

The Cutting Edge

CITRUS RESEARCH NEWS FROM OUTSPAN CITRUS CENTRE

September 2000

No. 6

Rootstock options for Turkey “Valencia” in Southern Africa

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Introduction

The Turkey was discovered by James Saunt in a Valencia orchard in Turkey during 1987 (Saunt 2000). It was subsequently introduced to STG in 1988 and released in South Africa in the early nineties. The need for an early maturing Valencia was evident in order to fill the existing production gap between midseasons and Valencia oranges in South Africa, particularly the intermediate inland areas. As a result of the increasing popularity of the Turkey among citrus producers throughout South Africa, there are to date an estimated 655 000 trees.

Cultivar description

The Turkey has a very upright growth habit with leaves arranged in a rosette pattern similar to that of midseason sweet oranges. Narrow branch crotches are typical, leading to branches breaking under heavy crop loads. Fruit are medium to large in size with a pebbly rind and a distinctive areola at the styler end. Rinds are thicker and have paler internal and external colour than normal Valencias while maturity is 4-5 weeks earlier than old clone Valencias. Internal fruit quality is a major advantage in comparison to old clone valencias as the Turkey has a high juice and sugar content with lower acid levels. Fibre strength is soft even in hotter areas while seed content is lower than normal Valencias (Barry et al. 1996)

Rootstocks

Recent findings in the Northern province and Western Cape indicate incompatibility where Turkey has been budded onto rough lemon rootstock.

A survey was conducted at various sites in inland areas in Mpumalanga and in the Northern Province. Incompatibility is evident in all cases where Turkey has been **budded** onto rough lemon rootstock except in one case where trees are only nine months old and no signs of incompatibility are visible yet. One two and a half year old planting is showing a decline in tree health of up to 30 – 40% of the total orchard. This incidence could perhaps be attributed to the fact that the trees in this case were girdled and soils were water logged in areas as a result of heavy rains earlier this year. In contrast, six-year-old trees in Citrusdal appear to be healthy in spite of obvious incompatibility (Fig.1). Five-year-old **top-worked** trees on rough lemon show no incompatibility in an orchard in the Northern Province. This survey, however, indicates clearly that Turkey is incompatible when **budded** onto rough lemon rootstock. This can be attributed to translocated incompatibility where browning at the bud-union occurs (Hartmann et al. 1990).

Rootstock evaluations over the past few years were limited to quality inducing rootstocks including citranges and citrumelos. It is recommended that growers who wish to plant Turkey make use of quality inducing rootstocks such as Swingle citrumelo and citrange rootstocks.

In areas where calcareous soils occur X639, hybrid rootstock can be considered as an alternative. Preliminary findings in KwaZulu-Natal show that Turkey on C35 citrange rootstock produces advanced colour compared to Swingle and Trifoliolate orange rootstocks. There is limited availability of C35 material and it is important to bear in mind that the rootstock does not have commercial status, however, semi-commercial plantings can be considered.

Turkey has been evaluated in semi-commercial plantings over the past three years on Carizzo citrange, MxT and Swingle citrumelo rootstocks in the Northern Province (Table 1), while C35 citrange, Swingle and trifoliolate orange in KwaZulu-Natal (Table 2).

Table 1. Internal fruit quality tests of Turkey on different rootstocks at Letaba Estates, Northern Province, 1998 &1999 (Veldman et al. 1999).

1998	Count	Juice %	TSS	Acid	Ratio
Minneola x trifoliolate	48.56	54.6	11.20	0.92	12.17
Swingle citrumelo	40.56	54.3	9.80	0.76	12.90
1999					
Minneola x trifoliolate	48.56	52.9	10.00	1.17	8.54
Swingle citrumelo	40.48	53.6	9.50	0.75	12.66
Carizzo citrange	48.56	53.6	9.90	0.76	13.02

Table 2. Internal fruit quality tests of Turkey on different rootstocks at Riversbend Estates, KwaZulu-Natal, 2000.

2000	Count	Juice %	TSS	Acid	Ratio
Trifoliolate orange	56-48	53.7	10.2	1.09	9.35
C35 citrange	48-40	55.7	11.3	0.85	13.29
Swingle citrumelo	56-40	53.5	10.2	0.79	13.41



Fig. 1. A typical necrotic area at the bud-union of Turkey on Rough lemon at Citrusdal, Western Cape August 2000



C35

Trifoliolate

Swingle

Fig. 2. External appearance of Turkey on three rootstocks at Riversbend Estates, KwaZulu-Natal 2000.

