



FARMING FOR  
THE FUTURE

**Woolworth's market share**

**Sustainability??????**

**Challenges of the food system**

**Measure yourself!**

**What is Farming for the Future?**

**Conclude**

# Woolworth's market share



FARMING FOR  
THE FUTURE

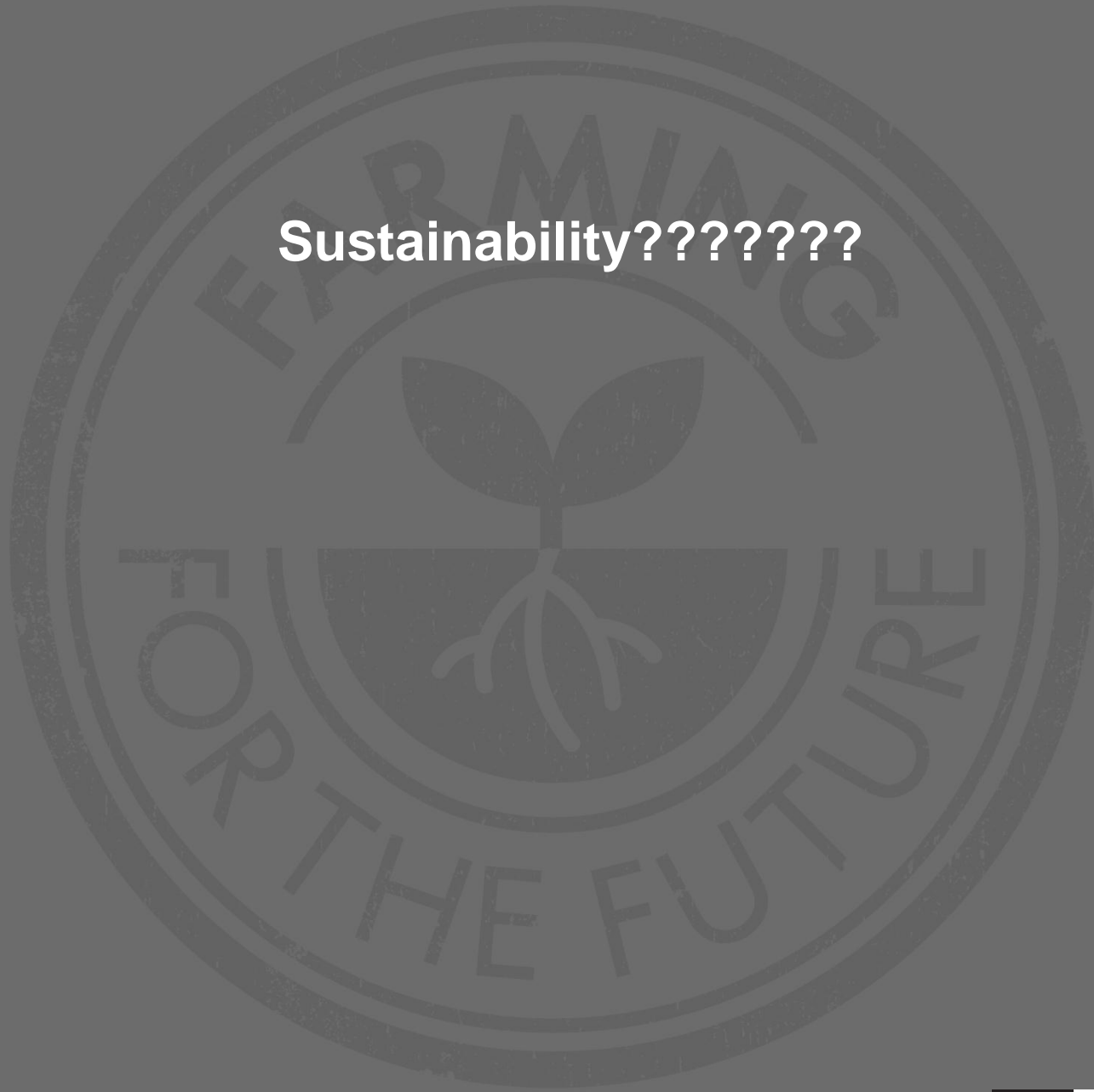


**9.1% of SA's food market**

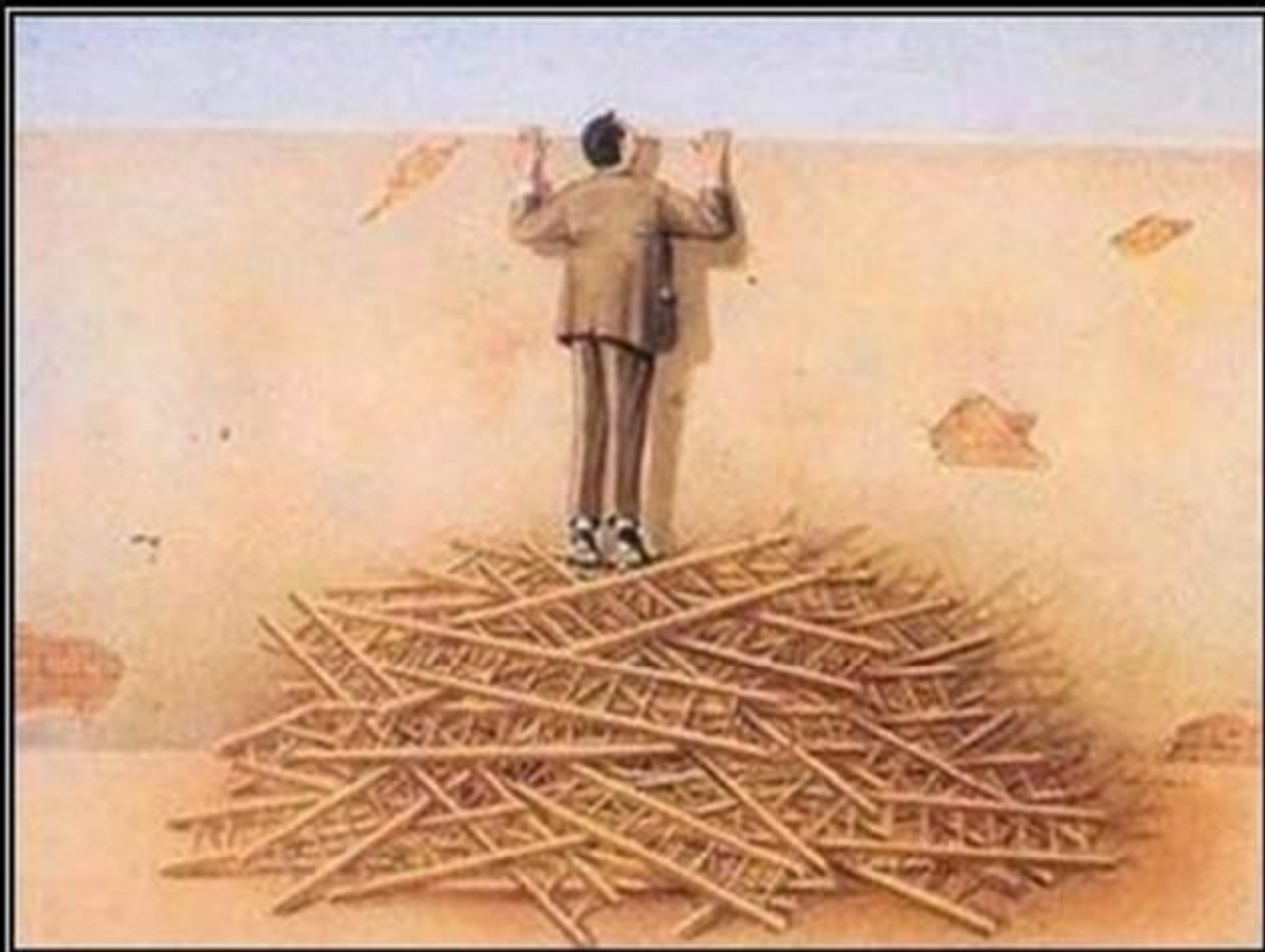
**20.3% of SA's produce market**

**We sell 2.2% of all grapes produced in South Africa  
(excluding Namibia)**

**Sustainability???????**

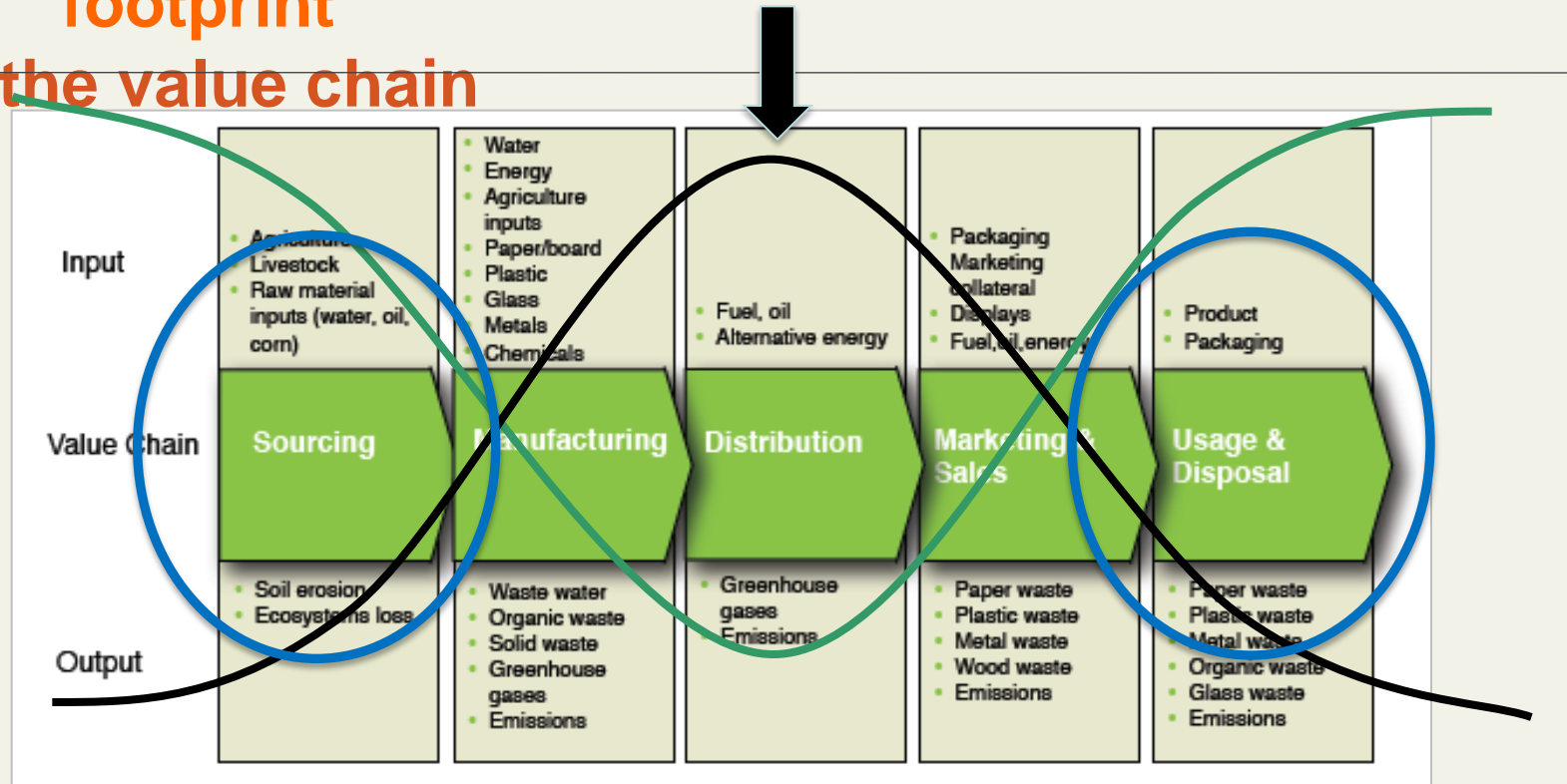


**FARMING FOR  
THE FUTURE**



**It doesn't matter how many resources you have  
if you don't know how to use them, they will never be enough**

