Issue 16-2
July 30, 2024

NEWSLETTER

Smart & Net-Zero Project

Overview

The Smart Net-Zero (SNZ) project team under the Food and Fertilizer Technology Center (FFTC) for the Asian and Pacific Region regularly collects and shares information related to sustainable agri-food system and climate smart agriculture, including research, news, policy, data and event updates around the world on the project website.

With the growth in global agricultural trade, local land use and development is driven by global food consumption. Increase in meat, dairy product, and cooking oil consumption results in deforestation and biodiversity loss, as well as increase in global GHG emissions. Promoting sustainable diet is thus imperative. **The highlight of this issue is on recent research and policy on promoting sustainable healthy diets and consumption**, including studies on factors affecting dietary change, national dietary guidelines, plant-based diets and low-carbon proteins as substitutes for meat and dairy products, and the use of carbon and environmental footprint labels to influence consumer choices of food products.

Content

https://net.fftc.org.tw/smartnetzero www.fftc.org.tw

RESEARCH

01 THEME: GHG emission reduction; Policy incentives, financing, pricing

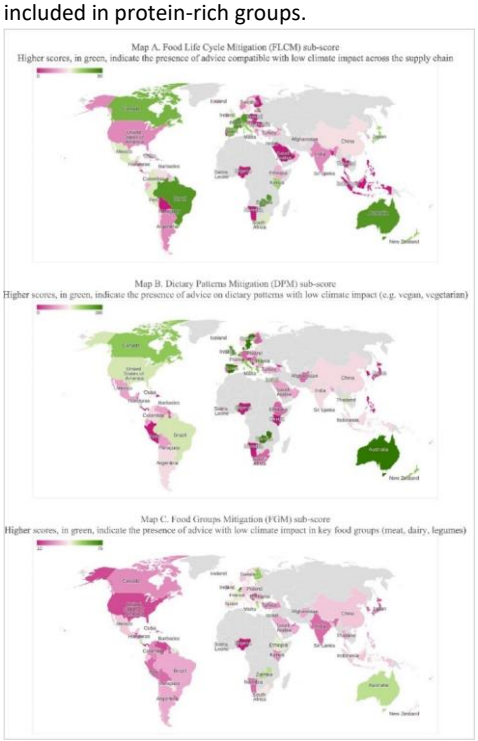
Climate change mitigation potential in dietary guidelines: A global review

September 1, 2023 | Sustainable Production and Consumption | Source |

Introduction: A research team led by researchers from Università della Svizzera italiana in Switzerland analyzed 93 food-based dietary guidelines (FBDG) from 92 countries to assess their potential to mitigate climate change. The FBDG were evaluated and scored on three fronts: food life cycle, dietary patterns, and food groups.

Key findings: Most FBDGs includes only limited low-emissions food advice, with a median score of 31.14 out of 100. High-income countries and those published post-2010 scored better, especially those explicitly mentioning environmental sustainability.

FBDGs frequently suggest eating local and seasonal foods to reduce transport emissions, but often overlook high-impact recommendations like limiting red meat. Meat is generally categorized within broader food groups, allowing for flexible consumption, while legumes are commonly included in protein-rich groups.



Few FDBGs provide specific limits for meat, red meat, and dairy intake, and those that do often exceed recommended limits for planetary health. Overall, only 20 guidelines scored above 50 in climate mitigation potential. This review highlights the need for clearer communication in dietary guidelines about which dietary shifts can significantly reduce climate impact, aligning human health with planetary sustainability goals.

Figure | Geographic distribution of Dietary Climate Mitigation sub-scores. Lowest sub-scores are in magenta and highest sub-scores are in green. Intense green represents a higher presence of recommendations with climate change mitigation potential for the relevant sub-score. Countries in grey were not included in the review, either because they do not release official dietary guidelines or did not meet the inclusion criteria.

02 THEME: GHG emission reduction; Policy incentives, financing, pricing

Socio-demographic and cross-country differences in attention to sustainable certifications and changes in food consumption

June 1, 2024 | npj Science of Food | Source |

Introduction: An Italian research team led University of Turin investigated how food labels and consumer awareness impact sustainable eating habits and responses to climate change. By surveying 6,500 people from Italy, France, Germany, Denmark, the USA, and China, researchers examined how factors like age, gender, and country of origin influence food purchasing habits and interest in sustainable food certifications.

Key findings: Consumers' awareness of and interest in sustainability labels vary significantly. For instance, Chinese consumers showed high interest in sustainable certifications and increased consumption of fruits and vegetables. Conversely, Danish consumers, particularly older adults, reduced their consumption of meat and cheeses but showed less interest in certifications. The study also found that men generally purchased more meat, while women showed greater interest in sustainable certifications for vegetables.

