



Responsible Chemical Management in Palm Oil Production

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Presentation Outline

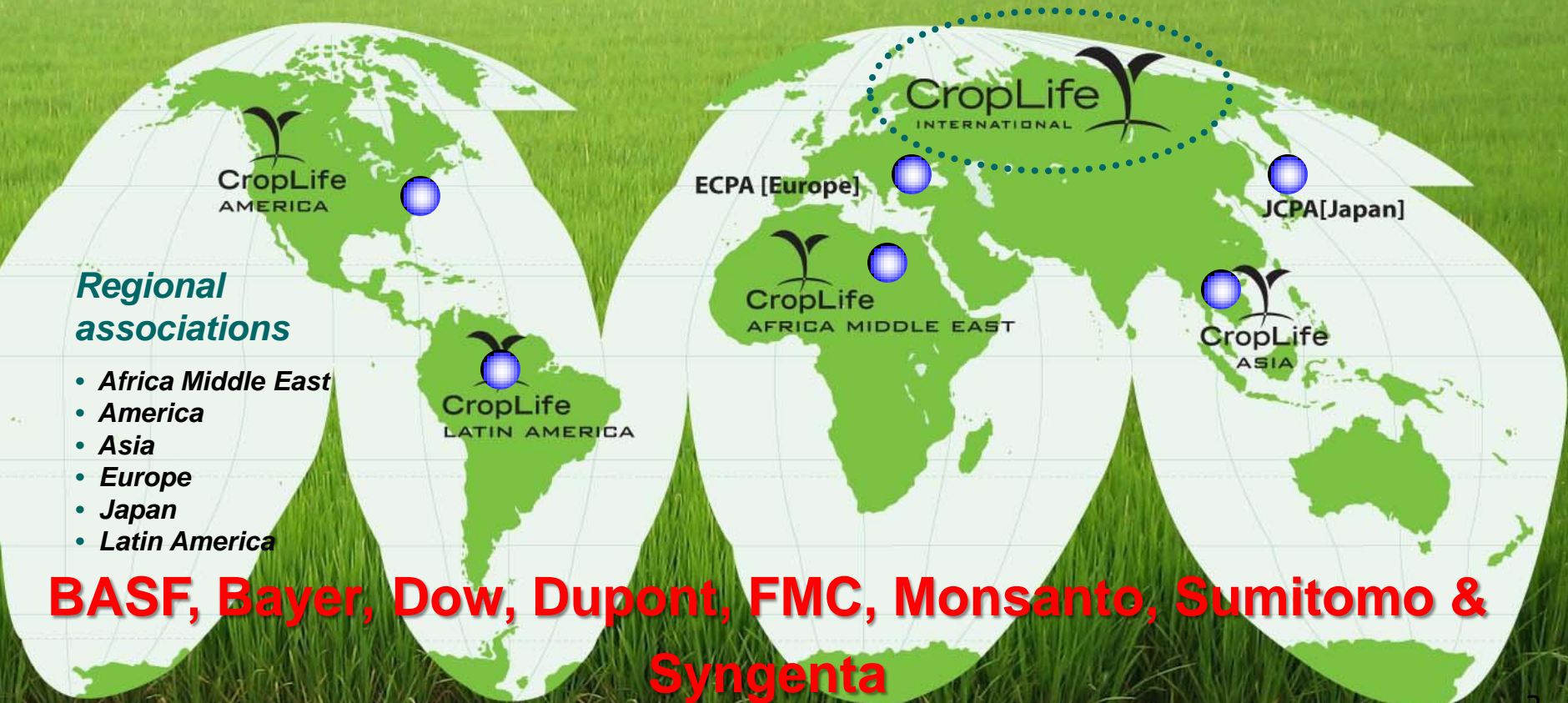
- **Introduction to Croplife (video)**
- **Challenges to Agriculture**
- **Importance of Agriculture in Asia**
- **Importance of Palm Oil in Indonesia & Malaysia**
- **CPPs in managing Palm Oil**
- **Stewardship in Palm Oil**
- **Lessons & Benefits**
- **Impact of going Organic**
- **Closing Messages**

A large, stylized green leaf graphic that serves as a background for the slide. It consists of several overlapping, curved leaf shapes in various shades of light green, creating a sense of depth and movement. The leaves are positioned around the central text.

