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Co-operatives in chains: institutional restructuring in the Dutch fruit and vegetables industry

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Abstract
Co-operatives play a major role in the agricultural and food industry. Co-operatives, by the very nature, are producer-oriented firms. As market conditions for food products have changed in recent decades, the question is raised whether co-operatives are still efficient organisations for carrying transaction with agrifood products? Bijman (2002) has addressed this question for the fresh produce industry in The Netherlands. Traditionally, fruits and vegetables were sold through auctions, organised by grower-owned co-operatives. In the 1990s several auction co-operatives merged, transformed into marketing co-operatives, and vertically integrated into wholesale. In addition, growers have set up many new bargaining associations and marketing co-operatives. These new co-operatives have started crop and variety specific marketing programmes. For reasons of asymmetric information and investment-related transaction costs several of the new co-operative firms have also included the wholesale function.

Key words: co-operatives, auction, fresh produce, asymmetric information, transaction cost, asset specificity.

1. Introduction

All over the world, co-operatives play a major role in the agricultural and food industry. In the Netherlands, in 2001, co-operatives process 84% of all milk and 63% of all sugar beets, supply 54% of all compound feed, provide 87% of all credit to farmers, and sell 95% of all flowers and potted plants (NCR, 2002). About 60% of all fruits and vegetables produced in the Netherlands was sold through co-operative auctions or marketing co-operatives.

The main function of the co-operative is to enhance income of member-firms by providing specific services that support the activities of the members. On the basis of the nature of these services, NCR (1993) distinguishes five categories of agricultural co-operatives: supply co-operatives, for purchasing and producing farm inputs; marketing co-operatives, for processing and marketing farm products; co-operative banks, for the provision of credit; co-operative auctions, for selling horticultural products; and co-operatives providing other services such as insurance, contract work, accountancy and farm assistance.

In recent years, market conditions for agricultural and food products have changed, requiring more customer-orientation in agricultural production and more vertical co-ordination in production and distribution chains. As co-operative firms have a producer orientation, the question has bee raised whether and how agricultural co-operatives can effectively apply the necessary market-oriented strategy. Various scholars of organisational economics have argued that co-operatives have organisational characteristics that make it less suitable for customer-led production. One of the arguments is that the inherent producer orientation, which is institutionalised by farmer-control, make it difficult to put customer demands before supplier interests. Cook

(1995) has argued that collective ownership leads to weak incentives for investments by the member-firms in the co-operative firm. Attracting external suppliers of equity capital is not a solution, as it may lead to conflicts over goals and distribution of profit. Also collective decision-making in a co-operative has disadvantages. Co-operatives have lower organisational flexibility because of laborious decision-making processes (Hendrikse and Veerman, 2001), have a tendency to avoid new businesses (Reynolds, 1997), and hold the possibility that a majority of members impose policies that exploit a minority consisting of, for instance, large patrons (Staatz, 1987a). However, others have argued that the co-operative is well equipped to supply the market with quality products as it is particularly suitable for implementing vertical quality control systems (Caswell and Roberts, 1994; Royer, 1995).

In this paper we will describe and analyse how co-operative auctions and marketing co-operatives in the Dutch fruit and vegetables industry have developed in the last decade, responding to changing market conditions. In the early 1990s, growers mainly used an auction to sell their products to wholesalers. Ten years later, many auction co-operatives have turned into marketing co-operatives carrying out the wholesale function themselves. In addition, growers have established many new marketing co-operatives. Institutional economics (referentie???) will be used to analyse these changes.

This paper is structured as follows. (Institutional) economic reasons for farmers to set up a co-operative firm are discussed first. Next, the fall and rise of the co-operative auction in Dutch food horticulture is described. Subsequently, the restructuring of several auction co-operatives into marketing co-operatives and the establishment of many new small bargaining associations and marketing co-operatives is described. These new producer organisations will be analysed in the light of the traditional reasons for setting

up a co-operative. Some concluding thoughts are formulated regarding the future development of marketing co-operatives for fruits and vegetables in the Netherlands.

2. Why do farmers set up co-operatives?

There are several reasons why farmers have established a proprietary co-operative firm instead of trading with an independent firm. These reasons fall in three categories: (1) market power of the supplier of farm inputs or the processor of farm products, (2) incomplete and asymmetric information in the supplier-farmer or farmer-processor relationship, and (3) investment-related transaction costs in the farmer-processor relationship. Market power is a problem that is typically studied by using neoclassical economic models, focussing on price effects of (un)competitive behaviour. Information problems and transaction costs are usually studied from an institutional economic perspective, acknowledging bounded rationality of actors and the incompleteness of contracts. Obtaining ownership over the supplier or processor (i.e., vertical integration) may solve the information and transaction costs problems.

