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101 Ways to Try to Grow Arabidopsis: Protocol Summary

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101 Ways to (Try to) Grow Arabidopsis: Summary of Recommendations

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Modified: 10/11

	Standard Production, very low risk of plant failure	**Fast Production, slight risk of plant failure**	**Root Treatment Production (no flowering required)**
Location	Growth chamber, light shelf, greenhouse *only* if <26C	Growth chamber, light shelf or greenhouse <30C	Growth chamber, light shelf, greenhouse <30C
Photoperiod	16-hour	24-hour	12-hour
Light intensity	100-150 µmol/m^2/s fluorescent or high-intensity discharge (MH, HPS) or 100-600 µmol/m^2/s sunlight	100 µmol/m^2/s fluorescent or high-intensity discharge (MH, HPS) or ambient sunlight extended to 24-hours with 100 µmol/m^2/s	100-150 µmol/m^2/s fluorescent or 100-400 µmol/m^2/s high-intensity discharge (MH, HPS) or 100-600 µmol/m^2/s if sunlight
Temperature	22C light 18C dark	22C constant	22C light 18C dark
Container and plant density	3" square pot , 3-6 plants or 3601 (36-cell) tray, 2-4 plants	3" square pot, 3-6 plants or 3601 (36-cell) tray, 2-4 plants	72-cell tray, 72 plants
Soilless Mix	75% commercial soilless germination mix/ 25% calcined clay granules (0.2-0.5 cm diameter)	50% commercial soilless germination mix/ 50% calcined clay granules (0.2-0.5 cm diameter)	100% calcined clay granules (0.2-0.5 cm diameter or finer granules roughly sand-particle size, <0.1 cm)
Water source	Tap water, unless testing indicates very poor water quality	Tap water, unless testing indicates very poor water quality	Tap water, unless testing indicates very poor water quality
Watering system	Gentle top water when possible. Sub-irrigation for young seedlings and for plants with maturing seeds. Drain trays 5 minutes later.	Capillary mat "self-watering" tray or Constant sub-irrigation	Sub-irrigation, may need to fill to surface of medium. Drain trays 5 minutes later.
Watering frequency	After first true leaves appear, allow soil to completely dry to depth of 1-cm below surface. Approximately every 7-10 days.	Keep capillary tray reservoir filled or Keep sub-irrigation tray filled to about 1.5 cm depth.	After first true leaves appear, as needed to avoid water stress. Approximately every 1-3 days.
Fertilizer type	General purpose liquid fertilizer w/ micronutrients	General purpose liquid fertilizer w/ micronutrients	General purpose liquid fertilizer w/ micronutrients
Fertilizer strength	150-200 ppm N (150-200 mg N/liter)	250-300 ppm N (250-300 mg N/liter)	150-200 ppm N (150-200 mg N/liter)
Fertilizer frequency	Every other irrigation	Every irrigation	Three fertilizations, followed by one tap water irrigation
Fungus gnat control	Allow soilless mix drying, as described. If needed, apply *S. feltiae* beneficial nematodes, or *Bt* ssp *israelensis*.	If needed, apply *S. feltiae* beneficial nematodes, or *Bt* ssp *israelensis*.	Dry out media while avoiding plant water stress