CropLife

CropLife International - A Global Federation

Representing the plant science industry in 91 countries



A Regional Network

representing the plant science industry

7 Member Companies



The Chemical Company



Bayer CropScience



Dow AgroSciences

MONSANTO
imagine^{it}



FMC



The miracles of science™

syngenta

2 Associate Companies



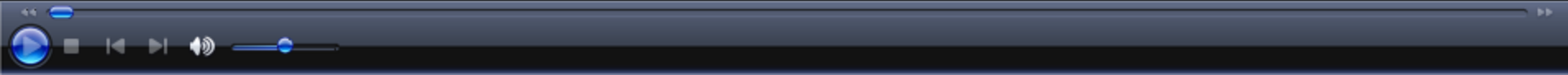
Arysta LifeScience



ISARRO

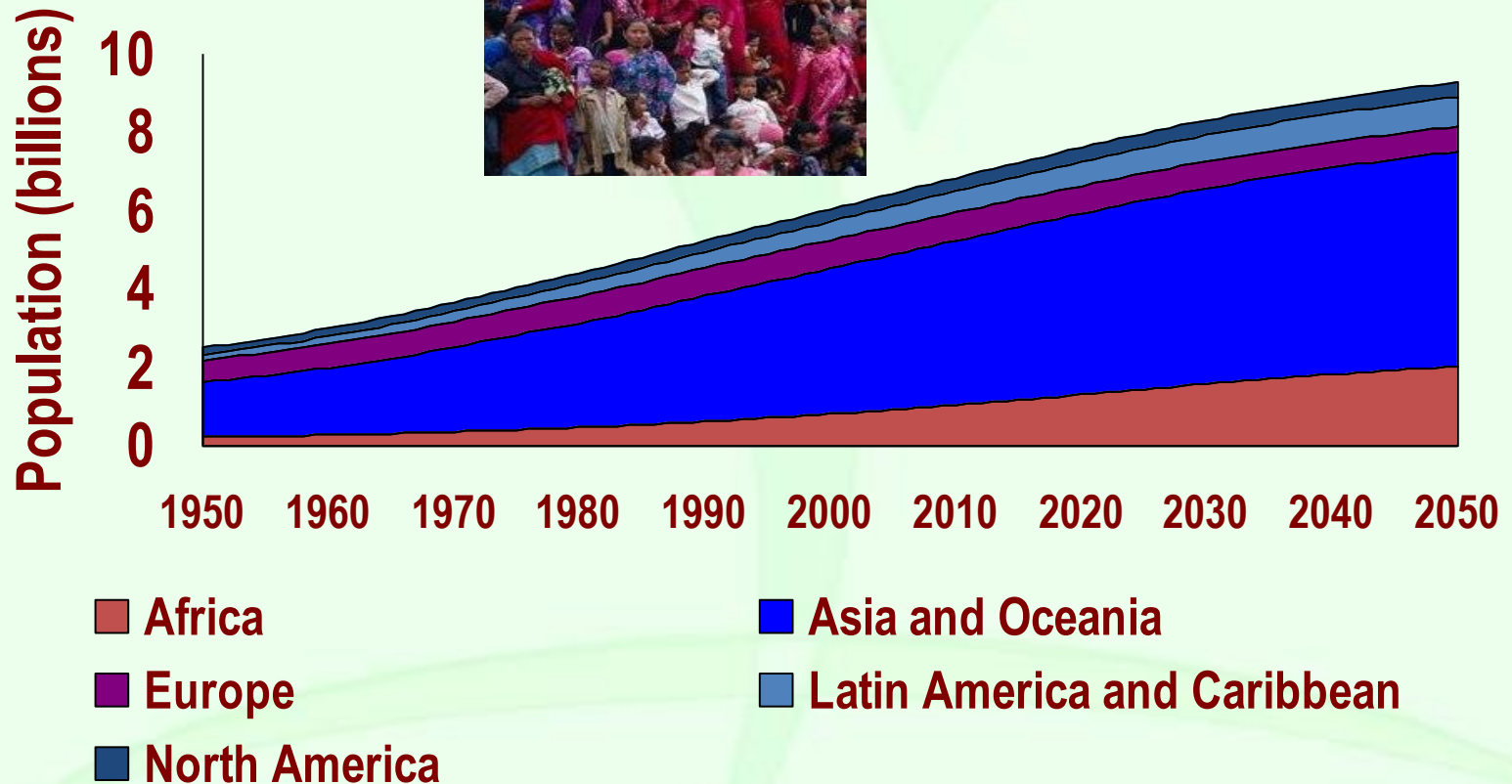
**15 National
Associations**





The Challenges

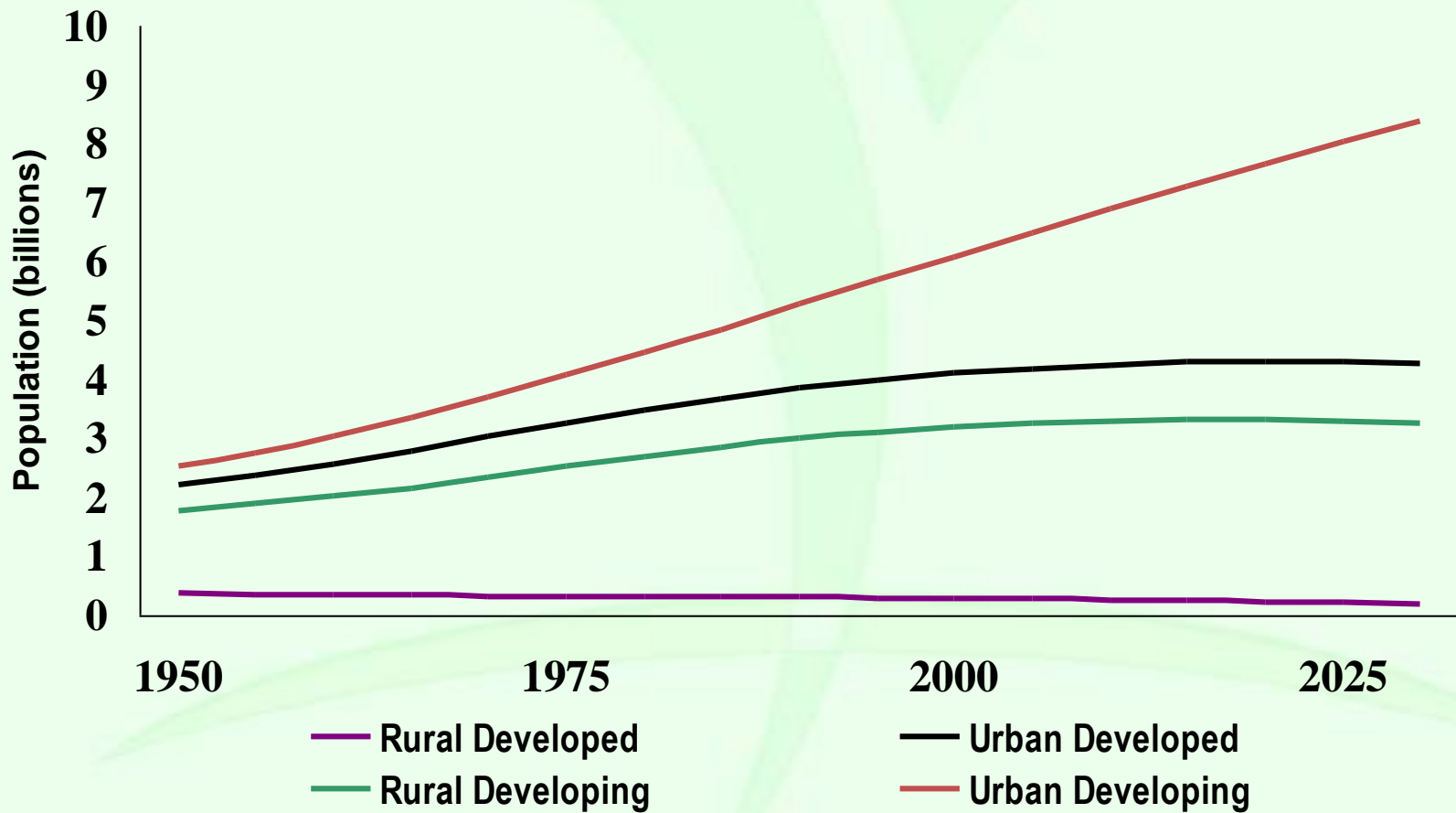