Market power

Market power, or more generally market imperfection, is the most common reason for establishing a co-operative mentioned in the economics literature (e.g., LeVay, 1983; Schrader, 1989). Asymmetric market power results from the (large) difference in efficient size between agricultural production on the one hand and processing and marketing of farm products on the other hand. Because most farms continue to be organised as family farms, the optimal size of the farm is determined by the labour and, particularly,

management capacity provided by the farm household (Schmidt, 1991; Hansmann, 1996). Processing and marketing of farm products, however, hold substantial economies of scale, which leads to only a small number of processors existing in a particular farming region.[1] This oligopsonistic market structure gives processors market power and may lead to lower prices (or higher transaction risks) for farmers than in a competitive market situation. By establishing a bargaining co-operative (or bargaining association) for the collective sale of farm products, farmers obtain countervailing power vis-à-vis the processor (Hendrikse and Bijman, 2002b).[2]

Incomplete and asymmetric information

A second reason for farmers to set up a co-operative is the existence of incomplete and asymmetric information in the relationship between farmers on the one hand and suppliers of inputs or buyers of farm products on the other hand. Incomplete and asymmetric information is the result of measuring problems or measuring costs, for instance in measuring product attributes and measuring human performance. Measuring problems are particularly problematic in a relationship where the trading parties have divergent interests. Incomplete and asymmetric information give room for opportunistic behaviour of two kinds: moral hazard and adverse selection. Moral hazard, or post-contractual opportunism, refers to a lack of effort on the part of the agent (i.e., the agent is shirking). Adverse selection, or pre-contractual opportunism, refers to the misrepresentation of ability or quality by the agent. The effect of incomplete and asymmetric information is that mutually advantageous transactions may fail to occur, because one or the other

[1] The scope of the relevant region is determined by the perishability of the product, the volume and weight of the product and the state of transportation technology.
[2] While countervailing power suggests a defensive strategy, farmers can also co-operate to build up market power themselves.

party fears being victimised, or costly arrangements will be made to protect against opportunistic behaviour.

Co-operatives have been set up to solve the measuring problems in the supplier-farmer of farmer-processor relationship. (Staatz, 1987b). For instance, early supply co-operatives were set up because farmers did not have the capabilities to measure the quality of fertilisers and feed that they purchased (Van Stuijvenberg, 1977). Hennessy (1996) shows that asymmetric information about product quality between farmers and the processor may be reason for vertical integration.[3] When identifying quality is uncertain, difficult or costly, processor may not pay the highest price for the highest quality product. For the farmer the incentive to invest in ensuring quality is reduced relative to the perfect information scenario because the difference in market revenues is lower than which would maximise social surplus. As a result, under-investment in the provision of quality occurs. Vertical integration may solve this problem because it removes the need to test for quality. Koenig Balbach presents a case study of how a co-operatives has solved the measurement problem in the farmer-processor relationship for sugar beets in the USA, and thus improved efficiency in the sugar industry.

Asymmetric information has also been a reason for farmers to set up rural credit co-operatives (Bonus, 1986). In the 19th century farmers could not obtain credit against reasonable interest rates. High interest rates were both a reflection of the monopoly power of the local money lenders and the very high information costs they incurred. Because of the difficulty in collecting information needed to judge the small farmers' creditworthiness, commercial banks (often located in the cities) were not willing to provide credit to farmers. The rural credit associations solved the information cost problem by

utilising the detailed information available to people who asked for credit - the members themselves. Given that the members were jointly responsible and indefinitely liable for each credit granted, they had a strong incentive to feed their personal knowledge into the decision process.

Investment-related transactions costs

Another branch of institutional economics focuses on transaction costs arising from the need to make investments that are specific to the producer-processor relationship. Transaction Cost Economics (Williamson, 1985) starts from the assumption that human agents are characterised by bounded rationality and opportunistic behaviour. The transaction variable most relevant in this theory is the presence of relationship-specific assets or investments.[4] Relationship-specific investments are durable investments that are undertaken in support of a particular transaction with a particular trading partner. The opportunity cost of these investments is much lower in best alternative uses or by alternative users should the original transaction be prematurely terminated. Relationship-specific assets confronts the investor with the risk of being held-up by his transaction partner. These transaction costs can be avoided by carrying out the transaction within the boundaries of a firm, thus choosing vertical integration.

In (animal) farming substantial up-front investments are needed before production can take place. Most of these investments are sunk costs, as the resulting assets cannot easily be used for other purposes. These sunk investments are relationship-specific if the farmer has no alternative options for selling his products. A lack of alternatives is the

[3] The author does not specify the type of vertical integration; the co-operative is the most likely type of vertical integration for the farmer-processor transaction.
[4] Williamson (1985) uses the term asset specificity.

result of the market structure as well as of the perishability of the product, i.e. temporal asset specificity (Masten et al., 1991).

