The Rotterdam Food Cluster aims to accelerate the food sector of the Rotterdam region! The ‘Roadmap Next Economy’ empowers us to join forces and create new opportunities for employment. The Rotterdam Food Cluster is an initiative of the Department of Economics of the City of Rotterdam. Due to the presence of elements of the entire food chain, food is a dominant cluster in our region. We represent over 8,000 companies in food production, processing, (conditioned) logistics and supply. Together, these companies generate a turnover of more than 27 billion euro and they educate and employ almost 45,000 people. The sector processes an annual throughput of nine million tons of food.

For more information about this research contact the Rotterdam Food Cluster at info@rotterdamfoodcluster.com.

From seed to shelf:

Traceability in FNV supply chains

Due to changing expectations and behaviors of consumers, companies face the challenge to obtain and provide information about their products. The Rotterdam Food Cluster conducted a case study on the pre-requisites for information provision for consumers to help companies to cope with this challenge.
Challenge: Changing consumer behavior

Scandals about food quality, environmental impact, and labor conditions endanger consumer trust and have led to a change in consumer behavior. While traditional value drivers (price, taste, convenience) remain important, evolving drivers such as safety, social impact, experience, and health are weighing into the purchasing decision of consumers. Overall, consumers especially value transparency as safety, social impact, experience, and health are convenience (and) remain important, evolving drivers such as safety, social impact, experience, and health are weighing into the purchasing decision of consumers. Overall, consumers especially value transparency as safety, social impact, experience, and health are changing consumer behavior.

Traceability

Traceability is the ability to access any or all information relating to a product throughout its entire life cycle by means of recorded information. In essence, traceability is required to provide information to consumers and can only be achieved if a traceability system is in place which is used to share information with all parties involved in the supply chain. One can differentiate between internal traceability, which considers the process steps at one link in the supply chain, and chain traceability, which covers the whole production chain from “seed to shelf” (harvest, transport, storage, processing, distribution, sales). Further, the functionality of a traceability system can be addressed in terms of time: The systems can be reactive or proactive in nature. A reactive system allows ex-post product traceability, e.g. in case of a contamination problem, the journey of the product can be uncovered. On the contrary, a proactive system facilitates the provision of information to consumers before the purchase. Nowadays, food supply chains thus need to ensure chain traceability through proactive systems.

The current state of traceability

The European requirements for food traceability are defined in Regulation (EC) No 178/2002 and No 1169/2011. They follow a one-up-one-down principle: every party in the food supply chain is required to be able to disclose the direct suppliers as well as consumers, and retail in combination with the lack of standardization of information to consumers, it might be distorted by the media or not properly understood by consumers themselves. Instead, the collective development of industry-wide systems for internal traceability. Growers need a system that is adjusted to the characteristics of their specific fruits and/or vegetables (e.g. the duration of the season). Retailers have individual requirements for their products to distinguish themselves from the competition and thus use customized systems.

Barrier 3: Information distortion by media & unknowingness of consumers

Nowadays, the process of cultivating and harvesting FNV is almost not visible anymore for consumers. When detailed product information is released, consumers thus lack the knowledge to put it in the right context. For example, the harvest date of products that have been in cold storage before the sale might be confusing. Also, the opinions of consumers can easily be swayed by the influence of the media. The fact that media sometimes has shown that consumers are reluctant to take active additional steps (e.g. scanning codes) to get to information sources. Once they are passively exposed to bits of information, they might be interested to request more themselves.

Collaboration in the FNV sector

Due to the identified lack of resources, it is regarded as not practicable that all companies work on traceability solutions themselves. Instead, the collective development of industry-wide solutions is more likely to be successful. Based on this study, companies are thus advised to collaborate with each other and especially with start-ups, foundations and initiatives such as Fruig I Com or the Rotterdam Food Cluster to promote standardization and develop a useful platform. Also, media campaigns for the proactive education of consumers can be financed individually.

The Rotterdam Food Cluster thus encourages FNV companies, especially in the Rotterdam area, to reach out to and jointly make the sector more transparent. If you would like to improve the traceability in your supply chain, please contact us via info@rotterdamfoodcluster.com.

Potential solutions

Next to challenges, potential solutions were identified in the case study.

