COTTON FIBER TESTING
AND
CSITC ROUND TRIAL

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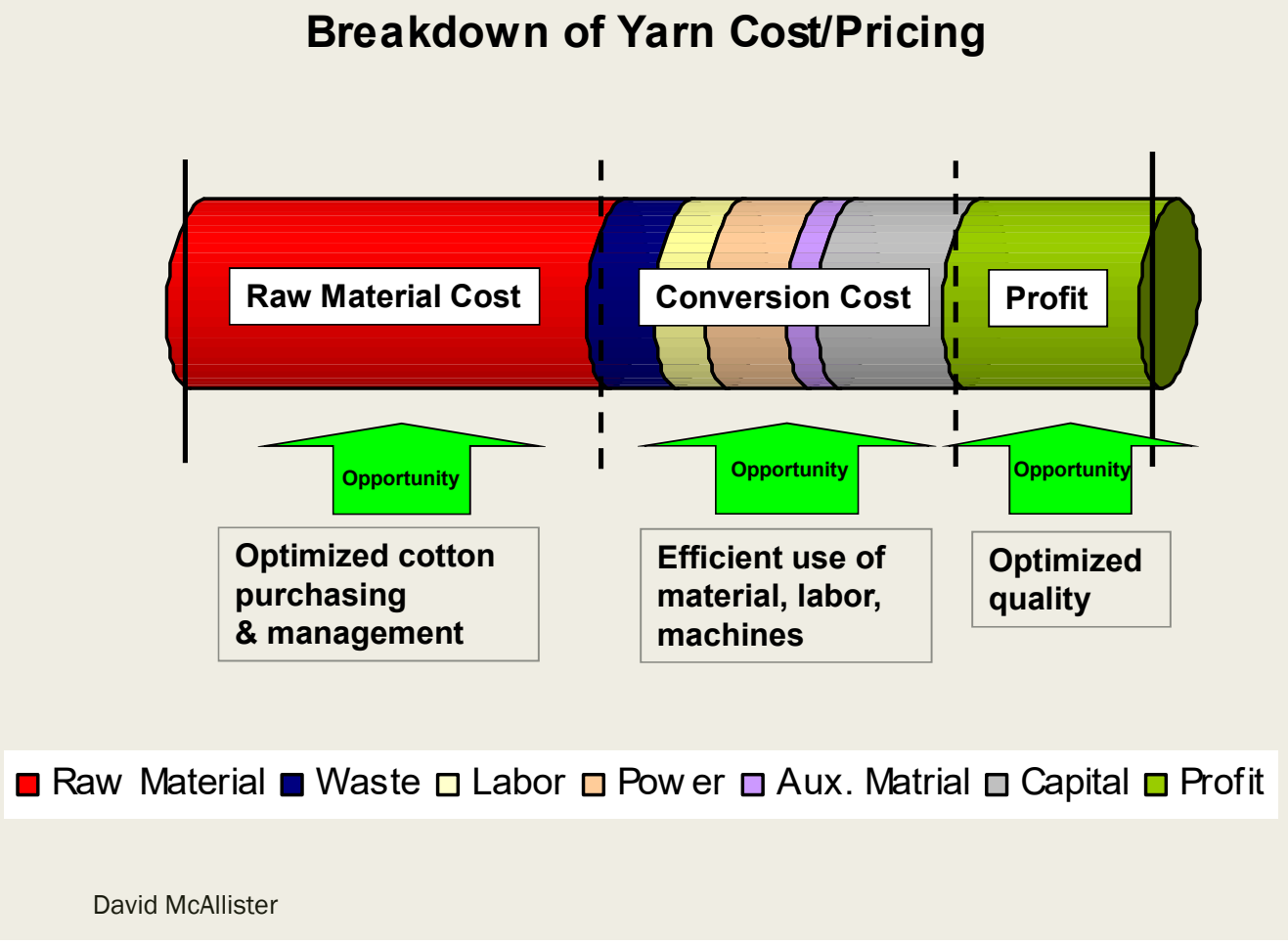
Points of Consideration:

- Why should you own an instrument, if you don't already?
- Why is a round trial important, if you have an instrument and you do not participate?
- Are you taking full advantage of round trial data, if you own an instrument and participate in round trial?