Whether farmers will actually seek forward integration by creating a proprietary co-operative firm depends on the type of farm product (perishable or not) and the size of the relationship-specific investments (in relation to total investments). The incentives for farmers to integrate vertically to avoid opportunistic behaviour are greatest where the proportion of sunk costs to total costs at the time of the transaction is high and the product is highly perishable, making its transfer to alternative markets on short notice very difficult. A well known example of an agricultural co-operative set up because of investment-related transaction cost reasons is the dairy co-operative.[5]

A co-operative as a type of vertical integration

A co-operative has two attributes that makes it into a special type of vertical integration. First, the integration of the member firms and the co-operative firm is only partial. The relationship between the members and the co-operative firm consists of a market element (the transaction relationship) and an hierarchy element (the control relationship). Second, the co-operative firm is owned by all member firms together. As the ownership is collective, members have no individual right to decide over the activities and the assets of the co-operative firm. This collective ownership character brings about special challenges for decision-making in the control relationship. In the next sections

[5] Not only the farmer is investing in specialised assets that become relationship-specific, also the processor firm may make investments that are specific to the relationship with suppliers. According to Olilla and Nilsson (1997), it is typical in food production that there are transaction-specific assets on both sides, in production and processing.

we will see how these special attributes influence the options for co-operatives to deal with changing market conditions.

3. The rise and fall of the fruit and vegetable auction

A short history

For more than one hundred years, Dutch growers of fresh produce used the co-operative auction as the dominant sales organisation. The auction was an efficient way of selling perishable products supplied by a large number of growers and purchased by a large number of wholesalers, retailers and export traders. In 1990, more than 90% of all greenhouse vegetables, 78% of all fruit and 50% of all open field vegetables were sold through one of the 28 fruit and vegetables auctions. Since then, a process of restructuring has taken place in the marketing channel for Dutch fruits and vegetables. While the auction is still dominant in selling flowers and potted plants, most of fruits and vegetables are now sold by way of contracting between growers and wholesalers or retailers, often supported by a special contract mediation agency. In this section we will answer the questions why the auction has been set up, how it was organised, and why it has lost its dominance in recent years.

The first vegetable auction of The Netherlands was established in 1887 (Kemmers, 1987). During the first decades of the 20th century each town or region with professional horticulture set up its own auction. In those early years, the main reason to establish an auction was dissatisfaction among growers with traditional sales structures that were insufficiently equipped to exploit the opportunities of growing demand in Western Europe (Van Stuijvenberg, 1977; Ter Woorst, 1987). Information on quantity

and quality demanded was not fully and timely passed on to growers. In other words, there was information asymmetry between growers and wholesalers.

In 1934 an ‘auction law’ was enacted, as part of government measures to alleviate the effects of the economic crisis of the 1930s. This law contained a legal obligation for growers of fresh produce to sells their products through an auction. In 1945 the total number of fresh produce auctions reached its top with 162 (Fontein, 1987: 202).

After World War II, the number of auctions gradually declined, due to mergers of local and regional co-operatives. The most rapid decrease in the total number of auctions occurred after 1965, when the auction law was abolished. Since then, a continuous process of mergers occurred in order to gain economies of scale. Table 1 shows the decline in the number of vegetables and fruit auctions between 1970 and 1995. In 2000, only six co-operative auctions remained.

All auctions were established as grower-owned co-operatives. The co-operative goal of supporting member income was obtained by improving the market position of growers vis-à-vis buyers and by enhancing the price determination process (Ter Woorst, 1987). The market position of an individual grower was (and is) relatively weak vis-à-vis a buyer because of (1) the relatively small quantity he offers for sale, (2) the perishability of the products, and (3) his lack of market information. By collectively offering for sale the products of many growers and by using an auction clock for price determination, the working of the market between sellers and buyers is enhanced. Thus, the auction eliminates buyer market power (by letting buyers compete in a fully transparent market), reduces information asymmetry, and improves the efficiency of the sales process. The latter is particularly important for perishable products.

Table 1. Structural change in the Dutch vegetable and fruit industry

Besides price determination, the auction co-operative had three other main functions: sales administration, logistic services, and quality classification and inspection (Meulenberg, 1989). In addition, the co-operative provided insurance against buyer default, and executed a minimum price system funded by all Dutch growers together. A major advantage of selling through the auction was the opportunity for growers to fully specialise in production activities.

To sum up, the auction provided an efficient market mechanism for an industry that was characterised by a large number of small producers, many buyers, standardised but perishable products, and growing demand. As Figure 1 shows, the auction was the pivot of the marketing channel for most Dutch fruits and vegetables. The equal colour of the growers and the auction indicates that the auction was grower-owned.

Figure 1. Traditional marketing channel for fresh produce

Changing market conditions

During the 1980s and the early 1990s, it became clear that the conditions in the European fresh produce market had changed. Competition became more strong, buyers became more concentrated and consumers became more demanding as to quality, variety and convenience. While quantitative market growth slowed down, Dutch producers felt more competition from Southern European countries and other foreign producers. Particularly the accession to the EU of Spain and Portugal in 1986 gave a boost to vegeta-

ble production in these countries and their export to Northwest Europe. Additionally, improved transport and storage technologies enabled shipping of fruits and vegetables from the Southern Hemisphere to the EU countries.

Food retail has become very concentrated in Northwest Europe in recent decades (Dobson, 2003). In 1999, five-firm concentration ratios were more than 50% in Denmark, France, Ireland and The Netherlands, more than 60% in Austria, Belgium, Finland, Portugal and the UK, and more than 70% in Sweden. For the large supermarket firms, fresh produce is an important category, not only for generating profit but also for building store image (Bech-Larsen, 2000). In 1995, the supermarket share of fruit and vegetable retailing was more than 50% in France and the UK, more than 70% in Germany and more than 80% in the Scandinavian countries (OECD, 1997). In the Netherlands, more than 70% of all fruits and vegetables are sold through the supermarkets. As retailers prefer to deal with a small number of suppliers,
wholesale has also become more concentrated.

