



Caroline Drummond MBE, LEAF Chief Executive
caroline.drummond@leafuk.org

Global Challenges

THE GLOBAL RISK OUTLOOK FOR 2019

Types of Risks:  ENVIRONMENTAL  GEOPOLITICAL  SOCIETAL  TECHNOLOGICAL  ECONOMIC

Top 5 Global Risks in Terms of **Impact**

1  Weapons of mass destruction

2  Failure of climate-change mitigation and adaptation

3  Extreme weather events

4  Water crises

5  Natural disasters

Top 5 Global Risks in Terms of **Likelihood**

1  Extreme weather events

2  Failure of climate-change mitigation and adaptation

3  Natural disasters

4  Data fraud or theft

5  Cyber-attacks

Davos 2019

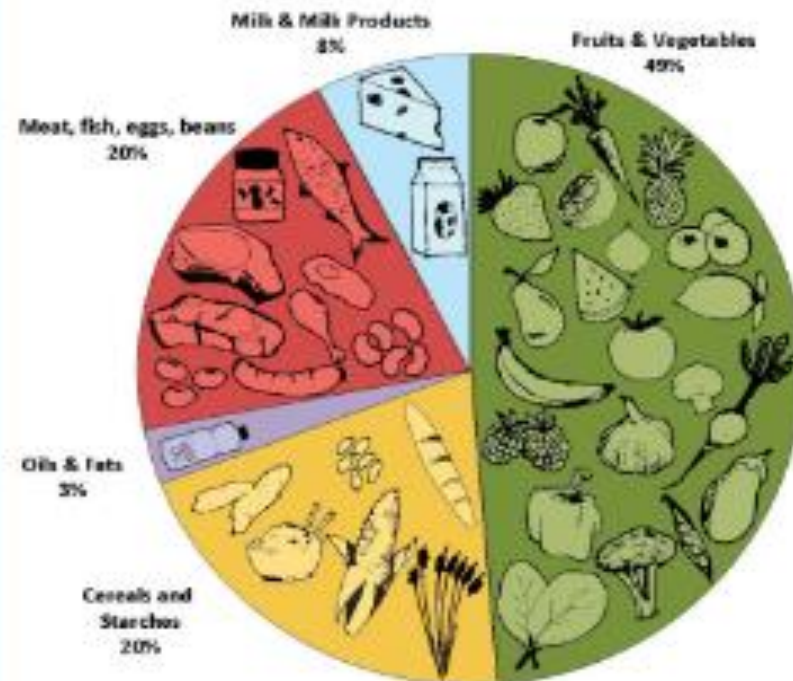


Dietary Changes

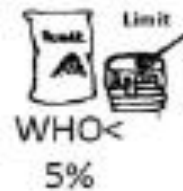


Balancing our needs

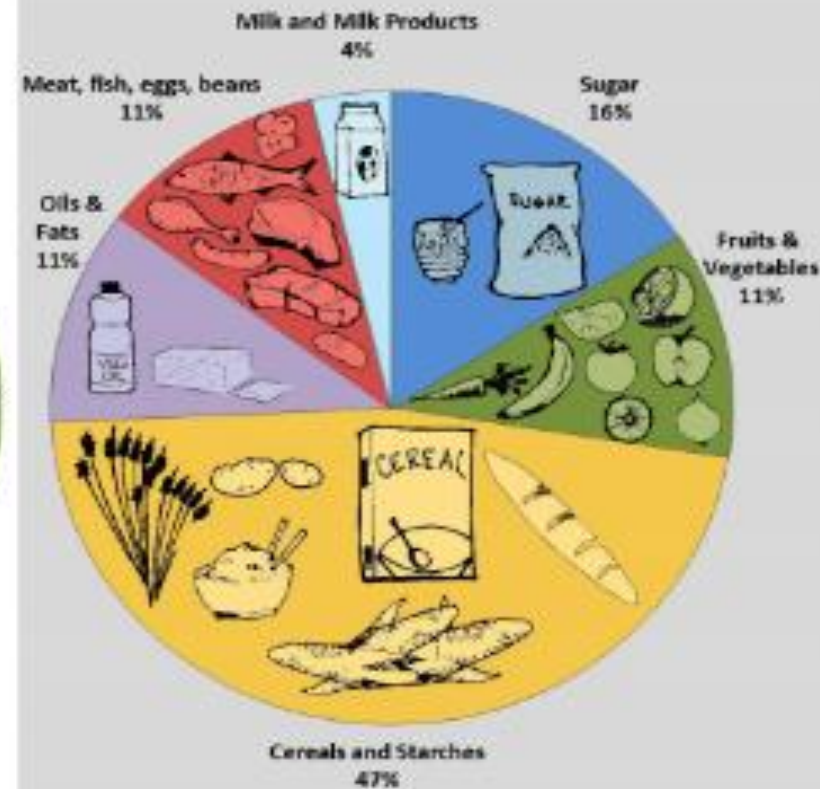
**What we should be eating
(Harvard's Healthy Eating Plate Model)**