Cost drivers

Focus on where you have control



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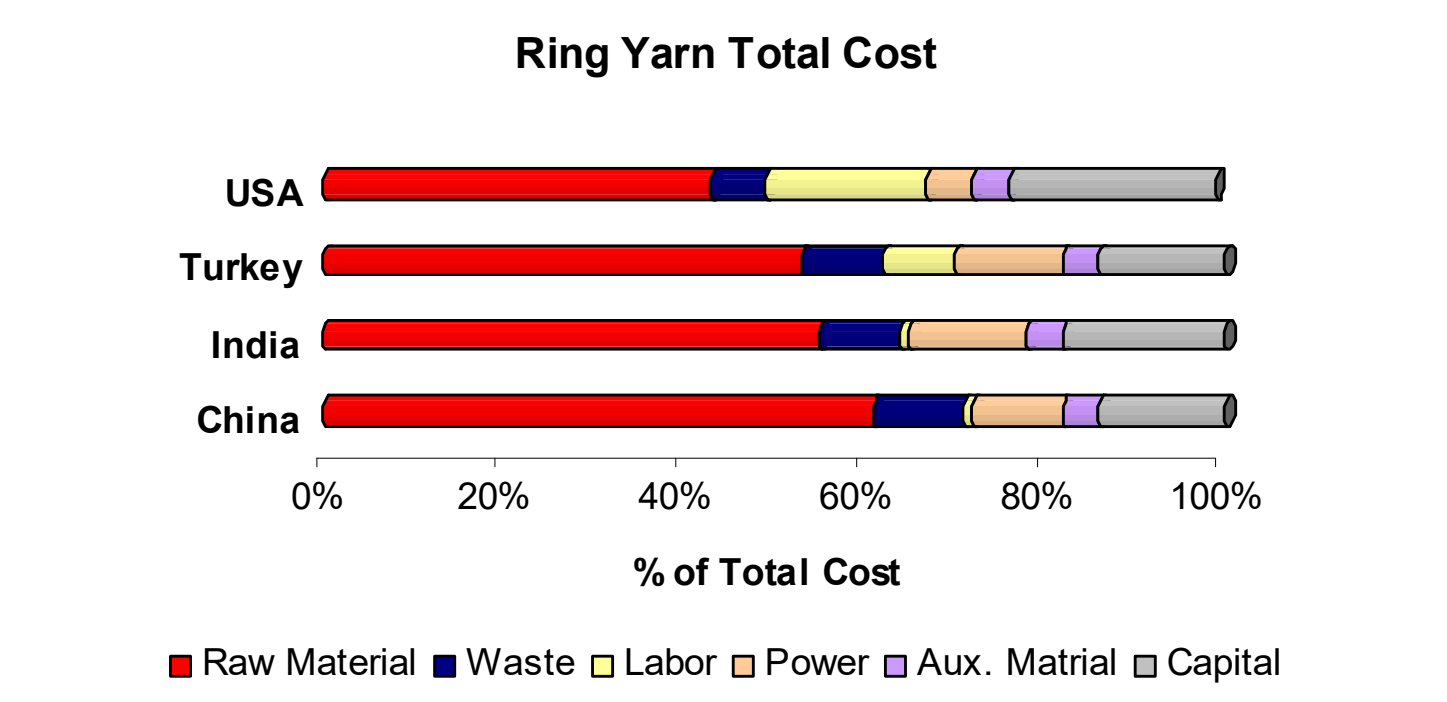
Think Quality

Comparing the world

Gain control over your cost



Source: ITMF International Production Cost Comparison

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Think Quality

Cotton fiber properties

Each spinning system has a priority

Fiber Properties Which Influence Yarn Processing		
Ring	**Rotor**	**Air Jet**
Length	Strength	Fineness
Length Uniformity	Fineness	Cleanliness
Strength	Length	Strength
Fineness	Length Uniformity	Length
	Cleanliness	Length Uniformity

Raw material

Impact of fiber properties

Fiber Properties & Processing Characteristics Affected	
HVI Fiber Property	**Processing Characteristic Affected**
Strength	>Yarn and Fabric Strength >End Breaks in Spinning and Weaving
Length	>Yarn and Fabric Fineness >Yarn and Fabric Strength >Nep Formation During Processing >Formation of Pilling >Yarn Evenness >Yarn Imperfections
Length Uniformity/ Short Fiber	>Processing Waste >End Breaks in Spinning >Yarn Evenness >Yarn Imperfections
Micronaire/Maturity	>Nep Formation During Processing >White Specks/Shiny Neps >Yarn & Fabric Strength >Product Appearance >Processing Waste >End Breaks in Spinning
Trash Content	>Processing Waste >Textile Machinery Contamination/ component wear >Disturbances/Stops in Knitting >Product Appearance >Cotton Dust Levels
Color	>Fabric Appearance (Barré)
Neps	>Fabric Neppiness >Waste >Weaving Efficiency
U.V. Fluorescence	>Fabric Appearance (Barré)

