

2021

Egg Conveyor Belt Technical Whitepaper



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Breeders Poultry Belts

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Why Breeders Poultry Belts are Superior

3.75" Breeders Poultry Belts vs. Competitive Belts

Not all woven polypropylene egg belts are created equal. You pay for what you get. There is a difference in the quality of Breeders Poultry Belts vs. competitive products that is real and can be demonstrated. Our products tend to be more expensive than competitive belts, but there are good reasons why as explained in this whitepaper.

Despite the fact that Breeders belts are more expensive, many customers have switched from less expensive belts to Breeders 3.75" belts for a simple reason: they have higher quality, cause fewer problems and provide a better return-on-investment (see the [website](#) for testimonials).

Below is a side-by-side comparison of Breeders 3.75" product vs. a common competitive belt used in the U.S. and manufactured in Europe.

Edge Quality – A Visible Difference

One of the first things you will notice when comparing the belts is the quality of the edge. Figure 1 shows the competitive belt and Figure 2, a high-quality Breeders belt. The edge on the Breeders belt is more robust compared to the competitor.

The Reason for the Difference: Breeders Poultry Belts are engineered with proprietary yarns and weaving processes designed specifically for this application. Special attention is paid to the quality of the edge.

Why This Matters: A more robust edge will resist tearing that can lead to premature belt failure, equipment damage, and ultimately result in lost production time, costing the grower more money.

