



Reducing Synthetic Pesticides and Fertilizers

Banned pesticide use in Kenya, an urgent need to change agricultural practices

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HArmony between MAn and NAture through knowledge sharing and translating

We can't solve problems by using the same kind of thinking we used when we created them A.Einstein



WHY WOULD WE WANT TO SUSTAIN THIS?

SUSTAINABLE



http://pcpb.go.ke

Pesticide use in Kenya

- 718 different products are registered in Kenya
- 170 companies (mostly chinese companies, Bayer & Syngenta)
- ⊷ 220 active ingredients





Registration process often up to Tier 4



Bifenthrin (Defender, Talstar)

Authorisation only with obliged mitigation measures as 20m bufferzone



Registration process often up to Tier 4





Imidacloprid (Thunder, Confidor)

Authorisation only with obliged mitigation measures as no spraying of this pesticide in the morning

Why are pesticides banned in Europe?



Precautionary Principle

adopted in EC 1107/2009 Not enough data to prove they are not harmful to environment or human health. More data need to be collected



Prove for unacceptable effect

New studies showed that they are harmful to the environment and/or human health.



Unacceptable effects to....

Human Health







Environment







What are the criteria How are the pesticides used in Kenya be classified?



https://sitem.herts.ac.uk/aeru/p pdb/

What are the criteria concerning the environment?

Physicochemcial properties

Persistence, solubility

Aquatic Toxicity

Toxicity towards waterflea, fish and algae

Terrestrial Toxicity

Toxicity towards earthworms, arthropods, funghis and bacteria

Bee

Toxicity twoards honeybee and other pollinators

Toxicity

How many active ingredients used in Kenya are banned?



http://ec.europa.eu/food/plant/pesticides/eu-pesticidesdatabase/public/?event=activesubstance.selection&language=EN

Carbendazim



Used in 8 different products on french beans, tomatoes, fruits for various fungal diseases.

- mutagenicity
- neurotoxicity
- effect on development in frogs
- toxic to birds, aquatic species
- drift mitigation measures

Amer S.M. et al., Genotoxicity of benomyl and its residues in somatic and germ cells of mice fed on treated stored wheat grains, Arch Toxicol (2003) 77: 712–721



Diazinon

Used in 6 products on various vegetables for various insect pests.

- EDC?
- strong neurotoxicity
- highly toxic to bees, birds, aquatic species, wildlife
- drift mitigation measures
- toxic impurity

Smith Jr., S.; Lizotte, R. E.; Moore, M. T. Toxicity Assessment of Diazinon in a Constructed Wetland Using Hyalella azteca. Bull. Environ. Contam. Toxicol. 2007, 79, 58-61.



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Acephate

Used in 4 different products on various vegetables for various insect pests.

• EDC

- neurotoxicity
- toxic to birds, aquatic species
- drift mitigation measures

Kumar, S. Changes in rat brain regions serotoninergic system following acephate poisoning. **Pestic. Biochem. Physiol.** 2004, 78, 140-150.



Paraquat (2007)

Used in 7 products on maize, coffee and tea for weed control.

- mutagenicity
- high acute toxicity to operators and bystanders
- related to Parkinson's Desease
- very toxic to aquatic species
- drift mitigation measures



Imidacloprid Used in 17 products on various vegetables for various insect pests.

- EDC (Thyroid)
- neurotoxic
- highly toxic to birds, aquatic species, earthworm, many beneficial insects and bees
- drift mitigation measures

Schmuck, R.; Schoning, R.; Stork, A.; Schramel, O. Risk posed to honeybees (Apis mellifera L, Hymenoptera) by an imidacloprid seed dressing of sunflowers. **Pest Manag. Sci.** 2001, 57, 225-238. Suchail, S.; Guez, D.; Belzunces, L. P. Discrepancy between Acute and Chronic Toxicity Induced by Imidacloprid and its Metabolites in **Apis mellifera**. **Environ. Toxicol. Chem.** 2001, 20 (11), 2482-2486

How is this possible?

 Industry is justifying it: We provide training on safe use of pesticides'

Double standards

Weak international legislation

••• Weak or non existent national legislation

Lack of sufficient resources

••• No data on pesticide use

••• No monitoring programs (food, water, soil)

••• Weak consumer protection



We are helping to feed the planet while protecting biodiversity and keeping farmers safe"

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