

Are Insects Part of the Future of Food?



T H E
GOOD FOOD
I N S T I T U T E

What does modern-day insect farming look like?

INSECTS AS

FEED



FOOD

INSECTS AS

INSECTS AS FEED



- Convert food waste to calories
- High-quality protein for farmed animals
- Black soldier fly and mealworm larvae

- Protein-rich
- Have fewer negative impacts than conventional animal products
- Consumed primarily in other fortified foods, or in processed foods such as energy bars for a niche market
- Mealworm larvae, crickets

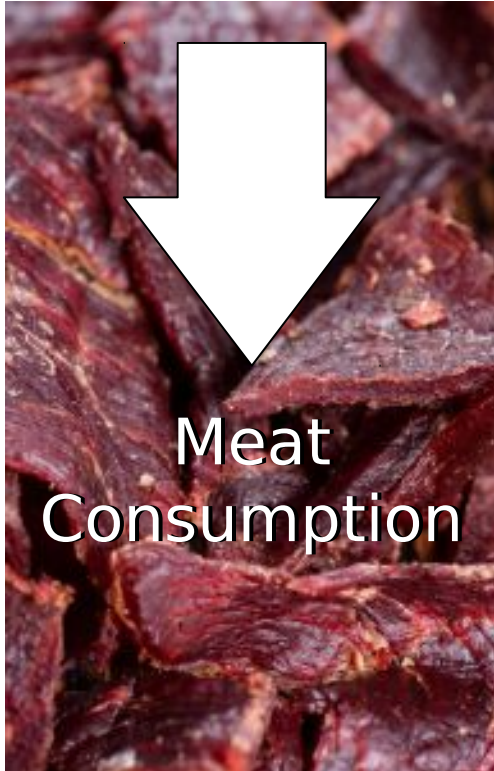


FOOD

INSECTS AS

Evaluating farmed insect protein

What are the goals of a future food system?