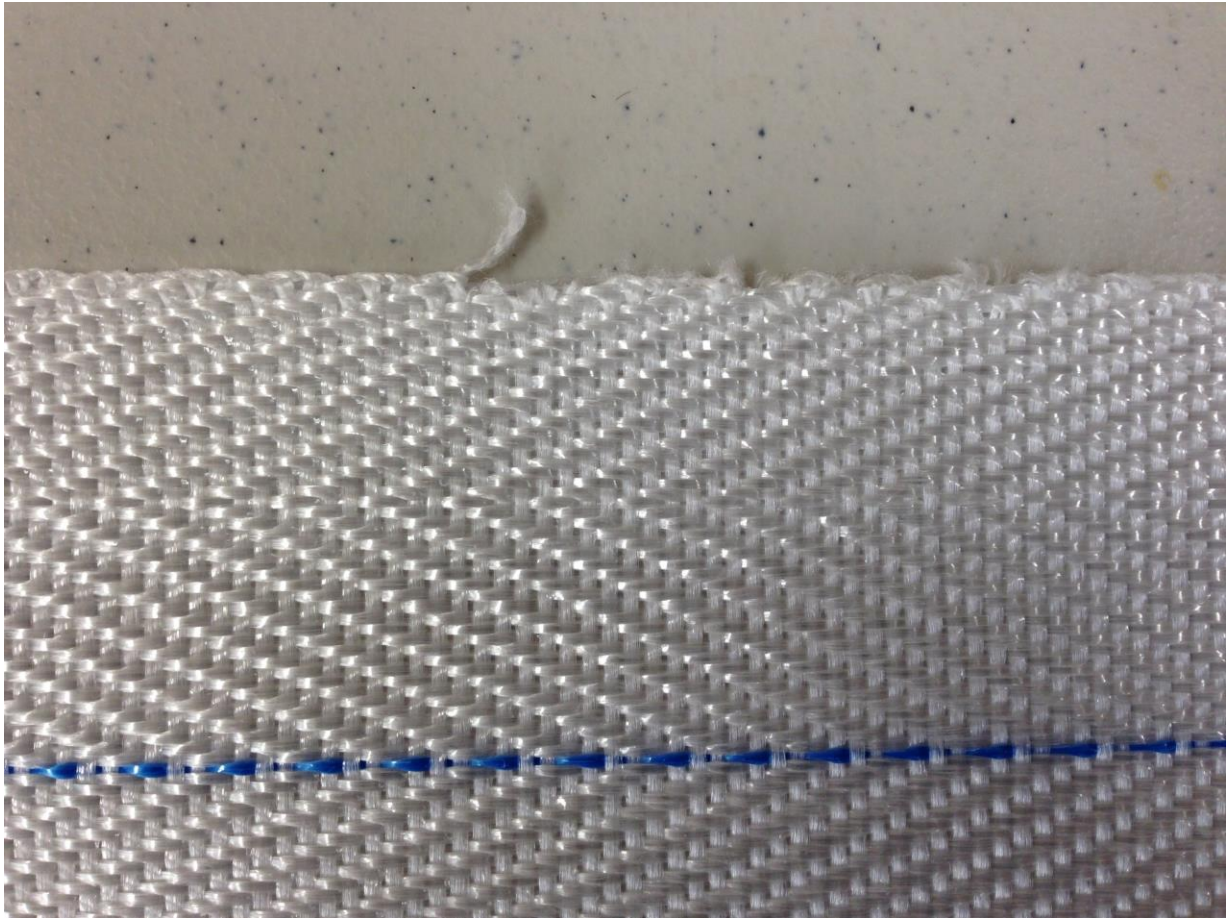


Figure 1: Competitor's 3.75" Belt Edge

Fabric Weight vs. Cost

Another difference you will notice immediately when you inspect a Breeders belt is how much heavier it is compared to the competitive belt. In fact, the Breeders belt is about **26% heavier per foot**, but costs only about **9% more per foot**.

The Reason for the Difference: Breeders Poultry Belts have been engineering the highest quality poultry egg belts for more than 30 years. We know what works and what does not. Our proprietary yarns and weaving processes ensure a durable, high-quality product every time.

Why This Matters: The heavier weight of the Breeders belt means it will last longer in the application. And while it is slightly more expensive per foot, it has higher value providing superior ROI.