Population Growth



Source: FAO

Population increases by 220,000 per day

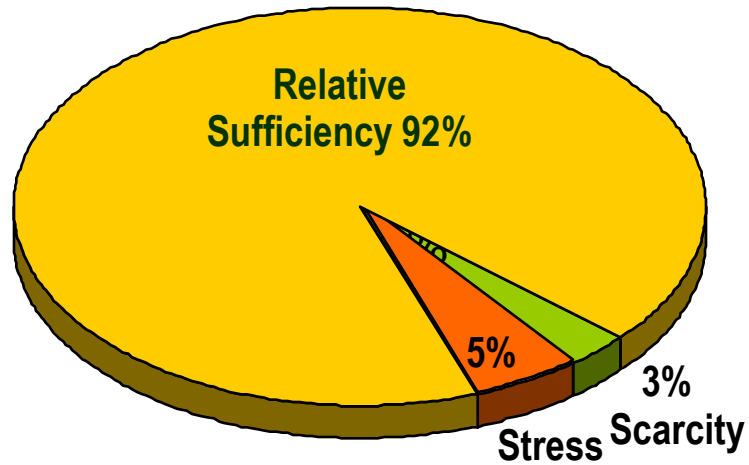
Urban Migration



Water Matters

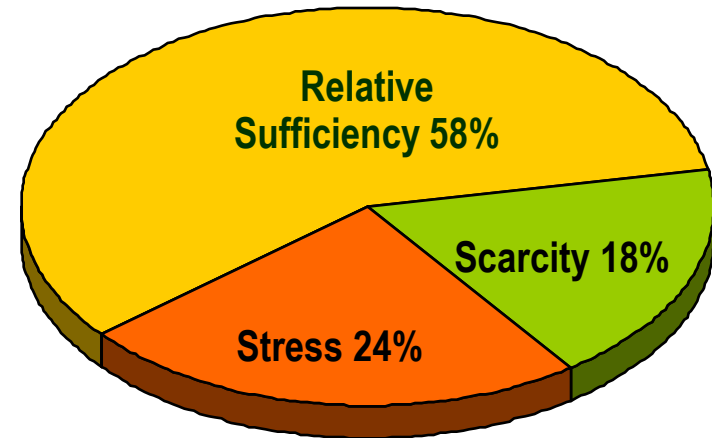
1995

Total Population: 5.7 billion



2050

Total Population: 9.4 billion

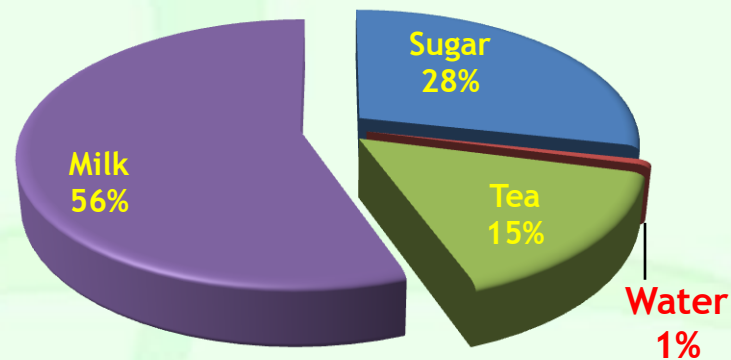


Water Foot print

Amount	Item
0.2 L	Hot water
2 gm	Tea Leaves 5L to grow the tea
0.02 L	Milk 18L to grow the grass
8 gm	Sugar 9.2 L to grow the cane
Total	32.4 Liter

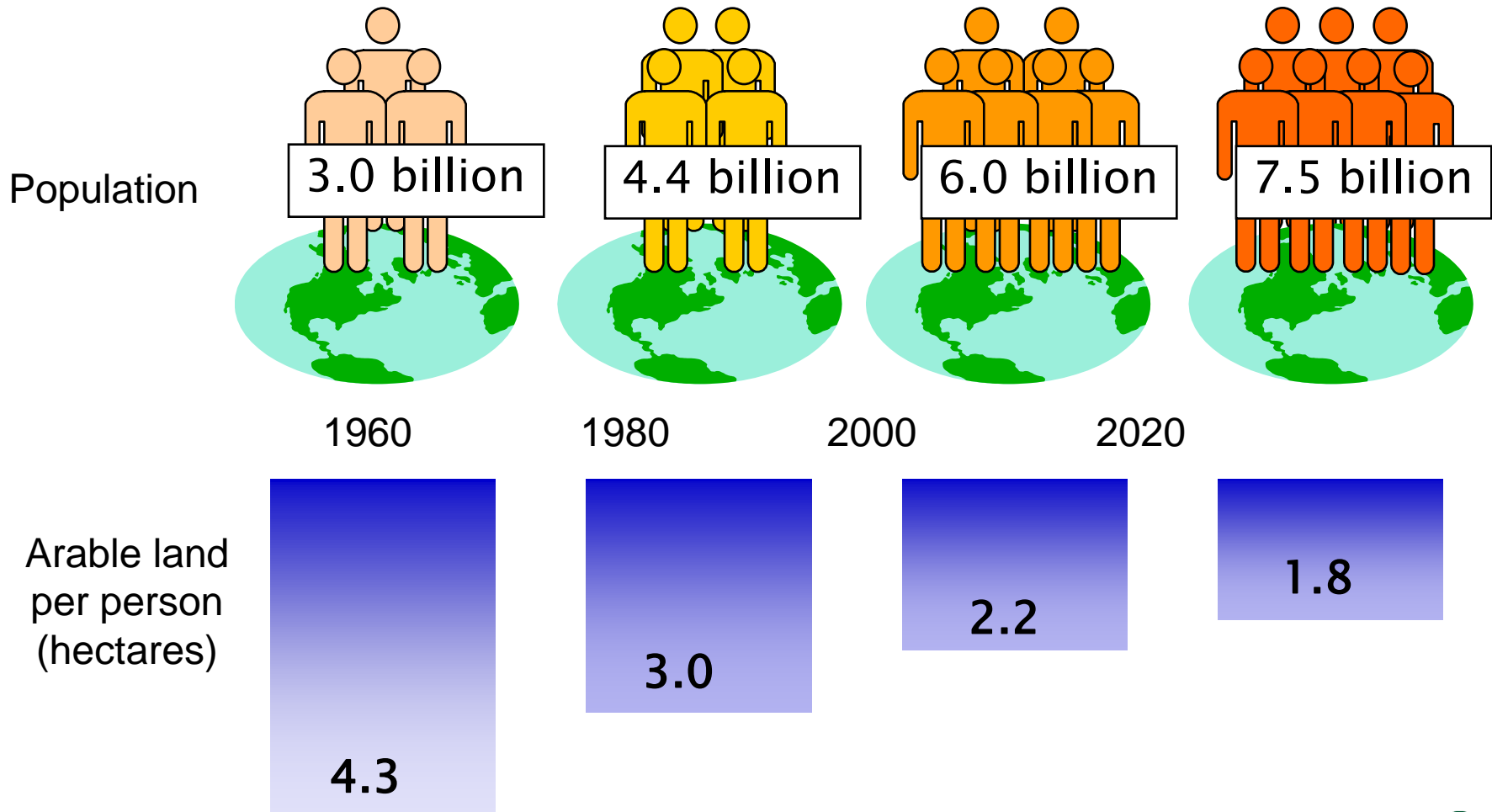


How much of water does it takes to make a cup of tea ?