### Environmental footprint of the value chain



Source: Sustainability: Balancing Opportunity and Risk in Consumer Products/Deloitte Development 2007;  
 UNEP/Wuppertal Inst., 2007

# What is sustainability?

The Brundtland definition:

*“...to meet the needs of the present without compromising the ability of future generations to meet their needs.”*



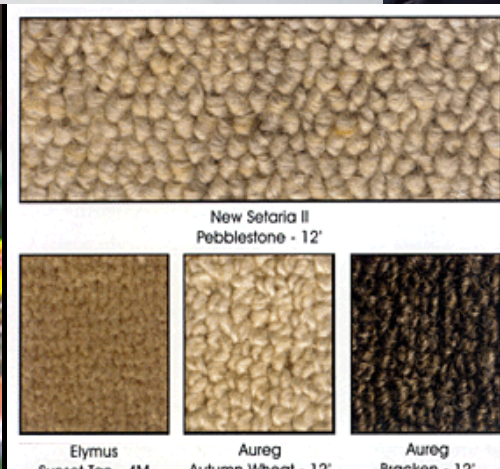
# Sustainability principle 1

Minimize use of  
*natural substances*



# Sustainability principle 2

Minimize use of *man-made substances* that harm life...



# Sustainability principle 3

Minimize *physical degradation*...



Before

After



FARMING FOR THE FUTURE

# Sustainability principle 4

Avoid undermining *human needs*...

