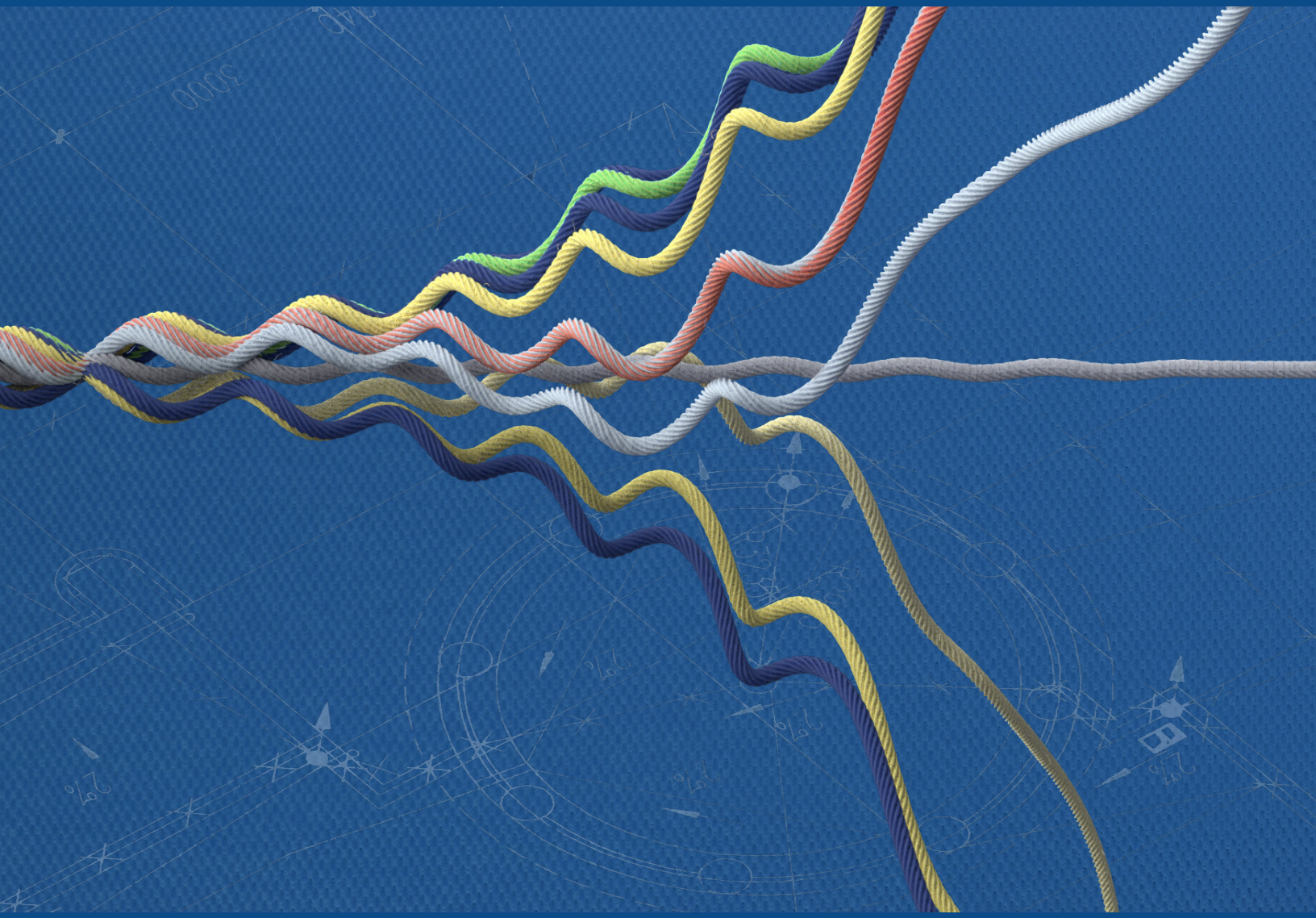
COTTON USA™
THE COTTON THE WORLD TRUSTS

AN EVALUATION OF THE

# PERFORMANCE STUDY

**OF 100% U.S. COTTON VS. BRAZIL AND WEST AFRICAN COTTON MIX**

A RESEARCH MILL STUDY FROM COTTON USA SOLUTIONS®



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# CONTENTS

# BACKGROUND

In February 2022, COTTON USA SOLUTIONS® partnered with an independent consultancy firm to understand whether yarn manufactured with 100% U.S. cotton improved the technical and financial results when compared to yarn produced with a West African/Brazilian cotton blend. The study was comprised of two trials at two different mills. The independent firm conducted the first trial at Ismail Spinning Mills in Bangladesh, producing Ne 12's and Ne 20's count yarn. Upon completion, the COTTON USA SOLUTIONS® team performed the second, larger trial at Zaber Spinning Mills in August 2022, producing Ne 16's count yarn.

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# CONTROL PROCEDURES

To ensure that a fair comparison was conducted between the three different cottons, participants were encouraged to maintain similar average values of basic fiber properties in the three cottons where possible. However, it was determined that the quality of more than 50% of the U.S. cotton bales in the available inventory was considered unsuitable for a fair comparison. In both trials, when comparing the key cotton parameters of bales from the laydowns produced from the U.S. bales using 100% U.S. cotton blends, the consultants had to use cottons with lower length, lower strength, higher micronaire and greater short fiber index (SFI) than the comparable West African/Brazil mix. Though we were unable to make direct comparisons in terms of fiber parameters, the results provided similar superior yarn quality as is described in more detail in this report.

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**Trial #1: Ismail Spinning Mills**

During the first trial, Ismail Spinning Mills had 517 bales of U.S. cotton in stock (see below table for key inventory parameters).

