



WWF®

BROCHURE

IND

2010

A close-up photograph of a person's hand holding a cotton boll. The boll is partially open, revealing soft white cotton fibers. It is attached to a green, unopened cotton capsule. The background shows green cotton leaves and other bolls on the plant.

More Sustainable Cotton Production

BROCHURE ON MORE SUSTAINABLE COTTON PRODUCTION

Conceived and contributed by:

Bhavna Prasad
Murli Dhar
Sumit Roy
P. Vamshi Krishna

Edited by:

Bhavna Prasad
Malika Gupta
Shaila Sam

Designed by:

Mallika Das

Published 2010

© **2010, WWF-India, New Delhi**

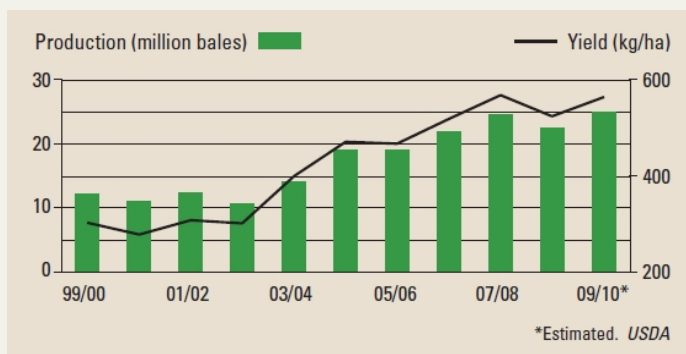
This brochure is a part of the project “Cotton in India- Challenges and Opportunities to implement Better Cotton” supported by WWF -Sweden. Through this initiative, WWF- India attempted to target the apparel and textile industries to create interest in sourcing cotton from environmentally sustainable production system.

COTTON PRODUCTION IN INDIA

India has emerged as the second largest producer of cotton in the world, with the largest area under crop production, at over 9.44 million hectares. About 60 million people, including 4.5 million farmers in India, depend on cotton for their livelihood.

Cotton is one of the most important fiber and cash crop's of India and plays a dominant role in the industrial and agricultural economy of the country. During the last five decades, there has been a seven-fold increase in cotton production and more than four-fold increase in productivity, as a result of government schemes and programs for intensifying cotton production through successive Five-Year Plans.

The textile and apparel industries have also seen a significant boost in the last decade. The sector accounts for almost 20% (nearly US\$ 12.5 billion) of total exports from India. International textile brands and retailers are increasingly looking to source cotton from India, such as cotton yarns, fabrics, made ups, ready made garments, accessories, etc. This has resulted in rapid growth opportunities for the local traders, ginners and spinners and also challenges for the environment due to intensive cultivation.



**WWF'S BETTER
MANAGEMENT
PRACTICES (BMPS)
EQUIP FARMERS
TO PRODUCE
HIGH QUALITY
YIELDS BY USING
ENVIRONMENT-
FRIENDLY FARMING
PRACTICES, SUCH AS**

**PEST & SOIL
NUTRIENT
MANAGEMENT**

**WATER
MANAGEMENT**

**HARVEST AND
CLEAN PICKING**

India's cotton
production & yield

CHALLENGES

Being a cash crop, cotton is known for its intensive cultivation. The increasing demand for cotton is laying enormous pressure on agricultural land.

This growth in consumption has also resulted in excessive use of inputs, such as water, fertilizers and pesticides. The focus on high yield production, without taking agriculture and environmental sustainability into account, has become standard practice.

AROUND
6%
OF THE WATER
FOR IRRIGATION
IN INDIA IS USED
FOR COTTON
CULTIVATION²

Aggressive production practices by farmers often leads to very high input use, with little regard to matching returns. The excessive input use not only escalates cost of cultivation, but also decreases profitability and results in pest resurgence, health and environmental hazards. Needless to say, this excessive use of inputs is laying enormous pressure on land and water. Cotton is a thirsty crop, requiring excessive use of ground and surface water, with extensive potential for water depletion. Some estimates suggest that 50 percent of all pesticides used in India are applied to cotton cultivation¹, part of which drain into freshwater systems, further aggravating clean water availability. In addition, untrained and ill equipped farmers are completely susceptible to health hazards when using some of these hazardous chemicals in the field.