UNDERSTANDING

PARTICIPATION

IDENTITY

IDLENESS

FREEDOM

CREATION

AFFECTION

PROTECTION

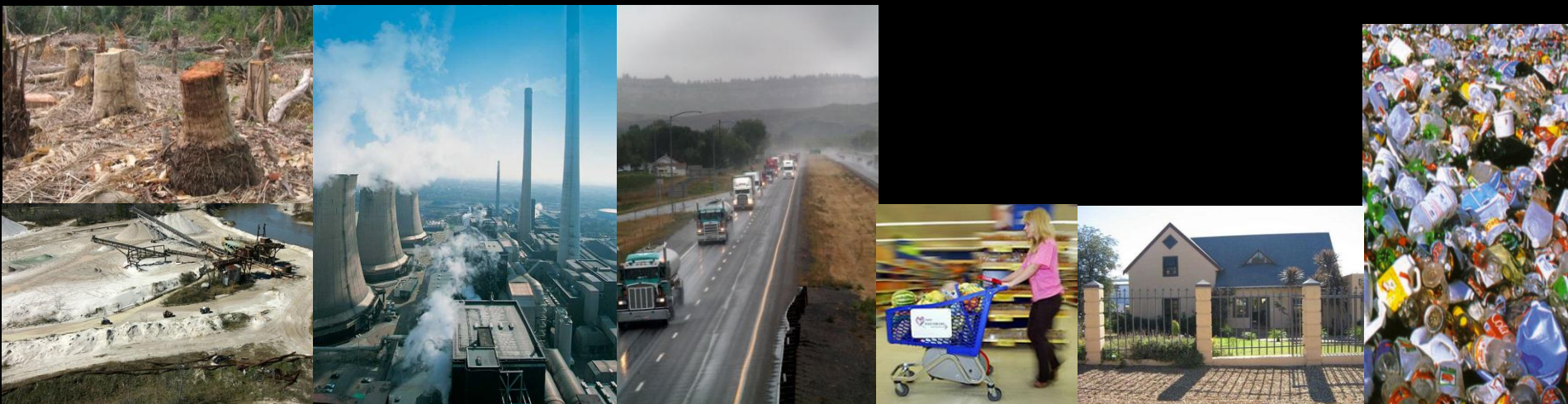


SUBSISTENCE

# Challenges of the food system



# The linear economy



extraction



production



distribution



consumption



disposal

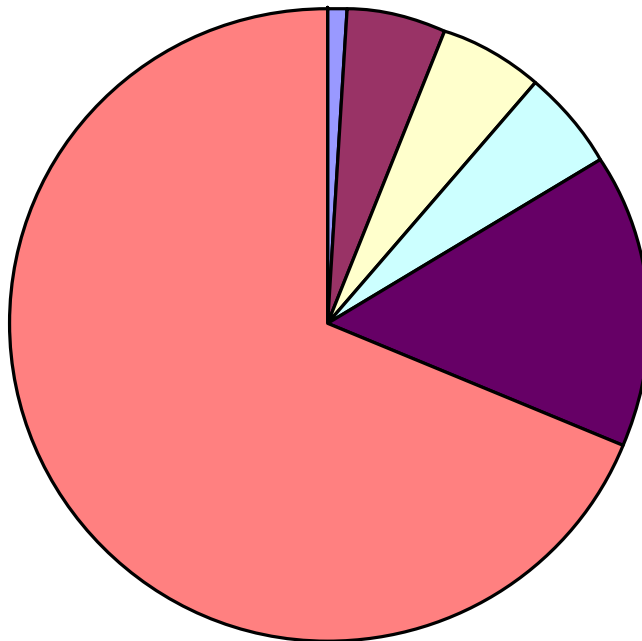
# Sustainable economy



# The Health Issue

Causes of death (W.H.O. Report 2002)

## RISK FACTOR



- Occupational non-safety
- Unsafe water sanitation water
- Alcohol
- Unsafe Sex
- Tobacco
- Diet-related diseases