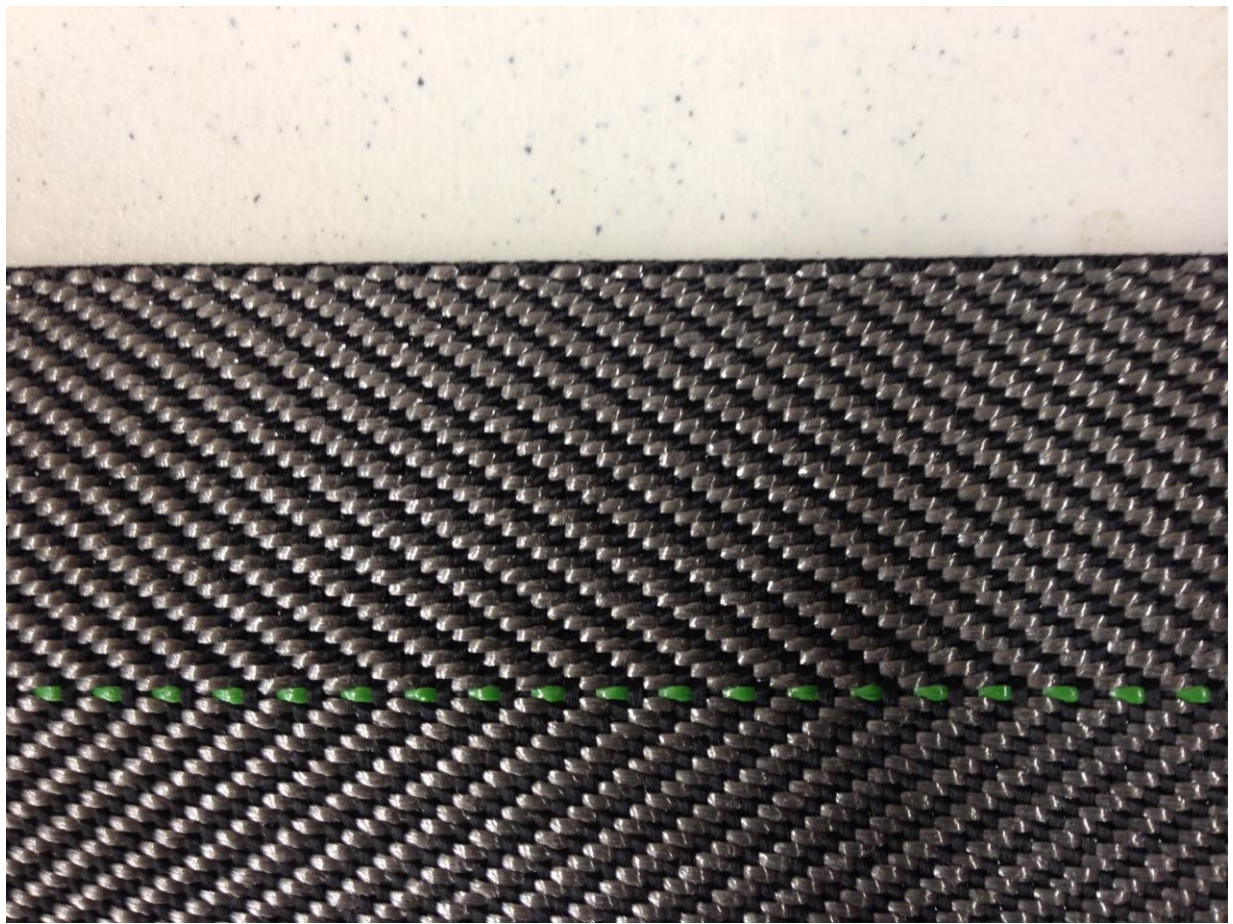


Figure 2: Breeders' 3.75" Belt Edge

Summary

Breeders Poultry Belts provide the highest value-in-use compared to the competitive alternative. While our belts tend to be more expensive, this white paper helps explain why they are more expensive, but more importantly how Breeders Poultry Belts can maintain your production and lower maintenance costs. The poultry belt is a minor component of your overall investment, but if it causes problems your production will suffer.

You have a choice when it comes to what poultry egg belts you use with your system. If you are purchasing a new system, demand Breeders Poultry Belts. If you are frequently replacing less expensive, inferior quality belts, let us show you how we can help you maintain maximum operational efficiency.

Breeders Poultry Belts are Proudly Made in America





Why Breeders Poultry Belts are Superior

8" Breeders Poultry Belts vs. Competitive Belts

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Despite that fact Breeders belts are more expensive, many customers have switched from less expensive belts to Breeders 8" belts for a simple reason: they have higher quality, cause fewer problems and provide a better return-on-investment (see the [website](#) for testimonials).

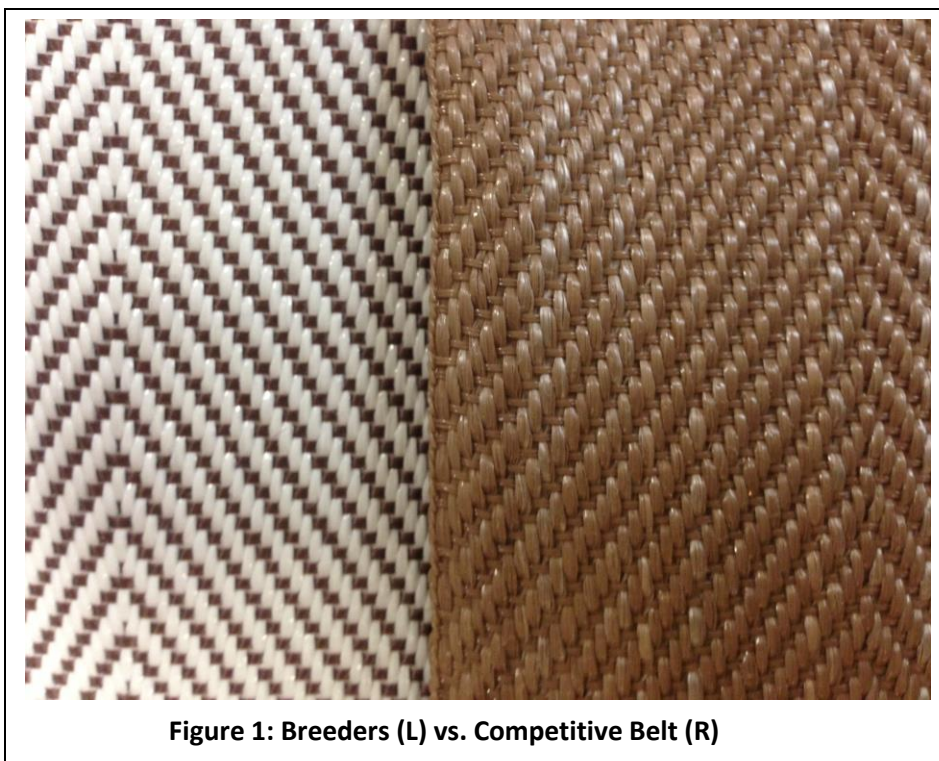
The comparison below is a side-by-side comparison of Breeders 8" product vs. a common 8" belt used in the U.S. and manufactured in Italy. Both belts have nearly identical fabric weights, the same thread count and the weave pattern is also comparable. That is where, however, the similarities end.