Overall, while food labels can encourage more sustainable diets, many consumers still underestimate the environmental impact of their choices. This suggests that improving consumer awareness and making certifications more transparent could help drive more substantial changes in eating habits and support climate action.

Figure | Heatmaps of the food purchase frequency, and age and country-of-origin of the consumers according to gender. A Women and (B) Men. The intensity of the colors represents the mean values of the food purchasing frequency and socio demographics according to gender. The stars represent significantly higher mean values.

03 THEME: GHG emission reduction; MRV (measurement, reporting, verification); Policy incentives, financing, pricing

Statistical inference method for Korean low-carbon certificate criteria of agricultural products to reflect uncertain conditions

April 20, 2023 | Journal of Cleaner Production | Source |

Introduction: South Korea aims to reduce greenhouse gas (GHG) emissions by 7.9% by 2030 in agriculture, forestry, and livestock industries, and has introduced a low-carbon agricultural product certification system, encouraging farms to reduce emissions and consumers to buy certified products. Despite progress, only a small percentage of farms are certified, highlighting the need for more rigorous and statistically significant criteria for certification. Researchers from Seoul National University analyze GHG emissions from carrot farming in South Korea and explores methods to establish low-carbon certification criteria.

Key findings: Carrot farming's GHG emissions varied significantly from 2011 to 2015, with the highest emissions in 2015 (818.8 $kgCO_{2e}$/FU) and the lowest in 2012 (519.3 $kgCO_{2e}$/FU). The main sources of emissions were inorganic fertilizers and nitrous oxide from nitrogen fertilizers. The current certification system uses a five-year trimmed mean of GHG emissions, overlooking yearly variations. The study suggests adapting certification criteria to better reflect regional and annual variations in farming conditions and considering a weight-based functional unit for better compatibility with processed food data. The use of statistical inference methods, including parametric and nonparametric approaches like bootstrapping. The bootstrapping method, which increases sample size through repeated sampling, proved more accurate and reliable.

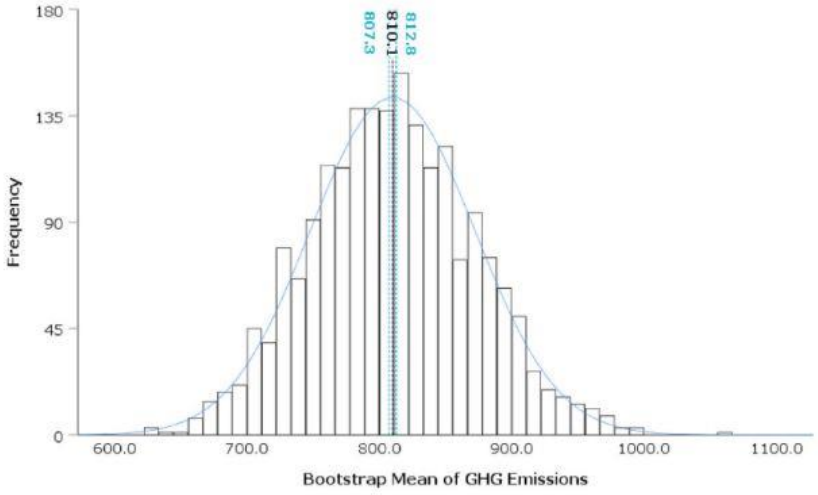


Figure | Frequency of GHG emissions of carrot farming with 2000 boot strapping samples in 2015. The bootstrapping samples are normally distributed, as shown by the histogram of 2000 bootstrapping samples overlaid with a normal curve. Three specific values, shown with dotted lines in the graph, indicate the lower limit of a 95% CI, average value, and upper limit of 95% CI with bootstrapping carrot farming observations (N = 2000).

04 THEME: GHG emission reduction; Policy incentives, financing, pricing

Social influence and climate change issues affecting consumer behavioral intention toward carbon footprint label: A study of Taiwanese consumers

March 10, 2024 | Journal of Cleaner Production | Source |

Introduction: In response to global climate change concerns, efforts to reduce greenhouse gas (GHG) emissions have intensified, carbon footprint labels on food packaging are emerging as a way to encourage sustainable consumer choices by revealing the environmental impact of food production and distribution. Taiwan, aiming for net-zero emissions by 2050, introduced its own carbon footprint label in 2010 to drive eco-friendly behavior. Researchers from National Chung Hsing University investigate Taiwanese consumers' willingness to buy products with these labels, examining factors such as media influence, family and peer effects, climate change awareness, and label comprehension.

