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Main Author: Stephanie Lim

Contributor: Nor Lastrina Hamid

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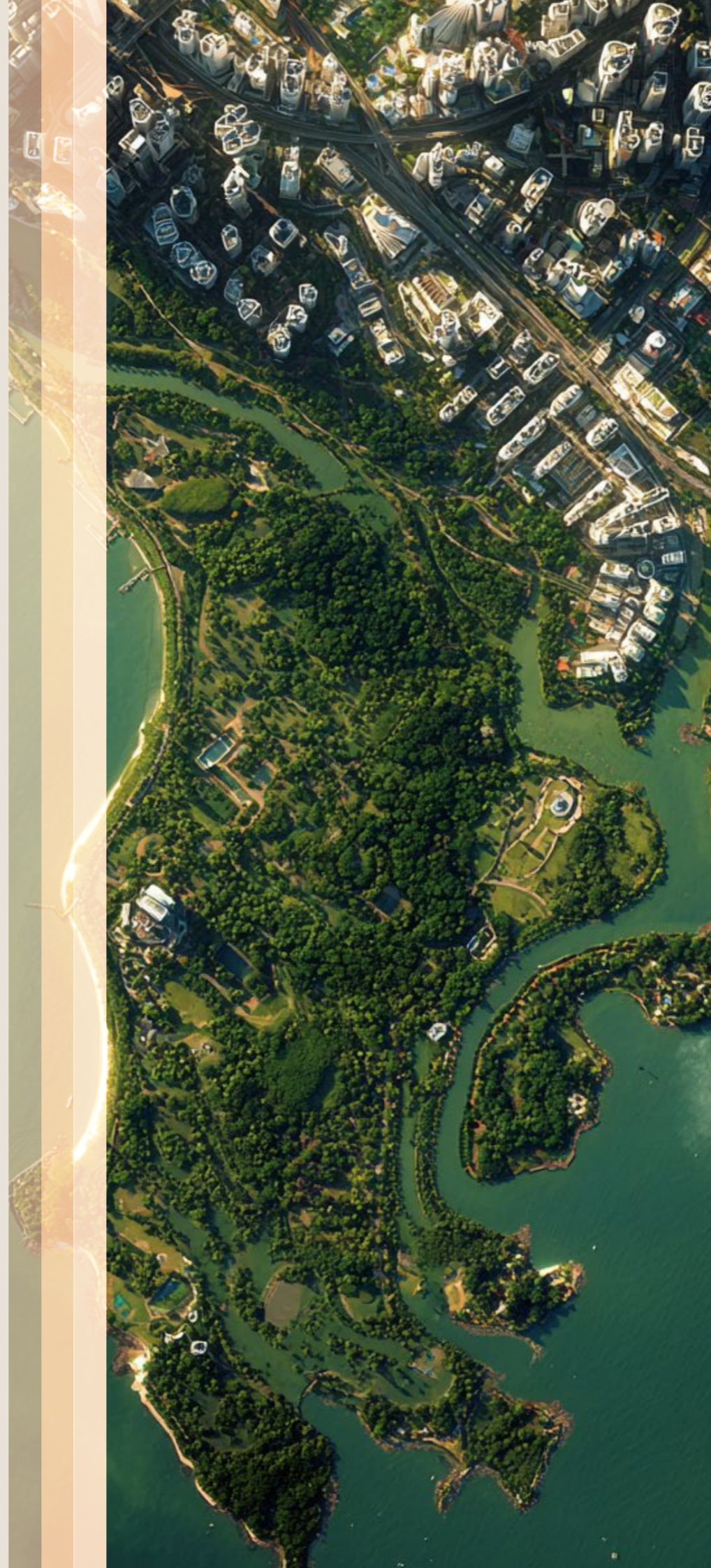
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About WWF

World Wide Fund for Nature (WWF) is one of the world’s largest and most respected independent conservation organisations. WWF’s mission is to stop the degradation of the earth’s natural environment and to build a future in which humans live in harmony with nature. As one of WWF’s international hubs, WWF-Singapore supports a global network spanning over 100 countries.

WWF-Singapore works closely with local stakeholders towards a greener and more sustainable Singapore and the region around us. We work to address key conservation areas, such as climate change, sustainable finance, deforestation, illegal wildlife trade, marine conservation, and sustainable production and consumption, through collaboration, education, and outreach efforts involving the community, businesses, and governments. For more information, please visit wwf.sg

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EXECUTIVE SUMMARY

This report examines the intersection of health and sustainability in Singapore's dietary habits. It highlights the environmental impacts of food production, current consumption patterns, and public attitudes. Food choices have far reaching impacts: globally, food systems account for one-third of greenhouse gas emissions and are the leading driver of biodiversity loss, deforestation, and freshwater depletion. The report recommends six guiding principles for eating healthily and sustainably: eat more plant-based proteins than animal-based proteins, avoid food waste, eat more regionally produced foods, choose sustainably produced foods, prioritise fresh food over processed, and ensure balance and variety.

Consumer research conducted for this report indicates that Singaporean diets remain predominantly meat-based, with animal-based protein accounting for 87-92% of total protein intake – more than double WWF's recommended limit of 40%. While half of respondents expressed openness to switching from meat to plant-based proteins, persistent barriers such as cost, taste, convenience, social support and knowledge gaps remain. Research further indicates that while two-thirds of respondents assess the sustainability of food based on third-party certification labels, this awareness does not consistently translate into purchasing decisions. Price sensitivity is another key factor, with one-third of consumers not willing to pay more for sustainable products, and an additional one-third limiting their willingness only to a 5% premium. These findings underscore the need for targeted interventions that address affordability, taste, and cultural familiarity, while improving consumer confidence in plant-based cooking.

The report provides recommendations for all stakeholders: consumers can start by eating more plants and reducing food waste; retailers should make sustainable and healthy options visible and affordable; and policymakers can integrate environmental criteria into nutrition guidelines and improve access to sustainable options.



FOOD IS MORE THAN SUSTENANCE

Food shapes our culture, identity, and daily lives. Yet, diets around the world, including in Singapore, are moving in an unhealthy and unsustainable direction. People of all ages are consuming too much refined grains, sugar, and processed food, while eating too little fruit, vegetables, and whole grains¹. At the same time, global meat consumption has nearly doubled since 1961, adding to both health risks and environmental pressures².

The consequences are significant. Poor diets³ are now a leading risk factor for obesity⁴, chronic disease, and even certain cancers⁵. The way food is produced, consumed and wasted also drives greenhouse gas emissions, biodiversity loss, water stress, and environmental degradation⁶. These ripple effects extend to public health, contributing to air pollution and the spread of zoonotic diseases⁷.

THE SOLUTION

Scientific evidence shows that shifting toward healthier and more sustainable diets can deliver benefits for both people and the planet. Eating in a sustainable way not only reduces environmental impact but also improves overall health outcomes.

This report explores what such a diet could look like in Singapore. It examines current consumption patterns, public attitudes, and barriers and opportunities to shape dietary choices. It also highlights the critical roles of individuals, businesses, and government in enabling change. By reframing how we eat, Singapore can reduce its environmental footprint while fostering healthier communities.

- 1 Development Initiatives. (2018). What people eat and why it matters. In 2018 Global Nutrition Report: Shining a light to spur action on nutrition (Chapter 4). <https://globalnutritionreport.org/reports/global-nutrition-report-2018/what-people-eat-and-why-it-matters/>
- 2 National Geographic. (n.d.). What the world eats. <https://www.nationalgeographic.com/what-the-world-eats/>
- 3 It should be noted that dietary choices are influenced by a combination of biological factors (e.g. hunger, taste), economic factors (e.g. cost, income), environmental factors (e.g. food availability and accessibility, marketing, policy), social and cultural factors (e.g. family, cultural norms, traditions, social context), and psychological factors (e.g. mood, stress, beliefs, knowledge). These interconnected elements determine whether individuals choose to eat, what they eat, when and where they eat, and with whom they eat.
- 4 Lin, A. W., Marchese, S. H., Finch, L. E., Stump, T., Gavin, K. L., & Spring, B. (2021). Obesity Status on associations between cancer-related beliefs and health behaviors in cancer survivors: Implications for patient-clinician communication. *Patient Education and Counseling*, 104(8), 2067–2072. <https://doi.org/10.1016/j.pec.2021.01.033>
- 5 Gropper, S. S. (2023). The role of nutrition in chronic disease. *Nutrients*, 15(3), 664. <https://doi.org/10.3390/nu15030664>
- 6 WWF. (n.d.). Planet-Based Diets. <https://planetbaseddiets.panda.org/>
- 7 Morand, S., & Lajaunie, C. (2021). Outbreaks of Vector-Borne and zoonotic diseases are associated with changes in forest cover and oil palm expansion at global scale. *Frontiers in Veterinary Science*, 8. <https://doi.org/10.3389/fvets.2021.661063>



ENVIRONMENTAL IMPACTS OF OUR DIET

OUR FOOD SYSTEM CONTRIBUTES TO A THIRD OF THE WORLD'S GLOBAL GREENHOUSE GAS EMISSIONS

The environmental impact of our diets is significant. Globally, agriculture is the second-largest source of greenhouse gas (GHG) emissions after the energy sector, contributing to 11.7% of total emissions⁸. Beyond direct emissions, agriculture also drives climate impact through land-use change (e.g. deforestation of forests, conversion of grasslands and wetlands) and energy consumption. The food system, which includes land use change, production, processing, transport, packaging, consumption, and waste management constitutes a third of global GHG emissions (34%)⁹. Life cycle assessments and various research have identified food production (i.e. agriculture and land use change activities) as the most GHG intensive stage within the supply chain of most foods¹⁰. This also applies to food imported into Singapore, where air transport adds to overall GHG emissions, though these remain significantly lower compared to emissions from production¹¹.

GHGs trap heat in the atmosphere, leading to rising temperatures and more frequent heat waves. This can have a knock-on effect on food production, stressing crops and reducing yields on land¹². In the ocean, this could lead to an alteration of the distribution of fish stocks and the availability of their food sources¹³.

WHILE GHG EMISSIONS OR CARBON FOOTPRINTS OFFER A USEFUL ENTRY POINT FOR UNDERSTANDING THE ENVIRONMENTAL IMPACT OF OUR FOOD CHOICES, THEY DO NOT TELL THE WHOLE STORY. Relying solely on carbon or emissions as a measure can be misleading, as it overlooks other critical impacts, particularly biodiversity loss, which cannot be easily captured in carbon terms due to its complexity and the diverse nature of ecosystems.

8 Ge, M. (n.d.). Where do emissions come from? 4 Charts explain greenhouse gas emissions by sector. World Resources Institute. <https://www.wri.org/insights/4-charts-explain-greenhouse-gas-emissions-countries-and-sectors>

9 Crippa M, Solazzo E, Guizzardi D, et al. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nat Food* 2, 198–209. <https://doi.org/10.1038/s43016-021-00225-9>

10 Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. *Science*, 360(6392), 987–992. <https://doi.org/10.1126/science.aag0216>

11 Temasek, Deloitte, & Singapore Institute of Manufacturing Technology. (2019). Environmental impact of key food items in Singapore (p. 2). https://www.ecosperity.sg/content/dam/ecosperity-aem/en/reports/Environmental-Impact-of-Key-Food-Items-in-Singapore_Oct2019.pdf

12 US EPA. (2025, August 11). Climate change impacts on agriculture and food supply. <https://www.epa.gov/climateimpacts/climate-change-impacts-agriculture-and-food-supply>

13 MSC. (n.d.). Climate change and fishing. <https://www.msc.org/what-we-are-doing/oceans-at-risk/climate-change-and-fishing>

WHAT'S DRIVING DEFORESTATION ON OUR PLATES?

Beef is produced in some of the world's most ecologically sensitive regions - from North America's Great Plains and the Brazilian Amazon to the savannahs of Southern Africa and Australia's Great Barrier Reef watershed.

Globally, beef production is the leading driver of deforestation¹⁴, primarily due to land cleared for cattle grazing. Additional deforestation occurs to grow feed crops such as soy, used partly for beef but mainly for poultry and pork. Around 75% of the world's soy is used to feed livestock, while only about 15% is consumed directly by humans¹⁵. The loss of forests has far-reaching consequences, including reduced biodiversity, disrupted ecosystems, and diminished carbon sequestration.

With the global population expected to surpass 9 billion by 2050 and incomes rising, demand for meat in general is set to grow, placing further pressure on land, water, and energy resources. Beef production is resource-intensive and generates significant waste, making sustainability a growing concern.

However, when managed responsibly, beef production can deliver environmental and social benefits. Sustainable grazing practices can support soil health, promote biodiversity, and store carbon in grasslands and soils. In rural areas where grasslands dominate, beef production also sustains livelihoods and local economies. For example, in North America's Northern Great Plains, WWF works with ranchers to promote land management practices that benefit both nature and communities - proving that conservation and cattle can coexist.

¹⁴ Pendrill, F., Persson, U. M., Godar, J., Kastner, T., Moran, D., Schmidt, S., & Wood, R. (2019). Agricultural and forestry trade drives large share of tropical deforestation emissions. *Global Environmental Change*, 56, 1–10. <https://doi.org/10.1016/j.gloenvcha.2019.03.002>

¹⁵ Clay, J. (2021, May 19). It's Time For Soy Traders to Act. <https://www.worldwildlife.org/blogs/sustainability-works/posts/it-s-time-for-soy-traders-to-act>

AGRICULTURE IS THE LEADING CAUSE OF DEFORESTATION

From 2005 to 2013, tropical forests lost an average of 5.5 million hectares of forest per year to agricultural land. Global Forest Watch estimates it is about 4 million hectares in recent years¹⁶. Approximately half (47%) of tropical deforestation occurred in Brazil and Indonesia.

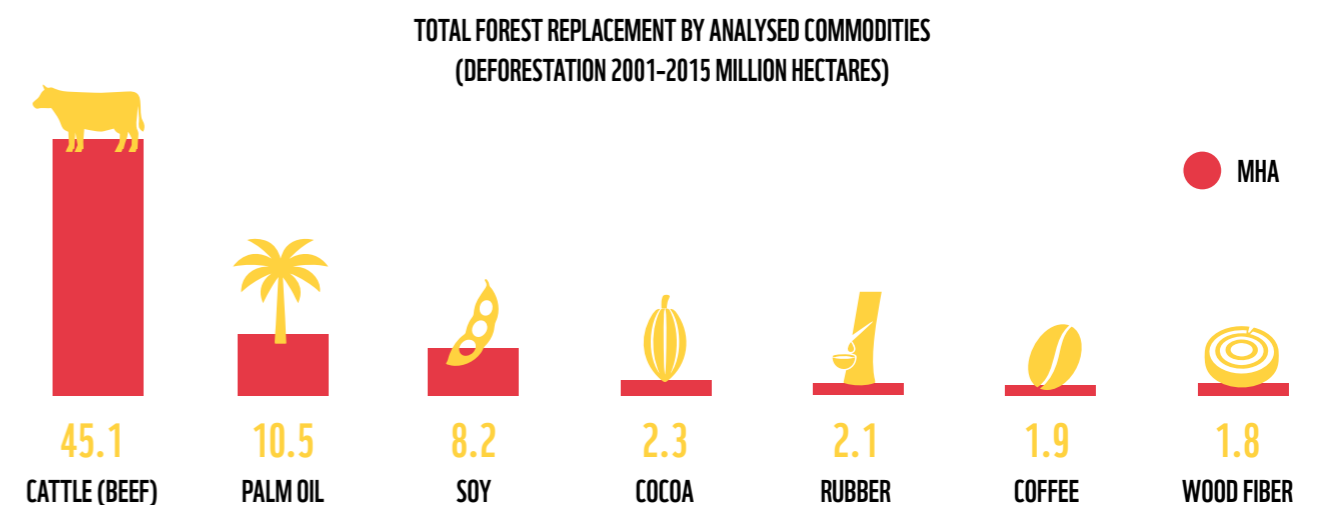
The leading cause of deforestation is agriculture. Expanding agriculture, due to increased demand and shifts in diet toward greater meat consumption, is responsible for most of the world's deforestation. This is because more land is needed for livestock production and growing feed for livestock, such as soy. Soybeans are a popular high-protein feed source for livestock – about 75% of the global crop is fed to animals like cows, pigs and chickens¹⁷. Only

approximately 15% of soy is grown for direct human consumption, and the rest of the soy is grown for biofuels and industry uses.