Consumer demand in Northwest Europe has changed over the years. As the supply of fruit and vegetables is abundant and income is rising, consumers demand higher quality, more variety and more convenience products (Meulenberg, 2000). In addition, issues like food safety and environmental impact play a more prominent role in purchase decisions.

Disadvantages of the auction

As the market conditions for fruit and vegetables have changed, the disadvantages of the auction became more explicit, and both sellers and buyers became dissatisfied. Moreover, the auction revealed more and more inefficiencies in logistics.

Large purchasers of fruit and vegetables became dissatisfied with the auction system for several reasons. First, when buyers become too big to purchase all their products in one auction, they have to send agents to several regional auctions, leading to high purchase costs. Second, a wholesaler that wants to buy a large quantity of the same product (for instance for a sales promotion) becomes its own competitor. For the auction clock an occasional higher demand immediately drives up the price. Third, large retailers prefer stable prices, which the auction cannot guarantee. Fourth, buying at the auction makes it impossible to negotiate with producers about customer specific demands such as special packaging and quality.

The inability to transfer information from buyers to sellers is often presented as the main disadvantage of the auction in a market where consumers demand more variation and higher quality. As the auction provides an anonymous market, selling and buying only reveals information on quantity of supply and demand. Another disadvantage of particularly the fruit and vegetables auction is the lack of incentives for growers to improve quality. As the auction often combines products from different producers in one lot, all products in this lot receive the same price. For the individual grower it is strategically optimal to supply products that just meet the requirements of a particular quality class (Koldijk, 1996).

The large emphasis on standardisation – in order to improve the efficiency of the sales process – meant that growers with (new) specialties, for instance vine tomatoes, were not sufficiently rewarded. Also the lack of differentiation in auction tariffs led to dissatisfaction among some growers. As being a member of the auction co-operative implies the obligation to sell all products through the auction, dissatisfied growers had only one alternative, leaving the auction co-operative. A number of large growers

started to contract with wholesalers directly, either individually or collectively with growers of like products. In the latter case these growers established new growers' associations (see below).

The auction also held disadvantages for the Dutch fruit and vegetable industry as a whole. The need to bring all produce to the auction – in order to be shown to customers – causes high logistic costs. It also led to a loss of quality due to extra time and extra handling needed in comparison with direct shipment from grower to customer. In addition, the transparency of the Dutch fruit and vegetables market gave foreign competitors an opportunity to act strategically, and use the auction price as their reservation price in negotiations with buyers. Finally, the auction clock only generates information about today's market. There is no information transferred about future supply and demand conditions.

Conclusion

By establishing an auction co-operative, growers originally solved the asymmetric information problem and improved price determination and logistic processes. In a situation with many sellers, many buyers and a sellers' market, the auction proved to be an efficient market clearing mechanism. However, with changing market conditions, the auction revealed more and more inefficiencies. Disadvantages include the inability to support growers in their ambitions to develop and market new products, the lack of options for vertical co-ordination, and the inefficiencies in logistics. These disadvantages were particularly felt by the largest and most innovative growers and by the large customers. Both groups started looking for alternatives.

In the early 1990s, most Dutch fruit and vegetable growers acknowledged the disadvantages of the regional auction. They decided upon a two-step strategy to turn the auction into a more market-oriented organisation. The first step was to merge all Dutch fruit and vegetable auctions into one new co-operative, in order to benefit from economies of scale, to prevent inter-auction competition and to establish countervailing power. The second step was to transform this new auction co-operative into a marketing co-operative to start direct trade with major food retailers. However, there was also a group of growers that choose a completely different route; they left the auction co-operative and established new bargaining associations and marketing co-operatives to trade directly with wholesalers.

4. From auction to The Greenery

The incumbent fruit and vegetable auction co-operatives started negotiations on a grand merger, in early 1990. Soon, several fruit auctions and a number of auctions in the Southwest of the Netherlands opted out. Both groups of growers were afraid to be dominated by the Western vegetable interests. Out of the 20 auctions, nine merged in 1996 into the new co-operative Voedingstuinbouw Nederland (VTN), and combined all assets and activities in one central marketing firm, called The Greenery BV.[6] Co-operative VTN is the 100% shareholder of The Greenery.[7] The main reason to set up a separate firm to carry out the commercial activities was to separate the responsibilities of the board of directors (strategic decisions, ex post control of the management) and

[6] Originally the company was called The Greenery International BV. In 2001 it changed its name into The Greenery BV.
[7] In the rest of this article we will consider VTN and The Greenery as one co-operative firm, and will only use the name The Greenery.

those of the management (operational decisions). In other words, the separation was to give the management more freedom to operate.[8] The goals of the new marketing co-operative were to reduce costs, increase scale of operation, add more value, enhance market orientation and improve co-ordination in the production and distribution chain (VTN, 1996). In 1998, The Greenery acquired two fresh produce wholesale companies, thus becoming a wholesaler itself. The Greenery is now by far the largest marketing co-operative for fresh produce in the Netherlands. With a turnover in 2002 of more than 1.5 billion euro, it sells about half of all vegetables produced in the Netherlands (The Greenery, 2003).