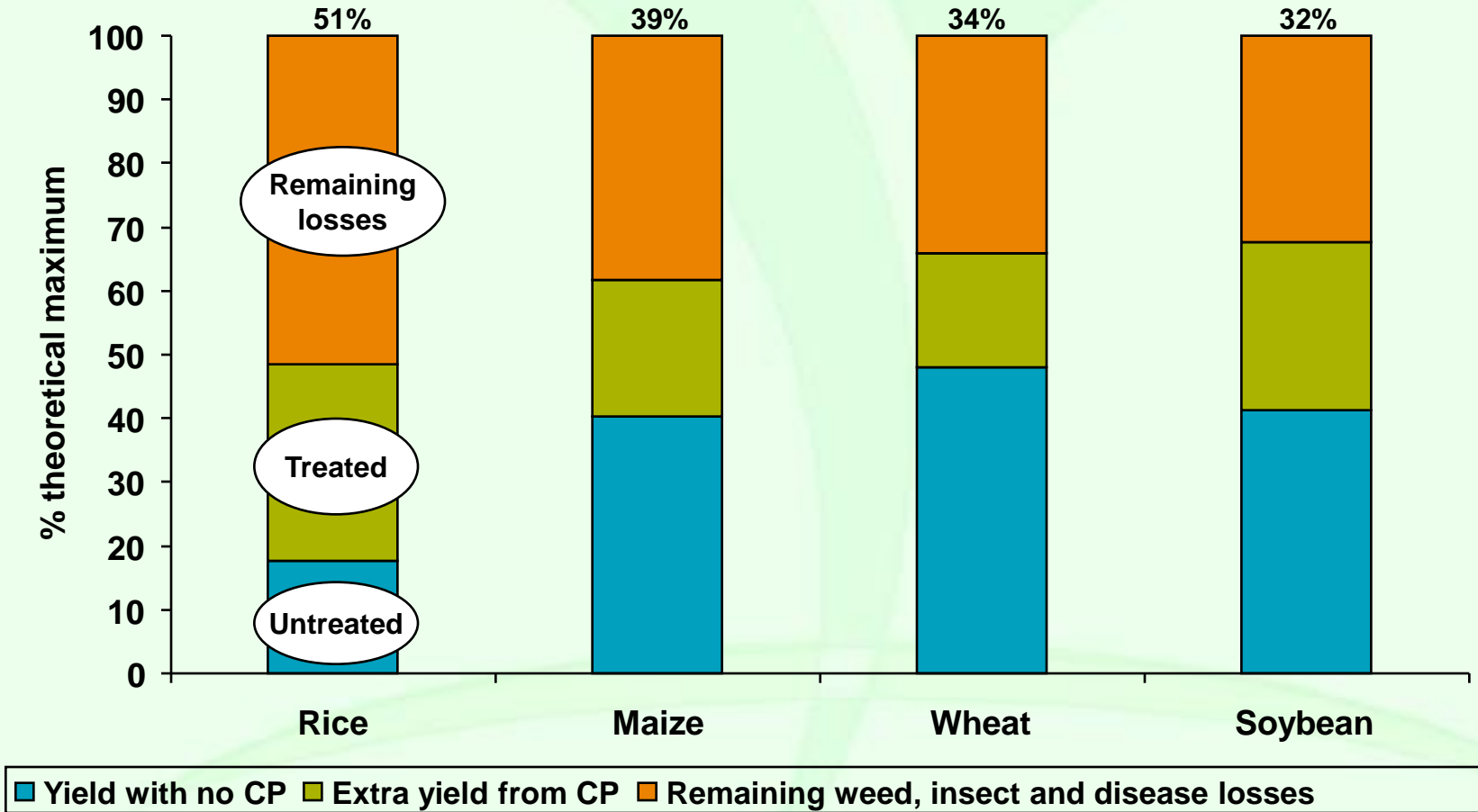


•Ignores all water used in manufacturing the cup, processing tea, milk and sugar, producing electricity for the kettle and washing up.

More food must be produced on less land



CPPs contribution to Crop Yields



Challenges

- **Population growth**
- **Urbanisation**
- **Increasing demand**
- **Food security issues/minimizing losses**
- **Rising input costs**
- **Rising levels of malnutrition – 1 billion are hungry**
- **Declining agricultural areas**
- **Water shortages**
- **Climate change**
- **Cost and timing of innovations**

We must grow more affordable, sustainable food

Sustainability: We need to feed today's generation, their grandchildren and all the generations to come