Despite no-deforestation and conversion commitments from companies to change their practices, many of these crops are still produced unsustainably. In addition to the impact this has on nature, these plantations often have a severe human toll, where workers are at risk of forced labour or poor working conditions.

In fact, most foods we consume daily like beef and processed food or fried food items contain commodities that are major drivers of deforestation today (see Figure 1).

FIGURE 1. HORIZONTAL BAR CHART SHOWING AGRICULTURAL DRIVERS OF DEFORESTATION BETWEEN 2001 AND 2015.



SOURCE: GLOBAL FOREST REVIEW, WORLD RESOURCES INSTITUTE.¹⁸

¹⁶ Global Forest Watch. (n.d.). Impact of supply chains on forest resources. <https://www.globalforestwatch.org/topics/commodities>

¹⁷ WWF. (n.d.-b). Soy. https://wwf.panda.org/discover/our_focus/food_practice/sustainable_production/soy/

¹⁸ Global Forest Watch & World Resources Institute. (2024, March 21). Deforestation linked to 7 agricultural commodities | GFW Blog. Global Forest Watch Content. <https://www.globalforestwatch.org/blog/commodities/global-deforestation-agricultural-commodities/>

DID YOU KNOW?

Palm oil is found in many packaged products (edible and hygiene) in supermarkets. From snacks, noodles, ice-cream and chocolate to shampoo, soap, and detergents. On ingredient labels, it often appears under different names, such as vegetable oil/fat, palm kernel oil, palm stearine, glycerine/glycerol, glyceryl stearate, sodium laureth sulfate, stearic acid, cetyl alcohol, or *elaeis guineensis* oil.

Palm oil is often linked to deforestation, but it is also the most land-efficient oil crop in the world. Replacing it with less efficient alternatives like soy, rapeseed, or sunflower oil could actually drive even higher rates of deforestation to meet global demand¹⁹. That is why WWF and many other organisations are working to remove

deforestation from supply chains by promoting sustainably produced palm oil.

Instead of boycotting palm oil, the better choice is to look for products made with certified sustainable palm oil (for example, carrying the RSPO (Roundtable on Sustainable Palm Oil) Certified logo). By supporting sustainable palm oil, we can help protect rainforests, wildlife, and communities - while still meeting the world's needs responsibly.



Image: RSPO logo that can be spotted on consumer packaged goods

Source: RSPO



THE GLOBAL FOOD SYSTEM IS THE LEADING DRIVER OF BIODIVERSITY LOSS

The global food system is now the leading driver of biodiversity loss, threatening 24,000 of the 28,000 species at risk of extinction (86%)²⁰. The current rate of species extinction is higher than at any time in the past 10 million years. Just as overhunting led to the extinction of species like the dodo, overfishing has pushed several marine species to the brink of extinction. For example, the Bluefin Tuna is now critically endangered, with populations reduced to just 5% of their pre-fishing levels²¹.

Pollinators, such as birds, bats, beetles, small mammals and bees, are highly affected by deforestation and intensive agriculture as they experience habitat loss, pesticide exposure, and reduced food availability and diversity from monoculture farming. Approximately 75% of food crops and around 90% of wild flowering plants depend at least to some extent on animal pollination²². Evidence suggests that pollination services may contribute more than USD200 billion annually to the global economy^{23, 24}.

Beyond direct threats, the way our food is produced also causes significant ecological damage. Deforestation, land conversion, pollution of soil and water, and unsustainable farming practices all contribute to the rapid decline in biodiversity.

20 UN Environment Programme. (2021). Food system impacts on biodiversity loss. <https://www.unep.org/resources/publication/food-system-impacts-biodiversity-loss>

21 World Wildlife Fund. (n.d.). Bluefin Tuna. <https://www.worldwildlife.org/species/tuna/>

22 Klein, A., Vaissière, B. E., Cane, J. H., Steffan-Dewenter, I., Cunningham, S. A., Kremen, C., & Tscharntke, T. (2006). Importance of pollinators in changing landscapes for world crops. *Proceedings of the Royal Society B Biological Sciences*, 274(1608), 303–313. <https://doi.org/10.1098/rspb.2006.3721>

23 Potts, S. G., Imperatriz-Fonseca, V. L., Ngo, H. T., Biesmeijer, J. C., Breeze, T. D., Dicks, L. V., Garibaldi, L. A., Hill, R., Settele, J., Vanbergen, A. J., Aizen, M. A., Cunningham, S. A., Eardley, C., Freitas, B. M., Gallai, N., Kevan, P. G., Kovács-Hostyánszki, A., Kwapong, P. K., Li, J., Li, X., Martins, D. J., Nates-Parra, G., Pettis, J. S., Rader, R., & Viana, B. F. (Eds.). (2016). Summary for policymakers of the assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on pollinators, pollination and food production. IPBES Secretariat. <https://doi.org/10.5281/zenodo.3236027>

24 Gallai, N., Salles, J., Settele, J., & Vaissière, B. E. (2008). Economic valuation of the vulnerability of world agriculture confronted with pollinator decline. *Ecological Economics*, 68(3), 810–821. <https://doi.org/10.1016/j.ecolecon.2008.06.014>

19 WWF-UK. (2022, January 17). 8 things to know about Palm Oil. WWF. <https://www.wwf.org.uk/updates/8-things-know-about-palm-oil>



AGRICULTURE ACCOUNTS FOR ABOUT TWO-THIRDS OF THE WORLD'S FRESHWATER USE

The agricultural sector consumes about 69% of the planet's fresh water and is the leading source of pollution in many countries. Pesticides, fertilizers, and other toxic farm chemicals can poison fresh water, marine ecosystems, air, and soil, and may persist in the environment for generations. Many pesticides are suspected of disrupting the hormonal systems of people and wildlife. Fertilizer run-off impacts waterways for human and marine life and coral reefs.

In addition, massive deforestation results in the disruption of water cycles. Healthy forests play a vital role in the local water cycle by helping to create local rainfall. But when deforestation or degradation occurs, forests are less capable of fulfilling this role, resulting in changes in precipitation and river flow.

40% OF FOOD GROWN NEVER GETS EATEN

We produce enough food for everyone on the planet today, but global hunger is on the rise and people are not eating well. Worldwide, we are losing and wasting 40% of all the food we produce²⁵. An estimated 10 million tons of specialty crops grown on farms each year never get harvested or make it past the farm gate - about a third of what is grown.

This loss happens because of labor shortages (for harvesting or otherwise), cosmetic imperfections, and weather events, among others. The food we lose on farms alone could feed the world's undernourished population almost four times over.

Meanwhile, along the supply chain, 60% of food waste occurs at the household level²⁶, while 13% occurs at the retail level globally²⁷. In Singapore, food waste accounted for about 12% of total waste in 2024, an increase from the previous year²⁸.

Wasted food represents roughly 10% of global greenhouse gas emissions (nearly four times larger than the global airline industry's) and is a major driver of the loss of forests, grasslands, and other critical wildlife habitats, while also depleting freshwater resources, since wasted food mainly originates from agricultural land.



- 25 World Wildlife Fund. (2021, August 19). We're losing 40% of the food we produce. Here's how to stop food waste. <https://www.worldwildlife.org/stories/we-re-losing-40-of-the-food-we-produce-here-s-how-to-stop-food-waste>
- 26 UN World Food Programme (WFP). (2024, June 25). 5 Facts about food waste and hunger. <https://www.wfp.org/stories/5-facts-about-food-waste-and-hunger>
- 27 Marchetti, E., Antonelli, C., Sgarbi, F., & Institute for European Environmental Policy. (2024). Addressing Food Waste in the retail sector. Institute for European Environmental Policy. <https://ieep.eu/wp-content/uploads/2024/06/Addressing-Food-Waste-in-the-retail-sector-IEEP-2024-1.pdf>
- 28 National Environment Agency. (2025, July). Food waste management. <https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/food-waste-management>

BEYOND NUTRITION: FOOD PRODUCTION AND PUBLIC HEALTH

The environmental impacts of our diets and how it is grown can pose serious health risks beyond nutrition, such as the spread of zoonotic diseases and air pollution. Nipah virus, a deadly zoonotic disease that causes severe respiratory and neurological illness, first emerged in Malaysia in 1998 and has been traced to have emerged from increased interactions among humans, livestock, and wildlife²⁹. Fruit bats (*Pteropus* species), which are the natural hosts of the virus, typically pose no public health threat when left in their natural habitats. However, decades of deforestation and agricultural expansion in Southeast Asia have destroyed and shrunk their forest homes and food sources, pushing them into closer contact with farms and human communities. In such conditions, the virus can spill over from bats to livestock, particularly pigs, which can then transmit the virus to humans.

It is important to note that these spillover events are not caused by wildlife itself, but by human-driven environmental disruption.

In 2013, Southeast Asia experienced a severe haze crisis, with air pollution levels reaching hazardous highs. On 21 June, Singapore recorded a Pollutant Standards Index (PSI) reading of 401 - the highest in its history³⁰. The haze was largely attributed to slash-and-burn practices in Sumatra, Indonesia, commonly used by the palm oil industry to clear land for replanting. The fires were further exacerbated by dry conditions caused by El Niño, the large scale of land clearing, and the burning of carbon-rich peatlands, which produce dense, persistent smoke.

The health impacts were significant, ranging from respiratory problems such as coughing, throat irritation, and breathing difficulties, to eye and nose discomfort, and even psychological stress³¹. Beyond health, the haze also caused widespread economic losses and disrupted daily life across the region.

In addition to zoonotic risks and severe haze episodes, ongoing climate change is projected to bring more frequent periods of high temperatures and heat stress in Singapore³². These hotter conditions can aggravate eczema and have been linked to impacts on children's moods and cognitive performance³³.

CLIMATE CHANGE INFLUENCES FOOD SECURITY

Continuing the current ways of unsustainable agriculture and farming practices will not only affect planetary health but will threaten our future food security. A study by Oxford Economics found that a 1% increase in the average temperature, raises food production prices by 1-2% across Thailand, Vietnam, Malaysia, Indonesia, and the Philippines³⁴.

Climate change-related events, such as prolonged rainfall, have already impacted food prices in Singapore. In 2022, heavy rains in Malaysia damaged crops and led to price spikes in local wet markets. The price of red chili rose by 77% per kilogram, while leafy vegetables like kang kong and chye sim saw increases of up to 50%³⁵.



29 Chew Wen WANG & Departments of Medical Microbiology and Biochemistry, Faculty of Medicine, University of Malaya. (2002). Anthropogenic deforestation, El Niño and the emergence of Nipah virus in Malaysia. In *Malaysian J Pathol*. http://mjpath.org.my/past_issue/MJP2002.1/anthropogenic-deforestation.pdf

30 Koh, J., & Ho, S. (2013, August 25). Article detail. <https://www.nlb.gov.sg/main/article-detail?cmsuuiid=0a5ea199-00be-4eda-b017-9cc0553c8819>

31 Ho, R. C., Zhang, M. W., Ho, C. S., Pan, F., Lu, Y., & Sharma, V. K. (2014). Impact of 2013 south Asian haze crisis: study of physical and psychological symptoms and perceived dangerousness of pollution level. *BMC Psychiatry*, 14(1). <https://doi.org/10.1186/1471-244x-14-81>

32 National Climate Change Secretariat. (n.d.). Impact of climate change in Singapore. <https://www.nccs.gov.sg/singapores-climate-action/impact-of-climate-change-in-singapore/>

33 Lee, L. (2025, June 2). "Too hot to think": Rising heat leaves Singapore students cranky and distracted. CNA. <https://www.channelnewsasia.com/today/ground-up/singapore-heat-students-school-fans-sunblock-breathable-uniforms-5159201>

34 Oxford Economics. (2024). Climate change and food prices in Southeast Asia: 2024 Update. <https://afba.co/wp-content/uploads/2024/12/Climate-Change-and-Food-Prices-in-Southeast-Asia-2024-Updated-Oxford-Economics-Report.pdf>

35 Tham, D. (2022, September 8). Wet market vegetable sellers in Singapore say prices up to 30% higher as heavy rain hits Malaysian crops. CNA. <https://www.channelnewsasia.com/singapore/malaysia-rain-flood-vegetables-crop-price-cost-rise-wet-markets-2924886>



RETHINKING WHAT WE EAT

Given the growing environmental and health impacts of our diets, it's important to re-examine what and how we eat, and identify changes, big or small, that can reduce these negative effects. Shifting towards a healthy and sustainable diet not only supports our personal well-being and health but also helps safeguard long-term food security by reducing environmental harm.

WHAT MAKES A DIET HEALTHY AND SUSTAINABLE?

A healthy diet and a sustainable diet are not conflicting goals, in fact, they often overlap. Both can be achieved in harmony. The six guiding principles below are designed to help individuals consider the environmental impacts of their food choices and identify practical, positive changes where possible. The section below expands on each guiding principle.

The guiding principles are not strict rules, but a flexible framework to support progress over perfection. WWF does not promote a “one-size-fits-all” approach; healthy and sustainable eating should reflect cultural diversity, socioeconomic contexts, and different life stages, from childhood, pregnancy, to ageing. Individuals with specific health needs are encouraged to seek professional advice and adopt the principles in ways that suit their circumstances and interests.

SIX GUIDING PRINCIPLES FOR EATING HEALTHILY AND SUSTAINABLY

- 

1 EAT MORE PLANTS THAN ANIMALS FOR YOUR RECOMMENDED AMOUNT OF PROTEIN INTAKE
- 

2 CONSUME WHAT YOU NEED AND AVOID FOOD WASTE
- 

3 EAT MORE FOODS PRODUCED LOCALLY AND REGIONALLY
- 

4 CHOOSE FOODS THAT ARE SUSTAINABLY PRODUCED
- 

5 PRIORITISE EATING FRESH FOODS OVER ULTRA-PROCESSED FOODS
- 

6 ENSURE BALANCE AND VARIETY

THE HEALTH ASPECT OF DIETS

What we eat has a direct impact on our health, influencing everything from energy levels and immune function to long-term risks of chronic diseases such as diabetes, cancer, and heart conditions.

In Singapore, the Health Promotion Board (HPB) is the lead government agency providing science-based guidance on healthy eating. HPB's *My Healthy Plate* framework (see below) is a widely used tool that offers simple visual advice on how to build balanced meals for the average individual, including portion guidance for vegetables, wholegrains, meat / protein, and water intake. This framework is tailored to the local context and regularly reviewed by health and nutrition experts.

