

*Make it green
Sustainable
Manufacturing
sustainablemanufacturing.se
Soon on
sustainablemanufacturing.eu*

Maria Lindqvist, PhD

Launching the local version 09052022



**Co-building a New
Eco-Social World**



The process of making a product

The Modern English word *manufacture* is likely derived from the Middle French *manufacture* ("process of making")

which itself originates from the Classical Latin *manū* ("hand") and Middle French *facture* ("making").

Compared to the rest of EU

Finland is not that good when it comes to circular material use

However not all material

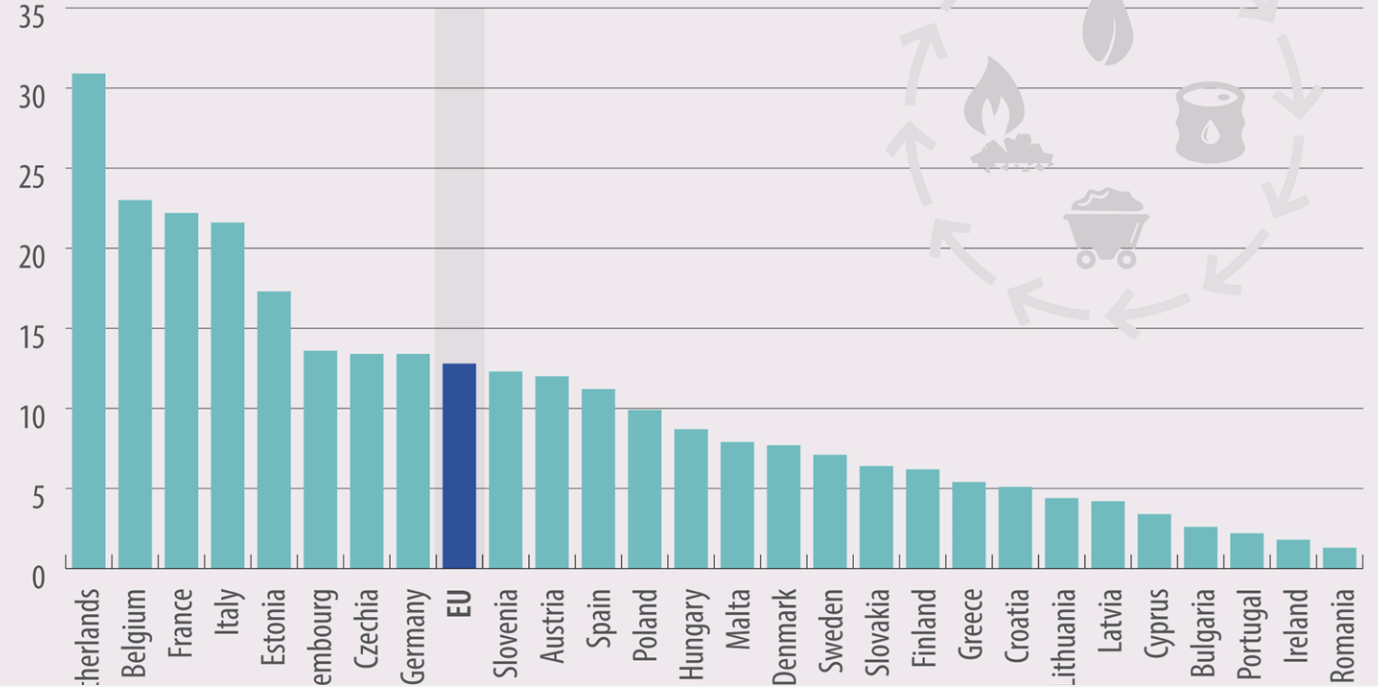
that is recycled in EU is toxic

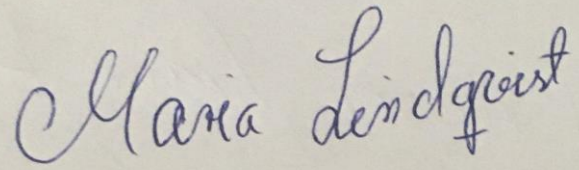
free. We want to promote

toxic free circular material use

in Finland.