WHO < 5%
Limit



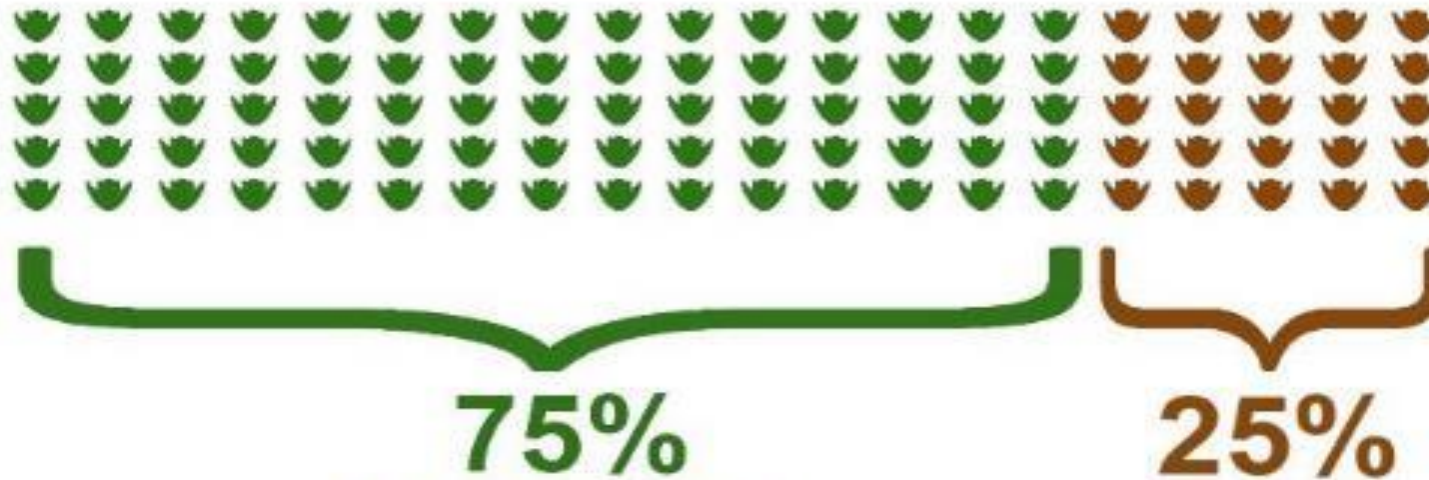
**What we are actually producing
(According to 2011 FAO)**



Evan Fraser, Guelph, FBS analysis, 2015

Diversity in our diets

Global Food Supply

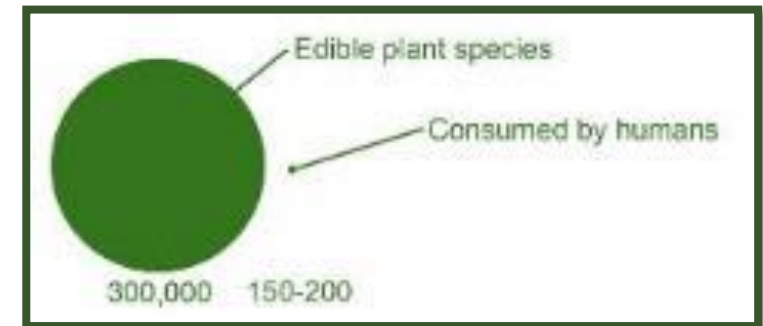


Come from only:

12 plant + **5** animal species

Of which, only **3** make up nearly **60%**
of the calories/proteins from plants in the entire human diet.

