



WWF

BROCHURE

IND

2010

GROWING COTTON

In a better,
farmer friendly way

BROCHURE ON BETTER MANAGEMENT PRACTICES FOR COTTON CULTIVATION

Conceived and contributed by:

Murli Dhar
P. Vamshi Krishna
Sumit Roy

Support from:

Dr. Y. G. Prasad, Central Research Institute for Dryland Agriculture (ICAR), Hyderabad
Dr. K. V. Rao, Central Research Institute for Dryland Agriculture (ICAR), Hyderabad
Modern Architects for Rural India, Warrangal, Andhra Pradesh
Krishi Vigyan Kendra, Jalna, Maharashtra

Edited by:

Bhavna Prasad
Malika Gupta
Shaila Sam

Designed by:

Mallika Das

Published 2010

© 2010, WWF-India, New Delhi

The 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 has attempted to create awareness among farmers regarding Better Management Practices and their benefits to farmers.

GROWING COTTON

In a better, farmer friendly way

CONTENTS

- 1.0 Introduction
- 2.0 Better Management Practices
- 3.0 Farmers re-invent themselves as better
cotton growers
- 4.0 Benefits of BMPs for women
- 5.0 What BMP mean to farmers

1.0 INTRODUCTION

The accelerated demand for cotton, both within the country and internationally, has put enormous pressure on Indian farmers to produce higher crop yields. This increasing demand has resulted in aggressive farming practices, with excessive use of inputs, such as water, fertilizers and pesticides.



© THIRSTY CROP / WWF-INDIA

Farmers talking about BMP's in cotton cultivation

Farmers are pumping in more hazardous chemicals and sprays in their fields to enhance productivity, not only taxing their agricultural land and the surrounding environment, but also compromising their own health and that of their families.

WWF's has been working with farmers on agricultural practices for some time to help them increase their crop yields, increase their savings and adopt practices that help their agricultural land, protect their health and the environment.



© THIRSTY CROP / WWF-INDIA

A woman farmer shows the ripe cotton boll in her farm

2.0 BETTER MANAGEMENT PRACTICES

As part of WWF's work on agriculture and water, WWF has developed Better Management Practices that help farmers produce more sustainable cotton that reduce costs, increase crop yields, minimize health risks and environmental damage. These practices include reducing the use of chemical fertilizers and pesticides (that lead to long-term illnesses for the farmers and their families) along with

better and more efficient use of natural resources, such as water and nutrients.

Andhra Pradesh has traditionally used relatively more water for irrigation as compared to other states. So when farmers in Warangal were introduced to BMPs, the results were quite significant. *"I was attracted by what I saw as the low-cost and no-cost concept of BMPs",* says Alley Rajamouli, 35 of Noorjahanpally village. *"With tank silt application and practicing inter crops and border crops, I have greatly reduced the expenditure on pesticides and fertilizers for my field. Also, I have noticed that less water is required while using BMPs".*

I WAS ATTRACTED
BY WHAT I SAW AS THE
LOW-COST AND
NO-COST CONCEPT
OF BMP



Alley Rajamouli talking of
BMPs in cotton cultivation

3.0

FARMERS RE-INVENT THEMSELVES AS BETTER COTTON GROWERS

Water Management Practices

When Appasaheb Shere, a young farmer hailing from Jalna district in Maharashtra, decided to experiment and switch over from conventional flood method of irrigation to drip irrigation for his cotton crop, the results far exceeded his expectations.

The astounded 28 year old farmer not only doubled his cotton yield, but also noticed a perceptible improvement in the quality of cotton. *"Earlier, when I used the flood method of irrigation, I used to get 25 quintals of yield from 4.5 acres of land. But by applying drip method for the first time, last year, I doubled my production to 50 quintals",* says the happy farmer. *"I have increased my earnings and also seen a marked improvement in my cotton, which weighs more and is fresh white and disease-free now".*

The young farmer also discovered that drip irrigation effectively reduced water usage, extra labour for plant protection and use of saline water. *"In comparison to the four pickings I got earlier over a period of six months using the flood method, this year I've already had five pickings over the same period of time and I'm ready for another picking!",* he says exultantly.

His neighbour Sudhakar Muley, 40, has witnessed a similar increase in the yield from his ten-acre land after using the alternative method of drip irrigation. *"My profit increased by 25% this year. Earlier I'd get seven quintals per acre, but this time I got ten quintals per acre",* he states proudly.

And this is not all! Farmers in Jalna and Aurangabad districts of Maharashtra and in Warangal District of Andhra Pradesh (AP) are slowly but surely bringing about a revolution in cotton growing by espousing new and innovative methods of farming which are fetching them better prices in the market due to improved yields.