Key findings: Surprisingly, media exposure has a minor role compared to personal experiences with climate change and the influence of family and peers. Social interactions and direct experiences with climate change are key drivers in shaping consumer behavior. This underscores the need for strategic efforts that leverage social influences to promote sustainable consumption. The study also reveals that while many consumers have a moderate understanding of carbon footprint labels, there is a significant gap in comprehension. Improved communication and education are essential for enhancing consumer awareness and supporting Taiwan's goal of achieving net-zero emissions by 2050.

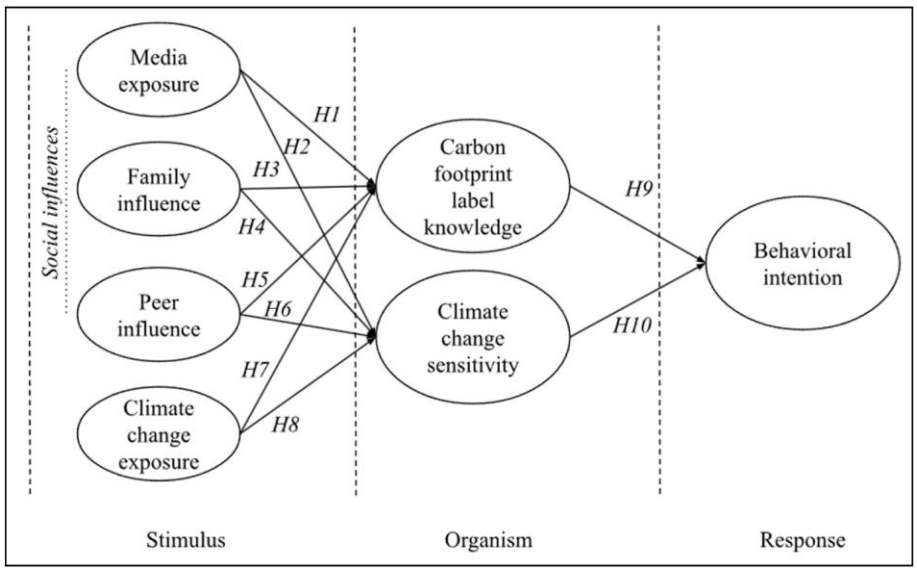


Figure | The research framework.

05 THEME: GHG emission reduction; Policy incentives, financing, pricing

The future of plant-based diets: Aligning healthy marketplace choices with equitable, resilient, and sustainable food systems

May 1, 2024 | Annual Review of Public Health | Source |

Introduction: Sustainable diets have evolved alongside the UN Sustainable Development Goals, incorporating goals in terms of agricultural productivity, diet quality, environmental footprint reduction, and social justice. Researchers from Virginia Polytechnic Institute and State University in the US and Aarhus University in Denmark explore the shift from animal-source foods to plant-based diets in terms of impacts on human health, ecological health, social equity, and economic prosperity, and recommend strategies for governments, businesses, and civil society to promote plant-rich diets.

Key findings: Ultra-processed foods, often unhealthy, are contrasted with minimally processed, nutrient-dense foods. Regional differences highlight the need for diverse strategies. High-income countries must reduce red and processed meat consumption, while low-income countries must ensure nutritional adequacy for vulnerable populations. National dietary guidelines must incorporate sustainability principles.

Alternative proteins (Aps) from plants, algae, fungi, and lab-grown sources are essential for reducing the ecological impact of traditional livestock. However, the healthfulness of AP products depends on their processing.

The transition to plant-based diets faces challenges in health, ecological impact, social equity, and economic viability, requiring coordinated efforts to achieve sustainable food systems by 2050.

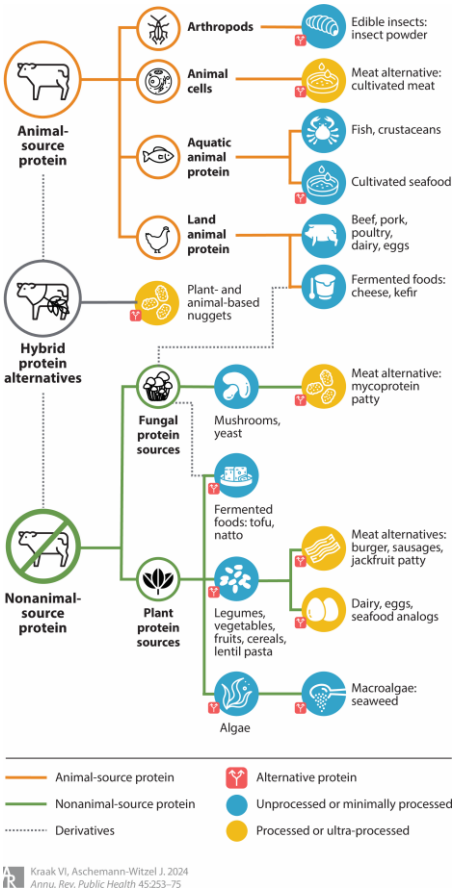


Figure | A typology of plant-, animal-, and hybrid-source proteins to encourage plant-based products that support sustainable diets.