Farmed Insect
Protein



Plant-Based
Meat

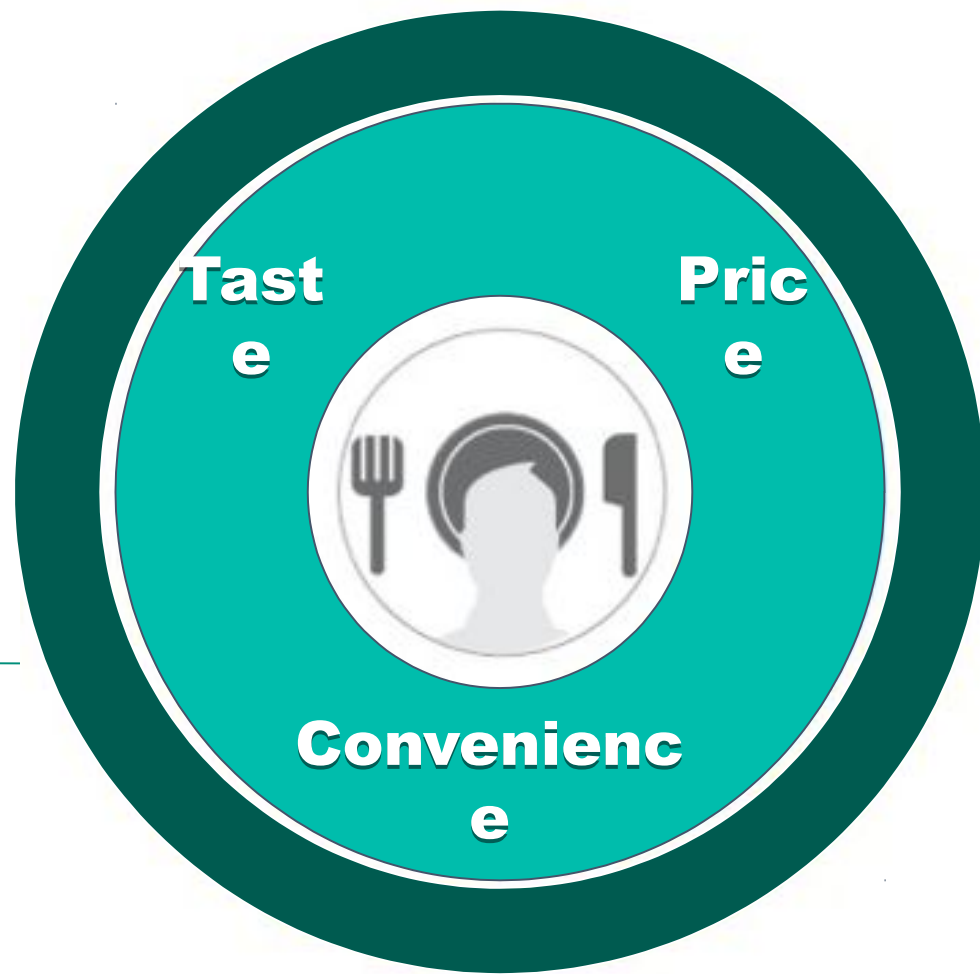


Cell-Based
Meat

How can we most effectively reduce meat consumption?



