

South Against Genetic Engineering

GE-Bulletin (October -first fortnight)

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Wilting havoc on Bt cotton in Warangal; loss estimated at over Rs 40 crores; Demand for a moratorium on Bt cultivation

REVIEW TEAM: *A team of scientists and community researchers from the AP Coalition in Defence of Diversity who are tracking the performance of Bt cotton in Warangal for over five years now were noticing wilt and root rot since mid July this year. In order to have a broad based analysis of their findings, the APCID and WAGE [Warangal Against Genetic Engineering] constituted a 12 member Review Team*

Bt cotton, beleaguered in Warangal district, is reporting another major havoc. This comes in the form of drying up of crops [known as wilting] in over 100,000 acres of Bt cotton area in Warangal District which translates into a loss of over Rs.40 crores for farmers. This is the finding of a fact finding team consisting of scientists, farmers, academicians and civil society groups which visited four mandals of Warangal on October 5, 2006.

A team of scientists and community researchers from the AP Coalition in Defence of Diversity who are tracking the performance of Bt cotton in Warangal for over five years now were noticing wilt and root rot since mid July this year. In order to have a broad based analysis of their findings, the APCID and WAGE [Warangal Against Genetic Engineering] constituted a 12 member Review Team which visited four mandals [L Ghanpur, Atmakur, Sayampet and Geesugonda] observing the farms of a number of farmers

and holding extensive discussions with them on October 5, 2006. In the villages which the team visited, nearly 80-90% of the cotton acreage is made up of Bt cotton.

The farmers were using Bt seeds from diverse seed companies that included Rasi-2, Ajith-33, Mallika, Bunny, and Mahyco-6322. ALL THESE CROPS WERE SEVERELY AFFECTED BY THE WILT. The farmers in these villages have been growing cotton for over

three decades and have vast experience in understanding the behaviour of cotton crops. It was their unanimous opinion that they had never seen the kind and extent of wilt they are witnessing this season on Bt cotton.

On a conservative estimate this wilt will result in a loss of upto Rs.40 crores in Warangal District alone. Each farmer has already invested upto Rs.5000 to Rs 7000 per acre for cultivating Bt cotton. Since the wilt is expected to have affected over 100,000 acres in Warangal District, the domino effect of the wilt will mount to a formidable Rs.50 to Rs.70 crores.

Agricultural Scientists Mr Abdul Qayum & Mr Kiran Sakhari who were in the team, opined that the wilt symptoms are similar to root rot caused by *Rhizocotonia sp.* The typical symptoms of the rot caused by *Rhizoctonia* are sporadic wilting of the plants in the field. Initially leaves on the affected plants turn yellowish giving a mosaic pattern of alternative green and yellowish pattern on drooping

leaves followed by the leaf drop, start getting dried up from top leading to the death of the plant. At times, these plants may also show Bacterial Leaf Blight symptoms. When the plant gets affected by this pathogen, the main root starts to decay and lose secondary root hairs, making plants unable to uptake water and nutrients from the soil leading to the death of the plant.

The *Rhizoctonia root rot* which was first identified on the Mahyco Bt hybrids by Dr Abdul Qayum and Mr Kiran Sakhari the scientists of APCIDD in the year 2003, has been spreading more and more year after year. The report released by the APCIDD in early 2005 cautioned the farming and the scientific community that this might turn out to be a disaster with increased adoption of Bt hybrids, since the wilt incidence was noticed more on Bt hybrids than the conventional Non Bt hybrids.

The wilt has also a far reaching consequences. If grown on the same Bt cotton fields, the succeeding crops such as Chilly, Tobacco, Tomato and Groundnut would

also be affected by this wilt since the fungal spores that transmit the disease are likely to remain active in the infected fields for 3-5 years.

Just as the farmers were getting aware of the harmful effects of Bt cotton and were readying themselves to abandon it, a new marketing blitzkrieg began by the industry which reduced the Bt seed price by over 70%. This suddenly put more than 80% of the cotton acreage in Warangal district under Bt hybrids marketed by various companies.

The APCID and the Warangal Against Genetic Engineering demand that In the wake of this huge loss to the farming community, the regulatory agencies must immediately gear up and take necessary steps to contain the false marketing hype created by the biotech seed companies and force them legally and otherwise to take the full responsibility for promoting these Bt hybrids by paying out compensation to the farmers who are staring at huge losses.

