Cotton Yields and Sustainability

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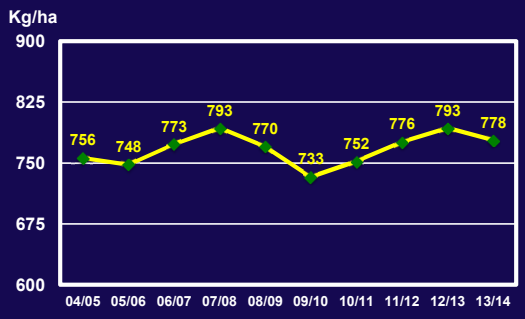
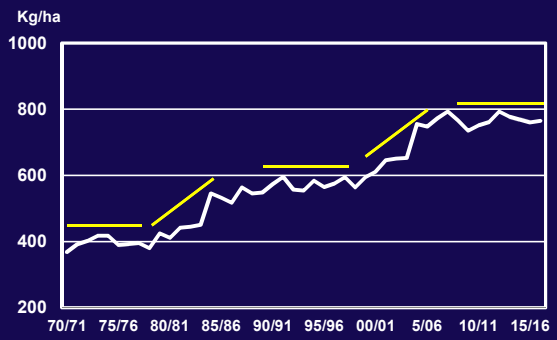
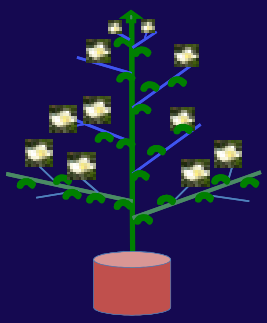
Cotton Yields - World



Cotton Yields – Long Term Trend



Yield Potential



Yield Potential

- Indeterminate in nature
- Unlimited potential
- 4,500 kg lint/ha

- Genetic potential
- Recoverable potential

Close the gap between genetic and recoverable potential

Yield – A Period of No/Slow Growth

- Reasons – Technology utilized
- What do we need?
- When we get increases?

Biotech Cotton Area - World

What is Sustainability

Definition

UN - World Commission on Environment and Development (in 1987)

"Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Five Pillars of Sustainability – UN

1. Habitat management
   (Cotton is a farming system, cotton to others and others to cotton)
2. Crop attributes
   (Varieties, seed, planting, etc.)
3. Plant growth and input use
   (Fertilizers, irrigation and physiology)
4. Integrated pest management
   (Minimum use of pesticides)
5. Economic pillar
   (Quality, marketing and processing)

Components of Sustainability

- Economic
- Social
- Environmental

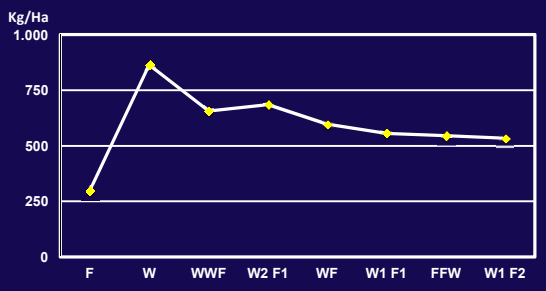
Water Use

Water use efficiency

Irrigation of Cotton

- Cotton = 3% arable land and 3% water use
- Irrigated 61%, Rainfed = 39%
- Yields tripled with less water
- Water use efficiency increased

Effect of Fresh Water and Municipal Water on Cotton Yield

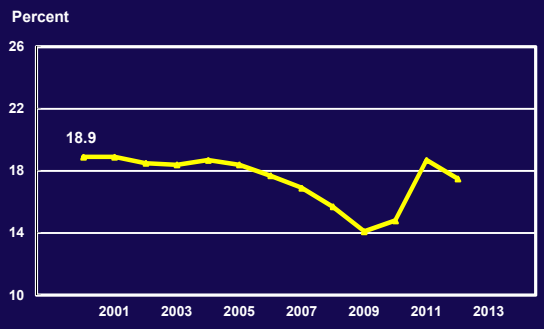


F = Freshwater
WF = Freshwater and TMW - alternatively
FFW = 2 Freshwater and 1 TMW
W33% F66% = Mix of TMW and F, 1:2
W = Treated Municipal Water (TMW)
WWF = 2 TMW and 1 freshwater
W50% F50% = Mix of TMW and F, 1:1
W66% F33% = Mix of TMW and F, 2:1

Insecticide Use

Insecticide use efficiency

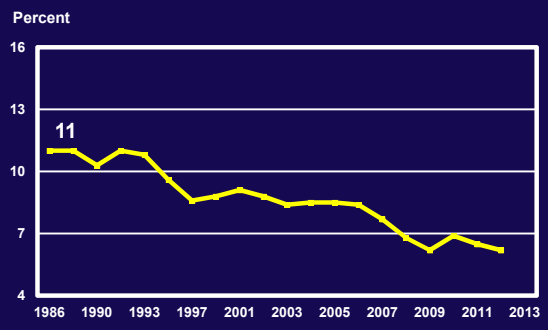
Share of Insecticides by Value - Cotton



Pesticide Use

Pesticide use efficiency

Share of Pesticide by Value- Cotton



Land Use

Same area but three times higher production

Sustainable Cotton - Balance of 3 Pillars