Within the available inventory, 83% of bales had less than the 28 GPT required for good weaving according to the parameters of COTTON USA SOLUTIONS®.

In addition, 26% of bales had a UHML lower than 27.5mm. Within the inventory, both fiber length and strength of the cotton were below the levels required for weaving yarn.

*Note: Weaving performance is primarily determined by fiber length and strength.*

| Total U.S. Bales In Stock | 517 Bales | |
|---|---|---|
| | Number of Bales | % |
| UHML Less Than 27mm | 40 | 7.74 |
| UHML Less Than 27.5mm | 135 | 26.11 |
| UHML Less Than 28mm | 278 | 53.77 |
| | | |
| Strength Lower Than 24 | 21 | 4.06 |
| Strength Lower Than 25 | 82 | 15.86 |
| Strength Lower Than 26 | 207 | 40.04 |
| Strength Lower Than 27 | 352 | 68.09 |
| Strength Lower Than 28 | 430 | 83.17 |
| | | |
| UI Lower Than 80 | 57 | 11.03 |
| UI Lower Than 81 | 140 | 27.08 |

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### Trial #2: Zaber Spinning Mills

In the second trial, the COTTON USA SOLUTIONS® team compared a usual laydown, based on 20% to 50% Brazilian cotton blended with West African cotton.

Despite the unsuitable cotton parameters for the Brazilian cotton, it is being used in the laydowns.

The micronaire value was low and CV% of micronaire was 12.1%, which is abnormally high. If the CV% is high, the average value of Brazilian bales in the laydown will not remain the same, using lot management in all the laydowns.

The UI was also on the lower side with more variation between bales.

| Brazil | MIC | MAT | UHML | UI | SF | STR | ELG | RD | +B | TRCNT | TRAR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Average | 3.65 | 0.84 | 28.13 | 80.3 | 11.2 | 25.3 | 7.6 | 78.1 | 9.7 | 31 | 0.28 |
| CV% | 12.1 | 1.4 | 4.3 | 2.3 | 19.8 | 7.7 | 7.9 | 2.7 | 4.9 | 36.4 | 48.1 |

The below table shows a summary of the average HVI values of the West African bales used in the laydown:

- Fiber length average was higher by a minimum 1 mm compared to the U.S. cotton laydown.
- SFI was lower compared to U.S. cotton laydown average.
- Fiber elongation was lower than U.S. cotton. Trash is also lower.