Traditional
Drivers



of
consumer
behavior



Source: Tofurkey



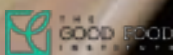
Source: Gardein



Source: Alpha Foods



Source: Good Catch





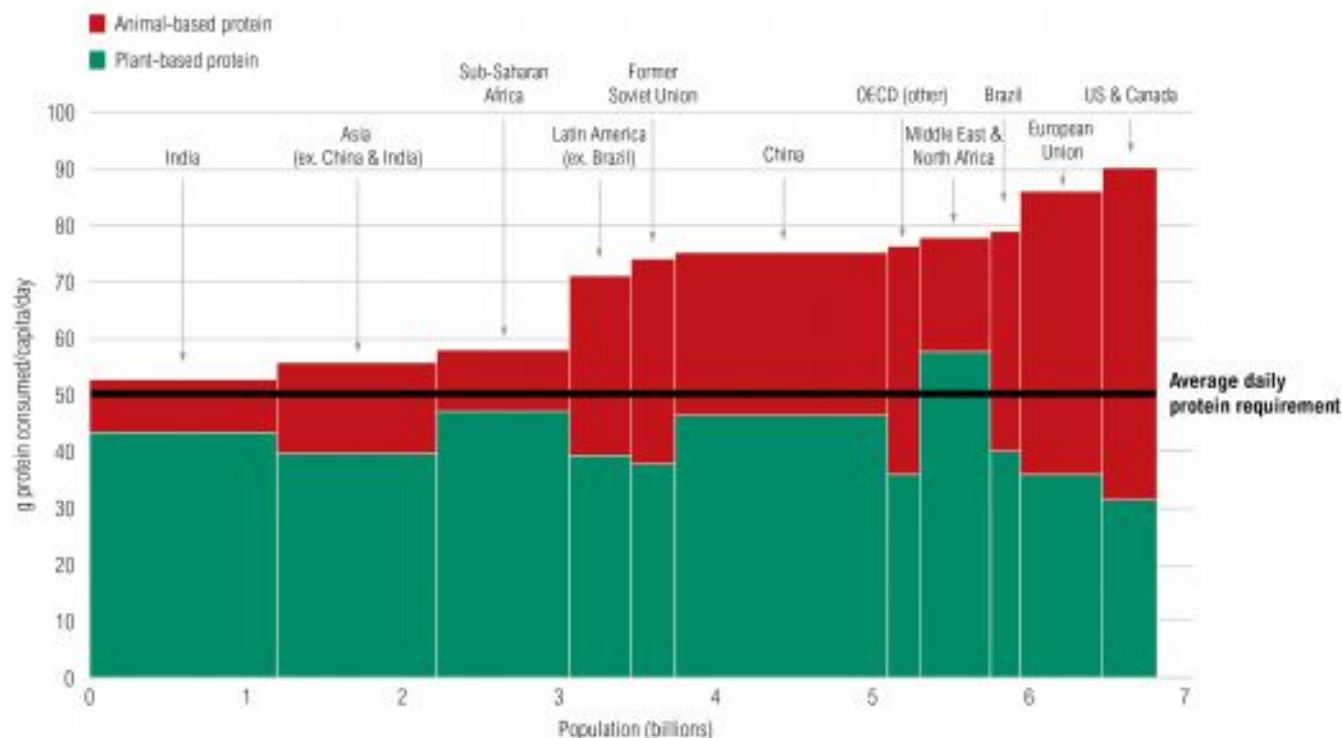
Farmed Insect Protein



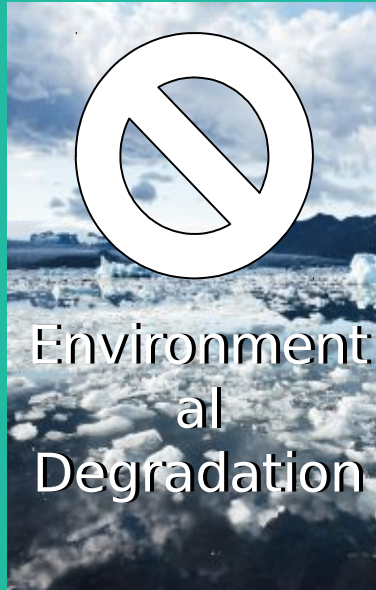
Indirect substitution?



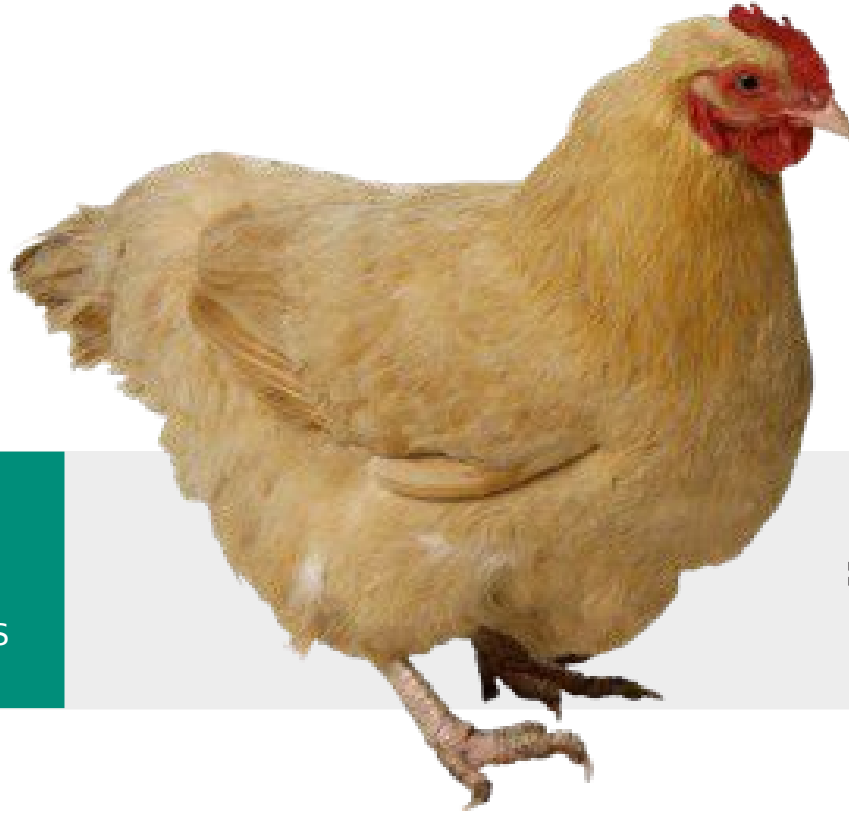
People Are Eating More Protein than They Need—Especially in Wealthy Regions



How can we reduce the environmental impact of the global agriculture system?



9
ENERGY
CALORIES



= **1**
FOOD
CALORIE

VARIED
ENERGY
CALORIES



1
CALORIE
INSECT



(varied)



Feeding Waste to Insects?





