The Fiber Future Report:

Sustainable packaging solutions for the meat industry

A look into the future of fiber packaging and sustainable packaging trends

In today's packaging landscape, sustainable and environmentally friendly solutions are becoming increasingly important. This Fiber Future Report examines the growing demand for fiber-based packaging, particularly in the meat industry, and looks at how the packaging industry can respond to this development.

By analyzing current consumer trends, ecological requirements and technological advances, the report highlights the opportunities and challenges of switching to fiber packaging.

1 Strong consumer preference for fiber packaging

The demand for plastic-reduced, recyclable packaging has increased in recent years. Recent studies show that over 70 % of consumers prefer fiber packaging to plastic. They see it as an environmentally friendly alternative that is both aesthetically pleasing and practical. Consumers are willing to accept higher prices for fiber packaging, especially in the organic and premium segments. The report examines how fiber packaging can be specifically positioned in response to this consumer demand in order to give companies a competitive advantage.

2 Efficiency and simplicity in production conversion

A key challenge of fiber trays is their integration into existing production lines. The report analyzes how fiber packaging can be applied to existing machine lines without extensive conversions. This not only means lower investments for companies, but also enables a fast, competitive and smooth transition to more sustainable packaging solutions.

3 Sustainability as a strategic competitive advantage

With increasing regulatory control and growing social responsibility, sustainability is becoming a strategic factor in the meat industry. Fiber packaging not only offers emotional benefits here, but also a reduction in the ecological footprint compared to conventional plastic packaging. The report shows how companies can achieve their environmental goals through the use of fiber packaging and at the same time strengthen their brand perception in the area of sustainability.

4 Future prospects for fiber packaging technology

Technological innovations in the field of fiber processing have significantly improved the performance and applicability of fiber packaging. The report outlines future developments that could make fiber packaging a preferred solution in the packaging industry. These include improving barrier properties, adapting to different product requirements and opening up new markets beyond the meat industry.

In summary, the Fiber Future Report provides an in-depth analysis of current market dynamics and the strategic opportunities that fiber packaging can offer companies in the meat industry. The switch to fiber solutions is not just a response to the current zeitgeist, but a forward-looking step that combines ecological responsibility and economic efficiency.

Introduction:

The development of sustainable packaging

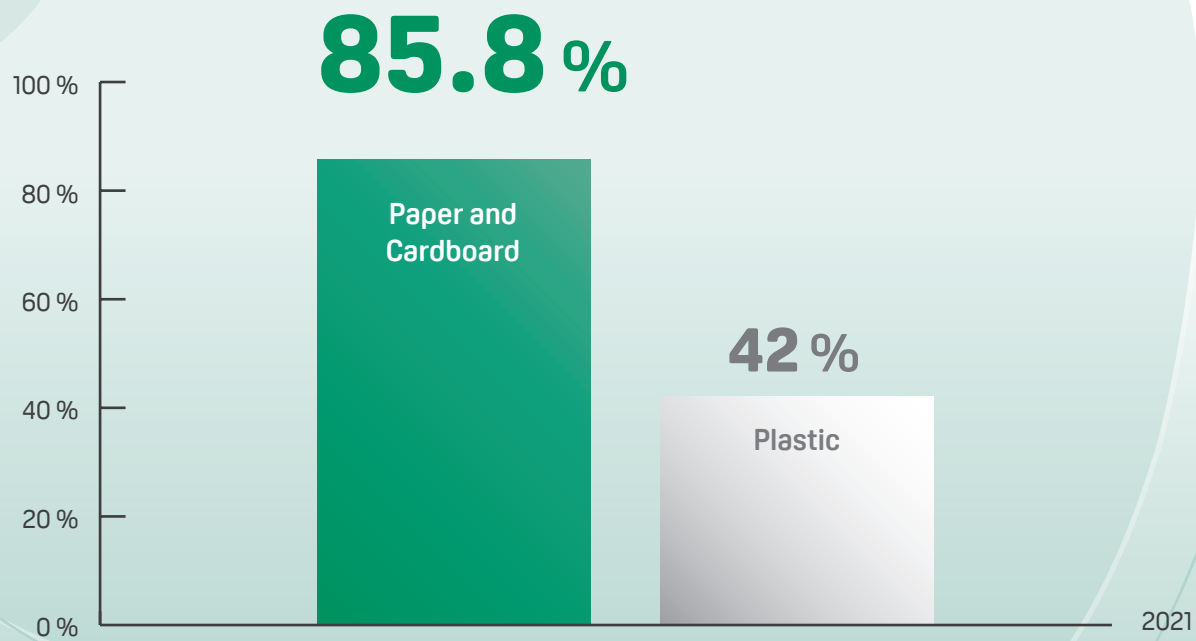
In recent decades, awareness of the environment has increasingly changed. The packaging industry is a particular focus here, as it is one of the largest producers of single-use plastics and waste. The trend towards sustainable packaging reflects both consumer demand and legal requirements, which are leading to a drastic rethink in the industry.

