

Planet Money Makes a T-Shirt- Machines

Why The Recipe For Our Yarn Is Like The Secret Formula For Coke

There are 6 miles of yarn in a single Planet Money T-shirt. If any of that yarn is too thick or too thin, even by a little bit, the T-shirt could start falling apart after just a few washes. (Yarn, by the way, is what ordinary people call thread. In the garment business, it's called yarn.)

Spinning yarn is high-tech and shockingly complex. The yarn for the Planet Money T-shirt had to meet dozens of specifications — thickness, tenacity, the amount of twist, the direction of the twist. [Newtons per tex!](#)

But even though we ordered thousands of shirts, our supplier, Jockey, wouldn't tell us exactly what those specs were. "That's our special sauce," said Marion Smith, a senior vice president at Jockey. It's like the secret formula for Coke, but softer on the skin.

YARN! Here's yarn from ordinary clothes, as seen under a microscope.



Planet Money Women's T-Shirt

Two words: compact ringspun. A machine sucked the fibers close together when the yarn for our shirt was spun, creating yarn that makes an extra-smooth shirt. The yarn has relatively few twists per inch, which makes the fabric soft and comfortable.



Hanes T-Shirt

It has more twists per inch than the Planet Money T-shirt. This makes the fabric more uniform, but rougher to the touch.



Denim Jeans

Denim yarn is made from shorter fibers than T-shirt yarn, and it has a consistency akin to rope: thick, heavy, and uneven. It's the toughest and most durable of the yarns shown here.



Dress Shirt

The yarn has the most twists per inch of any yarn here, which makes fabric that's stiff, regular and can be ironed.

PHASES OF YARN-SPINNING

NPR's Robert Smith collected yarn samples at each stage of the spinning process during his visit to the Indorama spinning plant in Purwakarta, Indonesia.



1. Raw American cotton



2. After combing, it's like baby hair.



3. One more step and it's cotton candy.



4. Pull. Twist. Spin. And you have yarn.

Jockey's recipe for the yarn may be a secret, but Agrawal's factory is using machines that anyone with enough money can buy. Right now, Indonesia is in a sweet spot in the middle of the global T-shirt trade. Wages are lower here than they are in developed countries. At the same time, unlike many countries where labor is even cheaper, Indonesia has a few key things that are essential for keeping a high-tech factory humming: an educated workforce; cheap, reliable electricity; and a relatively stable government.

But staying in the sweet spot in a global economy is almost impossible. At some point, a country that has cheaper labor or is closer to where clothes are made will find the money, the electricity and the workers to build its own spinning industry.