ROUGHLY
30 - 50%
OF TOTAL CHEMICAL
PESTICIDE IS
CONSUMED
FOR COTTON
CULTIVATION

Responsible brands and retailers that are part of a growing global trend towards attaining sustainability in their supply chain, find it increasingly difficult to procure cotton produced in an environmentally sustainable way.

ABOUT
6%
OF THE TOTAL
FERTILIZER USED
IS DIRECTED
TOWARDS COTTON
CULTIVATION³

Apart from this, the quality of the fibre, largely affected by trash contamination and moisture, is a major cause of concern for industries. The local market normally does not encourage farmers to keep the harvested cotton clean.

¹(Shetty, P.K., 2004)

² Estimation based on figures from www.indiastat.com

³ FAO 2003/04

NEED FOR BETTER MANAGED COTTON PRODUCTION

The need for an environmentally friendly industrial and agricultural system, in addition to increasing awareness of depleting natural resources and their consequences is influencing consumer lifestyle choices and consumption patterns. These trends have led to greater support for sustainable cotton production.

There is a major industry effort, led by key international brands and retailers, to raise the standard of cotton production and its environmental impact, by promoting better produced cotton into mainstream products.

BETTER MANAGEMENT PRACTICES FOR COTTON

addressing the issue of sustainability

WWF's overall strategy for cotton is to move the mainstream commodity market towards sustainable production, by both increasing the demand for sustainable cotton from globally significant retailers and brands and by supporting farmers to move towards more sustainable and more economical cotton production methods. The aim of this strategy is to reduce the ecological footprint of the entire chain from cotton production to retail, ultimately demonstrating positive impacts on key ecosystems and river basins.

Over the years, WWF- India has been working with farmers to produce more sustainable cotton, by helping farmers adapt to Better Management Practices (BMPs). These BMPs equip them to produce quality cotton by using environment-friendly farming practices, in addition to helping them optimize inputs with increased farm yields.

