



Fruit rind symptoms possibly associated with citrus virus A (CiVA)

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Citrus virus A (CiVA) was recently identified from citrus and subsequently detected by a number of research groups worldwide, including South Africa. The association with disease must still be clarified, but indications are that the virus is associated with Impietratura disease, which is characterised by a unique fruit rind symptom. We request growers to alert us to fruit symptoms similar to those presented in the Figures 1 and 2, prior to harvest, in order to identify affected trees. Symptom expression is likely environmentally determined and infected trees might not show symptoms every year.

Impietratura symptoms include abnormal fruit drop, circular, green, sunken lesions with gumming in the albedo of affected fruit (Figure 1). The disease was recently observed in older grapefruit orchards in Nkwaleni, KwaZulu-Natal. Samples showing typical symptoms tested positive for CiVA, whereas symptomless trees tested negative.

CiVA was also detected in 'Delta' Valencia trees with fruit rind symptoms that may be associated with the virus (Figure 2). CiVA was detected at high percentages in older 'Delta' Valencia orchards, but not in newer plantings. CiVA was not detected in the 'Delta' Valencia nucleus block plants, the mother trees or multiplication trees at the Citrus Foundation Block (CFB). Results suggest that the original open-ground trees at the CFB, first used for budwood supply, might have contained CiVA. However, new budwood trees, obtained through shoot-tip grafting and re-established at the CFB, tested free from CiVA.

CiVA was additionally identified from a Clementine cultivar, but no fruit symptoms were observed.

No insect vector has been identified and the only known means of transmission at this stage is infected budwood. Control of the virus is currently through the use of virus-free budwood for propagation. Affected growers are advised not to use material from CiVA infected trees for propagation or topworking purposes and are requested to inform CRI (Glynnis Cook) of any possible symptoms at glynnis@cri.co.za; 013 759 8018.



Figure 1. Grapefruit showing Impietratura symptoms including circular, green, sunken lesions and gumming in the albedo.



Figure 2. Fruit symptoms on 'Delta' Valencia that might be associated with CiVA.



Vrugskil simptome wat moontlik met sitrusvirus A (CiVA) verband hou

Cook) in kennis te stel van enige verdagte simptome by glynnis@cri.co.za; 013 759 8018.

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Sitrusvirus A (CiVA) is onlangs deur 'n aantal navorsingsgroepe wêreldwyd in sitrus geïdentifiseer, insluitend Suid-Afrika. Die verband met siektes moet nog uitgeklaar word, maar daar is aanduidings dat die virus geassosieer is met die Impietratura-siekte, wat gekenmerk word deur 'n unieke vrugskil simptome. Ons versoek produsente om ons, voor oes, in kennis te stel van simptome op vrugte soortgelyk aan die wat in Figure 1 en 2 aangedui word, om sodoende bome wat besmet is te kan identifiseer. Die uitdrukking van die simptome is waarskynlik gekoppel aan omgewingstoestande en besmette bome toon moontlik nie elke jaar simptome nie.

Impietratura simptome sluit in abnormale vrugval, ronde, groen, gesonke letsels met gom in die albedo van die aangetaste vrugte (Figuur 1). Die siekte is onlangs waargeneem in ouer pomeloboorde in Nkwaleni, KwaZulu-Natal. Monsters wat tipiese simptome getoon het, het positief vir CiVA getoets, terwyl simptomeelose bome negatief getoets het.

CiVA is ook opgespoor in 'Delta' Valencia bome met vrugskil simptome wat moontlik met die virus geassosieer kan word (Figuur 2). CiVA was met hoë persentasies in ouer 'Delta' Valencia-boorde opgespoor, maar nie in nuwer aanplantings nie. CiVA is nie opgespoor in die 'Delta' Valencia genebron plante, die moederbome of vermeerderingsbome by die Sitrus Grondvesblok (SGB) nie. Die resultate dui daarop dat die oorspronklike oopgrond bome by die SGB, wat jare terug vir die verskaffing van enthout gebruik is, moontlik CiVA bevat het. Nuwe materiaal wat deur groeipunt-enting verkry is en weer by die SGB gevestig is, het egter negatief vir CiVA getoets.

CiVA is ook in 'n Clementine kultivar geïdentifiseer, maar geen vrug simptome is waargeneem nie.

Geen insek vektor is tot dusver geïdentifiseer nie en besmette enthout is die enigste bekende manier van oordrag. Beheer van die virus word bewerkstellig deur die gebruik van virusvrye enthout vir vermeerdering. Produsente wat geraak word, word aangeraai om nie materiaal van CiVA-besmette bome te gebruik vir vermeerdering of oorwerk nie, en word versoek om CRI (Glynnis



Figuur 1. Pomelo vrugte met tiepiese simptome van Impiertratura-siekte insluitend ronde, groen, gesonke letsels met gom in die albedo.



Figuur 2. Vrug simptome op 'Delta' Valencia wat moontlik met CiVA geassosieer is.