



# NPU STUDENT AMBASSADOR

## TOOLKIT 4: SUSTAINABLE FOOD



**NATURE  
POSITIVE  
BY 2030**



# Sustainable food

Biodiversity is critical for safeguarding global food security, underpinning healthy and nutritious diets, improving rural livelihoods, and enhancing the resilience of people and communities. We need to use biodiversity in a sustainable way, so that we can better respond to rising climate change challenges and produce food in a way that doesn't harm our environment.

The global food system is the primary driver of biodiversity loss on the planet. With over 8 billion mouths to feed, more and more land is being given over to food production, causing habitat loss around the world and stripping vast swathes of land of its biodiversity. While the rise in biodiversity-friendly practices is encouraging, more needs to be done to stop the loss of biodiversity for food and agriculture.

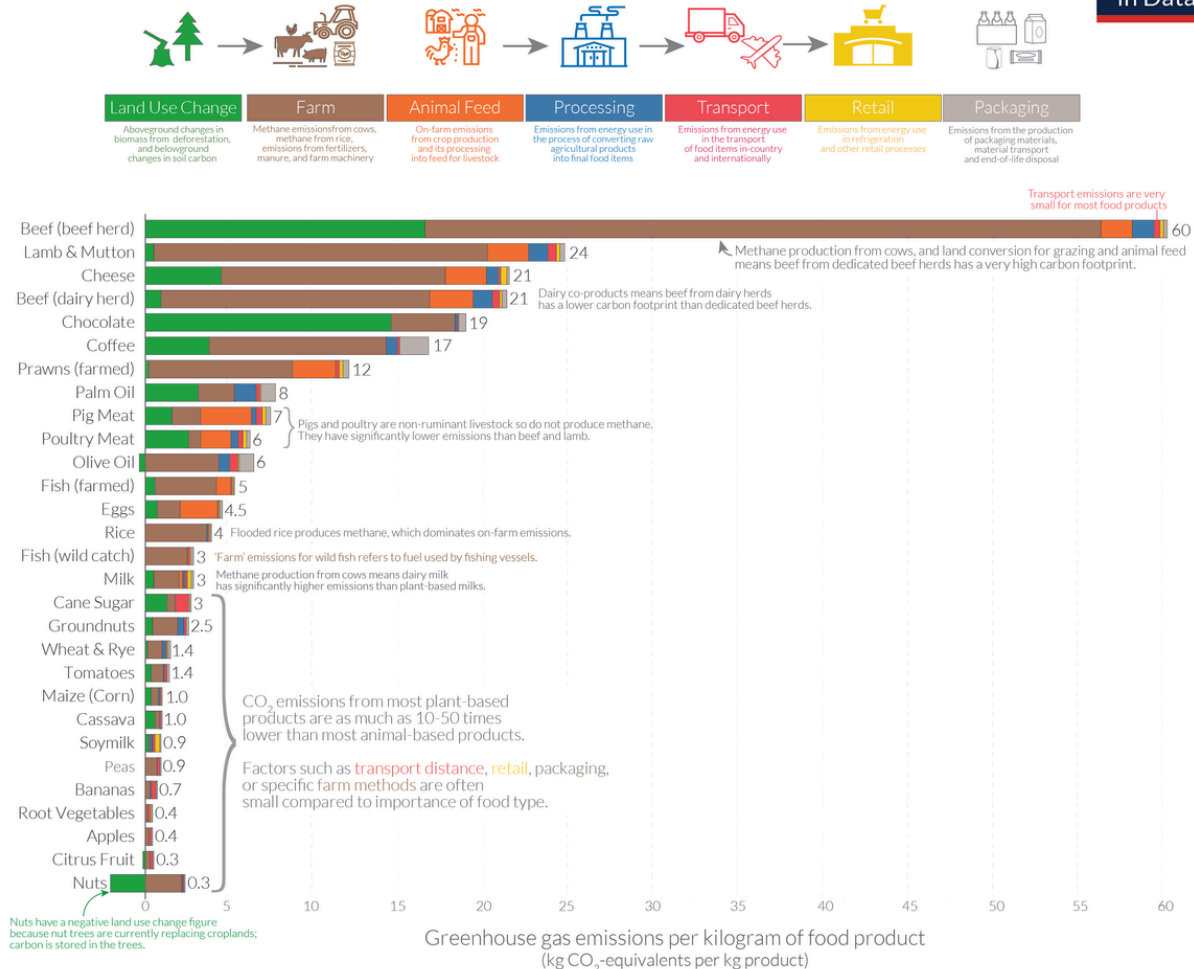
The actions in this toolkit show how you can address the core drivers of biodiversity loss through changing diets, supply chains, and understanding around food.



# Greenhouse gas emissions

## Food: greenhouse gas emissions across the supply chain

Our World  
in Data



Note: Greenhouse gas emissions are given as global average values based on data across 38,700 commercially viable farms in 119 countries.  
Data source: Poore and Nemecek (2018). Reducing food's environmental impacts through producers and consumers. *Science*. Images sourced from the Noun Project.  
OurWorldinData.org - Research and data to make progress against the world's largest problems. Licensed under CC-BY by the author Hannah Ritchie.