While WWF does not provide dietary or medical advice, we support the shift toward healthy eating by encouraging choices that are both good for people and the planet. Many of the foods promoted for their sustainability aspects, such as vegetables, legumes, wholegrains, and minimally processed ingredients, are also strongly aligned with the HPB's recommendations for health.

In short, healthy and sustainable diets often go hand in hand. For example:

- Eating more vegetables and plant-based proteins supports both nutritional adequacy and lower environmental impact.
- Choosing fresh over ultra-processed foods benefits both health and sustainability.
- Reducing excess meat and overeating (appropriate portion sizes) helps reduce the risk of disease while also lowering your carbon footprint and reducing food waste.

By bringing together the strengths of both approaches, individuals can adopt diets that are good for their own health and for the planet.



SIX GUIDING PRINCIPLES

1. EAT MORE PLANTS THAN ANIMALS FOR YOUR RECOMMENDED AMOUNT OF PROTEIN INTAKE



Eating more plants and fewer animal products is a simple way to benefit both your health and the planet. This doesn't mean cutting out meat, fish, eggs, or dairy altogether, as they can still be important parts of a healthy (and sustainable) diet. WWF research recommends a balance of roughly 40% protein from animal sources and 60% from plant-based sources like legumes, nuts, seeds, peas, and soy³⁶. In Singapore, a study showed that swapping just 25% of red meat (pork, beef, mutton, and duck) for plant-based proteins could cut a person's yearly carbon footprint by 7%³⁷.

³⁶ Meyer, M., Halevy, S., Huggins, L.-M., Loken, B., WWF-Switzerland, WWF-UK, WWF International, Questionmark, ProVeg, Albert Schweitzer Stiftung, WWF-Sweden, WWF-Finland, WWF-Netherlands, WWF-Austria, & WWF-Germany. (2021). ACHIEVING a PLANET-BASED DIET: a METHODOLOGY FOR RETAILERS TO TRACK PROGRESS TOWARD HEALTHY, SUSTAINABLE DIETS. <https://wwfint.awsassets.panda.org/downloads/wwf-planet-based-diets-retailer-methodology.pdf>

³⁷ Temasek, Deloitte, A*STAR SIMTech, & Ecosperity. (2019). ENVIRONMENTAL IMPACT OF FOOD IN SINGAPORE. https://www.ecosperity.sg/content/dam/ecosperity-aem/en/reports/Eco-Convo-Environmental-Impact-of-Food-in-Singapore_Oct2019.pdf.coredownload.pdf











Image: Visual representation of Singapore's "My Healthy Plate" dietary guide.

Source: Health Promotion Board (HPB), Singapore.

HOW WOULD IT LOOK LIKE TO EAT MORE PLANT-BASED PROTEIN AND MEET NUTRITIONAL NEEDS?

It is possible to meet your nutritional protein needs with a 60:40 ratio of plant-based and animal-based protein.

PROTEIN REQUIREMENTS

	 Male	 Female	 Male	 Female
Age Range	18-49		50 and above	
Average Weight³⁸	74 kg	61 kg	59 kg	71 kg
Recommended Protein Intake According to HPB³⁹	0.8 g / kg of body weight		1.2 g / kg of body weight	
Average protein intake requirement per day (gram)	59.20 g	48.80 g	85.20 g	70.80 g
Average protein intake requirement per meal per day⁴⁰ (gram)	19.73 g	16.27 g	28.40 g	23.60 g
Protein Split Guideline (per day and per meal)				
 Animal-based protein (40%) per day (gram)	23.68 g	19.52 g	34.08 g	28.32 g
 Plant-based protein (60%) per day (gram)	35.52 g	29.28 g	51.12 g	42.48 g
 Animal-based protein (40%) per meal (gram)	7.89 g	6.51 g	11.36 g	9.44 g
 Plant-based protein (60%) per meal (gram)	11.84 g	9.76 g	17.04 g	14.16 g

³⁸ Epidemiology & Disease Control Division and Policy, Research & Surveillance Group, Ministry of Health and Health Promotion Board, Singapore. (2019). National Population Health Survey 2019 (Household Interview). <https://www.hpb.gov.sg/docs/default-source/default-document-library/national-population-health-survey-2019.pdf>

³⁹ Health Promotion Board. (2023, March 13). Older adults need more protein. <https://www.healthhub.sg/live-healthy/seniors-need-more-protein>






⁴⁰ WWF calculated this based on the assumption that 3 meals are taken per day, i.e. Average protein intake requirement per day ÷ 3

EXAMPLES OF PLANT-BASED AND ANIMAL-BASED PROTEINS⁴¹

It is important to note that there is protein content from food and ingredients within other segments of HPB's My Healthy Plate, such as vegetables and rice. Eating such food can then bring about benefits of meeting other nutritional needs, such as fibre intake.

With Singapore's diverse food options, it can be easy to include more plant-based proteins in your diet. Combining different protein sources ensures you get all the essential amino acids, as long as meals are planned thoughtfully.

Here are some examples of plant-based proteins commonly found in supermarkets:

Food	Serving Size ⁴² (g/ml)	Protein (g)
 Tempeh	100	15
 Soy milk	250	10.8
 Edamame (frozen)	100	10
 Buckwheat noodles	75	9.8
 Wholemeal bread	57 (2 slices)	7.5
 Chickpeas (canned)	100	6.7
 Chinese tofu	100	5.2
 Green peas (canned)	100	4.5
 Brown rice	50	4.3
 Long beans (fresh)	100	2.8
 Almond milk	40	1.6
 Oat milk	40	1.2

⁴¹ See Annex for the sources and references of the all food items listed in this segment

⁴² The serving size amount is derived from the product's nutritional table. Note that 1 serving as per product recommendation may not be the actual recommended consumption portion for the WWF recommended protein split nor HPB's My Healthy Plate.







CASE STUDY: WHAT A 60:40 PROTEIN SPLIT LOOKS LIKE IN PRACTICE

Shifting towards more plant-based protein may sound abstract, but what does it look like in daily meals? The following case study illustrates how a woman aged 18-49, weighing 61kg - the average for this age group in Singapore (according to the National Population Health Survey, 2019⁴³) - could meet her protein needs with a 60:40 plant-to-animal protein ratio.

This case study focuses only on protein intake and does not cover other food groups in the Health Promotion Board's (HPB) My Healthy Plate framework. Based on HPB's recommended daily protein intake, here's how the ratio could be distributed across three meals:

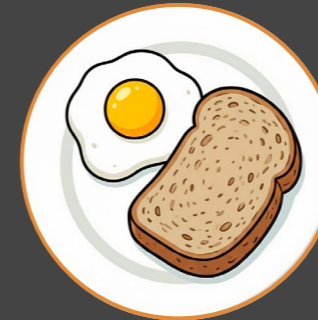
HPB'S RECOMMENDED DAILY PROTEIN INTAKE

RECOMMENDED PROTEIN INTAKE (GRAMS)

per day		48.80
 Animal		19.52
 Plant		29.28
per meal (assuming 3 meals a day)		16.27
 Animal		6.51
 Plant		9.76
Total protein intake for the day (grams)		48.9
 Animal-based protein	18.8	38.5%
 Plant-based protein	30.1	61.5%

43 This data set was used to calculate protein intake by HPB and referenced in this section. More info: <https://www.healthhub.sg/well-being-and-lifestyle/active-ageing/seniors-need-more-protein>

60:40 PROTEIN⁴⁴ SPLIT ACROSS 3 MEALS IN A DAY



BREAKFAST

	Food item	Serving size	Protein content (grams)
Animal-based protein	Egg	1 egg	6.2
Plant-based protein	Wholemeal bread	1 slice	3.8
Plant-based protein	Soy milk	1 cup (250 ml)	10.8
Total protein intake for the meal (grams)			20.8



LUNCH

	Food item	Serving size	Protein content (grams)
Animal-based protein	Chicken (breast)	25g	7.7
Plant-based protein	Buckwheat noodles	50g	6.5
Plant-based protein	Tofu	30g	1.6
Total protein intake for the meal (grams)			15.8



DINNER

	Food item	Serving size	Protein content (grams)
Animal-based protein	Beef slices (ribeye)	20g	4.9
Plant-based protein	Brown rice	40g	3.4
Plant-based protein	Edamame	40g	4.0
Total protein intake for the meal (grams)			12.4

Some plant-based protein foods listed above (e.g., brown rice, wholemeal bread, long beans) also contribute to other My Healthy Plate categories such as wholegrains or vegetables, serving multiple nutritional roles. Incorporating more plant-based proteins is often easier and more varied than people assume - it's not just about eating tofu.

WWF does not advocate for a vegetarian or vegan diet, nor does it call for any food to be banned or boycotted, except for endangered species. Even foods with higher environmental footprints, such as beef, can be produced responsibly in ways that support both nature and livelihoods.

44 Protein content is based on nutrition labels from representative products randomly selected within each protein category. Where labels were unavailable, values were sourced from reliable third-party nutrition databases. Serving sizes have been proportionately adjusted to reflect the daily protein target and the 60:40 plant-to-animal ratio.

2. CONSUME WHAT YOU NEED AND AVOID FOOD WASTE

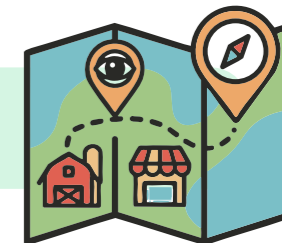


Overeating not only harms our health but also places unnecessary strain on food systems and natural resources. Consuming more than our bodies require means extra food to be grown, harvested, transported, and packaged - driving up carbon emissions and environmental impact.

Understanding your body profile - such as age, weight, and activity level - can help determine the portion sizes you truly need. Resources like My Healthy Plate and visual portion guides provide practical ways to estimate calorie requirements and make informed choices when cooking or eating out⁴⁵. Being mindful of these portions and avoiding excess is a simple yet powerful way to protect both your health, wallet, and the planet.

In addition, food waste should be avoided wherever possible. During production, throughout the supply chain, in stores, and by consumers at home. In retail settings, waste can be reduced by selling products that are close to their expiry date at a lower price. Electronic shelf labels can support this by automatically reducing prices as the expiry date approaches (dynamic markdowns). Food that can no longer be sold but is still safe to eat should be donated whenever possible. At home, food waste can be minimised by freezing leftover meals or bread for later use, measuring ingredients like rice or pasta before cooking, and getting creative with leftovers. For example, soft vegetables can become soup, stale bread can be turned into croutons, and overripe bananas make excellent banana bread.

3. EAT MORE FOODS PRODUCED LOCALLY AND REGIONALLY



Choosing food that is grown or produced closer to home can help reduce greenhouse gas emissions from transport and storage, while also supporting local farmers and strengthening local and regional food systems. For a country like Singapore, which imports over 90% of its food, this can contribute to greater food security and resilience, especially in the face of global disruptions such as climate change, pandemics, or geopolitical tensions.

While options for local food can be limited sometimes, there are still meaningful choices consumers can make. These include selecting eggs and leafy greens from urban farms, fish from regional sources, or produce from nearby countries like Malaysia or Indonesia. Even small shifts toward regional sourcing can reduce dependence on long, carbon-intensive supply chains.

That said, transport usually makes up only a small share of food-related emissions compared to production factors like land use, fertiliser application, and animal and feedstock farming. For instance, in Singapore, the energy used to transport each kilogram of food, whether by sea or air, is estimated to be four to five times lower than the energy used during its production⁴⁶. As highlighted in local studies on environmental impacts of food, reducing the environmental impact of our diets ultimately requires a combination of approaches⁴⁷. While eating local food can help, choosing more climate-friendly foods, such as plant-based proteins, often has a bigger impact overall.

45 Health Promotion Board. (2025, July 4). Plan Your Meals with My Healthy Plate. <https://www.healthhub.sg/well-being-and-lifestyle/food-diet-and-nutrition/plan-your-meals-with-my-healthy-plate>

46 Temasek, Deloitte, A*STAR SIMTech, & Ecosperity. (2019). ENVIRONMENTAL IMPACT OF FOOD IN SINGAPORE. https://www.ecosperity.sg/content/dam/ecosperity-aem/en/reports/Eco-Convo-Environmental-Impact-of-Food-in-Singapore_Oct2019.pdf.coredownload.pdf

47 Temasek, Deloitte, A*STAR SIMTech, & Ecosperity. (2019). ENVIRONMENTAL IMPACT OF FOOD IN SINGAPORE. https://www.ecosperity.sg/content/dam/ecosperity-aem/en/reports/Eco-Convo-Environmental-Impact-of-Food-in-Singapore_Oct2019.pdf.coredownload.pdf

4. CHOOSE FOODS THAT ARE SUSTAINABLY PRODUCED



There is no single ingredient that is always sustainable or unsustainable, it depends on how and where it's grown, raised, or caught. Sustainable food is produced in ways that protect nature and biodiversity, safeguard vital resources like soil and water, and respect human rights and livelihoods.

In practice, this means avoiding the clearing of rainforests and grasslands for plantations, preventing the overharvesting of species, and reducing harmful pollutants such as excess fertilisers and pesticides. When done responsibly, food production can benefit both people and the planet.

One way to support sustainable production is to get to know your food sources, for example, by buying from local farmers or producers. Another is to look for credible sustainability certifications, such as:

- RSPO – Roundtable on Sustainable Palm Oil (for responsibly produced palm oil)
- RTRS – Roundtable on Responsible Soy (for responsibly produced soy)
- Pro Terra – (for responsibly produced and non genetically modified soy)
- MSC – Marine Stewardship Council (for sustainably caught wild seafood)
- ASC – Aquaculture Stewardship Council (for responsibly farmed seafood)
- Fairtrade – Fairtrade International (for ethically traded products that support fair wages and working conditions for farmers and workers)
- Rainforest Alliance – (for products sourced using environmentally and socially responsible practices, often found on coffee, tea, cocoa, and bananas)
- SRP – Sustainable Rice Platform (for sustainably produced rice)



These sustainability certifications help signal to producers, especially smallholder farmers, that there is growing demand for sustainably produced food, and that investing in better practices is worthwhile.

Not all food items currently have widely available or consumer-facing certifications. For example, milk has no globally recognised sustainability standard. Beef is covered by the Global Roundtable for Sustainable Beef (GRSB), which provides a framework for companies and national initiatives in countries like Australia and Brazil, but it doesn't translate into a consumer label on supermarket shelves yet. Similarly, certifications for sustainable soy and rice are rarely seen in consumer products because of limited supply and smaller market demand.





Sustainability certifications are not flawless, but they provide a practical starting point - particularly when it's unrealistic for consumers to review lengthy sourcing commitments or corporate sustainability reports. Credible standard setters also update their standards regularly through multi-stakeholder processes, helping to drive continuous improvement and accountability.

The table below highlights key certifications and more sustainable options across different food groups, aligned with WWF's six principles for a healthy and sustainable diet.









PROTEIN SOURCES

WWF recommends avoiding endangered seafood species altogether, such as bluefin tuna, which is listed as endangered. Instead, choose other tuna species such as skipjack, yellowfin, or albacore.

