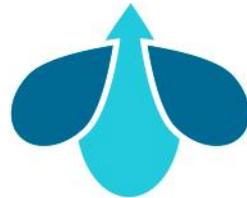




**Tulevaisuuden trendit: onko lautasellamme
kohta hyönteisiä?**

Sami Vekkelä



**POHJOLAN
HYÖNTEISTALOUS**

GLOBAL PROBLEM

Protein supply by current methods for growing population already now and in the future has **multiple adverse environmental impacts**:

Water, feed, land use particularly in animal production (+ ethical side).

SOLUTION AND THE CHALLENGE

Insect food is a viable alternative for ending world protein **shortages** and to make protein **production more environmentally benign**.

However, **insect farming technology is** very simple, efficient and automated indoor farming methods **relatively underdeveloped**

INSECT EATERS

More than 2 billion insect consumers in the world, mostly outside western countries.

About **20% of westerners would like to use insect food**, up to 70 % in Benelux countries

MARKET SIZE IN WESTERN WORLD

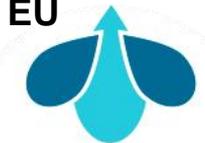
Industry in western world has doubled every year for several years

Now about 35 farms in the USA and 10 in Europe

Insect food is allowed only in NLD, BEL and the UK in EU. 2018 possibly to all.

European Union is rewriting related **legal codes** at the moment

Not prohibited practically anywhere outside EU



POHJOLAN
HYÖNTEISTALOUS

INSECT FOOD

Western

Almost all grocery shop products based on insect **powder**

- Most sold items ready-to-eat microwave foods (in Benelux) and chocolate bars with 10-25% of insect powder = traditional foods with “hidden” insect ingredient
- Food industry doesn't use live insects

Restaurant food very diverse in nature, lots of fresh insects, experimental

Non-western

Practically never eaten as powder, whole (crickets usually w/o wings) and live insects cooked just before use



WESTERN WORLD

20 – 32% of westerners are willing to adopt insect food, but they are not uniformly divided in population

Following trends found (* among meat eaters:



Meat Reducers are almost **FIVE** times more likely to adopt insects than **Others**



Familiar with the idea to eat insects are almost **THREE** times more likely to adopt insects than **Others**



Males are over **TWO** times more likely to adopt insects than **Females**

“Meat is healthy and tastes good” attitude decreases readiness to adopt insects

*) Research conducted by Ghent University and published in Food Quality and Preference magazine

US

Following trends found (** among respondents:



Familiar with the idea to eat insects are almost **TWO** times more likely to adopt insects than **Others**



Roughly **ONE-THIRD** of respondents are likely to buy an insect-based product

5%

1/20 of respondents are extremely or very likely to buy an insect-based product



30 - 44

30 - 44 year olds and earning \$25,000 - \$49,999 or over \$150,000 have higher likelihood to adopt insects

25 – 49,999\$

> 150,000\$

ASIA

There are no proper academic research done. Countries do differ greatly and they also eat different insects and different insect food in different countries

**) Blue Shift Ideas

INSECT FOOD ECONOMY

Insect food relatively expensive

- ▶ E.g. cricket powder in the USA about 40 USD/kg, in Asia 5-40 USD/kg (mealworm and buffaloworm powders about the same price) = insect flour more expensive than tofu/pork/poultry/beef
- ▶ Insect powder (dry product) not compatible with meat or tofu

Production costs have fallen → decrease in prices in future if demand not increasing

About 20 % of westerners would like to use insect food, up to 70 % in Benelux countries



Nordic Insect Economy Ltd - Story

Santtu built and tested prototypes of machines and solutions in his basement without funding by using scavenging parts

He moved to Inkeroinen, Kouvola to live his dream

It did not take long for his insect business to draw interest, and the one man business quickly grew into a multi-skill team

First issue of shares successfully completed to fuel the first steps of future growth

Investors mainly abroad as the market

Commercialization ongoing

Specialized in the food insect business. Feed technology only as a side business

Target to be leading company globally in the near future!





THANK YOU!



POHJOLAN
HYÖNTEISTALOUS