{Corn + Wheat + Rice}



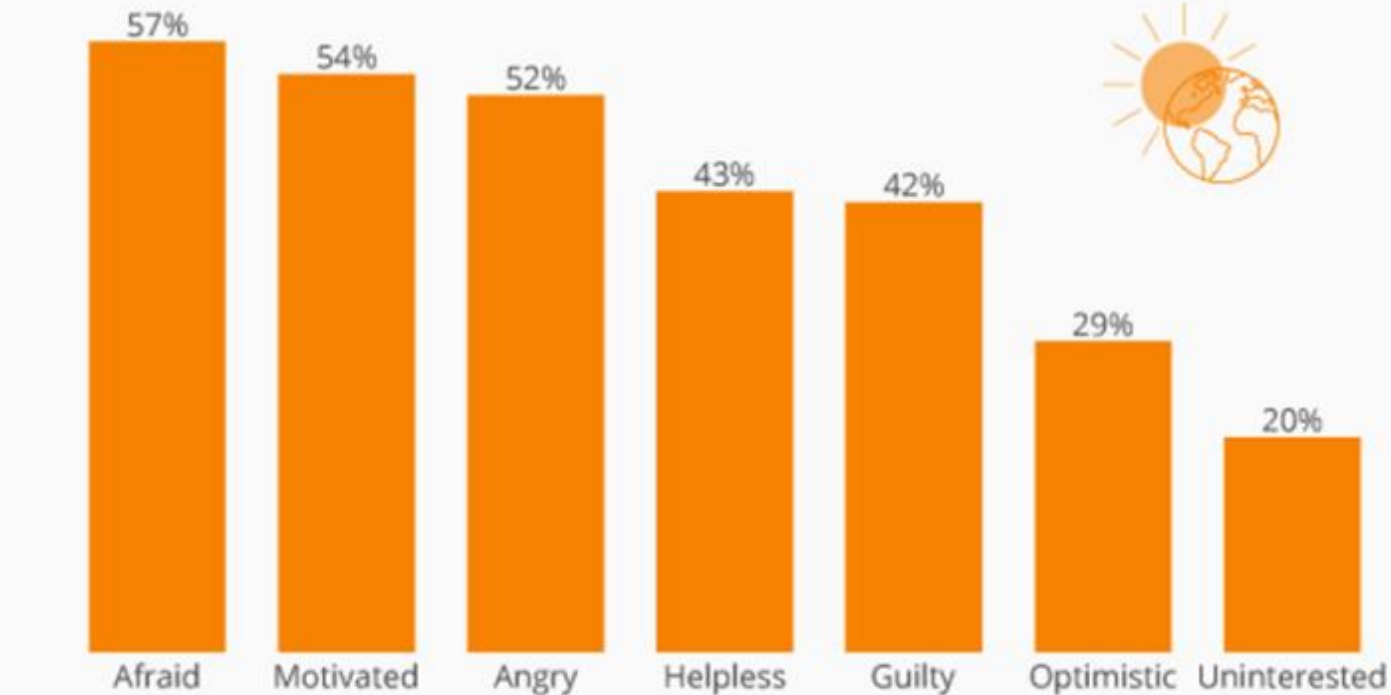
... changing behaviour



It's confusing

U.S. Teens Have a Mix of Emotions About Climate Change

% of U.S. teens who feel the following emotions about climate change

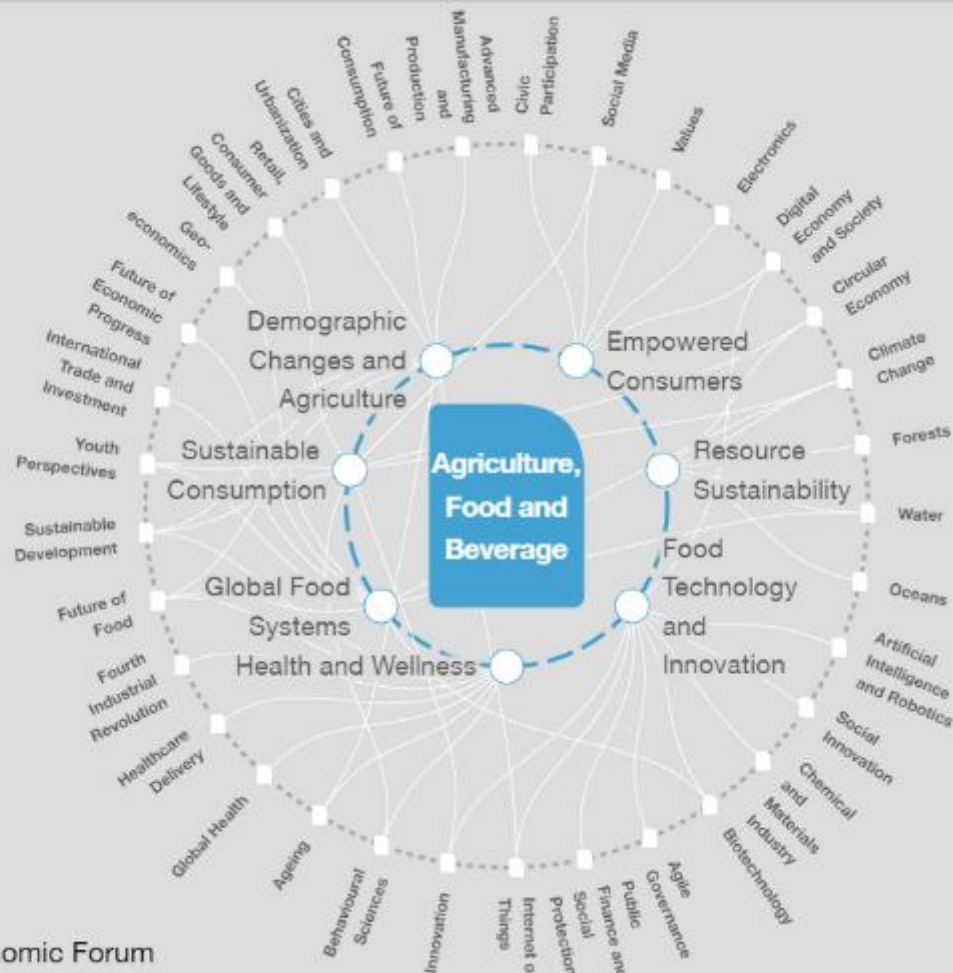


@StatistaCharts

Poll conducted between July 9-August 5, 2019
among 639 teenagers between 13-17.

