



Technomic[®]
A Winsight Company

CONSUMER RESEARCH REPORT

The Impact of Packaging

Consumer Ratings Food Taste and Quality

For Off-Premise Dining

Introduction

Both Takeout and Home Delivery of food have existed in some form for decades, although the latter only achieved a significant level of popularity within the last five years. Millennials, and later Gen Z, were the driving force behind this disruptive change in how consumers preferred to receive their food, to maximize lifestyle convenience. Even before the events associated with Covid-19, analysts and industry experts were predicting exponential growth to \$88 Billion by 2023. However, the occurrence of the pandemic, along with the associated shelter-in-place laws, mandated closure of restaurant dine-in, and a general atmosphere of fear became pervasive. Home Delivery and Takeout quickly became the predominant means for any consumer to obtain prepared food. Experts uniformly agree that even when the virus is no longer a threat, off-premise dining will remain at elevated rates and increase further, as consumers have now been exposed to a new level of convenience and their behavior irrevocably changed.

Off-premise dining inherently comes with the significant challenge of delivering a restaurant-quality food experience after an average of 30 minutes of transit time. This challenge is incredibly daunting for fried foods, where taste satisfaction is almost entirely dependent on maintaining both texture and temperature. Other, non-fried foods that are adversely affected by excess moisture pose a similar obstacle to maintaining quality.

Challenges

As foodservice operators began to respond to the increase in online ordering and delivery, they initially approached the opportunity as a simple increase in business-as-usual. However, many quickly realized the difficulties presented by limited, or non-existent, ordering platforms, the shortcomings of their existing packaging, lack of space for waiting drivers and customers, and negative social media reviews.

Traditional food packaging may no longer be adequate when there is a significant time lapse between prep and consumption. This lapse is primarily due to food having to travel further to serve consumers off-premise. The average 30 minutes added for delivered meals can negatively impact food temperature and taste, presenting a challenge, and in many cases an obstacle, to meeting consumer expectations. In the early stages of home delivery, some analysts advised that consumers would accept some level of a tradeoff in quality, to have convenience; current studies have proven that to be false. Surveys show 62% of consumers blame the restaurant for a bad meal experience, and a significant portion of them will “advertise” that negative experience to others through Facebook, blogs, and various review sites. Therefore, ignoring issues, in the hope that diners will lower expectations for delivered meals, will almost certainly result in the restaurant’s food quality and reputation being criticized on social media.

Consumers are looking for the same food experience they enjoy in the restaurant. That expectation has been bolstered by some forward-thinking restaurants who have successfully

delivered on that goal, and the subsequent praise and visibility they have received on relevant consumer review sites.

Fried foods are particularly challenging where the taste experience is dependent on maintaining both texture and temperature, both of which suffer as time elapses. The most ordered item for food-to-go is french fries, and it is not a coincidence that the top consumer complaint about off-premise dining is cold or soggy fries. However, chicken strips, nuggets, wings, egg rolls, fried vegetables, and hamburger buns are equally vulnerable to degradation by trapped humidity. Ironically, these foods are among the most popular, as well.

Faced with these challenges, some operators restricted the off-premise menu to only the foods that travel well. Limited choices, notably if all of the items above are excluded, significantly impacts the number of consumers reached and reduces the average order size.

Clearly, packaging plays a determinant role in achieving success in either home delivery or takeout in the new environment. Technomic, the internationally-recognized authority in strategic research for the foodservice industry, was commissioned to examine this issue more closely.

Research Methodology

The overarching objective of the study was to measure consumer perception of identical food when packed in different containers.

The critical issues to address were:

- How does each of the packaging products perform when holding hot food?
- How do consumers rate the following key performance areas for each packaged meal:
 - Food appearance
 - Food texture
 - Food temperature
 - Food taste
- Which (food) package is preferred overall, and why?
- Are consumers willing to accept lower quality when ordering delivery?
- Are consumers more likely to order from an operator again if the food quality is high?