06 THEME: GHG emission reduction; Policy incentives, financing, pricing

Impacts of the global food system on terrestrial biodiversity from land use and climate change

July 9, 2024 | Nature Communications | Source |

Introduction: The global food system incurrs heavy biodiversity loss through both land use and greenhouse gas emissions. Using the EXIOBASE model, researchers from University College London in the UK estimat the biodiversity impacts of food production in 2011.

Key findings: The researchers found biodiversity loss cannot be fully accounted for by loss of habitats due to agricultural land development and use, especially in regions with rich species diversity, such as Central and South America. Significant percentage of biodiversity loss is due to climate change impact of agricultural GHG emissions, 70% of which is attributable to methane emissions from food production. The study also shows that food production's climate impact accumulates quickly, with just a decade of emissions adding significantly to overall biodiversity loss. Thus, the shift towards more sustainable food production practices to better protect biodiversity, shall emphasize the need to reduce methane emissions.

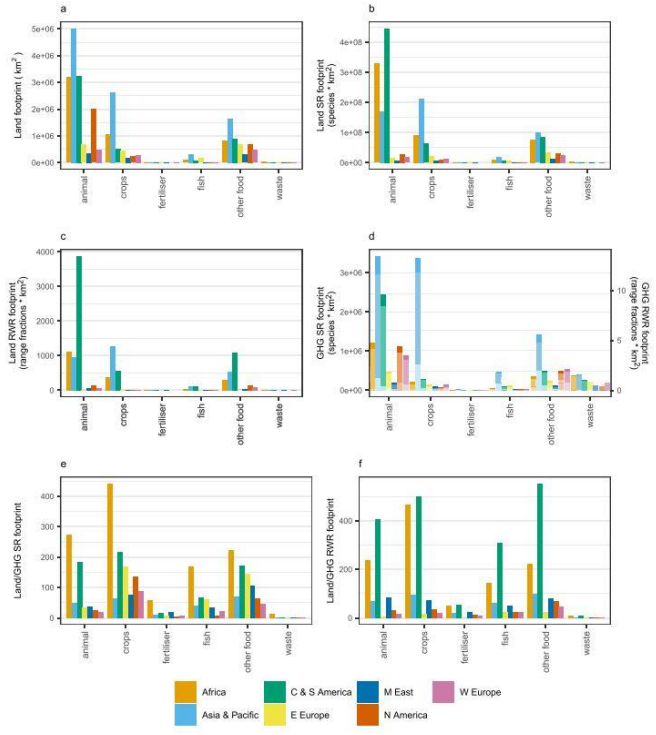


Figure | Production-based footprints of aggregated food-related groups within aggregated world regions for the year 2011. Footprints relate to (a) land area, (b) land-driven species richness (SR) loss, (c) land-driven rarity-weighted richness (RWR) loss, (d) GHG-driven biodiversity loss split by emissions type: carbon dioxide (dark shade), methane (mid shade), nitrous oxide (light shade) (right-hand axis –species richness; left-hand axis – rarity-weighted richness), (e) the ratio of landdriven species richness loss to total GHG-driven species richness loss and (f) the ratio of land-driven rarity-weighted richness loss to total GHG-driven rarityweighted richness loss. Source data are provided as a source data file.

NEWS

01 **THEME:** MRV (measurement, reporting, verification); Policy incentives, financing, pricing

Taiwan's first certified carbon footprint label for strawberry

May 10, 2024 | Environmental Information Center (Taiwan) | Source |

In Taiwan, the Miaoli District Agricultural Improvement Station collaborated with Taiwan Yi Ecological Leisure Farm to achieve a significant milestone: obtaining the country's first carbon footprint label for strawberries. This label documents the carbon emissions from production to disposal, promoting green consumption and sustainable agricultural practices. The initiative aims to guide farmers in reducing carbon emissions, focusing on critical areas like fertilizer use and irrigation efficiency. Supported by the Ministry of Agriculture, the project underscores Taiwan's commitment to environmental stewardship and encourages more farms to adopt carbon footprint assessments and reduce their environmental impact.