Social responsibility and consumer demands

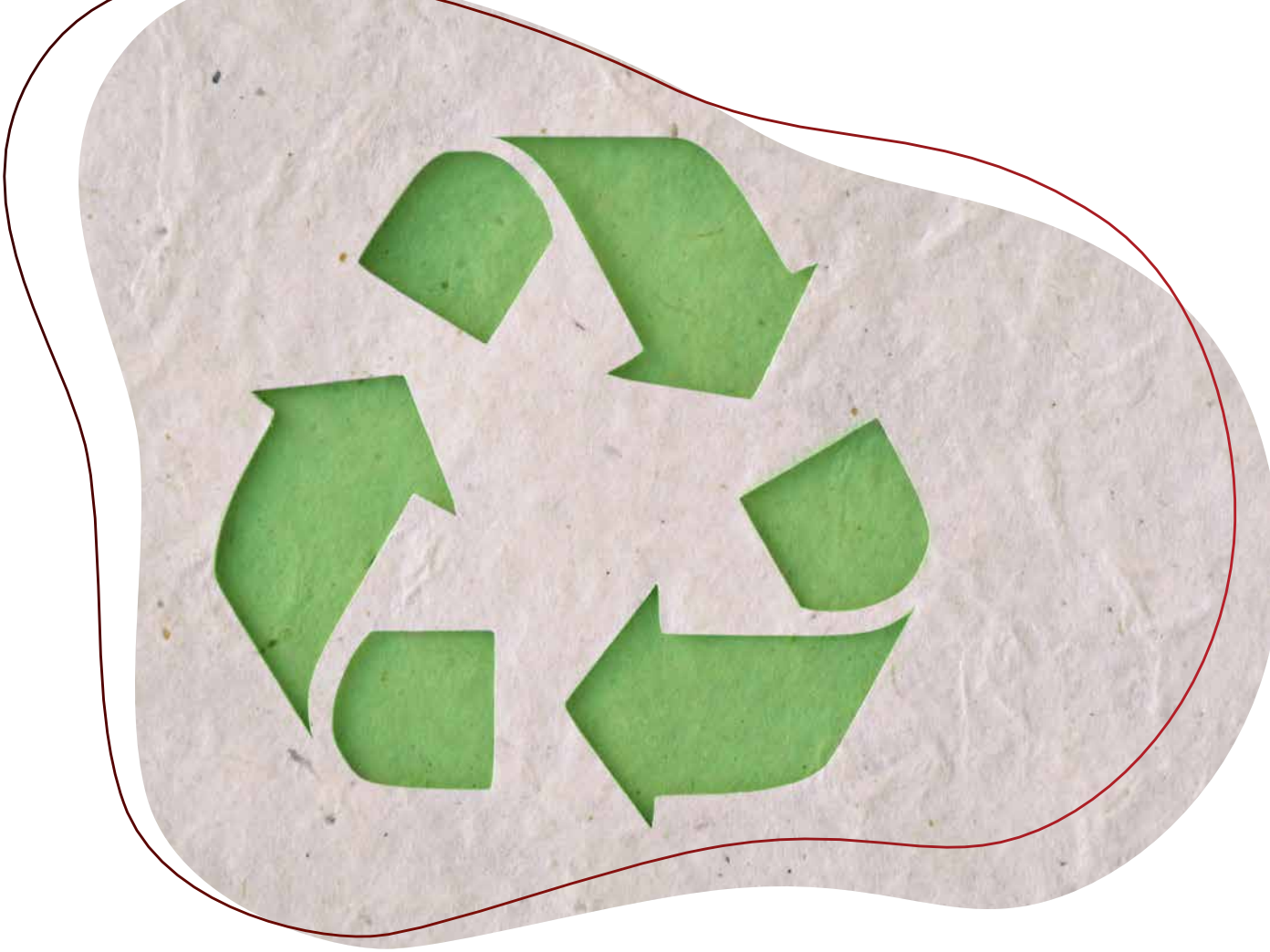
Consumers around the world are expressing a desire for more sustainable packaging options. A growing number of consumers prefer recyclable, biodegradable and plastic-reduced packaging, which has become a decisive factor in the food and meat industry in particular. This demand also has an ethical component: consumers increasingly see their purchasing decisions as a contribution to solving global environmental problems and reducing plastic waste.

