



## Dasheen Mosaic Virus

Dasheen mosaic is caused by a virus that infects taro, *Colocasia*, and also certain other members of the family Araceae, including *Alocasia*, *Amorphophallus* and *Xanthosoma*. The virus is not known to infect plants outside of this family.

Dasheen Mosaic Virus (DMV) was originally described in 1970 from Florida, USA, but now it is recognized as a pathogen of taro in other areas of the world including Egypt, India, Japan, the Caribbean and South America.

The virus is probably present throughout the South Pacific region and it is also present in Hawaii.

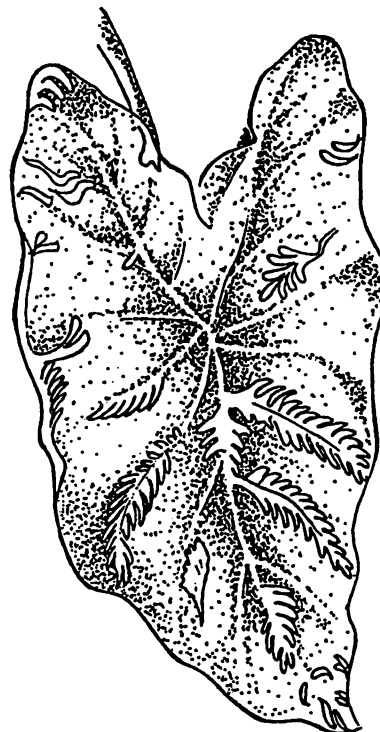
### Symptoms

DMV is not a lethal disease. Its main effect to the plant is to retard plant growth, reducing tuber yield.

Infected corms show no diagnostic symptoms, but conspicuous mosaic, streak and/or mottle symptoms are evident on the foliage of diseased plants.

Symptoms are often expressed as a "feathering" pattern of mosaic which appears to follow the leaf veins.

Taro cultivars may differ considerably in the intensity with which symptoms are expressed. In some cultivars the leaves with symptoms are readily apparent. In other tolerant cultivars, foliar symptoms occur only occasionally. Plants have a normal appearance during the periods between symptom development.



Taro leaf with a feathering pattern of mosaic along the leaf veins caused by dasheen mosaic virus.

### Infection and Spread

#### • Insect transmission

DMV is spread by the winged forms of several aphid species. The cotton-melon aphid, *Aphis gossypii*, occurs most frequently in the South Pacific region and is likely to be important in spreading the virus. Virus acquisition and subsequent transmission is extremely rapid and can occur in a matter of seconds. The relative ability of different aphid species to transmit this virus has no apparent relation to the host plant preference of the aphid. Therefore, many species can be expected to act as vectors under field conditions.



DMV can also be transmitted when sap from infected plants comes into contact with wounded surfaces of healthy plants. This means of spread seems to be less important than aphid transmission.

• *Infected planting material*

Vegetative planting material taken from diseased plants will be infected, even though foliar symptoms may not be present on the parent plants. The use of such planting material is undoubtedly the most important means by which DMV is introduced to new areas.

Indiscriminate import and subsequent release of taro germplasm from overseas is especially likely to result in the distribution of this and other serious pathogens of taro. Once introduced, DMV can be spread rapidly to nearby healthy plants by winged aphids.

**Effect of the Disease**

There is little information on the effects of DMV on taro yields, but it is very likely that corm size and quality are reduced considerably. The presence of this virus should not be taken lightly, despite its failure to kill infected plants or to induce noticeable corm symptoms.

**Control**

Once established, DMV is difficult to control because the acquisition and transmission of the virus by aphids is so rapid. The virus exists indefinitely in the diseased plants and their offshoots.

• *Exclusion of virus-infected plants*

In countries where DMV has not been recorded, strict quarantine measures should be observed to prevent its introduction. Even in countries where the disease occurs, some degree of restriction on the movement of planting material may be worthwhile.

It has been observed that the incidence of DMV is greater in taro and other aroids that are grown intensively, than those in plantings grown in relative isolation.

The most practical means of controlling dasheen mosaic is to prevent the movement of diseased plants to uninfected areas.

• *Destruction of diseased plants*

Removing and destroying diseased plants offers a possible method of controlling DMV once infection has become established in a planting. This should be done as soon as symptoms appear. Removed plants should be burnt. Plants should be sprayed with insecticide before removal. Otherwise, if winged aphids are present they may migrate to healthy plants and spread the disease.

• *Chemical control*

It is not possible to spray healthy plants with chemicals to protect them from aphids transmitting the virus. Insecticides can be used to spray individual infected plants before removing them.

• *Resistant cultivars*

No DMV resistant taro cultivars are known. There is some indication that cultivars differ in their reaction to infection. No detailed studies have been made on this aspect of control.

DMV is not seed-borne. Taro seed is not readily available and, in any case, plants grown from seed differ from the horticulturally preferred parent stock, because taro does not breed true. However, selection for resistance within seedling populations may be a solution to the disease in the long term.

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