

## CANNA

Yellow streaking and mottling of the foliage is due to virus infection.

- Canna are easily infected with several viruses which cause streaking and mottling of the foliage which makes them potentially unsalable.
- Propagation by rhizomes (corms) is not recommended due to many of the rhizomes are already infected.
- There are multiple RNA viruses which are not seed borne so using seed as a starting input is a safe recommendation.
- Unfortunately, Canna Yellow Mosaic virus (CaYMV) is a DNA virus which means it is incorporated into the genome and is seed borne. This virus occurs in lower incidence but can be present in most seed lots.
- There are 3 virus groups which can trigger leaf streaking:
  - ❖ Canna Yellow Mosaic Virus (CaYMV), a DNA virus, is in the plant genome and can be seed borne.
  - ❖ Canna Yellow Streak Virus (CaYSV) and Bean Yellow Mosaic Virus (BYMV) are potyvirus which require inoculation for infected plants and are not seed borne.
  - ❖ Cucumber Mosaic Virus (CMV) and Tomato Aspermy Virus (TAV) are cucumovirus which are easily transmitted from infected plants.

### **Canna @ Risk Crop**

*Canna are susceptible to several viruses which cause yellow streaking or yellowing in dark leaf varieties. Like all virus issues, there is no cure. Starting with clean inputs and avoiding transmission from infected plants is the control strategy. Seed or TC reduce the risk to virus infection.*

*Canna seed is scarified with a laser hole then covered with a blue coating to maximize germination. It is critical to **BURY the seed** so that it remains buried until germination. Burying the seed assures that the seed is uniformly hydrated to promote uniform germination. Seed which 'floats' to the surface will not hydrate uniformly and germination will be reduced. Soaking the seed is not needed if the seed is buried and soil is kept wet (level 4-5) during early stage 1.*

### TEMPERATURE

- Stage 1: Soil temperature: 75-80F (24-27C), germination within 10 day
- Stage 3: Air temperature: 68-72F (20-22C) as these are tropical plants

### WATER

- Stage 1: Keep media evenly moist by drying to a level 4 and watering to a level 5.
- Stage 3: Allow plants to dry to a level 3 and water to a level 4 as these are native to wet conditions

### LIGHT

- Maintain highest light levels possible (4500-7500+ Ftc) without stressing plants.

### MEDIA

- A well-drained, disease-free medium with a medium initial nutrient charge and a pH 5.8--6.2.

### FERTILIZATION

- Canna are not heavy feeders and excess salts can trigger virus streaking and leaf edge necrosis.

### CONTROLLING HEIGHT

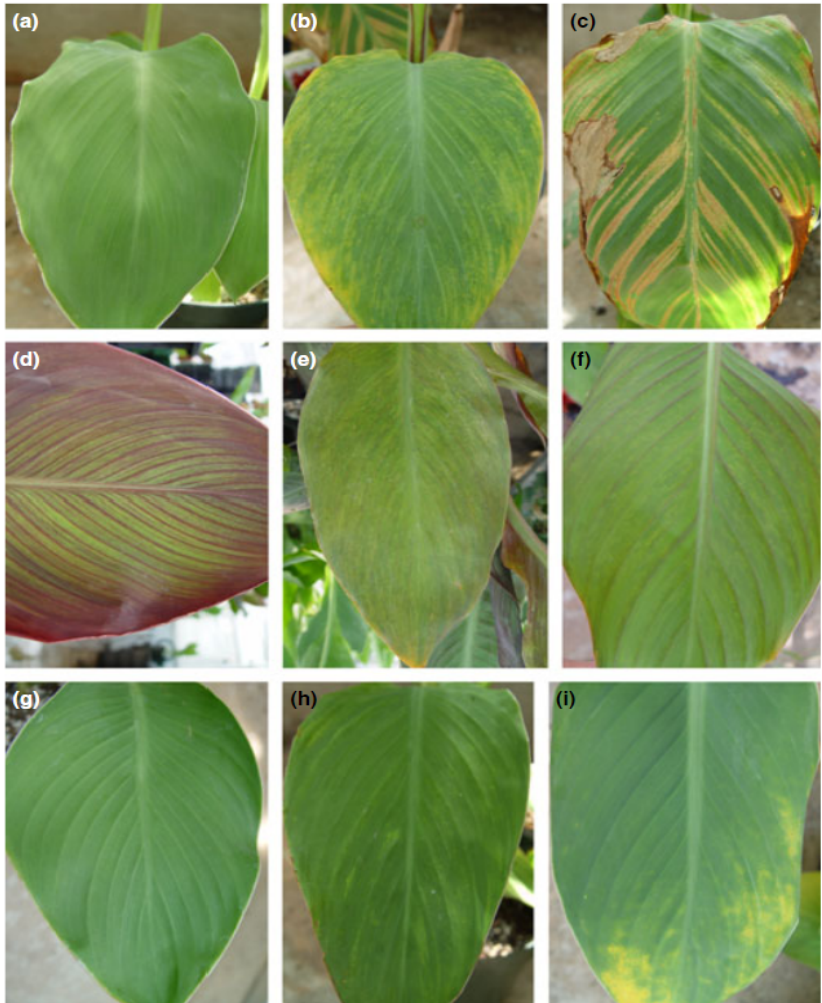
- Growth Regulators are not normally need. A single Bonzi plug drench after the first true leaf expands will promote compact growth and not affect final plant performance

**Classic virus symptoms of various viruses that affect Canna**

Production of discernible disease phenotypes in Canna by five plant viruses belonging to the genera Potyvirus, Cucumovirus and Badnavirus

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**Figure 1** Leaf symptoms on canna cultivars at 8 weeks of age. Cultivar Firebird: healthy (a) and BYMV-infected (b,c) leaves, scored 3 and 4 for disease indexing, respectively. Healthy Wyoming (d) has red/green leaves, with red pigmentation along the veins and leaf margins. Virus-infected Wyoming plants (e) with severe mosaic, narrow veins and reduced red colouration along the veins. Similar mosaic symptoms are seen in the cultivars Burning Ember (f), Corsica (g) and Crimson Beauty (h; tested positive for CMV). A plant of cultivar Corsica positive for TAV (i). BYMV, *Bean yellow mosaic virus*; CMV, *Cucumber mosaic virus*; TAV, *Tomato aspermy virus*.



Production of discernible disease phenotypes in Canna by five plant viruses belonging to the genera Potyvirus, Cucumovirus and Badnavirus

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**Figure 2** Leaf symptoms on canna cultivars between 8 and 12 weeks of age. Cultivar Aida: healthy green foliage (a); leaf infected with CaYSV (b); infection with both CaYMV and CaYSV (c). Cultivar Wyoming: healthy leaf (d); leaf infected with CaYSV (e); infection with both CaYMV and CaYSV (f). Cultivar Pretoria: healthy foliage (g); leaves infected with both CaYMV and CaYSV (h,i). Veinal necrosis was evident in most plants infected with CaYMV and CaYSV as exemplified by Corsica (j), Black Knight (k) and Cleopatra (l). CaYMV, *Canna yellow mottle virus*; CaYSV, *Canna yellow streak virus*.