Compared to the traditional regional auctions, major changes have occurred in both the activities and the organisation of the co-operative. These changes posed challenges for the relationship between growers and co-operative firm as well as for the relationship between co-operative firm and its traditional customers. To start with the latter, The Greenery transformed from being a service provider to growers and wholesalers to being a wholesaler itself, and thus became a competitor to its customers. Several wholesalers were not amused and started looking for produce elsewhere.

More important are the effect of the new marketing strategy on the transaction and control relationship between growers and The Greenery. Becoming a preferred supplier of large food retailers implies that The Greenery simultaneously has to accommodate the interests of its suppliers (as owners of the co-operative firm) and its customers. While these interests often will coincide, there may be situations where the interests of suppliers/members and customers divert. Whatever decision the management of The Greenery takes, it will affect one of the two relationships. Moreover, The Greenery has

[8] In the traditional auction the board of directors and the management took operational decisions

to compete with other major fresh produce wholesalers that are investor-owned and therefore independent from any group of suppliers.

The importance of the auction clock as a price determination mechanism is reduced substantially; only one quarter of all members' products is now sold through the auction clock, the other three quarters is sold through contract mediation. This implies that the agency relationship between the growers and the co-operative firm has changed. By selling through contract mediation, the outcome is (partly) dependent on the effort of the sales agent. As individual growers cannot measure this effort, the problem of asymmetric information in the grower-Greenery transaction appears. While normally the co-operative is a solution to this measuring problem, it can re-appear within a co-operative when there is a lack of trust between the members and the management of the co-operative firm. The asymmetric information problems increases when the interests of the individual growers become heterogeneous.

While the interests of growers in the traditional auction co-operative were homogeneous[9], the interests of growers vis-à-vis The Greenery are much more heterogeneous. This is a result of two developments, one within the marketing co-operative, the other among the growers. Following its marketing and vertical co-ordination ambitions, the activities of The Greenery are much more divers than the activities of the traditional auction co-operative. The Greenery supplies various markets (wholesale, retail, domestic, foreign, fresh, prepacked, branded, private label), which implies a differentiated marketing strategy. Members may not equally benefit from the various elements of this strategy, which leads to differentiation in grower interests. At the same time, in re-

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together.

[9] As all products from all growers were sold through the auction clock, the common interests of all growers include (1) a smooth working of the clock and the accompanying logistics, and (2) attracting as many buyers as possible.

sponse to consumers demanding more variety and more convenience growers have started to produce more differentiated products. For many of these products they would like to see The Greenery set up product-specific marketing activities.

Despite this heterogeneity, and the potential conflicts of interests within the co-operative, there are good reasons for growers to continue membership of The Greenery. The main reason lies in the size of the firm. Being by far the largest fresh produce wholesaler in The Netherlands, and one of the largest in Europe, members of The Greenery benefit from economies of scale and countervailing power. While the traditional auction held economies of scale in selling and logistic processes, The Greenery is seeking economies of scale and scope in marketing. A broad product portfolio is nowadays of great importance because the large food retailers of Europe only want to trade with suppliers that can deliver the full range of fruit and vegetables, and preferably year-round.[10] As the food retail industry has become very concentrated, having countervailing power is important in the fresh produce markets.

5. New producer organisations

While most of the directors of the traditional auction co-operatives negotiated a merger, two groups of growers left the co-operative. One group consisted of very large growers, that had sufficient scale to individually supply a wholesaler or retailer. These growers complained about too high auction tariffs and cross-subsidization of small growers. The other group were the innovative growers, which saw new market opportunities. These growers had invested in product innovation, but realised that these investments only

pay-off if accompanying investments are made in marketing. The traditional auction co-operatives were unable or unwilling to make these investments, for several reasons. The majority of the members did not want to make additional investments, the auction organisation did not have marketing capabilities, and the co-operative did not have direct contact with retailers.

Most of the growers that has left the auction co-operative founded new bargaining associations and co-operatives to collectively sell their products to wholesalers. Surprisingly, also growers that remained member of The Greenery set up new producer organisations. These organisations unite growers of a specific crop or crop variety. They provide their members with various services, such as sorting, packaging, quality control, bargaining with suppliers and customers, and product-specific marketing activities. Between 1993 and 2000 a total of 74 new bargaining associations and marketing co-operatives for fruits and vegetables have been established, of which 36 were new co-operatives (Figure 2). By mid-2001, 29 out the 36 were still in operation (Appendix 1 lists these co-operatives). The distinction between association and co-operative is a legal distinction that mirrors the activities and ambitions of the organisation. An association is merely an organisation to represent the interests of the members. A co-operative is a type of firm. As such, it can attract equity and debt capital, invest, own assets, hire personnel, etc. Thus, for carrying out economic activities beyond bargaining, a co-operative is more suitable. Both type of producer organisations are member-controlled organisations with a democratic decision-making structure. In the remainder of this article we will focus on the new co-operatives.