(various)



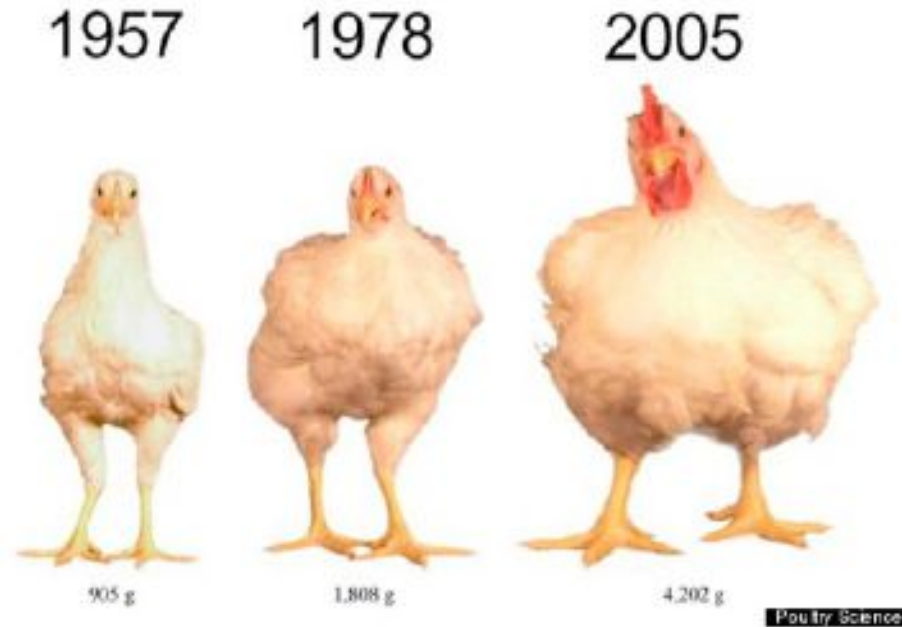
How can we minimize risks to our food system while feeding 9-10 billion?



Food security impacts

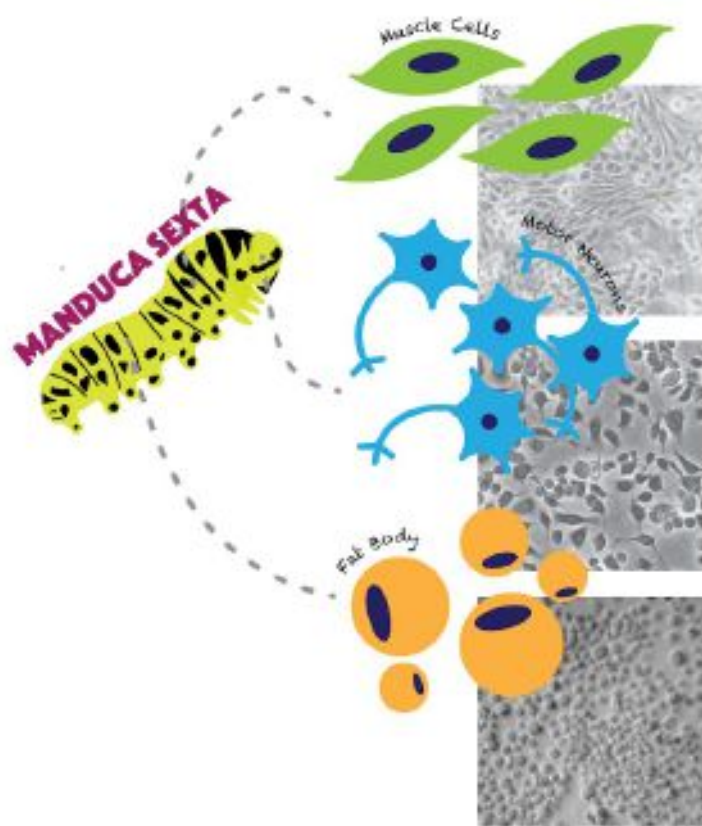


Food security impacts



Where else might insects fit into our future food system?

Insect Cells for Cultured Meat



The majority of cultured meat research focuses on cow, poultry or fish cells – But insect cells may be a superior platform for efficient, low-cost production.

Durability Insect cells are tolerant of external fluctuations (e.g., temperature, pH, osmolarity) resulting in long-term survival and growth.

Scale-Up Many insect cell lines have already been manufactured at industrial-scale production for the recombinant protein production industry.

Serum-Free Media Multiple serum-free media formulations are commercially available for insect cells.

QUESTIONS

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THE
GOOD FOOD
INSTITUTE