Source: Washington Post-Kaiser Family Foundation

statista



© World Economic Forum

Key Issues

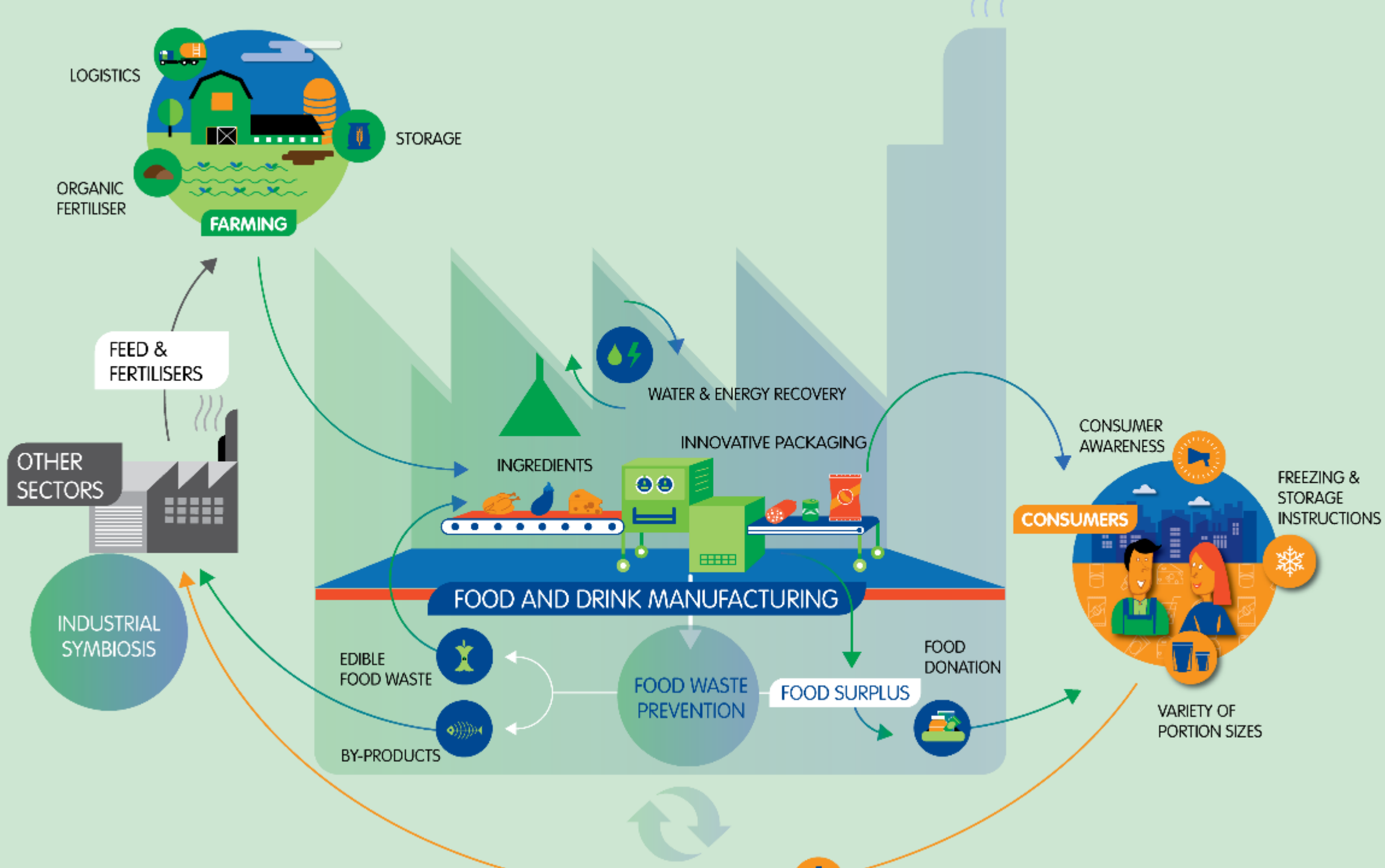
- Empowered Consumers • Resource Sustainability •
- Food Technology and Innovation • Health and Wellness •
- Global Food Systems • Sustainable Consumption •
- Demographic Changes and Agriculture