Several studies confirm this trend and show that over 70 % of consumers prefer fiber packaging to plastic. The environmental aspect and the possibility of recycling are the decisive factors here. However, in the meat industry, where hygiene, product protection and freshness are important criteria, the selection of sustainable materials is often perceived as an additional challenge. Nevertheless, the development of fiber packaging shows that sustainability and product protection are compatible and that new packaging solutions can meet these requirements.

Recycling rates of packaging materials



Sources: Recyclingquote von Papier und Karton in der EU: neue-verpackung.de
Recyclingquote von Kunststoffverpackungen in der EU: twosides.info



Regulatory changes and environmental measures

The packaging industry is increasingly affected by legal regulations aimed at reducing plastic and single-use packaging. Many countries, including members of the EU, have introduced plastic taxes, banned single-use plastic products or set specific recycling quotas for packaging materials. These legal frameworks are accelerating the search for alternative materials and putting pressure on companies to meet the requirements for more environmentally friendly packaging.

The introduction of these measures acts as an incentive for companies to develop and implement new packaging solutions. Fiber-based packaging offers a solution that not only meets regulatory requirements, but also meets the environmental goals of companies. They are mostly recyclable, biodegradable and have a lower carbon footprint than conventional plastic packaging. In view of this development, it is clear that a fiber-based future is not only desirable, but also necessary in order to meet future legal requirements.

Innovations and trends in packaging technology

Along with these social and regulatory factors, the packaging industry has made technological advances in recent years that open up new possibilities for sustainable packaging. Material innovations and new material combinations have improved the development of fiber packaging so that it now provides the necessary barrier function and stability required for the storage and transportation of food.

Fiber packaging technology combines modern engineering techniques with the minimalist use of functional and separable barriers, opening up new opportunities for the packaging industry.

The role of fiber packaging in the future packaging landscape

The combination of social pressure, regulatory measures and technological innovations has made fiber packaging a major topic for the packaging industry. Acceptance and demand for these sustainable alternatives continue to grow and companies are increasingly recognizing the value that fiber solutions offer to their brand and long-term competitiveness.

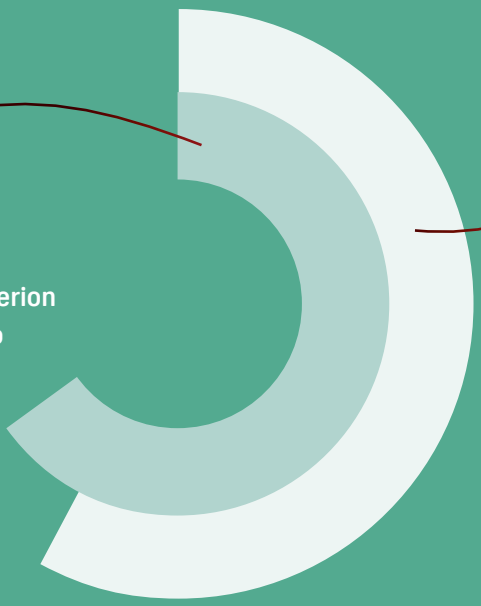
The introduction of fiber trays specifically for the meat industry is an example of how companies can respond to consumer demands and establish sustainable packaging solutions in traditional markets. The fiber tray offers an environmentally friendly, recyclable alternative to plastic and fits seamlessly into existing production processes, making it a cost-effective and straightforward option.

In summary, it is clear that fiber packaging can shape the future of the packaging industry. It offers ecological and economic benefits and is increasingly a key factor for companies that want to assume social responsibility and at the same time meet consumer expectations.

What sustainability means to consumers

65 %

of consumers state that RECYCLING CAPABILITY is the most important criterion for them when it comes to packaging.



58 %

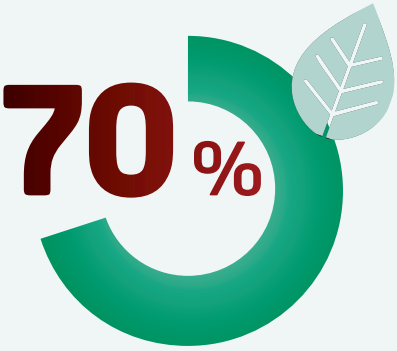
of consumers see ENVIRONMENTAL FRIENDLINESS as a purchasing argument for fiber packaging.

