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Effek van Laat Stikstoftoediening op Vruggehalte en Produksie

deur
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As voedingselement speel stikstof een van die belangrikste rolle in bepaling van opbrengs en kwaliteit in sitrusproduksie. Dis nie net omrede die groot hoeveelhede benodig deur die plant nie, maar veral weens die tyd en hoeveelheid van toediening, asook die vorm waarin dit toegedien word. Die stikstofstatus van sitrus moet hoog wees tydens bot, blom en vrugset en dan gaandeweg afneem en 'n minimum tydens rypwording en oes bereik. Die hoë status tydens bot, blom en vrugset verseker hoë kwaliteit blomme en goeie vrugset. Januarie tot Maart is 'n periode waartydens die vraag na stikstof laag is en addisionele stikstof dan nadelig sal wees. Ontydige toediening van stikstof kan die huidige en die komende oes benadeel.

Indien die jaarlikse vereiste massa stikstof eers gedurende Desember tot April toegedien word, ervaar die bome 'n oormaat stikstof as gevolg van verkeerde tydsberekening. Die vernaamste gevolge van 'n oormaat stikstof is dik en growwe skille, lae sapinhoud, verhoogde suurpeile, laer suikergehalte, vertraagde rypwording, 'n korter rakleeftyd vir die vrugte en 'n afname in bome se bestandheid teen siektes.

Swak gehalte vrugte is nie verwant aan die stikstofstatus in die lente nie maar wel die stikstofstatus in die herfs. In die herfs moet die status "normaal" wees, veral by die vroeë kultivars. By laat kultivars speel die stikstofstatus 'n kleiner rol, veral in koue streke. Hoë stikstofvlakke gedurende die laat somer en herfs benadeel die rusfase van die bome (veral die op meer groeikragtige onderstamme) en lei gevolglik tot swak opbrengste en gehalte. Die laer opbrengste in die daaropvolgende jaar ontstaan veral weens die stimulasie van 'n sterk groei in die herfs en dus 'n verlaging in koolhidraat-vlakke wat voor ogieswel in balans met stikstofvlakke moet wees. Die huidige oes asook die komende oes kan deur sulke laat toedienings benadeel word. Koue skade word ook vererger op sitrusbome wat te veel (of te laat) stikstof ontvang het in streke met koue winters (rypgevaar).

Hoë stikstofvlakke gedurende die herfs as gevolg van laat toedienings word ook geassosieer met verskeie fisiologiese skildefekte, veral peteca, koueskade en gepokte skil, aangesien dit die skille meer sensitief maak. Daar sal ook 'n vertraging van kleurbreek wees agv die verlengde groeifase waarin die boom verkeer na 'n oormaat of laat stikstoftoediening. 'n Hoër voorkoms van granulasie word ook verbind met te hoë stikstofvlakke en die gevolglike verhoging in vegetatiewe groei. Indirek het dit ook 'n effek op kraakskil omrede rypwording vertraag word en vrugte langer moet hang voordat geoes kan word.

Blaarbespuitings met ureum (0,5 tot 1,4%) word gebruik om die algemene stikstofstatus van die bome aan te vul en kan wel so laat as Januarie tot vroeg Februarie gedoen word indien die bome te geel vertoon. Die oordraag effek van blaarbespuitings met ureum is klein en dit behoort nie die kleurbreek van die vrugte te benadeel nie.

Produsente word dus gewaarsku om die toediening van stikstofbemesting sinvol te bestuur, aangesien dit 'n wesenlike effek op die gehalte en raklewe van die vrugte het. Toediening van stikstof na Desember, asook toediening teen hoër as die aanbevole dosisse, kan nadelige gevolge vir gehalte, opbrengs en inkomste inhou.

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Effect of late nitrogen applications on fruit quality and production

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Nitrogen as a nutritional element plays a critical role in the production of good yields and high quality citrus. Its not only because the plant requires large amounts, but also how its affected by timing of applications and the formulation used. During budburst, flowering and fruit set the nitrogen status of the citrus tree should be high, then gradually decline to reach its lowest levels during maturation and harvesting. A high nitrogen level during budburst, flowering and fruit set ensures high quality flowering and good fruit set. During the period January to March the requirement for nitrogen is low and additional nitrogen can be detrimental. Nitrogen applications during this period could have negative consequences for both the current and the following year's crop.

If the annual nitrogen requirement was applied during December through to April, a nitrogen excess will be experienced by the trees. The result of this excess in nitrogen will be coarse rinds, low juice content, higher acid levels, lower sugar content, delayed colouring, a shorter shelf life and reduced resistance to certain pathogens.

Poor quality fruit is not linked to nitrogen levels during spring, but is severely affected by the nitrogen status during autumn. In autumn the levels must be "normal", especially the early cultivars. The nitrogen levels have less of an effect on late cultivars, especially in the colder citrus producing areas. High nitrogen levels affect the "dormant" phase of the tree, especially with the more vigorous rootstocks, resulting in poor yields and quality. Low yields in the ensuing year can be caused through the stimulation of strong vegetative growth during autumn as this reduces the carbohydrate levels prior to budburst. The potential for cold damage increases when trees do not enter into a dormancy phase as a result of high nitrogen levels. This is especially of concern in areas with cold winters with a danger of severe frosts.

High nitrogen levels in autumn, caused by late applications, are also associated with physiological rind disorders, especially peteca, cold damage and rind pitting, due to increased rind sensitivity. Colour break is also delayed as a result of the longer growth phase caused by the higher nitrogen levels. Granulation can increase due to enhanced vegetative growth. Indirectly creasing is aggravated because of a delay in harvest brought on by poor colour development.

Urea sprays (0.5-1,4%) can be used as late as January-February if the leaves are too yellow. These urea applications should not delay colouring and should not impact negatively on fruit quality. Growers should not make any nitrogen applications after December, neither should they use higher dosages than those which were recommended. If growers do not adhere to the recommended nitrogen dosages and timing of applications, they could expect that their fruit will have a shorter shelf life and increased rind problems.

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