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MANAGEMENT RECOMMENDATIONS FOLLOWING HEAVY RAIN IN NORTHERN CITRUS PRODUCTION REGIONS

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Widespread rainfall recently occurred in many areas in the northern production regions. These rains caused orchards to flood or become very wet with waterlogged soils. In some cases, hail also damaged trees. This situation necessitates action, as outlined below in this Cutting Edge.

Phytophthora root rot management measures

1. Orchards that are still flooded must be drained as soon as possible to prevent conditions that promote the development of Phytophthora root rot.
2. Affected orchards should receive foliar or trunk paint applications of a phosphonate product at registered dosages as soon as possible.
3. **At least two, preferably three, applications must be done, 8 weeks apart.**
4. Foliar applications of phosphonates will also protect any early cultivars against Phytophthora brown rot on the fruit.
5. Carefully follow label recommendations for phosphonate applications.
6. Do not irrigate before soil moisture has returned to acceptable levels.
7. Avoid traffic in wet orchards to prevent soil compaction and root damage.

Postharvest disease management measures

1. In flooded and waterlogged orchards, low-hanging fruit pose a risk of postharvest diseases.
2. These fruit could be mechanically damaged due to debris floating in the water or mud splashing onto the fruit surfaces.
3. Damage to the fruit can lead them to drop, become rotten and provide inoculum of postharvest pathogens.
4. Fallen/muddy fruit can also be infected with various postharvest pathogens as well as insect pests.
5. It is therefore important to skirt trees and remove damaged and muddy fruit from trees and the orchard floor. Follow stringent orchard sanitation practices as per CRI guidelines (consult detailed guidelines on orchard sanitation practices under False Codling Moth, Integrated Pest and Disease Management Guidelines,

Volume 3 available on www.citrusres.com). These should be done at least once a week and in severe cases more often.

Treatment of hail damaged trees

1. Some orchards were also damaged by hail. Hail causes wounds on the trunk and branches which should be protected to prevent infection by wood decay pathogens.
2. Standard copper or mancozeb spray applications at registered dosages can be applied to damaged trees. These sprays will help to protect wounds on the trunks and branches. Applications should be done as full cover sprays. One spray will be sufficient.
3. In severe cases, trees are bare, with no foliage. The branches of these trees should be protected against sunburn. Apply a mixture of 5L water + 1-2L white PVC paint to the top surfaces of branches.
4. Where trees have shown severe leaf drop due to stress conditions (hail or waterlogging) branches should not be cut back if they are still flexible. Flexible shoots will reshoot in a month or two and might still be ready to bear fruit next season. Focus on removing shoots that have died.

Fruit and foliar pathogen management measures

1. Management of fruit and foliar pathogens such as Citrus Black Spot (CBS) and Alternaria Brown Spot (ABS) will be impacted due to limited access to orchards.
2. **It is therefore important that an orchard-by-orchard CBS risk assessment in terms of fruit protection is done for orchards registered for export to the European Union.**
3. Review the spray programme to identify any gaps.
4. **If gaps are identified, consult CBS ascospore data (QMS, Lowveld-Agrochem or CRI PhytRisk) to determine the CBS risk involved with these gaps in the spray programme (see Cutting Edge 423, July 2025).**
5. **It is recommended to withdraw orchards with a high CBS risk from export to the EU.**
6. Increase preharvest scouting frequency for early CBS symptom detection on fruit.
7. **It is important to continue with CBS and ABS fruit protection programmes as soon as possible.**
8. **Even in cases where no fruit remain in orchards or an orchard has been withdrawn from export to the EU, CBS inoculum build-up must be prevented. At least, apply contact fungicides until the end of the recommended fruit protection period.**