Sources: Verbraucherumfragen der GfK, Verpackungsstudien über Konsumentenverhalten

Consumer preferences for fiber packaging

With the increasing awareness of environmental issues, consumer requirements for packaging have changed fundamentally in recent years. An increasing number of consumers prefer packaging that is environmentally friendly and contains less plastic. This development offers the meat industry a clear opportunity to switch to fiber packaging, which is not only environmentally friendly but also in high demand by consumers.

According to recent studies and surveys, over 70 % of consumers prefer fiber packaging to traditional plastic packaging. This trend is particularly strong in categories such as organic and premium meat products, where consumers not only pay attention to the quality of the product, but also to the sustainability of the packaging. Here, fiber packaging conveys an environmentally conscious image and supports the trend towards plastic-reduced alternatives. There are many reasons for this preference. Consumers associate fiber packaging with properties such as sustainability, easy recyclability and a smaller ecological footprint. Plastic packaging, on the other hand, is often perceived as harmful to the environment and is coming under increasing social criticism. Fiber packaging therefore not only meets the ecological goals of many consumers, but also meets the need for innovative and ethically responsible product solutions.



of German consumers consider paper and cardboard to be particularly sustainable packaging materials.

Source: Statista, 2021

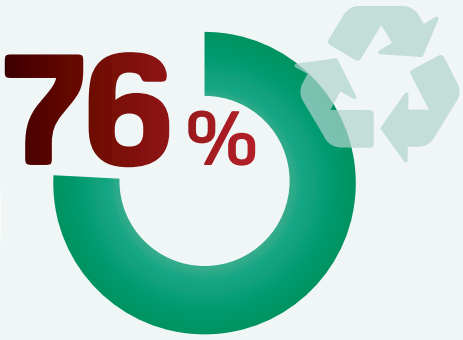
Main reasons for choosing fiber packaging

The consumer decision in favor of fiber packaging is primarily based on three central motives:

1. **ENVIRONMENTAL FRIENDLINESS AND SUSTAINABILITY:** Consumers see fiber packaging as an environmentally friendly alternative that helps to reduce plastic waste and conserve natural resources. Studies show that consumers prefer fiber packaging because it appears to be both biodegradable and recyclable. This makes it the ideal choice for consumers who are committed to sustainability.

2. **PLASTIC PREVENTION:** Many consumers want to reduce plastic in their everyday lives and are specifically looking for packaging that does not use plastic or at least greatly reduces the amount. The perception of plastic as an environmental burden has a significant influence on purchasing decisions. Fibre packaging offers an attractive alternative here and meets the desire of many consumers to minimize their ecological footprint.

3. **RECYCLABILITY AND EASY DISPOSAL:** The ability to easily recycle fibers is another important decision criterion. Consumers appreciate packaging that can be reused in the usual recycling processes.



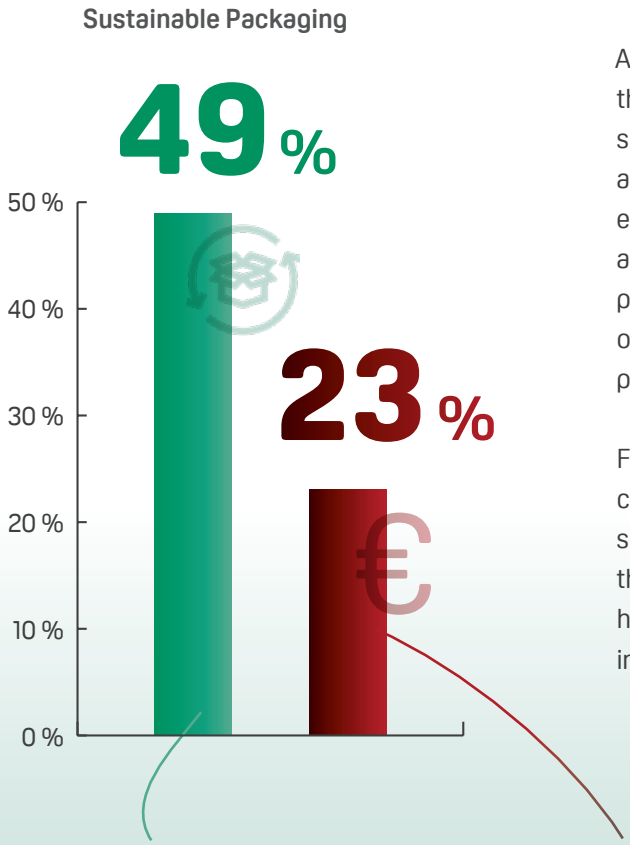
of Germans see recycling as their preferred method of dealing with used packaging.