[10] In April 2003 The Greenery became the preferred supplier of fresh produce to Laurus, the-

Among the 29 new co-operatives we have distinguished two types, based on the relationship between the grower and the restructured auction co-operative (such as The Greenery[11]). When the grower continues to be a member of the restructured auction co-operative, we have named him a dependent grower. This dependency refers to the statutory obligation to sell all products through the co-operative. Independent growers are those that have left the restructured auction co-operative. By mid-2001 we counted 15 new co-ops of independent growers and 14 new co-ops of dependent growers.

As we wanted to know whether growers set up new co-operatives for different reasons than were behind the tradition auction co-operative, we asked members of the board of directors about the main goals of their co-operative. Table 2 gives the answers for 24 new co-operatives. Guaranteeing product quality is the most important goal, both for dependent and independent co-operatives. This is clearly an indication of market-orientation or customer-orientation. Another main goal is strengthening bargaining power vis-à-vis customers. This is a classical reason for establishing a bargaining association or co-operative.

Two other goals also indicate greater market-orientation: guaranteeing continuous supply to customers and selling under brand name. Both goals require a type of organisation beyond a mere bargaining association. In fact, both may lead to vertical integration in the production and distribution chain.

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second largest food retailer in the Netherlands.

[11] Other restructured auction co-operatives are ZON and Fruitmasters.

Table 2. Main goals of the new co-operatives

Given the seasonal character of vegetable production, guaranteeing continuous or year-round supply to customers implies that the co-operative incorporates the wholesale function. Co-operatives providing this guarantee to their customers have to import products when their Dutch members cannot deliver. For this reason, several of these co-operatives have established close trading relationships with foreign growers. Also, Dutch growers have set up production facilities abroad (mainly in Spain).

Some growers have established a brand name[12] for their products. Given the investments needed, establishing a brand name can only be achieved in high quality/high price market segments. In order to protect complementary assets in production and marketing, these growers needed to have control over the distribution chain for their products. This implies carrying out the wholesale function itself, and trading directly with retailers. For the same reason that The Greenery has become a wholesale company, these new co-operatives integrated the wholesale function.

Most co-operatives of independent growers soon found out that individually they were too small to trade with large retailers. Given the concentration in the retail market, and the demand of large retailers to trade with a small number of suppliers, those co-operatives with a wholesale function experienced that they needed to scale up in order to remain a preferred supplier of specific retailers. As a result, six independent co-operatives have combined their activities into the federated co-operative FresQ.

A large group of growers that maintained their membership of The Greenery (or another restructured auction co-operative) also set up new co-operatives. This may seem

strange as these growers are member of two co-operatives that provide similar services. Table 2 shows that for these co-operatives guaranteeing continuous supply to customers and selling under brand name is less important. Continuous supply is the responsibility of The Greenery, and establishing a product-specific brand name is discouraged by The Greenery, that is building a common brand name (*the greenery)* for all its products. Surprisingly, strengthening bargaining power vis-à-vis customers is also mentioned as a main goal by co-operatives of dependent growers. One would expect that these growers would delegate the bargaining function to The Greenery. However, growers have established these co-operatives mainly for bargaining vis-à-vis The Greenery. This intra-co-operative bargaining has two reasons, one temporary and the other more permanent. In the early years of restructuring, Greenery members were faced with many uncertainties about prices, logistics, investments, and new functions started by the marketing co-operative (Bijman et al., 2000). These uncertainties, in combination with reduced member influence on operational decision-making, led to low trust in The Greenery management. Several members started to look of other ways to exert influence. Even more important was the need to defend product-specific interests vis-à-vis the large marketing co-operative. Also Greenery members have started to grow specialty products and want to defend their product-specific interests with the large organisation. Thus, a greater heterogeneity of interests has appeared among Greenery members.

[12] While some growers may have dreamt about establishing a consumer brand, most have limited their ambitions to establish a trade name, to be used in business to business transactions. Here we use the more common word brand, while we actually mean trade name.

6. Co-specialised investments

So far we have explained the establishment of new producer organisations in the fresh produce industry. Partly because of the inability of the traditional auction to respond to changing market conditions, partly because of the transformation of The Greenery from an auction co-operative to a marketing co-operative, growers have set up new producer organisations. However, the more fundamental question is not yet answered. Why do growers of fruit and vegetables still want to set up proprietary co-operative firms instead of setting up a bargaining association and trade with an independent wholesaler who does the marketing for the grower's product? The answer lies in the need of growers to obtain more control over marketing activities and to find the appropriate organisational structure for this control. Producer-wholesaler transactions containing product-specific marketing elements lead to problems of asymmetric information and investment-related transactions costs.[13]

Changing market conditions have resulted in more product differentiation, but also in the need for vertical co-ordination among producers and their main customers (the retailers). With the restructuring of the auction co-operative and the abolishment of the auction clock for price determination, new marketing options have become available for growers and new price determination mechanisms have appeared. These marketing transactions are characterised by both asymmetric market power and asymmetric information.