AURANGABAD BMP FIELD RESULTS

1800 M³/HA (53%)

of water use reduction

380 A.I. IN GMS/HA (34%)

reduction of chemical pesticides spray application

170 KG/HA (50%)

reduction in (n+p+k) usage

Additional profit of Rs. 8,400 per hectare earned by bmp farmers

Source: 2009 Data, WWF-India/SCI/Aurangabad

With the use of BMPs, there has been, on average, an

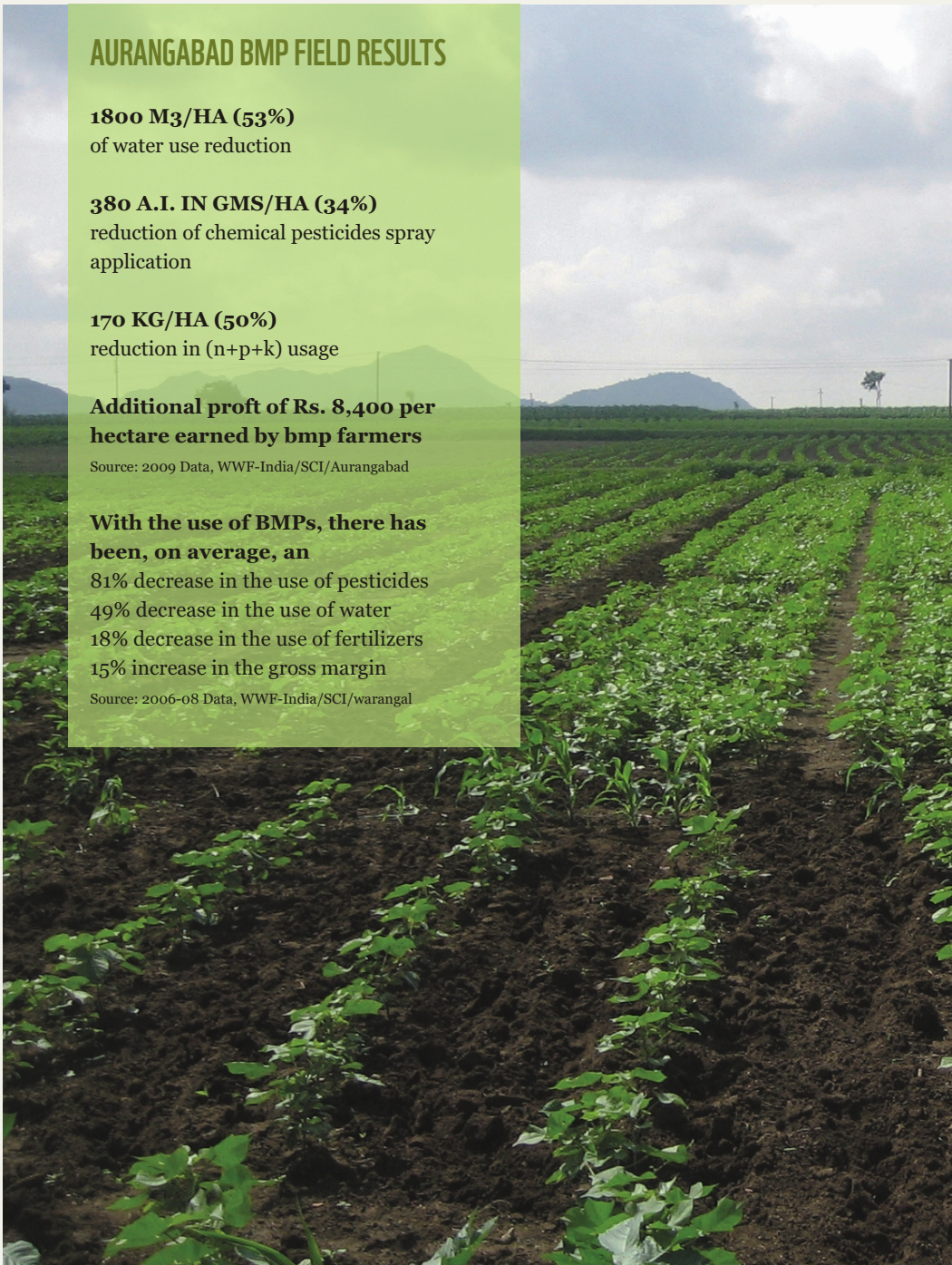
81% decrease in the use of pesticides

49% decrease in the use of water

18% decrease in the use of fertilizers

15% increase in the gross margin

Source: 2006-08 Data, WWF-India/SCI/warangal





These BMPs have had far reaching positive benefits in two states (Andhra Pradesh and Maharashtra), where pilot projects were carried out. These projects have already started producing better cotton that has started to enter the supply chain.

The thrust of the practices is to encourage farmers to reduce the use of chemical pesticides, which are expensive and damage the crop and the environment, besides leading to long-term illnesses for the farmers and their families. In addition, conservation and productive use of water and sustainable use of natural resources is promoted under BMPs by these farmers.

The projects have created significant interest among farmers in Warangal district of Andhra Pradesh and Jalna and Aurangabad districts of Maharashtra, where they have been implemented.

BMPs can be broadly categorized into the following broad areas:

Pest & Soil Nutrient Management

The use of chemical pesticides is a common agricultural practice, but over the years, evidence has shown that extensive use of chemicals is not only harmful for the soil, but it also compromises farmer's health, besides, incurring significant expenditure. It is therefore important to replenish soil nutrients, through balanced fertilization, for long term sustainability. In order to enhance the nutrient use efficiency, it is important that the nutrients are applied at the right times, in right quantities using appropriate methods.

Farmers practicing BMPs have recorded a substantial reduction in the use of chemical pesticides, fertilizers and water with improved gross margin income.

Use of local and farmer produced inputs have not only cut costs of cultivation, but farmers have witnessed environmental gains like growth of predator population (farm friendly insects), reduction in the use of water, better use of local biomass and an absence of health hazards.