| Variety | MIC | MAT | UHML | UI | SF | STR | ELG | RD | +B | TRAR |
|---|---|---|---|---|---|---|---|---|---|---|
| Bola | 4.30 | 0.86 | 30.00 | 82.8 | 7.9 | 28.4 | 6.5 | 75.3 | 9.6 | 0.18 |
| Chad | 4.61 | 0.87 | 29.31 | 82.5 | 7.8 | 28.9 | 6.3 | 75.3 | 11.2 | 0.22 |
| Cameroon | 4.40 | 0.86 | 29.34 | 82.5 | 8.1 | 29.6 | 7.0 | 75.7 | 11.8 | 0.14 |
| Ivory | 4.23 | 0.85 | 28.35 | 82.6 | 7.8 | 28.5 | 7.0 | 74.4 | 9.4 | 0.29 |

| U.S. Cotton Laydowns | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Group | | MIC | UHML | UI | SFI | STR | ELG | +B | RD | TR AREA |
| -> L1 | Average | 4.60 | 28.21 | 82.53 | 9.34 | 28.22 | 8.71 | 8.34 | 75.64 | 0.74 |
| -> L2 | Average | 4.65 | 28.07 | 82.69 | 9.26 | 28.77 | 8.89 | 8.42 | 75.33 | 0.47 |
| -> L3 | Average | 4.73 | 28.19 | 82.78 | 9.07 | 28.43 | 9.26 | 8.25 | 74.91 | 0.50 |

# COTTON PARAMETER SELECTION

**The Importance of Parameter Selection**

COTTON USA SOLUTIONS® is convinced that the combination of focused fiber selection with software engineered bale-laydown is the foundation for superior yarn quality, maximum yield and greater profitability. With the existing laydown methodology, only +b value was considered.

In our experience, all the other parameters tested by the USDA and through internal testing programs need to be utilized when preparing the laydowns. Micronaire, UHML, Strength, UI and Rd should also be considered.

The good yarn quality and yield results obtained during this trial, despite the inferior quality of U.S. fiber in the existing inventory, was only achieved by following this philosophy.

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# COTTON PARAMETER SELECTION

**A Fair Comparison**

One of the most important advantages of using U.S. cotton is the variety of choice when purchasing U.S. fiber. Customers can buy whatever cotton they need.

Unlike other cottons, the USDA testing program for every bale produced, ensures that U.S. cotton can be bought with the required parameters to spin the high-quality yarns for the end-use that is required.

For denim application (Ne 12's to 16's), a micronaire range of 4.2 to 5.4 with bale management system is used.

Using compact spinning will minimize the mixing cost while obtaining superior yarn quality. Even $1^{3}/_{32}$ can be tried for this count range with a 4.4 average micronaire value. (APPENDIX II).

**Improved Processes: Settings in Blowroom, Carding, Drawframe and Roving**

To optimize the performance of U.S. cotton, the COTTON USA SOLUTIONS® team made main adjustments to the blowroom cleaning and licker-in and flat settings in the carding section. Due to the benefits of U.S. cotton, the settings in the machines can be improved to reduce the waste and improve the running conditions and yarn quality.

In addition to improving the yield, the adjustments to the flat settings on all cards increased the nep removal efficiencies by as much as 9%, from 68% to 77%, for Trial 1.

Even on cards running at 120 kgs per hour, with the adjustments of the settings, COTTON USA SOLUTIONS® was able to achieve an NRE% of 80% to 84%.

The focus in these departments centered on fine-tuning the break drafts used for U.S. cotton to optimize the U%.

Although the mill normally uses closer/tighter settings, the adjustments recommended by the COTTON USA SOLUTIONS® specialists gave lower U% values. Although the short fiber content and micronaire value were high with the U.S. cotton used in the mix, the roving U% value of 4.21 was similar to the West African cotton mix, with the Uster value ranging from 3.99 to 4.44.

**Finisher Drawframe AFIS Comparison**

The West African mix had higher length, lower fineness value and lower SFCn value when compared to U.S. cotton used in the mix.