**Methane production from cows and land conversion for grazing and animal feed means beef from dedicated beef herds has a high carbon footprint**



**CO<sub>2</sub> emissions from most plant based products are 10-50 times lower than most animal-based products**



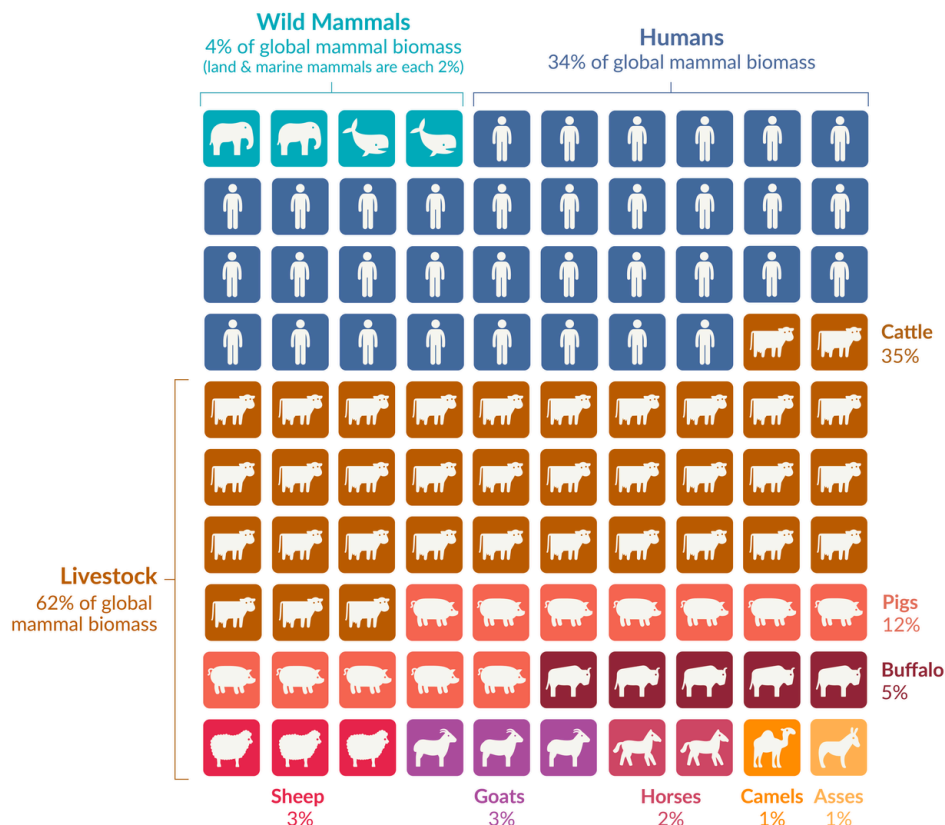
**Factors such as transport distance, retail, packaging or specific farm methods are often small compared to importance of food type**

# Distribution of mammals on earth

## Distribution of mammals on Earth

Our World  
in Data

Mammal biomass is measured in tonnes of carbon, and is shown for the year 2015. Each square corresponds to 1% of global mammal biomass.



Note: An estimate for pets has been included in the total biomass figures, but is not shown on the visualization because it makes up less than 1% of the total.

OurWorldinData.org — Research and data to make progress against the world's largest problems.

Licensed under CC-BY by the authors Hannah Ritchie and Klara Auerbach.

With the arrival of humans, wild land mammal biomass has declined by an estimated 85% and humans are now the dominant species. We see this when we look at the distribution of mammals across the world today.

