

Loved by the couturiers

Cotton fabrics with a touch of class

Fashion designers have their own way of defying the recession: they continue presenting themselves with as much imagination and extravagance as they do at the best of times. Fine materials and sophisticated cuts sparkle on the catwalk. But it's not just velvet and silk that inspire the couturiers: cotton also produces fine, skin-friendly textiles. Bayer CropScience's FiberMax cotton provides the basis for high-quality fabrics.



Opulent lace and wild floral sew-ons announce their presence. Garish colors and airy chiffon blouses waft through the room: at the world-famous Paris fashion shows, leggy models strut their way across the catwalks, dozens at a time, and the designers bask in the light of the press photographers' flashbulbs. The models occasionally show more skin than material, and they sometimes have to make their precarious way along the cat-

Cotton can be transformed into all sorts of materials. This is one of the reasons why it is so popular among couturiers.



walk in creations that are more reminiscent of suits of armor than anything else.

Twice a year, designers from the renowned houses of Chanel, Dior, Valentino et al. vie for attention at the Haute Couture shows, presenting their custom-cut creations. In fact, these one-off pieces will probably never be worn again – so they should really be considered works of art. Nevertheless, the entire fashion world keeps a close eye on London, Milan and of course Paris, the birthplace of haute couture. This is where the designers show their stuff: how successful they are in developing their own style and at the same time, always coming up with something new. For example, Laura Bia-

The cotton-belt
Cotton is distributed throughout the earth's warmer regions – between 45 degrees North and 32 degrees South. It is cultivated in more than 60 countries.

Where the plant fiber grows





Mechanical harvesting: the world's total cotton acreage stands at 34 million hectares.

giotti became known as the “Queen of Cashmere” through her work with that material. Roberto Cavalli’s name stands for baroque gold embroidery, colorful, flowing chiffon materials, feathery ornaments and low necklines. Coco Chanel became world-famous through her “little black dress” and the classic Chanel outfits. She also introduced the “Garçonne look”, which adopted elements from mens’ fashions.

Clothing must also find buyers: it has to appeal to the customer. “Because fashion is what’s worn on the street”, as Karl Lagerfeld points out. The feel-good factor plays a significant role with prêt-à-porter - which means as much as “off-the-peg haute couture”. Natural fabrics such as cotton are very popular because they are comfortable to the skin and breathable. “It’s important that the fashion designers familiarize themselves with the feel of their materials and take this into consideration when designing their creations”, says Friederike Meyer, Editor-in-Chief of several specialist fashion magazines.

Different textiles will find different uses - depending on whether they’re being used for sportswear or evening wear. Nowadays, fabrics are practically “constructed”: high-tech. knitting and weaving machines build several layers, one of top of the other, at lightning speed, working with hidden yarns or mixing different materials to create a sophisti-

cated composite fabric. All this so that the wearer hardly feels their “second skin”. “These products must be perfectly aligned with each other”, explains Meyer. “In unsuitable combinations, the different materials can react differentially during use, so much so that some articles of clothing can be damaged as soon as they have gone through the first wash. Borders become frayed and zips become wavy”, continues the fashion journalist.

Longer, finer and more tear-proof

When it comes to the quality of cotton, the rule is: the longer, finer and more tear-proof the fibers, the higher the grade of the clothing. At the same time, natural fibers are in constant competition with artificial materials, which come off the production line with a high level of consistency in terms of length, color, form, thickness and quality. In contrast, natural fibers have to be improved actively: “It’s no longer enough these days simply to increase the productivity of the cotton plant. It’s also important to develop methods by which we can improve the quality of the fibers”, says Linda Trolinder, Cotton Research and Development Manager for Bayer CropScience in Gent, Belgium.

However, the researchers aim to increase crop yields too. In particular, they want to develop varieties that perform better under drought conditions, such that they suffer less of a yield or quality penalty when rains fail. Similarly, the so-called Yield Protection Technology® (YPT) owned by the company Performance Plants - with whom Bayer also has a licensing agreement - can also be used

Examining the quality of cotton.



to make cotton plants more tolerant to drought. It is important to the industry to provide these new high impact traits to the market in addition to existing traits such as herbicide tolerance and insect resistance already available on the market. Here, Bayer’s own developments are complemented by technology under licensing agreements. An ongoing cooperation with Chromatin Inc. (Chicago/Illinois, USA) means that their technology can be used to combine more desirable plant characteristics efficiently.

Moreover, Bayer CropScience can start 2010 with a new cotton technology: the US-Agriculture Ministry gave the go-ahead in May 2009 for the sale of cotton varieties based on the GlyTol®-character. This variety has built-in tolerance of herbicidal products based on glyphosate, thus increasing farmers’ flexibility when it comes to weed control. “We want to use the 2009 cotton season to familiarize farmers in the US with the

Cotton in figures

► According to the Food and Agriculture Organization (FAO), around 30 million tonnes of natural fibers are produced around the world each year. The greater proportion of this - more than 26 million tonnes - is accounted for by cotton.