Even though the selected U.S. cotton parameters were not at par with the West African cotton mix, it was possible to obtain almost the same yarn quality results. Moreover, it was possible to achieve consistent yarn quality results using the U.S. cotton mix.

With longer length, less short fiber content and a higher number of fibers in the cross section, the yarn strength will be better with the West African mix. However, COTTON USA SOLUTIONS® is convinced that the yarn from the U.S. cotton will perform similar due to a higher elongation and a smaller number of weak places in the yarn.

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# FINDINGS - COUNT NE12

**U.S. Cotton Produces Similar to Superior Yarn Quality Compared to West African or Brazilian Cotton.**

**Count Ne12**

Despite being inferior in cotton parameters when compared with the regular mix, **U.S. cotton produced similar to superior yarn quality.**

The below table shows an overview of the yarn quality parameters of the 12s carded yarns produced with the different blends:

| 12s Carded Ring Frame Cop Yarn Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Blend | Date | Lot | U% | CVm% | -50% Thin | +50% Thick | +200% Neps | IPI |
| West African + Brazil Mix | 26/01/2022 | 1202 | 9.28 | 11.66 | 0 | 12 | 8 | 20 |
| | 23/01/2022 | 1202 | 10.78 | 13.63 | 2 | 18 | 14 | 34 |
| | | | | | | | | |
| West African + Brazil Mix | 19/12/2021 | 1201 | 10.06 | 12.72 | 0 | 40 | 28 | 68 |
| | 17/12/2021 | 1201 | 12.01 | 9.88 | 12.51 | 1 | 21 | 28 |
| | | | | | | | | |
| 100% U.S. Recap | 31/01/2022 | 1206 | 9.75 | 12.3 | 0 | 13 | 8 | 21 |
| | 31/01/2022 | 1206 | 9.58 | 12.14 | 0 | 16 | 8 | 24 |
| | 01/02/2022 | 1206 | 9.88 | 12.53 | 0 | 22 | 10 | 32 |

The below table shows an overview of the clearer cuts and CSP values of the 12s carded yarns produced with the different blends:

| 12s Carded Clearer Cuts - Denim Yarn | | | | | | | |
|---|---|---|---|---|---|---|---|
| Blend | Date | Lot | N | S | L | T | Total |
| West African + Brazil Mix | 30/01 2nd | 1205 | 34.3 | 86.9 | 167 | 18.4 | 315.7 |
| | 29/01 2nd | 1205 | 28.2 | 84 | 156.2 | 15.4 | 286.9 |
| | 31/01 1st | 1205 | 30.7 | 67.9 | 72,4 | 6.1 | 184.1 |
| | | | | | | | |
| 100% U.S. Recap | 01/02 1st | 1206 | 18.9 | 35 | 10.4 | 1.4 | 77.8 |
| | 31/01 3rd | 1206 | 18,7 | 35.3 | 10.5 | 1.6 | 78.1 |
| | 31/01 2nd | 1206 | 18.4 | 33.2 | 21.9 | 2.9 | 84.7 |

| 12s Carded CSP-Denim Yarn | | | | | | | |
|---|---|---|---|---|---|---|---|
| Blend | Lot nº | Count | Count CV% | Strength | Strength CV% | Elongation | CSP |
| WA+Brazil | 1205 | 12.34 | 0.48 | 204 | 2.81 | 5.13 | 2520 |
| | | | | | | | |
| 100% U.S. Recap | 1206 | 12.22 | 0.93 | 208 | 3.02 | 5.68 | 2541 |

# FINDINGS – YARN STRENGTH CSP NE16

**Yarn Strength CSP Ne16**

The CSP value of 16's carded yarn from U.S. cotton varied from 2400 to 2550, whereas with West African cotton it varied from 2600 to 2800.