Source: Deutsches Verpackungsinstitut e.V. (dvi), 2023

Differences between consumer groups: Organic and conventional buyers

Within the consumer group, there are clear differences between organic and conventional shoppers. The vast majority of organic shoppers prefer fiber packaging and are willing to pay a higher price for it. They consider sustainable packaging to be an integral part of product quality and expect organic products to be packaged in an environmentally friendly way in all aspects. Conventional shoppers, on the other hand, are also inclined towards fiber packaging, but their willingness to pay a higher price is less pronounced.

The report shows that companies active in the organic and premium segment can benefit in particular from a switch to fiber packaging. Fiber packaging is perceived by organic shoppers as higher quality and more environmentally friendly, which can increase brand loyalty and attract new customers.



Willingness to pay and price elasticity

A crucial question for the acceptance of fiber packaging is the willingness of consumers to pay. Studies show that consumers are willing to pay a higher price for fiber packaging as long as this surcharge remains moderate. A concrete example using 500 grams of minced meat showed that with a price difference of up to **€ 0.90** compared to conventional plastic packaging, most consumers still prefer the fiber option. However, this preference decreases as soon as the price of fiber packaging rises above a certain threshold.

For companies, this means that fiber packaging can be successfully positioned as a premium option as long as the price surcharge remains moderate. Targeted communication of the environmental benefits and sustainability aspects can help to further promote consumers' willingness to pay and influence price elasticity in favor of fiber packaging.

49 % of German consumers put emphasis on environmentally friendly packaging.

Source: PwC, 2018

23 % of German consumers would be prepared to spend more money on a product with sustainable packaging.

Source: Statista, 2023

Separate correctly: How to find a place for every material

WASTE PAPER

Newspapers, magazines, books, office and school paper, cardboard boxes and wrapping paper. Mono-packaging made of paper/cardboard that complies with the “95 % rule”, such as egg cartons, can also be recycled. Exception: Adhesive-coated papers only if they are labeled with the “Blue Angel”.

LIGHTWEIGHT PACKAGING

Composite materials such as beverage cartons, packaging with wax or grease coatings (e.g. coffee-to-go cups or pizza boxes with leftover food). Also packaging with adhesives or plastic films that are difficult to remove. Example: packaging for lasagne dishes or burger packaging.

RESIDUAL WASTE

Thermal paper (e.g. receipts), wallpaper remnants, baked or impregnated materials such as baking paper or muffin tins, as well as paper hygiene products such as tissues. Painted or laminated materials that cannot be recycled also belong here. Example: posters or paper coated with oil.

Source: veolia

Potential for the future of fiber packaging

The strong consumer preference for fiber packaging shows that this sustainable alternative could take a central place in the packaging industry in the future. Particularly in segments such as organic and premium products, as well as among environmentally conscious consumers, there is an opportunity for companies to achieve both environmental and economic benefits by introducing fiber packaging. The implementation of this packaging solution not only helps to strengthen brands, but also meets the requirements of an increasingly environmentally conscious society.

In summary, this section shows that fiber packaging is a forward-looking solution that meets the requirements of modern consumers. Companies that adapt to this demand at an early stage can position themselves as pioneers of sustainable packaging solutions in the long term and thus strengthen their competitiveness.

Efficiency of molded fiber packaging during production

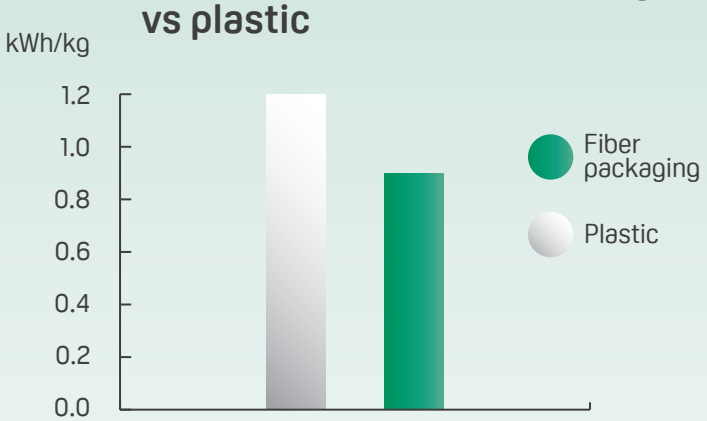
The switch to molded fiber packaging not only represents a sustainable alternative to plastic, but also offers significant advantages in terms of efficiency and thus cost savings in production compared to folded or pressed tray concepts. A key added value of molded fiber packaging such as FiberWise™ trays is the option of easy integration into existing production lines – a crucial factor in enabling a quick and cost-effective conversion.