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The problem

High raw material cost

- High raw material cost is the main cost in yarn manufacturing causing…
  - Low profitability
- The source of high raw material cost are many include…
  - Buying higher quality fiber than necessary to make up for lack of optimized processes
  - Lack of complete cotton quality data to make informed buying/pricing decisions
  - Poor mix/laydown management resulting in high variability in product quality and processing efficiency

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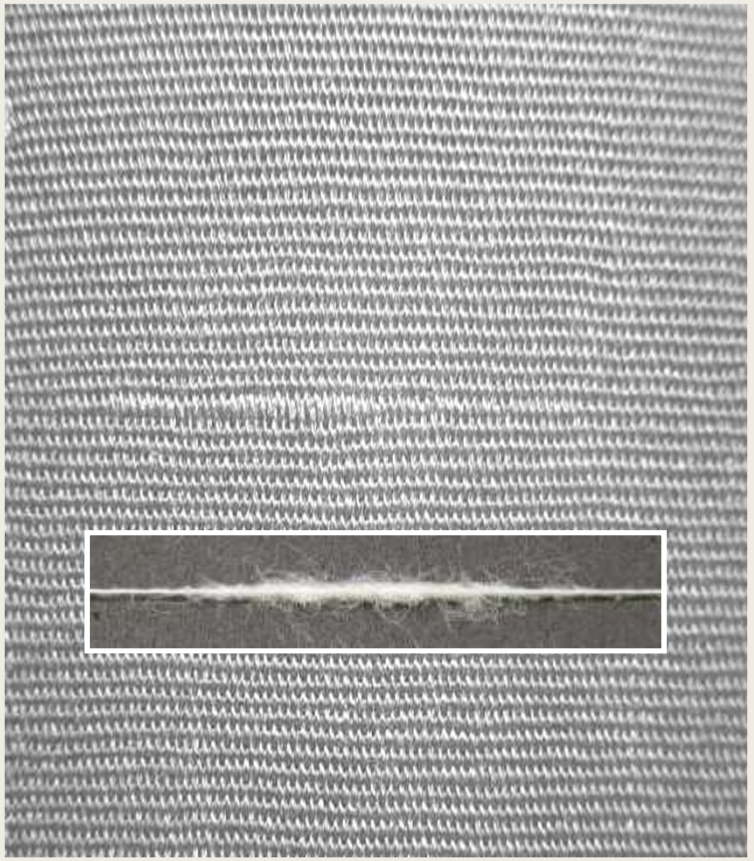
The problem

Thick and thin place defects in yarn

- Thick and thin places in yarn is one of the top quality pains for mills causing…
  - Off-quality yarn
  - Waste
  - Low profitability
- The source of thick and thin places in yarn are many and include…
  - High short fiber in raw material
  - High fiber micronaire in raw material
  - Poor management of cotton laydowns resulting in high variation within and between laydowns