Affordability: 2.6 billion people earn less than \$2 a day

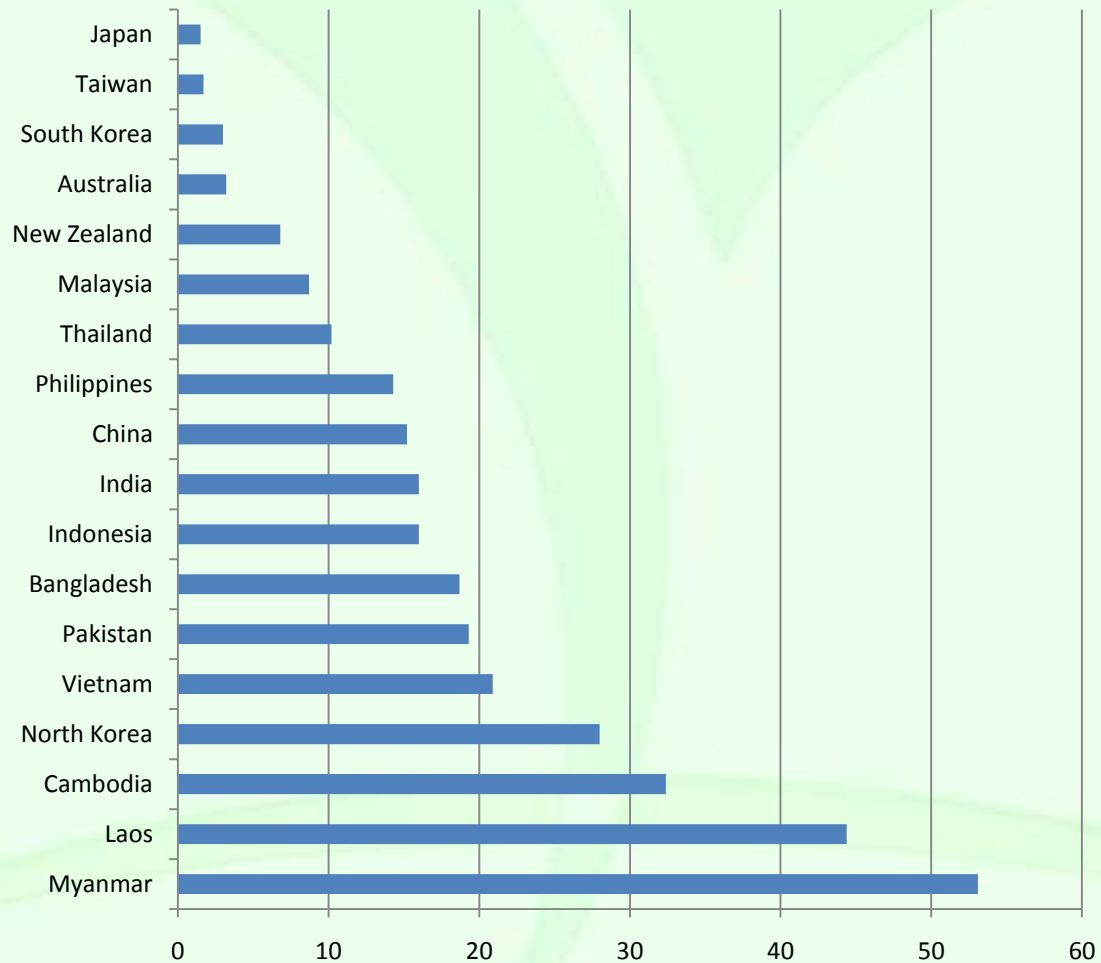


=\$2 per day=



The Importance of Agriculture In Asia

The Importance of Agriculture in Asia



Dominance of agriculture in some Asian economies, 2005

* source: <http://www.agnet.org/situationer/stats/21.html>

The Importance of Agriculture in Asia

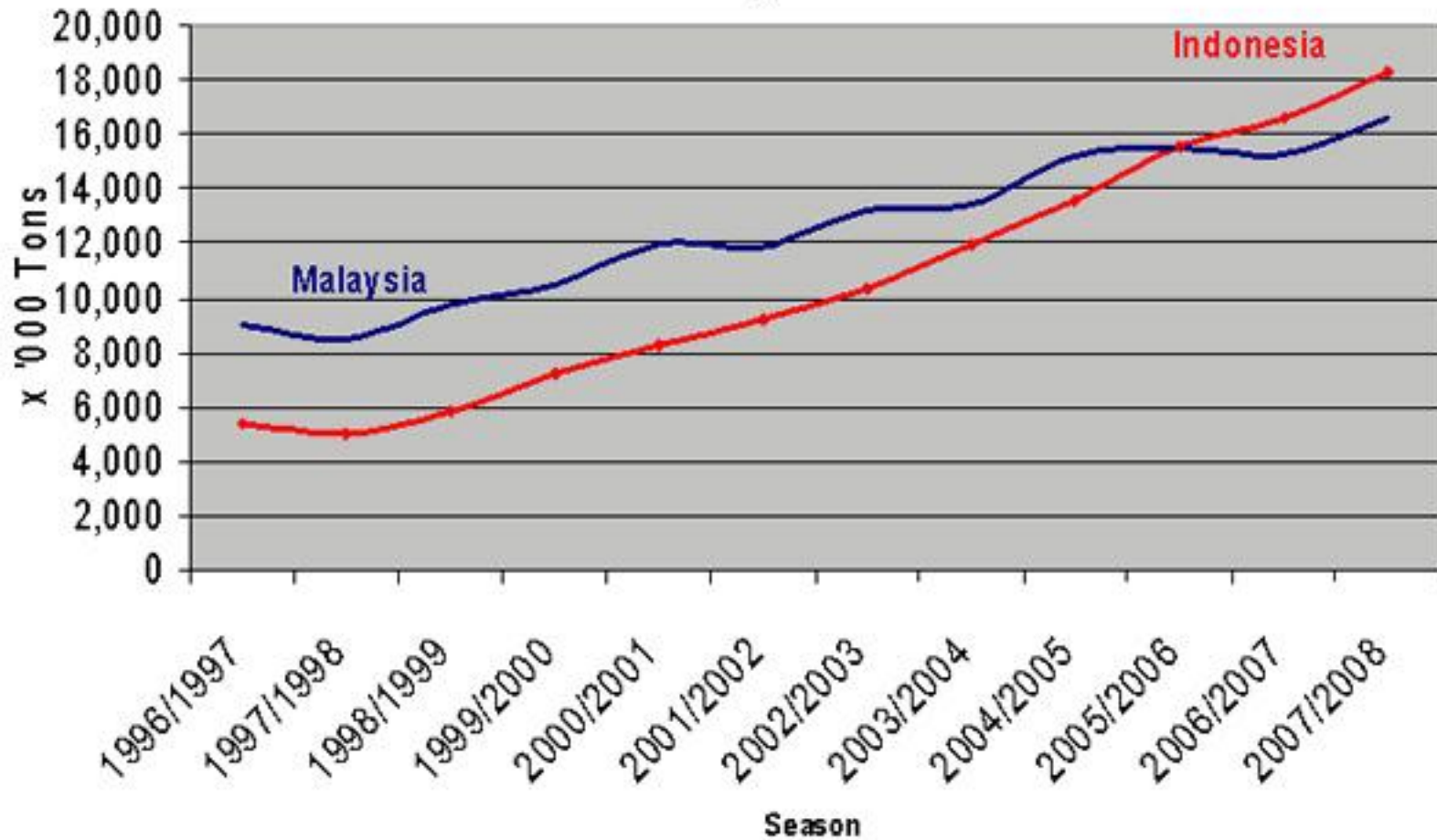
Projected Populations in 2010 (millions)			
	Total	Agriculture	% in Agriculture
Australia	21.3	0.8	3.7
Bangladesh	166.6	76.4	45.8
China	1359.4	826.2	60.7
India	1220.1	596.3	48.8
Indonesia	239.6	90.0	37.5
Japan	127.7	2.7	2.1
Republic of Korea	48.6	2.2	4.5
Malaysia	27.9	3.2	11.7
New Zealand	4.3	0.3	7.6
Philippines	93.1	31.1	33.45
Sri Lanka	19.5	8.4	42.27
Thailand	65.9	26.7	41
Vietnam	90.8	57.3	63.1

So what does Asia Produce?