Circular material use rate in the EU, 2020 (%)





Maria Lindqvist

Maria Lindqvist, PhD Freelancer with qwn science magazine. Based in Sweden and Finland

Eveliina Jussila, mother of two boys under age 7, good in designing small projects regarding children, based in Finland

Andreas Lindqvist, knows all about video games, based in Finland

The course will be created in
English
Swedish
Finnish



Later on in italian, spanish and german.



Reason for making this course

Knowledge of manufacturing can be studied in combination

of many other science field however we have not found a course

that gives us updatet information in an easy accessible form so

we decided to make a MOOC course about manufacturing.



Manufacturing in Finland



In Finland, Manufacturing is the most important sector and accounts for 87 percent of total production.

The biggest segments within Manufacturing are:

chemicals (16 percent);

electrical and electronics (13 percent);

machinery and equipment (11 percent);

paper and paper products (9 percent);

fabricated metal products (8 percent);

and food products (7 percent).

Source: tradingeconomics.com

Manufacturing in Sweden



Manufacturing in Sweden is one of the reasons why Sweden is strong as a nation.

You either offer a product or a service.

Sweden as a nation is very good when it comes to offer different services

however when it comes to production on individual level it is yet

in its infancy and has great potential to grow. Hence one of our goals with

making this MOOC course



We are going to cover manufacturing both

for commercial reasons

and private reasons

User group

We also give advise on using products. What products are good to use and what are dangerous and should be avoided

Sustainability

1

WE will cover the sustainability of the product both material used

2

And the process of it and its impact on Agenda2030 goals.



Big manufacturing issue

Poison

Poison



We advise you regarding
poison stuff in different
products

And what you could do if
you want to make a
product that is poison free

PFAS

Per- and polyfluoroalkyl substances



PFAS are widely used as they have unique desirable properties. For instance, they are stable under intense heat. Many of them also have surfactant properties and function, e.g., as water and grease repellents.



Some of the major industry sectors using PFAS include aerospace and defence, automotive, aviation, textiles, leather and apparel, construction and household products, electronics, fire-fighting, food processing, and medical articles

Why to avoid PFAS as a consumer

PFAS lower your immune respons which is bad news

for those who are fighting diseases like covid.

In the long run they can increase your chance for diseases like cancer or diabetes.

PFAS are also bad for the nervous system.

PFAS in lotions and makeup



WE ADVISE YOU ON PFAS IN
LOTION AND MAKEUP



WHICH PRODUCTS CONTAIN
PFAS=POISON AND WHICH
DON'T.

Hygiene Products



MANY HYGIENE PRODUCTS
CONTAIN STUFF THAT



CAN IRRITATE AND GIVE
ALLERGIC REACTIONS.



WE ADVISE WHAT TO AVOID
AND HOW TO PRODUCE
STUFF YOURSELF.