Figure 1

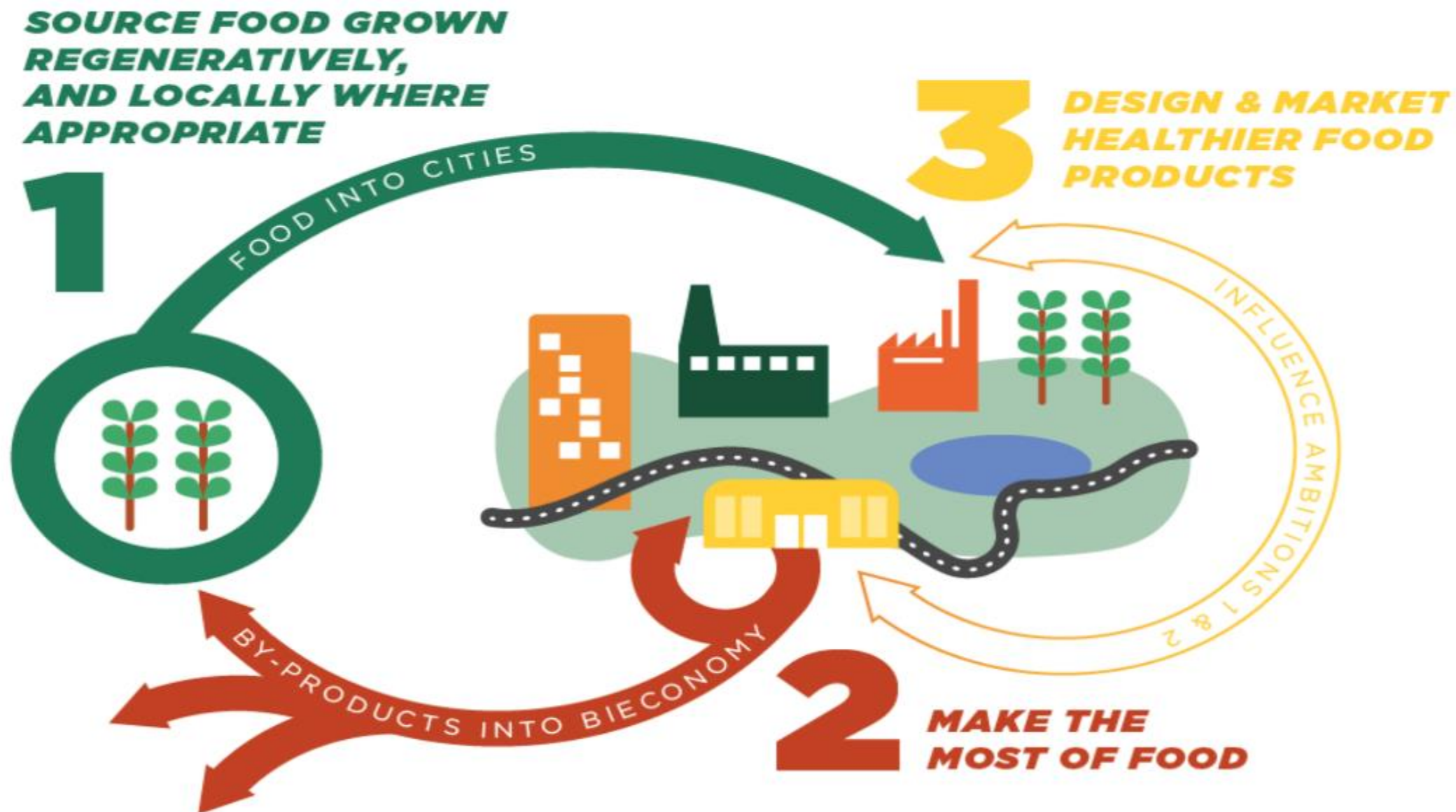
An integrated agenda for food in the Anthropocene recognizes that food forms an inextricable link between human health and environmental sustainability. The global food system must operate within boundaries for human health and food production to ensure healthy diets from sustainable food systems for nearly 10 billion people by 2050.

