

TONNAGE OFF TAR CHANGES EXPORT FRUIT TO RAIL



Loading of the reefer containers onto the train was done under supervision of Ampie Grotsius of Progressive Logistics

Long before the present global economic melt down, the South African export fruit industry identified that change was needed to keep ahead of other exporting countries in a highly competitive international market. Industry role players identified technological gaps which had crept into the supply chain over time and these had to be corrected.

By early 2007 the Department of Science and Technology (DST) had responded with a R15 m programme which launched the Past-Harvest Innovation Programme (Phi) with the Agricultural Research Council (ARC) and DoA (Department of Agriculture) as partners. A PMU (Programme Management Unit) under the chairmanship and management of the FPEF (Fresh Produce Exporters Forum) was formed and 8 gaps in the area of “farm to fork” were identified and research programmes commenced with vigour. The Tonnage off Tar is but one of the essential projects that has gained rapid momentum as a direct result of the Phi programme and the driving force of the PMU.

Changes in Logistic Chain

The inland movement of export fruit in South Africa has undergone major changes in the last 3 decades and each change has brought new logistical challenges. The importance of a seamless cold chain has simultaneously gained recognition and has become of prime concern in considering any form of inland transport. The rail transportation of export fruit in South Africa is not a new concept. In the early 1970's, the SAR&H (South African Railways & Harbours) had a fleet of refrigerated rail wagons in excess of 900 and many pallets of export fruit, eg avocados, were successfully transported to Cape Town harbour for transfer into 6m port hole marine containers.

By the late 1990's all the refrigerated rail wagons had been taken out of service and in 2005 the last of the port hole containers were shipped from South Africa.

Shipping in 12m Reefers

Since the late 1990's there has been a steady increase to shipping fruit in refrigerated 12m containers and with each new season more fruit is packed directly into the reefer container in the production areas, as an alternative to transporting in refrigerated road vehicles to the port for transfer into containers. Stuffing the containers in the production areas has created new logistical challenges, particularly in maintaining a seamless cold chain and more so if the distance between pack-house/production area is greater than 100 km from the nearest port.

Spoornet responded to the change in loading fruit directly into refrigerated containers in the production areas with the launch of a reefer container train in 1998 (*Article titled "Containerisation Extended from Producer to Foreign Markets", January 2000 issue of the Cold Link.*) The reefer train has 32 flat deck wagons with twist locks for ISO 12m marine containers and in the centre of the train a diesel generator wagon for supplying 3 phase power to the 16 reefer containers in the front and 16 in rear section. Once placed onto the wagons and connected to the power supply of the reefer train, the cold chain is maintained until the container is received in the harbour and placed directly onto the ship or connected to a land based plug point in the harbour. From pack-house to ship the cold chain is seamless. Initially the reefer container train was used for table grapes from the Kakamas area and avocados from the Tzaneen area.

Although the concept of the reefer container train is ideal to maintain a seamless cold chain, its utilisation diminished mainly because of uncompetitive pricing and logistical problems.

Revival of Rail Transport

The Tonnage Off project, initiated in 2007, has created a renewed focus aimed at moving greater volumes of export fruit from the production areas to the port by rail and not only on the reefer trains, of which Transnet now operates two, but also with other forms of rail transport.

Transnet Rail Freight, Transnet Port Terminals, the engineering service of DoA and a number of major exporters, have responded favourably to the Tonnage Off Tar project and rail freight volumes are on the increase.

The service has been extended and reefer containers with table grapes have been railed from the Hex River Valley to Cape Town harbour; "high cube" pallets of citrus railed in Transnet high cube rail containers, reefer containers railed on flat deck wagons from Paarl to Cape Town while the traditional avocados from Mpumalanga and grapes from Kakamas have continued.

