OCTOBER 2020

SAPO trust
Cultivating future growth

FRUITFLASH

IN THIS ISSUE

SAPO'S NEW WEBSITE

It is well documented that effective communication serves as a catalyst for enhancing successful business relations in a volatile uncertain, complex and ambiguous (VUCA) business world. Modern technologies continue to serve as enablers of effective client engagement through the use of social media, mobile technologies, e-commerce and Internet-based platforms.

To enhance communication with our clients, SAPO Trust is proud to announce that its website has been updated. Clients can now obtain information about new developments within our business, get a snapshot of the latest offerings available from SAPO's basket of services and directly contact our dedicated personnel for specific needs.

Dit is ook vir ons aangenaam om meer inligting met u te deel oor die variëteite wat oor die jare aan SAPO toevertrou is, met 'n paar interessante nuwe variëteite om te oorweeg. Produsente en kwekers kan nou deur ons webblad spesifieke inligting bekom oor spesifieke kultivars – die inligting is vars, kort en bondig, en 'n gewillige span is gereed om u navrae te ontvang.

Een van die grootste voordele van SAPO, as 'n bedryf instansie, lê in die nie-eksklusiewe model rondom nuwe variëteite wat toegang verleen tot alle produsente en gekontrakteerde kwekers, in oorleg met die meer as 40 IP kliënte en Planttelers instansies regoor die wêreld.

We trust that you, our valued client, would enjoy the read on **www.saplant.co.za.**

Shawn Coetzee
Chief Executive Officer

RELEVANT VIRUSES FOR THE SOUTH AFRICAN CERTIFICATION SCHEME IN POME AND STONE FRUIT

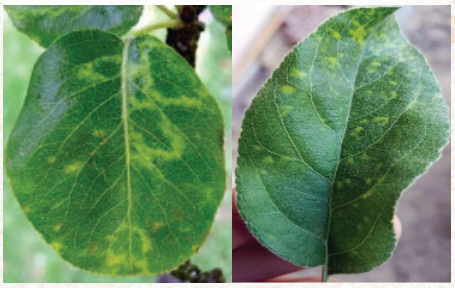
The months of October and November are ideal for testing stone and pome fruit for the most critical viruses.

WHICH VIRUSES ARE CONSIDERED HIGHLY IMPORTANT?

MECHANICALLY TRANSMITTABLE VIRUSES

APPLE CHLOROTIC LEAFSPOT VIRUS

(ACLSV): ACLSV decreases the growth, mean fruit weight and yield of pome and stone fruit trees. Although symptomless in most varieties, severe strains of ACLSV can cause fruit necrosis, as well as mottling and pitting on leaves and fruits, rendering them unmarketable.



ACLSV symptoms on a pear leaf (left) and apple leaf (right).

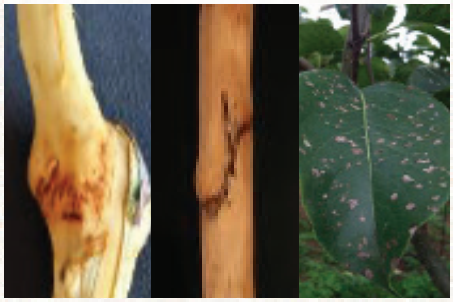
APPLE MOSAIC VIRUS

(ApMV): ApMV infection results in a reduction of production and tree decline with significant crop yield losses of up to 60%. Symptoms include yellow or cream-coloured spots that appear on the leaves in early spring. There is no known treatment once a tree has been infected with the virus.

ApMV symptoms on apple cv. Golden Delicious.

APPLE STEM GROOVING VIRUS

(ASGV): ASGV is widespread in its distribution. Although symptomless in most commercial apple and pear varieties, it causes stem grooving. No known vectors have been identified for ASGV.

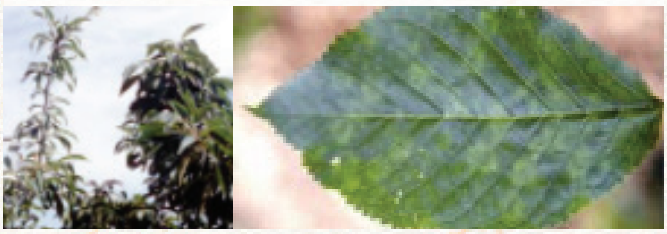


ASGV causes necrotic grooves at the graft union of rootstock budded with Virginia Crab (left); grooves at the graft union (middle); and typical black necrotic leaf spot symptoms (right).