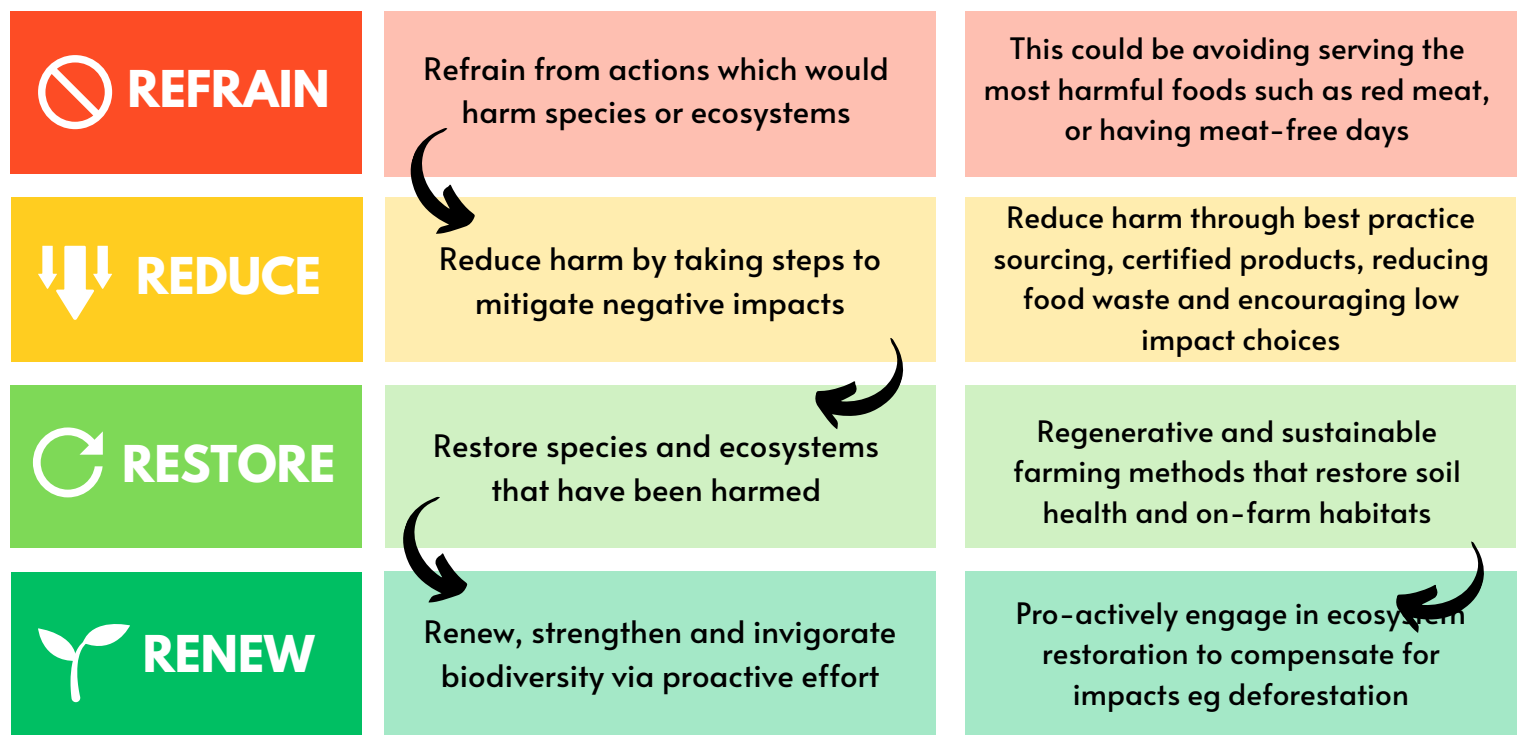
Each icon in the above graphic is equivalent to around one million tonnes of carbon. This includes both land and marine wild mammals. Wild mammals make up just 4% of the mammal kingdom. The dominance of humans is clear. Alone, we account for around one-third of mammal biomass. Almost ten times greater than wild mammals. Our livestock then accounts for almost two-thirds. Cattle weigh almost ten times as much as all wild mammals combined. The biomass of all of the world's wild mammals is about a third of our pigs alone. <https://ourworldindata.org/wild-mammals-birds-biomass>



# Conservation Hierarchy

A great framework to help planning actions and to work towards achieving conservation goals is the **Conservation Hierarchy**, which we promote throughout the NPU programme and was included in our previous toolkit. For more information about this hierarchy of principles, read through pages 5 and 6 in [Toolkit 3: Biodiversity Actions on campus](#).

If you are interested to see how this can be applied in practice, please see the studies linked on p14 and p16 which refer to two Oxford colleges that explored actions under each level: Refrain, Reduce, Restore and Renew.



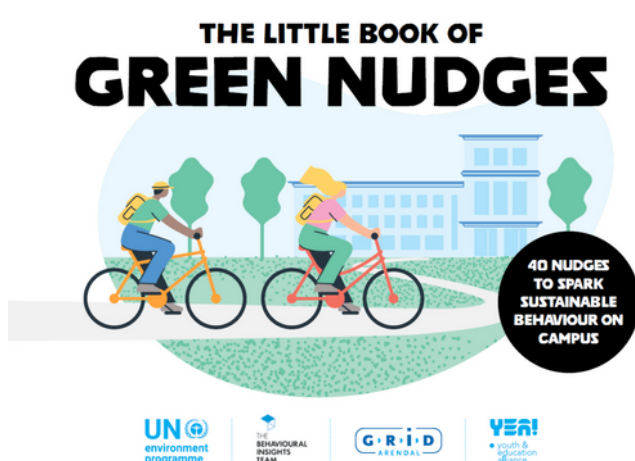
# Run a 'food nudges' campaign in your university canteen

Changing the food staff and students at your university eat doesn't have to involve banning certain high-impact items. It can be as simple as 'nudging' people to make more environmentally friendly decisions.

What does 'nudging' involve? Consider this: when a university provides easy bicycle parking and repair stations, it nudges students to bike to campus. When a university makes plant-based food the default dish, it nudges students towards environmentally-friendly diets. These “green nudges” are positive and gentle persuasions to influence behaviours on campus and to instil environmental values that can last a lifetime.

