

SELEKSIE VAN NUWE SITRUS KULTIVARS: HANTERING VAN MUTASIES

deur

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Inleiding

Die geleentheid vir die ontdekking van nuwe of verbeterde kultivars kom voor as boom- of takmutasies in bestaande boorde. Dit is dus belangrik dat produsente hulle personeel moet oplei om enige afwykings aan te meld, bv. kleurverskille, vroeër of later kleurontwikkeling, verbeterde interne of eksterne vrug-eienskappe soos vrugvorm, vruggrootheid, skiltekstuur, toe nawel-ent, sagter vesel, en ook takke of bome wat sekere siekteverdraagsaamheids-eienskappe toon onder besmette toestande.

Dit is belangrik dat die waarnemer die boom of tak moet merk, en rapporteer, maar moet beslis nie die vrugte pluk nie.

'n Aansporingsbonus kan aan die waarnemer gegee word om hulle aan te moedig om voortdurend op die uitkyk vir mutasies te wees.

Eerste fase van evaluering

Boom mutasie

Dit is baie belangrik om heel eerstens vas te stel dat die mutasie stabiel is. Indien die hele boom 'n mutasie is, kan okuleerhout geselekteer word agter eenderse vrugte en gebruik word deur 'n paar bome (dogterbome) met van die geselekteerde ogies oor te werk vir vinnige waarneming. As die eerste vrugte almal dieselfde eienskap toon as wat aanvanklik waargeneem is, is die mutasie waarskynlik stabiel en kan die materiaal vir groeipunt-enting ingedien word. Indien nie, moet daar weer geselekteer word totdat stabiliteit verkry word; anders is die mutasie nie die moeite werd om verder te ontwikkel nie, en was waarskynlik slegs 'n reaksie op groeitoestande.

Tak mutasie

Met 'n tak-mutasie is daar gewoonlik baie minder aanvanklike okuleerhout beskikbaar, aangesien daar gepoog moet word om die eerste 3 tot 5 ogies agter die geselekteerde vrug te gebruik. Dit is beter om in hierdie geval eerder kwekery saailinge as dogterbome te okuleer. Indien u nie dit self kan doen nie, vra u plaaslike kwekery om dit vir u te doen. Hy sal hierdie bome in afsondering in sy kwekery moet aanhou,

aangesien dit moontlik met entoordraagbare patogene besmet mag wees. Hierdie jong kwekery-bome moet verkieslik saam met 'n nuwe aanplanting van dieselfde kultivar groep geplant word, om sodoende dieselfde behandeling te ontvang. Indien dit nie moontlik is nie, plant hulle uit in 'n bestaande boord waar hulle die beste behandeling sal kan ontvang.

Groeipunt-enting (GPE)

Wanneer die stabiliteit van die mutasie bevestig is en u is daarvan oortuig dat dit van kommersiële waarde is, moet u plantmateriaal instuur vir GPE sodat dit van entoordraagbare patogene (virusse en viroïede) skoongemaak kan word. Die okuleerhout wat u gaan instuur moet 3 tot 5 ogies agter die geselekteerde vrugte wees. Selekteer goeie kwaliteit okuleerhout, want dit verhoog die sukses van daaropvolgende vestiging.

Reël met Kobus Breytenbach van CRI by 013-759 8000 / 083 610 6102 of kobus@cri.co.za voordat u die okuleerhout sny en stuur. Die okuleerhout moet so vars as moontlik wees en dit moet in 'n plastiese sakkie verseël word; verwyder ook alle blare op die takkie om uitdroging te voorkom. Lewer per hand af, of stuur dit op 'n Maandag met die Poskantoor se Speed Services oornag diens. E-pos vir Kobus die verwysingsnommer van die besending. Die aangehegte introduksie vorm moet die okuleerhout vergesel.

Sitrus Grondvesblok

Na GPE word die kultivar aan die Sitrus Grondvesblok gestuur vir vestiging van 'n vermeerderingsbron. Op versoek van die kultivareienaar sal materiaal vermeerder word om aan sy behoefte te voldoen.

Planttelersregte

Wanneer 'n kultivar duidelike waarneembare verskille toon, kan dit as 'n nuwe kultivar geregistreer word. Kontak vir Marcini Govender vir die riglyne:

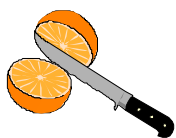
E-Mail: MarciniG@daff.gov.za

Tel: 012 319 6226

Fax: 012 319 6385

Bestuur van 'n nuwe kultivar

As eienaar van 'n nuwe kultivar het u die keuse om die kultivar self te bestuur of om gebruik te maak van 'n agent. Hieronder is 'n lys met die Suid-Afrikaanse sitrus kultivar bestuursagente se kontakbesonderhede.