# DECLINE IN FOOD NUTRIENTS

*By Donald Davis a biochemist at University of Texas at meeting of AAAS ( American Association for the Advancement of Science) in St Louis.*

In studies on Fruit, Vegetables and Wheat it was find that the concentration of Vitamins, Minerals and Proteins have declined by 5 to 35% in 50 years.

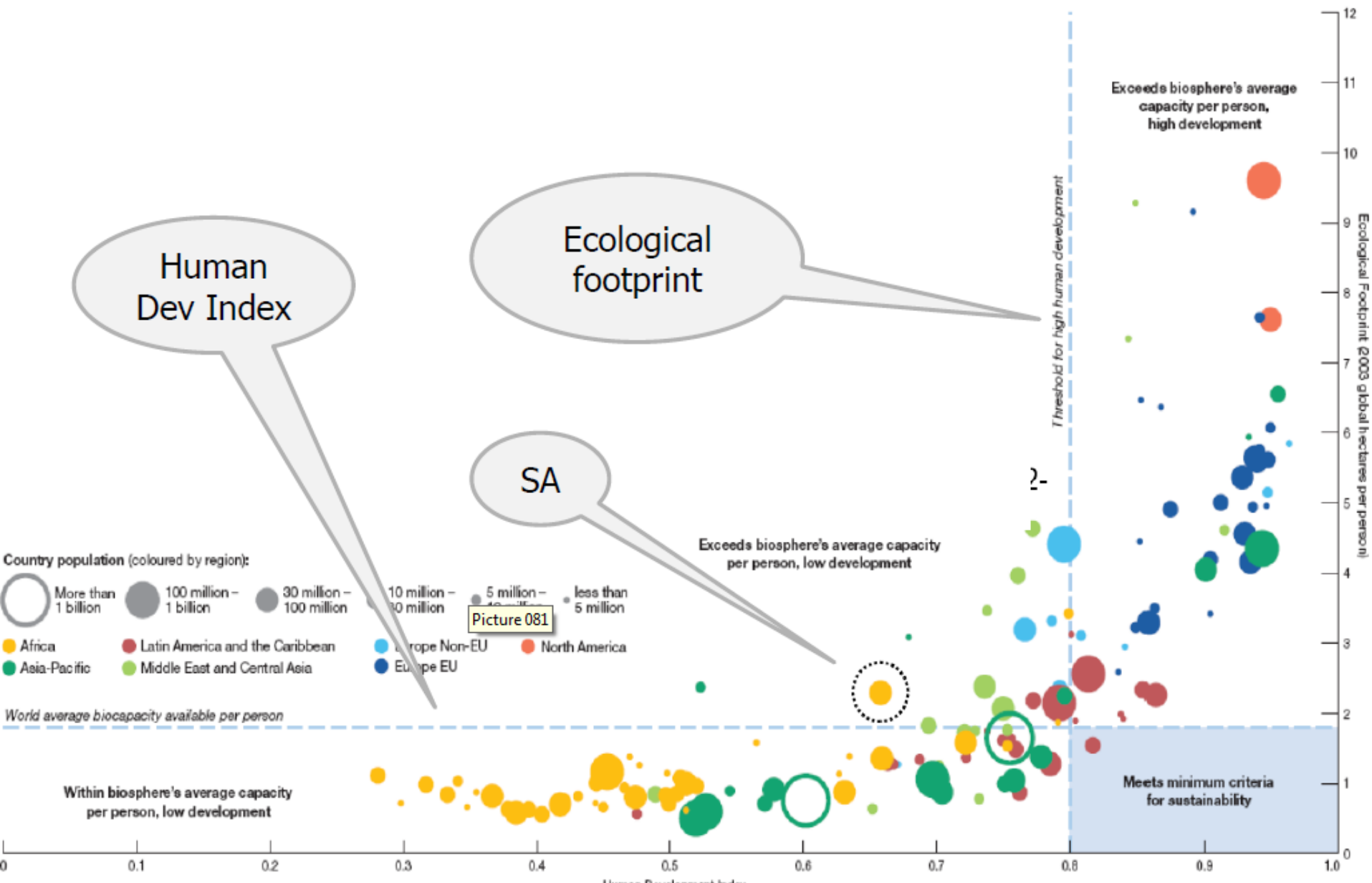
Antioxidant levels in the same crops declined by 30% in the same period.

Iron, in 15 different varieties of meat, decreased on average by 47% and in some products by 80%.

The iron in milk dropped by 60% in the same period.