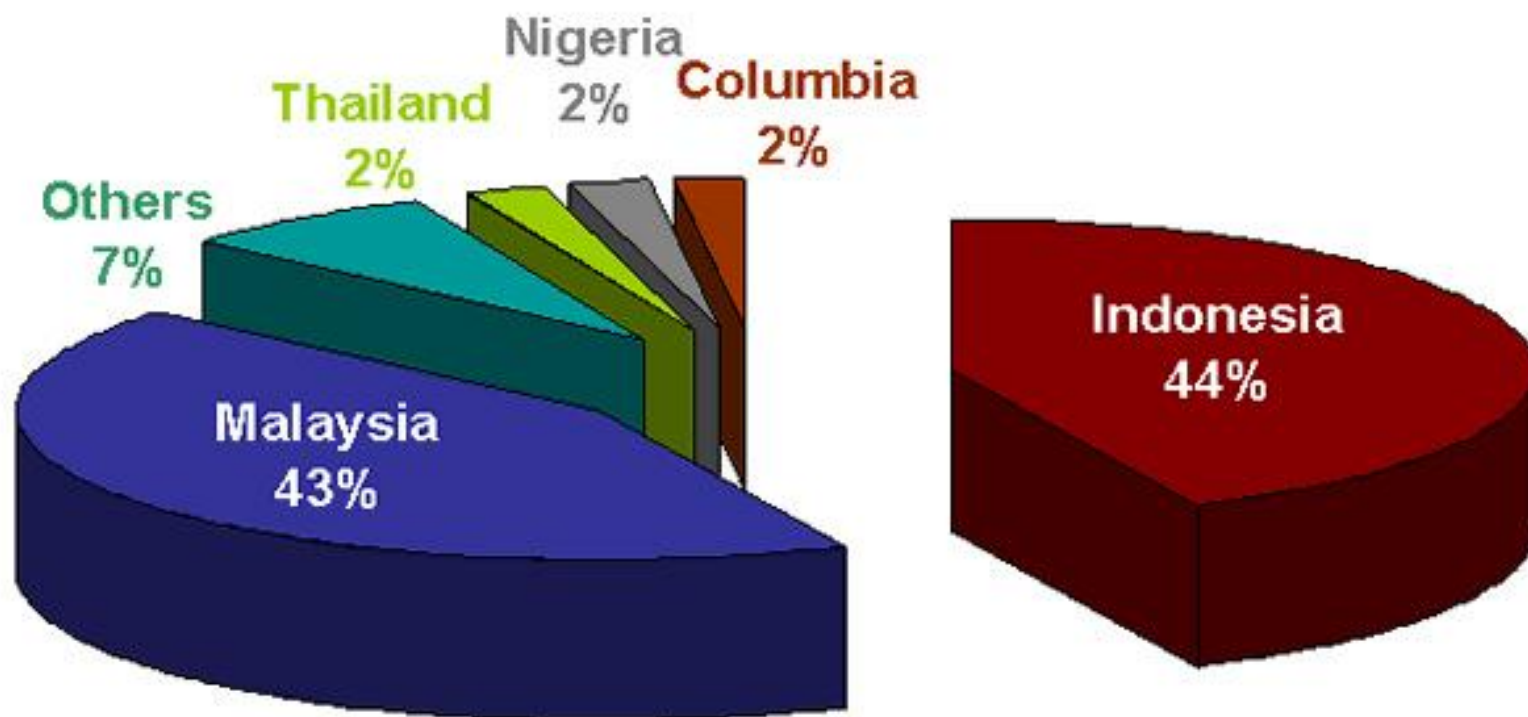
Crop	Asia Production -Million Tonnes	% of Global Production
Sugar Cane	671	42
Paddy Rice	600	91
Wheat	281	46
Maize	217	27
Potatoes	116	37
Palm Oil	33	89
Cassava	72	33
Tomatoes	68	52
Bananas	48	56
Onions	42	64
Apples	39	60
Cucumbers and Gherkins	35	79
Cabbages & other brassicas	52	76

The Importance of Palm Oil to Indonesia and Malaysia

Indonesia and Malaysia Palm Oil Production



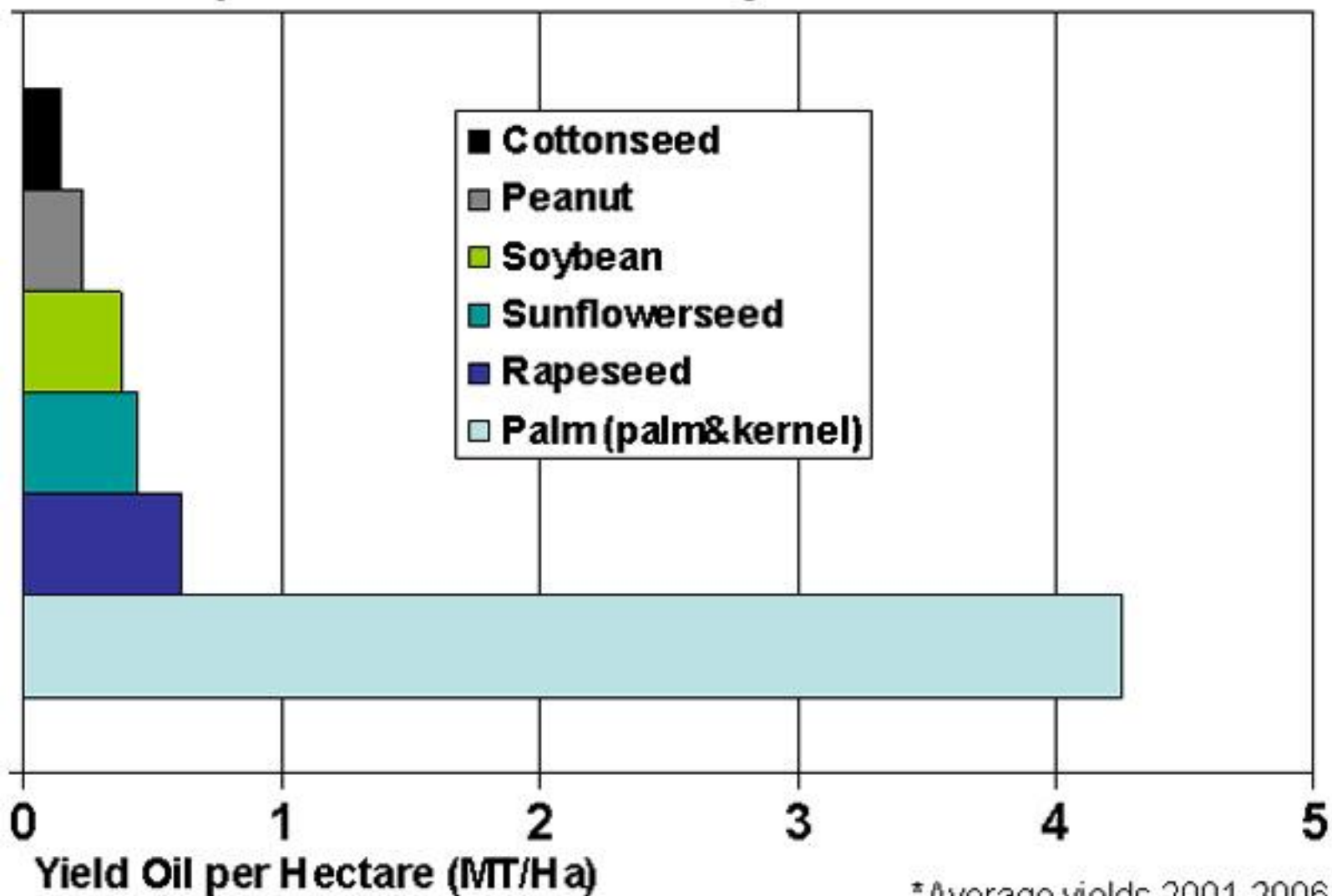
2006 World Palm Oil Production



<u>Country</u>	<u>%</u>	<u>'000 Tons</u>
Indonesia	44 %	15900
Malaysia	43 %	15881
Others	7 %	2718
Thailand	2 %	820
Nigeria	2 %	815
Columbia	2 %	711