Possible Ingredient Names	Sustainable certification	What makes it sustainable?	Environmental and social issues addressed	Why is it important?	How to spot the certification
Fish, prawns, mussels, lobsters (wild-caught)	Marine Stewardship Council (MSC)	Fisheries are assessed on sustainable fish stocks, minimal ecosystem impact, and effective management.	Overfishing, bycatch, and marine ecosystem degradation ⁴⁸ .	Prevents collapse of fish stocks and supports long-term viability of ocean resources.	<p>Look for the blue MSC ecolabel on packaging or freezer labels.</p>  <p>Image source: John West</p>  <p>Image source: MSC</p>
Fish, prawns (farmed)	Aquaculture Stewardship Council (ASC)	Farms must meet strict standards on water quality, feed sourcing, animal welfare, disease management and human rights.	Water pollution, habitat destruction (e.g. mangroves), excessive antibiotic use.	Reduces environmental damage and ensures farmed seafood is responsibly produced.	<p>Look for the green ASC label on seafood packs.</p>  <p>Image source: IKEA's menu</p>
Tofu, tempeh, soy milk	ProTerra, RTRS (Round Table on Responsible Soy)	Ensures soy is grown without deforestation, with fair labor, GMO-free (ProTerra), and water-efficient methods.	Deforestation and conversion of ecosystems (especially in Brazil), biodiversity loss, and social conflict over land.	Encourages deforestation-free soy and fair supply chains, reducing habitat destruction.	 <p>Image sources: RTRS and Pro Terra website</p> <p>In Singapore, sustainably sourced soy is still not widely available, making it difficult for consumers to find.</p> <p>Moreover, while soy is a key global crop, only about 15% is consumed directly by humans. The vast majority, around 75%, is used as livestock feed. Yet, discussions within sustainable beef and livestock roundtables often pay limited attention to the sustainability of this feedstock, despite its significant impact.</p>

48 All fishing has some environmental impact, but the extent varies based on the method and context. Key concerns include whether fish populations can replenish, if non-target species are harmed, and whether marine habitats can recover. While methods like bottom trawling are known to damage the sea floor, even lighter-impact techniques like rod-and-line or gill nets can contribute to overfishing or cause long-term harm through lost gear, known as “ghost fishing.” Understanding these impacts and its mitigation plans requires sufficient data and responsible management. More on the various fishing gear that MSC supports can be read here: <https://www.msc.org/media-centre/news-opinion/news/2020/02/21/are-some-types-of-fishing-gear-more-sustainable-than-others>

FRUITS & VEGETABLES

Possible Ingredient Names	Sustainable certification	What makes it sustainable?	Environmental and social issues addressed	Why is it important?	How to spot the certification
Bananas, pineapples, avocados	Fairtrade	Ensures farmers receive fair wages and supports environmentally friendly farming practices.	Unfair labour, deforestation, and pesticide overuse.	Promotes social equity and sustainability in fruit supply chains, especially for smallholder farmers.	<p>Look for the Fairtrade logo on fresh produce or product packaging.</p>  <p>Image source: Fairtrade</p>
Bananas, apples, leafy greens	Rainforest Alliance	Supports biodiversity, reduces chemical use, and protects forests and waterways.	Deforestation, soil degradation, and water pollution.	Helps preserve ecosystems and improve farmer livelihoods through climate-smart agriculture.	<p>Look for the green frog logo on stickers or packaging.</p>  <p>Image source: Rainforest Alliance</p>
Leafy vegetables, herbs, tomatoes	SG Fresh Produce, SG GAP	Encourages good agricultural practices locally, including pesticides and hygiene controls.	Overuse of pesticides and food safety concerns.	Supports local farms, increases transparency, and ensures safer, fresher produce.	<p>Look for SG Fresh Produce or SG GAP logos on produce bags and labels.</p>  <p>Image source: SFA</p>
Fruits or vegetables (general)	Organic (EU/US/SG certified)	Grown without synthetic pesticides, fertilizers, or GMOs; supports soil and ecosystem health.	Soil degradation, biodiversity loss, and chemical contamination.	Reduces environmental harm, protects biodiversity, and improves long-term soil fertility.	<p>Look for Organic certification seals (e.g., EU leaf, USDA Organic, NASAA, etc).</p>  <p>Image source: EU Organic</p>  <p>Image source: USDA Organic</p>  <p>Image source: NASAA organic</p>

OTHERS

Possible Ingredient Names	Sustainable certification	What makes it sustainable?	Environmental and social issues addressed	Why is it important?	How to spot the certification
Chocolates, cookies, snack bars	Fairtrade, Rainforest Alliance, RSPO	Supports ethical sourcing of cocoa and palm oil; promotes fair wages and sustainable farming.	Deforestation, child labour, biodiversity loss.	Ensures farmers are paid fairly, and farming avoids harmful environmental and social impacts.	Look for Fairtrade, Rainforest Alliance, or RSPO logos on packaging.  Image source: FairPrice
Instant noodles, baked snacks, ice cream, and processed foods.	RSPO (Roundtable on Sustainable Palm Oil)	Sets standards for palm oil production that avoid deforestation, protect peatlands, reduce emissions, and ensure fair labour practices.	Deforestation, biodiversity loss, climate change, water pollution, and labour exploitation.	Palm oil is used in many packaged products. RSPO helps reduce environmental harm and supports ethical, traceable palm oil sourcing.	Look for the RSPO logo on the packaging or via brand sourcing commitments.  Image source: Japacle
Chips, crackers	Organic, Non-GMO Project, RSPO	Reduces harmful chemicals, GMOs, and unsustainable palm oil use.	Soil degradation, pesticide pollution, and habitat loss.	Supports cleaner food systems with lower environmental impacts.	Look for labels on packaging (e.g. USDA Organic, Non-GMO, RSPO).  Image source: Amazon
Coffee (instant, beans, ground)	Fairtrade, Rainforest Alliance, Organic	Ensures fair labour, sustainable land management, and reduced pesticide use.	Deforestation, soil erosion, poor labour practices.	Coffee is a major global commodity with significant social and environmental impacts.	Look for Fairtrade, Rainforest Alliance frog, or Organic labels.  Image source: Rainforest Alliance
Tea (black, green, bagged or loose)	Rainforest Alliance, Fairtrade, Organic	Encourages biodiversity protection, fair labour conditions, and minimal chemical inputs.	Monoculture expansion, pesticide use, poor worker conditions.	Promotes ethical tea farming and safeguards ecosystems and communities.	Look for certification logos on tea boxes or tags (e.g. Fairtrade, Organic, RA).  Image source: Clipper Teas

PALM OIL IS FOUND IN MANY PRODUCTS IN YOUR SHOPPING BASKET

Many products in grocery stores contain palm oil as an ingredient. It can take on the name of vegetable oil or fat (unspecified), palm kernel oil, cocoa butter equivalent (CBE), palm olein, palm stearin, palmitic acid, emulsifiers (E471, E472), among others. These fractions and derivatives can be found in food products that you might

not typically think about as containing palm oil such as cheese, ice cream, and chocolate.

Palm oil is also often found in pet food, cosmetics (e.g. capric triglycerides) and cleaning and personal care products (e.g. Glycerin, glycerol, and Sodium lauryl sulfate (SLS), Cetyl alcohol).

SUSTAINABLE PALM OIL SHOULD BE SUPPORTED

Boycotting palm oil might seem like a simple fix, but WWF warns that this approach could actually worsen environmental and social harm. Palm oil is the most land-efficient vegetable oil, producing up to 9 times more oil per hectare than alternatives like soybean or rapeseed⁴⁹. Replacing it would require significantly more land, increasing deforestation, and further threatening biodiversity.

practices or deforestation, and risks harming the very communities and economies that depend on palm cultivation. Instead of boycotting, WWF recommends supporting certified sustainable palm oil through the RSPO (Roundtable on Sustainable Palm Oil), which ensures forests are preserved, peatlands protected, labour rights upheld, and greenhouse gas emissions minimized.

Moreover, a blanket boycott doesn't address the real issues, such as unsustainable farming

RSPO addresses the following environmental and social issues:




ISSUE	HOW RSPO HELPS
Deforestation & biodiversity loss	Reduces the destruction of tropical forests and habitats for endangered species like orangutans and tigers.
Climate change	Prevents peatland destruction (a major source of CO ₂ emissions) and promotes low-emission practices.
Water and soil pollution	Enforces rules on pesticide use and waste disposal to prevent contamination.
Human and labour rights	Improves labour conditions, land rights, and prevents exploitation in palm oil-producing regions.

Palm oil is found in many packaged products, from cookies and instant noodles to soaps and cosmetics. Without sustainability safeguards, palm oil production can be a leading cause of deforestation, land conflict, and climate emissions.

Supporting RSPO-certified products allows consumers and businesses to contribute to protecting forests and wildlife, improving livelihoods for smallholder farmers, and creating a market for ethical, traceable palm oil.

PACKAGING

Although not directly about food, most supermarket products come packaged in some form to preserve freshness, ensure safety, prevent waste, and withstand the long journey to Singapore - where over 90% of food is imported from more than 180 countries and regions⁵⁰. Packaging is often unavoidable, but where choices exist, the following sustainable options can serve as a guide, in addition to simple steps like bringing your own bag or choosing loose fruits and vegetables.

Possible Ingredient Names	Sustainable certification	What makes it sustainable?	Environmental and social issues addressed	Why is it important?	How to spot the certification
Paper, cardboard, wooden utensils	FSC (Forest Stewardship Council)	Ensures paper and wood are sourced from responsibly managed forests that protect biodiversity, rights of workers and communities.	Deforestation, illegal logging, habitat loss.	Supports ethical forestry and helps consumers avoid paper and wood from destructive sources.	Look for the FSC tree logo with labels like "FSC Mix" or "FSC 100%."  Image source: Forest Stewardship Council
Plastic bottles, containers, wrappers	Recycled percentage or content label or communications but might require verification	Indicates the packaging contains post-consumer recycled materials or is recyclable.	Plastic waste, landfill burden, virgin resource extraction.	Reduces the need for virgin plastics, conserves resources, and helps build demand for recycled materials.	Look for text like "Made from 100% recycled plastic."  Image source: Nestlé Pure Life
Minimal or reduced packaging, no free plastic bags	As communicated by the brand, but might require verification	Products designed with less or no packaging, or using reusable or refillable systems.	Overconsumption of packaging, resource use, waste generation	Reduces material use at the source, often more effective than recycling.	Look for phrases like "Reduced packaging" or look out for refill stations where you can bring your own containers.  Image source: FairPrice



The pulp and paper industry, which makes paper products including paper-based packaging, consumes 13-15% of the world's wood and up to 40% of all industrial wood traded⁵¹. When managed unsustainably, pulp and paper production for packaging has driven deforestation, illegal logging, human rights conflicts, and the conversion of ecologically important forests into plantations.

Biodegradable and compostable packaging may seem like a solution, but they do not address the root issue: our reliance on single-use items. In Singapore, such materials are typically incinerated with general waste because facilities to properly process them are lacking. The better approach is to avoid single-use packaging as much as possible by following the 3Rs: Reduce, Reuse,

Recycle. For example, by bringing your own reusable bag for loose fruits and vegetables when grocery shopping.

Recycling remains important for reducing packaging waste and conserving resources, though it should come after reducing and reusing. In Singapore, recycling effectiveness is limited (12% in 2023⁵²) by low domestic recycling rates, contamination of recyclables, and the narrow range of materials local facilities can process. Multi-layered packaging and many plastics, for instance, are often not recyclable. This means that while recycling helps, the priority should be to cut packaging use at the source and, where packaging is unavoidable, choose certified sustainable or recyclable materials.

⁵⁰ Singapore Food Agency. (2025, March 13). Our SG food story. SFA. <https://www.sfa.gov.sg/fromSGtoSG/our-sg-food-story>

⁵¹ World Wildlife Fund. (n.d.-b). Pulp and Paper. <https://www.worldwildlife.org/industries/pulp-and-paper>

⁵² National Environment Agency. (n.d.). Waste statistics and overall recycling. <https://www.nea.gov.sg/our-services/waste-management/waste-statistics-and-overall-recycling>

5. PRIORITIZE EATING FRESH FOODS OVER ULTRA-PROCESSED FOODS

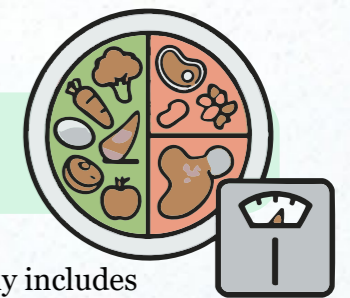


Fresh and minimally processed foods are not only healthier, they're also better for the planet. The more food is processed, the more energy and resources it consumes, often with fewer nutrients left behind, meaning more land, water, and energy are needed to meet the same nutritional needs. Ultra-processed foods such as chips, instant noodles, breakfast cereals, and ready-to-heat products have been linked to more than 30 negative health effects, including cancer, heart disease, and mental health issues⁵³.

That said, not all ultra-processed foods are equal. Some offer nutritional benefits, for example, packaged wholegrain bread, breakfast cereals with less sugar, or baked beans - whereas options like crisps, sweets, and pizzas provide little value.

It's fine to enjoy occasional treats or rely on pre-packaged foods for convenience or waste reduction, but these should remain a smaller part of your diet. Where possible, aim for a mix of fresh ingredients with minimally processed items, such as sauces, to balance health, sustainability, and practicality.

6. ENSURE BALANCE AND VARIETY



Eating a diverse range of foods supports both human health and environmental resilience. Our bodies need different nutrients, while farming systems benefit from crop diversity, which improves soil health and reduces reliance on chemical fertilizers.

Practices like crop rotation or integrating plants and animals help farms resist pests, diseases, and climate shocks.

A balanced diet generally includes more whole grains, fruits, and vegetables, and less sugar, oils, fats, and meat, as shown in the My Healthy Plate framework from the Health Promotion Board. Within a balanced diet, variety matters, choosing different grains, vegetables, and protein sources supports both nutritional and ecological benefits.



53

Chan, R. (2024, February 29). Study finds ultra-processed food linked to over 30 harmful effects to health. Here's what you need to know. CNA. <https://www.channelnewsasia.com/singapore/ultra-processed-food-health-issues-linked-cancer-cardiovascular-mental-faq-study-4159181>

SMALL STARTS, BIG IMPACT

WWF recognises that all six guiding principles of a healthy and sustainable diet may not be equally achievable, accessible, or available to everyone, and that they may need to be adapted to fit individual lifestyles. In our survey (elaborated in the next section), cost was (unsurprisingly) cited as a major barrier by 46% of respondents when considering a shift toward healthier and more sustainable eating habits. This can be true in some cases if one chooses to purchase sustainable certified products over the non-certified ones.

To help overcome this challenge, WWF encourages consumers to begin with two practical entry points drawn directly from the six principles:

1. EAT MORE PLANTS THAN ANIMALS FOR YOUR RECOMMENDED PROTEIN INTAKE (PRINCIPLE 1)

Plant-based proteins such as tofu, edamame, tempeh, and legumes are often more affordable than meat and require fewer resources to produce, making them both a health-conscious and environmentally friendly choice.

2. CONSUME WHAT YOU NEED AND AVOID FOOD WASTE (PRINCIPLE 2)

Being mindful of portion sizes and food storage can help reduce waste, save money, and minimise the environmental impact of food production.

These starting points are often more cost-effective and easier to implement, while still delivering meaningful health, environmental, and economic benefits.

DOES IT ACTUALLY COST MORE TO EAT A SUSTAINABLE AND HEALTHY DIET?