Nutrition and irrigation measures

1. The focus for the rest of the season should be on the protection and recovery of the root system. Since the feeder roots might have died back due to the waterlogged conditions, the uptake of elements from the soil might be far less than normal.
2. Make profile pits in severely affected orchards, to inspect the root system. If it was affected, allow the soil in the root zone to dry out. Reduce irrigation to 50% of the normal application by use “C” clips to clip half of the drippers or reduce the applications to half the quantity on microjet irrigation. Once the soil moisture in the root zone is around 3 out of 5 (field observations) normal irrigation can commence but do not over-irrigate. Continue with regular field observations to verify accuracy of irrigation.
3. Conduct orchard inspections to identify trees that are severely affected. Consider stripping fruit from those trees and focus on the recovery of each tree, starting with reduced irrigation and root health.
4. It is almost time to take leaf samples (Feb – end March), so, before overreacting in terms of the amount of nutrition that should be applied, verify requirements through leaf and soil analyses.
5. Where deficiencies are evident from the analysis increase the amount of nutrition applied through foliar applications for the rest of the season. Uptake from the soil might be severely reduced. Inspect the roots before the onset of the next season.
6. In the following season a large number of flowers can be expected due to the stress experienced. This will deplete the tree reserves. It is therefore important to support the trees in the period directly after flowering to reduce fruit drop. This can be done by a combination of soil and foliar nutrition from bud swell to flowering.
7. On certain varieties where GA₃ is used to enhance fruit set, note that two or three GA₃ applications for fruit set next season might aggravate the depletion of tree reserves through the flowers. The best option might be to assess the flowering quality next season and select one strong generation of flowers rather than try to set all generations of flowers on a tree that might not yet be in optimal condition.

BESTUURSAANBEVELINGS NÁ SWAAR REËN IN NOORDELIKE SITRUSPRODUKSIE- STREKE

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Wydverspreide reënval het onlangs in baie areas in die noordelike produksie-streke voorgekom. Hierdie reën het veroorsaak dat boorde oorstroom of baie nat was, met waterdeurdrenkte grond. In sommige gevalle het hael ook bome beskadig. Hierdie situasie noodsaak aksie, soos uiteengesit in hierdie Snykant.

Maatreëls vir die bestuur van Phytophthora-wortelvrot

1. Boorde waar water nog staan, moet so gou as moontlik gedreineer word om toestande te voorkom wat die ontwikkeling van Phytophthora-wortelvrot bevorder.
2. Geaffekteerde boorde moet so gou as moontlik blaar- of stamverftoedienings van 'n fosfonaatproduk teen geregistreerde dosisse ontvang.
3. **Ten minste twee, verkieslik drie, toedienings moet gedoen word, 8 weke uitmekaar.**
4. Blaartoedienings van fosfonate sal ook enige vroeë kultivars teen Phytophthora-bruinvrot op die vrugte beskerm.
5. Volg die etiket-aanbevelings vir fosfonaattoedienings noukeurig.
6. Moenie besproei voordat grondvog na aanvaarbare vlakke terugkeer het nie.
7. Verminder verkeer in nat boorde om grondverdigting en wortelskade te voorkom.

Na-oessiekte-bestuursmaatreëls

1. In oorstroomde en waterdeurdrenkte boorde hou laaghangende vrugte 'n risiko in ten opsigte van na-oessiektes.
2. Hierdie vrugte kan meganies beskadig word as gevolg van afval wat in die water dryf of modder wat op die vrugoppervlaktes spat.
3. Skade aan die vrugte kan daartoe lei dat hulle val, vrot word en inokulum bronne wees vir na-oespatogene en insekplae verskaf.
4. Modderige vrugte kan ook besmet word met verskeie na-oespatogene, sowel as insek peste.
5. Dit is dus belangrik om bome te soomsnoei en beskadigde en modderige vrugte vanaf bome en die boordvloer te verwyder, deur streng boordsanitasiepraktyke volgens CRI-riglyne (raadpleeg gedetailleerde riglyne oor boordsanitasiepraktyke onder

Valskodlingmot, Geïntegreerde Plaag- en Siektebestuursriglyne, Deel 3, beskikbaar op www.citrusres.com). Dit moet ten minste een keer per week gedoen word en in ernstige gevalle twee keer per week.

Behandeling van hael-beskadigde bome

1. Sommige boorde is ook deur hael beskadig. Hael veroorsaak wonde aan die stam en takke, wat beskerm moet word om infeksie deur houtbederfpatogene te voorkom.
2. Normale koper of mankoseb-bespuittings teen geregistreerde dosisse kan op beskadigde bome toegedien word. Hierdie spuitmiddels sal help om die wonde aan die stamme en takke te beskerm. Toedienings moet as voldekkbespuittings gedoen word. 'n Eenmalige bespuiting sal voldoende wees.
3. In ernstige gevalle is bome kaal, sonder blare. Die takke van hierdie bome moet teen sonbrand beskerm word. Wend 'n mengsel van 5 liter water + 1-2 liter wit PVC-verf aan op die boonste oppervlaktes van takke.
4. Waar bome ernstige blaarval as gevolg van stresstoestande (hael of versuipde toestande) getoon het, moet takke nie teruggesny word as hulle nog buigsaam is nie. Buigsame lote sal binne 'n maand of twee weer uitskiet en is dalk steeds gereed om volgende seisoen vrugte te dra. Fokus op die verwydering van dooie lote.