Source Data: Oil World, GAPKI

Comparison Yields of Major World Oilseeds*



Summary

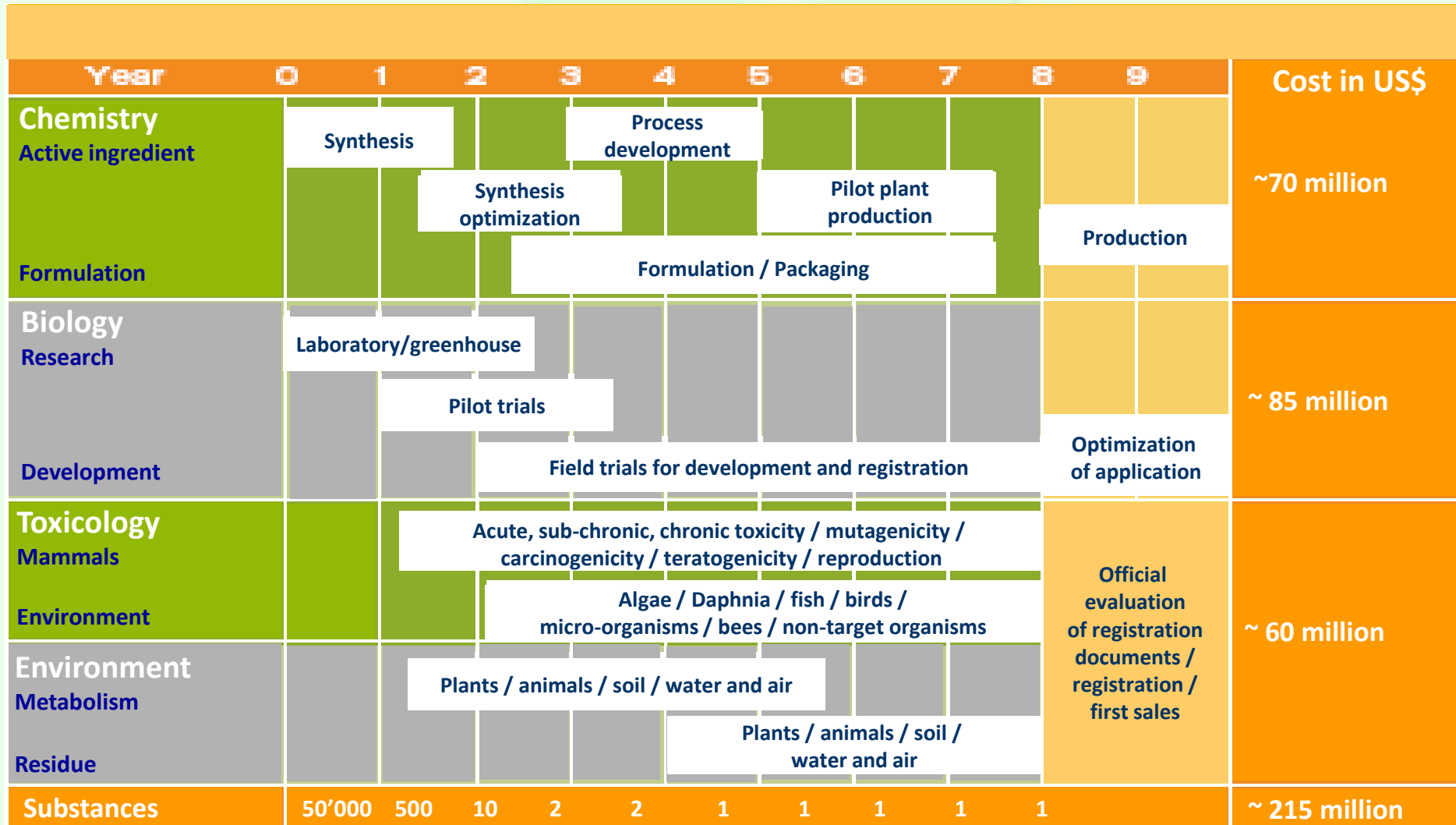
- **Palm Oil is a major world agricultural commodity**
- **Palm Oil plays a pivotal role in helping feed increasing numbers of people**
- **Indonesia and Malaysia are the major world producers of Palm Oil**
- **Palm Oil is hugely important to the economies and social structure of both Indonesia and Malaysia.**
- **Technology plays a vital role in maintaining and developing the industry**

The Importance of Crop Protection Products in Managing Economical Palm Oil Production

The Crop Protection Industry

- **Highly Regulated**
- **Highly Responsible**
- **Research based**
- **Science based**

Innovation is costly and takes time



Research goals for a new crop protection product

Biologically efficient

- High selectivity
- Fast impact
- Optimal residual effect
- Good plant tolerance
- Low risk of resistance development

Environmentally sound

- Low toxicity for non-target organisms
- Fast degradation in the environment
- Low mobility in soil
- No relevant residues in food & fodder
- Low application rates