Good webinar about PFAS

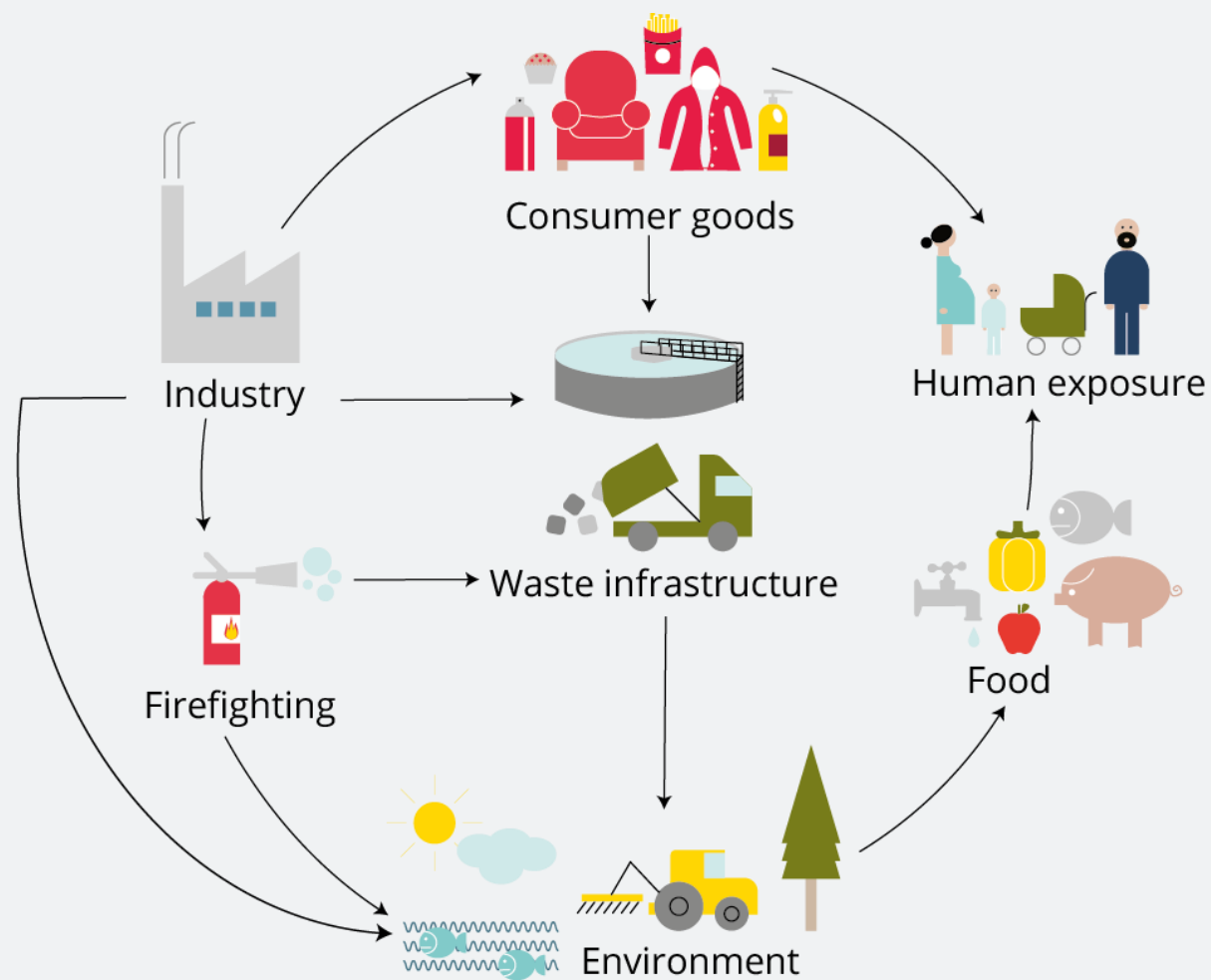
<https://www.youtube.com/watch?v=HtYhAaj5WEg>



Comprising more than 4 700 chemicals, per and polyfluorinated alkyl substances (PFAS) are a group of widely used, man-made chemicals that accumulate over time in humans and in the environment.

Source:

<https://www.eea.europa.eu/publications/emerging-chemical-risks-in-europe>



—— High certainty
----- Lower certainty

**Developmental effects
affecting the unborn child**

Delayed mammary gland development

Reduced response to vaccines

Lower birth weight

Obesity

Early puberty onset

**Increased miscarriage risk
(i.e. pregnancy loss)**

Low sperm count and mobility

Thyroid disease

Increased cholesterol levels

Breast cancer

Liver damage

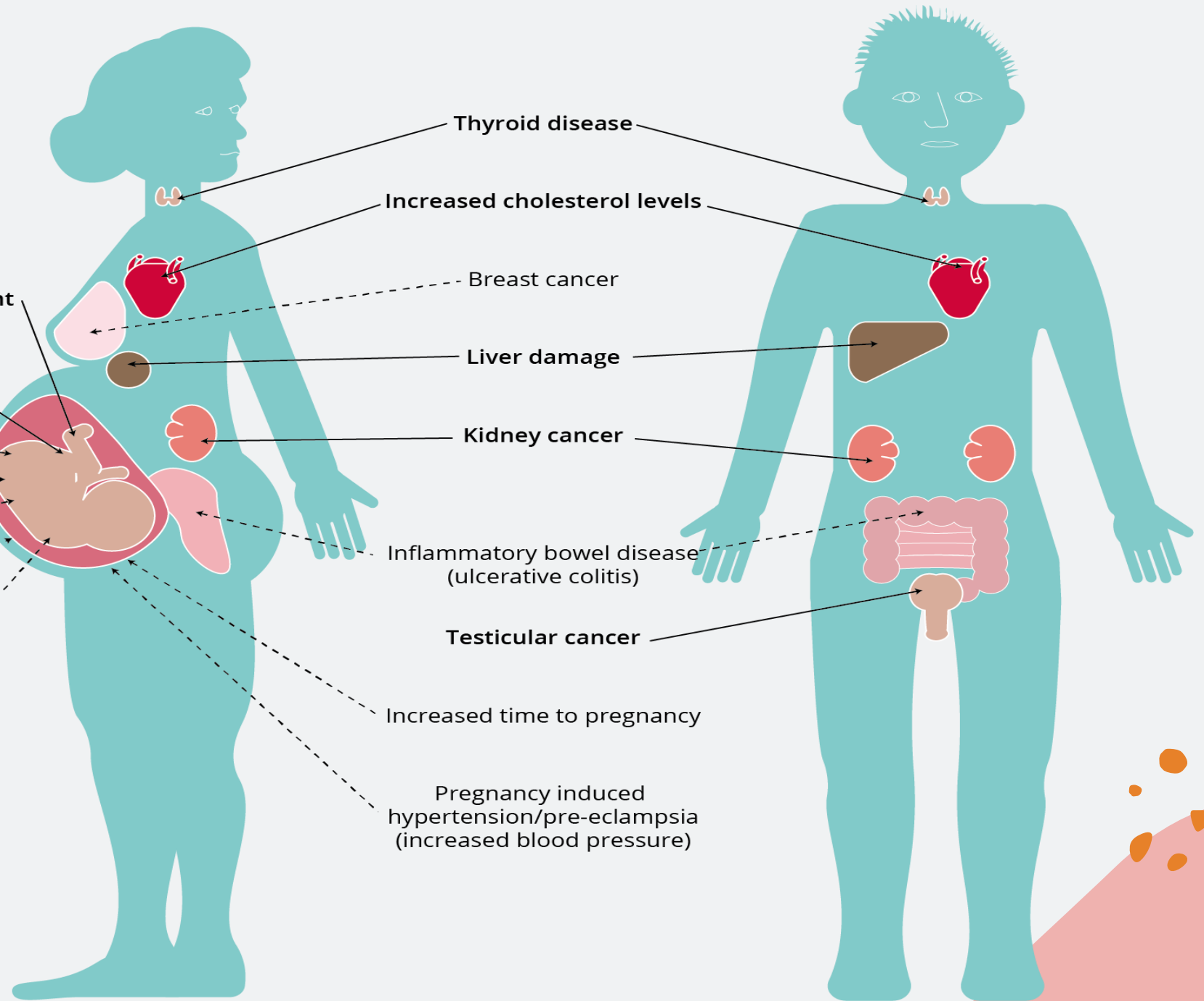
Kidney cancer

**Inflammatory bowel disease
(ulcerative colitis)**

Testicular cancer

Increased time to pregnancy

**Pregnancy induced
hypertension/pre-eclampsia
(increased blood pressure)**

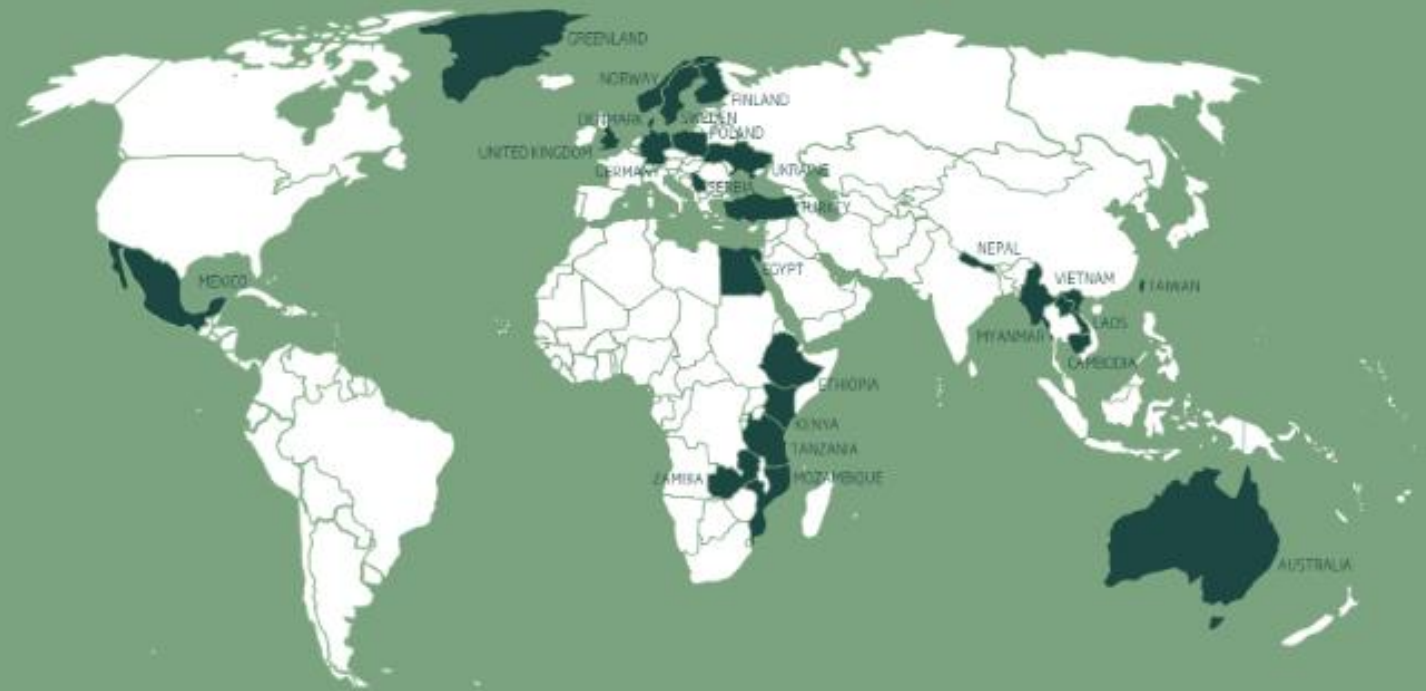


A review of contamination of surface-, ground-, and drinking water in Sweden by perfluoroalkyl and polyfluoroalkyl substances (PFAS)

Marko Filipovic

ATV Jord og Grundvand –
møde 10 oktober om PFAS

2017-10-10



PFAS

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graph LR; PFAS[PFAS] --> Placenta[PLACENTA]; PFAS --> Thyroid[THYROID]; PFAS --> Kidney[KIDNEY]; PFAS --> Liver[LIVER];
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PLACENTA



Outcomes:

- Low birth weight
- Gestational diabetes
- Hypertensive disorders of pregnancy
 - Preeclampsia
 - Pregnancy induced hypertension

Mechanism(s):

- Disrupted vasculogenesis/angiogenesis
- Insufficient placentation
- Impaired transplacental transport

THYROID

Outcomes:

- Disrupted thyroid hormones (TH)
 - Increased TSH
 - Decreased T4

Mechanism(s):

- Increased TH metabolism in liver
- Reduced production of T4
- Reduced thyroid peroxidase activity
- Competitive binding to TH transport proteins



KIDNEY



Outcomes:

- Reduced glomerular filtration rate
- Chronic kidney disease
- Kidney cancer

Mechanism(s):

- Efflux/reabsorption in proximal renal tubules (e.g. basolateral transport by OAT1 and OAT3, apical transport by OAT4)
- Oxidative stress

LIVER

Outcomes:

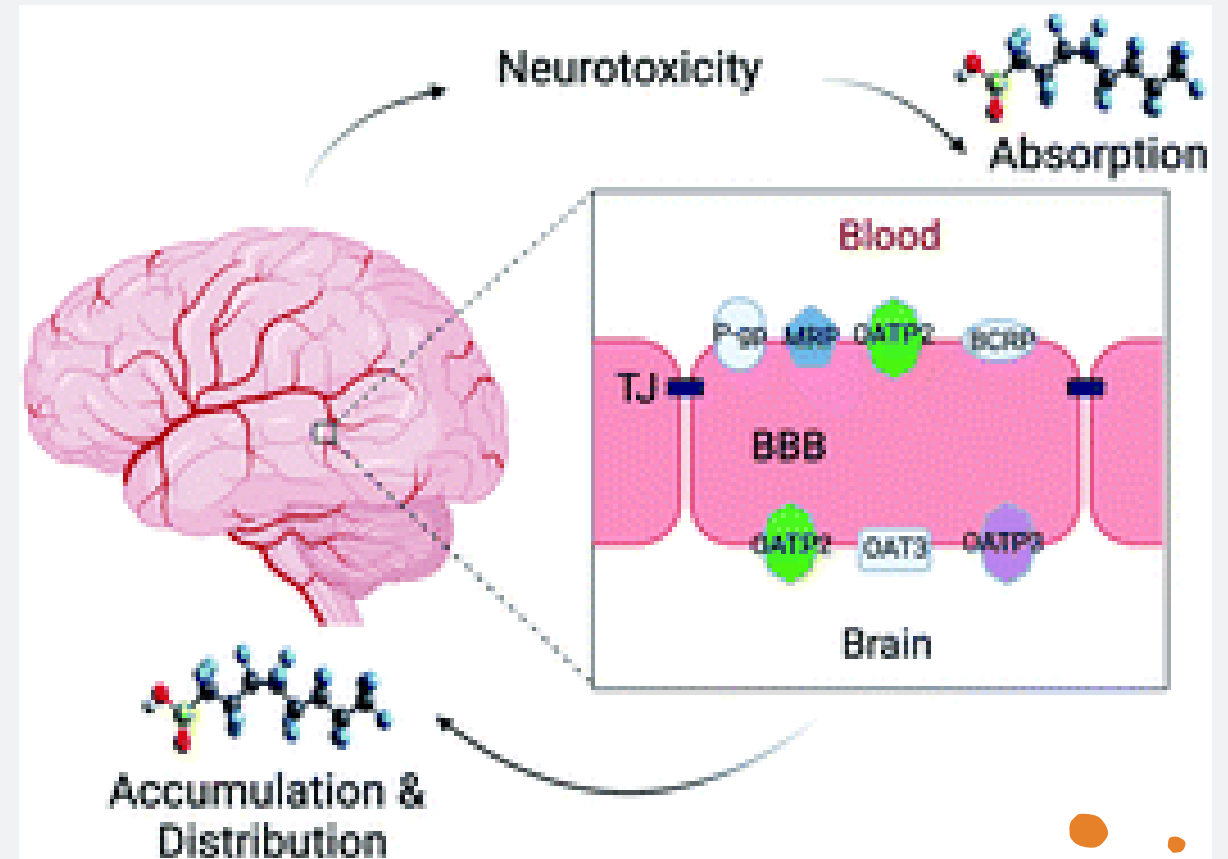
- Metabolic syndrome
 - Lipid dyshomeostasis
 - Elevated triglycerides
 - High cholesterol (LDL)

Mechanism(s):

- Lipid peroxidation
- Oxidative stress
- Apoptosis



Absorption, distribution, and toxicity of per- and polyfluoroalkyl substances (PFAS) in the brain
Passes BBB in animals, more studies in humans needed



Toxic Chemicals in Fabric & Textiles

- ▶ **Pesticide residues**

Linked to cancer

- ▶ **PFAS**

Linked to cancer, endocrine disruption, developmental & reproductive harm

- ▶ **Synthetic fibers**

Linked to endocrine disruption & contribute to plastic pollution





AN ELEMENTAL CONCERN: ARSENIC IN DRINKING WATER





Arsenic in food

COMMON SOURCES

Arsenic in Rice


A [2007 study](#) found that rice grown in California and the southern United States (the two largest producers of rice in the U.S.) averaged 0.17 and 0.30 $\mu\text{g/g}$ arsenic in rice, respectively. While the average American consumes 14 grams of rice per day, this obscures variability in rice consumption. Diets typical among Asian or Latinx households, individuals with Celiac's disease, and [infants](#) consume higher-than-average volumes of rice. The authors concluded that consuming above-average volumes of rice with just 0.10 $\mu\text{g/g}$ **inorganic** arsenic in rice could exceed the equivalent of EPA's arsenic water standard.

Arsenic in Apples, Grapes, and Their Juices



Like rice, apples, grapes, and pears can be contaminated with arsenic from soil. In the first half of the 20th century, lead arsenate was [the most used pesticide](#) in North American fruit orchards. Fruits average less arsenic than root and leafy vegetables because [arsenic tends to concentrate](#) in the roots and leaves of plants.