Soil Nutrient and Pest Management

The use of chemical pesticides is common practice in agriculture, but over the years, evidence has shown that the extensive use of chemicals is not only harmful for the soil, but it also compromises the farmer's health, besides incurring higher 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.

Decoctions such as 'Amrutha Jalam', vermicompost and vitex decoction being promoted under BMPs are gaining popularity among farmers, as they have shown effectiveness in controlling sucking pests.

© NITIN BAHUGUNA



A farmer preparing vermicompost decoction

"I am happy to share that vermicompost is very useful in increasing soil fertility while vitex decoction in curbing the sucking pest", says Buchi Mallaiah of Neredupalli village.

Sripati Ramkoti, 29, of Noorjahanpalli village has completely replaced the use of chemical-based fertilizers and pesticides on his cotton field with vermicompost and other organic fertilizers such as neem seed extraction, neem leaf extraction and vitex leaf extraction. *"I have seen the difference in*

NOT ONLY HAS MY COST OF PRODUCTION GONE DOWN, BUT MY YIELD HAS ALSO IMPROVED.

my soil quality over the past three years having used organic fertilizers. Not only has my cost of production gone down, but my yield has also improved. For the first time, I am saving money and I can actually dream of sending my five-year-old daughter to a good school”, he states happily.



Meruga Padma speaking about the benefits of biopesticides and Amrutha Jalam

Meruga Padma, 33, of Hussainpalli village in Warangal district has been using BMPs on her cotton fields for three years now. “I now completely depend on organic manure ‘Amrutha Jalam’ which I prepare along with botanical extractions for pest control. I received training on how to make these preparations at the Farmer Field School (FFS) in my village. Prior to the introduction of BMPs, I would spend Rs 7,000 on pesticide sprays and fertilizers for one acre of land, but with the new methods in place, my costs are almost nil, just Rs 300! My health had

deteriorated when I was using pesticide sprays, causing giddiness, faint spells, headaches and stomach upsets. But now, all these irritants have also disappeared”.

Rajitha, 32, and her husband Ravi, 38, have found the effects of vermicompost long lasting in comparison to the chemical fertilizers. “If we apply chemical fertilizers, the effect remains for about 15 days, whereas with vermicompost application, the effect is for one month”, observes Rajitha. “We also found that with vermicompost application, the plant grows bigger and better”.



Rajitha and Ravi at the vermicompost production unit



Kantapalli confessing about the high cost of chemical inputs

**THIS SEASON,
I SAVED RS 10,000**

BMPs have clearly shown that conventional methods of cotton production are costlier. “I used to spend Rs 20,000 for one acre of land on chemicals, fertilizers, seeds and the cost of labour”, discloses Karatlapalli Rama, 36, of Noorjahanpalli village. “I made no profit at the end of the season, as I had to repay the entire amount in loans. But now, using neem seed extract, ‘Amrutha Jalam’ preparation and tank silt application, I have reduced my costs to half. This season, I saved Rs 10,000 which will enable me and my family to live comfortably till the next harvest”, she adds happily.

Increased Incomes and Better Health

Many farmers have reported reduced expenditures after switching from chemical-based pesticides and fertilizers to organic manures and bio pesticides. “With chemical pesticides, I incurred more expenditure. Now, with BMPs, the cost of production has gone down and the yield has also improved”, says Sripati Ramkoti.



M. Bhaskar speaking about the economic benefits of BMPs

I WOULD EXPERIENCE
COUGH AND COLD,
ITCHING, VOMITING,
HEADACHES,
NAUSEA AND EYE
IRRITATION.

“Also, with chemical sprays, I would get skin allergies, dizziness and nausea”, he adds.

The farmers are impressed with the way pest attacks can be controlled through decoctions which are prepared using locally available resources. *“Farmers can substantially reduce agricultural investments by practicing BMPs”,* feels M Bhaskar, 28, of Neredupally village.

Sudhakar Muley, 40, of Harthkheda village in Jalna district, Maharashtra shows how this can be done. *“We always take from the land and give nothing back to it. Earlier, I used to burn all the waste on my field, but now I make manure from each and every cotton stalk and other agricultural waste”.*

Cotton growers like Muley are amazed how organic fertilizers have drastically reduced their dependence on chemical pesticides. *“I used to apply one chemical pesticide just for the management of mealy bug that costs Rs 3,000 per litre. However, the organic pesticides only cost Rs 200. I am saving so much money besides promoting healthier soil as chemical sprays tend to kill the ‘good’ insects like earthworms and ladybirds too”,* he points out. On the health front, he is a happier man. *“The chemical pesticides had severe side effects. I would experience cough and cold, itching, vomiting, headaches, nausea and eye irritation. These symptoms vanished after I opted for BMPs”,* he admits.