Seamless integration into existing production systems

The introduction of new packaging materials can often be associated with high investment and conversion costs, especially if existing machines and production lines have to be extensively adapted. However, fiber packaging, such as FiberWise™ trays, is an exception. They have been developed in such a way that they can be integrated into existing systems without major conversions. Companies can therefore easily convert their production lines without having to invest in new machines or new tools or completely adapt production processes.

The "plug & play" functionality of fiber packaging enables smooth implementation in the packaging production process. This advantage is particularly relevant for companies in the meat industry, which are often under high production pressure and cannot risk downtime. The easy integration means that fiber packaging can be incorporated directly into ongoing operations, which considerably simplifies the switch to more sustainable packaging solutions and minimizes production interruptions.

Comparison of the energy consumption of fiber casting vs plastic



Source: Vergleichsdaten aus dem VDI Zentrum Ressourceneffizienz, 2023

Reduction of the plastic tax by switching to cast fiber packaging

Source: EU-Plastiksteuerregelungen

Further efficiency benefits for companies at one glance:

Reduction of CO_2 emissions in the logistics chain

The material consists of production-related household and industrial waste paper – without long delivery routes.

Avoiding plastic tax

Switching to FiberWise™ trays not only offers companies environmental benefits, but also tangible economic savings. In many EU countries, a plastic tax averaging € 0.80 per kilogram of non-recycled plastic is imposed to reduce the use of environmentally harmful materials.

Future perspectives for the packaging industry:

The path to a fiber-based packaging world

The packaging industry is at a turning point. In the face of growing environmental challenges and rising consumer demands, sustainable solutions are becoming increasingly important. Fiber-based packaging is considered one of the most promising alternatives to conventional plastic and could revolutionize the industry in the coming years. This future perspective explores how fiber packaging could reshape the packaging world and become a sustainable solution to the environmental challenges of our time.

1 Technological advances and new material developments

In recent years, the technology for manufacturing fiber packaging has made enormous progress. Special barrier coatings effectively protect products from negative external influences, making them ideal for a wide range of applications - particularly in the food industry.

Innovations in fiber material technology also make it possible to produce packaging with a precisely tailored protective effect without compromising sustainability. Future developments could aim to further optimize material thickness, reducing raw material usage and associated costs while increasing recyclability. These technological advances strengthen the position of fiber packaging as a sustainable solution.

2 The influence of regulations and environmental standards

Regulatory measures are having a strong impact on the packaging industry and could further accelerate the transition to a fiber-based future. Many governments around the world have introduced plastic taxes and bans on single-use plastics to reduce pollution and stimulate the still lagging circular economy of plastics.

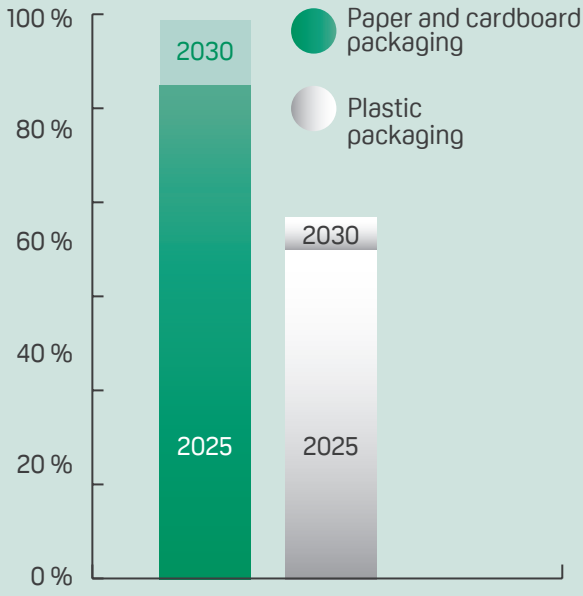
- **EU Single-Use Plastics Directive (SUPD) – 2019/904**
  - Ban on certain single-use plastic products
  - Promotion of sustainable alternatives

These regulations will have a positive impact on the development of molded fiber packaging, as it is generally made from recycled paper and therefore meets the sustainability requirements of the SUPD (Single-Use Plastics Directive).

- **Waste Framework Directive – 2008/98/EC**
  - Recycling rates for packaging materials (by 2025, the rate for paper and cardboard packaging should be at least 75 % and for plastic at least 50 %)
  - Waste prevention and promotion of the circular economy

The promotion of the circular economy supports the demand for recyclable cast fiber packaging.