CRI Snykant

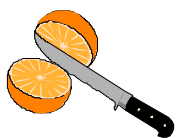
NAVORSINGSNUUS VAN CITRUS RESEARCH INTERNATIONAL

Julie 2013

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Agent	Kontakpersoon	Telefoon	Selfoon	Epos adres
Citrogold	Bryan Offer	021 8828277	082 802 5559	bvoffer@citrogold.co.za
CGA CC	Jon Roberts	041 5835048	082 412 8269	jon@cgacc.co.za
LGS Exports	Piet van Rensburg	021 8872909	082 852 4595	pietvensburg@worldonline.co.za
Source Citrus Genesis RSA	Barbara Botes	021 8511234	084 588 9086	barbara@citrusgenesis.co.za
Stargrow	Michiel Prins	021 8801882	082 565 6951	mprins@stargrow.co.za
XLnt Citrus	Graham Barry	021 8553548	082 90 0616	ghbarry@gmail.com

**JOU HEFFING WERK VIR JOU – PRODUSENTE SE HEFFINGS WORD AANGEWEND OM DIE
AKTIWITEITE VAN DIE CRI TE BEFONDS**



SELECTION OF NEW CITRUS CULTIVARS: HANDLING OF MUTATIONS

by

Thys du Toit, Johan Joubert, Hennie le Roux,
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Fourie
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Introduction

The opportunity for the discovery of new or improved citrus cultivars presents itself in the form of tree or branch mutations in existing orchards. It is therefore important for citrus producers to train their personnel to report any mutations, e.g. colour differences, earlier or later colour development, improved internal or external fruit characteristics such as fruit shape, fruit size, rind texture, closed navel-end, softer fibre, and also branches or trees showing certain disease tolerance characteristics under infected conditions.

It is important for the observer to mark and report the tree or branch, but fruit should not be picked.

Observers could be rewarded with an incentive bonus in order to encourage them to be on the look-out for mutations.

First phase of evaluation

Tree mutation

It is very important to firstly determine whether the mutation is stable. If the entire tree is a mutation, budwood should be selected behind similar fruit and be used to top-work a few trees (daughter trees) in an orchard for quick observation. If the first fruit from the daughter trees all show the same characteristic initially observed, the mutation is possibly stable and the material could be submitted for shoot-tip grafting. If not, selection should be repeated until stability is obtained; otherwise the supposed mutation is not worth further development and was likely a tree response to its growing environment.

Branch mutation

With a branch mutation, usually much less budwood is initially available, and one should try to use the first 3 to 5 buds behind the selected fruit. In this case, it is better to bud onto rootstock seedlings, rather than to topwork daughter trees. If you cannot do it yourself, ask your local nursery to do it for you. He will have to keep these trees in isolation in his nursery, since they may be infected with graft-transmissible pathogens. These young nursery trees should preferably be included in a new orchard of the same cultivar, in order to

receive the same treatment. If this is not possible, rather plant them in an existing orchard or the orchard where the mutation originated, and where they will receive the best treatment.

Shoot-tip grafting (STG)

Once the stability of the mutation is confirmed, and you are convinced that it is of commercial value, you should submit plant material for STG in order to clean it from graft-transmissible pathogens (viruses and viroids). The budwood you submit, should be 3 to 5 buds behind the selected fruit. Select high quality budwood as this increases the success of the processes that follow.

Make arrangements with Kobus Breytenbach of CRI at 013-759 8000 / 083 610 6102 or kobus@cri.co.za before cutting and sending the budwood. The budwood should be as fresh as possible and should be sealed in a plastic bag; also remove all leaves on the shoot, in order to prevent desiccation. Deliver by hand or send on a Monday with the Post Office's Speed Service over-night service. E-mail Kobus the reference number of the parcel. The attached introduction form must accompany the budwood.

Citrus Foundation Block

After STG, the cultivar is sent to the Citrus Foundation Block for establishment of a multiplication source. On request of the variety owner, material will be multiplied in order to meet his demands.

Plant Breeder's Rights

When a cultivar shows clearly distinguishable differences, it could be registered as a new variety. Contact Marcini Govender for the guidelines:

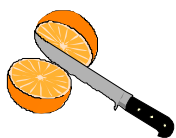
E-Mail: MarciniG@daff.gov.za

Tel: 012 319 6226

Fax: 012 319 6385

Management of a new cultivar

As the owner of a new cultivar, you have the choice of managing the cultivar yourself, or to make use of an agent. Following is a list of contact details of the South African citrus cultivar management agents.