If you'd like to do this on your campus, check out the 'Little Book of Green Nudges' by UNEP which includes tips and tricks for a more sustainable diet amongst other things. You can find it here:

<https://www.unep.org/resources/publication/little-book-green-nudges>



## Half-Plate and Full Plate concept at Indraprastha Women's College, India



Students at Indraprastha Women's College can select a half-plate or full-plate from university facilities, depending on their need, reducing food wastage.



# Sign your campus cafes up to Too Good To Go (Europe & North America)



Too Good To Go is a service that connects customers to restaurants and shops which have surplus unsold food, allowing them to purchase the food for a highly reduced price. At present it only operates in Europe and North America, but the more companies that sign up and more people that use the app, the more it will spread!

If your university has a campus cafe, restaurant, or grocery store, you can encourage them to join the programme. Write a letter, make a petition, or send an email explaining what Too Good To Go is and why you'd like them to sign up. They'll make more money by selling their excess food, and the planet will be helped by reducing food waste!



## Too Good To Go

Check out the Too Good To Go website and app [here](#).

If you are in a different location, there are likely other services which make use of and redistribute surplus food – do some research, and we'd love to hear about similar initiatives in your area.

# Support a study of the impact of food on biodiversity at your university



The food our colleges and universities serve can have a huge impact on biodiversity depending on the range of foods offered and where it is supplied from. It can be difficult to get an idea of where the impacts are in your university canteen, so a great start is by supporting your university to conduct a study on the impact of food on biodiversity.

You don't have to do this alone – it could be a group research project in collaboration with staff, or something you campaign for your university to carry out.

It is possible to consider food impacts at various levels – you might just address the food served in one canteen, cafe or site, or you could attempt to look at all food purchasing across your institution, depending on your time, resources, and access to data.

If your university has made a Nature Positive Pledge, this work could also contribute towards your university's biodiversity baseline as a starting point to reducing impacts measurably in the future.

The following page shows an outline of the methods that researchers at University of Oxford have used in a number of recent research studies quantifying the biodiversity impacts of food consumption as well as case studies from two Oxford colleges and University of British Colombia, Canada which used the same approach.

Please get in touch with the NPU team if you are keen to take forward a study of biodiversity impacts of food at your institution and we will try to support you!



# Determining biodiversity footprints: A how-to guide for food impacts

## 1. Choose the scope



Which parts of your operations will you look at? For example, food purchased at student halls of residence, canteens, externally run cafes.

## 2. Collect the data



Data relating to the activities (food purchasing) within the scope. This may be a list of raw ingredients (kg), composite items (no. kg/item) or just spend per category. Consider which activities are under direct or indirect influence, for example a university run canteen versus a private cafe operating on campus.

## 3. Calculate environmental impacts



Quantitative measures of the negative life cycle impacts of activity data. If you are interested to help carry out a study for your institution using the methods that Oxford used, please get in touch.

Life Cycle Impacts typically consider:

- Greenhouse gas emissions (kg CO<sub>2</sub>e)
- Water use (litres)
- Land use (m<sup>2</sup>)
- Eutrophication (kg PO<sub>4</sub>e)
- Acidification (kg SO<sub>2</sub>e)

## 4. Calculate biodiversity impact



Life cycle impacts are converted into a proxy biodiversity measure. Oxford used the ReCiPe conversion factors based on local risk of species extinction. (species.year)

Some data and methods you may want to use include:



Poore & Nemecek  
(2018) database



ReCiPe conversion  
factors

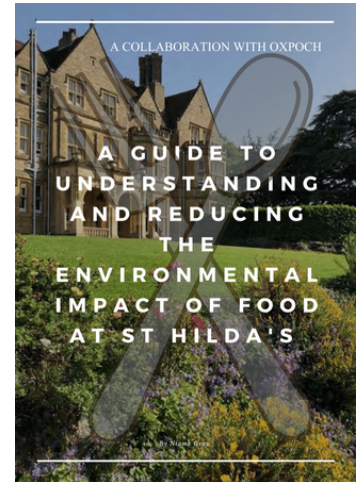
Clark, M. & al.  
(2022)  
methods

# A student-led study into the environmental impacts of food at St Hilda's College, University of Oxford:

An undergraduate biology student at University of Oxford produced a guide for understanding and reducing the impacts of food at her Oxford college. You can download this [here](#).

The purpose of this handbook was to:

- Inform St Hilda's College of their current impacts attributed to meals from the Dining Hall.
- Given these impacts, suggest how St Hilda's could improve based on the Conservation Hierarchy.



Example handbook pages:



### Refrain

This is the first and most effective step to reduce your impacts on the natural world.

**1. Refrain from consuming the most impactful foods.**

A. Refrain from beef mains with poultry mains.  
If any intervention is to be acted on in this study, this first one would be the most impactful.

According to the data, such an intervention would mean...

- 20% reduction in GHG emissions
- 20% reduction in land use
- 20% reduction in water use
- 20% reduction in acid equivalents
- 20% reduction in eutrophication

Beef mains alone account for ~30% of main meal impacts, thus reductions are VERY important indeed.

B. Refrain from beef mains with poultry mains.  
This intervention could replace the previous.

According to data, this intervention would result in...

