

AN INDUSTRY REPORT:

PLASTICS AND POULTRY

Could aluminum surpass
plastic in poultry
packaging?

A TEN-YEAR
FORECAST



A TEN-YEAR FORECAST

Poultry is the only meat that will see a strong increase in EU production and consumption, according to the European Commission's forecast of the next ten years.



As it grows, the entire poultry supply chain is set for dramatic change, attributed to increased automation in processing and increasing consumer demand. One area on the cusp of such transformation is poultry packaging.

Poultry packaging supplier, Advanta has produced this guide to inform of four key factors of successful poultry packaging which processors must consider on the run up to 2030 in order to remain competitive in this ever-changing marketplace.

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BREAKING PLASTIC CONVENTIONS

New and novel poultry meal concepts are brought to market on a daily basis. Clearly, food brands are ready to break the status quo of poultry meals, but what about packaging?

Polypropylene (PP) has traditionally been the material of choice for poultry packaging, but its damaging environmental implications, poor barrier performance and lack of shelf appeal have resulted in demand for alternatives. Plastic alternatives are continuously being trialled, but as manufacturers increasingly turn away from plastic due to its poor recyclability, the industry is experimenting with aluminium.

Before investigating how to incorporate aluminium into poultry packaging, it is important to understand why plastic has long been manufacturer's material of choice.

After low costs, the next most appealing benefit has been plastic's compatibility with sealing techniques.

Vacuum packing, for instance, can significantly extend the shelf life of poultry – and because of this appeal, whole poultry has conventionally been contained in vacuum-sealed plastic bags.

As well as plastic bags, poultry portions such as chicken breasts or thighs, are regularly stored in plastic trays and sealed with top film or a vacuum seal. However, the industry is increasing its education of these sealing technique's compatibility with aluminium.

Like plastic, aluminium is compatible with skin pack and vacuum sealing, posing an opportunity for processors to replace the bulk plastic contents in poultry packaging.

That said, it isn't solely about recyclability.

Choosing aluminium can also provide greater convenience for the consumer. Plastic packaging requires consumers to transfer the contents into an oven-safe dish for cooking – which often involves touching the raw meat.

It's a messy process, and today's consumers are ready for an alternative and more convenient approach to cooking poultry.

With pressures from the imminent plastic tax in Britain, a charge on the production and import of plastic packaging with less than 30 per cent recycled content, pressures to move away from plastic are stronger than ever.

It's clear the supermarket shelves of 2030 will be dominated by very different packaging concepts.

FUNCTIONALITY

Generally speaking, plastic poultry packaging has good functionality. It holds the poultry in a leak-free manner, for an extended shelf life. Plastic-based packaging materials also provide varying degrees of barrier protection, depending on the nature of the polymers used in their manufacture.

However, under freezing conditions, plastic packaging can split or crack. Similarly, paper and cardboard based containers often become brittle and lose rigidity when they are frozen and subsequently defrosted.

Choosing aluminium ensures the material will not shatter in extremely low temperatures, which is particularly advantageous for customers who want to freeze their food. While not all products are designed for home freezing, busy schedules mean that many families need to freeze products to avoid food going to waste.

Aluminium containers are unaffected by extreme temperatures. In fact, Advanta's aluminium trays are capable of withstanding temperatures as low as -40 degrees Celsius and as high as 400 degrees Celsius.

This temperature capability means the product can go straight from the fridge or freezer and into a roasting hot oven. By swapping from plastic to aluminium trays, the packaging provides the functions of a storage, cooking and serving container, all in one.

CONVINIENCE

Convenience is a key driver in changing what is on the supermarket shelves. Consumers are increasingly targeted with convenience, cook-in engineering and on-the-go products, making ease-of-use an expectation and not a luxury.

Globally, ready-meals and convenience foods are continually on the rise, especially in rapidly urbanising economies such as South Asia.

Such markets are also experiencing the convenience that is gained through longer shelf lives. Aluminium trays are very much suitable for use with hermetic seal machines and gas flushing techniques, allowing for shelf-life extension of poultry products if required.

Gas flushing techniques, also known as modified atmosphere packaging (MAP), are a carefully controlled blend of different gases used in airtight packaging to increase the shelf life of food. Typically, this is used with plastic trays or smoothwall foil trays.



The growing popularity of aluminium is also reflected by the increase of pre-marinated, ready-to-cook chicken products, which consumers can put straight in the oven without mess or fuss.

Plastic trays do not deliver such convenience, at least not to the same levels as aluminium. For consumers who see versatility as products that can be frozen, cooked on a direct flame and put on the table, all in the same container – **plastic isn't a competitor**.

As such, packaging manufacturers are focusing their efforts on further developing aluminium trays that are compatible with vacuum packing, using effective polymer-metal seal.

By achieving this, manufacturers can reap the benefits of vacuum sealing, but with the added temperature resistance and convenience of aluminium.



FINANCIAL REWARDS

While plastic is recyclable, its low market value results in very little of the material getting recycled. This stems from China's refusal to buy plastic waste back in 2018, resulting in the price of the material dropping significantly.

The United States, United Kingdom, Germany, Japan and Mexico were among the biggest exporters of scrap plastic until the ban came into force and now, these nations are feeling the effect of plastic piling up on their doorsteps.

By comparison, aluminium scrap is worth around 5 times more per ton on average than plastic. Without aluminium as a recyclable product in recycling bins, very few kerbside pickup programs would be financially viable. In these instances, aluminium pays for its own recycling and subsidizes that of other materials, including plastic.

Other countries have been quick to follow China's example. India for instance, has banned imports of waste plastic just one year after China pulled the plug. Consequently, exports to other countries, including Turkey, Malaysia and Vietnam have increased, but not to a rate that matches China's previous imports.

The financial decline of plastic recycling is more apparent than ever before. San Diego's recycling program brought in \$4 million in revenue last year, but due to the change made by China, recycling could now cost the city \$1.1 million.

Advanta has identified this opportunity to remove some of the plastic from the supply chain. Having successfully trialled a unique aluminium poultry tray and vacuum pack combination, Advanta's new packaging option combines the convenience of a chicken-shaped aluminium foil tray, and shelf-life extension of vacuum sealing or skin pack.

With this never-before-seen packaging concept, the consumer simply peels back the plastic skin surrounding the poultry, revealing the whole poultry in a foil tray. Then, it is ready to put in the oven and served directly to the table, removing any need to touch meat.

Worldwide interest in this arrival demonstrates the huge demand for this product.

The packaging industry is now looking to develop materials that could improve recycling efforts. In March 2019, a new black polyethylene terephthalate (PET) food tray was announced.

Unlike much of the current black plastic packaging on the market, this packaging can be picked up by recycling equipment as the material's black pigment is detectable in the sorting process.

But, if plastic recycling facilities are closing, this new type of PET still ends up in landfill.

Finding an alternative doesn't require research and development into new, more recyclable materials — there is already one on the market, aluminium.

Aluminium packaging is clearly a viable answer to Earth's growing plastic problem. As more plastic-based 'packaging innovations' arrive to market, boasting slightly better recycling properties, it is important to ask — why not use aluminium?

The future of poultry packaging will see the increased adoption of aluminium trays, reinforced by increased poultry consumption and government pressures to take plastic out of the supply chain. For the transition away from plastic to be effective, food processors and manufacturers must have access to the right food packaging suppliers, with the knowledge of aluminium equivalents to plastic trays.

As more nations follow the United Kingdom's plastic tax, transitioning to aluminium will be less of an option and more of a necessity.