The APCID and WAGE also demand that

1. An independent commission must be constituted to find out the extent of damage caused by growing these Bt hybrids and pay the compensation to the farmers.
2. Regulatory agencies must immediately take stringent action on the false claims made by the companies. The regulatory are almost non existent at the present time and their comatose state has emboldened the Biotech industry to play havoc with he lives and soils of farmers in Warangal.

3. The government, in step with its earlier bold measures must declare a moratorium on the cultivation of Bt hybrids until a comprehensive study is undertaken taken on the possible impact of these hybrids on cotton environment and livestock.

Pental panel questions Mahyco Bt brinjal process

Bt BRINJAL: *The expert panel, headed by Delhi University vice-chancellor Deepak Pental to assess the Mahyco's claims and the concerns raised by NGOs, farmers and consumers' groups, has started questioning the process of development of the company's Bt brinjal hybrids and their impact.*

It seems that the seed company, Mahyco, may have to face difficulties in getting approval for the field trials of its four Bt brinjal hybrids. The expert panel, headed by Delhi University vice-chancellor Deepak Pental to assess the Mahyco's claims and the concerns raised by NGOs, farmers and consumers' groups, has started questioning the process of development of the company's Bt brinjal hybrids and their impact.

The 13-member panel was set up by the Genetic Engineering Approval Committee (GEAC). It has questioned the marker-assisted process for development of Bt brinjal. Mahyco, in collaboration with the seed multinational, Monsanto has inserted Cry 1 Ac (Bt gene) with the help of marker NPTLL and plant virus promoter gene CaMV 35 S through agro-bacterium process of transformation.

In this context, the Pental panel has questioned as to why the company did not use more advanced technology of insertion of gene without the help of markers.

"We have also asked Mahyco to clarify the impact of the inserted gene," said a member of the panel. Mahyco had sought largescale field trials for its four Bt brinjal hybrids namely MHB-4 Bt, MHB-9 Bt, MHB-80 Bt and MHB-99 Bt. It has claimed that these four Bt brinjal hybrids are resistant to fruit and stem borer, a major pest occurring on the crop. The development of Bt brinjal is part of the Agricultural Biotechnology Support Program-II (ABSP-II) funded by United States Agency for International Development (USAID) and led by Cornell University.

Under ABSP-II, operational in India and Bangladesh in the South Asian region, the Bt technology has been transferred to a number of

public and private agencies in the network.

The Tamil Nadu Agriculture University (TNAU) has developed Bt brinjal and has planned to ask for permission for its field trials in early 2007. TNAU's centre for molecular biology has chosen four elite brinjal genotypes keeping regional preference of brinjal types in the mind. These elite genotypes - CO2, KKM1, MDU1 and PLR1 - are backcrossed to ingress cry 1 Ac gene. Currently we are generating BC3F1 seeds.

There are, however, more troubles ahead for the country's first proposed food crop, Bt brinjal. The Supreme Court in its interim verdict in a writ filed by Aruna Rodrigues and other has asked GEAC not to allow any further approval for field trials of any genetically modified (GM) crop, till further orders. The writ petition has urged for a moratorium on GM crops.

http://www.financialexpress.com/print.php?content_id=142884

Benefit of doubt

EDITORIAL: The Supreme Court's directive staying fresh field trials of genetically modified crops is a corrective measure that could not have been more timely. Especially so when the establishment has committed itself to usher in the second green revolution riding on biotechnology.

BT cotton is the only GM crop approved for commercial cultivation in India. A whole host of others, mostly food crops, are being tested brinjal, okra, tomato, mustard, chilli, rice etc and await approval before they reach your dining table. By the rule book, a GM crop must be tested for between two and four years, both in limited and large-scale trials.

Only when proven beyond reasonable doubt that it is profitable, poses no harm to the ecology, and human health, is it given the OK stamp. But so far, our GM experiment has largely come a cropper. The bug that bears the strain of babudom plagues field trials being carried out across the country.

GEAC, under the ministry of environment, grants the final approval for tests and subsequently, the crop to be grown commercially. In tandem with DBT, under the ministry of science and technology, it is also meant to monitor safety standards.