The U.S. cotton might perform better, even with a lower CSP value, because the yarn elongation will be higher, as fiber elongation with U.S. cotton was higher by 2 points when compared to West African cotton. The single yarn strength testing facility was not available to measure the yarn elongation. Although we do not have the data available from the weaving department for the first trial, we are convinced that despite the lower CSP value, the weaving performance will be better, due to the higher fiber elongation.

| Strength - U.S. Cotton | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RF NO | Lot | AVG Count | 1 | 2 | 3 | 4 | 5 | AVG | CSP |
| 81 | U.S. | 16.23 | 147 | 150 | 162 | 157 | 146 | 152 | 2473 |
| 82 | | 16.32 | 150 | 159 | 161 | 149 | 150 | 159.8 | 2519 |
| 80 | | 16.22 | 157 | 168 | 158 | 157 | 149 | 157 | 2559 |
| 38 | | 16.01 | 159 | 150 | 150 | 153 | 156 | 153 | 2459 |
| 37 | | 16.06 | 144 | 152 | 160 | 140 | 154 | 150 | 2409 |

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# FINDINGS – WEAVING PERFORMANCE NE16

## Weaving Performance Ne16

Though the number of breaks for the U.S. cotton blend was higher when compared to the regular mix, with the breaks per million meter raising from 1.89 to 2.78, we are convinced that this difference would not have a negative influence on the overall weaving performance.

| M/c nº | Set nº | Size | Count | Lots | T. Ends | Meter | Total Break | Breaking Rate m/M | M/c Speed | Pile/ Ground | Breaks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 05 | 1929 | 100x155 | Ne 16/1 | 6220 | 2540 | 16200 | 78 | 1.89 | 450 | pile | Normal Mix |
| 06 | 1921 | 70x150 | Ne 16/1 | 6222 | 2664 | 21600 | 185 | 3.21 | 450 | pile | U.S. Blend Up To Carding |
| 04 | 1930 | 26x50 | Ne 16/1 | 6223 | 2502 | 16200 | 113 | 2.78 | 450 | pile | U.S. Blend All New Settings |

The loom efficiency for U.S. cotton dropped from 78.13% to 74.58%.

| Lot | Efficiency | Loom Efficiency |
|---|---|---|
| 6220 | 78.13% | Normal Mix |
| 6222 | 65.97% | U.S. Blend Up To Carding |
| 6223 | 74.58% | U.S. Blend All New Settings |

However, with some fine-tuning of the spinning parameters, the management at the spinning mill mentioned that it should be possible to obtain a comparable break level compared to the West African mix and a similar weaving performance.

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# FINDINGS – COUNT NE20

## Count Ne20

Our study found that, despite the inferior fiber parameters of the U.S. cotton used for this trial, the yarn quality is similar to the more expensive W.A mix. The below table shows an overview of the yarn quality parameters of the 20s carded yarns produced with the different blends:

| 20s Carded Ring Frame Cop Yarn Result | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Blend | Date | Lot | U% | CVm% | -50% Thin | +50% Thick | +200% Neps | IPI |
| West African + Brazil Mix | 24/01/2022 | 2006 | 10.43 | 13.21 | 2 | 53 | 32 | 87 |
| | 29/01/2022 | 2006 | 11.48 | 14.55 | 6 | 118 | 60 | 184 |
| | | | | | | | | |
| West African + Brazil Mix | 15/03/2021 | 1120 | 11.3 | 14.35 | 5 | 113 | 169 | 287 |
| | 17/03/2021 | 1120 | 12.15 | 15.46 | 4 | 258 | 124 | 386 |
| | | | | | | | | |
| 100% U.S. Recap | 01/02/2022 | 2009 | 11.56 | 14.68 | 5 | 132 | 54 | 191 |
| | 31/01/2022 | 2009 | 11.56 | 14.71 | 4 | 132 | 59 | 195 |
| | 02/01/2022 | 2009 | 11.71 | 14.9 | 5 | 158 | 72 | 234 |

