OPPORTUNITY #48

WHAT WILL HAPPEN IF NO ONE ATE MEAT?

EATING WITHOUT ANIMALS

Novel food production technologies and evolving medical knowledge make meat superfluous

WHY IT MATTERS TODAY

Plant-based diets and alternatives to meat have been shown to have benefits for the environment as well as human health. A global switch to a vegan diet by 2050 would reduce greenhouse gas emissions by an estimated 15%[482] of the current total.[483]

But the deep psychological and cultural ties consumers have to meat and the nutritional benefits of protein and iron are not easy to give up.[484] Global demand for meat is projected to rise 50% between 2013 and 2050.[485]

Still, demand for meat alternatives has also grown and is expected to continue to rise. The global meat substitutes sector is set to grow from around $21 billion in 2020 to $23 billion by 2024,[486] while the market for cultivated meat could reach $25 billion by 2030.[487]

Such plant-based and cell-based meat combine ingredients in novel ways to deliver the culinary experience of meat without the need for a single animal. Plant-based meat uses less land than conventional meat.[488] Plant-based meat production emits 30%–90% less greenhouse gases and uses 72%–99% less water than conventional meat.[489]

However, the meat alternative industry still has hurdles to overcome. Only around 8% of the world currently identify as vegetarian[490] and if that proportion increases the sector faces capacity challenges. For example, at current levels of cell-culture productivity, the industry would need anywhere from 220 million to 440 million litres of fermentation capacity, up to 176 olympic-size swimming pools to reach just 1% of the market.[491]

SECTORS

ADVANCED MATERIALS & BIOTECHNOLOGY · CHEMICALS & PETROCHEMICALS · ENERGY, OIL & GAS · HEALTH & HEALTHCARE · MANUFACTURING

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THE OPPORTUNITY TOMORROW

As consumers increasingly seek alternatives to meat, technological advances can make new forms of animal protein or their plant-based equivalents widely available, increasing capacity and reducing costs. Food value chains can be rethought around plant and bioengineered alternatives, such as lab-grown 'meat' or home-printed substitutes. Livestock numbers decline around the world, reducing agriculture's energy, water and carbon footprints and focusing on offering non-GMO and 'raised without antibiotics' (RWA) livestock.

Countries and regions can collaborate to set nutritional and safety standards for cellular agriculture, precision fermentation, animal protein alternatives and non-GMO feedstock.

Global **demand for meat is projected to rise**

50%

between 2013 and 2050

BENEFITS

Major benefits are seen in reduced greenhouse gas emissions and improved human health as meat is replaced with leaner and more nutritious options. Switching to leaner or meat-free diets improves cardiovascular health and, as plant-based meat requires no antibiotics, may halt the rise of anti-microbial resistance. Meanwhile, arable land use for commodity feedstocks can be converted to higher-value food crops.

RISKS

Risks include significant disruption of agricultural value chains and livelihoods as systems adjust and fluctuating land value as land-use models shift over time. There is some risk that poorly regulated substitutes are not of sufficiently high nutritional value or health effects are unknown. Areas where livestock is raised and livelihoods based on that may experience desertification, loss of biodiversity, increased urbanisation and even malnutrition.[492]