But they have been guilty in equal measure of unconscionable laxity and apathy. Approvals have often been fast-tracked and there are several reports of lapses.

For instance, trial crops must be destroyed but shockingly, farmers are selling under-trial GM brinjal and okra in the open market, and there is precious little the regulators are doing about it. The debate over GM cropping is loaded.

Lobbies on both sides seed giants and environmental activists constantly carpet-bomb us with facts, figures and arguments. It is time to step back and exercise judgment that is not held ransom to rhetoric. Productivity has indeed increased in pockets but BT

technology has also spelt disaster for many farmers.

At stake are environment safety and, importantly, food safety. Most European countries have a voluntary moratorium on GM food experiments. Recently the UK virtually embargoed rice imports from the US over fears that the stock is contaminated by a genetic strain not yet declared safe.

There are lessons to be learnt from experiments that have gone awry elsewhere be it Mexico or Indonesia where widespread contamination has wiped out several varieties of indigenous crops. The consumer has the right to choose what he eats and food safety is non-negotiable.

The need of the hour is a stringent regulatory framework that will inspire consumer confidence. As things stand, we are sowing seeds of ignorance

<http://timesofindia.indiatimes.com/articleshow/msid-2110314,curpg-2.cms>

Scientists plan to create genetically modified grape

CAPE TOWN: *The proposed field trial would test the stability of grapevines that have had "reporter genes" inserted into them.*

— Scientists from the University of Stellenbosch have applied to the regulatory authorities for permission to

start field trials for genetically modified grapevines in Western Cape. The trial is part of the scientists' ongoing

research to find ways to protect grapevines from fungal infections, which damage the plants and reduce crop yields,

says project manager Sarita Groenewald.

There are no genetically engineered grapes on the South African market. If successful and approved by the industry, the new grape is expected to change the industry's output and supply levels.

The proposed field trial would test the stability of grapevines that have had "reporter genes" inserted into them.

These silent genes do not give the plant any new properties, such as drought or disease resistance. They are used to check whether DNA has successfully been added to a <http://www.businessday.co.za/articles/article.aspx?ID=BD4A284245>

host organism, such as a plant or enzyme.

According to the notice of the permit application, which by law must be placed in three local newspapers, the proposed field trial will be the first of its kind in SA.

It is the first stage in a number of planned trial releases to assess the performance of genetically modified grapevines under field conditions.

The long-term goal was to genetically engineer grapevines with enhanced natural defence mechanisms against fungal infection, said Groenewald.

The proposed site for the field trial with the marker genes is on Stellenbosch University's experimental farm. Scientists plan to bag the vine flowers to ensure no pollen escapes into the environment.

Biowatch, a lobby group that campaigns against genetically modified organisms, yesterday criticised the plans, saying it was considering opposing the application.

The organisation's Leslie Liddell said genetic engineering was "against natural processes". "Even a marker gene poses risks to the environment," she said.

INDIA: Genetically modified rules

How many genetically modified crops have been cleared for commercial use in India?

Since the first GM seed, Mahyco-Monsanto's Bollgard Cotton, the Government has approved 59 GM hybrids (all cotton) for commercial release. Of these, 52 are based on the Bollgard gene technology of Monsanto, while the others are different gene constructs developed by JK Agri-Genetics Ltd or Nath Seeds.

What is the regulatory structure for GM crops in India today?

India currently has a three-tier regulatory system for GM crops: each research organisation must have an Institutional Biosafety Committee (IBSA), which assesses research proposals; a national Review Committee on Genetic Manipulation (RCGM) assesses field trials for environmental safety and allergic responses; and the Genetic Engineering Approval Committee (GEAC) — part of the environment ministry — carries out environmental impact assessment, and approves multi-location field trials and commercial cultivation.

What's the problem with the present system?

Several, including a clash of interests between stakeholders and regulators, not enough experts to assess health and environmental safety of the crops and inordinate time taken for clearance. A scientist from the agricultural research system that applies for clearance of a particular seed is part of the GEAC, whose chairman is not a scientist and changes frequently. There is lack of transparency — the Bt cotton field trial results were never made public — despite protests. After pressure from civil society, Bt brinjal results have been put on the website this year.

What are the reforms suggested in the regulatory system?