Bestuursmaatreëls vir vrug- en blaarpatoene

1. Die bestuur van vrug- en blaarpatoene soos Sitrusswartvlek (CBS) en Alternaria-bruinvlek (ABV) sal beïnvloed word as gevolg van beperkte toegang tot boorde.
2. **Vir boorde wat geregistreer is vir uitvoer na die Europese Unie, is dit belangrik dat 'n CBS-risikobepaling in terme van vrugbeskerming per boord gedoen word**
3. Hersien die spuitprogram om enige gapings te identifiseer.
4. **Indien gapings geïdentifiseer word, raadpleeg CBS-askospoordata (QMS, Lowveld-Agrochem of CRI-PhytRisk) om die CBS-risiko wat met hierdie gapings in die spuitprogram verband hou, te bepaal (sien Snykant 423, Julie 2025).**
5. **Vir boorde wat met 'n CBS-risiko geïdentifiseer is, word aanbeveel dat hierdie boorde van uitvoer na die EU onttrek word.**
6. Verhoog die frekwensie van voor-oes boordinspeksies vir vroeë CBS-simptoom-opsporing op vrugte.
7. **Dit is ook belangrik om so gou as moontlik voort te gaan met CBS en AB-vrugbeskermingsprogramme.**
8. **Selfs in gevalle waar geen vrugte in boorde oorbly nie, of 'n boord van uitvoer na die EU onttrek is,**



moet die opbou van CBS-inokulum steeds voorkom word. Dien ten minste kontakswamdoders toe tot die einde van die aanbevole vrugbeskermingsperiode.

seisoen die uitputting van boomreserwes deur die blomme kan vererger. Die beste opsie is om die blomkwaliteit volgende seisoen te bepaal en een sterk generasie blomme te kies eerder as om te probeer om alle generasies blomme op 'n boom te set wat dalk nog nie in optimale toestand is nie.

Voedings- en besproeiingsmaatreëls

1. Die fokus vir die res van die seisoen moet op die beskerming en herstel van die wortelstelsel wees. Aangesien die voedingswortels moontlik teruggesterf het as gevolg van die waterdeurdrenkte toestande, kan die opname van elemente uit die grond baie minder as normaal wees.
2. Maak profielgate in boorde wat erg aangetas is om die wortelstelsel te inspekteer. Indien dit aangetas is, laat die grond in die wortelsone uitdroog. Verminder die besproeiing tot 50% van die normale toediening deur om gebruik te maak van "C"-knippies om die helfte van die druppers af te knip, of verminder die toedienings tot die helfte van die hoeveelheid op mikrobefproeiing. Sodra die grondvog in die wortelsone ongeveer 'n 3 uit 5 is (veldwaarnemings), kan normale besproeiing begin, maar moenie oorbesproei nie. Gaan voort met gereelde veldwaarnemings om die akkuraatheid van besproeiing te verifieer.
3. Doen boordinspeksies om bome te identifiseer wat erg aangetas is. Oorweeg dit om vrugte vanaf daardie bome te stroop en fokus op die herstel van elke boom, wat met verminderde besproeiing en wortelgesondheid begin.
4. Dit is amper tyd om blaarmonsters te neem (Feb – einde Maart). Dus, voordat jy oorreegeer in terme van die hoeveelheid voeding wat toegedien moet word, verifieer die vereistes deur middel van blaar- en grondontledings.
5. Waar tekortkominge duidelik uit die ontleding blyk, verhoog die hoeveelheid voeding wat deur blaartoedienings toegedien word vir die res van die seisoen. Opname uit die grond kan ernstig verminder word. Inspekteer die wortels voor die aanvang van die volgende seisoen.
6. In die volgende seisoen kan 'n baie groot aantal blomme verwag word as gevolg van die stres wat ervaar word. Dit sal die boom se reserwes uitput. Dit is dus belangrik dat die tydperk direk na blom ondersteun word om vrugval te verminder. Dit kan 'n kombinasie van grond- en blaarvoeding wees, vanaf knopswel tot blom.
7. Op sekere variëteite waar GA₃ gebruik word om vrugset te verbeter, moet daarop gelet word dat twee of drie GA₃-toedienings vir vrugset volgende