Eating sustainably and healthily does not necessarily mean spending more. While it is true that some sustainably produced foods carry a higher price premium, many of the six principles outlined above can be adopted in cost-effective ways. One practical approach is to aim for a **60:40 balance of plant to animal protein**, which often reduces both environmental impact and overall food costs.

For instance, simple substitutions, such as using less sliced meat in a stir-fry and adding more high-protein vegetables like edamame or tofu, can make meals both affordable and nutritious. Plant-based eating also does not have to mean salads or unfamiliar dishes. With small adjustments to familiar home-cooked or hawker meals, anyone can take steps toward a more sustainable diet without compromising taste, culture, or budget.

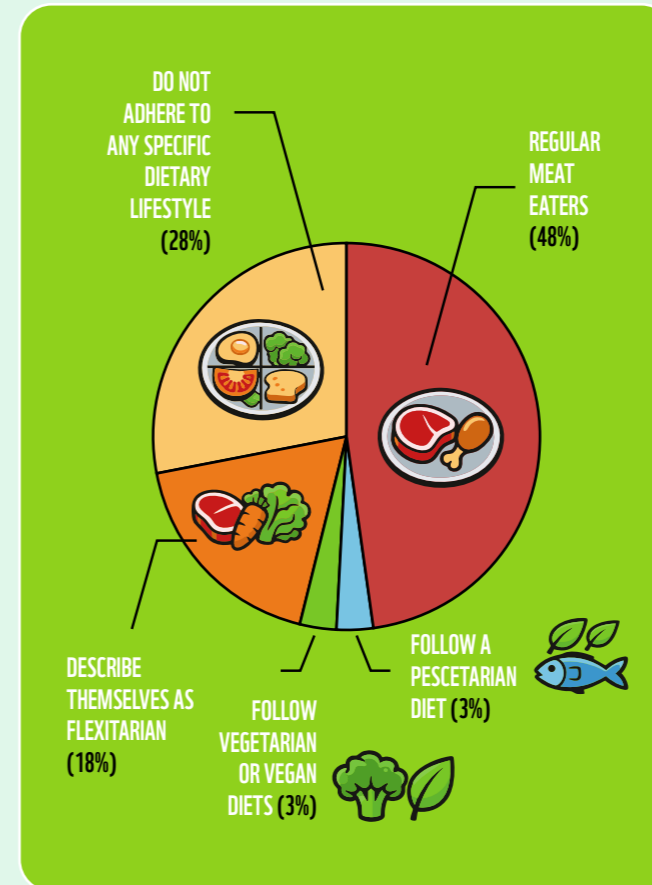
SINGAPORE'S SENTIMENTS TOWARDS A HEALTHY AND SUSTAINABLE DIET

To examine the gap between awareness of healthy and sustainable diets and actual eating habits, WWF commissioned a market study across Singapore. The survey engaged 1,132 respondents aged 25 to 60, including 1,010 participants through online panels and 122 via street intercepts. Complementing this, four focus group discussions (FGDs) with a total of 20 participants were conducted to provide deeper insights into everyday food choices.

This section will combine findings from WWF's survey, FGDs, and desktop research for the insights around people's sentiments around the 6 guiding principles of healthy and sustainable eating:

1. EAT MORE PLANTS THAN ANIMALS FOR YOUR RECOMMENDED AMOUNT OF PROTEIN INTAKE
2. CONSUME WHAT YOU NEED AND AVOID FOOD WASTE
3. EAT MORE FOODS PRODUCED LOCALLY AND REGIONALLY
4. CHOOSE FOODS THAT ARE SUSTAINABLY PRODUCED
5. PRIORITISE EATING FRESH FOODS OVER ULTRA-PROCESSED FOODS
6. ENSURE BALANCE AND VARIETY

INSIGHTS AT A GLANCE



TWO IN FIVE PEOPLE SURVEYED ARE OPEN TO REDUCING THEIR MEAT CONSUMPTION, DRIVEN PRIMARILY BY HEALTH (69%) AND ENVIRONMENTAL (39%) CONCERNS.

HALF OF ALL RESPONDENTS EXPRESSED OPENNESS TO SWITCHING FROM MEAT TO PLANT-BASED PROTEINS.

OLDER ADULTS CONSUME MORE VEGETABLES AND PLANT-BASED PROTEINS COMPARED TO OTHER AGE GROUPS, SUGGESTING THEY COULD PLAY AN INFLUENTIAL ROLE IN PROMOTING PLANT-FORWARD DIETS.

ADULTS AGED 45-60 YEARS CONSISTENTLY REPORT HIGHER CONSUMPTION OF VEGETABLES AND PLANT-BASED PROTEINS COMPARED TO THE GENERAL POPULATION.

92% OF RESPONDENTS EXPRESS OPENNESS TO COOKING HEALTHIER OR MORE SUSTAINABLE VERSIONS OF LOCAL DISHES.

FOR SUSTAINABLE OPTIONS, **35%** ARE WILLING TO PAY UP TO **5%** MORE.

WHILE **69%** OF RESPONDENTS JUDGE THE SUSTAINABILITY OF FOOD IN GENERAL BASED ON THIRD-PARTY CERTIFICATION LABELS, ONLY **25%** ACTUALLY REFER TO SUCH LABELS WHEN CHOOSING PLANT-BASED SUBSTITUTES.

WHAT ARE PEOPLE IN SINGAPORE CURRENTLY EATING?

Although there is strong public interest in health and nutrition, the typical Singaporean diet continues to be dominated by meat and remains relatively low in plant-based foods. Almost half of respondents (48%) identify as regular meat eaters, while only 3% follow vegetarian or vegan diets, 3% follow a pescatarian diet, and 18% describe themselves as flexitarian.

PORTION SIZES

Survey results suggest that higher affluence increases diet volume. Higher-income individuals reported significantly higher intake of rice (42% consume 8 servings per week or more, compared to the overall average of 33%) and meat (43% consume 8 servings per week or more, versus 28% overall).

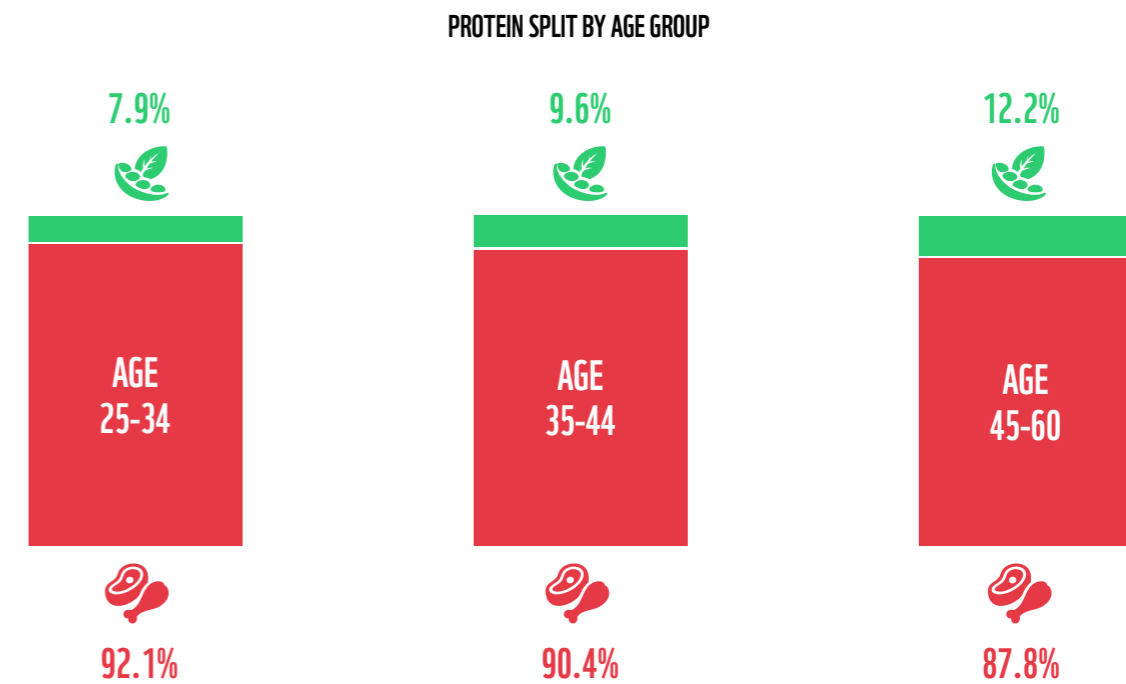
These findings suggest that more affluent populations are likely to consume more across all food groups, raising potential concerns around dietary excess and portion sizes. This suggests that simply offering more sustainable options is not enough if overconsumption continues, and attention needs to be paid to portion sizes as well.

PROTEIN INTAKE IN SINGAPORE

According to Singapore’s National Nutrition Survey (2022), protein intake among adults is largely adequate, with three-quarters of the population meeting their recommended daily protein needs. However, a concerning trend emerges among older adults aged 50 to 69, where 1 in 2 are not meeting their recommended intake, even though higher protein consumption is especially important for this age group due to age-related muscle loss and nutritional needs.

Building on this, our survey examined not only the quantity but also the quality of protein intake of Singapore. Results revealed that animal-based protein accounts for 87–92% of total protein consumption across all age groups - more than double WWF’s recommended limit of 40% (see Figure 2). This signals a substantial opportunity to “re-balance” protein sources, placing greater emphasis on plant-based alternatives for both health and environmental benefits.

FIGURE 2. STACKED COLUMN CHART SHOWING THE PROPORTION OF PLANT AND ANIMAL PROTEIN INTAKE BY AGE GROUP.⁵⁴



It is worth noting that some respondents may not realise that certain plant-based foods they already consume also provide protein. For example, brown rice and edamame are often perceived primarily as carbohydrates or vegetables, even though they provide protein. Most respondents reported eating a fair amount of vegetables and rice (5–7 servings per week), suggesting a knowledge gap regarding less conventional plant-based protein sources, beyond tofu.

54

See Annex for the analysis

INCOME LEVELS AND PROTEIN CONSUMPTION

Desktop studies have found a general pattern in which meat consumption is initially higher at higher income levels, but at much higher income levels, it tends to decrease (Kruznets curve), resulting in an inverted U-shaped consumption pattern⁵⁵. Our survey confirms the first rising part of this curve: 43% of high-income earners consume 8 or more servings of meat per week, compared to 28% in the general population, and 13% in the low-income group specifically. Middle-income respondents showed more moderate patterns, with most consuming 5–7 servings per week.

Plant-based protein intake remains generally low: only 6% consume more than 7 servings weekly, while 12% report none at all. Income influences these patterns: low-income groups are least likely to consume plant-based proteins, whereas high-income groups show more balanced, moderate intake, likely reflecting differences in affordability, access, and awareness⁵⁶.

In Bukit Timah, a generally more affluent area, 93% consume plant-based foods, with 18% eating 8 or more servings per week. This aligns with research suggesting vegetarian and vegan diets are more common among higher socio-economic groups⁵⁷, although studies also show such diets can be up to one-third cheaper⁵⁸.

These findings highlight the need for targeted strategies: increasing plant-based consumption among lower-income groups, and moderating animal-based protein consumption among middle- and high-income populations.



55 Clonan, A., Roberts, K. E., & Holdsworth, M. (2016). Socioeconomic and demographic drivers of red and processed meat consumption: implications for health and environmental sustainability. *Proceedings of the Nutrition Society*, 75(3), 367–373. <https://doi.org/10.1017/S0029665116000100>

56 Detailed numbers are elaborated in the [Annex](#)

57 Allès, B., Baudry, J., Méjean, C., Touvier, M., Péneau, S., Hercberg, S., & Kesse-Guyot, E. (2017). Comparison of Sociodemographic and Nutritional Characteristics between Self-Reported Vegetarians, Vegans, and Meat-Eaters from the NutriNet-Santé Study. *Nutrients*, 9(9), 1023. <https://doi.org/10.3390/nut9091023>

58 University of Oxford. (2021, November 11). Sustainable eating is cheaper and healthier. <https://www.ox.ac.uk/news/2021-11-11-sustainable-eating-cheaper-and-healthier-oxford-study>

ATTITUDES TOWARDS MEAT-BASED AND PLANT-BASED PROTEINS

Two in five people surveyed are open to reducing their meat consumption⁵⁹, driven primarily by health (69%) and environmental (39%) concerns. Concern about the environment is particularly strong among males, high income households, and young families.

Half of all respondents expressed openness to switching from meat to plant-based proteins like lentils, chickpeas, and tofu (separate from reducing meat consumption). This openness is significantly higher among young adults aged 35–44, high-income households, and families with young children, groups likely influenced by greater exposure to food trends, health motivations, and digital grocery platforms. It is also worth noting that the research shows adults aged 45–60 report the highest consumption of vegetables and plant-based proteins, despite being less open to switching from meat.

Plant-based options must be marketed not just on health and sustainability, but on taste, convenience, and cultural familiarity. Targeted outreach efforts should resonate with specific demographics by highlighting value propositions that align with their motivations and concerns.

These competing motivations point to a dual communication challenge: educating consumers about the adequacy and health benefits of plant-based proteins, while also offering tastier and more accessible plant-forward options that do not compromise on flavour.

Older adults could be strong advocates and influencers for plant-based proteins. Adults aged 45–60 years consistently report higher consumption of vegetables and plant-based proteins compared to the general population. The survey found that 37% of this age group eat 5–14 servings of plant-based proteins weekly, compared to 27% overall. All adults in this group consume vegetables weekly, compared to 25% in the general population. The survey did not specify which vegetables were consumed, though some may be higher in protein, such as broccoli or long beans.

The consistent consumption of vegetables indicates that government health campaigns⁶⁰ promoting vegetable intake have been effective. The age group of 45–60 years may be more health-conscious or responsive to age-related dietary recommendations (e.g. heart health, weight management, digestion). They represent a ready and reliable audience for plant-forward campaigns. Tailored

59 In the survey, meat-based proteins are defined as beef, mutton, pork, chicken, duck, fish, eggs, dairy including milk and cheese.

60 MinistrMinistry of Health. (2023). National Health Surveys Highlight Need to Focus on Healthy Diets and Lifestyles. <https://www.moh.gov.sg/newsroom/national-health-surveys-highlight-need-to-focus-on-healthy-diets-and-lifestyles/>

outreach or loyalty programmes for this demographic, especially around preventive health, could further reinforce these habits.

In addition, **households that include older adults or parents (e.g. multi-generational families or single adults living with their parents) are positively correlated with higher vegetable consumption.** This may reflect traditional home-cooked meals, cultural norms, or caregiving responsibilities for elderly parents that prioritise more balanced diets.

The presence of elders in the household can act as a social driver to influence healthier eating among other household members. Interventions that promote intergenerational meal planning and cooking could reinforce these behaviours and extend them to younger family members.

Among participants who indicated no intention to reduce their meat intake (27%), the top reasons were taste and enjoyment (81%) and nutritional concerns (42%), reflecting a common perception that meat is both essential and satisfying. Secondary factors included household preferences (39%) and the belief that plant-based options are more expensive (16%).

These responses highlight key opportunities for myth-busting and public education, particularly around:

- How nutritional needs can be met through a variety of protein sources, not just meat
- The affordability of plant-based protein options, especially when incorporated into everyday meals
- The role of household influence and shared food culture in shaping dietary choices

Engaging nutrition professionals and developing accessible communications can help shift perceptions and empower individuals to explore healthier and more sustainable eating patterns - without compromising on taste, nutrition, or cost.