A task force headed by M. S. Swaminathan, said that India's approval system was "lengthy and cumbersome". It recommends creating an autonomous Agricultural Biotechnology Regulatory Authority to consider the approval of GM crops in the country. Under this body, the Indian Council for Agricultural Research (ICAR), not the GEAC, should be authorised to conduct and assess large-scale field trials and approve commercial release of GM crops. He also suggested that the three tiers remain but their responsibilities change.

The major change that they recommend is to limit GEAC's role to environmental clearance. The ICAR, rather <http://www.indianexpress.com/story/14013.html>

than the GEAC, would decide whether GM crops could be planted for commercial purposes. The Monitoring cum Evaluation Committee should report to the GEAC on biosafety and environmental issues while post-release monitoring should be responsibility of Union Agriculture ministry and not the ICAR. It favours strengthening of the existing Seeds Act, 1966 and Environmental Protection Act 1986 to deal with illegal proliferation of GM seeds. It proposes single-window information on all aspects of bioethics and biosafety.

What is the roadblock?

Though Swaminathan submitted his report in 2004, its formation is stuck as a result of a power struggle between two ministries — the

environment ministry and the department of biotechnology. Both ministries want to control the panel.

What's coming up ahead?

There is a whole range of crops in the lab trial stage in the private sector. In the public sector, there are seven transgenics which have crossed the RCGM-stage of approvals — American bollworm-resistant cotton, yellow stem borer-resistant rice, fruit and shoot borer-resistant brinjal, leaf curl virus-resistant tomato, protein-enriched potato, and salinity-cum-drought tolerant tomato and mustard. If all goes well, these would be ready for the farmers' fields by 2008-09.

GM rice likely to make trade more complex

INTERNATIONAL RICE CONGRESS *Experts in International Rice Congress see challenge in assessing implication of trade on food security*

The rice market in the near future would be complex due to the proposed commercialisation of genetically-modified (GM) rice, trade experts at the 2nd International Rice Congress (IRC-2006) cautioned. The issue would be linked with food safety and certification.

During the discussions in the session on market intelligence and international trade,

experts also said that the challenge would be to assess implication of future rice market and trade on food security, International Food Policy Research Institute (IFPRI)'s Asia director, Ashok Gulati said while briefing mediapersons on Wednesday.

Food and Agriculture Organisation (FAO)'s director, Prabhu Pingali said, "In future rice will become an inferior

commodity in Asia, but its importance will grow in Africa. Per capita rice consumption in most Asian economies is declining due to rising incomes and rapid urbanisation. At the same time, global trade in rice is growing at a faster rate than other major cereals, such as wheat and corn. Global trade in rice increased from 4% to 7% of total production during 1992-2004. Rising production has led to decline in real

prices for the crop, which has helped to sustain household food security. Evidence shows countries move away from taxing rice to subsidising it as domestic income levels increase."

Gulati blamed the subsidy regime for the fall in global rice prices. In the session on breeding rice for resistance to biotic stress, experts said through marker-assisted selection useful genes resistance to bacterial blight, blast and gall midge have been pyramided. The newly pyramided rice lines show broad spectrum of resistance to these pests. The rice

varieties and hybrids so developed in the process were, however, not genetically modified ones as no transgene from other crops were involved.

Denying ISAAA report of commercialisation of GM rice in Iran, DS Brar of International Rice Research Institute (IRRI) said, "We have so far received no confirm reports on this issue."

In the session on nutrient use efficiency, experts suggested the site-specific nutrient management (SSNM) approach which would enable farmers to optimally nourish

their crops and increase productivity and production. The SSNM approach would also help restore soil health aggravated by unbalanced use of different chemical fertilisers.