- 10% reduction in GHG emissions
- 12% reduction in land use
- 8% reduction in water use
- 8% reduction in acid equivalents
- 8% reduction in eutrophication

HOWEVER, as you can see from the expected outcomes of each intervention, the reductions in impact of 10 or 12 are 20-30% as effective as 1A.



### Reduce

The Reduce step is all about reducing impacts as much as possible where some impactful practices are inevitable.

**2. Reduce the amount of meat in a meat dish.**

A. Substantiate that the volume of chicken is better than the chicken. This would almost halve the impacts of fatty dishes and provide diners with meat of their 5-day.

B. In other courses, substitute with chicken, lentils, tofu, or other pulses to reduce impacts. For example, half into chicken sauce & stir and serve in bowl (400g/100g) with lentils...

**3. Put plant-based options on first on self-service display.**

- Makes this option visible first, so students view them more often instead of immediately choosing the meat option.

**4. Improve appearance of plant-based dishes.**

- Use alternatives to give edible flowers/herbs to garnish veggie options.

**5. Use appealing language to highlight benefits of plant-based dishes.**

- Highlight terms: smart, pure and good.
- "Sun-dried", "stone-cold", "Chef's recommendation".
- Be a good source in helping with eating of origin on the plant-based option.
- Highlight country of origin in the name: "Cuban Black Bean Soup instead of Black Bean soup".
- "Vegan", "vegetarian", "healthy", "light", and "low-carb" don't in fact mislead diners to choose those options. So, place "vegetarian" or "vegan" in the description of meat post first.

**6. Run cross-product promotions on plant-rich dishes.**

- Buy 10 portions of veg, get 10 free.
- If meat (including chicken, pork, lamb and beef) is vegan, give them 20% off.



### Restore

The Restore step is where one restores the species and ecosystems that have been harmed directly by one's actions since they're done. It's about compensation.

In the context of food, this step is largely about what we do with leftover food.

**10. Food waste is a problem as they eat it in their own way.**

- This will reduce food waste being scraped into the bin.

**11. Continue to Reduce meat and meat is the best way.**

- As an extra purchasing view required for the first meal with meat, it may be that the food waste with leftovers should be cheaper than it would've been before.
- This will ensure leftovers are consumed as the cheaper price will be appealing to students.

**12. Consider access to a food waste bin.**

- I could organize donations of food left in kitchens as has been done in previous years.

**13. Encourage students to bring their own food to the college's herb garden.**

- Reducing our carbon for growing our own food in the college's herb garden will reduce our meat impacts.
- These cuttings from college grounds may also be composted.



### Renew

The final step, Renew, is where one makes up for negative impacts by investing in creative actions elsewhere. This step is about making an equality positive difference.

**14. Invest in habitat restoration on farms so are directly purchasing from.**

- Reach out to suppliers and ask how we can help.

**15. Invest in increasing biodiversity in the new college's herb garden by planting native herbs, plants and eating long-term.**

- Vegetables produce do not have to be meat and organic. Mixing in lots of different kinds of flowers will attract pollinators and soil-dwelling organisms that will keep the soil healthy.

**16. Consider to farm-scale ensuring and farm-scale environmental farms sold in Bridgford.**

- Reduce pig, sheep, chicken, beef and cow meat.
- Could reduce the social impacts of our supply chain.
- Some money from farm-trade products is invested in habitat restoration, reducing our environmental impacts too.

Money for investment could come from collections at E&E events in collaboration with the JCR charity efforts.

If 10 or 21 are considered, this College's future could also be bright.

I also understand that the College's students who discussed last year, but not Scotland. So, interventions that restore the college's herb garden are dependent on that going ahead.