Initially, Jeedimatla Mogili of Katrapalli village (AP) was skeptical about what he described as the new-fangled methods over conventional farming. But he was persuaded to participate in one of the trial plots because the soil on his land was very poor in fertility. *“I adopted all the methods recommended under BMPs, including summer deep ploughing, paired rows, border crops, organic decoctions and pheromone traps”,* he recalls. *“To my delight, I found that the soil quality had improved and my yield had increased by 260 per cent! I am now confident that poor farmers can overcome their poverty if they adopt BMP methods in their farming activities”.*

4.0 BENEFITS OF BMP FOR WOMEN

Though women normally don't spray insecticides in the fields, yet they inhale them indirectly while helping the men. In addition, they carry heavy weights on their back.

Studies have shown that women participating in such activities have complained of injuries, scratches on the body, sunburns, neck and backache, headache and pain all over the body.

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.

Cotton Picking Coat

Cotton picking is mainly undertaken by farm women and demands a high level of physical activity, which is an additional burden on women. In Jalna district, cotton is traditionally picked by hands and put in the palla of the sari and tied behind the back, with the load falling on the head or the shoulders. This results in injuries, scratches from hand carrying sticks, sunburns, neck and backache, including spondylitis. To improve the working conditions for women in this area of cotton production, a special cotton picking coat has been introduced as part of the BMP project.

The "Sulabh" (comfort) Cotton Picking Coat is made up of cotton cloth with a polyester sack of 7-9 kg storage capacity, hung on the shoulders with foam belts. While the sack evenly distributes the weight of the cotton, the half-inch foam belts reduce the strain on the shoulders.



© THIRSTY CROP / WWF-INDIA

Latabai articulating the importance of cotton picking coat

Latabai Pandey, 30, of Kachhighati village in Maharashtra describes the cotton picking coat as a blessing that has enhanced her health. *"I used to have weal marks on my shoulders because of the load I carried and my body used to ache throughout the day. It is amazing how a simple device like this coat has made my job so much easier and pleasant".*

Janakibai, 50, (left) of Kachhighati village (Maharashtra) says, *"The coat promotes clean cotton practices and has reduced our drudgery like bleeding hands, scratches and rashes. The coat has a large pocket because of which I now collect up to 6 kg of cotton in one go".*

5.0

WHAT BMPs MEAN TO FARMERS

BMPs have been instrumental in helping the overall well being of the farmers. The thrust is not towards supporting farmers financially or giving subsidies, but on helping them build capacity to improve yields, that automatically improve their income, safe guards their health, while protecting the environment.

Technical Guidance

Dilip Maher, 31, of Kachhighati village (Maharashtra) concedes that the monetary aspect is important for the farmers. *“Of course, one needs money to farm the lands. But this project is also offering us the much needed technical knowledge which will*

help us sustain our lands and improve our yields”.

Mr Vazir Kishan Rao of Nurjahanpalli village (AP) notes that more and more farmers in his village have embraced BMPs after witnessing their significant results. *“The Farmers Field School approach has influenced us very much. The farmers can together discuss and understand the crop status and the measures to be taken to improve the situation”,* he states.



Dilip Maher acknowledging the technical guidance provided by the project

© THIRSTY CROP / WWF-INDIA



Devender Reddy depicting the learning from FFS training

© THIRSTY CROP / WWF-INDIA

Devendar Reddy, 28, of Sadhamanpally village (AP), was among the first in his village to implement BMPs and has now taken up the role of a facilitator, as part of the project, to motivate other farmers. *“At the FFS, we demonstrate preparation of bio pesticides and fertilizers. We also display cotton crop in the different stages of its development and whether they are infected with pests or not. Then the decisions on whether the pest is harmful to a crop or not and whether spray should be used or botanical bio pesticides are taken to control it”,* he explains.

The FFS has also been instrumental in encouraging the farmers to adopt different spacing methods for the cotton crop. *“Earlier, I adopted spacing of four by four ft and grew 2700 plants per acre. At the FFS, it was demonstrated that a spacing of four by one ft would be more beneficial. I tried this spacing and actually managed to maintain a plant population of 10,000 plants per acre”,* says farmer Badri Saheb Muley, 30, of Jalna district, Maharashtra.

ABBREVIATIONS

BMP	Better Management Practice
FFS	Farmer Field School
AP	Andhra Pradesh



50

Nearly 50% water is saved
in cotton cultivation
as a result of BMP
introduction

15

Around 15% reduction in
the use of fertilizers has
occurred as a result of BMP
introduction



4000

An extra profit of Rs 4000 per acre
is earned by a BMP farmer

80

Almost 80% of chemical
pesticide application is
lessened in BMP cotton
growing area

**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