Environmental Benefits of Organic Cotton Production, The experience of bioRe in Central India.

Rajeev Baruah
BioRe India Ltd (14, Signals Vihar Mhow Madhya Pradesh India, rajeev.baruah@gmail.com, www.bioreindia.com,www.remei.ch)

Abstract

The detrimental effect of the high usage of fertilizer and pesticides in conventional cotton production is well known. The figures as you all know are as follows:

Cotton uses 25% of the world's insecticides and more than 10% of the pesticides (including herbicides, insecticides, and defoliants). In India the statistics are that cotton is planted on 5% of the cropped area and uses nearly 50% of the total pesticides that are used.

What I shall attempt to do is to elaborate is to first elaborate on the negative effects on the environment of conventional cotton and then build up on the positive benefits of organic cotton.

Introduction

BioRe works in the Central Indian State of `Madhya Pradesh' the farmers associated are located in the Nimar valley (200 – 300 mts above sea level) which spreads along the Narmada river, bordered by the Vindhyas in the North and the Satpura Range to the south. The valley is part of the central Indian cotton belt.
Farming systems in the region are cotton based; cotton is grown in rotation with cereals (wheat, maize, and sorghum), pulses (soybean, pigeon pea, chickpea, `moong' bean and other food crops such as chilli, onions.)

A pilot project was initiated in 1991with a few farmers on 15 acres. Remei AG – a Swiss Company developed partnerships with manufacturers to produce a whole range of quality, fashionable, ecological-social garments made of bioRe's

organic cotton. In the year 2007 bioRe is worked with 7890 farmers spread over 460 villages covering are area of 25000 acres.

The present scenario of conventional cotton in Central India.

The present status of conventional production is fast moving towards total dependence of fertilizers and pesticides. Crop rotations which were very much a part of the consciousness of the farmers is getting narrower as a result of this there is a greater push to the usage of fertilizers and pesticides.

It is evident that all the fertilizers and pesticides that are being used in the cultivation of the cotton crop will ultimately find its way into the water bodies and more than 50% of the water supply/ consumption in our region is from ground water.

The study of pesticides in groundwater started in 1979 in USA with multiple detection of various pesticides. The same issue has been addressed in other countries. It has been reported that increasing amount of the pesticide residue may be present in the soil and these can ultimately be leached to aquifer levels and contaminate the groundwater or they may be carried away by runoff waters and soil erosion

It would be worthwhile to enumerate the actual uses of fertilizers/ pesticides on cotton. The information of this is based on the long term system comparison trial that bioRe has recently established with FIBL with the aim to understand the contribution of organic farming to `enhancing food security, combating poverty and conserving tropical ecosystem*'.*

The crops being compared are cotton, soybean and wheat. Although we are not studying the environmental impacts the following data of fertilizer and pesticides used will throw some light:

The cotton crop was sprayed 06 times during the cotton season with pesticides (Monochrotohpos, Confidor, and Viper) with a concentration of 300 to 350 ML per acre for each spray this means that nearly 2 Litres of pesticides have been used per acre per season on the cotton crop.

On the fertilizer front the cotton crop was fertilized with over 600 kgs (combination of Urea and Single Super phosphate)

What have we gained environmentally by converting to organic cotton

As mentioned earlier bioRe in the year 2007 worked on nearly 25000 acres of cotton, this means that if 25000 acres of cotton crop had to be sprayed with 2 litres of pesticides per acre the total usage would have been 50,000 litres, hence by our work we have saved this quantum from going to the water bodies.

And on the fertilizers if we multiply this by the organic cotton acreage, this leads to a saving of 15000 tons of fertilizers. What about the fossil fuel that was used to produce this quantum of fertilizer?

Conclusions.

What I have tried to do above is elaborate the detrimental effects of conventional cotton production and by elaborating that I have tried to lead the way of the environmental benefits of organic cotton cultivation. Concrete data on the pollution caused to groundwater, to aquatic life, to beneficial insects are not available and would not be easy to obtain.

Acknowledgments

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