Targets for recycling rates in the EU by 2025 and 2030



Source: Europäische Kommission (eur-lex.europa.eu)

- **EU Packaging Directive – 94/62/EC**
  - Mandatory recycling targets (at least 85 % of paper and cardboard packaging and 55 % of plastic packaging should be recycled by 2030)
  - The fiber industry has committed itself to achieving a recycling rate of 90 % by 2030 (4evergreen Alliance)
  - Eco-design for packaging (low waste and easily recyclable packaging as a goal)

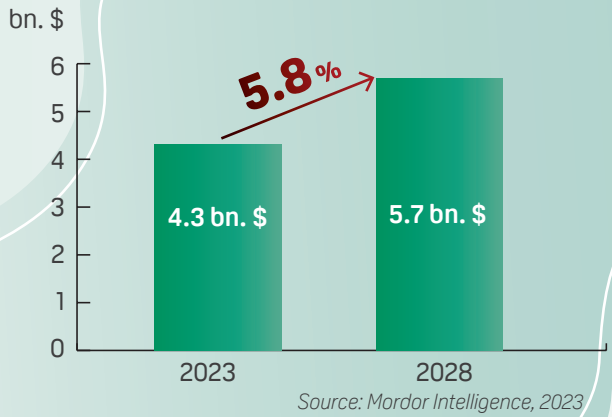
Materials that are easy to recycle and contribute to a reduction of waste are favored.

- **PPWR (planned)**
  - CO_2 footprint calculation
  - Promotion of climate-friendly materials

Molded fiber packaging could be particularly promoted by this regulation, as it is a material with a low CO_2 footprint.

3 Market growth

The global molded pulp packaging market is expected to grow from USD 4.3 billion in 2023 to USD 5.7 billion in 2028, representing a compound annual growth rate (CAGR) of 5.8 % (source: Mordor Intelligence, 2023).



Source: Mordor Intelligence, 2023

4 Sustainability and the circular economy as the future standard

The packaging industry is increasingly moving towards a circular economy in which materials are kept in the production and consumption cycle for as long as possible and waste is minimized. Fiber materials are ideal for a circular economy due to their recyclability and biodegradability.

While the recycling of plastic is still in its infancy and economically interesting recycling of polymers is only possible to a very limited extent, fiber materials - both fresh and recycled fractions – have been kept in a well-established cycle for decades.

In the future, the concepts of the circular economy could become a standard in the packaging industry. Packaging could be designed in such a way that it can be optimally integrated into recycling cycles, further promoting the conservation of resources. Fiber packaging fits perfectly into this vision, as it is based on renewable materials and has the optimal lifespan, while durable plastic all too often ends up in nature.

5 Potential for the meat industry and strong partnerships

Fiber packaging is already widely used in industries such as non-food, pharmaceuticals and cosmetics – major brand owners have adopted this strategic approach! Thanks to new developments in fiber casting technology, it is now also possible to extend this approach to fresh food categories, such as fresh meat!

There are already numerous promising examples on the market where a lively partnership between packaging manufacturers and end customers with innovative and tailor-made solutions is paving the way for a fiber-based future.

The future of the packaging industry could increasingly rely on fiber-based solutions, as this packaging meets both regulatory requirements and consumer demands for sustainability. Fiber packaging offers a sustainable alternative that has the potential to shape the packaging market in the long term. Technological advances, growing environmental awareness and regulatory changes are helping to ensure that fiber packaging could become the standard in many areas.

Recommended actions for companies in the meat industry

For companies in the meat industry, switching to sustainable packaging solutions is not only a response to environmental and legal requirements, but also offers strategic advantages. The following recommendations for action show how companies can successfully shape this change and benefit from the advantages of fiber packaging in the long term.

1 Gradual conversion to minimize risks

A complete and sudden conversion from plastic to fiber packaging can be challenging for many companies. It is therefore advisable to take a gradual approach to implementation and switch to FiberWise™ trays in certain product lines or for specific markets first. A gradual introduction allows companies to gain experience and identify and resolve any challenges at an early stage. Especially when communicating with the end consumer, a gradual introduction can serve as a learning curve to identify the best way to achieve lasting customer loyalty.

A pilot project can be a useful method for testing logistics, production processes and customer acceptance. For example, companies could initially switch the organic or premium range to fiber trays, as consumer preference for sustainable packaging is particularly high in these areas. Targeted tests and the gradual adaptation of existing processes can minimize potential risks and make the transition to a sustainable packaging solution efficient.