Lastly, low-income individuals may be missing out on plant-based protein. 18% of low-income respondents report not consuming any plant-based protein, a concerning gap given its importance for both health and environmental sustainability. Despite being an affordable protein source, plant-based foods may still be perceived as inaccessible, inconvenient, or culturally unfamiliar among low-income groups. This highlights the need for price incentives, bulk cooking ideas, and public messaging that normalizes and champions everyday plant-based dishes (e.g., tofu stir fry, dhal curry) as both cost-effective and nutritious.

MANY SINGAPOREANS ARE TRYING TO COOK MORE SUSTAINABLY, BUT LACK CONFIDENCE TO DO SO EFFECTIVELY

Results found that 59% of respondents cook at home at least 3 times per week, indicating a significant portion of the population with control over their food preparation habits. Encouragingly, among these home cooks, 77% reported preparing plant-based meals with similar frequency, a strong indicator of intention. However, only 18% felt confident in their ability to prepare plant-based meals well.

The gap between the intention of replacing meat with plant-based protein and the lack of confidence to do so presents a prime opportunity for intervention. Increasing skills and exposure through culinary education, simple meal plans, plant-based recipe content, and ready-to-cook kits can empower households to make more sustainable choices. Retailers and food providers should consider bundling plant-based ingredients with easy-to-follow instructions or offering cooking classes to catalyse this transition.

THE MAJORITY ARE WILLING TO EAT HEALTHIER AND MORE SUSTAINABLY, BUT ONLY IF ITS TASTE IS NOT COMPROMISED

An overwhelming 92% of respondents express openness to cooking healthier or more sustainable versions of local dishes, while 76% emphasise the importance of retaining authentic taste. Furthermore, 38% would like these improved options to be made more available at hawker stalls.

There is strong latent demand for sustainability interventions that respect local food identity. **Rather than introducing foreign “superfoods,” consumers want healthier, lower-impact versions of their familiar dishes, from nasi lemak to bak chor mee.** This suggests a strategic opportunity for reformulating traditional meals with minimal trade-offs to taste or texture, making transitions more culturally acceptable and emotionally resonant.

In the focus group discussions, several participants were surprised by the strong link between diet and environmental impact. While some were open to eating more plant-based foods, many acknowledged that meaningful change would be difficult unless such options were convenient, affordable, and tasty.

Focus group discussions revealed that family preferences, especially children and elderly parents, heavily influenced food decisions. Participants were more likely to try something new if others in the household approved. There was a recurring theme of needing social support to shift eating habits.

CERTIFICATION LABELS ARE VALUED, BUT NOT ALWAYS PRIORITISED IN PURCHASING DECISIONS

While 69% of respondents assess the sustainability of food based on third-party certification labels, only 25% actually refer to such labels when choosing plant-based substitutes. Although 44% strongly associate sustainability with these labels, this recognition does not consistently translate into purchase decisions, as other factors play probably a stronger role.

Although consumers trust certification schemes (e.g. Fairtrade, organic), these cues are not always top-of-mind during decision-making, especially when trying new categories like plant-based meat or local sustainable dishes. This reveals a key opportunity to make sustainability signals more visible, accessible, and tailored to the local food context, for instance, by introducing front-of-pack visual cues like sustainable meals, which echoes the first principle of eating less meat and more plants.



CONSUMERS ARE GENERALLY WILLING TO PAY MORE FOR HEALTHIER AND SUSTAINABLE FOOD OPTIONS

Overall, 68% of consumers are willing to pay more for healthier food, and 61% are open to paying more for sustainable alternatives. However, deeper insights into the actual amounts consumers are willing to pay reveal a more cautious approach:

- For healthier options, 37% are willing to pay up to 5% more, 23% up to 10% more, 4% up to 20% more, and the remaining 4% beyond 20% more.
- For sustainable options, 35% are willing to pay up to 5% more, 20% up to 10%, and very few (6%) are willing to exceed that.

A DEEPER DIVE INTO WILLINGNESS TO PAY MORE FOR HEALTHIER AND SUSTAINABLE FOOD OPTIONS

About one-third of Singaporeans are price-sensitive and unwilling to pay more for healthier choices. Willingness increases with income, with those earning above \$15,000 per month significantly more open to paying a 10% premium. For the broader population, the threshold of acceptance appears to be a 5% price increase, particularly among middle-income and younger consumers⁶¹.

When comparing health and sustainability, health emerges as a stronger motivator. 32% of respondents are unwilling to pay more for healthier foods, compared to 39% for sustainability. Meanwhile, 29% are willing to pay over 5% more for health-related benefits, versus 26% for sustainability. These findings suggest that health is more compelling than environmental concerns, especially for middle-income groups. It is also important to note that these results reflect attitudes toward sustainable food options rather than the broader concept of a sustainable diet in their own terms, as many of WWF's six dietary principles may not necessarily cost more.

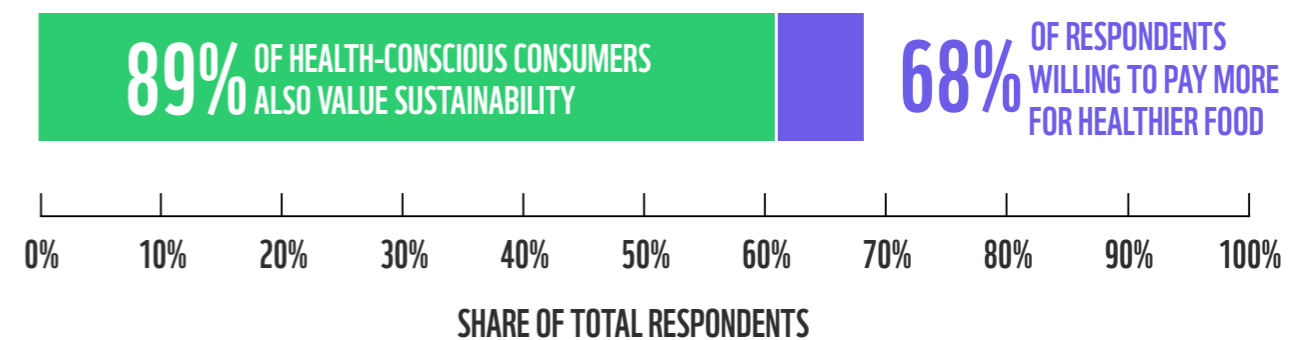
For companies and brands intending to introduce or expand sustainable diet offerings, these insights provide strategic direction. Messaging should emphasise co-benefits that link health and environmental outcomes to strengthen appeal. Price-sensitive groups, particularly low- and middle-income consumers, will require more accessible pricing or stronger value-for-money framing. At the same time, premium positioning may resonate with high-income groups, who are more open to paying higher premiums for healthier and sustainable options.

61 For more details refer to the Annex

HEALTH-CONSCIOUS AND SUSTAINABILITY-MINDED CONSUMERS: A SIGNIFICANT OVERLAP

Beyond standalone attitudes toward health and sustainability, our findings reveal a strong correlation between the two. Among respondents, 68% indicated a willingness to pay more for healthier food options. Notably, 89% within this group also expressed a willingness to pay more for sustainable

options. This overlap suggests that many health-conscious consumers are also sustainability-minded, forming a highly engaged and value-driven segment. Recognizing this dual concern opens up strategic opportunities across product development, marketing, and customer engagement.



WILLINGNESS TO PAY MORE FOR RESPONSIBLY-SOURCED MEAT: INTEREST VS. PRICE SENSITIVITY

Meat ranks as the food category consumers are most willing to spend more on in general. When it comes to responsibly-sourced meat, which is often the highest ticket item in a meal, price sensitivity is evident: 36% are willing to pay up to \$2 more for responsibly sourced options, while fewer than 6% would stretch to \$6 or more. On the

other spectrum, 39% of consumers are not willing to pay extra and will just buy the regular option even when there are responsibly-sourced alternatives. It is unsurprising that price sensitivity remains a real and persistent barrier for some, despite a growing interest in better food choices.



Compared to health-related considerations, responsibly-sourced meat is a less compelling motivator. 39% of consumers are unwilling to pay more for responsibly-sourced meat, slightly higher than the 32–38% unwilling to pay more for healthier or sustainable food in general. Among those willing to pay more for healthier or sustainable food in general, most (75%) cap the premium at S\$2, while higher pricing above S\$4 is viable only among high-income earners⁶².

For companies and brands intending to introduce or expand responsibly-sourced meat offerings, these findings provide strategic guidance. Mainstream positioning should keep premiums under S\$2 to maintain broad appeal. Premium tiers targeted at high-income consumers can highlight traceability, environmental benefits, and certifications, which can also align

with health advantages, such as the absence of hazardous chemicals in farming. At the same time, education and value-based framing are critical to shift preferences among low-income and older consumers, where willingness to pay is lower.

To enable a just and inclusive transition, affordability cannot be overlooked. Retailers, food service providers, and policymakers should consider tiered pricing strategies, subsidies, or bundle promotions that allow consumers across income brackets to access healthy and sustainable options. Without these, better food remains a premium lifestyle choice rather than a public norm.

KNOWLEDGE AND PERCEPTIONS OF HEALTHINESS AND SUSTAINABILITY

When respondents were asked what came to mind when they heard the term sustainable eating, their answers were less consistent and tended to be more conceptual in nature:

- **Good for environment/ without harming environment (for future generations) (15%)**
- Food from sustainable sources /Using sustainable ingredients/food (11%)
- Having healthy diet/ healthy eating (9%)
- Don't know/None (9%)
- No food wastage/reduced waste (8%)
- Able to consume daily/regularly/can be taken for long term to live (6%)
- Natural/organic/unprocessed food/ no preservatives (6%)

Complementary to the survey results, focus group discussions revealed that the concept of sustainable eating was less familiar. Some participants associated it with eating local, avoiding waste, or choosing eco-friendly packaging. A few linked it to vegetarian or plant-based diets, while several admitted they were unsure what ‘sustainable eating’ really meant. Environmental concerns rarely factored into daily food decisions unless directly prompted.

In addition, focus group discussions showed that most people are unaware of the high environmental footprint of beef (2 out of 20). Across all focus groups, plastics and packaging were consistently mentioned as part of what defines a sustainable diet, likely because plastic waste is highly visible, and there is widespread awareness of its environmental impact.

When asked what comes to mind when they hear the term healthy eating, respondents most commonly mentioned:

- **Contains vegetables/salads or fruits (32%)**
- Less/no oil/ no fried food (17%)
- Healthy food/diet/habits (17%)
- Balanced diet/food/eating (17%)
- Less/no salt/sodium (16%)
- Less/no sugar/ No sweet (16%)
- Natural/organic/unprocessed food/ no preservatives (13%)
- Nutritious food that contains for example vit, carbs, fibres, healthy fats, etc. (11%)

62 See Annex for a breakdown of the data

This is aligned with findings from our focus group discussions where most participants associated healthy eating with low oil, sugar, and salt. Balanced meals with fruits, vegetables, and proteins were also common mentions. Younger participants leaned on visual cues (e.g., ‘less fried’, ‘more greens’) and often cited government campaigns like ‘My Healthy Plate’. There was limited mention of nutrition labels or detailed nutrient tracking, which may suggest a need for greater education on how to read and interpret them.

Perceptions of what constitutes a healthy diet actually overlap with those of a sustainable diet, particularly in relation to Principle 1 (eating more plant-based proteins, including vegetables) and Principle 6 (ensuring balance and variety). It is possible to use key words from the above lists when referring to different principles of healthy and sustainable diets in consumer-facing settings.

OPPORTUNITIES AND CHALLENGES FOR ADOPTING A HEALTHY AND SUSTAINABLE DIET

The research reveals a strong baseline interest among Singaporeans in understanding and adopting healthier and more sustainable diets. However, intent does not always translate into action. While most respondents recognise the importance of sustainable eating, a variety of structural, behavioural, and perceptual barriers continue to hinder change.

CHALLENGES

PERSISTENT MEAT DOMINANCE

Animal-based proteins continue to dominate Singaporeans' diets, accounting for between 87% and 92% of total protein intake across all age groups, more than double WWF's recommended 40%. This reflects deep-rooted cultural preferences and consumption habits that make dietary change challenging, even among individuals aware of sustainability concerns.

KNOWLEDGE AND PERCEPTION GAPS

Many people remain unaware that foods such as edamame, legumes, and whole grains are good protein sources. Sustainability is often perceived narrowly as certification, and while third-party labels play an important role, they are rarely consulted during purchase decisions. As a result, other aspects of sustainable eating, such as buying local produce or reducing waste, are often overlooked, despite being more attainable for most households.

COST AND CONVENIENCE CONCERNS

Affordability remains one of the most frequently cited barriers to dietary change. Nearly half of respondents view plant-based foods as expensive, unfamiliar, or difficult to prepare. This perception limits experimentation, especially among time-pressed households that prioritise convenience and family preferences.

LOW CONFIDENCE IN PLANT-BASED COOKING

Although many Singaporeans cook regularly, confidence in preparing plant-based meals remains low. Only 18 per cent of respondents reported feeling confident in cooking plant-based dishes well, suggesting a need for greater access to practical guidance, simple recipes, and culturally relevant cooking inspiration.

CULTURAL AND HOUSEHOLD DYNAMICS

Food is deeply social, and household dynamics strongly influence what people eat. Concerns around taste, nutrition, and family acceptance often reinforce meat-heavy diets. Even when individuals are willing to reduce meat, change is less likely to occur if others in the household are resistant or perceive plant-based meals as less satisfying.

KNOWLEDGE GAPS ON DEFINITIONS

Despite increasing public awareness, conceptual understanding of sustainable and healthy diets remains uneven. About one in three respondents were unsure what constitutes a sustainable diet, and one in four were unclear about what defines a healthy one, underscoring the need for clearer national communication and guidance.

OPPORTUNITIES

Despite these challenges, the research also points to strong and encouraging opportunities for progress. Singaporeans are open to change, and certain population segments are already demonstrating a shift toward more balanced and sustainable eating habits.

OPENNESS TO DIETARY CHANGE

Two in five respondents expressed willingness to reduce meat consumption, motivated primarily by health and environmental considerations. This signals growing receptivity to plant-forward eating, especially if guided by clear information and attractive alternatives.

PROMISING DEMOGRAPHIC SEGMENTS

Younger adults, older adults, and multi-generational households show comparatively higher vegetable and plant-based food consumption. These groups could serve as early adopters or advocates, helping normalise healthier and more sustainable eating patterns within their communities.

TRUST IN SUSTAINABILITY LABELS

Nearly 70% of consumers view third-party certifications as indicators of sustainable production, offering a clear opportunity to use credible labelling to guide purchasing behaviour. Although research shows that other factors come into play at the point of sale, certifications remain a powerful tool to build trust and influence long-term buying behaviour.

ALIGNMENT WITH TASTE PREFERENCES

Taste remains a decisive factor in food choices, yet it also presents an opportunity: 92% of respondents said they would be open to healthier or more sustainable versions of local favourites if taste is maintained. Reformulating familiar dishes with plant-based ingredients could therefore be a powerful entry point for change.

HOME COOKING AS A KEY TOUCHPOINT

With nearly 60 per cent of respondents cooking at home at least three times a week, there is significant potential to influence food choices through recipes, meal kits, and cooking education that make sustainable eating both easy and enjoyable.

WILLINGNESS TO PAY FOR QUALITY MEATS

Interestingly, meat remains the category consumers are most willing to pay more for, with respondents open to premiums of up to SGD 2 for products offering clear environmental or health benefits. This signals potential for retailers and producers to promote responsibly sourced meat as part of a transition strategy.