On seeds production, experts said that on a global scale the price of seeds were higher than price of grains. However, in Indian context the seed prices in general are not a cause for concern. Certification for quality seeds has gain importance. More than 80% of hybrid rice seed are being produced in Kareem Nagar and Warangal districts in Andhra Pradesh

http://www.financialexpress.com/fe_full_story.php?content_id=143180

PUBPAT Challenges Monsanto Patents Being Used to Bankrupt American Farmers

PETITION: *The Public Patent Foundation ("PUBPAT") filed formal requests with the United States Patent and Trademark Office today to reexamine four of Monsanto Corporation's patents related to genetically modified crops that the agricultural giant is using to sue - and in some cases literally bankrupt - American farmers.*

The Public Patent Foundation ("PUBPAT") filed formal requests with the United States Patent and Trademark Office today to reexamine four of Monsanto Corporation's patents related to genetically modified crops that the agricultural giant is using to sue - and in some cases literally bankrupt - American farmers In its filings, PUBPAT submitted prior art showing the patents were obvious in light of earlier work by other

inventors and, as such, should have never been granted.

Monsanto has filed dozens of patent infringement lawsuits asserting the four challenged patents against American farmers, many of whom are unable to hire adequate representation to defend themselves in court. The crime these farmers are accused of is nothing more than saving seed from one year's crop to replant the following year, something farmers have done

since the beginning of time. The Center for Food Safety found in its study of the matter that, "Monsanto has used heavy-handed investigations and ruthless prosecutions that have fundamentally changed the way many American farmers farm. The result has been nothing less than an assault on the foundations of farming practices and traditions that have endured for centuries in this country and millennia around the world, including one of the

oldest, the right to save and replant crop seed." The lawsuits filed by Monsanto against American farmers include Monsanto Company v. Mitchell Scruggs, et al, 459 F.3d 1328 (Fed. Cir. 2006), Monsanto Company v. Kem Ralph individually, et al, 382

F.3d 1374 (Fed. Cir. 2004) and Monsanto Company v. Homan McFarling, 363 F.3d 1336 (Fed. Cir. 2004).

said Dan Ravicher, PUBPAT's Executive Director. "It appears as though Monsanto wants to control all of America's

<http://www.prweb.com/releases/2006/9/prweb444428.htm>

farmland and - unfortunately - the patent system is providing them the perfect means to accomplish that goal by bullying independent and family owned farms right out of existence."

Stem Farmers' Suicides with Organic Farming

ARTICLE: *Amid a rising epidemic of farmers' suicides in India, an organic farmer appeals to the father of the Green Revolution to embrace organic agriculture.*

Impassioned plea to India's government

Bhaskar Save is an 84-year-old farmer from Gujarat who has petitioned the Indian Government to save India's farmers from exploitation and worse. In an open letter to Prof M.S. Swaminathan (chairperson of the National Commission on Farmers in the Ministry of Agriculture) he puts the blame squarely on his shoulders as the 'father' of the 'Green Revolution' that has destroyed India's natural abundance, farming communities, and soil. He writes: *"Where there is a lack of knowledge, ignorance masquerades as science! Such is the 'science' you have espoused, leading our farmers astray - down the pits of misery."*

The Green Revolution defines the forty years after India's independence in 1947 when technology was widely introduced into agriculture. Farmers came under intense pressure to provide marketable surpluses of the relatively few non-perishable cereals to feed the ever-expanding cities. Since then, India's integration into the global economy has served transnational corporate interests championed by the World Bank, the IMF, and the WTO, but not her farmers. Fifteen years of market reforms guided by the international financial superstates have unleashed a second wave of agrochemicals, iotechnological seed and pesticides into the Indian countryside with devastating effect

A silent revolution of suicide

Mumbai and Bangalore have benefited from the boom in the information technology sector that contributes an eight percent growth to India's economy each year. The two cities are now poised to take advantage of the boom in the biotech industry. The picture of "India shining" touted by an expensive government backed media campaign is considerably clouded by the rural areas being torn apart at the roots by biotechnology. The countryside is home to 70 percent of India's population.

The second 'Gene Revolution' in agriculture is proving more deadly in the wake of the first. The cost of taking on the extra burden of gene biotechnology is too much to bear. Farmers unable to pay back debts incurred by the purchase of seed, pesticides, fertilizers and equipment, kill themselves at a rate of two per day. In despair

some drink the chemical pesticides, while others burn, hang, or drown themselves. At a help centre set up to monitor farmer suicides in Vidarbha region in the central state of Maharashtra, black skulls mark the number of dead farmers on the map. There are 767 skulls clustered together that were pinned up in fourteen months to August 2006. India's agricultural minister Sharad Pawar acknowledged in Parliament that a total of 100 000 farmers have committed suicide between 1993-2003 . A further 16 000 farmers per year on average are said to have died since then.

