

Presentation of the results

MASTER THESIS IN AGRICULTURAL ECONOMICS

Analysis of several coordination methods in strawberry production across the world



1. PROBLEMATIC AND GOALS

Several strawberry marketing methods exist around the world. We find marketing methods very close to the spot market as well as fixed price production contracts or growers coops. The level of control of one link of the chain over another is therefore variable depending on the marketing method that is chosen by the actors in the different supply chains.

That said, the strawberry exchange transaction is much the same all over the world : it is characterized by high asset specificity due to high perishability of products and high price uncertainty. Which marketing method is therefore the most aligned with the characteristics of the transaction? Indeed, for every transaction, there exists a marketing method which would be theoretically more aligned with the characteristics of the transaction. In the case of strawberries, a mode where the level of control is high would make it possible to better supervise the transaction and, therefore, reduce transaction costs. The transaction cost is the set of non-cash costs associated with an economic exchange. For example, of the cost of negotiating or finding information about the exchange. Conversely, a marketing method where the level of control is too low would have the consequence of increasing transaction costs and therefore reducing the performance of the chain.

The purpose of this research is also to directly analyse the performance of three marketing methods using specific performance indicators.

2. LITTERATURE REVIEW

A literature review was carried out to identify the challenges and opportunities of the strawberry industry. It appears that industrialized strawberry-producing countries face much the same challenges, such as the decrease in phytosanitary products and use of plastic caused by changing consumer demand, rising temperatures and extreme weather events coupled with a increased presence of crop pests. The labor shortage is also an important issue. The sectors also have a whole opportunity in common: the possibility of increasing their offer on the internal market or entering a new market.



3. MÉTHODOLOGY

21 semi-structured interviews lasting approximately 45 minutes were conducted between February 2020 and May 2020 in three regions of the world. The three cases are identified as follows: case A, case B and case C. The interview guide included questions based on indicators that allow performance to be measured according to the Supply Chain Management Approach. For each case, growers, retailers and employees of marketing organizations (if applicable) were questioned. A successful supply chain would be one that performs well in all of the identified performance indicators.

4. RESULTS

*Note: As the performance of each mode of coordination was measured from interviews with participants, the results presented come from the **perception of performance**.*

Case A

This marketing method is very close to the spot market, meaning that there is little coordination and control between the different links in the supply chain. This case is characterized by a small number of buyers and the presence of an umbrella organization for sales between retailers and producers. This body, however, has little or no legal power.

Prices are determined through negotiation between growers and retailers and are highly dependent on supply and demand. The quantities are generally negotiated individually.

Strenghts	Weaknesses
The quality of the fruit is a strong point: the producers stand out for the color and taste of their strawberries.	Producers have little or no financial incentive to produce top quality fruit. <i>Although the quality of the fruit is a strength of this case, it is found in the literature that in the long run, a lack of financial incentive decreases the quality of an agricultural product.</i>
Delivery delays are short.	Participants are of the opinion that the chain uses slightly more pesticides than the other chains and non-biodegradable plastic is used.
Organizational costs are low and the prices obtained for strawberries are above the average for the region.	Transaction costs would be high, as the characteristics of the transaction are not aligned with the mode of marketing.



Case B

In this case, the producers are members of a cooperative that is responsible for marketing the strawberries. The cooperative is also responsible for research, quality control, refrigeration of strawberries as well as supplying containers to producers. Most of the fruit is exported to other regions and other non-strawberry producing countries. The export market is one with high added value. The fruits must be of high quality to meet the demand of this market and they must tolerate transport.

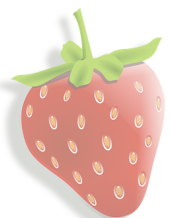
Strawberries are all graded on a scale with more than 10 quality levels. Then, they are all marketed through a reverse auction, which is, a descending auction. The prices paid to producers depend on the average selling prices for lots of equal quality.

Strenghts	Weaknesses
The quality of the fruits , the presence of specifications for the quality, the number of quality controls and the financial incentive to produce superior quality fruits are strenghts of this case.	Retailers are not happy with the risk sharing in this chain. They believe they take more risks than the growers.
The cooperative has an in-house application to share information on production and upcoming quantities between producers and with buyers.	There appears to be a great deal of variability in prices , which creates uncertainty for buyers who are struggling to plan their flyers.
The containers are mostly made of recycled and recyclable cardboard and most of the production takes place under cover or in a greenhouse, so producers use less plastic and fewer pesticides .	