A Difference You Can Feel and See

The first thing you will immediately notice when you pick up and hold an 8" belt from Breeders is how "soft" and flexible they feel. The competitive belt, by comparison, feels stiff and inflexible. Though the Breeders' belt is soft and flexible, the weave is tight. Hold up a Breeders belt to a strong light, and you will see little light coming through. Not so with the competitive belt. The weave is just not as tight and you can see the difference (see Figure 1). Even the color of the competitive belt is uneven while Breeders belts have a consistent high-quality color.

The Reason for the Difference: Breeders Poultry Belts are engineered with proprietary yarns and weaving processes designed specifically for this application. The competitive belt uses a less expensive yarn and the weaving process does not produce as tight a weave.

Why This Matters: While this is a qualitative difference, which belt do you believe will perform better in use? Naturally a belt that is softer and more flexible will be more forgiving in the harsh environment of a chicken barn, and a tight weave will help the belt last longer.



Less Likely to Fold-Over

The competitive belt is much more likely to not recover quickly if the edge folds over in operation. The pictures below illustrate this point. Figure 2 shows the corner of each belt folded over, with a weight left in place for about an hour. Figure 3 shows the belt with the weight removed. After a few minutes, notice how little the competitive belt has recovered vs. a Breeders' belt. Even after several hours, shown in Figure 4, the competitive belt has not completely recovered while the Breeders' belt has.

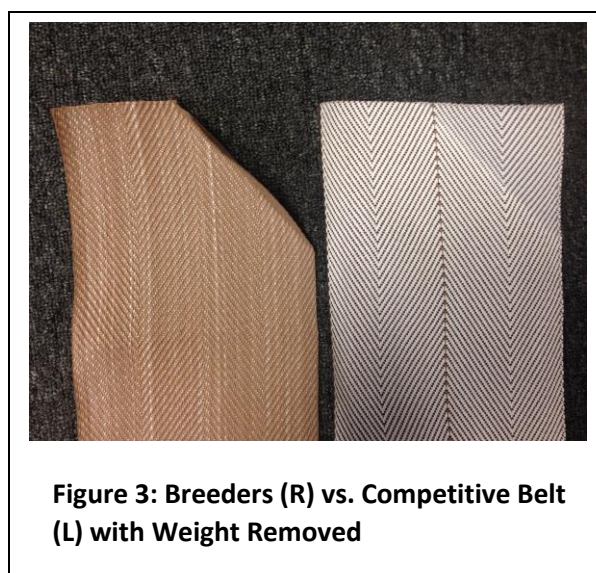




Figure 4: Breeders (L) vs. Competitive Belt (R) with Weight Removed and Final Recovery

The Reason for the Difference: This is a direct consequence of the more rigid, inflexible competitive belt that uses less expensive yarns.

Why This Matters: A belt that folds over during operation can lead to operational problems in the conveying system and belt failure. That can shut down production on that line.

Putting the Belts to the Test: Temperature

Both belts were tested for shrinkage at 100 and 270 degrees F for 20 minutes. The testing at 100 degrees showed that neither belt is affected by this temperature. Testing at 270 degrees did reveal that the competitive belt uses a yarn that generally has more elongation and less modulus, vs. the Breeders belt that uses yarn with a lower level of elongation and higher modulus. Note that modulus is defined as stress/strain. A material with a higher modulus will change dimension less than a material with a lower modulus at the same stress level. In other words, the competitive belt will be more prone to elongation.