The below table shows an overview of the clearer cuts and CSP values of the 20s carded yarns produced with the different blends:

| 20s Carded Clearer Cuts-Denim Yarn | | | | | | | |
|---|---|---|---|---|---|---|---|
| Blend | Date | Lot | N | S | L | T | Total |
| West African + Brazil Mix | 30/01/ 3rd | 2007 | 55.7 | 139.6 | 17.2 | 11.7 | 239.8 |
| | 01/02/ 1ST | 2007 | 55.7 | 101.7 | 12.7 | 4.3 | 186.3 |
| | 31/01/ 1ST | 2007 | 58.3 | 104.2 | 13.7 | 4.2 | 193.4 |
| | | | | | | | |
| 100% U.S. Recap | Data 1 | 2009 | 25.6 | 42.5 | 18.5 | 11.2 | 110.8 |
| | Data 2 | 2009 | 26.5 | 45.5 | 20.9 | 12 | 118 |

| 20s Carded CSP- Denim Yarn | | | | | | | |
|---|---|---|---|---|---|---|---|
| Blend | Lot nº | Count | Count CV% | Strength | Strength CV% | Elongation | CSP |
| WA+Brazil | 2007 | 20.36 | 0.3 | 121 | 2.02 | 4.8 | 2463 |
| | | | | | | | |
| 100% U.S. Recap | 2009 | 20.27 | 1.46 | 112 | 2.11 | 4.34 | 2280 |

# FINDINGS – DECREASED WASTE WHEN USING U.S. COTTON

**Decreased Waste When Using U.S. Cotton**

Overall, the COTTON USA SOLUTIONS® teams' analysis of the blowroom and carding waste records showed that for denim, U.S. cotton created significantly less waste than West African cotton mix and Brazilian cotton.

Based on our findings, we believe that with some further fine-tuning in the process, the waste levels for U.S. cotton in the blowroom and carding can decrease below 7%.

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# FINDINGS – ISMAIL SPINNING MILLS

**Ismail Spinning Mills**

The analysis of the blowroom and carding waste records showed that the regular West African mix generated waste losses that ranged from 8.4% to 9.2%. For the yarns where also Brazilian cotton was used, the waste loss percentage rose to 11.5%.

However, using the recommended U.S. cotton laydowns and modifications to some key machine settings in both departments, **a waste level of 7.2% was achieved.**

| | 1 (Denim Mix) | 2 (Denim Mix) | 3 (Cameroon) | 4 (Brazil) | 5 (U.S.A.) | 6 (U.S.A.) |
|---|---|---|---|---|---|---|
| **Blowroom Waste %** | 2.93 | 2.23 | 3.01 | 3.81 | 1.9 | 1.5 |
| **Card Waste %** | 5.42 | 6.8 | 6.67 | 7.62 | 5.28 | 5.79 |
| **Total %** | 8.4 | 9.0 | 9.68 | 11.45 | 7.18 | 7.23 |

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# FINDINGS – ZABER SPINNING MILLS

**Zaber Spinning Mills**

The analysis of the blowroom and carding waste records showed that for denim and terry towel, the regular West African mix generated waste losses that ranged from 10.52% to 11.65%.

However, using the recommended U.S. cotton laydowns and modifications to some key machine settings in both departments, **a waste level of 7.35% was achieved.**

| | West African 1 | West African 2 | U.S. Cotton |
|---|---|---|---|
| Blowroom Waste % | 3.17 | 3.17 | 0.95 |
| Card Waste % | 7.35 | 8.48 | 6.40 |
| Total % | 10.52 | 11.65 | 7.35 |

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# FINANCIALS – TRIAL #1

The process of purchasing U.S. cotton in combination with improved machinery settings can lead to considerable savings for spinning mills.

U.S. cotton can be purchased as Recaps at a discounted price, which leads to lower raw material costs compared to West African and Brazilian blends.

A significantly lower yarn cost can be obtained through a strategy of spinning Ne 12 to Ne 20, creating blends using 70% selected fiber parameters from less expensive Recap U.S. cotton and 30% U.S. Green Card cotton.

The table on the next slide shows the yearly savings in RM costs comparing the blends used for the trials, considering a daily production of 35 tons.

Comparing the clean (net) cotton cost, calculated for the current blends with other origins and the selected U.S. cotton quality, savings of 12% to 20% can be achieved.

The table below shows the lower clean cotton cost in USD/lb obtained with U.S. cotton compared to the current blends used at Ismail Spinning.