Profile of consumers targeted in the research scope:

- Order food for delivery at least once every 90 days
- The propensity to order foods from the group listed above (fries, wings, strips, etc.)
- Evenly split between male and female respondents, ages 18-45 years

Thirty consumers, meeting all of the above criteria, were invited to one of Technomic's testing and focus group facilities in the Chicago area. The facility enabled the research team to control the food being tested and ensure the food was handled in the same way and under precisely the same conditions. The test kitchen contained several commercial deep oil fryers, heat

lamps, a walk-in cooler, and a freezer. Interview rooms adjacent to the test kitchen were used for one-on-one interviews that were audio and video recorded. All interviews were conducted by Technomic employees, trained and experienced in consumer focus groups. The five packages included in the study were all hinged, 9" x 9" containers, and a different, well-known packaging company manufactured each. Three were polypropylene plastic, and 2 were molded fiber of the type commonly referred to as "biodegradable and certified compostable." However, effective January 1, 2020, that descriptor can no longer be used.

The food selected to utilize for 30 interviews across 2-days was breaded, fried chicken strips with a side order of french fries placed in the same container. The breading and oil used in the fryers were obtained from a large, national restaurant chain, well-known for its excellent chicken tenders. The french fries were standard cut fries obtained through a well-known foodservice broadliner. The executive chef who performed all preparation and cooking was selected by Technomic and has been used successfully in other Technomic studies. The chef's assistants, who packaged and delivered all of the containers to the consumers during the 2-day project, were Technomic employees who had prior experience in these activities. None of the packaging vendors were permitted to participate in any portion of the food preparation, food packaging, delivery, nor interaction with the 30 consumer test subjects.

Food was cooked and packaged in 2 of the five containers at a time for each consumer interview. The order as to which containers were selected first through fifth was randomized across the 30 interviews, to assure no bias was created. After packaging, both containers were held for 30 minutes before delivering both to the consumer at the same time. Consumers were instructed by the Technomic interviewer to ignore the packaging and that they were there solely to rate the food. Consumers were told that the food was identical, and they were ranking only the condition of the food, as it appeared and tasted 30 minutes after being packaged.

Although each consumer would ultimately rate a total of 5 packages, Technomic's experience with focus groups had proven that presenting all five at the same time would be overwhelming to the average consumer and would lead to inaccurate data. Therefore, they employed a recognized statistical method known as "paired comparisons." It merely asks the consumer to compare one item versus another and provide responses as to how they rate one versus the other. By narrowing the focus to "this or that," almost any consumer can give a valid response as to their particular perception. Once a consumer had answered all questions regarding the first pair, the "winning" package from that first comparison remained, the "loser" removed, and the next package brought in. The comparison between the previous round's winner and the new entrant was then performed, and all data recorded. This process was repeated until the consumer had worked through all five packages and declared his/her ratings for each package and picked an overall winner. This process was performed 30 times, once for each consumer. As previously stated, the order in which the packages were presented was changed with each consumer to negate any possible bias arising from how early or late, in the process, a consumer viewed a particular container.

Packages Used In This Research



Results

The consumer interviews uncovered a series of insights regarding the impact of the packaging choice on food after 30 minutes, the average time for delivery. These results were consistent across the consumer test group and within each packaging type: both plastic and fiber. One of the hinged plastic packages evaluated was an Anchor Packaging Crisp Food Technologies® container.

The following pages highlight the findings in each of the packages used in this research.

Finding #1

Retaining Heat Is Good, But When It Impacts Texture, It Also Impacts Taste.

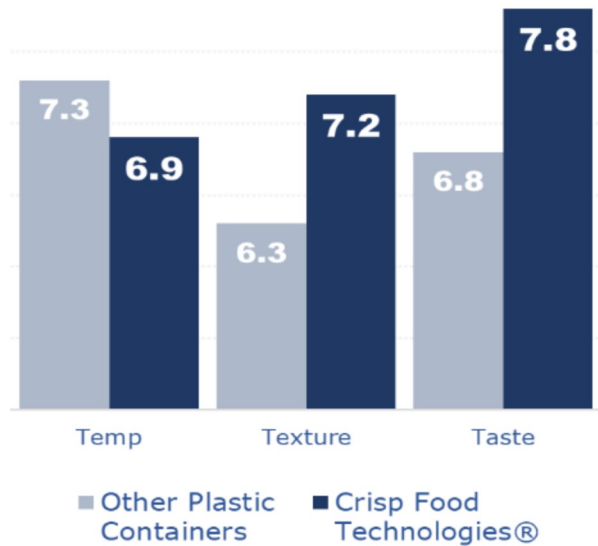
Retaining heat is essential for the consumer to have a positive experience. However, when the retained heat is combined with too much retained moisture, food texture will be impacted adversely, and taste will be sacrificed.