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02 **THEME:** GHG emission reduction

Cooking oils and sustainability

July 29, 2024 | Salon | Source |

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Cooking oils and sustainability - FoodPrint

Choosing cooking oils often revolves around taste, health, and culinary use. However, sustainability is an emerging concern. In 2022, 337 million hectares of cropland were dedicated to oil crops, highlighting the significant land use involved. Tree crop oils, like olive and avocado, offer benefits but face challenges such as high demand leading to deforestation. Palm oil is efficient but contributes to severe deforestation and biodiversity loss, while coconut oil also raises sustainability issues despite its health halo.

Row crop oils (e.g., soybean, canola) are widely used but come with environmental costs, including soil degradation and water pollution. Organically produced oils offer a partial solution but don't fully address the scale of industrial agriculture's impacts. Balancing oil choices with an eye on both health and environmental effects is crucial for more sustainable consumption.

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03 **THEME:** GHG emission reduction

Indonesia's oil palm smallholders get a boost in bid for sustainability

July 1, 2024 | Mongabay | Source |

A new set of guidelines has been introduced to assist smallholder oil palm farmers in Indonesia in ensuring their products are deforestation-free. This initiative aims to help farmers meet the increasing global demand for sustainably produced goods, particularly in markets with strict regulations like the European Union. The toolkit addresses concerns that smallholders, who are least able to comply with such regulations, will be the most affected. By following the six-step process, farmers can map their lands, identify high carbon stock and conservation value areas, and develop integrated conservation and land-use plans. This effort not only aims to facilitate market access but also supports Indonesia's climate goals by promoting sustainable farming practices and forest conservation.

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04 **THEME:** GHG emission reduction; Policy incentives, financing, pricing

GBEP Bioenergy Week: FAO stresses the need to ensure sustainability of bioenergy in achieving climate goals and SDGs

June 18, 2024 | FAO | Source |

Over 120 stakeholders from 27 countries gathered for The Global Bioenergy Partnership at FAO headquarters, Rome. The event focused on sustainable bioenergy's role in achieving the UN Sustainable Development Goals (SDGs) and the Paris Agreement on Climate Change. Key discussions include climate change mitigation, food security, land use, and sustainable energy.

FAO Deputy Director-General Maria Helena Semedo highlighted bioenergy's potential to diversify farmer income, enhance organic waste circularity, and contribute to climate resilience. Italy's Special Envoy for Climate Change, Francesco Corvaro, stressed interdisciplinary collaboration and innovation in bioenergy technologies.

The Week includes high-level panels on policy frameworks, bioenergy-bioeconomy linkages, and clean cooking solutions. FAO also introduced a new FAOSTAT domain on bioenergy, providing data on biofuel production and consumption. Additionally, the inaugural Bioenergy Youth Day

recognized Czaneil Gomez from the Philippines with the 2024 GBEP Youth Award for her rice straw biogas research.

GBEP Bioenergy Week serves as a platform for exchanging best practices to meet global energy needs and reduce greenhouse gas emissions sustainably.

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05 **THEME:** Policy incentives, financing, pricing

How to unlock $10.1 trillion from the nature-positive transition

June 15, 2024 | World Economic Forum | Source |

At the World Economic Forum's Annual Meeting of the New Champions, the urgency to reverse biodiversity decline and achieve a nature-positive status by 2030 was emphasized. The New Nature Economy Report highlights that nature-positive transitions in key socio-economic systems could unlock $10.1 trillion in business opportunities by 2030. Strategies for this transition include collaboration, regulatory support, increased investment in nature-based solutions, and better data transparency. Business leaders stressed the need for innovative practices, long-term thinking, and government support to drive these changes and capitalize on economic opportunities while preserving biodiversity.

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06 **THEME:** Policy incentives, financing, pricing

WFO2024 Closing Day: High-level debates on farmers' commitment to shaping the future of agriculture and food production

June 21, 2024 | World Farmer Organization | Source |

The World Farmers Organzation (WFO) 2024 Annual Meeting concluded on June 20 with a session focused on "Harvesting Tomorrow: Farmers Shaping the Future of Agriculture and Food Production." Moderated by Dimitri Houtart, BBC Rural Affairs Champion, the session featured discussions on regenerative agriculture, agro-innovation, sustainable finance, trade regulations, and climate action.

Key debates included the financial burdens of transitioning to regenerative agriculture, with contributions from stakeholders like Sareh Forouzesh of Regen10 and various farmers'

representatives. Discussions also covered AI and new technologies in farming, featuring Theo de Jager of Southern African Agri Initiative and other experts.

The financial challenges in sustainable agriculture were highlighted by Carlos Watson of FAO and farmer representatives, who stressed the need for increased and accessible climate finance. The role of international trade in achieving sustainable food systems was discussed, emphasizing policy support for fair and transparent trading environments.

