STAR RUBY: A Stalwart of the RSA Citrus Industry

Report by DR. HOPPIE NEL

In Southern Africa some 4 450 hectares are at the moment planted with Star Ruby grapefruit. This comprises about 8% of the total citrus plantings in the region. Given the meagre beginnings with this variety in 1974, the growth in the contribution of Star Ruby to the SA industry is nothing but phenomenal as illustrated by the fact that the industry is capable of an annual export volume of 6 to 7 million Star Ruby cartons – at a DIP value of R50 per carton this provides our growers with an estimated annual R350 million turnover.

Star Ruby was introduced to South Africa in 1974 when Dr. Doug Stanton of the Citrus Exchange organised the procurement of 12 seeds from the United States. Dr. Anton Hough received these irradiated seeds from Dr. Pete Timmer who collected the seeds near the town of Weslaco in Texas. The seeds were sown by Ferdi Esselen at his nursery in Malelane who nurtured them and produced 10 trees from each seedling. He used Troyer Citrange and Rough lemon as rootstocks. The trees were planted in 1976 for evaluation. With the first evaluation in 1979 under scrutiny of Steve Burdette it was established that only 3 of the 12 seedling sources were true to type. The rest varied from having white flesh to very small fruit or fruit with excessive seeds.

The first true to type Star Ruby nursery trees were produced in 1981 and planted on various farms in the Onderberg area (Komatipoort – Malelane), amongst others on the farms of TSB,

CGA and Department of Agriculture visit Japan to address an MRL exceedance

A recent case of a Maximum Residue Level (MRL) exceedance illustrates the steadfast reaction by an importing country to maintain food safety, and just how difficult and costly MRL exceedances are to resolve. This article describes the actions taken by the SA citrus industry in response to official notification received on the 21st August 2006 of an exceedance of the Japanese MRL for Triflumuron (Alsystin) on South African grapefruit.

On notification, the importer was automatically ordered to recall all affected fruit from the market, and was not permitted to release any further fruit in that lot. Heightened official Japanese residue testing was initiated – to a rate of 50% of all grapefruit lots from SA. This rate of sampling will continue for one year, unless a second detection above the MRL is found, in which case the sampling rate will go to 100% of lots from SA. Any further MRL exceedance while at the 100% sampling level could result in mandatory testing by each importer (at their own cost) before fruit can be released onto the market.

The grower concerned demonstrated they used Triflumuron in accordance with the product’s official registration. Spray records show that Triflumuron was sprayed on particular orchards, while the notification indicated consignment notes that include fruit from orchards that were not sprayed with Triflumuron. This firstly raised uncertainty about the sampling procedure and whether the samples can be correctly traced to the corresponding consignment in Japan, and secondly, the suitability of the technique being used in Japan to determine the Triflumuron residue levels in the fruit.

The affected grower had excellent traceability in place. A small delegation comprised of Alex Seramula (Deputy Director: Food Safety and Quality Assurance), ms. Hanlie Wessels (Head of Perishable (Fruits) and Flowers) and mr. Pieter Broere (Analytical Services (North)) from the Department of Agriculture (DOA) and Paul Hardman (CGA) visited Japan from the 11th – 15th September 2006 to investigate the issue. Besides building a working relationship with the main roleplayers in Japan, the key objectives were:

1) Confirm that Star Ruby fruit found to have residues at the MRL (0.02 ppm) should be released onto the market. According to CODEX Alimentarius, a residue level equal to the MRL is ACCEPTABLE for placing on the market.
2) Make an application that Marsh grapefruit showing no evidence of residues should also be released.
3) Finally, given that the SA citrus industry had never received a report of an exceedance of the MRL using the 30-day pre-harvest interval, and that the Triflumuron MRL in South Africa is 0.5 ppm and at this level provides consumers with considerable assurance, it was hoped DOA would request the Japanese Authorities - Ministry Of Health, Labour And Welfare (MHLW) - to consider a Temporary Measure: residues of Triflumuron on grapefruit from South Africa up to a level of 0.25 ppm.

The value of 0.25 ppm had been suggested given possible dietary differences between South African and Japanese consumers. This Temporary Measure would effectively mean all...
Piet Maritz and Jacob de Villiers.

After production of the initial propagation material, the original twelve Star Ruby trees were planted in an experimental block at Malelane nursery. The trees survived in this experimental block until 1996 when they had to be removed due to excessive Tristeza infection.

Budwood of these Star Ruby’s were distributed to many nurseries and private estates before the establishment of the foundation block at Uitenhage.

Taking into account plant densities, replacement programmes etc, it can be calculated that at least 3 million trees were propagated in SA from those first 12 seedlings.

Ferdi Esselen was honoured for his tremendous contribution to the welfare of the SA citrus industry when the first prestigious Technical Merit award given by Citrus Research International was awarded to him in August 2006 at the biennial RSA Citrus Research Symposium.

Implicated fruit could be released onto the market, and any future exceedances from SA in 2006 would be unlikely.

Significantly, Japanese importers apply for an Import Clearance Certificate (ICC) for every “lot” of fruit imported into Japan. These “lots” can be made up of more than one Consignment Note (i.e. could involve more than one PUC, variety, orchard etc). Problems arise when some portion of the fruit linked to a particular ICC is found unsuitable for placing on the market (i.e. has an MRL exceedance). In this case, the entire lot, not just the affected fruit, must be withheld from the market. This explains why some SA grapefruit not even sprayed with Triflumuron was implicated in this issue. Importers are advised to reduce the size of their lots represented by the Import Clearance Certificate, and in this way manage the risk if an exceedance is found on some of the fruit.

A visit to the Yokohama Quarantine Station created an opportunity to view the well resourced analytical testing facilities and for the DOA Analytical Services’ representative to exchange knowledge with these counterparts. The range of pesticides tested for in a multi-residue analysis is also wider than that used by most of our major trading partners. Confirmation of the residue is done with LC/MS/MS technique whenever an exceedance of the MRL is detected. Usually this confirmation test is done three times.

MHLW were impressed with how proactive DOA and the SA citrus industry had been to address the Triflumuron issue, demonstrated by making the trip to Japan. DOA presented the case around Triflumuron for the SA citrus industry, highlighting the fact that official systems such as the Standard Operating Procedure for sampling and the Traceability Standard Operating Procedure (TSOP) were in place to ensure high levels of food safety. MHLW acknowledged the work done by SA to apply appropriate systems, but regretfully would not be in a position to consider the requests to release unaffected grapefruit without more evidence to support the argument. Furthermore, it would be up to the local authorities who had originally detected the exceedance of the MRL to make a decision about the unaffected fruit. DOA indicated they would be following the Sampling SOP and would provide the necessary information as soon as possible.

The SA Embassy and the importer involved visited local officials following the return of the delegation to SA. Unfortunately, these officials only agreed to release a small amount of Star Ruby grapefruit, while the remaining Marsh grapefruit (5349 cartons) were not approved for release. It is understood the importer continues to engage with the officials to release this fruit.

Conclusion
While the objective of releasing all the affected fruit was only partially resolved, the engagement with the key regulatory and commercial roleplayers in Japan was important and a valuable investment should any future Food Safety issues arise. The experience exposed the delegation to the “quest for zero defect” mindset applied by the Japanese in maintaining high food safety standards.

The SA Embassy in Tokyo, and particularly Mr. Ray Medhurst and Mr. Shinji Yamamoto, compiled a highly relevant itinerary and must be thanked for all their efforts both before and during the visit. Thanks must also go to the DOA representatives who made themselves available at very short notice and for their considerable effort to resolve this issue.