Conclusions and guidelines

It is evident that Turkey must not be budded onto rough lemon rootstock. Results show that signs of incompatibility are visible as early as two and a half years (Northern Province), while the oldest trees on rough lemon at Citrusdal research station also show typical signs of incompatibility with no mortalities to date. This has raised the question of what life span can be expected from trees planted on rough lemon rootstock. This can only be determined with further evaluations where mortality rates are recorded over a period of time. It is important to bear in mind that management practices and climatic conditions can have adverse effects on the life span of trees. Although there is presently no clear solution to the current problem, the following suggestions are offered as guidelines.

1. Trees can be top-worked to other cultivars

compatible with rough lemon rootstock.

2. Interplant with Turkey on quality inducing rootstocks.
3. Inarching and bridge grafting can be considered, however, this is labour intensive.
4. Orchards are managed optimally until further recommendations can be made.

References

- Barry, G., C.J. Alexander & F.J. Veldman. 1996. Cultivar evaluation report. Outspan Citrus Centre.
- Hartmann, H.T., D.E Kester, & F.T. Davies, Jr. 1990. Plant Propagation Principles and Practices. Fifth edition Prentice Hall International, Englewood Cliffs, New Jersey.
- Saunt, J. 2000. Citrus varieties of the world. Sinclair International Limited, Norwich,

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LORELEI TRAPS FOR FALSE CODLING MOTH

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The Lorelei trap for false codling moth monitoring was developed by the research department of the old S.A. Co-operative Citrus Exchange and has been supplied to citrus producers since 1996. Various alternative pheromone dispensers have been evaluated since then, but none were competitive in terms of efficacy and user friendliness. This research is continuing and hopefully a competitive product will become available within the foreseeable future.

The traps are regarded as an aid to facilitate the planning of a false codling moth control programme. In the past it was therefore accepted as policy that

the trap system should be supplied to producers on a cost recuperative, non-profit basis. Since 1996 the trap price has increased by R1, while that of the pheromone dispenser has increased from R21 to R32. This price increase was mainly a result of the unfavourable exchange rate.

Increases in the cost of imported components during the past season have resulted in the marketing of the Lorelei trap system at a loss. No company can afford this. It is therefore unfortunately essential that prices be adjusted accordingly.

With effect from September 2000 the price therefore increases by 25% to R40 per dispenser (VAT included). The price per trap remains the same, viz. R15 (VAT included). These prices are still more than 50% cheaper than Lepidoptera monitoring systems available to the deciduous fruit industry.

The imported trap adhesive, Tangle-Trap, is available at the same price as before. Although more expensive than local adhesives, it is available in 425 g containers, which is suitable for producers who have 10 or less traps.

An order form is included for your convenience.

ORDER FORM

LORELEI
 Outspan Citrus Centre
 P O Box 212, 7340 Citrusdal
 Tel/Fax: (022) 921-2618

ITEM	COST (14% VAT included)	QUANTITY	AMOUNT
Trap	R15-00		
Pheromone dispenser	R40-00		
Tangle-Trap adhesive (425 g)	R35-00		
TOTAL			

NAME

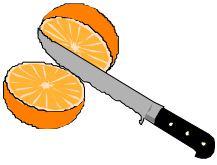
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Die Snykant

SITRUSNAVORSINGSNUUS VAN OUTSPAN SITRUSSENTRUM

September 2000

Nr. 6

Onderstam opsies vir Turkey "Valencia" in Suider Afrika

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Inleiding

Die Turkey is ontdek deur James Saunt in 'n Valencia boord in Turkye gedurende die 1987 seisoen (Saunt 2000). Dit is in 1988 deur groeipuntenting geneem en in die vroeë negentiger jare vrygestel in Suid Afrika. Gedurende die periode was daar 'n daadwerklike behoefte vir 'n vroeë Valencia, veral in die binnelandse intermediêre areas, om die bestaande produksiegaping tussen midseisoeners en Valencias te vul. Toenemende populariteit onder sitrusprodusente om die Turkey aan te plant het daartoe gelei dat tot op hede 655 000 bome gevestig is.

Kultivar beskrywing

Die Turkey het 'n regopgroeiende groeiwyse met blare in 'n roset patroon, soortgelyk aan midseisoen lemoene. Nou mikke is tipies en kan lei tot takke wat breek, veral onder 'n swaar drag. Vruggrootte is medium tot groot met 'n growwe skiltekstuur en 'n kenmerkende areola wat op die onderkant van die vrug sigbaar is. Skildikte is dikker as normale Valencias, en interne en eksterne kleur is ook ligter in vergelyking met normale Valencias. Rypwording is 4-5 weke vroeër. Interne kwaliteit is egter die Turkey se groot voordeel, met 'n hoë suikerinhoud en sapinhoud en laer suurvlakke as gewone oukloon seleksies. Veselsterkte is sag, selfs in warmer klimaatstreke en saadinhoud laer is as gewone Valencias (Barry et al. 1996).