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Think Quality

The problem

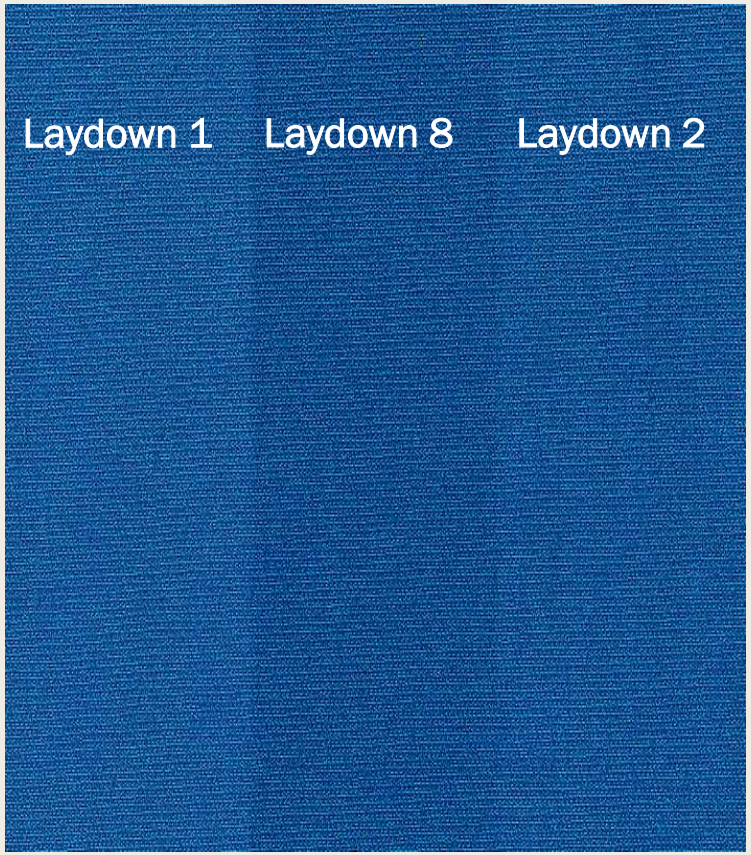
High end breaks in spinning and weaving

- High yarn end breaks in spinning and weaving is one of the top quality pains for mills causing…
  - Off-quality yarn
  - Waste
  - Low profitability
- The source of high yarn end breaks in spinning and weaving are many and include…
  - High short fiber content in raw material
  - High trash content in raw material
  - High micronaire variation in raw material
  - Low fiber strength in raw material
  - Poor management of cotton laydowns resulting in high variation within and between laydowns

The problem

Dyeing defects in fabric

- Dyeing defects in fabric is one of the top quality pains for mills causing…
  - Off-quality yarn
  - Waste
  - Low profitability
- The source of dyeing defects in fabric are many and include…
  - Low maturity in raw material
  - Variation in maturity in raw material
  - Variation in cotton color
  - Variation in U.V. fluorescence
  - Poor management of cotton laydowns resulting in high variation within and between laydowns



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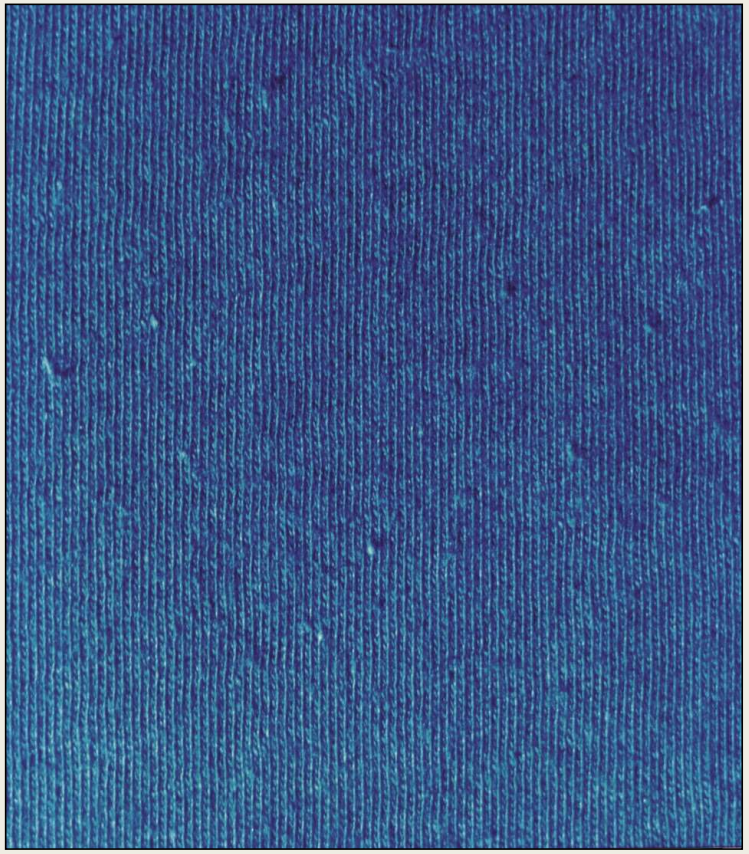
The problem

Nep defects in yarn

- Neps in yarn is one of the top quality pains for mills causing…
  - Off-quality yarn
  - Waste
  - Low profitability
- The source of neps in yarn are many and include…
  - High nep level in raw material



