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Package Optimisation Model

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Abstract

A bulk export orientated company has to optimise their packaging to be able to compete in a globalised world. Therefore it is important to maximise the container load to save shipping costs. This can be done in different ways,

- by changing the product weight,
- the packaging material or size,
- the pallet/container size or, for some products,
- the bulk density.

With so many parameters affecting the container load finding the best packaging solution is difficult.

To solve the problem an Add-on to for the existing packaging optimisation software Cape Pack called SADIE was developed. SADIE automates the process of data input into Cape Pack and allows browsing of different packaging combinations in a short time.

Main feature of SADIE is that it allows testing complete weight and/or bulk density ranges in one Query. For that it takes the weight and the bulk density combination that is going to be tested and calculates the start dimension for a regular slotted case (RSC) with a 2:1:2 ratio, which, for a RSC, is the ratio that uses a minimum quantity of board. Those dimensions are then, with many other parameters, transferred into the Cape Pack Design mode where the new packaging solution is calculated and transferred back to SADIE. The data coming from SADIE was tested for consistency and was also used for physical pack size validations, both successfully.

Packaging solutions for products with higher bulk densities could be optimised. A new packaging solution calculated for salted butter could save 231 container per annum. Depending on the destination of the butter cost savings from 184,000 US\$ to 577,500 US\$ would be possible.

The results show that there are improvements in container load possible, especially for products in a higher bulk density range, like butter and cheese. An increase in container load for Whole milk powder (WMP) might be possible if

another packaging system is used whereas for Skim milk powder (SMP), with its higher densities compared to WMP, the program can calculate improved container load without a change to the packaging system used.

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“Always forward, never backwards.”

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