The “perfect” product

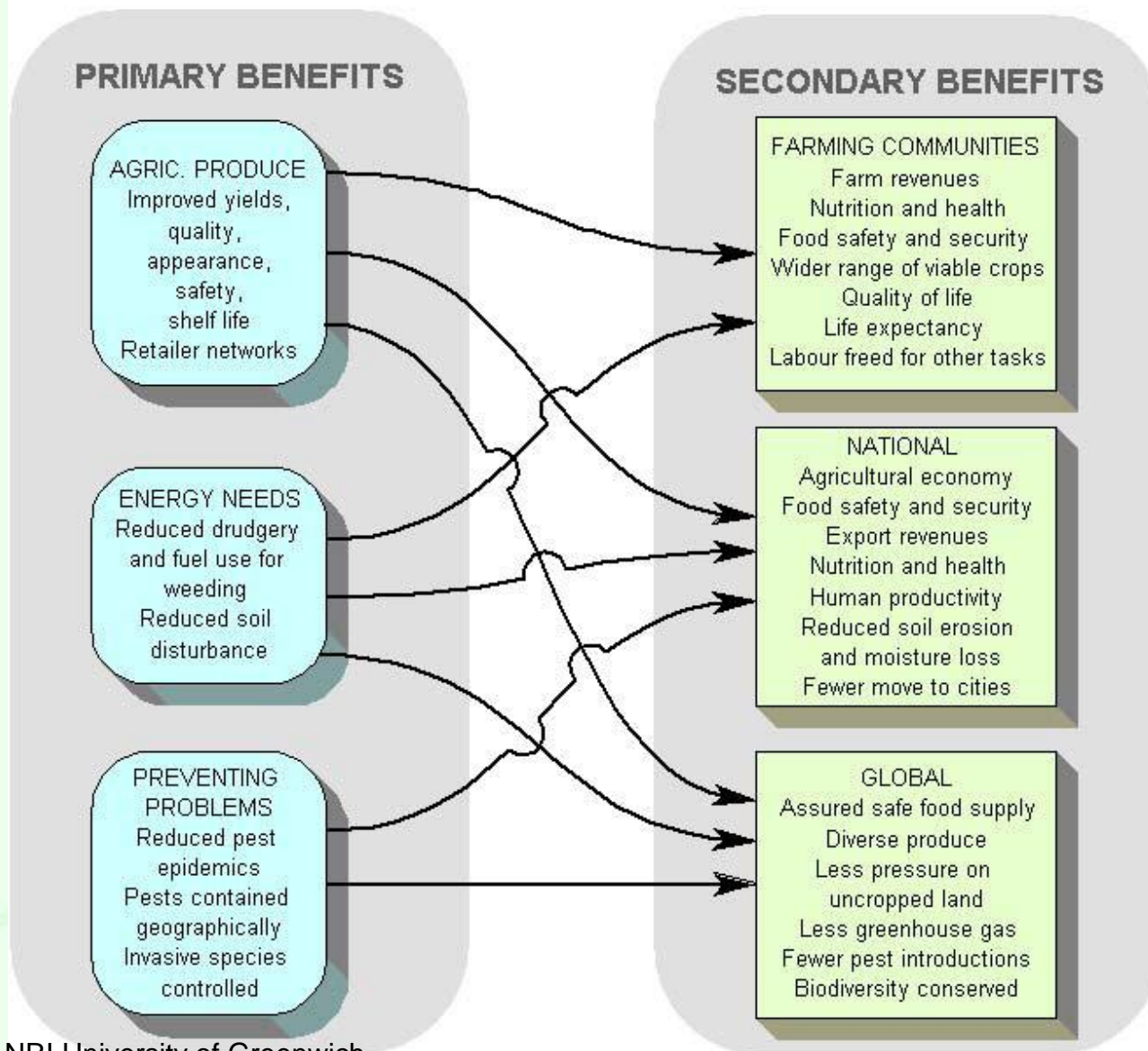
User friendly

- Low acute toxicity
- Low chronic toxicity
- Good formulation characteristics
- Safe packaging
- Easy application method
- Long storage stability

Economically viable

- Good crop/profit ratio for the farmer
- Broad use
- Applicability in Integrated Crop - Pest Management
- Innovative product characteristics
- Competitive
- Patentable

Benefits from Using CPPs



Weed control in the Palm Oil Industry

- **Choice - cultural, mechanical, biological or chemical**
- **Chemical is the most effective and economical option**
- **Currently the majority of NSH used in Palm Oil are based on 3 active ingredients – Glyphosate, Paraquat and Glufosinate**
- **Each has its strengths and weaknesses and place**
- **Choice is based on- efficacy, crop phyto, age of crop & weed species**
- **Options = maximizes benefits from the science = a profitable sustainable industry**
- **Correct management is key in providing sustainable weed control solutions**
- **Minimize risk –Maximize benefits through Stewardship and Responsible Use**

The Importance of Product Stewardship in the Palm Oil Industry

Product Stewardship



**Life cycle Management
A Cradle to Grave Activity**

Product Stewardship

- **Taken very seriously by the Crop Protection and the Palm Oil industry**
- **Understanding and minimizing the risk and hazards of using a product is critical**
- **Education and Training are important**
- **Access to quality information**
- **Correct procedures in place**
- **Monitoring performance- continuous improvement programs**

Stewardship in Action in Palm Oil

- **Sensible purchasing**
- **Secure storage**
- **Sprayer maintenance programs**
- **Trained workforce**
- **Appropriate Personal Protection**
- **IPM techniques**
- **Waste disposal systems**

Lessons and Benefits

NSH Lessons for the Industry

- **Weed resistance WILL occur with minimal DIVERSITY**
- **Diversity delays resistance**
- **Resistance can be minimized and managed**
- **Better to avoid resistance than live with it**
- **Banning/Restrictions will lead to resistance**

Benefits of Using NSH in Palm Oil

- **Herbicides eliminate the drudgery of back breaking hand weeding- quality of life**
- **Ineffective weed management – 20-22% yield loss**
- **Minimizes production costs (\$8-10/t)**
- **Estimated that farmers incomes could fall by 7%**
- **Reduces soil erosion**
- **Protects GDP and social infrastructure**
- **Removing a NSH would result in annual losses of RM 2.73bn (1.16bn in yields and 1.57bn in increased weed management costs) – MPOA, NASH, MEOA report 2003**

Hand weeding – the facts

126 hours per hectare

**Walks 10 km per hectare
in a stooped position**

Herbicides lift this burden



Impact of adopting Organic Agricultural Production Systems

The Facts

Organically grown commodities and food are neither safer nor of higher quality than those grown in modern agricultural systems

- UK Food Standards Agency has stated that “The current scientific evidence do not show that organic food is any safer or more nutritious than conventionally produced food”
- Similar views expressed by the French Food Safety Agency (AFSSA), the Swedish National Food Administration and the USA Institute of Food Technologists
- Professor Anthony Trewavas (Edinburgh University) concluded that after studying over 200 studies on diet and cancer “Although it has been claimed that organic produce is healthier food than conventional produce, the current evidence does not support this contention”

The Facts (contd)

- **Organic farming occupies 0.6% of the total worlds land used for agricultural production**
- **Organic production yields are between 50-80% of those from conventional agriculture**
- **To sustain food production under organic conditions would require between 25-82% more land**
- **The FAO(Food & Agriculture organization of the UN) has stated that to feed the growing population, 80% of the increase will have to come from intensification.**

The Facts (contd)

- **Organic farmers are permitted to use a range of chemicals on their crops**
- **20 synthetic chemicals in the USA and 8 in the EU are approved**
- **Eg Copper based anti fungal treatments are permitted- heavy metal- persistent in the environment.**
- **Organic pesticides are not subject to the same investigations as systemic pesticides**

Conclusions on Organic Systems

- **No safety and nutritional differences**
- **It's a lifestyle choice- if you can afford it**
- **20-40 % more expensive to buy organic food**
- **Yields are lower- the system will not feed us all- increased starvation**
- **Is it sustainable?**
- **It's a niche market**

Closing Messages

Closing Messages

- **Palm Oil is an extremely important commodity**
- **Indonesia and Malaysia are world leaders**
- **Extremely important to National Economies and Social Infrastructure**
- **Crop Protection management tools are valued by the industry**
- **Responsible Use is taken seriously**
- **Restricting/banning products is not the answer**
- **Organic – higher prices, lower yields, more hectares required**
- **Responsible Use of the science is the only way forward**
- **Commodity/food security are now major global issues – science offers us the solution**



Thank You