Advantages of Rail Transport

The rail transport of export fruit in containers offers several advantages. A prime advantage is the easy access to the harbour and particularly Cape Town harbour. The train enters via the "back door" while road vehicles often need to stand in long queues waiting for access. If the container is brought to the harbour on a vehicle without a diesel generator, as in the instance when from a nearby depot or packhouse, eg Paarl, the cold chain is broken for hours, while the vehicle stands in the queue at the entrance to the harbour. Admittedly this could be overcome by having a diesel generator on the vehicle but this in turn will increase the cost and will depend on the availability of under-slung diesel generators for road vehicles.

Another aspect to consider is the load limitations of road vehicles. If the container is a 12m high cube and stuffed with pallets of citrus packed to maximum height and on a skeletal trailer, with a diesel generator, the allowable loading of the tri-axle unit of the trailer of 24000 kg, can be exceeded. Transporting by rail is not subject to such load limitation.

Rail transportation also removes heavy traffic from our roads, many of which are already badly in need of repair. A single train driver can move 32 reefer containers which would otherwise require 32 road vehicles each with a driver. Reliable heavy duty drivers with long distance experience are in short supply and rail transportation is an option of dealing with this shortage.

Smaller Carbon Foot Print

The need to reduce the carbon footprint is another consideration when transporting containers. As an example, the CO² emission per pallet would be vastly less than when transporting 32 containers of avocados from Tzaneen on a train with a single diesel driven locomotive as compared with 32 road vehicles.

Admittedly there are logistical problems with rail transport, eg scheduling of trains, time needed in changing driver crews, cable theft from reefer trains, transfer of packed containers from pack-house to train, flexibility, longer distances of the rail network between the point of loading and destination and competitive pricing.

The disadvantages of rail transport have been known for some time but the management of Transnet Rail Freight are committed to finding solutions which will increase the volumes of export fruit moved inland by rail. With the help of the engineering services of the DoA, fruit production in the various areas are being assessed and the proximity of each production area to rail facilities are being identified. With this info, Transnet Rail Freight will plan the areas needing improved services.

The rail tariff charged is very much dependant on the volume of traffic on the section of the rail network used and knowing potential volumes will certainly assist in setting competitive rates.



Deon Hanekom (left) General Manger of ColdHarvest, Paarl watches as Ockert Henning ,CEO of SAFT (Southern African Fruit Terminals) cuts the inaugural ribbon of the first train of reefer containers on flat deck rail waacons leaves for Cape Town harbour.

New Initiative By Cold Harvest

ColdHarvest of Paarl, have taken rail transport of reefer containers filled with export fruit, a step further. In February 2008, ColdHarvest dispatched their first consignment of reefer containers with chilled fruit, loaded on flat deck container rail wagons from Dal Josafat, Paarl directly into Cape Town harbour with only a 2 hour break in the cold chain. At Dal Josafat the reefer containers were kept connected to a fixed 3 phase power supply until the train departed for Cape Town and was reconnected to a power supply on arrival in Cape Town Harbour.

Transnet Rail Freight planned for the train to have a green light thru all stations and even had preference in right a way ahead of the Blue train.

“At first we were sceptical about the success of the train over the short distance from Paarl to Cape Town Harbour, but the results quickly dispelled our concerns. We are now determined to extend this service further and improve on the logistics and pricing”, Deon Hanekom, General Manager of Cold Harvest, Paarl. He continued, “the fact that we are also able to make a significant impact on reducing the carbon footprint of the export fruit is an added bonus”

New Life to Export Industry

Like so many new projects, each requires a driver with enthusiasm and Sandra Baesten, who was hired by FPEF to research the Tonnage Off Tar, is no exception.

The Tonnage Off Tar project aims to get the industry to “work smarter”, improve the utilisation of

existing infra-structure, extend the life of South Africa's network of roads, reduce logistical bottle necks and reduce the carbon footprint in moving each pallet of export fruit from farm to fork, without comprising a seamless cold chain.

The Phi programme with its driving force to research solutions to the short comings of the export fruit industry has brought a new buzz word to the industry :

“Innovate or Evaporate”.



The reefer containers were connected to a power supply at Cold Harvest while the train was being loaded, so as to maintain the cold chain. The Cold Harvest facility at Paarl (part of SAFT) packs and cools fruit and has a storage capacity for 6400 pallets