LIFE CYCLE ANALYSIS

Agricultural Data
Agricultural Data Collection

66% World Production

USA 12%

China 31%

India 23%
### Data Requirements:

**Questionnaire on the production of agricultural crops**

In case of any questions please contact Dr. Sabine Deimling:  
**s.deimling@pe-international.com**

**Data Collection on:** **Cotton**

**Information on the Data Collector**

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<th>Company/Institution:</th>
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**Diagram:**

- **Begin of growth main crop**
- **Point G**
- **Harvest main crop**
- **Begin of growth subsequent crop**

Phase b  
Phase mx  
Phase my  
Phase a
Data Requirements:

Location
- Soil
- Average rainfall
- Distribution of rainfall
Data Requirements:

Field Operations

• Previous land use
• Seeding / Planting
• Irrigation
• Fertilization – Synthetic & Organic
• Pesticides
• Mechanical operations requiring energy
• Harvest
Data Requirements:

Post Harvest Operations

• Transport
• Ginning operations
• Packaging
Data Requirements:

Fertilizer

• Kind of fertilizer
  o Synthetic
  o Organic
• Amount of fertilizer (kg/ha/yr)
• % Composition
  o Nitrogen, Phosphorus, Potassium
• Trace elements
• Method of application
Nitrogen model

Life Cycle Analysis

NH₄⁺ from prec.
N fertiliser
N₂ fixation

NH₃ volatilisation
NO volatilisation
N₂O volatilisation
N₂ volatilisation
N₄/NH₄⁺/NO₃⁻ erosion

> 10 times more than N-fertiliser input

NO₃⁻ leaching

N protein harvest

N in litter

N litter

N org excl. humus

N min + microorganisms

humus
Life Cycle Analysis

Primary Energy Demand

Global Warming Potential
Data Sources:

- Researchers
- Government documents
- Scientific Publications
- ICAC
- Interviews w/ growers
- Cotton Incorporated employees
- Etc.
Expert Panel on

Social, Environmental, and Economic Performance of Cotton Production

Mr. Allan Williams, Chair (Australia)
Dr. Francesca Mancini, Vice Chair (Italy)
Dr. Sheng-Fu Chiu (China – Taiwan)
Dr. Michel Fok (France)
Mr. Christopher Ward (Brazil)
Ms. Elke Hortmeyer (Germany)

Mr. Fatih Dogan (Turkey)
Mr. Subhash Chander Grover (India)
Mr. Wilfried Yameogo (Burkina Faso)
Mr. Jens Soth (Switzerland)
Dr. Bill Norman (United States)
Dr. Patricia O’Leary (United States)