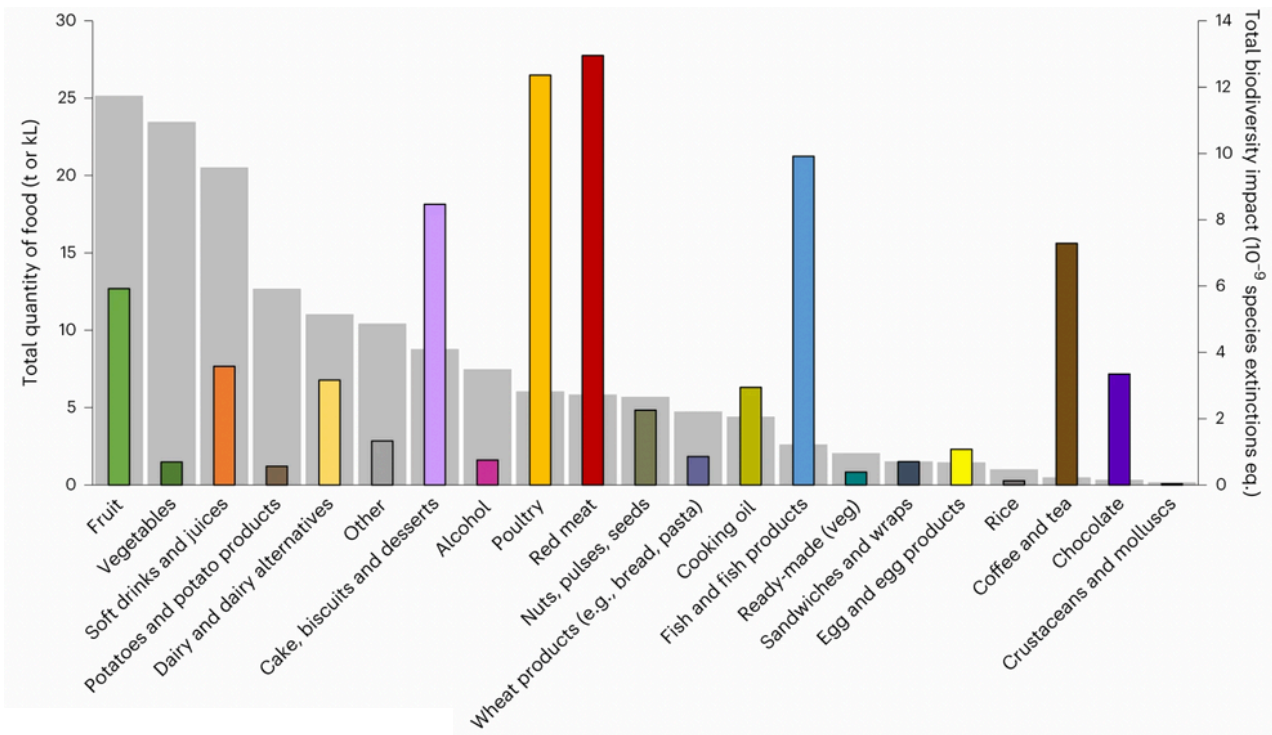


# An Oxford study into the environmental impacts of food at Lady Margaret Hall, University of Oxford:



Another study at Oxford was conducted by researchers, students and staff at another Oxford college, Lady Margaret Hall (LMH). This applies the Conservation Hierarchy framework to guide LMH towards reducing its impacts from food and considers setting ambitious targets and actions for biodiversity in ways that are practical and acceptable for the College. Read the full paper [here](#).

The below graph represents the quantities (tonnes or kilolitres) and categories of food consumed at the college over a 3 month period, combined with the relative biodiversity impacts of each category. It is clear to see particularly high impact items such as red meat, poultry, fish, coffee and chocolate.



nature food

Analysis <https://doi.org/10.1038/s43016-022-00660-2>  
**Nature-positive goals for an organization's food consumption**

Received: 16 February 2022  
Accepted: 4 November 2022  
I. Taylor<sup>1</sup>, J. W. Bull<sup>1,2</sup>, B. Ashton<sup>1</sup>, E. Biggs<sup>1</sup>, M. Clark<sup>1,3,4</sup>, N. Gray<sup>1</sup>,  
H. M. J. Grub<sup>1</sup>, C. Stewart<sup>1</sup> & E. J. Milner-Gulland<sup>1</sup>

Total quantity food  
Biodiversity impact

# An Oxford study into the environmental impacts of food at Lady Margaret Hall, University of Oxford:

The below table represents a range of actions that can be taken at a university at each step of the Conservation Hierarchy. These were taken from a study at LMH, University of Oxford as mentioned on the previous page, however many of the actions would be relevant at any institution.

 **REFRAIN**

- Avoid serving high impact items that contribute towards biodiversity loss, such as most damaging red meats (eg beef, lamb).
- Offer substitutions or a meat-free day.
- Refrain from serving coffee or chocolate bars, or in certain locations / settings.

 **REDUCE**

- Best practice sourcing to reduce biodiversity impacts, such as certified products, local seasonal fruit / vegetables.
- Order and produce appropriate amounts of food to avoid waste.
- Alter food to reduce relative amounts of high impact food.
- Offer financial incentives to encourage consumers to choose low impact foods.
- Provide staff with tools and knowledge to encourage low impact choices.

 **RESTORE**

**COMPENSATORY ACTIONS**

- Invest in habitat restoration of farms that food is purchased from.
- Reach out to suppliers and identify farms that could be targeted for investment in habitat restoration.

 **RENEW**

- Purchase or engage in biodiversity offsets to mitigate residual biodiversity impacts of food.

**PRO-ACTIVE ACTIONS**

- Improve monitoring of food purchasing and waste.
- Promote education into sustainable diets and food systems.
- Organise volunteer gardening opportunities.
- Engage with other colleges / schools to share practices tools guidance on delivering sustainable food.
- Invest in supporting key food suppliers to improve their sustainability practices.



