OBJECTIVE

Create a dye process which produces consistent results independent of where the raw material was sourced.

MOTIVATION

Textiles are no longer developed in one country. Cotton is grown all around the world and has a variety of properties depending upon its origin. Manufacturers would be at a great advantage if they could expand their cotton purchasing globally without compromising the quality of their product.

RESULTS

Find a preparation method which will normalize the fabric surface

- Find a preparation method which will normalize the fabric surface. If the surface of the fabric is more even then the results after dyeing may also be more even.
- Test 3 different preparation methods to determine if a more uniform surface can be created before dyeing.
- Observe the difference between cotton grown in different locations.

CONCLUSION

Business Model and Economics

- Cotton prices continually fluctuate in the world market so difficult to provide an exact profit estimation
- Unit Costs
  - FAK (Fiber Analysis Knitter) – 70,000 USD
  - JFO (Overflow Jet Dyeing) – 197,000 USD
  - Labor – 24/7 runtime at 8 USD/hour – 140,000 USD
- Cost of materials in April 2013
  - US cotton – 93 cents/pound
  - Chinese cotton – 142 cents/pound
  - Indian cotton – 91 cents/pound
  - Pakistani cotton – 85 cents/pound
  - African cotton – 91 cents/pound
- Based on Pakistani vs. US cotton prices, expected savings of 6% per year, or 350,000 USD
- 10 year profit of 1.7 million USD