Textile Science and Clothing Technology

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Editors

Organic Cotton

Is it a Sustainable Solution?

Springer

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Preface

The purpose of this book is to make a contribution to the discussion with various specialists on whether organic cotton is sustainable or not. This is not about drawing conclusions but rather providing data to cast light into this discussion.

The book begins with a paper by Ali Serkan Soydan, Arzu Yavas, Gizem Karakan Günaydin, Sema Palamutcu, Ozan Avinc, M. Niyazi Kıvılcım, and Mehmet Demirtaş titled "Colorimetric and Hydrophilicity Properties of White and Naturally Colored Organic Cotton Fibers Before and After Pretreatment Processes". This chapter researches colorimetric (CIE L^*, a^*, b^*, C^*, h°, K/S, whiteness properties, etc.) and hydrophilicity properties of two white (Nazilli 84 S and Aydın 110) and three naturally colored (Emirel, Akdemir, Nazilli DT-15) organic cotton fiber types under review, before and after scouring (with NaOH), conventional bleaching (with H_2O_2), and the combined application of scouring and bleaching (scouring + bleaching) processes in comparison with their greige (untreated) counterparts.

The next chapter, "Physical Properties of Different Turkish Organic Cotton Fiber Types Depending on the Cultivation Area" was written by Sema Palamutcu, Ali Serkan Soydan, Ozan Avinc, Gizem Karakan Günaydin, Arzu Yavas, M. Niyazi Kıvılcım, and Mehmet Demirtaş. The measured and recorded data are analyzed with the Least Squares Fit model statistical evaluation method to accomplish Analysis of Variance and Effect Tests. Statistical evaluation has been designed to evaluate the influence of dependent variables of fiber type, location, and year in the independent fiber properties of length, strength, and fineness (micronaire).

Following "Sustainability Goes Far Beyond "Organic Cotton." Analysis of Six Signature Clothing Brands" was developed by María Lourdes Delgado Luque and Miguel Angel Gardetti. This chapter analyzes five Spanish signature fashion brands based on the sustainability criteria defined by the authors. For such purpose, all the public information referred to by the brands: websites, newsletters, articles, references from organizations, and case studies, if any, is studied. Each of the designers or owners of these microenterprises are also interviewed. All of this is compared to a model developed by the authors that addresses the meaning of being sustainable in the textile and fashion world.

Moving on, Gizem Karakan Günaydin, Ozan Avinc, Sema Palamutcu, Arzu Yavas and Ali Serkan Soydan developed "Naturally Colored Organic Cotton and Naturally Colored Cotton Fiber Production". White cotton fiber is one of the most chemically intensive crops cultivated. Though grown on 3–5% of the world's farmland, it is liable for the usage of 25% of the world's pesticides. For these aforementioned reasons, organically grown naturally colored cotton fiber has attracted a massive attention over the past few years. This chapter describes in detail a comprehensive review of naturally colored organic cotton fibers, naturally colored cotton fiber types, their properties, their production and their recent developments from a broad perspective and from many different angles.

The chapter called "Organic Cotton and Cotton Fiber Production in Turkey, Recent Developments" was written by Gizem Karakan Günaydin, Arzu Yavas, Ozan Avinc, Ali Serkan Soydan, Sema Palamutcu, M. Koray Şimşek, Halil Dündar, Mehmet Demirtaş, Nazife Özkan, and M. Niyazi Kıvılcım. This chapter deals with organic and conventionally grown cotton fibers with a broad perspective in terms of cotton fiber cultivation and recent development about these fiber types in Turkey. First, details are provided about organic cotton and organic cotton fiber cultivation in Turkey, organic cotton growing regions in Turkey, limitations for the organic cotton markets, lack of information on cost of production, marketing and future trends. Moreover, information about general cultivation in lands and cotton fiber yield in Turkey is given in detail, as well as information about the diseases and pests encountered during the cotton fiber cultivation.

In turn, in their paper "Organic Cotton and Its Environmental Impacts" P. Senthil Kumar and P. R. Yaashikaa investigate that the organic production is not really any more or any less ecologically well disposed than current ordinary cotton generation. For the textile procurer, there is no contrast between routinely developed cotton and organically developed cotton as to pesticide build-ups. Developing natural cotton is more demanding and costly than developing cotton routinely. Organic generation can be a challenge if bug weights are high; however, with work and experience, it could give premium value to cultivators willing to address these difficulties.

The next chapter, "Organic Cotton Versus Recycled Cotton Versus Sustainable Cotton" was developed by P. Senthil Kumar, and A. Saravanan. Organic cotton is cotton that has been developed without manures and pesticides, with advance biodiversity, organic cycles, and soil health. In contrast, natural cotton makes cotton development "cleaner," giving both natural and ordinary cotton experience a similar assembling process, which is water and vitality concentrated. Recycled cotton is repurposed, post-modern or post-shopper cotton that would somehow or another be considered straight up: squander for the landfill. The pieces of such cut and sew jobs are post-mechanical cotton "squander" with the ability of being reused. Contingent upon how reused cotton is utilized, it can possibly extraordinarily decrease water and vitality utilization in reasonable design and attire, and diminish landfill waste and space. Cotton development is related to various social, financial, and natural shortcomings that weaken the piece sustainability.

Completing the book, Seyda Eyupoglu prepared a chapter titled "Organic Cotton and Environmental Impacts". This chapter investigates organic agriculture, organic cotton agriculture, comparison of conventional cotton agriculture with organic cotton agriculture, environmental impacts of organic cotton agriculture, and use of organic cotton products. And the final chapter contains conclusions and recommendations.

It is important to highlight that all of these diverse contributions represent a great step forward in expanding the insights in this field. It is certainly the most comprehensive collection of writings on this subject area to date. Note that this initiative has received a wide international response, and it is expected to continue stimulating further debate.

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