Copper and magnesium, essential for enzyme functioning, declined by 10 to 60% over 50 years

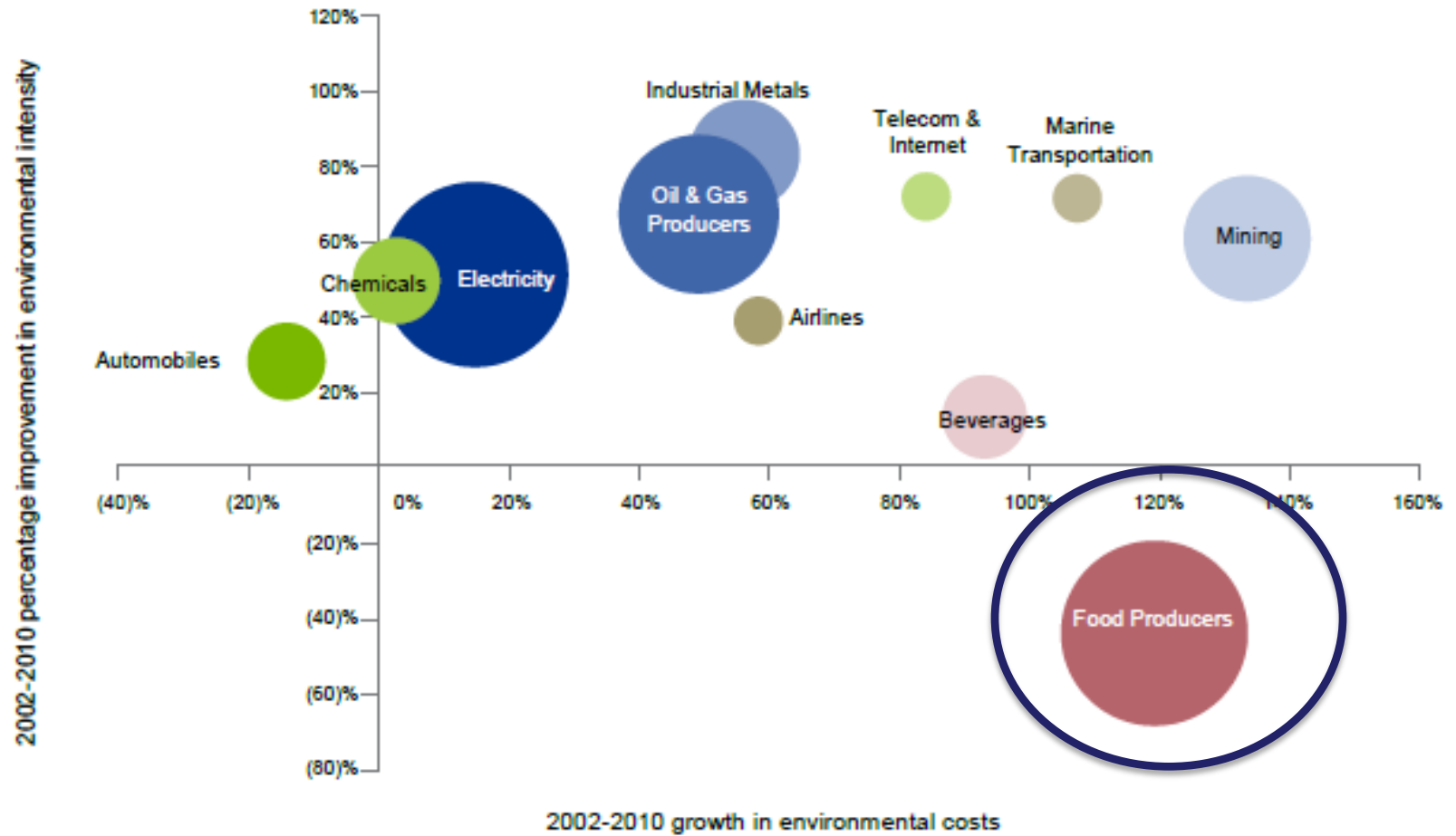
Fig. 8: HUMAN DEVELOPMENT INDEX AND ECOLOGICAL FOOTPRINTS, 2003





# Decoupling economic growth from resource impact

## Environmental intensity



Key: Size of circle depicts the sector's total external environmental costs in 2010 in USD.  
Source: Trucost 2012.

WORLD  
POPULATION



9.6bn by<sup>\*1</sup>  
2050

**POPULATION X CONSUMPTION ≠ PLANET**



Equivalent to the size of a<sup>\*3</sup>  
football field every second

temperature  
increase of

4°C

is likely to create  
an unstable planet<sup>\*5</sup>



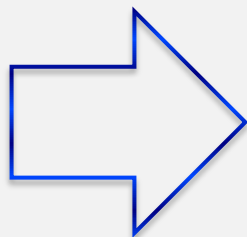
more than we  
do currently<sup>\*6</sup>

By 2020 between

**75 and 250 million**

people are projected to  
be exposed to increased  
water stress<sup>\*7</sup>

# FOOD PRODUCTION



# 50 YEARS

MUST MATCH PAST 10 000



We need to produce **more** food than we have in the last 10 000 years<sup>1</sup>

Demand for water could **more than double**

Fifty years ago, food bills was around a third of household budgets. Today it's less than a tenth or as much as 80%



**Our diet has changed** more than it has in the last 10 000<sup>2</sup> Every step along the chain - how it is grown, processed, distributed, retailed and cooked - has been transformed beyond recognition.