Reduction of conversion costs

20 %

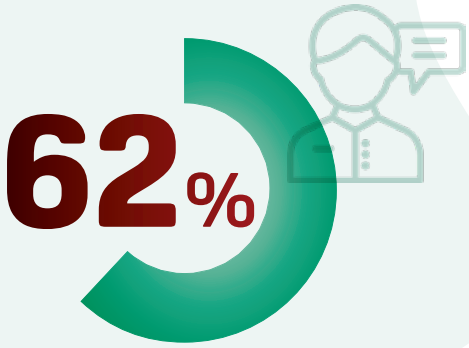
Companies that carry out pilot projects for new packaging solutions reduce their conversion costs by an average of 20 %.

Source: Deloitte Insights, „Managing Transition in Production," 2021

2 Clear communication of (environmental) benefits

Consumer preference for sustainable packaging is high, but customers do not always recognize the benefits of new packaging at first glance. Companies should therefore communicate specifically why they have opted for fiber packaging and what ecological benefits it offers. Short, concise information on the packaging itself ("made from recycled fibers") as well as accompanying communication measures in the company's own marketing channels and at the point of sale are suitable for this purpose.

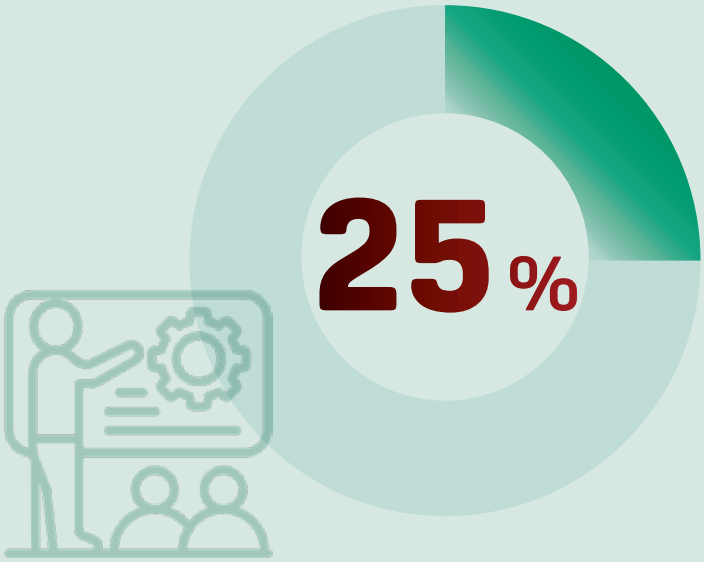
It is important to convey the message of sustainability authentically and transparently. For example, companies can explain in detail on their website or via social media campaigns how switching to fiber packaging reduces the carbon footprint and how recyclability can best be implemented. Transparent communication strengthens customer trust and positions the company as a responsible player in the meat industry.



der Konsumenten bevorzugen Marken, die ihre nachhaltigen Initiativen transparent und klar kommunizieren.

Source: PwC Global Consumer Insights Survey 2023

Efficiency through trained personnel



Companies with well-trained staff make the transition to new packaging materials up to 25 % more efficient.

Source: McKinsey & Company, „Change Management in Production," 2022

3 Staff training and adjustment of internal processes

The packaging industry generally struggles with fundamental changes and is often initially critical of them. The switch to new packaging materials such as molded fiber or FiberWise™ trays can place new demands on production processes and workflows. It is therefore advisable to provide comprehensive training to the workforce and ensure that all employees understand the benefits and handling of the new packaging. This training can ease the introduction of fiber trays and help avoid potential challenges or delays.

Internal processes should be adapted to make the changeover as smooth as possible. For example, new guidelines for handling and storing fiber packaging could be established in the packaging departments. Clear communication of the transition goals and close cooperation between the departments support successful implementation.

4 Test run / Stress test

At a certain point, things have to get specific – because in addition to the plausible, strategic arguments, it is ultimately about keeping an existing system running. Traditional stress tests offer a good opportunity for this. This is precisely where fiber casting solutions score over folding carton trays or compressed cardboard solutions. The top priority is to ensure performance on the traysealer systems. In order to meet this requirement, a stress test is highly recommended!

Final perspective

Seizing momentum and shaping change

The packaging industry is on the threshold of a new era in which sustainability and efficiency go hand in hand. Molded fiber-based solutions such as FiberWise™ trays show that innovative packaging can not only meet the environmental challenges of our time, but also strengthen the industry's economic future. With every step towards sustainable packaging, companies gain more than just a head start – they actively shape the future of a responsible, environmentally conscious industry.

Now is the time to drive change and fully utilize the potential of sustainable packaging. Together, we can create a world in which packaging is not only functional, but also forward-looking – a world in which the packaging industry becomes a driver of real ecological change.

find out more

fiberwise-hartmann.com

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