All three plastic packages held sufficient heat for 30 minutes. Only *Crisp Food Technologies* was able to maintain both temperature and

texture. The other two did not actively eliminate the excess moisture created by the hot food. This excess resulted in focus group participants reporting soggy, unsatisfying textures for the food, and assigning lower taste scores.

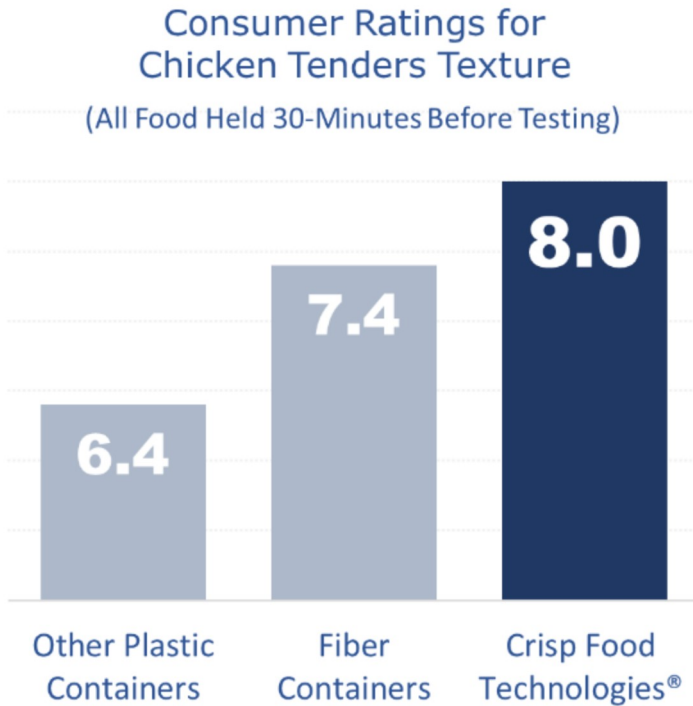
The unique, cross-ventilated design of the *Crisp Food Technologies* container enabled it to actively vent moisture to protect the food's texture while retaining heat. This led to significantly higher taste scores.

Chicken Tenders + Fries Combined
Consumer Taste Score Ratings
(All Food Held 30-Minutes Before Testing)



Finding #2

Only One Plastic Food Container Kept Food Crisp For 30 Minutes.



Texture plays a crucial role in consumer taste satisfaction.

Consumers were expecting a satisfying “crunch” when eating both of the subject foods and were disappointed when it was missing. Their expectations were met by only one of the three plastic containers, the one that contained Crisp Food Technologies® from Anchor Packaging.

Crisp Food Technologies containers utilize a patented cross-flow

ventilation system that removes excess humidity while retaining heat and the proper amount of moisture to maintain taste and mouth-feel.

The tight closure of the other two plastic containers, along with the absence of an active moisture scavenging system, resulted in trapped humidity. This excess moisture earned them the lowest rating among all five containers.

Conversely, the loose closure of the two fiber containers provided excessive ventilation. Although they allowed the steam to escape, resulting in crispier ratings than the two plastic, the heat of the food vented excessively as well. The test subjects reported unacceptably low temperatures and a “dried out” quality to the food. In real-world situations, where the elapsed time may exceed 30-minutes, these issues will be exacerbated.

Finding #3

Food Temperature + Food Texture = Taste; Taste Is The Single Most Important Attribute To The Consumer.

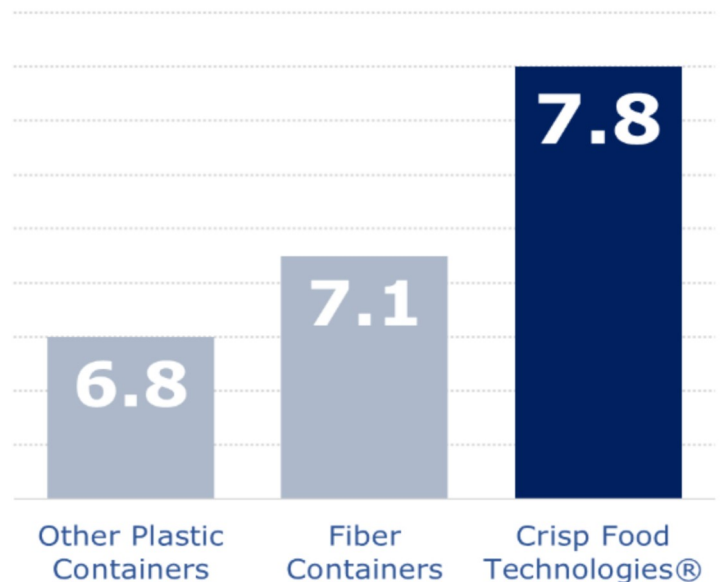
While “taste” is highly subjective, the rankings by the 30 consumer test subjects showed a clear linkage between taste and two measurable attributes: food temperature and food texture.