GRAFT, POLLEN, AND SEED TRANSMITTABLE VIRUSES

PRUNE DWARF VIRUS

(PDV): PDV is the causal agent of various diseases of stone fruit depending on the infected host. Symptoms include chlorosis, or chlorotic ring spot in cherries, leaf distortions in plums and prunes, and overall size reduction in many species, including peaches.



PDV in cherry tree, causing diseased tree on the left compared to healthy tree on the right (left). PDV symptoms on leaves include chlorotic rings, spots, mottle, and line pattern (right).

PRUNUS NECROTIC RING SPOT VIRUS

(PNRSV): PNRSV has numerous strains and is known to infect all stone fruit species. The virus appears to be unevenly distributed through the plant, and this factor, combined with seasonal fluctuations of viral concentrations, can cause chronically infected plants to appear healthy when tested.

PNRSV on leaves include chlorotic to yellow line pattern mosaics, necrotic spots and shot holes.

FREQUENTLY ASKED QUESTIONS

Why is it important to use certified plant material?

Since viruses cannot be treated or cured in an orchard, the process of supplying clean, certified plant material at the start of the orchard's lifetime is critical, and a lack of attention to this will lead to the gradually degrading quality of trees over the years. Decades of global research has shown that this leads to a reduction in the quality and size of the fruit, the yield, the longevity of the trees, their sensitivity to stress and other adverse environmental factors. Ultimately the producer will bear the cost in the long run which makes the use of certified plant material absolutely necessary.

WHAT IF I SUSPECT MY ORCHARD IS INFECTED WITH THESE VIRUSES?

TEST IT

How do I pick leaf samples for testing?

- Sampling should occur in an active growing season when viruses are more likely to be present. The optimal testing time for pome and stone fruit is in October or November.
- Sampling should take place at cooler temperatures during the day, in the early morning or late afternoon.
- When picking leaves, take a representative amount of leaves per sample. In other words, when 1 tree is being sampled, pick at least 20 leaves with intact petioles on the lower, middle, and upper parts of the tree. When 10 trees are pooled, take at least 2 representative leaves per tree. Thus, never take more than 20 leaves per sample.
- After picking and labelling, the samples must be stored and transported to the testing facility in a cool place, preferably with ice packs, and kept away from direct sunlight.
- Overnight storage in a fridge set to 4˚C is acceptable. Never freeze the samples and no temperature fluctuations should occur, as it can influence the ELISA Test.

WHAT IS AN ELISA TEST?

In short, ELISA (Enzyme-linked Immunosorbent Assay) is a robust test that detects the viral substances, called antigens, in a leaf sample.

Note that the ELISA test is different to the Polymerase Chain Reaction (PCR) Test. SAPO has the capability to perform both tests at its Fleurbaix Pathology Laboratory.

Who can I contact regarding these tests or general enquiries?

Roleen Carstens
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VESTIGING VAN NUWE TAFEL- EN DROOG DRUIF MOEDERBLOKKE

SAPO vestig vanjaar ongeveer 52 hektaar tafel- (14 ha) en droog druif (38 ha) moederblokke by koöperateurs wat vermeerder is uit SAPO grondves blokke volgens die klassieke roete van plantverbetering. Hierdie plantmateriaal sal by die Wingerdverbeteringsvereniging (WVV) geregistreer word en alle nodige virus toetse en inspeksies sal voortaan op hierdie blokke toegepas word om aan die toekomstige vraag te kan voorsien. Gevestigde droog druif variëteite sluit in Selma Pete, Sugrathirtynine, Sultana H5, Merbein Seedless (nuwe virusvrye kloon), Dovine, Sunmuscat en Zante Korente. Hierdie moederblokke is hoofsaaklik in die Vanrhynsdorp en Oranjerivier area gevestig. Tafeldruif variëteite was hoofsaaklik in die Piketberg en Hexrivier valleie gevestig met variëteite soos Suagrathirtyfive, 'n nuwe virusvrye Crimson Seedless kloon, en Autumn King.