Platform for information exchange

The many-to-many relationships in the sector are caused by a variety of reasons and thus unlikely to convert to one-to-one relationships in the near future. Thus, the sector is in need of a solution that helps to organize and standardize the exchange of information between parties. Such a solution could take the shape of a platform. Once a grower, wholesaler, importer or retailer would be connected to the platform, they should be able to interchangeably trade with different partners through the platform and it would be possible to access the information throughout the whole supply chain. However, any solution of that kind is required to be compatible with a variety of legacy systems to overcome the barrier of lacking standardization. Concepts for such platforms start to emerge in different countries and are mostly initiated by start-ups or the exceptional retailers that work with long-term relationships for fresh produce.

Standardization of information

Many companies in the agri-food produce sector already seem to rely on standardized identification from the international non-profit organization GS1. GS1 provides codes for the identification of locations (GLN), products (GTIN), and shipping units (SSCC labels). In the Netherlands, foundations and working groups such as Frug I Com and GroentenFruit Huis are promoting driving forces to move forward with standardization and support companies. It can be expected that such initiatives must first grow and unite the companies within one country before it is possible to achieve a real global standard.

Proactive information provision

Even if supply chains were already able to provide detailed and extensive information to consumers, it might be distorted by the media or not properly understood by consumers themselves. The sector can overcome this barrier by educating consumers more proactively by using e.g. social media. If consumers gain more insight into the cultivation, they are able to understand news more comprehensively instead of being guided by mainly negative headlines and are able to place specific traceability information into the right context. It is important to make sure that consumers play only a passive role as receiver of the information because practice has shown that consumers are reluctant to take active additional steps (e.g. scanning codes) to get to information sources. Once they are passively exposed to bits of information, they might be interested to request more themselves.

Barriers to traceability

The Rotterdam Food Cluster uncovered which barriers hinder food companies from implementing successful traceability systems.

The main restraining factors are explained in the following.

Barrier 1: Many-to-many relationships

If one retail chain would be supplied by just one grower for a specific product, traceability could be ensured relatively easily. But instead, in practice, one encounters many-to-many relationships where specialized growers supply their products to various retailers and these retailers again often source a product from different growers. These relationships are mainly caused by the purchasing strategies of some retailers, the large volume each retailer needs as well as seasonality and the impact of weather conditions. Thus, companies are hesitant to invest in relationship-specific information sharing and traceability systems.

Barrier 2: Lack of standardization

The FNV industry is spread all over the globe which means that businesses must deal with a variety of languages and regulations. Therefore, the format of information is not standardized. However, also the method of exchanging information is lacking a common standard. The method differs between growers and wholesalers (email and phone calls) and wholesalers and retailers (most retailers expect wholesalers to use Electronic Data Interchange (EDI)). In addition, FNV companies all use different systems for internal traceability. Growers need a system that is adjusted to the characteristics of their specific fruits and/or vegetables (e.g. the duration of the season). Retailers have individual requirements for their products to distinguish themselves from the competition and thus use customized systems.

Barrier 3: Information distortion by media & unknowingness of consumers

Nowadays, the process of cultivating and harvesting FNV is almost not visible anymore for consumers. When detailed product information is released, consumers thus lack the knowledge to put it in the right context. For example, the harvest date of products that have been in cold storage before the sale might be confusing. Also, the opinions of consumers can easily be swayed by the influence of the media. The method differs between growers and wholesalers (email and phone calls) and wholesalers and retailers (most retailers expect wholesalers to use Electronic Data Interchange (EDI)). In addition, FNV companies all use different systems for internal traceability. Growers need a system that is adjusted to the characteristics of their specific fruits and/or vegetables (e.g. the duration of the season). Retailers have individual requirements for their products to distinguish themselves from the competition and thus use customized systems.

Barrier 4: Lack of resources

Continuous additions to the information requested by legislation are adjusted to the characteristics of their specific fruits and/or vegetables (e.g. the duration of the season). Retailers have individual requirements for their products to distinguish themselves from the competition and thus use customized systems.

Due to the identified lack of resources, it is regarded as not practicable that all companies work on traceability solutions themselves. Instead, the collective development of industry-wide solutions is more likely to be successful. Based on this study, companies are thus advised to collaborate with each other and especially with start-ups, foundations and initiatives such as Fruig I Com or the Rotterdam Food Cluster to promote standardization and develop a useful platform. Also, media campaigns for the proactive education of consumers can be financed individually.

The Rotterdam Food Cluster thus encourages FNV companies, especially in the Rotterdam area, to reach out to and jointly make the sector more transparent. If you would like to improve the traceability in your supply chain, please contact us via info@rotterdamfoodcluster.com.