To adequately retain food texture, a package must create enough ventilation to eliminate the excess moisture, while circulating and keeping the heat generated from the food. Packages that trapped excessive moisture, even when accompanied by excellent heat retention, scored poorly in the “taste” category.

Likewise, the fiber containers that exhausted all moisture and also allowed too much heat to escape scored only marginally better than the two poorly-performing plastic containers.

Only the *Crisp Food Technologies* container was able to maintain both temperature and texture, resulting in significantly higher taste scores consistently, across all consumer focus group interviews.

Chicken Tenders + Fries Combined
Consumer Taste Score Ratings
(All Food Held 30-Minutes Before Testing)



Market Implications

The insights gained from this research will allow operators to improve the taste and retained quality of their hot foods during delivery, curbside pickup, and takeout. Based on feedback from the 30 consumers interviewed, an improvement in these two dimensions should translate to a higher rate of returning customers as well as new customers gained through personal referrals, higher rankings on key review sites, and recommendations on social media.

1. Operators can maintain the restaurant taste experience in off-premise dining by protecting both the temperature and texture of the food as it travels the “last miles” before being eaten. Crisp Food Technologies® container solutions effectively lengthen the amount of time available to deliver a positive consumer experience.
2. Packaging choice plays a pivotal role in the food taste experience. Many hot foods rely on immediate consumption after preparation to assure crispy textures. As the time lag from prep to consumption increases with off-premise meals, the choice of the package becomes critical for these hot foods. As this study demonstrated, there were significant differences among the five containers concerning the preservation of taste and quality. Crisp Food Technologies® containers consistently outperformed the other two plastic and both fiber container alternatives, providing the ideal mix of hotter temperatures and crisper textures. Consumers clearly stated their preference for the taste of food delivered in *Crisp Food Technologies* after the average 30-minute transit time.
3. Leverage the growth of food-to-go as a permanent part of the business plan. Delivery, curbside pickup, and takeout meals will continue to grow as a percentage of the consumer food dollar. Based on analysis of POS data, both before the pandemic and during its course, hot foods, and in particular, fried foods, ranked as the most frequently ordered items. This study demonstrated that Crisp Food Technologies® containers provide a more satisfying consumer experience for those types of food products. When consumers are confident that their fries and other favorite foods will arrive hot and crispy from a particular foodservice location, they will demonstrate loyalty to that location and order more frequently.

Summary

Technomic initiated this research to determine if there was a measurable difference in the consumer experience among 5 of the leading takeout/delivery packages. A secondary goal was to determine whether a package existed that could handle the rigorous demands of french fries and other popular fried foods when a 30-minute delay (delivery, curbside pickup, or takeout) was introduced between the packaging of the product and receipt by the consumer. The third goal was to prove or disprove the theory that consumers would accept lesser quality food in exchange for convenience.

The findings are clear:

- Once a consumer samples food from an operator, where the food temperature, texture, and taste are all very similar to dine-in, they will no longer accept anything less, in exchange for convenience. Therefore, those foodservice locations that retain their past processes and packaging, assuming that they will be acceptable in the new environment, will quickly be outpaced by their competition.
- Consumers prefer the taste of hot foods and, especially fried foods, when both temperature and texture are maintained for at least 30 minutes after leaving the restaurant.
- Of the five most common packages utilized in the study, the Crisp Food Technologies® from Anchor Packaging received the highest scores on these critical dimensions.
- The demographic most responsible for driving this disruptive change toward off-premise, millennials, and Gen Z, is also the highest users of social media. They continually post their food experiences, whether positive or negative, and the influence of these postings can far outweigh any paid advertising media.

Chefs, owners, and operators that adapt their takeout/delivery food packaging strategies to include Anchor Packaging's *Crisp Food Technologies* containers will meet or exceed consumer expectations, protect their brand reputation, and enjoy the repeat business this creates.



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This is a consolidation of a Technomic research report, from a consumer study done and authorized by Technomic, for publication by Anchor Packaging.



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Crisp Food Technologies[®] Containers