Substances in our environment that are not good for our food:

Focusing on Pesticides

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Note: This PowerPoint will be updated as new information is uncovered.

Opening

- This presentation covers the chemicals used in agriculture and remain in our plant based foods.
- Chemicals and other substances used in food processing, this is a separate topic and is covered in another Powerpoint called Substances that are not nutrients in our food.
- The term pesticides is being used in a generic way, covering fungicides and herbicides.
- We all need to educate ourselves as to what chemicals are being used to grow everyone’s food. The future of our planet, our children, and everyone’s health depends upon this.
- Books have been written about this. With over 60,000 to 70,000 chemcials in our environment, this powerpoint is just a guide to begin to understand about which pesticides are being used or have been in use and issues with them.

Overview

- Defining Pesticides
- Issues with Pesticides and their impact on the environment and people
- Listing of Pesticides
- Specific Pesticides
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  - Organizations involved in Environment Protection
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  - Other toxins
    - Found in Food
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    - Heavy metals
    - Radiation
  - Symptoms Associated with Pesticide Poisoning and Exposure
  - Treatment for Pesticides Poisoning
- Conclusion

Defining Pesticides

- Cide means to kill. Homicide means killing a person.
- This includes:
  - Avicide – Targets birds
  - Fumigants – A gaseous approach of applying a pesticide
  - Fungicides – Targets parasitic fungi or their spores
  - Herbicides – Targets unwanted plants
  - Insecticides – Targets insects
  - Rogenticides – Targets rodents

Issues about Pesticides and their impact on the environment and people

- Pesticides are poison. They are used to kill and harm their target.
- The main issue about pesticides is the harm to human, animal, and plant health, both acute and long term/chronic
- Even after discontinued use of a particular pesticide, it can remain in our soil, in the atmosphere, in water, and environment for decades
- Agricultural workers have been harmed by pesticides

Listing of Pesticides

- Agent Orange
- Atrazine
- Chlordane
- DDT
- Dieldrin
- Duquat
- Glyphosate
- Maneb
- Neonicontinoids
- 1,3-D (1,3-Dichloropropene)
- Organophosphate (OP)
- Paraquat

Agent Orange

- Agent Orange is a herbicide and defoliant chemical.
- There are traces of dioxin in Agent Orange.
- Unfortunately, this was a chemical used in the Vietnam War. It has left a lasting legacy of disability and genetic defects. American soldiers exposed to Agent Orange have experienced health issues resulting from their exposure, especially cancer.
- It affects species diversity by reducing it. It also caused environmental damage to trees, making it difficult to regrow trees and rebuild forests.

Atrazine

- It breaks down in the soil, it tends to hang around in the water
- Almost 90% of American drinking water has atrazine in it.
- It messes up with hormones, affects the immune system, and is linked to birth defects
- Atrazine's manufacturer is Syngeneta (they have been sued by 43 water authorities)
- Found to turn male frogs gay
- Causes the body to produce more female hormones likes estrogen
- Been banned by the European Union in 2003
- Affects zebra fish, goldfish, caimans, alligators, turtles, quail and rats.
- It raises questions on how this affects human health and behavior.

Chlordane

- It was found in 195 out of 628 wells tested in Stamford, Connecticut well water.
- It was also found in New Jersey West Brook Middle School and in National Parks.
- Chlordane was used as a pesticide from 1948 to 1988. It is a mixture of trans-nonachlor, heptachlor, beta-chlorden, cis-chlordane, and trans-chlordane. It was used for controlling termites and agricultural pests.
- It remains in the soil for more than 20 years after use.
- While it evaporates, when it reaches the soil and it can attach itself to water.
- It can travel long distances and accumulate in mammals, birds, and fish and found in the fatty tissue.
- It persists in the food supply.

Chlordane continued

- The harmful effects of Chlordane are:
  - It affects the digestive system, liver, and nervous system
  - Large doses can lead to convulsions and death.
  - Risk factors are for lymphoma, prostate cancer, testicular cancer and breast cancer.
  - It can increase risk for type 2 diabetes, insulin resistance, migraines, respiratory infections, obesity, immune system activation, anxiety, depression, blurry vision, confusion, seizures, and neurological damage.
- The most common exposure is chlordane-contaminated food.
- This chemical was used in the 1960's and 1970's

DDT

- DDT was one of the first chemicals used widespread as a pesticide following World War II
- DDT is found in
  - Foods
    - 60% of heavy cream
    - 42% Kale greens
    - 28% of carrots
  - Body burden – 99% of the people have it in their blood
  - Health impact – girls exposed to DDT before puberty are 5 times likely to develop cancer in middle age
- It has been banned for agricultural uses in 2001 world wide
- It has been found to cause a decline in bald eagle populations due to thinning eggshells.