OBSERVATIONS AT ONLINE AND BRICK-AND-MORTAR SUPERMARKETS

Given that nearly 3 in 5 participants (59%) cook at home at least three times a week, WWF conducted a scan of 17 selected supermarkets, grocery chains, and specialty food brick and mortar stores across Singapore to assess how the retail environment supports or hinders the adoption of a healthy and sustainable diet, based on the six principles outlined earlier.

LIMITED VISIBILITY OF SUSTAINABILITY IN STORES

While most Singapore supermarkets prominently highlight health credentials such as “Lower in Sugar” or the “Healthier Choice” symbol, equivalent messaging for environmentally sustainable foods remains limited and inconsistent. This is largely due to the absence of a unified, national framework akin to HPB’s “Healthy Plate” that helps consumers easily identify sustainable options across all food categories.

Sustainability labels today are industry-specific, such as Fairtrade, MSC, or SG Fresh Produce. These are less universally recognisable, especially since they apply only to select product types.

EMERGING RETAIL INITIATIVES

Some retailers, such as FairPrice, have begun experimenting with sustainability-focused communication through dedicated zones, shelf labels, and educational materials. These initiatives remain in early stages and differ by store format and location, but they represent promising efforts to integrate sustainability into mainstream retail communication.



Images: Guidance on how to shop sustainably in supermarkets by providing information on what to look out for and its positive environmental impacts

Photo source: WWF-Singapore

STRONG FOOD SECURITY AND AVAILABILITY, BUT UNEVEN ACCESSIBILITY

Singapore ranked 28th in the 2022 Global Food Security Index (GFSI)⁶³, reflecting strong performance in affordability, availability, quality, and safety. Despite this, food insecurity remains a concern, with 1 in 10 experiencing challenges in accessing sufficient, safe, and nutritious food at least once a year⁶⁴. Singapore's heavy reliance on imports also makes maintaining food security an ongoing challenge.

While food deserts (areas with limited access to affordable and healthy food options) are not a widespread issue in Singapore, the country's well-planned distribution of supermarkets, wet markets, and hawker centres does not fully eliminate accessibility gaps. Access to healthy and sustainable foods can still be improved, particularly in terms of affordability, cultural relevance, and quality. Most neighbourhoods are well served by food vendors, but fresh, nutritious, or sustainably produced items such as specialty vegetables or certified sustainable products may still be harder to find in lower-income or newer estates.

SUSTAINABILITY CUES STRONGER ONLINE

Sustainability produced foods are often easier to find online, as search tools and digital platforms make sustainability-related keywords more visible. Many online grocers and specialty retailers feature stronger sustainability messaging, promoting products as “ethically produced”, “sustainably sourced”, or “organic”, often targeting more affluent consumers. These platforms also tend to highlight plant-based, organic, or responsibly farmed products, sometimes providing sourcing information to substantiate such claims. However, the consistency and verification of these claims vary across retailers. Moreover, higher prices, delivery fees, and limited delivery coverage continue to restrict the accessibility of these options to a relatively small, niche audience.

RECOMMENDATIONS AND NEXT STEPS

Making healthy and sustainable diets more accessible and widely adopted.

63 Economist Impact. (2022). Global Food Security Index (GFSI). <https://impact.economist.com/sustainability/project/food-security-index/explore-countries/singapore>

64 Nagpaul, T., Sidhu, D., & Chen, J. (2018). The hunger report: An in-depth look at food insecurity in Singapore. https://ink.library.smu.edu.sg/lien_reports/15

1. FOR CONSUMERS

START SMALL WITH PRACTICAL, HIGH-IMPACT SHIFTS

WWF has outlined 6 guiding principles above, which consumers are encouraged to tailor to their lifestyles. They can start small, such as by beginning to eat more plants than animals - aim for a 60:40 plant-to-animal protein ratio. Choose tofu, tempeh, legumes, and whole grains, which are often more affordable and have a lower environmental footprint than meat.

Be mindful of portion sizes, expiry dates, and food storage to reduce waste - a simple step that benefits both your wallet and the planet. Another easy entry into eating sustainably and healthily is to choose local or regionally produced foods, which are typically fresher and have a relatively smaller carbon footprint - though this can vary depending on production methods.

GET COMFORTABLE WITH PLANT-BASED COOKING

Building confidence in preparing plant-based meals can start with small, practical changes. Free recipes, simple cooking guides, or meal kits can make experimenting easier. A gradual approach works best, for instance, to try replacing part of the minced meat in familiar dishes such as meatballs with silken tofu.

SHOP CONSCIOUSLY

When shopping, look for trusted third-party certifications such as MSC and ASC (sustainable seafood), RSPO (sustainable palm oil), or Fairtrade (ethical sourcing). Beyond labels, consider where the product is sourced, how it is packaged, and whether it is in season. Choosing local or regional produce, buying in bulk, and avoiding endangered seafood species are practical steps toward more responsible consumption.

2. FOR COMPANIES (ESPECIALLY RETAILERS)

MAKE SUSTAINABILITY VISIBLE, IN-STORE AND ONLINE

Retailers play a key role in shaping consumer choices. Clear and visible labelling helps shoppers identify products that support both health and sustainability. Front-of-pack labels or shelf markers can make these products easier to spot, while curated collections in-store and online can encourage discovery and trial. Expanding the range of responsibly sourced meats, plant-based proteins, and wholegrain options can further normalise sustainable choices.

Retailers can also lead by example in reducing waste. Initiatives such as “Bring Your Own Bag” campaigns or days without plastic bags can help consumers ease into reusable habits. Themed efforts like “Sustainability Sundays” could encourage consumers to adopt at least one sustainable action each week, such as eating more plants, controlling portion sizes, or shopping with reusable bags.

REFRAME VALUE BEYOND PRICE

Affordability remains a key barrier to sustainable food choices, and retailers can help overcome this by reframing value. Bundling affordable plant-based products with recipes (e.g., a “\$5 Plant Protein Pack”) can make healthier options feel practical and accessible. Promoting cost-effective protein swaps, such as tofu-chicken mixes, and positioning products as both healthy and sustainable can attract consumers who care about wellness and the environment alike.

INCENTIVISE SUSTAINABLE CHOICES

Retailers can use creative incentives to encourage behaviour change. Loyalty points, discounts, or even priority checkout queues for consumers making sustainable choices build excitement and participation. Sustainable recipes could be shared through QR codes or in-store demonstrations featuring local ingredients. Pilot campaigns like “Better for You, Better for the Planet” can educate consumers about balanced protein ratios while highlighting their health and environmental benefits.

BUILD AWARENESS

Partnerships with chefs, influencers, and nutritionists can help demystify plant-based cooking and inspire consumers to try new dishes. Ready-to-cook or ready-to-eat options featuring familiar local flavours reformulated with sustainable ingredients can make healthy eating more convenient. Retailers can also ensure that nutritious, sustainable foods are included in community programmes supporting lower-income groups, ensuring equitable access to better food choices. In-store learning journeys or activations can further help consumers understand the impact of their choices and learn how to shop mindfully.

COLLABORATE ON TRANSPARENCY AND IMPACT

To strengthen consumer trust, retailers can work with organisations like WWF to assess the environmental footprint of their products and introduce sustainability or carbon scoring on packaging. Using consumer data to design targeted campaigns for health- and sustainability-conscious segments can also enhance engagement and adoption.

3. FOR POLICYMAKERS

DEVELOP NATIONAL GUIDELINES AND INDICATORS

Policymakers can help build a clearer framework for sustainable diets by expanding Singapore's Healthy Plate model to include environmental sustainability. Developing a "Sustainable Food Pyramid" tailored to local contexts would help consumers understand how their dietary choices impact both personal health and the planet.

BUILD AWARENESS AND ADDRESS MISCONCEPTIONS

Public education remains essential. Campaigns that explain the benefits of plant-based proteins, appropriate portion sizes, and the overlap between health and sustainability can help shift mindsets. Addressing common misconceptions, such as that plant-based proteins are bland, expensive, or nutritionally inadequate, will further encourage change.

IMPROVE AFFORDABILITY AND ACCESS

Government support can accelerate the shift toward sustainability by providing grants, subsidies, or tax incentives for local producers, vertical farms, and alternative protein innovators. Reduced tariffs or GST exemptions for sustainably certified imports or staple plant-based or sustainable foods could also make sustainable options more affordable and accessible to all households.

EMBED SUSTAINABILITY IN PUBLIC FOOD ENVIRONMENTS

Public institutions can lead by example. Schools could offer and promote healthy and sustainable meals as part of their regular menus. In addition, schools could integrate education on what constitutes a healthy and sustainable diet, making it a permanent part of the curriculum. Policymakers can also collaborate with retailers and food providers to standardise sustainability labelling, integrate sustainability criteria into procurement, and make the responsible option the default rather than the exception.



CONCLUSION

Food is deeply woven into Singapore's identity, reflecting our culture, community, and creativity. As the nation continues to evolve, so too must our relationship with food. The evidence is clear: the way we eat affects not just our health, but also the health of the planet we depend on. The choices we make in supermarkets, hawker centres, and home kitchens today will shape the environmental and social legacy we leave for tomorrow.

Singapore is well positioned to lead the shift toward healthier and more sustainable diets. With strong food security, good infrastructure, and a population that is increasingly aware of health and environmental issues, the foundation for change is already in place. The next step is to make sustainable eating the default choice - accessible, affordable, and desirable for everyone.

This transition requires collaboration across society. Consumers can take small but powerful steps by eating more plants, reducing food waste, and eating local or regional foods whenever possible. Businesses can make sustainability visible and rewarding, ensuring healthy options are the easiest ones to choose. Policymakers can integrate environmental criteria into nutrition frameworks, support local and sustainable production, and drive public awareness through education and procurement.

If all actors move together, Singapore can build a food system that nourishes both people and planet. One where every meal supports health, celebrates culture, and safeguards our shared future. We can do better for our health and the planet, one meal at a time.

METHODOLOGY

1. DESKTOP REVIEW

Desktop research and existing WWF studies formed the foundation for localising the sustainable and healthy diets guideline for Singapore. Among the key references was the *Temasek report "Environmental Impact of Key Food Items in Singapore" (2019)*, which provides life-cycle assessments of major food categories and quantifies their greenhouse gas emissions, land use, and water footprints. This report served as a critical baseline for understanding which foods exert higher environmental impacts within Singapore's consumption context.

To complement these local findings, we drew on WWF's global Planet-Based Diets framework (planetbaseddiets.panda.org), which outlines science-based dietary shifts that improve human health while remaining within planetary boundaries. The framework's principles, such as eating more plants, avoiding overconsumption, and supporting diverse and sustainable production, were adapted to align with Singapore's dietary culture, market realities, and food environment.

In addition, we reviewed Singapore's Healthy Plate guidelines, HPB's nutritional frameworks, global models such as the EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems, and academic literature on food systems, consumer behaviour, and food environment interventions. Together, these sources helped ensure that the localised framework reflects both nutritional adequacy and environmental sustainability, while being relevant to Singapore's climatic, economic, and cultural context.

Complementing the desktop research, WWF staff conducted observational visits to 17 brick-and-mortar supermarkets and grocery chains across Singapore. During these visits, the team recorded data on product availability, price ranges, and sustainability-related communication such as shelf labels, certification logos, and educational signage. These observations provided valuable insights into how sustainability cues are currently presented or absent in local retail settings, helping to ground the recommendations in real-world consumer experiences.

2. FOCUS GROUP DISCUSSIONS (FGDS)

To complement the quantitative survey and deepen understanding of consumer attitudes, WWF-Singapore conducted four in-person focus group discussions on 10 and 11 May 2025. These sessions aimed to uncover the lived experiences, perceptions, and barriers that shape everyday food choices in Singapore, particularly around the adoption of healthy and sustainable diets.

Each session lasted approximately three hours and was facilitated by WWF-Singapore staff. A total of 20 participants were recruited from WWF's internal networks, and all were incentivised for their time and contributions. While this recruitment method ensured a baseline level of sustainability awareness, it also introduced a bias toward more engaged or environmentally conscious individuals, which is important to note when interpreting the findings.

DISCUSSION THEMES

Participants were guided through structured prompts covering:

- Daily eating patterns and household food routines
- Understanding and differentiation between “healthy” and “sustainable” diets
- Barriers to making sustainable food choices (e.g. cost, taste, convenience)
- Grocery shopping behaviour and recognition of sustainability labels
- Reactions to WWF's Planet-Based Diets framework

PARTICIPANT PROFILE

The group was diverse in terms of age, household type, and ethnicity. Most participants were female and held shared or primary grocery decision-making roles within their households. Several lived in multi-generational homes, which influenced their food choices through family preferences and caregiving responsibilities.

KEY INSIGHTS

- **Taste and family acceptance** emerged as dominant factors in food decisions. Even when individuals were open to plant-based meals, they were unlikely to adopt them if other household members resisted.
- **Convenience and cooking confidence** were recurring themes. While many participants expressed interest in sustainable eating, they lacked confidence in preparing plant-based meals and desired simple, culturally familiar recipes.
- **Sustainability awareness was uneven.** While most participants associated sustainability with packaging and waste reduction, few understood the environmental impact of specific foods like beef or soy. Only 2 out of 20 participants were aware of beef's high carbon footprint.
- **Certification labels were trusted but underused.** Participants valued third-party certifications (e.g. Fairtrade, RSPO) but rarely used them as a primary decision-making tool when shopping.

LIMITATIONS

- The **small sample size** limits generalisability.
- Participants were recruited from WWF's network and may not reflect the broader population's awareness or behaviours.
- **Social dynamics** in group settings may have influenced responses, with some participants potentially withholding dissenting views or aligning with perceived group norms.
- The **incentive structure** may have attracted individuals already predisposed to sustainability topics, further skewing the sample.

3. QUANTITATIVE SURVEY

This report draws insights from research conducted by Pure Profile for WWF-Singapore between May and June 2025, aimed at understanding dietary behaviours, attitudes, and barriers to adopting healthy and sustainable diets in Singapore.

OBJECTIVE

To assess public attitudes, behaviours, and awareness regarding healthy and sustainable diets, and to uncover potential enablers or barriers to dietary shifts.

DATA COLLECTION PERIOD

27 May – 8 June 2025

SAMPLE SIZE

A total of 1,132 adult respondents aged 25 to 60 participated in the survey:

- 1,010 respondents via online panels
- 122 respondents via offline street intercepts conducted in Bukit Timah

SURVEY ADMINISTRATION

The questionnaire was developed internally and underwent testing via a soft launch (22–27 May) to ensure clarity and reliability.

SAMPLING METHODOLOGY

Quota sampling was used to ensure demographic diversity across:

- **Gender**
- **Age groups** (25–34, 35–44, 45–60)
- **Household income bands** (low, middle, high) - where low is less than \$6999, middle is between \$7000-\$14999, and high is \$15000 and more.
- **Family types** (young families vs. others)
- **Residential areas**, with special tracking for Bukit Timah
- **Definitions of Proteins** – where
 - Meat-based protein: beef, mutton, pork, chicken, duck, fish, eggs, dairy including milk and cheese
 - Plant-based protein: legumes like lentils, chickpeas, and black beans, as well as soy products such as tofu and tempeh, and meat-alternatives like Beyond Meat, Impossible Foods, OmniMeat, and Quorn

The online survey recruited participants through digital panels, while the offline intercepts were conducted in Bukit Timah using predefined postal codes. While the intercepts were conducted in public spaces, they were not fully random in a statistical sense, as quotas were applied and participants were incentivised, which may have influenced who agreed to participate.