**Changed our natural environment** almost beyond recognition<sup>3</sup>

Research suggests not much more than **50 years left of topsoil**

Power over the global food system concentrated into the hands of the few

# Measure yourself!



"What gets measured, gets managed."  
Peter Drucker

(c) Digital Vision / Thinkstock

# Waste



**500 000 000 items of packaging**  
**Reduce, recycle and compost**



**FARMING FOR  
THE FUTURE**

# Climate Change



**300 000 tons of CO<sub>2</sub>**

**Energy use in production, processing,  
transport and display**

# Woolworths' Future Footprint

- Aggressive growth of our Foods business
- Doubling our ecological footprint
- Existing farms expanding
- Proactive planning for future farms

# What is Farming for the Future?



# The basic elements of Farming for the future

1. Same price as conventionally farmed fresh produce
2. Improves soil and water quality
3. Promotes water saving
4. Encourages biodiversity
5. It is better for the environment
6. Partnership with our suppliers



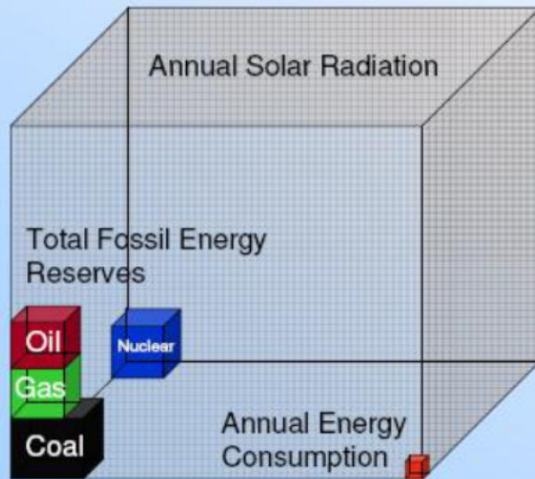
# What is FFF ?

Litres per fruit

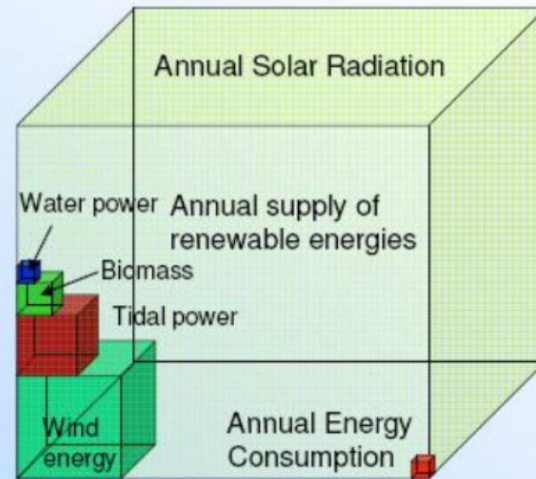
## World energy consumption

GP solar

### Traditional energy sources



### Renewable energy sources



Source: SolMic, Germany

Stellenbosch October 30th, 2007

Peter Fath

Trends in Photovoltaics



0

litres

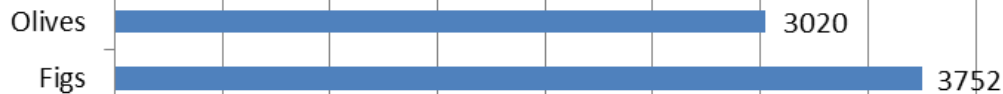


0

litres

ions

- Annual
- as
- Frequency
- te
- Annual
- 2 full
- Coverage
- Next
- cott



FARMING FOR THE FUTURE

## Substrate

	Components	Full Score	Score	Score
	Date:		2012/02/17	2013/02/04
Substrate and Runoff Management	Substrate Type	10	7	7
	Scientific Calculation of Fertilisation Requirements	13	13	13
	Practical Implementation of Fertiliser Program	10	10	10
	Runoff Water Management	12	7.5	10
	Structure	5	4	4
Irrigation Water Management	Calculation of Irrigation Requirement	20	20	20
	WUE (Water Use Efficiency)	10	0	10
	Water Source Chemical Composition	15	15	15
	Water Health	5	5	5
Environmental Legal Requirements	Environmental Management	14	13	13.5
	Water Management	17	7.5	9.5
	Agricultural Management	15	15	15
	Heritage Management	2	2	2
	Property zoning	2	1	1.5
Biodiversity Management	Consrv of endangered ecosystems	NA		
	Alien invasive plant management	NA		
	Fire Management	NA		
	Game & Problem animal management	NA		
	Erosion Management	NA		
Waste & Wastewater Management	General waste (Farm)	8	7.5	8
	Pack house waste	9	6	8
	Hazardous waste (Farm)	4	2.5	3.5
	Process Wastewater	26	9	7.5
	Sewage Waste Disposal method	3	3	3
Cooling & Energy Use	Measurement of energy use	6	5	6
	Program to ensure continual improvement	6	4	4
	Refrigerant used	8	8	8
Pest & Plant Management	Legal agrochemical usage	8	0	3
	Agro-chemical management	7	6	7
	Integrated pest and disease management	10	9	8
	Integrated Weed Management	5	5	5