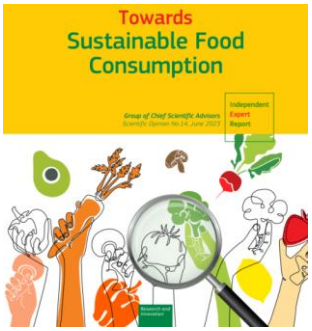
The session underscored the integration of agriculture into climate action, reflecting on the outcomes of COP28 and setting the stage for future contributions to COP30. David Nabarro of 4SD Foundation emphasized the crucial role of farmers in global food systems and called for their empowerment in decision-making processes.

POLICY

01 THEME: Sustainable consumption

Towards Sustainable Food Consumption

European Commission | Source | Download |



Introduction: The European Commission's Farm to Fork strategy, launched in 2020, marks a pivotal step towards sustainable governance of the EU's food systems. Current food systems significantly contribute to climate change, biodiversity loss, and environmental degradation. Comprehensive changes are urgently required to address these challenges.

Key Recommendations

- **Coordinate Complementary Policies**
  - Implement a mix of regulatory measures, incentives, and information campaigns to promote healthy and sustainable food choices.
  - Develop a long-term vision shared by all supply-chain actors, ensuring coherence and accountability.
- **Promote Affordable and Accessible Healthy Diets**
  - Introduce taxes on unhealthy and unsustainable products, redirecting revenues to subsidize healthier alternatives.
  - Adjust subsidy schemes to support environmentally sustainable production systems.
  - Address poverty and invest in education to enhance food literacy and access to nutritious foods.
- **Ensure Transparency and Trusted Information**
  - Include sustainability criteria in national dietary guidelines.
  - Launch information campaigns and educational programs to raise awareness about healthy and sustainable diets.
  - Restrict advertising of unhealthy and unsustainable food products.
- **Enhance Availability of Sustainable Products:**
  - Regulate product placement in retail outlets to promote healthier options.
  - Mandate food product reformulation to increase the availability of sustainable and healthy foods.
  - Restrict EU imports of food commodities that cause significant environmental damage.

02 THEME: Climate smart agriculture; Nature-based solutions

Australia - AgriVision 2050 - Tasmania Government Policies

Tasmanian Government, Australia | Source | Download |

Introduction: To meet the food demands of a projected 9 billion people by 2050, Tasmania must leverage its agricultural strengths—such as rich soil, a favorable climate, and a premium brand—to expand its agricultural and food manufacturing sectors. The White Paper aims to enhance Tasmania's agricultural competitiveness, addressing production, investment, and profitability challenges.

Policy Context: Under the Sustainable Agri-Food Plan 2019-23, the government aims to increase Tasmania's farm gate value to $10 billion annually by 2050. This White Paper complements existing research and development initiatives, focusing on cost and non-cost factors affecting competitiveness.

Key Policy Responses

- **Research and Innovation:** Prioritize investment in RD&E to boost sustainable growth and productivity.
- **Smarter Regulation:** Support a regulatory environment that is proportionate and transparent.
- **Investing in People:** Enhance educational pathways and professional development for the agricultural workforce.
- **Managing Risk and Biosecurity:** Aid industry in risk planning and biosecurity measures.
- **Harnessing Natural Capital:** Promote sustainable use of soil, water, and natural resources.
- **Capitalizing on Our Brand:** Use Brand Tasmania to enhance agricultural value.
- **Climate-Ready Agriculture:** Support emissions reduction and climate adaptation strategies.

Emerging Priorities

- **Cicular Economy and Value-Adding:** Increase value from agricultural produce and reduce waste.
- **Digital Transformation:** Address digital skill gaps and implement efficient practices.
- **Responsive to Change:** Facilitate innovation and cross-sectoral connections to address new opportunities and challenges.

03 THEME: Climate smart agriculture

Japan - FY2023 White Paper on Food, Agriculture, and Rural Areas

Japan Ministry of Agriculture, Forestry and Fisheries | Source | Download |

Introduction: The "Trends in Food, Agriculture, and Rural Areas FY 2023" report, annually submitted to the Japanese Parliament, outlines the current status and policy measures related to food, agriculture, and rural development. It also introduces the FY 2024 policy measures based on recent trends and challenges.

Key Issues

- **Price Increases and Climate Change:** Rising food and agricultural input prices, climate change-induced production instability, and global population growth are impacting food security and increasing competition for resources.
- **Domestic Challenges:** Japan faces a declining and aging population, necessitating urgent development of a sustainable and resilient food supply system.