Image: EAT-Lancet

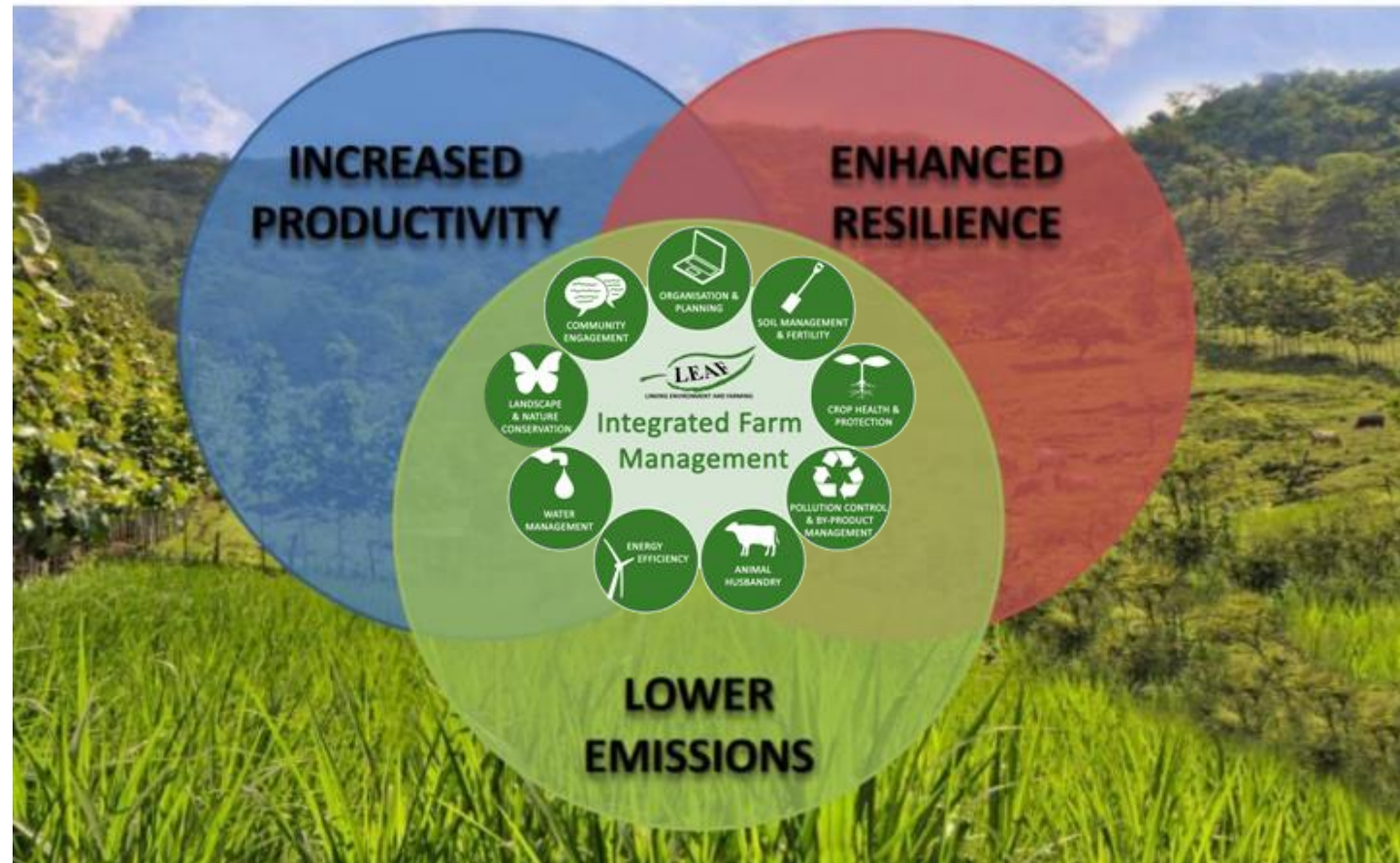




Three ambitions for cities to build a circular economy for food



Climate-Smart Agriculture (CSA)



IFM delivering sustainable farming



Sustainable farming, delivers a site-specific farming system supporting the integration of the environment, society and farm economic viability over the long term.

LEAF 2012



- Whole farm
- Site specific
- Continuous improvement



Organisation and Planning



- Having the structures in place to define success
- LEAN and Smart management practices
- Defining success
- Monitoring
- Benchmarking
- Impact
- Skills & training
- Recognising the areas of waste and inefficiency
- Market focus



Soil & Substrate Management & Fertility



- Health
- Biosecurity
- Nutrition – use & efficiency
- Management
- Porosity
- Re-use



- Crop Health and Protection Policy
- Biosecurity
- IPM strategies
 - building natural defence mechanism of the plant, understanding the growing stresses on the plant, scouting & regular assessment
- Varietal choice
 - for the market or for the situation and your own resources
- Increasing our capability to utilise available nutrients
 - close leaky systems
- Selecting Crop Varieties
- Planting pattern & programme
- Plant Protection Product Best Practice
 - Justify use, Consider environmental impacts, Appropriate applications Recommendations by qualified person, Spillage procedure, Record applications, Stored securely



IPM offers a toolbox of techniques that can be tailored to different cropping systems, climatic conditions, pest pressures and availability of solutions and consists of 8 general principles:

1. Achieving prevention and suppression of harmful organisms
2. Monitoring of harmful organisms
3. Decisions made based on monitoring and thresholds
4. Non-chemical methods
5. Pesticide selection
6. Reduced use of chemical pesticides
7. Anti-resistance strategies
8. Evaluation

Pollution Control & By-product Management

- Cutting out waste
- Pollution Risk Assessment & Action Plan
- Reduce – Minimise waste
- Reuse –Management Plan
- Recycle or Carefully Dispose of Wastes
- Up-cycle
- Investigate Greenhouse Gas (GHG) Emissions
- Carbon Footprint Tool Use
- Creating a Zero carbon economy
- A need for enabling regulation



Energy Efficiency



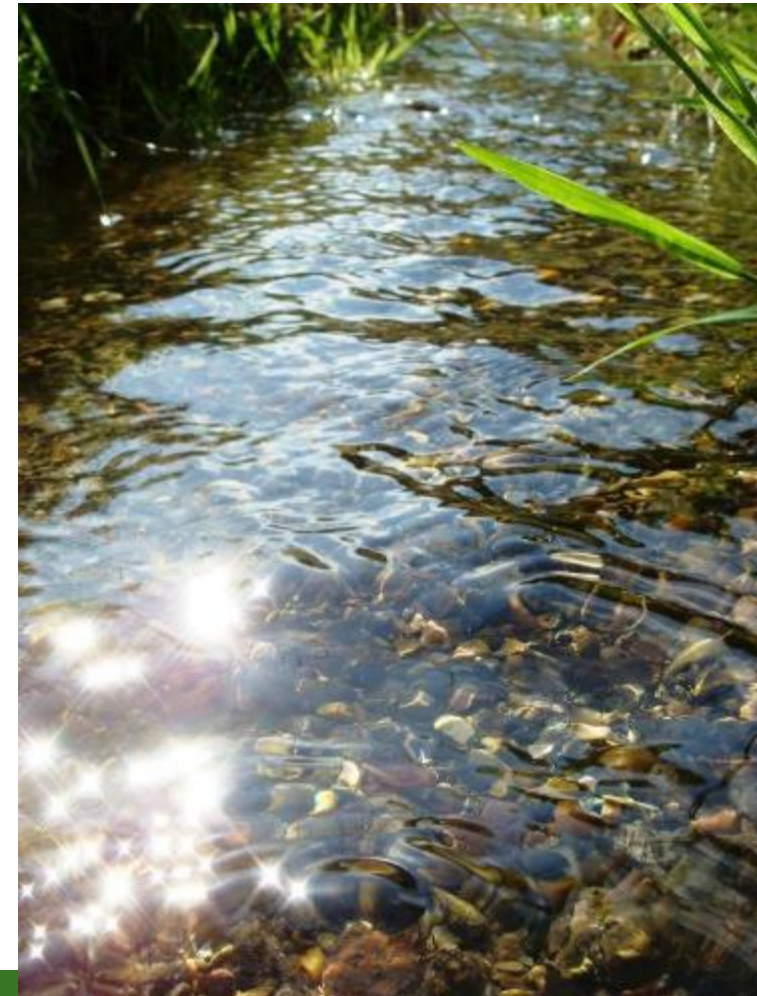
- Monitor Energy Use and Cost
- Manage Activities for Energy Use
- Manage Business Developments for Energy Use
- Renewable Energy
- Cutting down on the use of non renewable resources
- Increasing the capability of renewable resources
 - solar – film on windows – electric vehicles – and tractors
- More precision



