



“Insects are more environmentally friendly than any other protein source...”

DR CHRISTINE PICARD

Anyone for cricket?

Insekten gelten als Proteinquelle der Zukunft. Haltung und Herstellung sind einfach, der ökologische Fußabdruck klein. Doch die Skepsis der Konsumenten ist groß.

Von MELITA CAMERON-WOOD

MEDIUM

Could grasshopper kebab or cricket granola be on the menu in your household soon? “Entomophagy” is the official name for consuming insects as food — around the world, about two billion people eat a range of insects on a regular basis. It’s primarily in Western societies that this practice is often considered to be “eww”.

Even here, however, growing interest in edible insects means that they could become a part of our diets in the future. This might come as a shock — not only to those who feel repulsed by the thought, but also to vegans and vegetarians, many of whom reject the idea of eating any sentient beings, including insects.

Despite this, the market for edible insects is expected to grow rapidly worldwide — from \$1.5 billion in 2022 to \$8 billion by 2032, according to a market research report by Fact.MR.

This is significant, since a growing global population, which could be close to ten billion by 2050, will put food resources and the environment as a whole under an even greater stress. Today, livestock farming accounts for about 14.5 per cent of all greenhouse gas emissions caused by humans, estimates the Food and Agricultural Organization (FAO).

Increasing concerns about the environment may help more and more

consumers to overcome their squeamishness and see insects as a viable source of protein.

Changing perceptions

Not only is insect farming an environmentally friendlier alternative to many elements of conventional agriculture, bugs have a high nutritional value, and the risks of transmitting zoonotic diseases is low. However, while demonstrating that insects are a healthy, versatile source of protein is one thing, changing consumer attitudes is something else completely.

Chef Joseph Yoon, the founder of Brooklyn Bugs, an advocacy group for farming and eating insects, is the world’s first “edible insect ambassador”. He is familiar with the challenge of changing people’s minds: “It’s an idea that people have a

grasshopper

► Grashüpfer

cricket ► Grille

granola ► Müsli

entomophagy

[,entə'mɒfədʒi]
► [wg. Aussprache]

billion ► Milliarde(n)

eww ['i:u:] (jfm.)

► igitt; hier: eklig

edible ► essbar

repulsed

► angewidert

reject sth.

► etw. ablehnen

sentient ['senʃənt]

► empfindungsfähig

livestock ['laɪvstɔk]

► Nutztiere

account for sth.

► sich auf etw. belaufen

greenhouse gas

► Treibhausgas

squeamishness

► Empfindlichkeit

viable ['vaɪəbəl]

► brauchbar

bug ► Käfer; hier: Insekt

nutritional value

► Nährwert

transmit sth.

► etw. übertragen

versatile ['vɜ:saɪtəbəl]

► vielseitig

attitude

► Haltung, Einstellung

advocacy group

► Lobbygruppe

ambassador

► Botschafter(in)

WHAT DOES OUR HEADLINE MEAN?

The question “Anyone for cricket?” would normally be an invitation to play the peculiar English bat-and-ball game of cricket. (The phrase is actually a variation of “Anyone for tennis?”)

However, a “cricket” is also a small jumping insect that makes a noise by rubbing its wings together. So, in this case, our headline is an invitation to lunch :-)

cricket ► Krieket; Grille

peculiar [pɪ'kju:liə]

► eigentümlich

bat ► Schläger, Schlagholz

An insect burger with fried mealworms, lettuce, tomatoes and onions



visceral reaction of disgust towards, so it requires outreach and education,” Yoon says. “It’s about cultivating innovation, being inclusive and thinking about how cultures around the world have been eating insects for years.”

The fact that Yoon has now acquired a number of influential roles also signals a growing acceptance of the sector. He is currently an advocate for the UN’s International Fund for Agricultural Development (IFAD), and culinary adviser to the Methuselah Foundation, in support of NASA’s Deep Space Food Challenge. Yoon was also the culinary director at the Insects to Feed the World Conference and The Future of Food at South by Southwest (SXSW) (both in 2022).

In collaboration with the New York City Department of Education, Yoon is trying to change young people’s ideas about eating insects. Part of the problem may come from the colonial lens through which history is often taught, in which the idea of eating insects is seen as a primitive (and abnormal) practice. By relearning history and paying more attention to indigenous voices, people may be more willing to change their preconceived ideas.



Joseph Yoon of Brooklyn Bugs works with IFAD (International Fund for Agricultural Development), a special agency of the United Nations, to promote the climate-friendly potential of eating insects

Plant-based protein

The plant-based food sector is also growing and could represent 7.7 per cent of the worldwide protein market by 2030, according to a study by Bloomberg Intelligence. However, many who became vegans and vegetarians primarily for environmental reasons may be convinced by insects, which are associated with much lower carbon emissions and require less water, feed and land. Plus, many insects are rich in vitamins D and B12, which plant-based diets often lack. On the other hand, ethical questions might be raised, possibly with the emergence of insect-welfare groups — although this could be seen as hypocritical, given the widespread use of pesticides in crop farming.

“Insects are more environmentally friendly than any other protein source that is currently being produced, including plant-based proteins, which require a lot of land, water and chemicals,” says Dr Christine Picard, the site director of the Center for Environmental Sustainability through Insect Farming (CEIF) at Indiana University–Purdue University Indianapolis (IUPUI).