INCOME BANDING

Both online and offline samples were segmented by income:

- **Online sample:** 35% low-income, 47% middle-income, 19% high-income
- **Offline sample:** 12% low-income, 43% middle-income, 45% high-income

This stratification allowed for comparative analysis across socioeconomic groups, though the incentive structure may have skewed participation toward lower and middle-income respondents. Higher-income individuals may have been less motivated to participate, especially in the online panel, which could affect representativeness.

LIMITATIONS

- **Non-random sampling:** Participants were recruited to fill quotas, not randomly selected, limiting generalisability.
- **Incentive bias:** The modest incentives offered may have disproportionately attracted lower- and middle-income respondents, making the sample not fully reflective of Singapore's income distribution.
- **Digital skew:** Online recruitment may favour digitally connected individuals, potentially underrepresenting older adults or those with limited internet access.
- **Self-reporting bias:** As with most surveys, responses may be influenced by recall errors or social desirability.

ANNEX

BREAKDOWN OF SURVEY DEMOGRAPHICS REGARDING PROTEIN CONSUMPTION

- Animal-based protein: beef, mutton, pork, chicken, duck, fish, eggs, dairy including milk and cheese.
- Plant-based protein: legumes like lentils, chickpeas, and black beans, as well as soy products such as tofu and tempeh, and meat-alternatives like Beyond Meat, Impossible Foods, OmniMeat, and Quorn.

MEAT-BASED PROTEIN CONSUMPTION

Meat overconsumption is most prevalent among high-income individuals, with 43% consuming meat 8 or more times weekly, compared to just 13% in the low-income group.

This reflects income-linked differences in affordability and lifestyle. Middle-income respondents showed a more moderate consumption pattern, with the highest share eating 5–7 servings weekly.

It is important to note that the survey did not capture the quality or type of meat (e.g. ultra processed or fresh; chicken, pork, or beef) when asking about respondents' meat consumption.

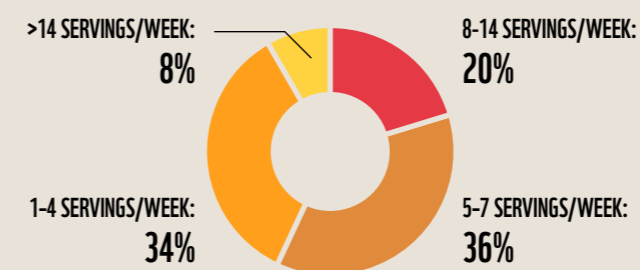
PLANT-BASED PROTEIN CONSUMPTION

The majority of respondents consume low to moderate levels of plant-based proteins, with only 6% consuming more than 7 servings weekly and 12% reporting no consumption.

Income again plays a critical role, low-income respondents are least likely to consume plant-based proteins, while high-income individuals show more balanced, moderate patterns, indicating a possible influence of affordability, access, and dietary awareness.

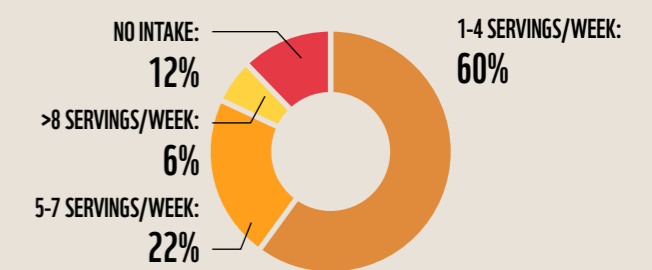
This suggests the need for targeted interventions to increase plant-based consumption in lower-income groups, while also encouraging moderate scaling among middle- and high-income populations.

KEY FINDINGS (TOTAL POPULATION, N=1,132)



- The most common consumption level was 5–7 servings/week (36%), followed closely by 1–4 servings/week (34%).
- 28% of respondents consumed 8 or more servings per week, including:
 - 20% who consumed 8–14 servings, and
 - 8% who consumed more than 14 servings weekly.

KEY FINDINGS (TOTAL POPULATION, N=1,132)



- Most respondents (60%) consume 1–4 servings/week.
- 22% consume a moderate amount (5–7 servings/week), while only 6% consume 8 or more servings.
- 12% report no plant-based protein intake at all.

MEAT-BASED PROTEIN CONSUMPTION

PLANT-BASED PROTEIN CONSUMPTION

BY AGE GROUP



Young Adults (25–34 years):

- Higher meat intake overall: 22% consume 8–14 servings/week; 8% exceed 14 servings.
- 38% consume 5–7 servings/week.



Middle-Aged Adults (35–44 years):

- Lower high-intake rates (17% consume 8–14 servings).
- Highest share consuming 1–4 servings/week (38%).



Older Adults (45–60 years):

- 36% consume 1–4 servings/week (same as total average).
- Slightly higher share in >14 servings category (9%).

BY AGE GROUP



Young Adults (25–34 years):

- 63% consume 1–4 servings/week.
- Lowest share in the moderate (19%) and high (5%) intake ranges.
- 13% report no intake.



Middle-Aged Adults (35–44 years):

- Similar to young adults, with 63% in the 1–4 range.
- Slightly higher moderate/high consumption than younger group.



Older Adults (45–60 years):

- Lower 1–4 intake (50%).
- Highest moderate intake (29%).
- Only 11% report no intake.

MEAT-BASED PROTEIN CONSUMPTION

PLANT-BASED PROTEIN CONSUMPTION

BY INCOME GROUP



Low-Income:

- 42% consume 1–4 servings/week.
- Only 5% report eating more than 14 servings.



Middle-Income:

- 39% consume 5–7 servings/week — highest among income groups.
- 6% report >14 servings.



High-Income:

- Highest proportion of high meat consumption:
 - 28% eat 8–14 servings/week
 - 15% eat more than 14 servings

BY INCOME GROUP



Low-Income:

- 58% consume 1–4 servings/week.
- Highest rate of non-consumption at 18%.
- Lowest moderate/high intake overall.



Middle-Income:

- 63% consume 1–4 servings/week.
- 21% consume 5–7 servings/week.
- 11% report no intake.



High-Income:

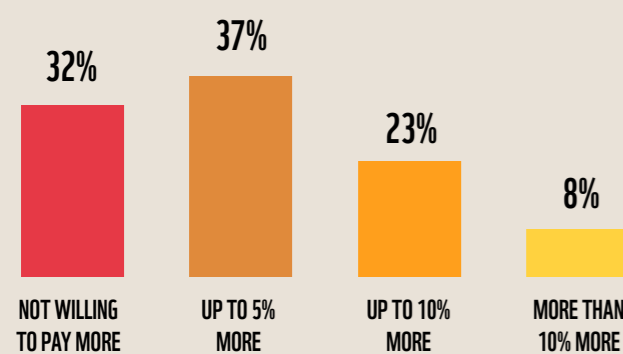
- More varied intake patterns:
 - 57% consume 1–4 servings
 - 29% consume 5–7 servings
 - Just 5% report no intake — the lowest among all groups

ATTITUDES TOWARDS PAYING MORE FOR HEALTHY AND SUSTAINABLE FOOD OPTIONS

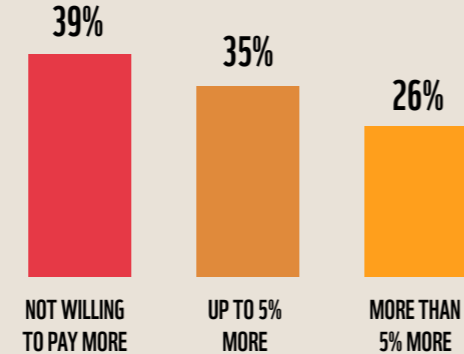
HEALTHY SUSTAINABLE

KEY TAKEAWAYS

KEY TAKEAWAYS



- 32% of respondents are not willing to pay more.
- A plurality (37%) are willing to pay up to 5% more.
- About 23% are open to paying up to 10% more, while only 8% are willing to pay more than 10%.



- 39% of respondents are not willing to pay more for sustainable options - higher than for healthier options (32%)
- 35% are willing to pay up to 5% more
- Only 26% are open to paying more than 5%, which is lower than for healthier options (29%)

HEALTHY

SUSTAINABLE

BY AGE GROUP

BY AGE GROUP



Younger age groups (25–34 and 35–44 years) are more price-sensitive:

- Around one-third are unwilling to pay more (32–33%)
- Majority are clustered in the “up to 5%” category



Older age group (45–60 years) is slightly more willing to pay:

- 41% willing to pay up to 5% more
- 25% open to 10% more (vs. 21% in younger groups)

- Willingness to pay drops slightly as age increases:
 - 45–60 years group: highest unwillingness (42%)
 - Younger groups (25–44 years): similar responses, mostly clustered around 5% threshold
- Willingness to pay more than 10% remains consistently low across all age groups (≤6%)

HEALTHY

SUSTAINABLE

BY INCOME CLASSIFICATION



Low-Income (n=365):

- 37% unwilling to pay more
- Most common limit is up to 5%
- Few are open to >10%



Middle-Income Group:

- 33% unwilling to pay more
- 39% willing to pay up to 5%
- 23% willing to go up to 10%



High-Income (n=243):

- Most price-flexible segment:
 - Only 23% unwilling to pay more
 - 30% are open to paying up to 10%
 - 17% willing to go beyond 10% (9% up to 20%, 8% more than 20%)

BY INCOME CLASSIFICATION



Low-Income Group:

- 39% unwilling to pay more
- 39% willing to pay up to 5%
- Only 4% open to >10%



Middle-Income:

- 41% unwilling — highest across all bands
- One-third cap willingness at 5%
- Slightly more flexible than low-income but still conservative



High-Income Group:

- Only 30% unwilling
- 33% willing to pay up to 5%
- 31% open to >10%, including 7% who would pay more than 20%

WILLINGNESS TO PAY MORE FOR SUSTAINABLE OR RESPONSIBLE-SOURCED MEAT

- 39% of respondents say they would not pay extra and prefer regular meat options.
- 36% are willing to pay up to S\$2 more, which is the most common price threshold.
- A smaller group (22%) is willing to pay more than S\$2, but this drops off sharply beyond S\$4.
- Only 6% are willing to pay more than S\$4 extra, and just 2% are open to paying more than S\$6.
- 3% do not buy fresh meat, making this question not applicable to them.

BY AGE GROUP

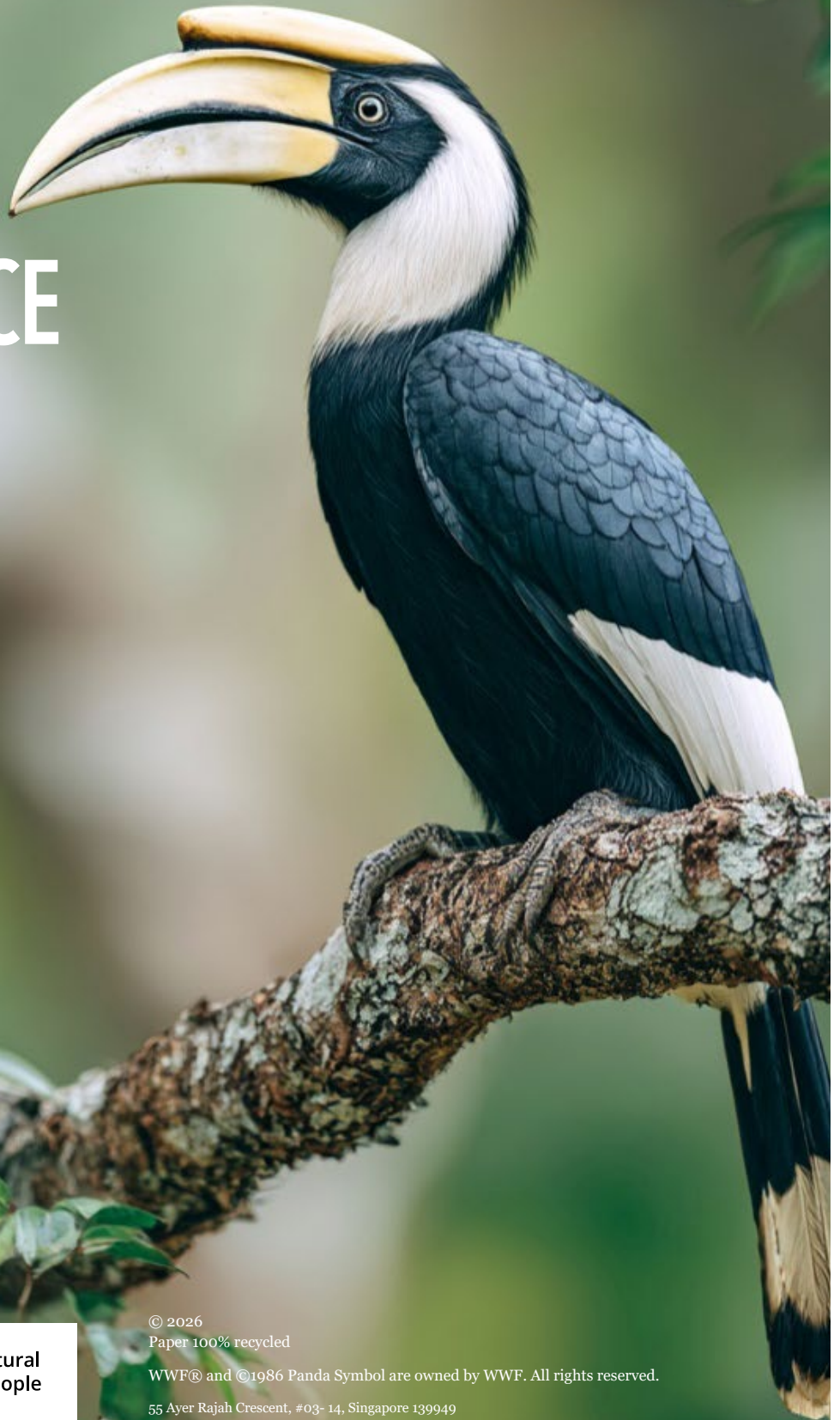
- Older respondents (45–60 years) are the most unwilling to pay more (42%).
- Younger groups (25–44 years) show more willingness to pay small premiums (up to S\$2–S\$4), especially:
 - 18–19% willing to pay up to S\$4 more
- Those aged 28–40 (net group) are most likely to pay up to S\$4 but also show 40% resistance to paying more at all

BY INCOME LEVEL CLASSIFICATION

SEGMENT	NOT WILLING TO PAY MORE	WILLING TO PAY UP TO S\$2	WILLING TO PAY >S\$2
Low-Income	44% (highest)	34%	18%
Middle-Income	39%	37%	21%
High-Income	30% (lowest)	38%	32%

- High-income consumers are more price-flexible, with 6% even willing to pay more than S\$6 (vs. 1–2% in other segments).
- Low-income consumers remain price-sensitive; nearly half (44%) will only buy regular meat.

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IS TO
CONSERVE
NATURE
AND REDUCE
THE MOST
PRESSING
THREATS
TO THE
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OF LIFE
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55 Ayer Rajah Crescent, #03-14, Singapore 139949
Phone: +65 3129 4331

For contact details and further information, please visit our website at <https://www.wwf.sg/>