Water Management



- Water Management Plan
- Actions based on Water Management Plan
- Responsible Water Sourcing
- Irrigation
- Land Drainage and Ditches
- Drainage from Farm Building Areas
- Rainwater collection
- Quality and quantity
- Flood alleviation
- Attention to detail
- Using water wisely
- Keeping water clean



Landscape & Nature Conservation

- Landscape and Nature Conservation Audit
- Landscape and Nature Conservation and Enhancement Plan
- Staff Involvement
- Range of Habitats relating to Cropping Areas and Livestock
- Field Boundaries
- Monitoring
- Natural properties and ecosystem services
- Pollination
- Woodlands – new & existing



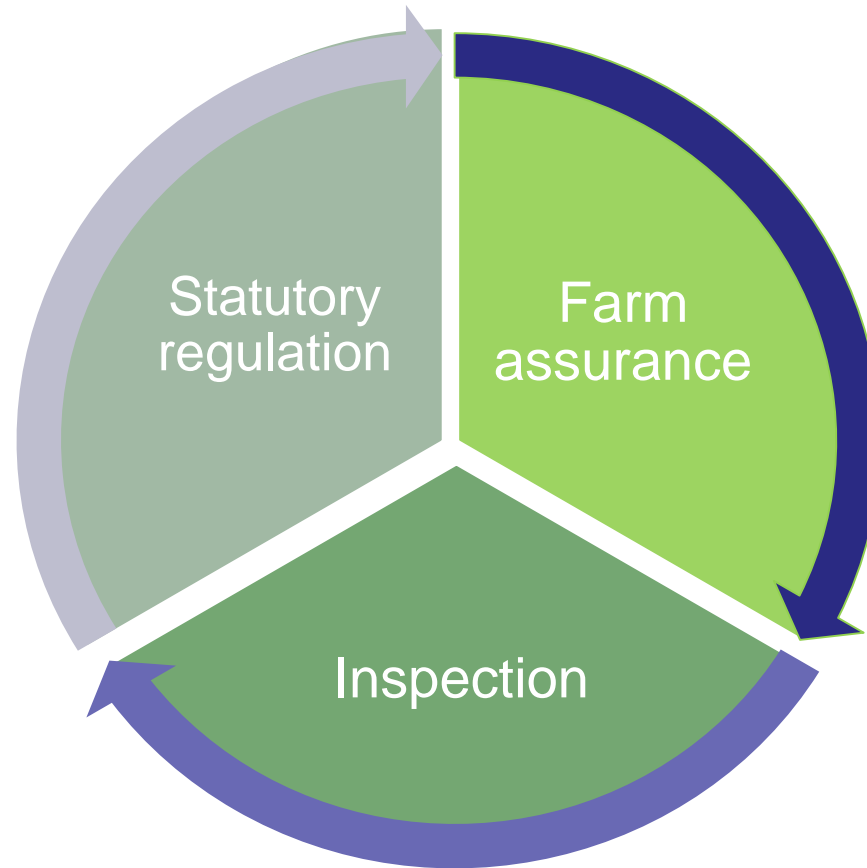
Community Engagement



- Regular Communication and Local Initiatives
- Work With Other Local Farmers And Landowners
- Build and Maintain Goodwill
- Promote the Farming Industry
- Encourage new entrants
- Develop Communication Skills
- Host Visits to a Range Of Audiences
- Adapt Visits to your Farm and to the Groups Involved
- Public and Traditional Paths
- LEAF Open Farm Sunday
- Media and Wider Engagement
 - positive outlook
 - being seen to be doing the right thing