Onderstamme

Onlangse bevindinge in die Noordelike Provinsie en die Wes Kaap toon onverenigbaarheid van Turkey op growweskijsuurlemoenonderstamme.

'n Opname is uitgevoer by verskeie persele in Mpumalanga en in die Noordelike Provinsie. Onverenigbaarheid was sigbaar by al die persele waar Turkey op growweskijsuurlemoen geokkuleer is, met die uitsondering van bome op een perseel wat waarskynlik te jonk is om tekens van onverenigbaarheid te toon. Bome van twee en 'n half jaar ouderdom op die een perseel toon 'n 30-40% afname in boomgesondheid. Dit kan gedeeltelik ook toegeskryf word aan eksterne faktore bv. ringelering, swak grondtoestande en swaar reëns gedurende die jaar. Hierteenoor is ses jaar oue bome by Citrusdal Navorsingstasie nog gesond ten spyte van tekens van onverenigbaarheid (Fig.1). Vyf jaar oue oorgewerkte bome op growweskijsuurlemoen in Letsitele toon geen tekens van onverenigbaarheid nie. Tenspyte hiervan is dit duidelik uit die opname dat Turkey onverenigbaar is op growweskijsuurlemoen en dat hierdie bostam/onderstam kombinasie nie geplant moet word nie. Onsekerheid bestaan oor die tipe onverenigbaarheid, maar die nekrotiese area by die entlas toon ooreenkomste met transgelokkerde onverenigbaarheid (Hartmann et al. 1990).

Onderstamevaluasies konsentreer op hoë kwaliteit induseerende onderstamme, en dus word aanbeveel dat produsente net onderstamme soos Swingle citrumelo en citrange seleksies gebruik. In areas waar alkaliese gronde voorkom, kan X639 hibried onderstam gebruik word as alternatief. Voorlopige resultate in KwaZulu-Natal toon dat Turkey op C35 citrange onderstam, vroeër ekstern opkleur in vergelyking met Swingle en Trifoliaat onderstamme (Fig. 2). Wat wel in aanmerking genoem moet word, is dat net beperkte hoeveelheid C35 materiaal beskikbaar is en net semi-kommersiële aanplantings oorweeg moet word.

Tabel 1. Interne kwaliteit resultate van Turkey op verskeie onderstamme by Letaba Landgoed, Noordelike Provinsie gedurende die 1998 & 1999 seisoen (Veldman et al. 1999).

1998	Vrug-grootte	Sap %	TOV %	Suur %	Verhouding
Minneola x trifoliaat	48.56	54.6	11.20	0.92	12.17
Swingle citrumelo	40.56	54.3	9.80	0.76	12.90
1999					
Minneola x trifoliaat	48.56	52.9	10.00	1.17	8.54
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Carizzo citrange	48.56	53.6	9.90	0.76	13.02

Turkey is die laaste drie jaar op verskeie onderstamme ge-evalueer, nl. Carizzo citrange, Minneola x Trifoliaat en Swingle citrumelo in die

Noordelike Provinsie (Tabel 1) en C35 citrange, Swingle citrumelo en Trifoliaat in KwaZulu-Natal (Tabel 2).

Tabel 2. Interne kwaliteit resultate van Turkey op verskeie onderstamme by Riversbend Landgoed, Kwaulu-Natal gedurende die 2000 seisoen.

2000	Vrug-grootte	Sap %	TOV %	Suur %	Verhouding
Trifoliaat orange	56-48	53.7	10.2	1.09	9.35
C35 citrange	48-40	55.7	11.3	0.85	13.29
Swingle citrumelo	56-40	53.5	10.2	0.79	13.41



Fig. 1. Tipiese nekrotiese area op die entlas van Turkey op growweskiisuurlemoen by Citrusdal Navorsingstasie, Wes-Kaap, Julie 2000.



C35

Trifoliata

Swingle

Fig. 2. Eksterne voorkoms van Turkey op drie verskillende onderstamme by Riversbend Landgoed, KwaZulu-Natal gedurende die 2000 seisoen.