[13] Another reason has been put forward by Hendrikse and Bijman (2002). They argue that, depending on the market valuation for specialty product, a self-selection process may develop among the members of a large heterogeneous marketing co-operative. This is caused by the policy of the co-operative to treat all members equal. Producers of generic products will maintain their membership of the co-operative to benefit from countervailing power. Producers of spe-

Specialty products require product-specific handling and marketing efforts to generate the highest price for the grower. An independent wholesaler may not be able to provide this special services, or may not be willing to do so because he sells a broad assortment of products coming from various producers. Even if the wholesaler says he will provide those special services, growers have difficulty in measuring and monitoring wholesaler effort. The risk of moral hazard by the wholesaler may thus be reason for growers to vertically integrate into wholesale.

A special case of marketing specialty products refers to branded products. Once growers invest in building a brand name for their products, protecting the value of this brand requires control over a large part of the supply chain. Growers of vulnerable fresh products sold under a brand name will vertically integrate into wholesale in order to protect relationship-specific investments. In fact, investments in production (or product development) and marketing (in brand building) are co-specialised.[14] If a wholesaler does not properly handle the products or does not support the brand name, the co-specialised investments of the grower are put a risk. Thus, growers that want to sell products under a brand name are likely to establish a marketing co-operative and trade directly with retailers.

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cialty products will leave the co-operative to set up new small co-operatives to benefit from improved innovation incentives.

[14] Two assets are co-specialised if they are most productive when used together and lose much of their value if used separately to produce independent products and services (Milgrom and Roberts, 1992: 135).

7. Conclusions

Traditional reasons for establishing a co-operative are building countervailing power, solving asymmetric information problems and protecting relationship-specific investments. Changing market conditions raises the question whether co-operatives are still needed to improve efficiency in the production and distribution channel. This paper applied this question to the Dutch fruit and vegetable industry, where asymmetric information problems were the main reason to set up auction co-operatives. For small growers it was difficult to measure the effort of a sales agent in a market characterised by high volatility and (for growers) unknown consumer demand. In a situation with growing demand for generic products, the auction proved to be a very efficient sales mechanism. As growers were to gain most by improving the sales and logistic processes, the auction was set up as a producer co-operative.

Changing market conditions for fresh produce has made the auction into an inefficient sales and logistic organisation. Increased competition and shifting consumer demand require growers to develop new products and new marketing concepts. Growers have transformed their auction co-operatives into marketing co-operatives, abolishing the auction clock and integrating the wholesale function. In addition, a large number of new marketing co-operatives have been set up, to bargain with wholesalers or to integrate the wholesale function. Thus, the countervailing power reason for setting up a co-operative is still valid in the current market situation. Moreover, growers vertically integrate into wholesale to solve the asymmetric information problem and to protect transaction-specific investments. When fruits and vegetables are sold as specialty products, customer-specific products, or branded products, growers want to control a larger part

of the production and distribution chain in order to provide the quality guarantee that customers require and to protect investments in brand or image building. Thus, the investment-related transaction cost reason for establishing a grower-owned co-operative has become more important in the fresh produce industry.

The transformation of The Greenery from an auction co-operative to a marketing co-operative (including wholesale activities) can be seen as downstream shift in the production and distribution chain. While The Greenery is still a grower-controlled firm, the management has put more weight on the wholesale (i.e., supplier) function vis-à-vis its retail customers. This shift, together with more product differentiation, has created 'room' for new producer organisations in the grower-Greenery relationship. While the goal of The Greenery was to shorten the production and distribution chain, it seems that growers have again extended the chain.

In the coming decade we expect to see a more clear differentiation among those co-operatives going for bargaining power and those going for marketing specialty products. The countervailing power co-operative will supply generic products, including products sold under a retailer own brand. The specialty (branded) product co-operative will be vertically integrated into wholesale, in order to protect the investment in co-specialised assets and to give proper and balanced incentives to marketing agents working on the three equally important tasks of making sales, cultivating a long-term relationship with retail customers, and gathering and passing on information on customer needs.

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Table 1. Structural change in the Dutch vegetable and fruit industry

	1970	1980	1990	2000	2001
Number of growers of					
- open field vegetables	29,537	16,599	12,454	10,243	7,597
- greenhouse vegetables	13,167	7,862	5,652	4,686	3,433
- fruit*	14,580	6,964	4,812	4,147	3,167
Number of auctions	88	55	28	20	6
Auction turnover**	1,790	1,672	2,167	1,668	n.a.

