



The Nursery Man's Test

Early Subtle Signs of Virus

by Sue Bottom, sbottom15@gmail.com



Subtle expression of virus in young cattleya leaves: longitudinal irregular chlorotic streaking, evident on upper and lower leaf surfaces. Depending on the severity of the virus infection it may or may not disappear when the leaf is mature.

They say that the only way to be sure if a plant is virused is to test it. Now we'll have to add a qualifier to that statement, "...unless Dave Off is in town". Dave manages [Waldor Orchids](#) in Linwood, New Jersey with other family members. He was vacationing in St. Augustine with his family and spoke to our club. The subject of orchid viruses came up in one of our conversations, and Dave offered to walk through my greenhouse and identify potentially virused orchids. I hoped he would be unsuccessful, because several years ago I discarded about a third of my cattleyas after they tested positive. Unfortunately, Eagle Eye Dave walked through the greenhouse and brought a half dozen or so cattleyas to my attention. Each one later tested positive for virus.

Dave has an internal checklist that he uses to identify virused plants. He looks at the new growth, and it must be at the proper point in its growth cycle, when the leaf is unfolding but before it hardens off. The symptoms on the young leaves are very subtle. On the newest forming leaf, there is a longitudinal streaking running parallel to the veins in the leaf. This streaking does not tend to traverse the entire leaf blade. It is slightly irregular on the horizontal axis, so it is somewhat blotchy in appearance. The streaking is evident on both



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the upper and lower leaf surfaces. The discoloration is inside the young leaf, with no sunken areas. This streaking may or may not disappear when the leaf is mature, depending on the severity of the infection. It is best viewed early or late in the day rather than in too bright light.

If Dave sees some chlorotic streaking, he starts inspecting the rest of the plant, first looking at the other new growths to see if they too exhibit symptoms. Both top and bottom leaf surfaces are inspected. If virused, the streaking will be visible in all the new growths. He looks at the older part of the plant, perhaps there might be the necrotic black splotches or the reddish purple markings often reported for virused plants. He looks at any flowers that might be present, for signs of color break or necrotic streaking. He looks at the flower sheath for signs of abnormalities. He also evaluates the plant's growth vigor, as virus can sap strength from a plant.



The chlorotic streaking from virus in young cattleya leaves is very subtle. Dave could predict from the markings whether it was CymMV or ORSV. ORSV streaking tends to be more blotchy and CymMV more linear. The presence or absence of color was also predictive. I'll need a few more lessons to make any educated guesses.



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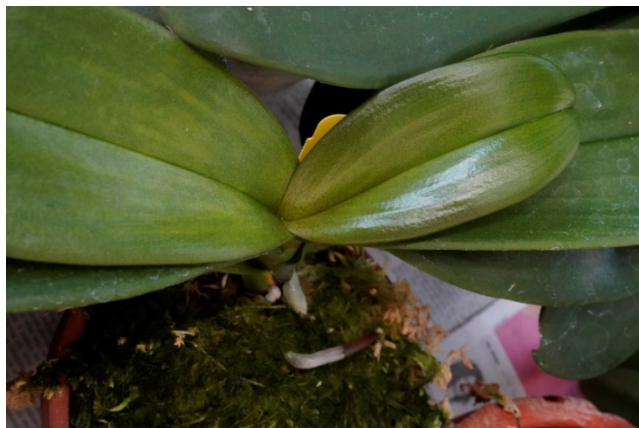
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The phalaenopsis bench was Dave's next target. I have not tested many phals because of the generally held assumption that many of the phalaenopsis sold in the mass markets could be virused. Dave found a dozen plants that looked suspicious to him, and upon testing, Dave continued to bat a thousand... more bench space!



The chlorotic streaking is more obvious in the soft, fleshy phalaenopsis leaves. These tested positive for CymMV and ORSV. .



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In more advanced stages of viral disease, the more commonly recognized signs of virus might appear in the plant. These include the black necrotic blotching often reported for Cymbidium Mosaic Virus (CymMV) or the reddish-purple markings of Odontoglossum Ringspot Virus (ORSV) in the leaves. The flowers can show the presence of virus in color break and brown necrotic blossom streak. Even the flower sheaths can express virus symptoms. Dave's chlorotic streaks in young leaves are your early warning system, letting you know there may be something suspicious in your plant.



Often CymMV causes black blotches on the leaves that result in a really ugly plant, although there are other diseases that can cause black splotching.



Sometimes ORSV causes circular to angular patterns on the leaves with the discoloration ranging from yellowish to reddish purple to brownish in color.



Blossom brown necrotic streak from CymMV (generally thought to be in combination with ORSV) shows up 5 to 10 days after the flower opens, resulting in unsightly discoloration on the floral segments.



Color break from ORSV is an irregular, nonsymmetrical marking on the flower. You might simply discard the plant with apparent color break, but thrips and chemicals can cause similar blemishes on the flower.

Careful observation is the key, and testing to verify or refute the presence of virus helps build your knowledge set so your eyes can be trained to detect the early symptoms of virus. It is not a 'once and done' proposition. The plants must be in the proper stage of growth for



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these subtle signs to manifest themselves. Dave keeps newly arrived plants to his nursery in a staging area for perhaps 18 to 24 months. Changing the plant's environment can add stress, which can make the symptoms more evident. The plants are inspected regularly as they go through one or two growth cycles under his growing conditions. Only after this observation period are virus free plants allowed to be placed into the general growing areas.

Dave had some other interesting growing tips. I was repotting a cattleya seedling he gave me and noticed a little wire with a long tail wrapped around the rhizome. Dave said that was an "artificial root" used to hold the seedling stable in the pot. He doesn't use rhizome clips, so this method allows a young plant with little root mass to be kept from wobbling around in the pot until it grows its own roots.

He doesn't use rhizome clips on the larger plants either, instead using a potting stick to pack the media tightly around the plants. Potting sticks were commonly used during the era of osmunda fiber, which is no longer available as a potting media. The potting sticks were often made of wood and blamed for spreading virus between plants. Dave's potting stick is specially fabricated to his specifications, made of fiberglass resin, so it can be sterilized. He packs the bark media tightly around the plant with the potting stick, so no rhizome clip is required.

Dave's family has been growing orchids since 1925. His family's nursery was concerned about viruses long before it became fashionable, and they were the first in their state to be certified virus free. He has one hundred years of orchid growing knowledge in his bloodline, so it is no surprise that he sees things that others might miss. I cannot wait for my next orchid growing lesson!