Case C

This marketing method is similar to a fixed price production contract. It is overseen by a marketing company that performs several tasks: hybridization of plants, supply of containers and plants, refrigerated warehouses and distribution. The growers are independent, but do not own the strawberry plants. The level of control exercised by the marketing company in this case is high. Here too, a large part of the production is exported, which requires fruits that can be stored for a long time.

The prices are determined following a negotiation between the marketing company and the buyers. Producers receive a price equivalent to the average selling price of producers in their region for the same quality score. Indeed, all strawberry deliveries get a quality score, but this information is not passed on to buyers: it is an internal incentive mechanism within the company.



Strengths	Weaknesses
Information sharing is a strength: the marketing company also has a home application shared with buyers.	The delivery delays are longer than for the other two cases.
The quality score is an incentive to produce higher quality fruit.	Non-biodegradable and non-recyclable plastic is used for containers and in production.
The characteristics of the transaction are aligned with the mode of marketing. So the transaction costs would be low.	The taste and color of the fruit obtained a lower average satisfaction than in the other two cases.

5. COMPARISON

In this analysis grid, the symbols -, + and ++ were used to describe the performance of each mode of coordination for each indicator. The symbol "-" means that the case is not performing well in this indicator and the symbol "++" means that the case is performing very well for this indicator. For example, the symbol "-" for transaction costs does not mean that the case results in low transaction costs, but that the chain does not perform well in this indicator.

Performance indicator	Case A	Case B	Case C
Profit margin	+	++	++
Transaction costs	-	+	++
Incertitude	-	++	-
Organisation costs	++	++	++
Average economic efficiency	+	++	+ / ++
Ability to have a wide variety of products	+	++	+
Adaptability	-	++	+
Average flexibility	+ / -	++	+
Appearance ¹	++	+	+
Taste	++	-	-
Number of contrôls	-	++	++
Incentive	-	++	++
Average product quality	+	+	+
Energy use	++	-	++
Pesticide use	-	++	-
Plastic use	-	+	-
Average process quality	+ / -	+ / ++	+
Risk and benefit sharing	+	+	-
Information sharing	+	++	++
Average chain equilibrium	+ / -	+ / ++	+
Delivery delay ²	++	++	+

¹ Many indicators were measured for appearance, such as size, color, firmness and amount of fruit damage. These questions and the taste indicator were only asked to retailers.

² Only for local sales.



Based on the qualitative results gathered during the interviews, case B would be the one that participants perceive to be the best performing for the strawberry exchange transaction.

First, meteorological uncertainty is less in this case, in particular due to the high proportion of producers who cultivate in greenhouses or under cover, which theoretically has a positive impact on the performance of the sector. In addition, participants were generally more satisfied with their profit margins for this case. However, Case A stands out for its potential low organizational costs.

Then, according to the participants, the adaptability of case B would be very good, depending on all links in the chain. For case A, it is the sector's ability to adapt to its environment is judged to be weaker by the participants. This aspect is interesting, since case A is the only one to sell almost exclusively on the local market. Could its weaker adaptability be the cause? In fact, the ability of a sector to adapt to new demand and regulations is important to enable it to access a new market.

For the product quality category, the three cases each have their strength. Cases B and C have direct financial incentives to produce better quality fruit and have a high number of quality controls. For case A, the producers have less financial incentive to produce top quality fruit and it is the case where the number of quality controls is the lowest. That said, this is the case that produces best looking and tasting fruits according to retailers.

Regarding the environmental impact of the chain, the results are quite variable. In cases A and C, the production is mainly in the open field, so they use less energy and more pesticides according to the participants, while it is the opposite for case B. The comparison between the three cases is therefore mainly in terms of the use of plastic: case B stands out since, already in 2021, the punnets are mainly made of recyclable cardboard and all the plastic used in production is recycled and reusable.

Case B also appears to be the best performer for risk and benefit sharing. Indeed, the cooperative's bargaining power would allow a fair sharing of profits between the different links in the chain.

6. LIMITS

This study did not take into account institutional factors which may differ for each region. Also, the results reflect the perceptions of study participants and may differ from objective data.

A close-up photograph of several ripe, red strawberries with green leaves, nestled in a light-colored woven basket. The background is softly blurred, showing more of the basket and some greenery.

Thank you!