# Assessing the biodiversity impacts of food at University of British Columbia, Canada:

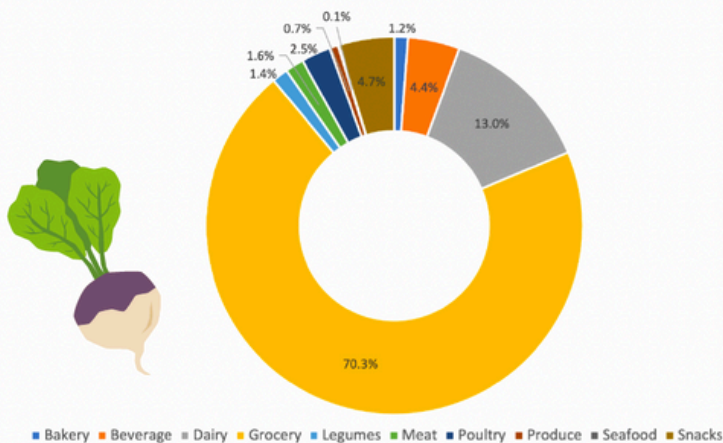
## Case Study: University of British Columbia, Canada

Research students at University of British Columbia (UBC) assessed the environmental impacts of their food procurement using Oxford's conceptual framework, looking specifically at the GHG emissions, land and water use, air and water pollution of food procured by UBC Food Services (UBCFS) outlets (including dining halls, restaurants, retail and catering) between January and December 2022. They used the impacts to estimate the extent of biodiversity loss associated with food procurement and identify areas for reduction of negative impacts.

Replicating the Nature Positive Universities Framework to Assess the Biodiversity Impact of Food Procurement at the University of British Columbia



% OF TOTAL BIODIVERSITY IMPACT, BY ITEM CATEGORY



## RESULTS

- UBC procured the most grocery and beverage products by weight
- Grocery and dairy categories had the highest mid-point and biodiversity impacts
- Meat, poultry and dairy had the highest per-kilo impacts

Final report available here:

[https://www.naturepositiveuniversities.net/wpcontent/uploads/2024/04/NPU\\_UBC\\_FinalReport.pdf](https://www.naturepositiveuniversities.net/wpcontent/uploads/2024/04/NPU_UBC_FinalReport.pdf)

# Institutional catering practices at St Hilda's College, Oxford

St Hilda's College Oxford outline a range of food practices on their college website, including that they are aiming to move the menus for all of their catering for students, staff and visitors in line with the seasons and provide local and British produce. A popular annual "Green Feast" has showcased sustainably produced food since 2008. Below are a range of their policies:



Two of the three options on our daily Dining Hall menu are vegetarian or vegan while Mondays are entirely meat free as are our guest nights.



Food suppliers assessed for ethical and sustainable practices



Food waste is used for energy production



Gas cookers all replaced with electric



Reduced single use plastic

Encouraging keep cups and reusable water bottles  
Recycle packaging where possible



Cooking oil is recycled off site



Limiting use of tablecloths to minimise washing

[View St Hilda's website](#)



**Sustainability | St Hilda's College Oxford**

As the planet heats up faster than ever before, with the 7 of the last 10 years being the hottest 7 since...

 [ox.ac.uk](http://ox.ac.uk)

# Grow your own food on campus

One great way you can promote sustainable consumption and highlight the importance of how food is produced is by growing your own food on campus. This helps you to consider what can potentially harm nature in food growing – converting land from nature to agricultural land, using chemicals to prevent pests and weeds, and removing plants from the soil to interrupt nutrient cycles. If you'd like to start a campus food garden, check out some inspiration from the universities below!



## **Student-run gardens and urban agriculture at McGill**

McGill University's main campus may be in the centre of Canada's second largest city, but its students, faculty, and staff still find ways to connect with nature and promote biodiversity through a variety of garden initiatives.



In addition to cultivating pollinator gardens on both campuses, McGill is home to the Macdonald Student-Run Ecological Gardens and the Campus Crops initiative. This student-led organisation provides local and sustainable produce for the University and the broader community.



# Examples from our network:

## **Student sustainability bungalow food growing**

Keele University, UK has a student sustainability bungalow where some students can opt to live to engage with sustainability projects, which has a garden outside used for growing food!



Credit: Keele University



Credit: University of Ottawa

## **Pollinator garden and food growing in Ottawa**

Former NPU Student Ambassador Victoria Rose King at University of Ottawa, Canada created a pollinator garden which also included blueberry bushes.

Victoria's project aimed to create an opportunity and space for students and faculty members to focus on habitat restoration, community engagement, mindfulness, and potential research. "I wanted to build a pollinator garden in a central campus area to allow students to be mindful and reflect on nature while reflecting on their responsibility to the Earth."



# Examples from our network:

## **Familial Forestry nutri-gardens, Bikaner**

Student Ambassador Avani Jyani at Dungar Government College Bikaner, India has been involved with creation of nutri-gardens to offer healthy fresh food to schools and colleges in her region.



To find out more, visit [Familial Forestry](#) project website, which also features their sapling nurseries and ecological restoration projects.



## **Community garden creation at Laurentian University**

Student Ambassadors at Laurentian University, Canada created a student community garden, which they hope will increase food security and educate students on sustainable and respectful harvest of fruits, vegetables and herbs.

There are many online resources helping you begin a campus food garden, or if you'd like some tips you can ask your fellow Ambassadors on our WhatsApp Community group.