► The world’s biggest producer of cotton is China (about 30 percent), followed by the USA (24 percent) and India (21 percent). So between them, these three countries deliver three quarters of the global cotton harvest.

► Cotton is cultivated on about 34 million hectares around the world. That corresponds to about 2.5 percent of the world’s total available agricultural surface.

► Fiber represents only 35 percent of the total yield of the global harvest which is destined to be woven into pullovers, underwear or fine sports jackets. A full 65 percent of the harvested biomass comprises seeds and cotton linters (short fibers). The seeds are pressed to produce an oil that is suitable both for culinary uses and for technical applications. The meal remaining after pressing is a valuable concentrate for livestock.

properties and advantages of this new technology”, explains Monty Christian, Director of Cotton Technology and Fiber Business for Bayer CropScience at Lubbock, Texas. “And in parallel, we’re preparing for a broad market launch in 2010. We’re currently planning to offer two high-yielding quality varieties that are adapted to the cultivation conditions of the South-Western USA”, continues the cotton expert.

The plant researchers are also looking for completely new fiber properties that are able to influence processing or to meet special customer needs such as enhanced uptake of dyes, are wrinkle free or flame retardant. For example, Trolinder’s team is developing cotton fibers which have a different electrical charge than those of conventional varieties. The goal is to increase the ease and effectiveness of the dyeing process. “Our hope is that fabrics made from this cotton will have intense colors and be less prone to fading while requiring less water and chemical treatment during processing, that’s good for the environment.” says Trolinder.

High-value cotton varieties

Defining the quality of cotton fibers depends on the use of indices such as the so-called Micronaire-value: a score of 2.8 corresponds to “very fine”, whereas 6.2 means “very coarse” fibers. These values are derived by determining the strength of the air stream that can still pass through the material. FiberMax® cotton achieves Micronaire values between 4.0 and 4.2. “That’s why the fibers are suitable both for tougher, standard textiles, and for finer, higher-grade materials”, says Christian. The USA is the classic cotton country – and it’s here in particular that the high-value cotton varieties are in demand: in 2008, FiberMax achieved a market share of 32.2 percent. And in Texas, the area of cultivation under FiberMax increased from a good 45 percent in 2004 to 67.6 percent in 2008. For a number of years now, a certification programme has been in place that allows the cotton processing companies that buy-in these high-



The high-quality yarn produced from FiberMax cotton seed means less down-time in the weaving process and fewer defects in the finished fabrics.

quality fibers to follow their pedigrees right back to the seed in the field. This means that they have the certainty that they’re dealing with a FiberMax product. “Because it isn’t just the customer who “feels” the quality of cotton: it also plays a role in the processing of the fibers,” explains the Bayer CropScience cotton expert. “Using high-quality fibers means that the threads break less often, and there are fewer flaws in the fabric during spinning - which in turn means that there are also fewer interruptions to the production process.” This is why spinning and weaving businesses also prefer to buy FiberMax.

The secret of a silky gloss, flowing gowns and bright colors doesn’t just lie with the material itself and its quality – it also has to do with the way the fibers are processed: cotton threads can be transformed into all sorts of materials – ranging from sporty denim for jeans to the more luxurious chenille and fine velvet. Shiny cotton, for example, feels silky because of its special weave (the so-called atlas weave): warp and woof don’t create a simple grid; rather, a pattern is formed of diagonal lines, creating a smooth surface that feels soft and flowing. “This fabric is therefore also suitable for fine fashion outfits. In contrast, canvas, which is also based on cotton, is firm and robust – ideal for outdoor jackets and athletics trousers. Even the ever-popular jersey-material

can be produced using cotton”, explains the cotton-specialist Christian.

Jersey fabrics are stretchable, comfortable to wear, and also very easy-care. At first, jersey was used mainly to produce sportswear and underwear, but Coco Chanel later established it as a material for women’s fashion with her outfits and pleated skirts. “Just as in art, it’s the observer who decides, turning mere clothing into fashion objects”, says Dr. Ingrid Loschek, Professor of the Theory and History of Fashion at the University of Design, Engineering and Business studies in Pforzheim. “The creator’s signature should be recognisable in the work – just as the style of a painter is”, continues Loschek. Designers have many sources of inspiration: old photos, the colours of nature, or even musical tones. And haute couture is the perfect example of the cult of the new. Famous couture creations have become prized museum pieces and collectables – and not without reason, for fashion is always a document of the times – as are the materials from which it has been created. ◀

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