Dieldrin

- Dieldrin continues to be in the environment after its application.
- It breaks down very slowly and sticks to the soil or sediments at the bottom of streams, ponds, and lakes.
- It can attach itself to dust particles and travel long distances via the wind.
- Plants can absorb this chemical and animals and fish that eat plants containing this chemical store it in their fatty tissue.
- Harmful effects include convulsions, and nervous system effects, and large amounts results in death
- Prolonged exposure results in uncontrollable muscle movements, vomiting, irritability, dizziness, and headaches. In some people, it destroyed t heir blood cells.

Dieldrin continued

- Exposure to Dieldrin is through contaminated foods, such as shellfish or fish from contaminated streams, lakes, meats, dairy products and root crops.
- It can be in air, water, or contaminated soil.
- Dieldrin can be tested or measured in breast milk, feces, urine, and blood.

Duquat

- Duquat is a herbicide and a plant growth inhibitor. It only causes injury to the part of the plant that it is applied. It is a dissicent because it causes a leaf or an entire plant to dry out quickly.
- It is a moderately toxic chemical. It can be fatal if swallowed, inhaled, or absorbed through the skin. More problems occur with repeated exposure.
- With chronic exposure, it can cause cataracts as well as other symptoms.
- It can affect birds, depending upon the species and it can harm fish.
- As for the chemical in the soil, it is absorbed by clay particles or organic matter for a long period of time.

Glyphosate

- It is an active ingredient in Monsanto's Roundup
- It may be the culprit in widespread kidney disease in agricultural workers in Sri Lanka, India, and Central America.
- It is the most heavily used pesticide used in the U.S. in 2007 (according to the EPA).
- It is getting into the food supply.

- Foods that are high in glyphosate.
  - Soy (this means soy products and soy or vegetable oil)
  - Corn and corn oil.
  - Canola seeds used in canola oil.
  - Beets and beet sugar.
  - Almonds.
  - Dried peas.
  - Carrots.
  - Quinoa.

Maneb

- Maneb is a fungicide and a polymeric complex of manganese with the ethylene bis (dithiocarbamate) anionic ligand.
- It can be also used to create a toxin-based animal model of Parkinson ‘s disease, usually in primates.
- It was included in a pesticide ban proposed by the Swedish Chemicals Agency and approved by the European Parliament on January 13, 2009.

Neonicotinoids (also called neonics)

- It is a nerve agent.
- It includes imidaclopride, clothianidin, and thiamethoxam.
- It caused mass disappearance of entire bee colonies and other pollinators
- It has been banned in Europe in 2013.

1, 3-D (1, 3-Dichloropropene)

- It is heavily used in California.
- It is also known as Telone.
- Is actually a gas or fumigant.
- It can escape into the atmosphere, affecting nearby communities.

Organophosphates (OP)

- It is used to poison insects and mammals.
- Organophosphate insecticides (such as diazinon) are one type of pesticide that works by damaging an enzyme in the body called acetylcholinesterase. This enzyme is critical for controlling nerve signals in the body. The damage to this enzyme kills pests and may cause unwanted side effects in exposed humans. All organophosphates have a common mechanism of toxicity and can cause similar symptoms in humans who have too much exposure.
- Organophosphate (OP) insecticide use is still decreasing (though not fast enough for us, especially as the top OP insecticide is brain harming chlorpyrifos) — from 70 million pounds used in 2000 to 20 million pounds used in 2012.

Paraquat

- It is highly toxic and kills weeds on contact.
- Exposure can be a factor in Parkinson’s disease, can cause kidney damage and difficulty in breathing
- It has been banned in China and European Union.

Addendum

- Bibliography
- Glossary
- Organizations involved in Environmental Protection
- Other Pesticides not covered
  - Avicides
  - Fungicides
  - Herbicides
  - Insecticides
  - Regenticides
  - Other
- Other Toxins
  - Found in Food
  - Environmental sources
  - Heavy metals
  - Radiation
- Symptoms Associated with Pesticide Poisoning and Exposure
- Testing for Pesticides
- Treatment for Pesticide Poisoning

Addendum: Bibliography (slide one of three)

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- https://www.who.int/features/qa/87/en/

Addendum: Glossary

- Acceptable daily intakes (ADIs) – establishes maximum residue limits (MRLs) for a specific chemical
- Carcinogenic – causes cancer
- Chemtrails – chemicals released from flying aircraft in the sky
- Fumigants – a gaseous approach of applying a pesticide
- Neurotoxic – can cause damage to the brain
- Risk assessment – what is a safe level for intake without harm
- Teratogenic – can cause damage to the fetus