Policy Responses

- **Legal Revisions:** The "Food, Agriculture, and Rural Areas Basic Law" was amended to address evolving conditions and ensure food security, environmental harmony, and rural community sustainability.
- **Fiscal Measures:** FY 2023 allocated ¥2.2683 trillion for agricultural and rural development, focusing on structural transformation, export promotion, green agriculture, and disaster recovery. Additionally, ¥818.2 billion was added in supplementary budgets.
- **Financial Measures:** Enhanced support for agriculture through low-interest loans, tax incentives, and disaster relief funding aims to strengthen agricultural infrastructure and resilience.

Future Directions

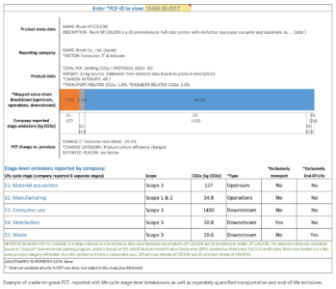
- **Strengthening Food Security:** Reduce dependency on imports through structural changes and promote smart agriculture and exports.
- **Environmental Sustainability:** Advance the "Green Food System Strategy" to minimize environmental impact.
- **Community Support:** Sustain and develop rural areas in light of demographic changes and environmental challenges.

OPEN DATA

01 THEME: Carbon market and pricing; GHG emission inventory

The Carbon Catalogue, carbon footprints of 866 commercial products from 8 industry sectors and 5 continents

Scientific Data| Source | Data |



Scientific Data is a peer-reviewed open-access journal for descriptions of datasets and research that advances the sharing and reuse of research data. Our primary content-type, the Data Descriptor, combines traditional narrative content with structured descriptions of data to provide a framework for data-sharing to accelerate the pace of scientific discovery. These principles are designed to align with and support the FAIR Principles for scientific data management and stewardship, which declare that research data should be Findable, Accessible, Interoperable and Reusable.

In 2020, a dataset of 866 product carbon footprints (PCFs) from 145 companies across 30 industry groups and 28 countries was created by a US research team led by Columbia University, showing trends in emissions and the impact of life cycle assessments (LCAs). This dataset, based on Carbon Disclosure Project (CDP) data, is now available in a detailed and consistent format, enabling comprehensive analysis of product carbon footprints. The Carbon Catalogue is a comprehensive dataset that highlights the importance of PCFs in sustainability decisions. Each product entry provides details such as name, description, PCF (in kg CO_{2e}), LCA protocol/standard, product weight, manufacturer's industry, and country. For 421 products, it includes detailed PCF breakdowns across different life cycle stages. Additionally, for 250 products, it documents changes in PCFs and their causes.

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02 THEME: Environment and climate; GHG emission inventory

Visualization of efforts to reduce the environmental impact of agricultural products

Japan Ministry of Agriculture, Forestry and Fisheries| Source | Guide |

郵便局のふるさと小包チラシでの桃の販売の様子
（株式会社 陽と人）

To help consumers make environmentally friendly choices, Japan MAFF has developed a system for quantifying efforts in reducing agricultural production's environmental impact and displaying such efforts on product labels. In the example of rice production, practices that promote biodiversity conservation and reduce greenhouse gas emissions are evaluated and scored with stars. As of March 2024, the initiative has been launched at 789 locations nationwide.

Using cultivation data, the greenhouse gas emissions during production are calculated and compared to standard regional practices to determine the reduction contribution rate. Based on this, products are clearly labeled to show their environmental impact, making it easier for consumers to choose sustainable options.

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03 THEME: Agrifood system;Environment and climate; GHG emission inventory

Agri-food Data Portal

European Commission| Source | Data |

The Agri-food Data Portal provides an interactive tool which shows the developmemt of 20 key indictors for the three dimentions of sustainability in agriculture and comprehensive data on European agriculture and the Common Agricultural Policy (CAP). The portal aims to enhance transparency and inform stakeholders about various aspects of agricultural sustainability and policy.

- **Agri Sustainability Compass:** An interactive tool showing the sustainability performance of EU agriculture across economic, social, and environmental dimensions, using 20 key indicators to track trends.
- **Ukraine Spotlight:** Economic statistics assessing the impact of the Russian invasion of Ukraine on European farmers and food consumers.
- **Agri-food Markets:** Data on agriculture markets, including imports, exports, prices, and production.
- **CAP Indicators:** Measures the performance of the CAP, which supports farmers, rural development, and sustainable farming.
- **Farm Economics:** Reports on EU farm productivity, profitability, subsidies, and financial structure based on the Farm Accountancy Data Network (FADN).
- **Geoportals:** Links to spatial data from Member States, collected through the Integrated Administration and Control System (IACS).
- **EU Financing:** Information on CAP financial allocations for market measures, direct support, and rural development.
- **Country Factsheets:** Overviews of agricultural and rural development performance in the EU and individual countries.
- **Food Supply and Security:** Datasets monitoring and assessing food supply and security.