CRI Cutting Edge

RESEARCH NEWS FROM CITRUS RESEARCH INTERNATIONAL

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Agent	Contact person	Telephone	Cell phone	E-mail address
Citrogold	Bryan Offer	021 882 8277	082 802 5559	bvoffer@citrogold.co.za
CGA CC	Jon Roberts	041 583 5048	082 412 8269	jon@cgacc.co.za
LGS Exports	Piet van Rensburg	021 887 2909	082 852 4595	pietvensburg@worldonline.co.za
Source Citrus Genesis RSA	Barbara Botes	021 851 1234	084 588 9086	barbara@citrusgenesis.co.za
Stargrow	Michiel Prins	021 880 1882	082 565 6951	mprins@stargrow.co.za
XLnT Citrus	Graham Barry	021 855 3548	082 900 0616	ghbarry@gmail.com

INTRODUKSIE VAN MATERIAAL IN DIE SUIDER-AFRIKAANSE SITRUSVERBETERINGSKEMA

KULTIVARSNAAM :	
KULTIVARSGROEP:	
OORSPRONG:	

ONTVANG:			
GPE NOMMER:		PLANTTELEERSREGTE:	
SVSKODE:		STATUS:	
INVOERNOMMER:			

VOLTOOI EEN OF AL DIE ONDERSTAANDE:			
EIENAAR			ADRES:
TEL:			
E-POS:			
FAKS:			
AGENT			
TEL:			ADRES:
E-POS:			
FAKS:			
SLEGS VIR INVOERE:			
INVOERDER:			
UITVOERDER:			
LAND:			
PERMITNOMMER:		FITOSANITÊRE SERTIFIKAATNOMMER:	
NB: Ingevoerde materiaal sal slegs in die SVS ingesluit word nadat die na-invoer kwarantyn proses se diagnostiese verslae deur die SVS Patologie Komitee goedgekeur is; hierdie verlae moet die introduksievorm vergesel			

BOOM KARAKTEREIEISKAPPE:	
GROEIKRAGTIGHEID:	
VOLBLOM DATUM:	
GROEIWYSE:	
OPBRENGS:	

VRUG-EIENSKAPPE:	
RYPWORDINGSTYD:	
VRUGGROOTTE:	
EKSTERNE KLEUR:	
INTERNE KLEUR:	
VORM:	
SMAAK:	
TEKSTUUR:	
ALGEMEEN:	

PLAAS FOTO'S VAN TIPIESE BOOM EN VRUGTE HIER:

TIPIESE BOOM	TIPIESE VRUG

Let wel:

1. Die kultivar sal slegs na Sitrus Grondvesblok vrygestel word nadat die vereiste diagnostiese ontledings wat aandui dat dit patogeen-vry is, afgehandel is. Die diagnostiese vorms moet hierdie introduksie vorm vergesel.
2. Verpligte patogeen eliminasië neem 'n minimum van 28 maande; CRI sal sy beste pogings verseker om hierdie termyn te verkort, maar dit kan nie gewaarborg word nie.
3. Die ELISA, IEM, en PKR diagnostiese metodes wat deur CRI gebruik word, is gekarakteriseer en getoets teen die beskikbare plaaslike virusse. Die moontlikheid bestaan dat daar dalk variante van die virus is wat nie in die toets waargeneem kan word nie.
4. Die toetse sal 'n spesifieke virus net bo 'n sekere drempelwaarde opspoor. Dit is belangrik om te verstaan dat die onsuksesvolle poging om 'n spesifieke virus op te spoor, nie die algehele afwesigheid van daardie virus in die monster wat ontleed was, kan waarborg nie. In enige diagnostiese toets is daar 'n laer limiet van die opsporing waaronder 'n virus nie opgespoor kan word nie. Virus-vlakke kan wissel as gevolg van klimaatstoestande, gasheer-plant genotipe, virus-variant of plantmateriaal wat getoets is
5. As 'n gevolg van punte 1) en 2) hierbo kan daar geen waarborg verskaf word dat 'n monster wat 'n negatiewe toetsresultaat opgelewer het, heeltemal vry is van die virus waarvoor daar getoets is nie.
6. Monsterneming, veilige aflewering en akkurate etikettering van die monsters is die verantwoordelikheid van die kliënt.
7. Die kliënt vrywaar CRI ten opsigte van enige verliese of aanspreeklikheid hiermee aangegaan
8. Die totale koste van die GPE prosesse beloop R15 900 (uitsluitend BTW) en is betaalbaar deur die kliënt.
9. **Die GPE prosesse sal nie begin word voordat hierdie vorm, tesame met 'n deposito van 50%, ontvang is nie.**
10. Die balans van die betaling word benodig alvorens gepreïmmuniseerde materiaal vrygestel sal word

Hiermee verstaan en aanvaar ek die bogenoemde voorwaardes.

