

# Culture Guideline

## Stock/Matthiola *Matthiola incaca* Standard Type Series and Varieties

### Young Plant Operation

#### **Stage 1(sowing stage) - 3 to 4 days**

Temperature: 20 - 22 °C

Sowing and Soil: Multiple sowing(3 to 4 seeds) recommended and use a well drained and disease free medium.

pH and EC: pH 5.5 - 6.5, EC 0.75 mmhos/cm

Humidity and Soil Moisture: RH 95%+. Adequately moist soil but do not saturate.

Light: No needed for germination stage - cover seeds lightly

#### **Stage 2 - cotyledon emergence**

Temperature: 15 - 21 °C

Light: 2,500 f.c. (27,000 lux)

Fertilizer: 100 ppm (N)

Soil Moisture: Slightly wet

#### **Stage 3 - True-leaf development**

Temperature: 15 - 21 °C

Light: 2,500 f.c. (27,000 lux)

Fertilizer: 100 - 150 ppm (N)

Soil Moisture: Slightly wet

#### **Stage 4 - 1 to 2 weeks <Hardening stage>**

Temperature: 15 - 21 °C

Light: 5,400 f.c. (54,000 lux)

Fertilizer: 100 - 150 ppm (N)

Soil Moisture: Normal - must be drier and milder moist than earlier stages

### **<< Tips to Select Double-Flowering Plants >>**

Generally recommend the two processes to select double-flowering plants in cotyledon stage.

1st Action - throw away relatively slower germination plants by 30%.

2nd Action - remove the plants suspected as single-flowering with the following signs in the 70% plants.

	Size	To Grow	Leaf Form	Color
Double	Larger	Faster	Oval-like	Light Green
Single	Smaller	Slower	Round	Dark Green



Typical comparison between single(L) and double(R)

### **NOTE:**

- 405-cell or larger sized trays are recommended.
- Miantain a soil pH in lower than 6.5 and EC between 0.7 - 1.2 mmhos/cm.
- Approximately scheduled 4 weeks for young plant production but it will be depending on environmental conditions.
- Do not use ammonium-form fertilizers

## **Growing Management**

### **Soil**

Prepare a well drained and disease free medium. A moderate initial nutrient suggested with pH range 5.8 to 6.5. Young plants do not like dry stress especially in start-up time. Careful not to allow plugs to dry out immediately after transplant.

### **Planting Density**

30 to 50 plants per sq. meters. Carefully do not damage the roots at transplanting.

### **Fertilizer**

After rooted, apply 150 - 200 ppm of nitrate-form fertilizer with low phosphorus every other irrigation. If low phosphorus and calcium in the soil(test needed) then they would be added before planting. Carefully control low fertilizer and irrigation to avoid excessive side shoots. Maintain the soil pH at 5.8 to 6.5 and EC at 1.5 to 2.0 mS/cm.

### **Irrigation**

Recommend overhead-irrigation after transplant, then switch to drip-irrigation 2 to 3 weeks later. Keep the soil moist. Allow the soil to dry slightly between watering strokes.

### **Light Level**

No supplemental light needed but must be scheduled in the best daylight season when grown in greenhouse. Matthiola initiates buds and flowers under the condition of shorter than 12 hours in daylength but longer hours will help quicker to harvest.

### **Temperatures**

Day temperature: 15 - 22 °C

Night temperature: 8 - 15 °C

A humid deficit (G/M3) must be within moderate range in proportion as actual temperature.

### **Supporting Net**

Support nets may be necessary. Size and layer will can be in view of bedding width, efficiency to pinch and other physical parameters.

### **Common Disease and Insects**

Crown Rot, Botrytis, Downy Mildew, Thrips, Aphids... must be controlled in the first level attention. Protections with fungicide and pesticide required. Disease issues on the whole happens along with stresses in growing management or surroundings, so keeping appropriate growing conditions leads to diminishing chance to be infected. Each grower must check with best advisor to control diseases and insects with appropriate measures.