk	2-3	<0.75	7	65-72°F (18-22°C)	<100 1/wk	2-3	<0.75	7	2-3	Control foliar diseases with moisture control, air movement and approved fungicides. Decrease night temperature after germination to minimize stretch. Avoid over-feeding to control height. Direct sowing into the final container can reduce crop time and costs.
<b>Rosemary</b> <i>(Rosmarinus officinalis)</i>	288- to 72-cell	No	65-72°F (18-22°C)	4	10-12	68-75°F (20-24°C)	<100 1/wk	3-4	7-10	62-68°F (16-20°C)	100-150 1/wk	2-4	0.5-1.5	10-14	55-62°F (12-16°C)	100-150 1/wk	2-4	<1.0	7	5-8	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light.
<b>Sage</b> <i>(Salvia officinalis)</i>	288- to 72-cell	Yes	72-78°F (22-25°C)	4	6-10	68-75°F (20-24°C)		3-4	7-10	62-68°F (16-20°C)	100-150 1/wk	2-4	0.5-1.5	10-14	55-62°F (12-16°C)	100-150 1/wk	2-4	<1.0	7	7-8	Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light.
<b>Spinach</b> <i>(Spinacia oleracea)</i>	288- to 72-cell	Optional	65-72°F (18-22°C)	4	7-10	62-68°F (16-20°C)		3-4	7	62-68°F (16-20°C)	100-150 1/wk	2-4	0.5-1.5	7-10	55-62°F (12-16°C)	100-150 1/wk	2-4	0.5-1.0	7	4-5	Control foliar diseases with moisture control, air movement and approved fungicides. Direct sowing into the final container can reduce crop time and costs.
<b>Squash</b> <i>(Cucurbita maxima, C. pepo)</i>	Direct-sow or 72-cell	Yes	72-78°F (22-25°C)	4	2-4	65-72°F (18-22°C)	<100 1/wk	3-4	7	65-72°F (18-22°C)	<100 1/wk	2-3	<0.75	7	65-72°F (18-22°C)	<100 1/wk	2-3	<0.75	7	2-3	Control foliar diseases with moisture control, air movement and approved fungicides. Decrease night temperature after germination to minimize stretch. Avoid over-feeding to control height. Direct sowing into the final container can reduce crop time and costs.
<b>Strawberry</b> <i>(Fragaria x ananassa)</i>	288- to 72-cell	Yes Lightly	65-72°F (18-22°C)	3	10-14	68-75°F (20-24°C)	<100 1/wk	2-3	7-10	62-68°F (16-20°C)	100-150 1/wk	2-3	0.7-1.2	14-21	62-68°F (16-20°C)	<100 1/wk	2-3	<1.0	7	7-10	Control foliar diseases with moisture control, air movement and approved fungicides. Strawberry is sensitive to high salts, especially during germination.
<b>Sweet Marjoram</b> <i>(Origanum majorana)</i>	288- to 72-cell	Yes Lightly	72-78°F (22-25°C)	4	4-8	68-75°F (20-24°C)		3-4	7-10	62-68°F (16-20°C)	100-150 1/wk	2-4	0.5-1.5	7-10	55-62°F (12-16°C)	100-150 1/wk	2-4	<1.0	7	5-7	Control foliar diseases with moisture control, air movement and approved fungicides.
<b>Swiss Chard</b> <i>(Beta vulgaris var. cicla)</i>	288- to 72-cell	Yes	65-72°F (18-22°C)	4	4-6	68-75°F (20-24°C)		3-4	5-8	62-68°F (16-20°C)	100 1/wk	2-4	0.5-1.0	17-21	62-68°F (16-20°C)	100 1/wk	2-4	0.5-1.0	7-10	5-6	Control foliar diseases with moisture control, air movement and approved fungicides.
<b>Thyme</b> <i>(Thymus vulgaris)</i>	288- to 72-cell	Yes	72-78°F (22-25°C)	4	5-8	65-72°F (18-22°C)	<100 1/wk	2-3	7-10	62-68°F (16-20°C)	100-150 1/wk	2-3	0.7-1.2	10-14	62-68°F (16-20°C)	<100 1/wk	2-3	<0.75	7	4-6	Can be sown into final container. Control foliar diseases with moisture control, air movement and approved fungicides.
<b>Tomato</b> <i>(Lycopersicon esculentum)</i>	288- to 72-cell	Yes	72-78°F (22-25°C)	4	3-4	68-75°F (20-24°C)	<100 1/wk	3-4	4-7	68-75°F (20-24°C)	100 2/wk	2-3	0.5-1.5	24-27	62-68°F (16-20°C)	100 1-2/wk	2-3	0.5-1.0	7-10	6-7	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light uniconazole-P (follow label usage carefully).
<b>Watermelon</b> <i>(Citrullus lanatus)</i>	Direct-sow or 72-cell	Yes	82-85°F (28-29°C)	3-4	2-4	>75°F (24°C)		2-4	4-8	68-75°F (20-24°C)	100 2/wk	2-3	0.5-1.5	21	68-75°F (20-24°C)	100 1-2/wk	2-3	0.5-1.0	7	5-6	Control foliar diseases with moisture control, air movement and approved fungicides. Decrease night temperature after germination to minimize stretch. Avoid over-feeding to control height. Direct sowing into the final container can reduce crop time and costs.
<b>Tomatillo</b> <i>(Physalis peruviana)</i>	288- to 72-cell	Yes	72-78°F (22-25°C)	4	4-9	68-75°F (20-24°C)	<100 1/wk	2-4	4-7	68-75°F (20-24°C)	100 2/wk	2-3	0.5-1.5	24-27	62-68°F (16-20°C)	100 1-2/wk	2-3	0.5-1.0	7-10	6-7	Control foliar diseases with moisture control, air movement and approved fungicides. Control height with DIF, moisture, a fertilizer low in phosphorus and ammonium nitrogen, and light uniconazole-P (follow label usage carefully).

**NOTE:** Growers should use the information presented here as a starting point. Crop times will vary depending on the climate, location, time of year and greenhouse environmental conditions. Chemical recommendations are only guidelines. It is the responsibility of the applicator to read and follow all the current label directions for the specific chemical being used in accordance with all regulations.

**\*Stage 1:** Sow to radicle emergence  
**\*\*Stage 2:** Radicle emergence to cotyledon expansion  
**\*\*\*Stage 3:** Cotyledon expansion to growth of all true leaves  
**\*\*\*\*Stage 4:** Growth of all true leaves to toning for transplanting/shipping

**<sup>1</sup>Tray Size:** These sizes are the recommended minimum. If direct sowing into the finish container, a larger size may be required.  
**<sup>2</sup>Cover:** Generally coarse vermiculite is recommended.  
**<sup>3</sup>Fertilizer (ppm):** Refers to the parts per million of nitrogen. Alternating 20-10-20 with 14-0-14, 15-0-15 or 15-5-15 is a suggested starting point for a fertilizer program. Fertilizers high in ammonia form of nitrogen and phosphorus tend to promote stretch.

**<sup>4</sup>Soil EC:** Electrical conductivity expressed as mmhos/cm from a 2:1 dilution.  
**<sup>5</sup>Total Plug Crop Time:** The number of weeks for a Spring crop. *This is intended as a guide only.*  
**Currently Sumagic (uniconazole-P) is the only PGR labeled for use on a limited list of vegetable transplants. Check the label for the most current information.**

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