## Soil

	Components	Full Score	Score	Score
	Date:		2009/06/09 & 2009/06/10	2010/02/16 & 2010/05/05
Soil Management	Soil Chemical Composition	10	4	3
	Soil Nutrient Status	10	1	3
	Fertilisation Practices	10	10	8
	Organic Carbon Content	10	10	0
	Soil Covering	10	4	8
Irrigation Water Management	Calculation of Irrigation Requirement	10	8	10
	Soil Water Measurement	10	10	10
	WUE (Water Use Efficiency)	5	3	3
	Water Chemical Composition	20	15.5	16
Environmental Legal Requirements	Water Health	5	5	5
	Environmental Management	14	9	10
	Water Management	17	8	9
	Agricultural Management	15	14	15
	Heritage Management	2	2	2
Biodiversity Management	Property zoning	2	0	1
	Consrv of endangered ecosystems	13	0.75	8.6
	Alien invasive plant management	7	6	6
	Fire Management	4	2	3
	Game & Problem animal management	4	3	3
	Erosion Management	2	2	2
Waste & Wastewater Management	General waste	8	6	8
	Pack house waste	9	6	6
	Hazardous waste	4	3	3.5
	Process Wastewater	26	3	6
	Sewerage Waste	3	3	3
Cooling & Energy Use	Measurement of energy use	6	6	6
	Program to ensure continual improvement	6	2	0
	Refrigerant used	8	8	8
Pest & Plant Management	Legal agro-chemical usage	8	28.5	26.5
	Agro-chemical management	7		
	Integrated pest and disease management	10		
	Integrated Weed Management	5		



FARMING FOR THE FUTURE

# Soil Management

	Full Score	Analyses	Score
<b>Soil Chemical Composition</b>	<b>10</b>		<b>6</b>
pH	4	5.1	3
Salinity	4	200	1
Na	2	0.68	2
<b>Soil Nutrient Status</b>	<b>10</b>		<b>2</b>
P (mg/kg)	2	34	1
K (mg/kg)	2	424	0
Ca (cmol/kg)	2	9.47	1
Mg (cmol/kg)	2	4.96	0
Micro-elements	2	0	0
<b>Fertilisation Practices</b>	<b>10</b>		<b>5</b>
Fertiliser programme	5	2	2
Organic products used & source	5	3	3
<b>Org Carbon Content</b>	<b>10</b>		<b>0.5</b>
Texture vs C content	10	0.38	0.5
<b>Soil Cover</b>	<b>10</b>		<b>8</b>
Type of covering	5	3	3
Percentage covered	5	5	5

# Water Management

<b>Calculation of Irrigation Requirement</b>	<b>10</b>		<b>5</b>
Method of calculating IR	10	5	5
<b>Measurement of Soil Water</b>	<b>10</b>		<b>7</b>
Regularity of measurement & depth	10	7	7
<b>WUE</b>	<b>5</b>		<b>2</b>
WUE	5	2	2
<b>Water Chemical Composition</b>	<b>20</b>		<b>9.7</b>
pH	3	5	1
Conductivity (mS/m)	5	150	2
SAR	5	3	3
Ca (mg/L)	0.5	20	0.5
Mg (mg/L)	0.5	10	0.5
K (mg/L)	0.5	50	0.5
Na (mg/L)	0.5	30	0.2
Cl (mg/L)	5	90	2
<b>Water Health</b>	<b>5</b>		<b>5</b>
E. Coli	5	0	5



# FARMING FOR THE FUTURE

## Wastewater Management

Process Wastewater	26				
Monitoring (quantity & quality)	3	None	Partial	Full Monitoring Program	NA
Cleaning agents & disinfectants	3	Poor	Average	Good/Stored separately	NA
Cleaner production strategies	3	None	Partial	Implemented	
Scientific calculation of disposal options	3	Not done	Partial	Scientific Options	
Adequate treatment and winter storage	6	None	Partial Treatment	Adequate Treatment	Legal Compliance
Disposal method	6	Indiscriminate land or water	Septic Tank	Municipal/River (legally)	Beneficial Irrigation
Sludge storage & disposal	2	Indiscriminate land or water	Composting	Composting / Analyses	