"I used to apply chemical fertilizers to my crops without realising what was the correct dosage. But now, under the integrated pest management (IPM) practice of BMP, I use pheromone trap. Unlike the sprays, the trap only kills harmful

**"I HAVE
COMPLETELY
REPLACED
CHEMICAL
PESTICIDES WITH
ORGANIC MANURE,
'AMRUTHAJALAM',
WHICH I PREPARE
FIVE TIMES IN
A SEASON. THIS
SWITCH-OVER HAS
DRAMATICALLY
REDUCED MY COSTS
FROM RS. 7,000 FOR
CHEMICAL SPRAYS
TO JUST RS. 300
FOR PREPARING THE
AMRUTHA JALAM
DECOCTION"
— MERUGA PADMA,
33 YEARS, OF
HUSSAINPALLI
VILLAGE IN
WARANGAL
DISTRICT**

pest and not friendly insects”, states Dilip Maher, 31, of Kachhighati village (Maharashtra).

Water Management

The agricultural sector in India consumes about 85 percent of the available fresh water and has one of the lowest water use efficiency ratios. Among agricultural commodities, cotton is highly water intense, using around 30% of the water for irrigation, in India, for cotton cultivation. Traditional water irrigation systems, such as flood irrigation result in significant loss of water, with pesticides and fertilizers draining into water resources.

BMPs on water management have therefore been developed to improve water use efficiency in cotton irrigation. The water BMPs include adoption of water conservation techniques like drip irrigation and other innovative techniques, such as watering plant rows in pairs. In the micro irrigation system, water use efficiency varies from 70 to 95 percent, compared with 35 to 40 percent in traditional irrigation techniques i.e. flood irrigation due to significant seepage, evaporation, distribution, conveyance losses, etc.⁴



Harvest and clean picking

BMPs also encourage safe use of pesticides with proper disposal of containers by the users. Emphasis is also given to clean cotton picking practices that reduce the likelihood of contamination.

Though women normally don't spray insecticides in the fields, they are indirectly affected, as they help the men in mixing and diluting the insecticides prior to spraying. They also help in carrying these solutions to the fields, thereby becoming exposed through inhalation of the sprays.

The BMPs also demonstrate the use of cloth bags, which are used to collect cotton during picking and for cotton storage. Separate, ergonomically designed, aprons are provided to the women labourers for reducing the contamination of hair and threads from polypropylene bags.

⁴(Michael and Ojha, 1997)

WWF'S PARTNERSHIP WITH IKEA AND MARKS AND SPENCER

In addition to WWF's work on sustainable agriculture and water practices, WWF is also working with global retailers to facilitate implementation of the Better Cotton Initiative. Cotton is one of the most important raw materials for IKEA and Marks and Spencer and so WWF partnered with both of these organizations to demonstrate sustainable cotton production in India.

The aim of these partnerships is to influence farmers in India towards implementing Better Management Practices in order to mainstream sustainable agricultural practices. Two pilot projects were undertaken in Warangal in Andhra Pradesh and Aurangabad and Jalna in Maharashtra to demonstrate these practices. These projects are based on hands-on training for farmers in the field through Farmer Field Schools. This gives first hand experience to farmers on the benefits of changing the way they grow cotton. Successful farmers tend to inspire other farmers regarding these practices, further spreading the message by word of mouth.

Over a period of time, local organisations were engaged to reach a larger number of farmers. In 2010, as part of the IKEA partnership, about 4600 farmers were engaged, covering 50 villages in 2 districts of Maharashtra. Whereas, as part of the M&S partnership about 4000 farmers covering 45 villages in Warangal district of Andhra Pradesh were engaged.

WWF, IKEA and M&S are members of the Better Cotton Initiative (BCI). Read more on www.bettercotton.org



A farmer with BMP cotton at the market place © THIRSTY CROP / WWF-INDIA

SUSTAINABLE
PRINTING FROM
CLIMAPRINT®

+90

WWF- India, Thirsty
Crop, Better Management
Practices are being
implemented in over 90
villages

2

Better Management Practices
have been introduced in two
states, Andhra Pradesh and
Maharashtra



+15000

Better Management Practices in
cotton is spread over an area of
15000 ha

+9000

Covers 9000 farmers

**Why we are here**

To stop the degradation of the planet's natural environment and
to build a future in which humans live in harmony with nature.

www.wwfindia.org