The Reason for the Difference: This is a direct consequence of the less expensive yarns used in the competitive product.

Why This Matters: Once a belt is installed and loaded, it should be stable and not prone to elongation, or “stretching”. This testing illustrates how the competitive belt is more likely to stretch in the dynamic loading situation common in the application compared to the Breeders belt. Our customer’s report that Breeders belts are in fact more stable in operation, and this is one reason why.

Putting the Belts to the Test: Tensile Testing

Next the belts were tested in a tensile testing device. This device can impart a load on the belt at a constant rate of increase and measure how it strains or elongates (as a % of its original length) and where it ultimately fails. Figures 5 shows the results for Load (lb.) vs. % Strain. This data clearly shows that the Breeders belt strains or elongates less at a given load. Figure 6 provides the differences in ultimate strength, illustrating that the Breeders belt is stronger.

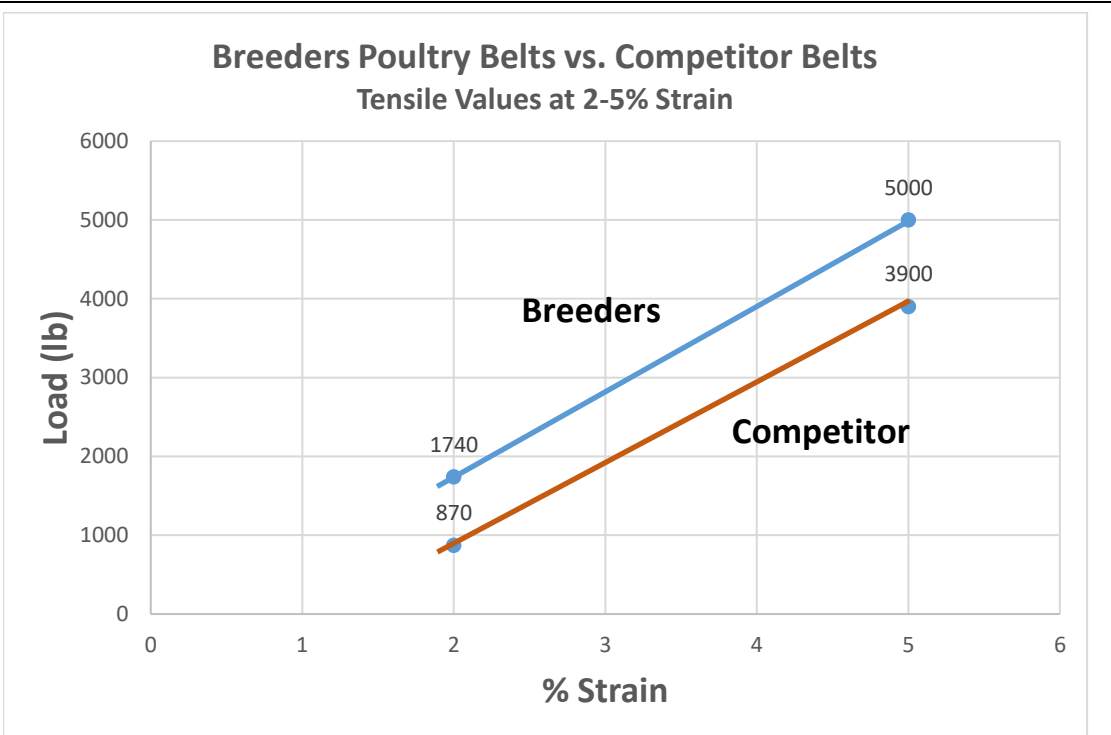


Figure 5: Load (lb.) vs. % Strain

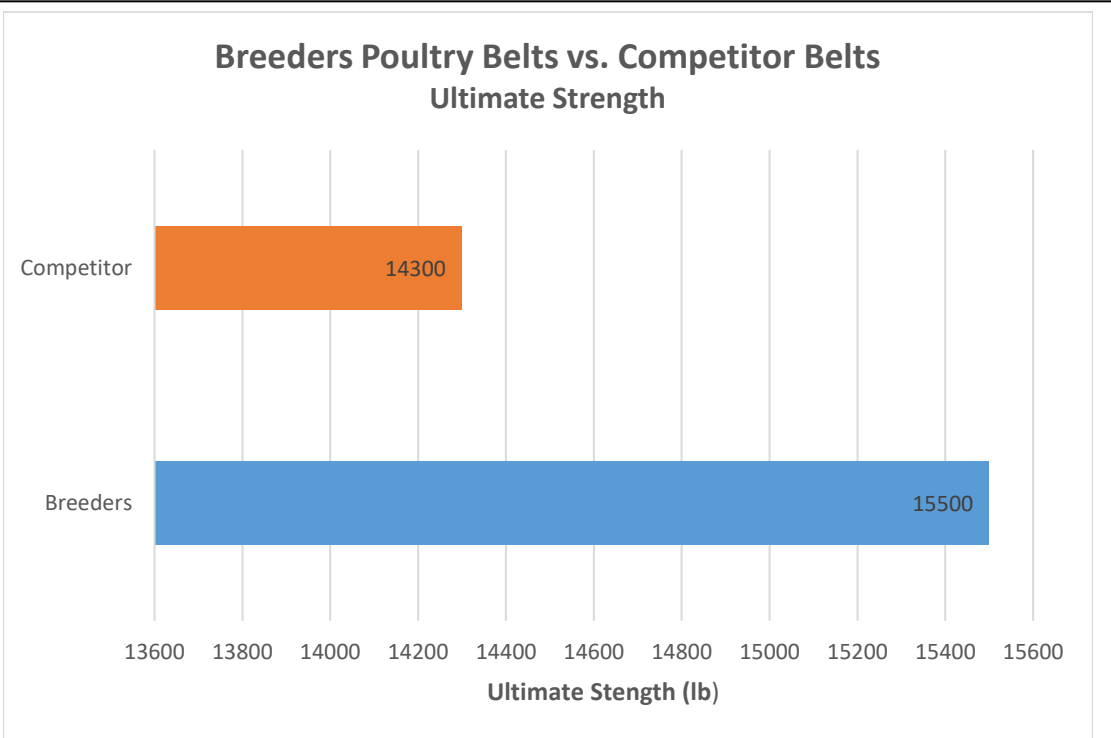


Figure 6: Load (lb.) vs. % Strain

The Reason for the Difference: This is due to the less expensive yarns used in the competitive product and the inferior weaving process that produces the final product. The Breeders belt uses a weaving process that produces a very tight weave. This allows the fibers that run parallel to the length of the belt to very quickly take the load. The competitive belt has to stretch more before those longitudinal fibers can begin to take the load. The less expensive fibers used in the competitive product likely results in an inferior ultimate strength.