EVENT

01

Inspire - Digital Technologies in the Food System

November 1 – December 2, 2024 | Virtual | Source |

Discover the future of the agri-food sector at the INSPIRE programme, hosted by QUB's Institute of Electronics, Communications and Information Technologies in collaboration with EIT Food. From [Event Date], join a dynamic course empowering participants to explore cutting-edge digital technologies and their application in food systems.

Key Highlights

- Learn from world-leading experts in secure connected intelligence and food integrity.
- Develop innovative business solutions to revolutionize agriculture and food production.
- Network with industry leaders, startups, and researchers across Europe.

02

3rd International Conference: Climate-Smart Nutri-Sensitive Integrated Farming System for Gender-equitable Sustainable Agriculture : Prospects and Challenges (ICNSFS-2024)

November 6-8, 2024 | Hybrid | Bhubaneswar, Odisha | Source |

Explore the future of sustainable agriculture at the 3rd International Conference on Climate-Smart Nutri-Sensitive Integrated Farming System (ICNSFS-2024), hosted by the Pragati International Scientific Research Foundation (PISRF) in collaboration with ICAR-Central Institute for Women in Agriculture (ICAR-CIWA).

Event Focus:

- Climate-Smart Agriculture: Addressing challenges and opportunities in agriculture amidst climate change.
- Gender-Equitable Farming: Empowering women in agriculture for sustainable development.
- Integrated Farming Systems: Innovations in combining nutrition-sensitive and climate-resilient farming practices.

03

2024 ASA, CSSA, SSA International Annual Meeting

November 10-13, 2024 | Hybrid | St. Antonio, USA | Source |

As climate change accelerates, AI offers transformative solutions like advanced modeling, remote sensing, and autonomous machinery for sustainable agriculture and precise environmental management.

Hosted by the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, this premier gathering unites global leaders, researchers, and industry pioneers. Explore thousands of presentations, workshops, and networking opportunities to collaborate on cutting-edge advancements in environmental sciences.

04

American Geophysical Union (AGU) Fall Meeting 2024

December 9-13, 2024 | In-person | Washington DC, USA | Source |

Science is a dynamic narrative of exploration and innovation, shaping our future and our world. AGU24 invites scientists, educators, policymakers, journalists, and communicators to envision the next chapter of scientific advancement and global stewardship. Together, let's propel science forward towards a sustainable and equitable future.

Event Highlights: Global Impact: Explore diverse perspectives and solutions to address climate change and environmental challenges.

05

2025 12th International Conference on Asia Agriculture and Animal (ICAAA 2025)

January 17-19, 2025 | In-person | Osaka, Japan | Source |

The 12th International Conference on Asia Agriculture and Animal (ICAAA 2025) , since its inception in Hong Kong, gathers scholars, researchers, and industry professionals from around the globe.

- Advanced Machine Systems
- Agricultural Biotechnology
- Agricultural Ergonomics
- Agricultural Production and Food Safety
- Agricultural systems
- Agricultural waste management
- Agro-industry
- Animal Agriculture in the Globe
- Animal Health & Welfare
- Animal Protein and fibre products
- Aquaculture and Biosystems Research
- Biological natural resource engineering
- Bio-machine systems
- Bioprocess and Biosystems
- Biotechnology for Livestock, Pests and Aquaculture
- Cutting Edge Science for Future Animal Agriculture
- Ecological Engineering
- Emerging public concerns with animal agriculture
- Emerging technologies in Agriculture and Livestock
- Energy in agriculture
- Environmental constraints to animal agriculture
- Food Engineering and biotechnology
- Food safety and Bio-process engineering
- Food security
- Food Science and Technology
- Food traceability and safety
- GPS and GIS technologies
- Industry Transformation - Case Studies
- Livestock Biotechnology
- Livestock building design for animal welfare and health
- Livestock Production
- Mammary development and lactation - a vision for functional genomics
- Meat and allied industries
- Nanotechnology in agriculture
- Power and machinery in agriculture
- Precision farming and variable rate technology
- Research for improved animal fibre products
- Soil and water engineering
- Structures and environment
- Terramechanics
- The post-genomic future for genetic selection of livestock
- Traceability of animal source foods
- Watershed design for water quality protection elsewhere
- Delivery of the final product
- Biotechnology applied to production of new and better quality food