26/02/2009



27/02/2009



27/02/2009



26/02/2009











05/03/2009



23/02/2009

PLASTIC  
ONLY

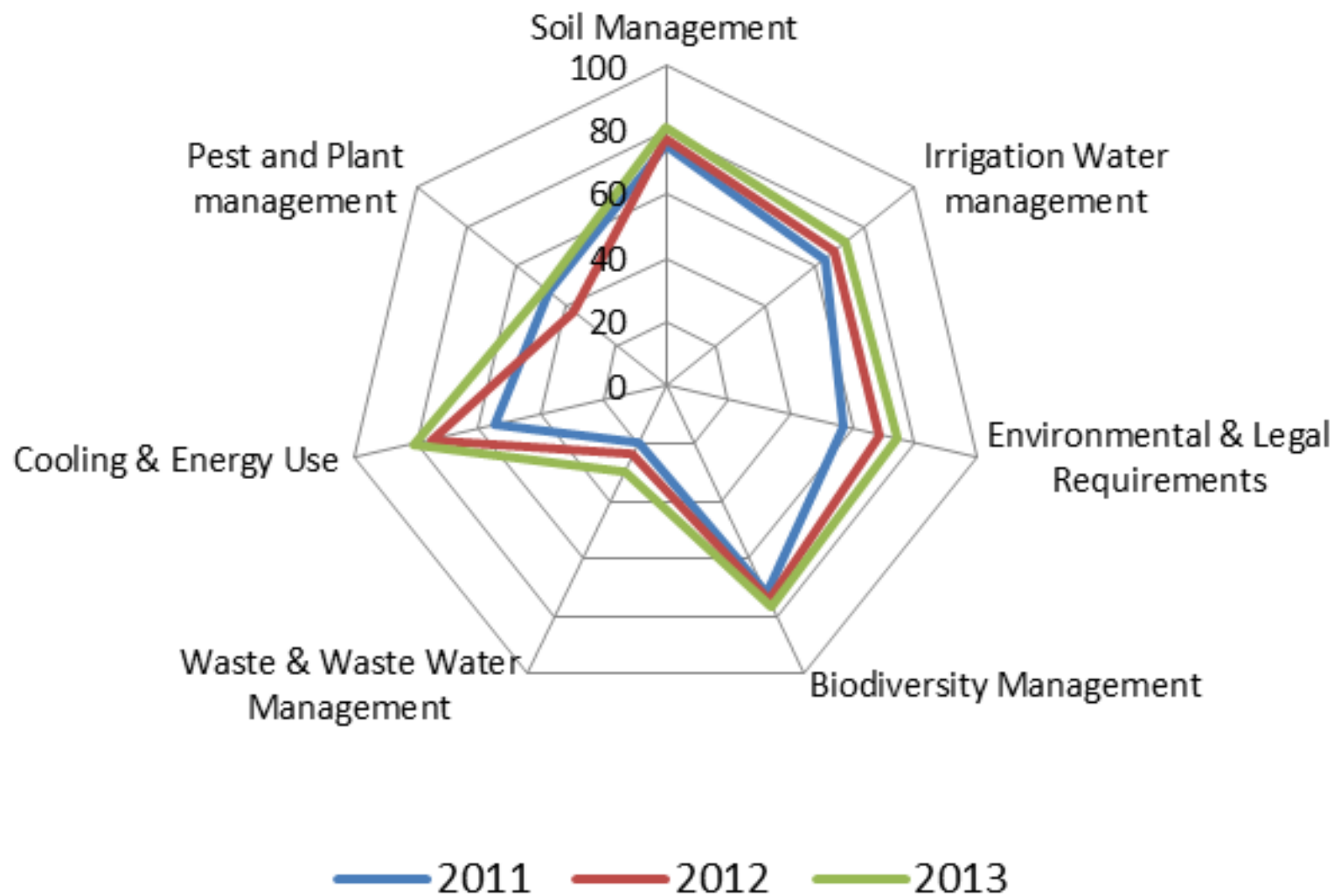
CANS  
ONLY



GLASS  
ONLY



26/02/2009



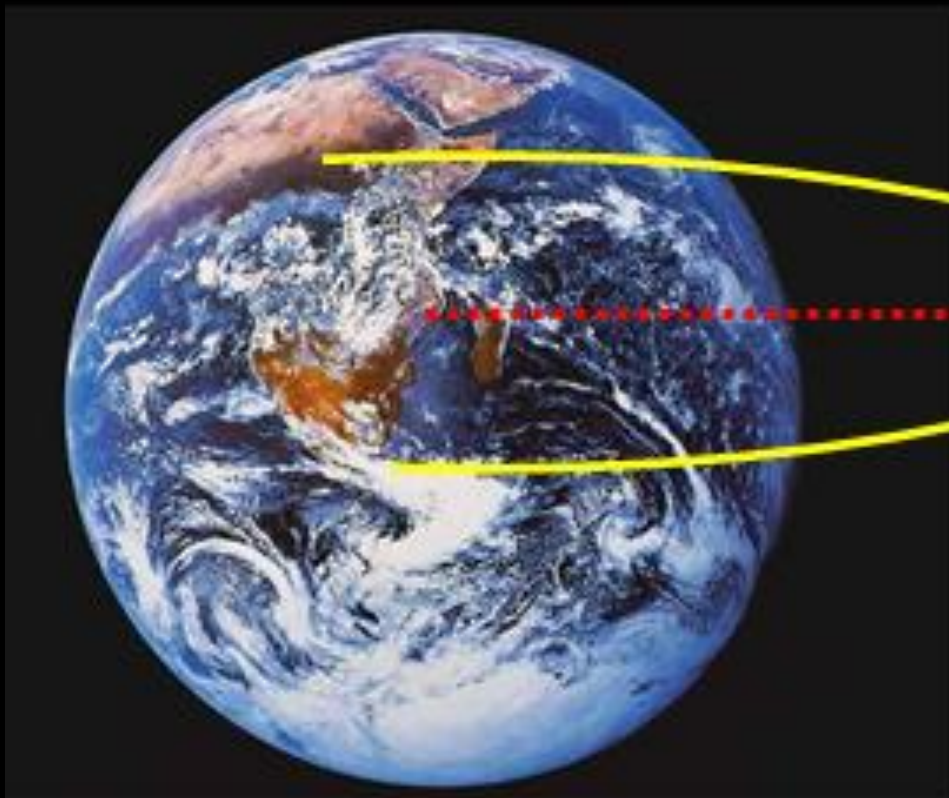
# Economics

4 vegetable, 4 fruit, 4 berry, 2 dairy, 2 wine, 2 processing factories & 2 cellars

- Farming for the Future is an economic way of producing crop		Traditional Way of Farming	FFF	Traditional Way of Farming	FFF
		Year 1 to 3		Year 4 to 6	
Seed					
Soil Preparation					
Energy					
Irrigation					
Fertilizer					
Sprays					
	Herbicide				
	Fungicide				
	Insecticide				
Labour					
Waste Management					
Repairs & Maintenance					
Depreciation					
Overheads					
Equipment					
Yield in ton/ha					
% Unmarketable Product					
Cost per kg					



# THE SYSTEM IS OUT OF BALANCE.....



**consumption,  
population**

Carrying  
Capacity

**natural  
resources**



WOCOWORTHS  
the difference

W



FARMING FOR  
THE FUTURE

Thank you !



FARMING FOR THE FUTURE