Sources: number of growers: LEI/CBS; number of auctions: NCR; auction turnover: VTN (1996)
* apples, pears, cherries and plumes; ** In million euro of 1995; n.a.: not available

Table 2. Main goals of the new co-operatives (more answers possible)

	All new co-ops (n=24)	**Co-ops of dependent growers** (n=13)	**Co-ops of independent growers** (n=11)
Guaranteeing product quality	19	9	10
Strengthening bargaining position vis-à-vis customers	17	9	8
Benefiting from economies of scale	15	8	7
Guaranteeing continuous supply to customers	13	4	9
Selling under brand name	11	4	7
Strengthening bargaining position vis-à-vis suppliers	7	4	3
Developing new products	6	4	2

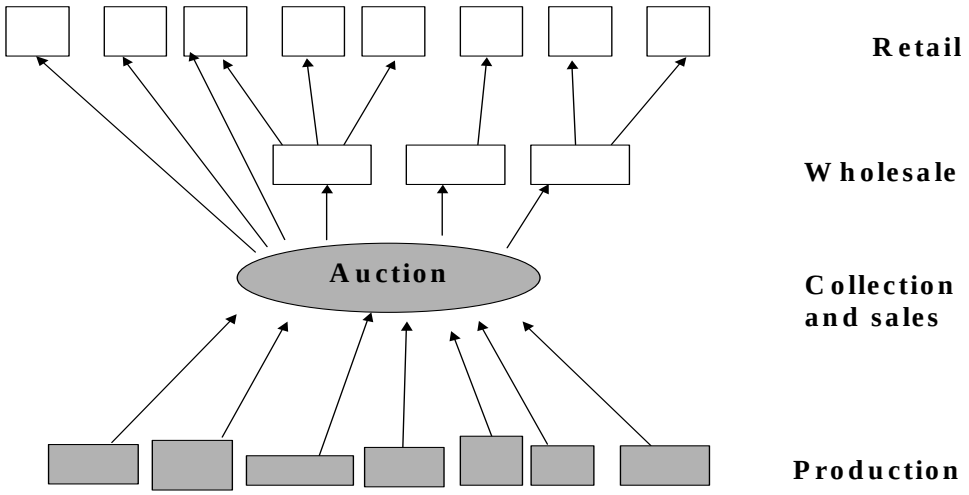

Figure 1. Traditional marketing channel for fresh produce

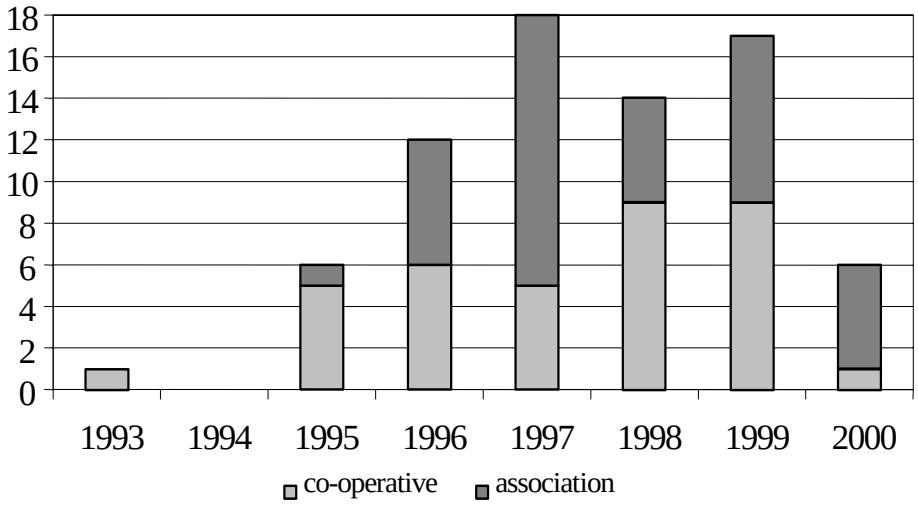

Figure 2. Number of new producer organisations (per year, 1993-2000)
Source: Compiled on the basis of information retrieved from the on-line trade register of the Dutch Chamber of Commerce (www.kvk.nl; consulted in July 2001).

Appendix 1. New co-operatives for fresh produce set up 1993 - 2000 (n = 29)

Name	Established	Membership (in 2001)	Main products
Unistar	1993	35	fruit
Cherrytomaat	1995	3	tomatoes
Rode Parels / Red Pearl	1995	10	tomatoes
Gartenfrisch	1995	65	tomatoes
Prominent	1995	22	tomatoes
Present	1995	10	tomatoes
Quality Queen Growers Group	1996	27	peppers, cucumbers, tomatoes
Frutanova	1996	7	tomatoes
De Smaaktomaat	1996	81	tomatoes
Komosa	1996	89	cucumbers
Oranje Paprika	1996	29	peppers
Rainbow Growers Group	1997	21	greenhouse vegetables
Sweet Color Pepper	1997	22	peppers
Witte Paprika	1997	4	peppers
Spruiten	1997	417	sprouts
Greenco	1997	9	tomatoes
CCH	1998	5	mushrooms
Fossa Eugenia	1998	18	tomatoes, aubergines, lettuce
Rijko	1998	280	vegetables for processing
Green Nature Group	1998	5	tomatoes
White Pearl	1998	16	cauliflower
Natures Best	1998	9	cucumbers
Fresh Orange	1998	7	peppers
Best Growers Benelux	1999	50	greenhouse vegetables
Diana	1999	5	tomatoes
Rainbow Paprika Telers	1999	7	peppers
Vers Direct Teelt	1999	33	greenhouse vegetables
Quality Growers Holland	1999	3	chicory
Green Connection	2000	23	peppers

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