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# **Organic Agriculture: A viable Option for Kenyans**

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# Why Organic?: Agriculture today is not sustainable

## **Broken cycles**

- Plant nutrients mined, use of fossil energy, pollution, eutrophication
- Organic manure & organic waste  
no more primary source of nutrients and creating pollution
- Specialised production
  - Grain in one place, animals in another





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# Agriculture today is not sustainable

## **Soil degradation**

- Erosion
- Heavy irrigation
- Expanding cities
- Overgrazing
- Deforestation
- Chemical damage, poisoning

2 billion hectares severely damaged

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Agriculture today is not sustainable

## **Pesticides**

- Disturbing the natural balance - addictive
- Reliance on chemicals
- Acute poisoning – South
- Damage on biodiversity - everywhere

World: 220 000 death (WHO 1992)

China: 10 000 deaths

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Agriculture today is not sustainable

### **Contributing to climate change**

- Use of fossil fuels for production and transportation
  - Use of fossil fuel for N fertiliser, do not add organic matter, instead loosen it and kill microorganisms which determine the soil fertility.
  - Loss of Soil Organic Matter
  - 15% of CO<sub>2</sub> increase caused by agriculture
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Are we paying the true price?

External effects on environment  
and human health - > USD 200/h



Cost Category	UK (£ million)
Damage to Water	231
Damage to Air	1113
Damage to Soil	96
Damage to Biodiversity and Landscape	126
Damage to Human Health: Pesticides (poisoning)	1
Damage to Human Health: Nitrate	0
Damage to Human Health: Microorganisms and Other Disease Agents	776
Total	£2343 (£1149-3907)

# How safe are our foods?





# Are we paying the true price?

## Random survey 2006

Product	Pesticide Detected	Levels9 mg/Kg	EU MRL	X
Sukum wiki	Dimetheote	1.07	0.02	53.5
	Ethomyl	0.08	0.05	1.6
Tomatoes	Diazinone	0.93	0.02	46.5
Cabbages	Captan	0.34	0.1	3.4
	Heptachlor	0.28	NGG.	
Potatoes	Fenitrothio n	0.41 0.19	0.1 NGG	4.1
Organic Leeks	NONE			

## **Pesticides found; Dimethoate**

### **Effects**

- A systemic and contact insecticide and acaricide, effective against red spider mites and thrips on most agricultural and horticultural crops.

Dimethoate might have carcinogenicity, birth defects, reproductive toxicity and mutagenic

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# Tomatoes



## **Pesticides found; Diazinon**

### ■ **Effects**

- A contact insecticide effective against a number of soil, fruit, vegetable and rice pests e.g. cabbage root, carrot and mushroom flies, aphids, spidermites, thrips and scale insects domestic pests and livestock pests
  - Non Hodkins lymphoma
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# Cabbages



- Pesticides found; **Captan, Heptachlor**
  - **Effects**
  - It is a foliage fungicide with protective action . It is mainly used for seed treatment and soil fungicide. Captan is a possible carcinogen and Mutagen
  - Heptachlor- was used to kill termites found in the home, and farmers used it to kill insects found on farm crops, especially corn crops. Banned in the US from 1988. Animals that were fed high levels of Heptachlor during a short period of time experienced tremors and convulsions
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# What is Organic Agriculture?



- Is a sustainable form of production that promotes and enhances biodiversity and biological cycles
- It is based on minimal use of off-farm inputs and on methods that restore, maintain and enhance ecological harmony
- Does not use synthetic chemical pesticides and fertilizers relying on developing a healthy soil and sound crop rotations
- Organic agriculture stands for clean environment, protected from destruction through deforestation, eroded soils, extinct plant and animal species.
- Organically produced products are free from genetically modified products (GMO's). Consuming organic food means consuming GMO free food.



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# Organic Basic Principles



- **The principle of health**
  - **The principle of ecology**
  - **The principle of fairness**
  - **The principle of care**
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# Benefits of organic farming



- **Little damage to environment – less cost for society**
  - **Greater biodiversity**
  - **Reduced nutrient losses**
  - **Reduced erosion, water management**
  - **Low use of non – renewable resources**
  - **Safer working conditions**
  - **Less risk of contamination**
  - **Can build on traditional knowledge**
  - **Access to organic market**
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# The Organic Sector



- The global organic food market grew by 12.4% in 2010 to reach a value of \$59,341.2 million.
- In 2015, the global organic food market is forecast to have a value of \$88,069.3 million, an increase of 48.4% since 2010.
- Fruit & vegetables is the largest segment of the global organic food market, accounting for 30.9% of the market's total value.

**Where to get Organic products locally** Organic specialized shops and green groceries with organic sections





## Basket delivery schemes



## Farmers Owned Market outlets and bulking centers





Organic restaurants,





# Organic Farmers Market





# 3 Leading supermarkets

(Nakumatt, Zucchini, Chandarana)





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