# Promote more plant-based options in your canteen

Especially in wealthy countries, animal products can have an extremely large environmental impact. Much more land, resources, and carbon emissions can go into producing meat and dairy compared to vegetarian protein sources, so promoting plant-based options can be a great way to reduce the biodiversity footprint of your university's food.

With this Action, you can get creative in how you achieve it! Would it be best to create a petition, to speak directly to your catering staff, to raise awareness amongst students?

## Plant-based universities

One example of promoting plant-based options is the Plant Based Universities campaign by students across Europe who are demanding a transition to 100% sustainable plant-based catering to tackle the climate and nature crises. Since starting in 2021 at 3 universities in the UK (King's College London, University College London, and the University of Warwick), the campaign has resulted in 15 universities across 10 different countries start to make changes to their menus.



# Promote more plant-based options in your canteen

The campaign aims to reframe the mainstream environmental debate so that a fully plant-based food system can be celebrated as a key solution to the climate and nature emergencies. They are not demanding a ban on animal products from campuses, but rather that universities divest from these industries at their outlets just as they have fossil fuels.

Students from several universities are part of this, and have held stalls, dropped banners, raised motions, organised media articles and held debates in their student unions to raise awareness and attract support of plant-based menus.

Example social media posts:



Want to find out more? Visit the Plant-Based Universities Initiative website [here](#) as well as their social media channels, including [Instagram](#) and [Facebook](#).



# Celebrate World Pulses Day on February 10th

---

Pulses are critical when it comes to facing the challenges arising from poverty, food security, human health and nutrition, soil health, and the environment. The United Nations General Assembly nominated February 10 as World Pulses Day to raise awareness and highlight the nutritional benefits of pulses and their contribution to sustainable food systems and world hunger.

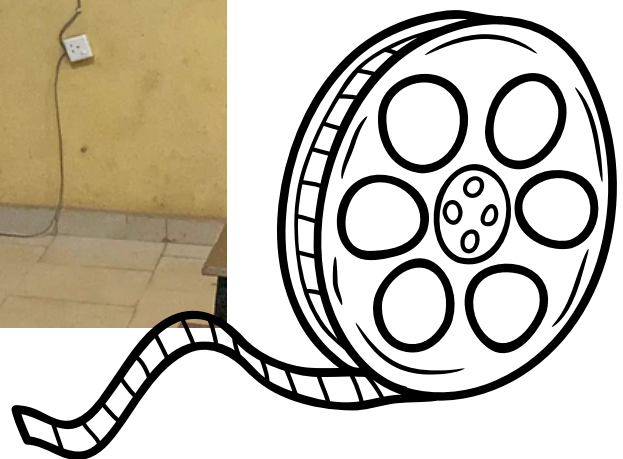
You could work with your university canteen to promote pulse-based dishes on this day, or arrange an event on campus to promote all the benefits to fellow students.





# Host a screening of a documentary about food and the planet

There is so much information on how food affects the environment. One way to raise awareness of the issue is to host a screening of a documentary about food and the planet.



Top tips for planning your film showing:

- Plan a location with appropriate capacity.
- Ensure the room is dark!
- Bring snacks!
- Suggest a discussion after the screening, and always use this as a springboard to tell your audience how they can get involved in Nature Positive activities.

# Host a screening of a documentary about food and the planet



Credit: Ahmadu Bello University students

## NPU Case Study:

Student Ambassadors at Ahmadu Bello University, Nigeria hosted a screening of a documentary about food and the planet, to raise awareness about the impact that our food choices have on the environment.

## Some food documentaries you could choose:

Some of our favourite documentaries can be found on Waterbear (free), YouTube, and Netflix. Have you watched any of these?

- Just Eat It
- Kiss the Ground
- Cowspiracy
- Meat the Future
- Seaspiracy



# Ambassador actions:

This month's task is flexible: we'd like you to explore any food initiatives already happening at your institution or think about what you could work on – some ideas:

## Workshop 4 Actions:

- a. Share a picture of a plant based meal from your culture or institution
- b. Explore the impacts of food through a calculator:  
<https://www.earthday.org/foodprints-calculators/>
- c. Explore and share with us any sustainable food initiatives at your institution
- d. Think through practical steps towards planning a food action such as:
  - Explore food-growing on campus, especially fruit and nut trees
  - Tackling food waste, eg portion sizes, pre-ordering meals, composting
  - Campaigning for more plant based food options or defaults



# Further guidance and information:



- Explore Case Studies on the NPU website, several of which involve food projects



- Watch Webinar 5 in the NPU series from 2024, which features speakers from the University of Oxford and Indraprastha College for Women, University of Delhi on the topic of “University food consumption”



- Watch back a presentation given by Laura Astudillo Mesías and Başak Şendoğan from the Sustainable Lifestyles and Education Team at the United Nations Environment Programme (UNEP) at a Student Ambassador workshop in 2024



- Watch back presentations given by Charlotte Maddinson, Luca Pollozek and Tomoya Akiyama at a Student Ambassador workshop in 2024