Why This Matters: As already mentioned, once a belt is installed and loaded, it should be stable and not prone to elongation, or “stretching”. This testing again illustrates how the competitive belt is more likely to stretch in the dynamic loading situation common in the application compared to the Breeders belt. The higher ultimate strength of the Breeders belt is simply an illustration of how much stronger the belt is. While this load would never be seen in the application, it does help to back up the claim that our overall quality is higher.

Summary

Breeders Poultry Belts provide the highest value-in-use compared to the competitive alternative. While our belts tend to be more expensive, this white paper helps explain why they are more expensive, but more importantly how Breeders Poultry Belts can maintain your production and lower maintenance costs. The poultry belt is a minor component of your overall investment, but if it causes problems your production will suffer.

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Why Breeders Poultry Belts are Superior

100mm Breeders Poultry Belts Reinforced Perforated Plastic Belt vs. Competitive Plastic Belts

Perforated plastic belts were introduced to the market several years ago as a way to enhance cleanability of the belt and improve the cleanliness in the barn. The holes in the belt help keep the eggs from moving on the belt and act to clear solid contamination. The problem, however, is that in the narrower width belts, the forces in operation lead to long-term stretching. The belt will never stabilize in length as do woven belts, and so must be replaced much more frequently, increasing maintenance costs and causing production interruptions.

Breeders Poultry Belts have introduced a new reinforced perforated plastic belt that solves this problem, and for the first time will allow narrow width solid plastic belts to be deployed without fear of long term stretching common with competitive products. This will not only enhance cleanliness, but reduce operational costs since the belts will not have to be replaced as often.