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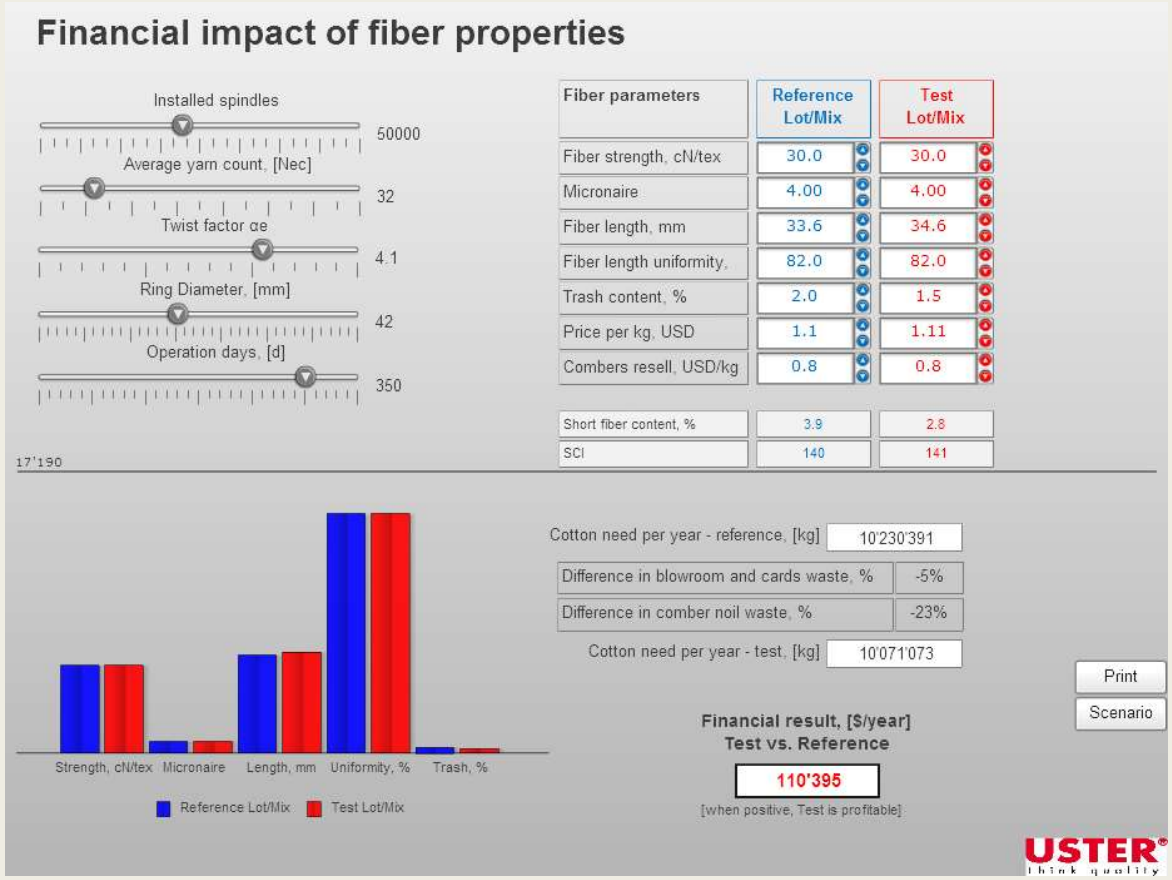
Think Quality

Case study

Reducing quality variability = $110,395 savings/year



Value of CSITC Data

- Feedback data from round trials is a reference point for the instrument's performance
- Comparison of instrument's performance to other participants' in the trial is important, especially if the cotton is traded instrument measurements
- Detection of a problem on accuracy of your instrument before it impacts your operation can translates to savings

Value of CSITC Data

- Fiber testing instrument does not have to encounter obvious hardware/software malfunctions to produce wrong data
- In general, instruments are relatively smart using built-in thresholds and limits for various measurements
- They can detect a large number of failures and inform the operator
- To a great extent they compensate for changes in hardware thru software calibrations

However…

Value of CSITC data

- There are circumstances that instrument can be “fooled” in producing wrong data
- Examples are:
  - *“Bad” calibration cottons, i.e. poor texture due to over use*
  - *Scratches on color window*
  - *Uncleaned color calibration tiles*
  - *Drift in laboratory ambient conditions*
  - *Brush and breaker jaws wear*
  - *Changes in air flow can affect pneumatically driven components*

Value of CSITC Data

Example of an effective round trial:

- USDA’s internal “check test program "is a form of round trial, which has enabled them to insure the performance of over 200 HVIs with tight measurement tolerances

Value of CSITC Data

- Important:

Instrument data can be precise but not necessarily accurate!

Value of CSITC Data

What can future hold?

- With increase in number of participants and support from instrument manufacturers feedback can be extended but not limited to:
  - *alert manufacturer of potential problems*
  - *Online support and hotlines possibilities*

Questions or Comments?

Thank you!