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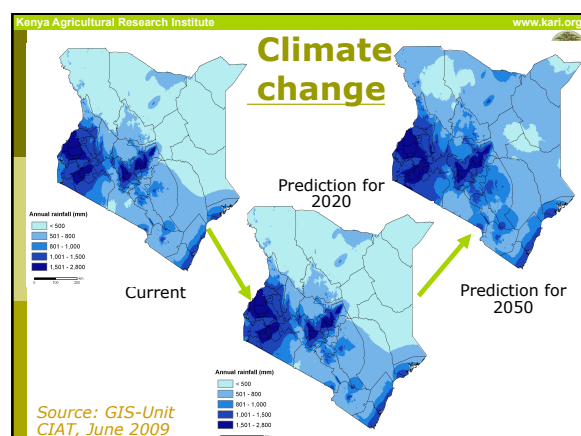
Fibre crops and natural resources

- **Land efficient** – e.g. cotton meets 36% of the worlds textile needs on 2.5% of the agricultural land
- **Water** – fibre crops are mainly rain-fed
- **Energy** – produce more net energy than what is required for production due the energy stored in seed and fibre
- **Air** – a neutral greenhouse gas footprint as carbon is stored in fibre and sequestered in soil

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Fibre crops production

- **3 Ps – Public – Private – Partnerships**
- **People** – Social sustainability
- **Planet** – To preserve or enhance soil, water, air and other resources
- **Profit** – Economic to be profitable



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Cotton: Greenhouse and gas footprint

- Fact – It takes less energy to produce cotton than the energy produced by the cotton crop because of the energy embedded in cotton seed

1 ha of reduced tillage cotton removes 3.4 MT of CO₂ from the atmosphere annually

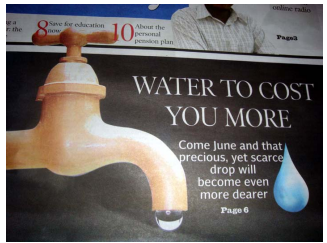
CO₂ removed by cotton plants worldwide = removing 7 million cars of the highways

5.1 MT of cotton consumed in US sequesters 7.7 billion kg of CO₂ into textile products annually



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Agronomic: Water usage




- Currently 4 times more cotton planted for the same amount of water

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Use pollinators

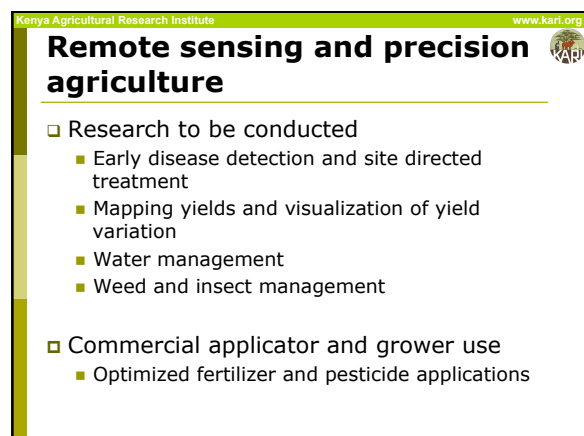
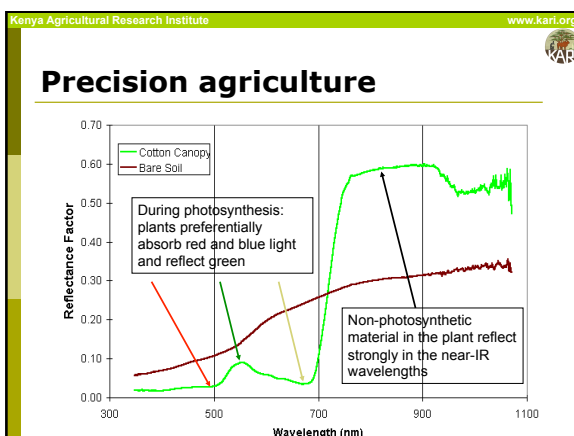
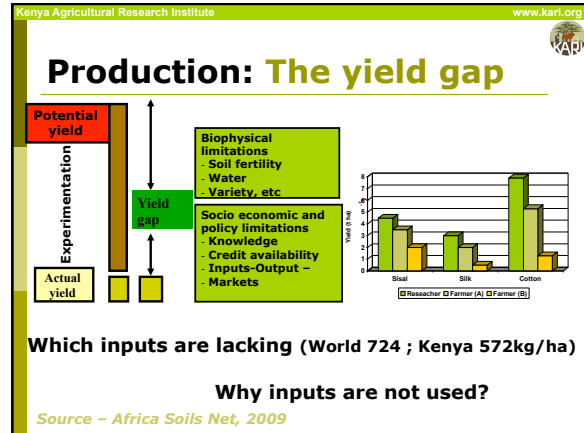
- What **losses** realized from poor pollination
- Internet (Agri Focus)
 - Pollination: **Key to food security** and environmental health (Kasina et al., 2009)



Wallace, 1996



Concerns on production




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Biotechnology a promise for cotton?

Is it true that:

- ❑ Recent reduction in chemicals used from best management practices
- ❑ Or different chemicals used
- ❑ Example - Turkey has minimal pesticide use



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Cotton: Pesticides assumptions and facts

Assumptions	Facts
<ul style="list-style-type: none"> • Cotton uses more pesticides than any other crops? 	<ul style="list-style-type: none"> • Cotton industry has adopted biotechnology to reduce pesticide use
<ul style="list-style-type: none"> • Chemical residues from cotton production are passed onto consumers? 	<ul style="list-style-type: none"> • Improved practices by mainstreaming best practices
<ul style="list-style-type: none"> • Cotton is environmentally devastating? 	<ul style="list-style-type: none"> • Cotton uses 2-3% of world's water use




Product diversification

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From genes to jeans

- ❑ Need varieties with shorter growth cycles
 - 80 days from seed to lint
- ❑ Fiber quality and yield
- ❑ High technology, production and processing of fiber crops have been made easy and accessible




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Product diversification

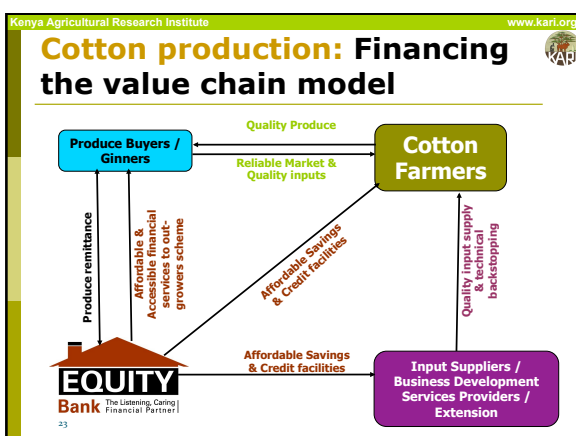
Textile +

- Shorter dual fiber and oil crop (grain)
- Oil crop – edible, biofuel
- Animal feed – seed cake
- Paper and fibre board
- Soil media – mulching



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Value addition: Fiber to cash?

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The role of the private sector

- Fibre crops are central to economic growth
- Strong private sector participation is critical
- Need to exchange information of production and processing research
- Contribute to sustainable development and social growth