**Trial #1:**

**The highest savings are achieved with U.S. cotton blends (100% Recaps and Recaps + Green Card cotton) and would result in nearly $5 million per year!**

| Cotton Price | | | Cotton Blend | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WA | U.S. | BRAZIL | WA | U.S. | BRAZIL | | | | | | | |
| U.S.$ Per LBS | | | Percentage In Use | | | Cotton Price U.S.$/KG | Cotton Price U.S.$/KG Factory Delivered | Waste Selling Price In U.S.$/KG | Yield % | Waste Revenue In U.S.$/KG | Cotton Rate In U.S.$/KG | Clean Cotton Cost/KG In U.S.$ |
| 0.77 | 0.68 | 0.82 | 70 | 0 | 30 | 1.731 | 1.751 | 0.70 | 89.00 | 0.069 | 1.682 | 1.889 |
| 0.77 | 0.68 | 0.82 | 50 | 0 | 50 | 1.753 | 1.773 | 0.70 | 87.50 | 0.073 | 1.700 | 1.943 |
| 0.77 | 0.68 | 0.82 | 100 | 0 | 0 | 1.697 | 1.717 | 0.70 | 88.50 | 0.069 | 1.648 | 1.863 |
| 0.77 | 0.68 | 0.82 | 0 | 100 | 0 | 1.499 | 1.519 | 0.70 | 91.00 | 0.062 | 1.457 | 1.601 |
| 0.77 | 0.74 | 0.82 | 0 | 100 | 0 | 1.631 | 1.651 | 0.70 | 91.00 | 0.062 | 1.589 | 1.747 |
| 0.77 | 0.68 | 0.82 | 0 | 0 | 100 | 1.808 | 1.828 | 0.70 | 88.00 | 0.076 | 1.752 | 1.991 |

# FINANCIALS – TRIAL #1

| | Clean Cotton Cost KG In U.S.$ | Daily Clean Cotton Cost For 35 Tons | Savings In U.S.$ Compared To BR Blend | Yearly Savings In U.S.$ Compared To BR Blend |
|---|---|---|---|---|
| Blend 1 (70% WA/30%BR) | $1.89 | $66,127.68 | $3,541.81 | $1,275,050.18 |
| Blend 2 (50% WA/50%BR) | $1.94 | $68,003.10 | $1,666.39 | $599,899.91 |
| Blend 3 (100% WA) | $1.86 | $65,193.53 | $4,475.96 | $1,611,344.72 |
| U.S Blend (100% Recap) | $1.60 | $56,040.77 | $13,628.72 | $4,906,338.99 |
| U.S Blend (Recap+Green Card) | $1.75 | $61,128.08 | $8,541.41 | $3,074,908.22 |
| Blend 4 (100% BR) | $1.99 | $69,669.49 | Reference | Reference |

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# FINANCIALS – TRIAL #2

Blowroom and Card Waste %

Yarn Realization %

**The savings achieved with the U.S. cotton blends compared to the West African mix would result in nearly $2.9 million per year!**

| | U.S.$ PER LBS | % in Use | Cotton Price In U.S.$ Per KGS | Cotton Price In U.S.$ Per KGS At Factory | Blowroom And Card Waste % | Waste Selling Price In U.S.$/KG | Yarn Realisation % | Waste Revenue In U.S.$/KG | Cotton Rate In U.S.$/KG | Clean Cotton Cost/KG In U.S.D |
|---|---|---|---|---|---|---|---|---|---|---|
| WA Mix | 1.3135 | 100 | 2.896 | 2.916 | 11.2 | 0.80 | 86.80 | 0.096 | 2.820 | 3.249 |
| 100% U.S. Mix | 1.08 | 100 | 2.381 | 2.401 | 7.8 | 0.80 | 90.20 | 0.068 | 2.332 | 2.586 |

| | 0 | Daily Clean Cost For 12 Tons | Savings In U.S.$ Compared To BR Blend | Yearly Savings In U.S.$ Compared To BR Blend |
|---|---|---|---|---|
| West African Mix | $3,249 | $38,988 | Reference | Reference |
| U.S. Cotton Mix | $2,586 | $31,032 | $7,956 | $2,864,160 |