Washing fruits and vegetables thoroughly can remove contaminated soils from surfaces and reduce arsenic exposure, however this will not reduce arsenic levels *within* the plant.



Got Milk? You Probably Got Fire Retardants, Too

“Forever chemicals,” also known as PFAS, have been found in 43 states so far, turning up in milk, eggs, and fish.



Poison free agriculture

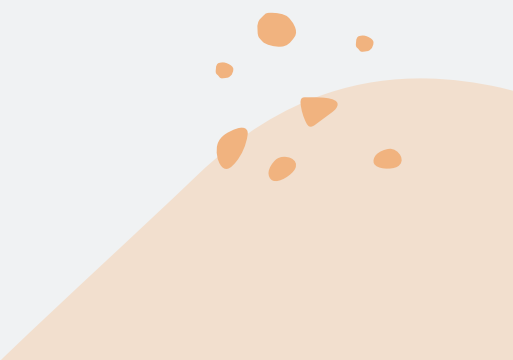


**Organic Farm
Knowledge**



Protection of the ozone layer

These ozone-depleting substances were mostly introduced in the 1970s in a wide range of industrial and consumer applications, mainly refrigerators, air conditioners and fire extinguishers.





Solution



Solutions



Solutions



Safe products for children



Location of food poisoning among children

Among parents reporting their children had gotten sick from spoiled or contaminated food



Restaurant

68%



Home

31%



School

21%



**Friend's
house**

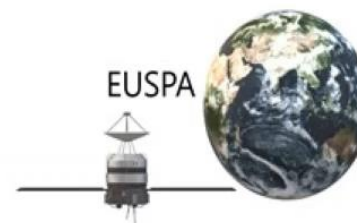
14%



**Potluck
dinner**

11%

Source: C.S. Mott Children's Hospital National Poll on Children's Health, 2018



WHAT'S THE PURPOSE
OF YOUR PITCH?



DigiSolutionBuonaNazione

Digital education for a sustainable world

The Good The Bad The Evil

IN

FOOD & AGRICULTURE

IN

ITALY AND BEYOND

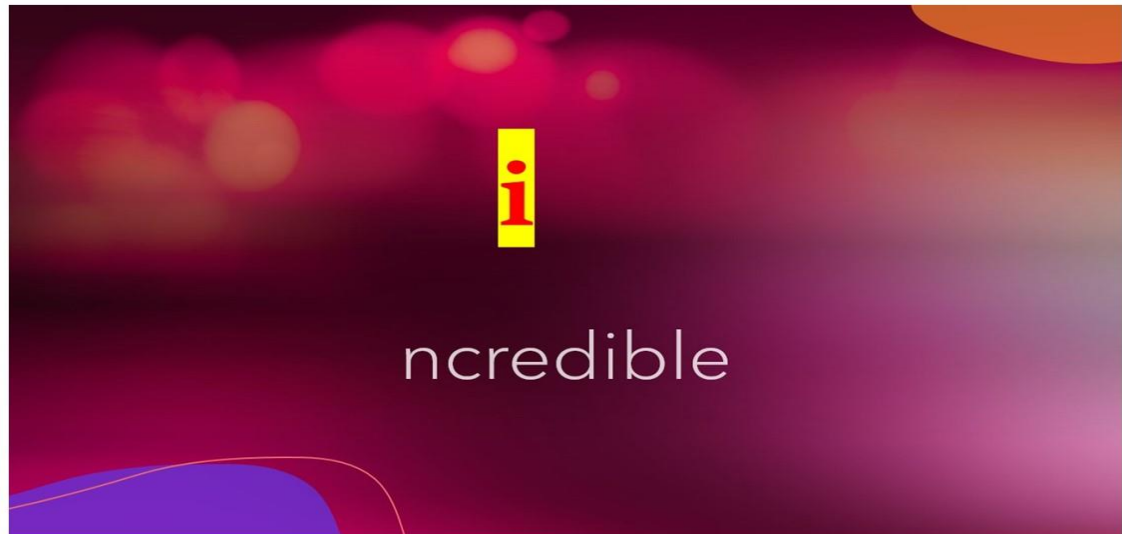




Solution
Always updated



Towards a transition into a PFAS-free environment



*Our Philosophy!
Why the world is a mess?
Mafia! Most producers know
their products
are poison!*

