



Strategic logistic concepts for vegetables and fruit chain-network.

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Abstract.

The project involves the development of a new strategic logistic concept for the Dutch vegetables and fruit sector. Design and performance of the chain¹ for vegetables and fruit will be improved according to this concept. Logistic activities of individual links within the 'from the soil to the table' chain are to be attuned to each other. The first test-applications concern the Mushroom product group, to be followed by wider application.

2.1 Introduction.

Currently many unnecessary wastages can be observed in the vegetables and fruit sector of the Netherlands. Most wastages are caused because of the late arrival of specifications of condition and packing at the places where conditioning and packing have to be performed. Further wastages occur when unnecessary handling takes place or when products are moved without necessity across the already overloaded Dutch infrastructure.

To avoid these wastages as much as possible in the future, a research project has been organized by the Foundation for Agri Chain Competence to develop and to use an integrated management model with which activities of individual participants in the chain can be attuned to another.

The management model to be developed, must prescribe which activities can be executed best by which participant of the chain and it also must give directions on how they should be executed. The chain must function in a strong market-oriented manner, in other words it must produce what the market asks for, with

¹ In the vegetables and fruit sector (and not only there) the current indication 'chain' can be better replaced by the more realistic analogon 'chain-network'. Because of practical considerations we only use the term 'chain' in the rest of this presentation.



regard to quality, quantity, time and packing.
At the moment the chain is production-oriented.

The model must have the following spin off:

- a competitive advantage in the existing markets by way of a higher freshness of the products;
- enlargement of the (European) market for Dutch products;
- a reduction of the logistic component in the structural costs of the products of Dutch food horticulture;
- an enlargement of the flexibility of the chain with regard to the choice of assortment and the quality of products.

2.2 The project.

In the research project the problems concerning productflow management in the chain are studied from several perspectives.

In the first place there is the starting point that chain problems should be approached from the relation which exists between the (consumer) market and the chain. The consumer demand therefore is the point of departure in the project. Besides this a combined top-down and bottom-up approach has been chosen.

In the top-down approach we try to design an integrated management model for the complete chain from the production of primary products to the production of consumer-ready products. For this at first a mathematic model is being designed that can be used to generate proposals for improvement of the chain design. Costs, throughput time and assortment characteristics are important criteria in the choice of proposals for improvement. The (practical) feasibility of a proposed improvement will be tested with regard to the consequences to the control system, the information systems needed and the necessary organisational arrangements. This again can lead to adjustments of the mathematical model. In this way the management model can be refined in a process of iterations.

In the bottom-up approach knowledge will be generated, on behalf of the development of the management model, by smaller projects concerning aspects of the vegetables chain or concerning (relations between) participants of the vegetables chain. An additional benefit of these knowledge generating projects is that they also can yield useful results for the short term for the Dutch horticultur sector. An example of these projects is a project for the improvement of the co-ordination between the customers wishes with regard to the packings of the products, and the packing which is chosen by the grower. An other example is a project for the improvement of, and a better use of forecasts



of the expected market demands with regard to quantity, quality, place and time.

In the session the methodological aspects of the project will be discussed in particular. This will be illustrated by the models that have been developed and by the results of the sub-projects. Especially the way in which mathematical and managerial aspects on the one hand and the bottom-up and top-down approach on the other hand are integrated to a coherent approach for chain problems will be discussed. We choose the mushroom chain as a first test-case.