

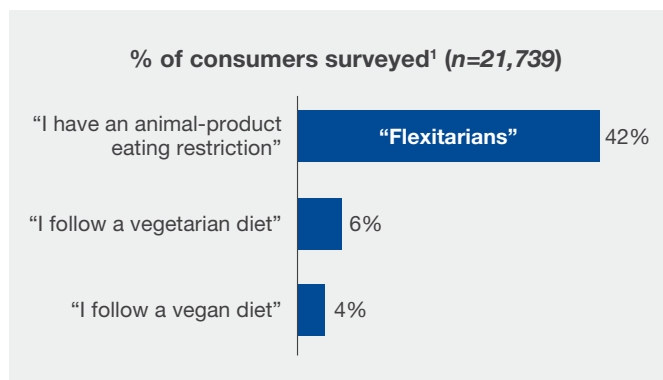
# Plant-based ingredients to support today's lifestyle choices

## Natural beta-carotene

People around the world limit or increase specific foods for different compelling reasons. While halal/ kosher/ vegetarian diets are practiced in certain regions, dairy-free or gluten-free diets are often required due to intolerances. However, most people would likely fall into the category known as “**flexitarians**” – a combination of the words “flexible” and “vegetarian.” What sets flexitarians apart is their freedom of choice - they can freely switch between animal and non-animal-based products.

## Huge market potential in flexitarians

According to a survey by Euromonitor,<sup>1</sup> 42% of global consumers are flexitarians. They are largely driven by concerns in three areas<sup>2</sup> which businesses can capitalize on:



**Health:** They have certain perceptions about what animal-based products can do to their health. In general, eating less animal-based products and including more greens “makes them feel healthier”.



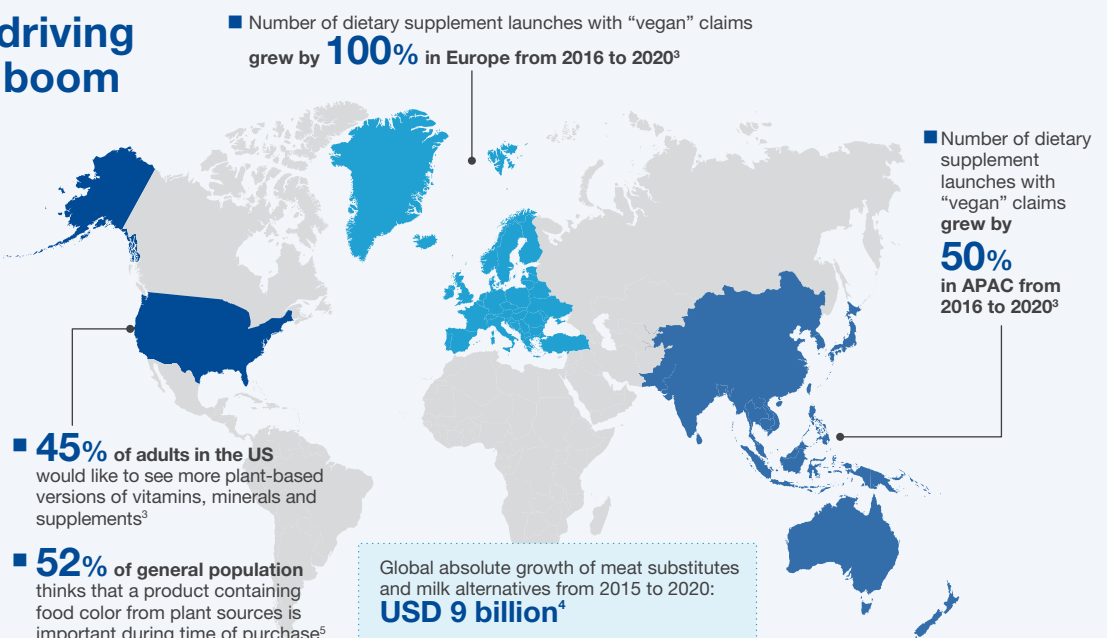
**Environment:** Saving the environment by looking for sustainable sources of food is a motivation for the flexitarian consumer.



**Animal welfare:** Intensive farm production technologies that lead to stress and discomfort for animals have caused consumers to move away from meat consumption.

## Flexitarians are driving the plant-based boom

Driven by concerns in the three areas, flexitarians are looking to diversify their diets with more “plant-based” options. This perspective could also have an impact on the ingredients used in food, as well as in dietary supplements.



## A two-pronged approach is needed to develop a compelling narrative for flexitarians:

1. A clear outline of the company's philosophy on sustainability, ingredients used, processing methods and other product qualities
2. Label claims related to health, environment and animal-free ingredients

## BASF's natural beta-carotene is derived from a micro algae, *Dunaliella salina*, that thrives naturally in salt lagoons



- The salt lagoons take on their famous vivid **pink color** from the presence of *Dunaliella salina* swimming freely in the hypersaline water



- The open-air lagoons are located in **Australia**, where BASF operates one of the world's largest production sources of *Dunaliella salina*



- *Dunaliella salina* produces carotenoids to **protect itself** against stress conditions such as UV light and/or harsh habitat conditions



- BASF grows and harvests the *Dunaliella salina* cells from more than 800 ha of lagoons, **carefully managing** their growth conditions and nutrients



- Through photosynthesis, *Dunaliella salina* uses CO<sub>2</sub> as a carbon source while producing beta-carotene, thus contributing to the **sustainability of the environment**

## BASF's natural beta-carotene produces color shades of yellow, suitable for the following examples of plant-based food products



## Our products enable potential claims positioned for your plant-based food and beverages

Product	Form	Plant-based*	Naturally derived**	Vegan	Vegetarian	Dairy-free/ Lactose-free	Halal	Kosher	Non-GMO	Gluten-free	FSSC 22000	ISO 9001
30% Natural Beta-carotene in sunflower oil, MCT oil & olive oil	Oil	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30% Natural Beta-carotene in soybean oil	Oil	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Betatene® 1% CWD N	Powder	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

\* Main / active ingredient originating from plants (including vegetables, fruits, whole grains, nuts, seeds, mushrooms and algae).

May contain formulation ingredients not from plants

\*\* Main / active ingredient originating from natural materials. May contain formulation ingredients not matching "natural" definition

## Position Natural Beta-carotene as food color for your plant-based innovation

✓ **Plant-based, natural, renewable**

✓ **Suitable for flexitarians**

✓ **Produces shades of yellow**

Sources: <sup>1</sup>Going Plant-Based: The Rise of Vegan and Vegetarian Food, Euromonitor 2020; <sup>2</sup>Choosing Substitutes: The Rising Tide of Non-Animal Proteins, Euromonitor 2021; <sup>3</sup>A year of innovation in VMS, Mintel, 2021; <sup>4</sup>Plant-based Eating and Alternative Proteins, Euromonitor 2021; <sup>5</sup>Natural Marketing Institute (NMI) Health & Wellness Study (2017)



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