VRAAG NA DROOG DRUIF PLANTMATERIAAL GROEI STEEDS

Daar word vanjaar byna 1000 hektaar droog druiwe aangeplant wat hoofsaaklik variëteite insluit soos Selma Pete (±500 hektaar), Sugrathirtynine (230 hektaar) en Merbein Seedless (250 hektaar).

Nuwe wingerd grondves perseel

NEW Q-ELINE PEAR ROOTSTOCK TESTED

This new quince rootstock, suitable for the propagation of pear trees, was imported from Boomkwekerij Fleuren from the Netherlands in 2015 and was released from quarantine in November 2016. The plant material was further propagated and planted in foundation blocks at the SAPO Trust nursery near Riviersonderend. After this propagation, the first test trees on Q-Eline rootstock were planted in different production areas this winter with scion varieties, Forelle and Rosemarie. Early indicators and characteristics of this unique dwarfing rootstock from Europe are its resistance to cold stress conditions, good and early start of production, smoother and greener pears, and good compatibility with most pear varieties. All these characteristics will be re-evaluated under local production conditions. Interested cooperators can contact SAPO Trust if interested in planting test trees on Q-Eline.

Find more information at www.q-eline.net.

PLANT BREEDER'S RIGHTS (PBR) DEVELOPMENTS ON THE AFRICAN CONTINENT

Europe is quickly reaching saturation due to Plant Breeder's Right (PBR) developments on new varieties. The number of new fruit varieties developed in Europe has become so extensive that breeders are not only breeding for European growers exclusively anymore, and are now looking to emerging markets across the globe. The only obstacle for a breeder would be the lack of legal protection for new varieties in a country.

So, what are the main legal structures in Europe, and other parts of the world, that Europeans and other major role-players in the breeding field are familiar with? What gives them a sense of protection?

One such structure is the International Union for the Protection of New Varieties of Plants (UPOV). UPOV is a non-United Nations organisation, with its headquarters situated in Geneva, Switzerland. The main reason for starting this organisation is clear in its mission: "To provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society". This protection is promised for all varieties protected in UPOV member countries.

Since the African continent consists mainly of developing countries, it is important for breeders to know which countries are UPOV members, and which countries still have sufficient protection if this is not the case. African countries belonging to the UPOV convention include Kenya, Morocco, South Africa (1978 UPOV Act), Tunisia, the United Republic of Tanzania and the African Intellectual Property Organisation (OAPI). OAPI covers Benin, Burkina Faso, Comoros (except Mayotte), the Democratic Republic of Congo, Equatorial Guinea, Gabon, Guinea, Guinea Bissau, Ivory Coast, Mali, Mauritania, Niger, Senegal and Togo.

Members covered by the French organisation OAPI (Organisation Africaine de la Propriété Intellectuelle) are bound to both the OAPI and UPOV laws (1991 UPOV Act). OAPI was formed in 1977, and since 10 June 2014, a new-found reassurance was given to breeders when OAPI became an official member of UPOV. Refer to Figure 1 below for a complete picture of African countries enjoying UPOV plant breeder's rights protection.

African countries that have initiated the procedure for complying to the UPOV convention include Ghana, Mauritius, Nigeria, Zimbabwe, and the African Regional Intellectual Property Organisation (ARIPO). One of the main differences between ARIPO and OAPI is that all members of ARIPO also have their own legislations when it comes to plant breeder's rights that coexists with the Harare protocol on patents, designs and utility models. More recently, the UPOV Council has taken a positive decision on the "Draft Plant Breeder's Rights Act of Zimbabwe" which will allow Zimbabwe to deposit their instrument of accession to the 1991 UPOV Act.

In an attempt to streamline PBR procedures within the ARIPO spectrum, they have begun initiating the Arusha Protocol for the protection of new varieties of plants which was signed in the United Republic of Tanzania on July 6, 2015. In the meantime, only five members have signed this protocol.

Breeders should adhere to these individual legislations to ensure full protection in these countries. It is critical to know what the differences are between the laws applicable to certain countries, and whether something that is common under UPOV protection is omitted when it comes to ARIPO members.

Figure. 1 Map of UPOV members on the African continent (in yellow). Updated 1 December 2019.