Samevatting en riglyne

Dit is duidelik uit bogenoemde ondersoek dat die Turkey onverenigbaar is met growweskiisuurlemoen onderstam en dat dié kombinasie nie aanbeveel word nie. Voorlopige resultate toon duidelike tekens van onverenigbaarheid by bome so jonk as 2½ jaar oud (Noordelike Provinsie) en alhoewel ses jaar oue bome ook duidelike tekens van onverenigbaarheid toon by Citrusdal Navorsingstasie, is daar geen bome wat uitgesterf het nie en bome blyk gesond te wees. Dit bring die vraag op, wat die lewensverwachting dié bome op growweskiisuurlemoen sal wees. Dit kan net bepaal word deur verdere opnames om die persentasie uitsterwing te bepaal oor 'n periode van tyd. Dit is

wel belangrik om in aanmerking te neem dat boordpraktyke en klimaatstoestande 'n oorhoofse rol kan speel in die lewensduurte van die bome. Daar is geen duidelike oplossing vir bome wat reeds aangeplant is op hierdie stadium nie. Die volgende opsies kan oorweeg word.

1. Bome kan oorgewerk word na kultivars wat verenigbaar is met growweskiisuurlemoen.
2. Turkey op geskikte onderstamme kan alternatiewelik ingeplant word in huidige boorde.
3. "Studenting" kan gebruik word waar verenigbare onderstamme in die bostam geënt word. Namate die onverenigbaarheid toeneem met die growweskiilonderstam sal

die ander onderstamme wat gebruik is om te stutent meer dominant word.

- Bestaande boorde kan optimaal bestuur word totdat die onverenigbaarheid die opbrengs en kwaliteit tot so 'n mate benadeel dat die boord onekonomies raak en verwyder moet word.

Verwysings

- Barry, G., C.J. Alexander & F.J. Veldman. 1996. Cultivar evaluation report. Outspan Sitrus Sentrum.
- Hartmann, H.T., D.E. Kester, & F.T. Davies, Jr. 1990. Plant Propagation Principles and Practices. Fifth edition. Prentice Hall International, Englewood Cliffs, New Jersey.
- Saunt, J. 2000. Citrus varieties of the world. Sinclair International Limited, Norwich, England.
- Veldman, F.J., C.J. Alexander & K.V. Beeton. 1999. Cultivar evaluation report. Outspan Sitrus Sentrum.

LORELEI-LOKVALLE VIR VALSKODLINGMOT

J.H. Hofmeyr

Outspan Sitrusentrum, Citrusdal

Die Lorelei-lokvalle vir valskodlingmotmonitering is deur die navorsingsdepartement van die eertydse S.A. Koöperatiewe Sitrusbeurs ontwikkel en word sedert 1996 aan sitrusprodusente verskaf. Verskeie alternatiewe feromoonvrystellers is sedertdien getoets, maar geen produk wat in doeltreffendheid

en verbruikersvriendelikheid meeding, kon gevind word nie. Dié navorsing word voortgesit en daar is goeie hoop dat 'n vergelykbare produk binne afsienbare tyd beskikbaar sal raak.

Die lokvalle word as 'n hulpmiddel vir die beter beplanning van valskodlingmotbestryding beskou. In die verlede is dit daarom as beleid aanvaar dat die lokvalstelsel op 'n kosteverhalende basis, sonder winsbejag, aan produsente verskaf moet word. Vanaf 1996 het 'n lokval slegs R1 duurder geword, terwyl die feromoonvrysteller se prys van R21 tot R32 gestyg het. Dié prysverhogings was 'n gevolg van veral die ongunstige wisselkoers.

Stygings in die koste van ingevoerde bestanddele, het die afgelope seisoen veroorsaak dat die Lorelei-lokvalstelsel teen 'n verlies bedryf is. Geen maatskappy kan dit bekostig nie. Dit is gevolglik ongelukkig noodsaaklik dat pryse aangepas word.

Die prys verhoog daarom vanaf September 2000 met 25% tot R40 per feromoonvrysteller (BTW ingesluit). Die prys per lokval bly dieselfde, naamlik R15 (BTW ingesluit). Dié pryse is nog steeds meer as 50% goedkoper as Lepidoptera-moniteringstelsels wat in die sagtevrugtebedryf gebruik word.

Die ingevoerde lokvalkleefmiddel, Tangle-Trap, is teen dieselfde prys as vantevore beskikbaar. Dit is duurder as plaaslike kleefmiddels, maar is in 425 g houers beskikbaar wat ideaal vir produsente met 10 of minder lokvalle is.

'n Bestelvorm word vir u gerief ingesluit.

BESTELVORM

LORELEI
Outspan Sitrusentrum
Posbus 212, 7340 Citrusdal
Tel./Faks: (022) 921-2618

ITEM	KOSTE (14% BTW ingesluit)	AANTAL	BEDRAG
Lokval	R15-00		
Feromoonvrysteller	R40-00		
Tangle-Trap kleefmiddel (425 g)	R35-00		
TOTAAL			

NAAM

ADRES

.....

.....

TELEFOONNR

FAKSNR.