How It Works

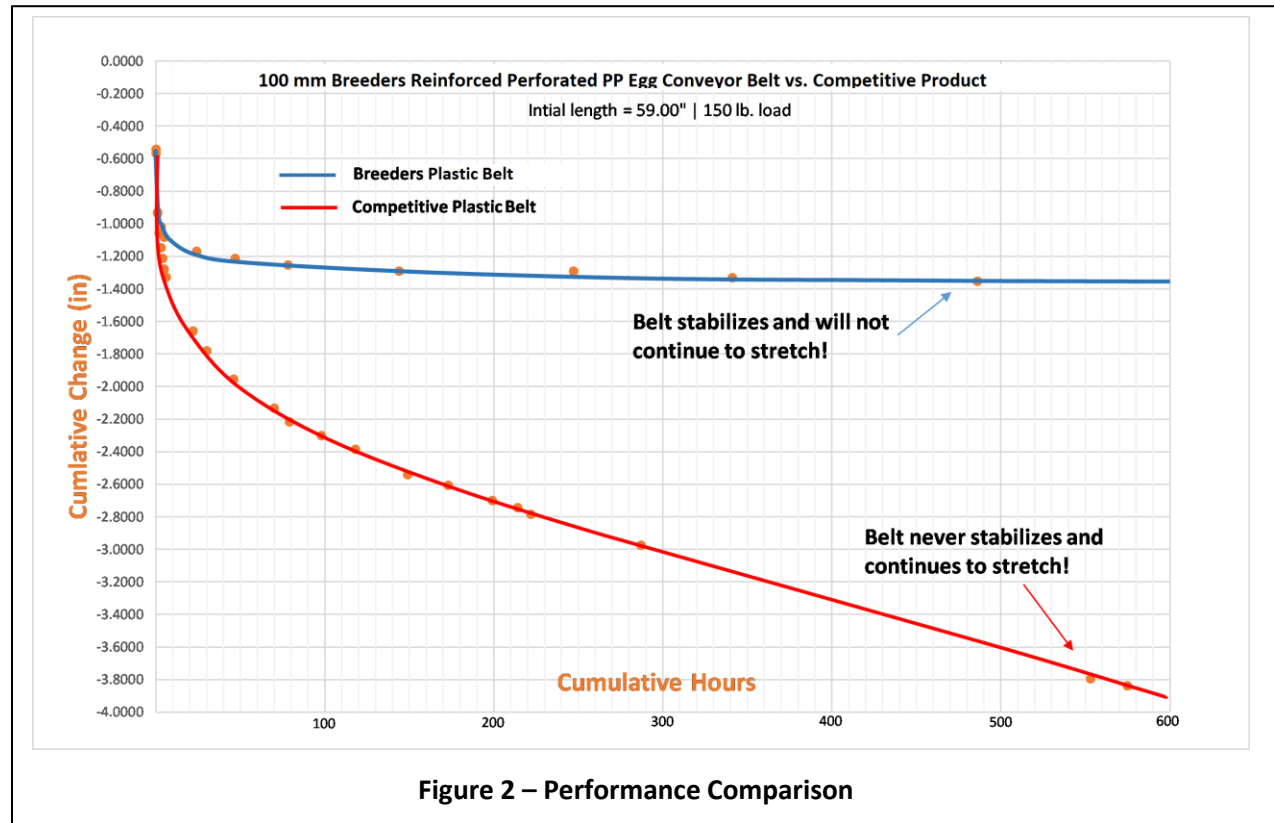
Figure 1 shows the belt. The proprietary technology employed reinforces the belt along the length of the belt that is subject to the loading in operation and leads to the performance illustrated below in Figure 2.



Figure 1 – Plastic Belt

Performance Comparison

Figure 2 provides a comparison between the Breeders perforated plastic belt vs. a common competitive product. You will notice immediately the benefit. The Breeders product stabilizes quickly and does not continue to stretch, unlike the competitive product.



Summary

The Breeders reinforced perforated solid plastic egg belt eliminates the stretching problems common with inferior competitive products.

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