Geteken deur die eienaar: Datum:

Geteken deur die agent: Datum:

Riglyne vir die sny, verpakking en versending van okuleerhout:

1. Die boom moet onder geen stremming verkeer nie;
2. Sny afgeharde okuleerhout van die vorige groeistuwing, tensy dit 'n klein takkie van 'n mutasie is;
3. Plaas die okuleerhout in 'n skoon plastieksakkie sonder enige nat papier of water;
4. Hou die okuleerhout koel of ten minste in die skaduwee;
5. As dit nodig is om die okuleerhout te stoor, stoor dit teen 10°C
6. Stuur die okuleerhout so gou as moontlik (binne 2 dae) nadat dit gesny is, met koerierdienste aan CRI.

B. MOET DEUR CRI VOLTOOI WORD

Datum ontvang		CRI #		SVS #	
Datum wat bron gevestig is		Aantal bronplante		Sandkultuur	
STG Begindatum	Eksplante	Mikro-enting	Eksplante	Indeksering begindatum	Eksplante

Kommentaar ten opsigte van die kwaliteit van die materiaal wat ontvang is:

50% deposito ontvang op:.....

C. VRYGESTEL AAN DIE CFB:

Datum Gestuur aan CFB:	Vrylatingspermit No:	Handtekening 1:	Handtekening 2:

INTRODUCTION OF MATERIAL TO THE SOUTH AFRICAN CITRUS IMPROVEMENT SCHEME (CIS)

Cultivar Name:	
Cultivar Group:	
Origin:	

Received:			
ARC Number:		Breeders Rights:	
CIS Code:		Status	
Import Number:			

One or all the following to be completed:			
OWNER			Address
Tel.			
E-Mail			
Fax			
AGENT			Address
Tel.			
E-Mail			
Fax			
For Imports only:			
Importer			
Exporter			
Country			
Permit number:		Phyto Cert No:	
NB: Imported material will only be entered in the CIS following approval of the required post-entry quarantine diagnostic reports by the CIS Pathology Committee; these reports should accompany this introduction form.			

Tree Characteristics	
Vigour:	
Full bloom date:	
Growth habit:	
Yields:	

Fruit characteristics:	
Harvest time:	
Size:	
Skin colour:	
Flesh colour:	
Shape:	
Taste:	
Texture:	
General	

Insert photos of typical tree and fruit here:

Typical tree	Typical fruit

Please note:

1. The introduced cultivar will only be released to the Citrus Foundation Block once the required diagnostic sampling has been concluded and it was demonstrated to be pathogen-free. The diagnostic reports should accompany this introduction form.
2. Mandatory pathogen elimination takes a minimum of 28 months; however, despite CRI's assuring its best endeavours to minimise this period, it cannot be guaranteed.
3. The ELISA, IEM, and PCR diagnostic methods used by CRI have been characterized and tested against available local viruses. The possibility must be recognized that there may be variants of the virus which cannot be detected in the assay.
4. The assays will detect a specific virus only above a certain threshold value. It is important to understand that the failure to detect a specific virus does not guarantee the complete absence of that virus from the sample analyzed. In ANY diagnostic assay, there is a lower limit of detection, below which a virus cannot be detected. Virus levels may vary due to climatic conditions, host plant genotype, virus strain or plant tissue assayed.
5. As a consequence of points 1) and 2) no guarantee can be provided that a sample yielding a negative assay result will be completely free of the virus tested for.
6. Sampling, safe delivery and accurate labeling of the samples is the responsibility of the client.
7. The client releases and indemnifies CRI in respect of any loss or liability incurred.
8. Total cost of STG process amounts to **R 15 900.00 (excl. VAT)** and is payable by the client. **The STG process will not commence before this form has been returned to CRI, and a 50% deposit of full payment has been received.** The balance of payment for pre-immunized material is required before budwood is released.

Herewith I understand and accept the above conditions.

Signed by owner Date

Signed by agent Date

Guidelines for the cut, packing and send of budwood:

1. The tree must not be under any stress;
2. Cut mature sticks from the previous flush unless it is from a small twig from a mutation;
3. Put the budwood in a clean plastic bag without any wet paper or free water;
4. Keep the budwood cool or at least in the shade;
5. If it is necessary to store the budwood, keep it at 4°C;
6. Send the budwood to CRI by courier as soon as possible after cut.

B. Must be completed by CRI

Date received	CRI #	CIP #

Date source plants were made	Number of source plants	Sand culture

STG started	Explants	Micro-grafting	Explants	Indexing started	Explants

Comments on quality of material received:

50% deposit received on:.....