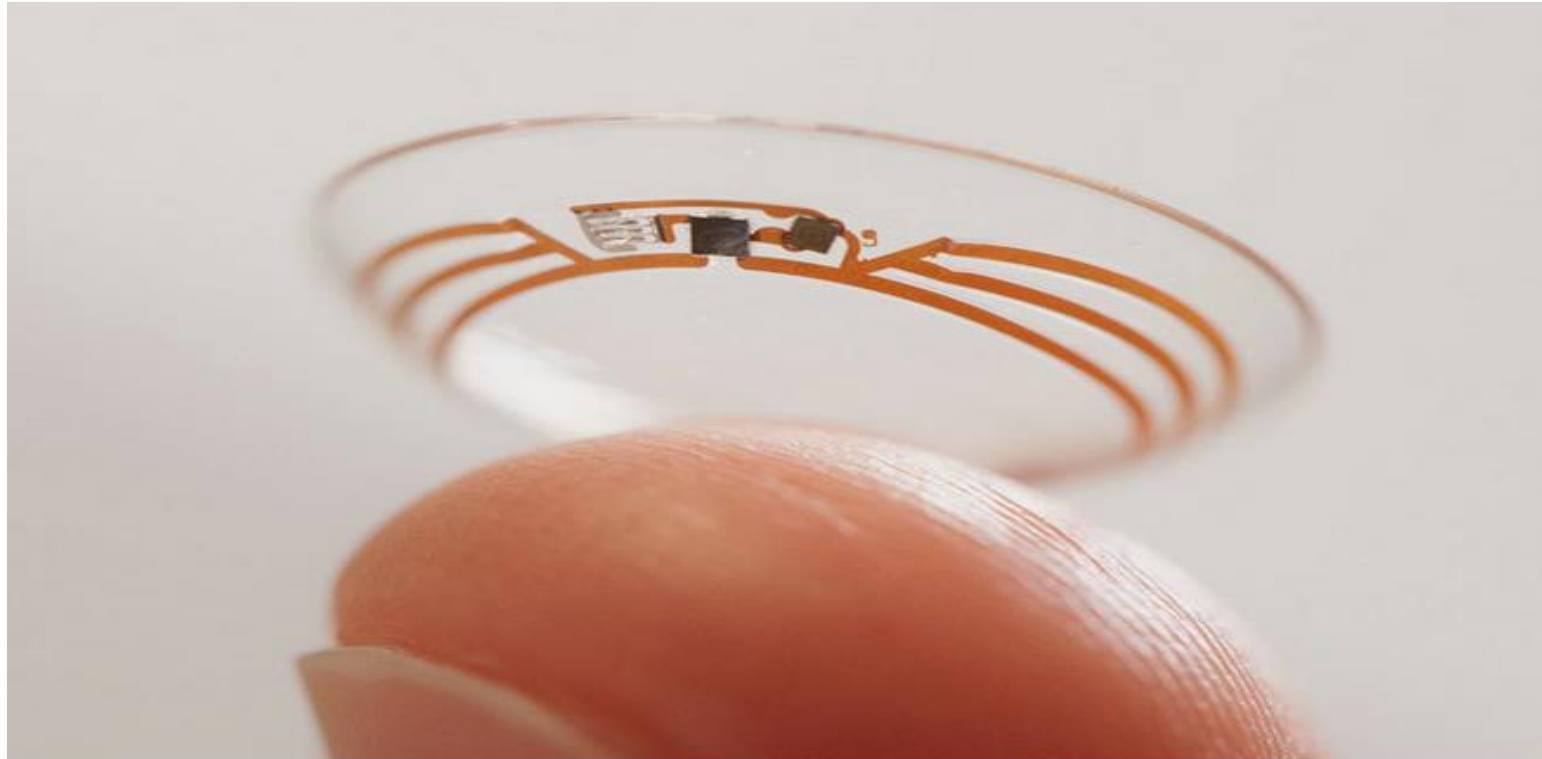
Working with Government



The changing global patterns



Personalised health

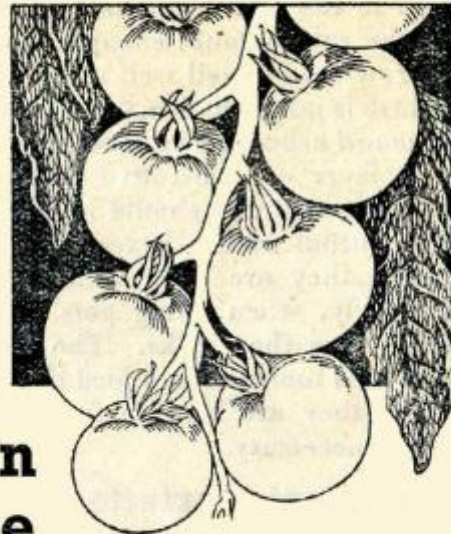


After years of scalding soldering hair-thin wires to miniaturize electronics, Brian Otis, Google X project lead, has burned his fingertips so often that he can no longer feel the tiny chips he made from scratch in Google's Silicon Valley headquarters, a small price to pay for what he says is the smallest wireless glucose sensor that has ever been made.

Tomato Varieties to Grow, Greenhouse Cultivation

TOMATO GROWING IS NOT DIFFICULT

**How Amateurs Can
Produce this Valuable
Health-Giving Fruit**



- ★ *In a greenhouse*
- ★ *In the open*

You Can Help!

DIG ON FOR VICTORY



Future opportunities

Transforming sustainable farming and the environment to deliver farming, food and the environment fit for the future requires new thinking built on traditional skills & expertise.

To include:

- Seeking transformative approaches to mitigate and adapt to climate change;
- Net zero carbon emissions
- Adopting innovation and technology;
- Fostering ambition and vision among the farming sector;
- Embedding nutrition as a value of farming and food;
- Embedding the most efficient production with minimum losses and waste and less impact on the environment
- IFM/Circular Agriculture



Thank you



Circular Economy & Sustainability