Addendum: Organizations involved in Environmental Protection

- Chemical Safety Facts: https://www.chemicalsafetyfacts.org/
- EPA – Environmental Protection Agency: www.epa.gov
- EWG – Environmental Working Group: https://www.ewg.org
- NRDC – Natural Resources Defense Council: https://www.nrdc.org/
- Natural News - http://www.healthranger.com/
- Pesticide Action Network - http://www.panna.org/about-us
- World Health Organization - http://www.who.int/

Addendum: Other Pesticides Not Covered: Avicides

- 4-Amino Pyridine

Addendum: Other Pesticides Not Covered: Fumigants

- Carbon Disulfide
- Halocarbons
- Hydrogen Cyanide, Acrylonitrile & Sodium Cyanide
- Metal Phosphides
- Methyl Bromide, Ethylene Oxide & Propylene Oxide
- Phosphine
- Sulfur Dioxide, Formaldehyde, Chloropicrin & Acrolein
- Sulfuryl Flouride

Note: Fumigants is more how a pesticide is delivered in a form of gas.

Addendum: Other Pesticides Not Covered: Fungicides

- Benzonitriles
- Copper salts & Organic Complexes
- Cycloheximide
- Dicarboximides
- Phenylmercuric Salts
- Thiocarbamates & Dithiocarbamates

Addendum: Other Pesticides Not Covered: Herbicides

- Acetamides
- Acetanilidies
- Carbanilate
- Chlorophenoxy Pesticides
- Dinitroaniline Compounds
- Dithiocarbamates
- Endothal
- Oxadiazola
- Pentachlorophenol
- Phosphonomethyl Glycine
- Picolinic Acid
- Sodium Chlorate
- Thiadizin
- Triazines
- Uracils
- Urea

Addendum: Other Pesticides Not Covered: Insecticides

- Alumino fluoride Salt
- Bensoic & Benzilic Derivative
- Carbamates
- Chlordimeform
- Nicotine Sulfate
- Organochlorines

Addendum: Other Pesticides Not Covered: Rodenticides

- Antu and Norbormide
- Arsenical Pesticides
- Red Squill
- Sodium Fluoroacete
- Strychnine & Crimidine
- Yellow Phosphorus
- Zinc Phosphide

Addendum: Other Pesticides not covered

- Arsenical Pesticides
- Chlorophenoxy Pesticides
- Pentachlorophenol
- Polyethoxylated tallow amine (in Roundup)
- Pyrethrins & Pyrethroids
- Thiocarbamates

Addendum: Other Toxins

- Found in Food
  - See Powerpoint covering Substances that are not nutrients in our food
  - Includes GMOs (can cause problems)
  - Benzene in drinks
- Environmental sources
  - Arsenic (in treated wood)
  - Asbestos (in buildings)
  - Chemtrails
  - Flame retardants
  - Mold
  - Polychlorinated biphenyls (PCBs)
- Heavy Metals
  - Aluminum
  - Cadmium
  - Lead
  - Mercury
- Radiation
  - Cell phones
  - Electric power lines
  - Smart meters
  - Other

Addendum: Symptoms Associated with Pesticide Poisoning and Exposure

Acute

- Blurred vision
- Chest pains
- Giddiness
- Headache
- Nausea

Long Term (Chronic)

- Birth defects
- Genetic effects
- Impotence
- Infertility
- Miscarriage
- Nervous system disorders
- Sterility
- Tumors

Addendum: Testing for Pesticides

- Testing is available to check for pesticides in food. It is:
  - inductively coupled plasma mass spectrometry instrument (ICP-MS)
  - liquid chromatography - mass spectrometry (LC-MS) (Detect pesticides, herbicides, and other organic molecules)
- For more information, check out the website for Mike Adams, the Health Ranger and his website: https://www.NaturalNews.com

Addendum: Treatment for Pesticide Poisoning

- Treatment depends on the pesticide, the degree, and the type of exposure:
  - On the skin
  - Swallowing
  - Inhalation
- For treatment, it is important to the know the name of the chemical:
- Treatment methods:
  - Bioactive carbons
  - Fulvic acid
  - Humic acid
  - Ulmic acid
- Note: For serious reactions, seek professional medical help.

Conclusion

- Everyone needs to be aware of what pesticides can do and the harm that they can cause. Unfortunately, we cannot see them and are invisible after application. We need to be concerned about the presence of these chemicals in food. We also need to be concerned on how these chemicals can spread to other plants and locations.
- It is important to be aware of the synergistic effect when people are exposed to more than one toxic substance at the same time. Exposure, both acute and chronic, can overwhelm the immune system.
- When used, pesticides have to be used in a responsible manner.
- People involved in pest control need to take extra steps to protect their immediate and long term health.
- Whenever possible, we need to seek alternatives that are safer for all of us and for our planet.