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# CONCLUSION

Trials performed under the supervision of the COTTON USA SOLUTIONS® team successfully demonstrated that for carded yarn counts Ne 12's, Ne 16's and Ne 20's, with 100% U.S. cotton it is possible to:

- Produce a similar or superior yarn quality
- Improve the yield (+1.5% to +1.8%) by reducing waste
- Lower the cotton cost in USD/kg, resulting in cheaper mixing and less waste
- Increase the nep removal efficiency and improve the productivity in carding
- Reduce the winding clearer cuts to improve both winding and weaving performance (70% on Ne 12's, 17% on Ne 16's and 50% on Ne 20's)

At present for 16's count, the U.S. cotton was used only for Open-End (OE) application. The study proved that despite the apparent lower fiber parameters of the selected U.S. cotton, it was possible to produce ring spun yarns with similar quality when compared to West African cotton.

**Overall, the use of U.S. cotton blends in spinning (100% Recaps and Recaps + Green Card cotton) suggest potential savings of up to $5 million a year.**

To contact a COTTON USA representative for more information about U.S. cotton or to become a COTTON USA licensee, click here.

# APPENDIX – (TABLES, ETC.)

## Appendix I

| | MIC | MAT | UHML | UI | SFI | STR | RD | +B | TR AR |
|---|---|---|---|---|---|---|---|---|---|
| HVI Value Of Bales From Laydown 1 U.S. | 4.88 | 0.84 | 27.32 | 81.70 | 11.69 | 28.76 | 75.39 | 9.49 | 0.45 |
| HVI Value Of Bales From Laydown 2 U.S. | 4.71 | 0.84 | 27.07 | 81.55 | 12.08 | 28.05 | 75.90 | 9.36 | 0.50 |
| HVI Value Of Bales From Laydown 3 U.S. | 4.77 | 0.84 | 28.11 | 82.0 | 11.8 | 29.1 | 77.5 | 9.6 | 0.40 |
| HVI Value Of Bales From Laydown 4 U.S. | 4.60 | 0.84 | 28.14 | 81.8 | 12.5 | 29.4 | 76.0 | 9.6 | 0.42 |
| HVI Data Of Brazil + West African (1) | 4.35 | 0.84 | 28.37 | 81.37 | 11.10 | 30.25 | 77.92 | 10.78 | 0.54 |
| HVI Data Of Brazil + West African (2) | 3.92 | 0.84 | 28.98 | 81.6 | 11.6 | 30.2 | 79.2 | 11.2 | 0.40 |

## Appendix II

| Cotton Parameter | Non-Compact | Compact |
|---|---|---|
| Micronaire Range/ Average | 3.8 to 5.2/4.5 | 4.2 to 5.5/4.8 |
| UHML | 1 1/8 | 1 3/32-50% and 1 1/8-50% |
| Strength Minimum/Average | 28 GPT/ 30 GPT | 28 GPT/ 29 GPT |
| UI Minimum/Average | 80/ 81.5 | 79/ 81 |
| Color | 31, 32, 41, 42 | 31, 32, 41, 42 |
| Leaf Grade | 3,4 | 3,4 |

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# FOR MORE COTTON USA™ MILL STUDIES, CLICK THE LINKS BELOW.

AN EVALUATION OF THE DURABILITY ADVANTAGES OF USING U.S. COTTON IN KNIT FABRICS

AN EVALUATION OF THE FIBER PROCESSING ADVANTAGES OF USING U.S. COTTON IN KNITTED FABRIC/GARMENT MANUFACTURING

AN EVALUATION OF THE FINANCIAL ADVANTAGES OF USING U.S. COTTON IN KNITTED FABRIC/GARMENT MANUFACTURING

THE TECHNICAL AND FINANCIAL ADVANTAGES OF USING U.S. COTTON-RICH YARNS IN KNITTED FABRIC AND GARMENT MANUFACTURING

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