

# Culture Guideline

## Brassica(Flowering Kale) *Brassica oleracea* Cutflower Series and varieties

### Young Plant Operation

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

Temperature: 20 - 23 °C

Sowing and Soil: Single sowing recommended and use a well drained and disease free medium.

pH and EC: pH 5.5 - 6.2, 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 - 1 to 2 weeks <cotyledon emergence>**

Temperature: Day = 15 - 21 °C Night = 13 - 15 °C

Light: Up to 2,500 f.c. (27,000 lux) as far as temperature is in proper range

Fertilizer: 100 ppm (N)

Soil Moisture: Slightly dry

#### **Stage 3 - Approximately 2 weeks <True-leaf development>**

Temperature: Day = 15 - 21 °C Night = 13 - 15 °C

Light: Up to 2,500 f.c. (27,000 lux) as far as temperature is in proper range

Fertilizer: 100 - 150 ppm (N)

Soil Moisture: Slightly dry

#### **Stage 4 - 7 to 10 days <Hardening stage>**

Temperature: Day = 15 - 21 °C Night = 10 - 13 °C

Light: Up to 5,000 f.c. (54,000 lux) as far as temperature is in proper range

Fertilizer: 100 - 150 ppm (N)

Soil Moisture: Normal to slightly dry

### **NOTE:**

- 288 to 405 size tray recommended.
- Miantain a soil pH of 5.8 to 6.2 and EC in lower than 1.2 the overall period for young plant production.
- Avoid temperatures below 10 °C and above 24 °C in young plant production time; especially earlier stages.
- Apply a nitrate form fertilizer with low phosphorus - do not use ammonium form.

## **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**

Recommended to plant 10 x 10 cm. apart to clean lower leaves and promote stems thinner. Carefully do not damage the roots at transplanting. A humid deficit (G/M3) must be within moderate range as actual temperature.

### **Irrigation**

Recommend overhead irrigation after transplant, then switch to basal supply 2 to 3 weeks later. Keep the media moist. Allow the media to dry slightly between watering strokes.

### **Fertilizer**

After rooted, apply 150 ppm of nitrate form fertilizer with low phosphorus every other irrigation. Maintain EC at about 1.0 to 1.5 mS/cm (1:2 extraction) and pH at 5.8 to 6.5. Continue fertilizing until harvest. Avoid excessive moisture and fertilization and maintain less(50 to 100 ppm(N)/ EC 0.75 mmhos/cm) several days before lowering the temperature(refer to "Temperature" below). NOTE: Too much moisture and fertilizer promotes delaying leaves coloring and leads to out of the balance in top and bottom.

### **Light Level**

Plants must be grown under 3,000 - 5,000 f.c. (33,000 – 54,000 lux).

### **Temperatures**

Day temperature: 15 - 22 °C

Night temperature: 10 - 15 °C

Control temperature in proper range until the desired height, then keep night temperature below 13 °C to tone up color on the leaves. The color becomes more intense under the temperature comes below 9 °C.

### **Supporting Net**

Support nets will be helpful - enough with one layer.

### **Pinch**

No pinching needed.

### **Common Disease and Insects**

Protections with fungicide and pesticide; particularly Aphids, Thrips, Caterpillars, Downy Mildew, Botrytis, are required. Each grower must check with best advisor to control diseases and insects with appropriate measures.