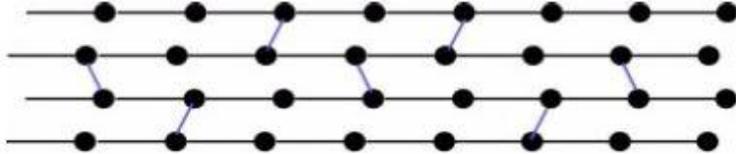




COTTON

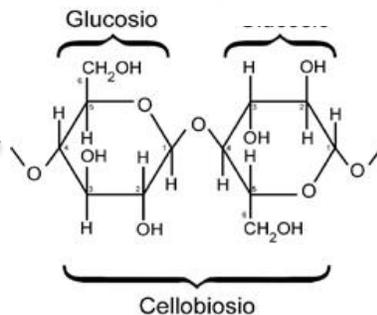
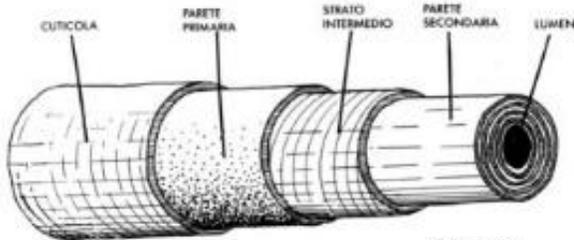
COMPOSITION AND STRUCTURE:

Cellulose has a structure consisting of chains of D-glucose units joined by glycosidic β 1-4 bonds, arranged in parallel arrays and linked by hydrogen bridges, so as to form insoluble microfibrils. These are arranged in a way to form a crystalline structure.



The crystalline part is hydrophobic, i.e. it does not absorb water. Thus, to obtain a hydrophilic product, we need to subject cellulose to the mercerization process.

Struttura del filamento di cotone



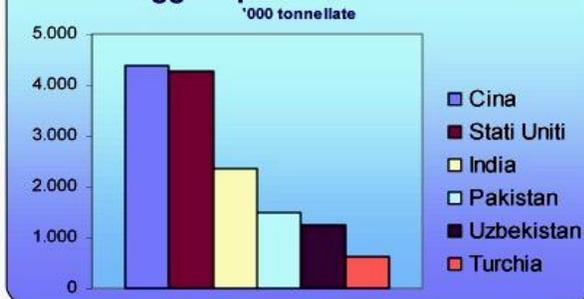
Cellulose structural unit

Cotton is a natural vegetable fiber that is based on non-lignified cellulose, produced by some plants of the genus *Gossypium* in the family of *Malvaceae*. It is grown in areas with tropical and subtropical dry climates, at temperatures between 11 ° C and 25 ° C . The cotton flower produces seeds and fluffy white fibers, called 'capsules'. Cotton characteristics: it is a thermal insulator, it absorbs moisture, comfortable soft hand, good strength, elongation, elasticity.



Cotton is grown in 75 countries around the world. Today the largest producers are China and the United States.

I maggiori produttori di cotone



PRODUCTION:

- Sowing in dry conditions. It requires plenty of water and sunlight exposure, blooms two months later, grows over 5-7 months
- Ginning phase to separate the fluff from seed.
- Pressing the cotton into bales.
- Spinning – the bales are turned into threads.
- Weaving the threads to make the fabric
- Packaging a range of textile products

FAIRTRADE benefits to producers

Since 2004 Fairtrade has shown that the lives of producing communities can significantly improve by means of the introduction of a minimum price for cotton. Fairtrade market farmers have secure and stable incomes, which are intended to cover the average production costs. They also receive a bonus that allows them to invest on community projects, such as schools, roads, environment and health. Fairtrade also limits the use of agrochemicals and encourages sustainability.

CONSEQUENCES OF THE USE OF PESTICIDES:

- Reduced soil fertility and salinization
- Acquifer pollution
- Increased CO₂ emissions
- Loss of biodiversity
- Poisoning and death risks among farmers

ENVIRONMENTAL IMPACT OF A COTTON T-SHIRT:

- 2649.79 liters of water
- 0.09 kg of fertilizer
- 0.05 kg of pesticides
- 0:54 kg of fossil fuels
- 7 kg of CO₂
- 0.05 kg of other gases

It produces 8.3 kg of CO₂ emissions every 50 washing and drying cycles.

A good example:

Environmentally-friendly jeans

A Fairtrade-certified American company manufactures 100% organic cotton jeans, thus saving 84% of water, 30% of electricity and reducing CO₂ emissions by 25%, as compared to the standard percentages for the synthetic indigo-dyed denim fabric.