Insects thrive in large populations and can be farmed vertically, meaning land can be used more efficiently. Many insects, such as the black soldier fly (*Hermetia illucens*) and the mealworm (*Tenebrio molitor*), the larval form of a species of darkling beetle, are also good at organic



visceral [ˈvɪsərəl]
• tief sitzend

disgust • Ekel

outreach • soziales Engagement; hier: Öffentlichkeitsarbeit

culinary [ˈkʌlɪnəri]
• [wg. Aussprache]

Methuselah
[məˈθjuːzələ]
• Methusalem

department of education
• Bildungsministerium

lens • Linse;
hier: Anschauung

indigenous [ɪnˈdɪdʒənəs]
• indigen

preconceived
[ˌpriːkənˈsiːvd]
• vorgefasst

carbon emission
• CO₂-Emission

feed • Futter(mittel)

emergence
• Entstehung

hypocritical
[ˌhɪpəˈkrɪtɪkəl]
• verlogen, heuchlerisch

given • angesichts

crop • Anbaupflanze

site director
• Niederlassungsleiter(in)

sustainability
• Nachhaltigkeit

thrive • gedeihen

black soldier fly
• Soldatenfliege

mealworm
• Mehlwurm

larval form
• Larvenform

darkling beetle
• Schwarzkäfer

waste management. They can be fed bio-degradable waste before being fed to livestock themselves. Insects' excrement can be used as a fertilizer, meaning that insect farming could help to introduce greater circularity to agricultural practices.

A wide choice

Several companies in the insect farming sector have seen significant investment in recent years, including the French company Ynsect, the global leader in natural insect-protein production, which has raised over \$500 million of funding to date.

The potential for further growth seems clear. With more than 2,000 species of edible insects in the world, there's a wide range of flavours and nutrient profiles to choose from. The formic acid found in black ants is closely related to citric acid, for example, so adding black ants to your avocado toast could be a protein-packed equivalent to squeezing a lemon over the dish. And crickets, a low-carb choice with all nine essential amino acids, can be enjoyed by adding cricket flour to dough. They can also be left whole and used as a crunchy topping. "I think more people will start to adopt it, not only because of the general climate responsibility, but also because of the taste and the novelty," Picard says. "Unlike many other protein sources, insects are free of antibiotics, too."

Many factors will play a role in encouraging consumers to try their first insects (Yoon likes to call them "gateway bugs"). Packaging, for example. There's a large degree of separation in consumers'

minds between a beef burger patty in a supermarket and the cow it came from. Something similar can be done with insect burgers, chips and other products.

Insect-based pet food or animal feed are also good gateway options. "If you think about it from the perspective of using insects to feed animals and poultry, it's often part of their natural diet. Chickens didn't evolve eating soybean and corn.

They grew up eating insects," comments Dr Picard.

To make edible insects a dietary staple, the industry will need support from governments, perhaps offering incentives for insect farming and information campaigns to build consumer trust. In January 2023, the EU authorized the use of various products obtained from house crickets and lesser mealworm larvae for human consumption.

"I predict that almost all grocery stores around the world will have some form of edible insects available by 2030," Yoon says. The big question is whether consumers will make a beeline for those products.

“Almost all grocery stores ...will have some form of edible insects”

JOSEPH YOON

biodegradable

[ˌbaɪəʊdɪˈɡreɪdəbəl]
• biologisch abbaubar

fertilizer

[ˈfɜːtəlaɪzə]
• Dünger

raise sth.

• hier: etw. aufbringen

nutrient

[ˈnjuːtriənt]
• Nährstoff

formic acid

• Formylsäure, Ameisensäure

black ant

• Schwarze Ameise

citric acid

• Zitronensäure

low-carb

• kohlenhydratarm

dough

[dəʊ] • Teig

crunchy

• knusprig

adopt sth.

• etw. übernehmen

novelty

• Neuheit

gateway

• hier: Einstieg

patty

• Bratling

poultry

[ˈpaʊltri]
• Geflügel

soybean

• Sojabohne

staple

• Grundnahrungsmittel

incentive

• Anreiz

obtain

• erhalten

house cricket

• Hausgrille, Heimchen

lesser mealworm

• Glänzender Getreideschimmelkäfer

larva (pl. larvae)

[ˈlɑːvə (ˈlɑːviː)]
• Larve

predict sth.

• etw. prognostizieren, vorhersagen

grocery store (US)

• Lebensmittelgeschäft

beeline: make a ~ for sth.

• auf etw. zustürzen;
hier: sich um etw. reißen

INSECT-RELATED IDIOMS

- **I'm as busy as a bee at the moment!**
I've got lots to do.
- **There's a bug going around the office.**
Everyone in the office seems to be getting sick from the same virus.
- **The company audit has stirred up a real hornet's nest.**
It has caused a difficult situation in which people are angry.
- **Social butterflies tend to be very good at networking.**
People who are very sociable and friendly.
- **The CFO has got a bee in his bonnet about...**
The CFO is obsessively worried about something.
- **The factory was a hive of activity.**
It was a very busy place and full of people.

audit

[ˈɔːdɪt]
• Buchprüfung, Wirtschaftsprüfung

hornet

• Hornisse

butterfly

• Schmetterling

CFO (chief financial officer)

• Finanzvorstand

bonnet

• Haube

hive

• Bienenstock