Interestingly, many patent filings are for the agricultural sector, which indicates large developmental potential. The only ARIPO members with no filings yet are Lesotho, Liberia, Sao Tome and Principe, Sierra Leone, Somalia (also not a member of the Harare Protocol), and the Sudan.

South Africa has been one of the leading variety development countries. Due to favoured climates, popular fruit varieties in South Africa include apples, avocados, bananas, blueberries, cherries, citrus, granadillas, guavas, litchis, mangoes, olives, pears, persimmons, pineapples, pomegranates, prunes, raisins, stone fruit, strawberries, table grapes, tomatoes and watermelons. This opens the playing field for breeders to distribute and develop their varieties in the country.

The African continent overall has developed immensely over the last few decades, and its countries cover all climatic regions. This means that breeding programmes focused on specific climate characteristics, for example low chill varieties, can target a country with its requisite climatic region to obtain the correct number of chilling units every season. Having PBR protection for your variety in a country is very important and reassuring for any breeder, giving more incentive to develop and distribute their varieties in that country. Distinguish and identify the African countries with adequate protection, and see commercial potential unfold for your variety.

ASTER VERGELING SIEKTE BY WINGERD

ALGEMEEN

Wingerd vergeling word wêreldwyd deur 'n wye verskeidenheid fitoplasmas veroorsaak. Die vergeling wat in die Wes-Kaap waargeneem is word deur die Aster vergeling fitoplasma veroorsaak. Alle organe kan geïnfekteer word naamlik wortels, stamme, lote, ogies, blomme en korrels, maar dit kom nie in saad voor nie. Wingerd vergeling affekteer 'n verskeidenheid wyn en tafeldruif variëteite.

SIMPTOME

Tekens van vertraagde bot kom voor op gedeeltes van die stok terwyl die res normaal bot en groei. Blare verhard en het 'n gekreukelde voorkoms. Lote bly groen en vertoon 'n loodgrys kleur wat afgevee kan word. Lote het kort internodiums en groeipunte, en jong trossies aborteer.

Later in die seisoen vergeel die blare by wit kultivars en 'n verrooiing vind plaas by rooi kultivars. Geaffekteerde blare is dikker as normaal, bros en dit rol na onder. Lote verhout slegs gedeeltelik of glad nie en terugsterwing van lote vanaf die groeipunt, asook gedeeltelike afsterwing van volwasse trosse, vind plaas.

Aangetaste stokke is ook geneig (veral in die geval van jong stokke) om oral op die stam en soms op die arms nuwe waterlote te vorm wat oënskynlik onaangetas is. Geïnfekteerde stokke gaan agteruit en sterf mettertyd af.

OORDRAGING

Die Aster vergeling fitoplasma word hoofsaaklik deur blaarspringers oorgedra en kan ook deur geïnfekteerde wingerd plantmateriaal versprei word.

OPSPORING

Die siekteveroorsakende organisme kan deur middel van die baie sensitiewe polimerase kettingtreaksie (PKR) metode opgespoor en geïdentifiseer word.

BEHEER

Wanneer 'n plant geïnfekteer is met die fitoplasma is daar geen beheer strategie om daardie spesifieke plant te red nie. Beheer moet dus daarop gemik wees om die verspreiding van die siekte te voorkom:

- Geïnfekteerde stokke wat kan dien as 'n bron van verdere infeksie moet verwyder word.
- Onkruidbeheer moet streng toegepas word om te verhoed dat die vektore die onkruide kan gebruik as gasheerplante vir oorwintering of as gasheer bron vir die fitoplasma.
- NB: Wanneer nuwe wingerde gevestig word moet gesertifiseerde plantmateriaal wat vry is van fitoplasmas gebruik word. Hitteterapie en weefselkultuur lewer skoon plant materiaal en warmwaterbehandeling van dormante plantmateriaal (50°C vir 45 minute) vernietig fitoplasmas effektief.
- Wanneer spesifieke insekte wat die siekte oordra geïdentifiseer is, kan hierdie insekte met insekdoders beheer word.

Vir meer inligting kontak Roleen Carstens by roleen@saplant.co.za.

Lees die volledige artikel oor die verspreiding van die siekte by www.wineland.co.za/incidence-and-spread-of-aster-yellows.