"You, M.S. Swaminathan...More than any other person in our long history it is you I hold responsible for the tragic condition of our soils and our debt-burdened farmers, driven to suicide in increasing numbers every year." Bhaskar Save writes.

The cost of cotton kills farmers

Nearly all who died farmed the once profitable cotton crop known as "King Cotton" from the days of the British Raj. Now it's called "Killer Cotton" not just because the cost of inputs has increased, but the state also cut its guaranteed purchase price by 32 percent, and buys less of the harvest than before, leaving farmers to find other buyers who tend to pay low prices. Competition from foreign trade has

intensified as reduced import duties give heavily subsidized US cotton an advantage.

The final nail in the farmers coffin is expensive genetically modified (GM) cottonseed that has proved disastrous for the small, non-irrigated plots common to most of India's hundreds of millions of farms. Farmers encouraged by agricultural officials to increase productivity try to do so by borrowing money to buy Monsanto's expensive cottonseed. Indian Prime Minister Manmohan Singh and US President George Bush agreed the *Knowledge Initiative in Agricultural Research and Education* in March 2006 that will ultimately bring Indian agriculture under the control of US corporations like Monsanto. Transgenic animals and poultry are also part of the deal. The Indian government's ability to protect farmers, consumers and the environmental health from the risks of GM crops has been called into question

The recent Supreme Court of India's decision to ban any further GM crop trials until further notice will force the government to rethink its biotechnology strategy. Unfortunately, existing GM cotton trials are not included in the ban despite documented health hazards to humans and livestock

Prime Minister Singh has now invested a hefty Rs 160 billion in a debt relief package to persuade farmers in the high-

risk suicide areas of Andhra Pradesh, Karnataka, Kerala and Maharashtra to continue farming. The package consists of loans, interest waivers, seed replacement, minor irrigation schemes, and subsidiary incomes for farming livestock, dairying and fisheries. The investment comes too late for those farmers that have already died. Many more have already turned their backs on the perils of Bt cotton farming to regain their health and independence.

Agricultural education unsustainable

Perhaps it is not surprising that farmers fall for the promise of increased productivity by buying the long list of equipment from the agribusiness salesman. According to Bhaskar Save, of the 150 agricultural universities in India that own thousands of acres of land, not one grows any significant amount of food to feed its staff and pupils. Instead the focus is on churning out hundreds of graduates each year to tell farmers what they must buy to increase productivity, not what they must do to ensure the sustainability of the land for future generations.

"Nature, unspoiled by man, is already most generous in her yield. When a grain of rice can reproduce a thousand-fold within months, where arises the need to increase its productivity?" Save asks Swaminathan.

Natural abundance in organic orchard

Save's own orchard-farm "Kalpavruksha", near the coastal village of Dehri close to the Gujarat-Mararashtra boarder, has become a "sacred university" specialising in natural abundance, or Annapurna. Every Saturday afternoon the farm gates open to farmers, agricultural scientists, students, senior government officials, and city dwellers, who come to share Save's philosophy and practice of natural farming: "Co-operation is the fundamental Law of Nature."

The high yields in the organic orchard easily out-perform any farm using chemicals and this is apparent to its many visitors. Masanobu Fukuoka, the renowned Japanese natural farmer said: "I have seen many farms all over the world. This is the best. It is even better than my own farm." The coconut trees produce an average of 400 coconuts per tree annually; some produce more than 450 coconuts, and are among India's highest yielding trees. There is an incredible variety of fruit trees: banana, papaya, mango, lime, tamarind, pomegranate, guava, custard apple, jackfruit, date, and chikoo (similar to lychee) which produces an average of 300-350 kg of delicious fruit per tree each year.

Fruit trees are also planted on soil platforms raised by Save above the rice crop in low-

lying paddy fields. Between every two adjacent platforms are trenches that act as irrigation channels in the dry season and drainage in monsoon. As the trees grow, the trenches are placed further away from the trunks to encourage the roots to spread out to optimise water efficiency. This pioneering feature of his work has greatly increased yield, and attracted attention all over the world.

Diversity essential to soil health

Diversity of plant life is the key factor on organic farms. Save simultaneously plants short life-span (*alpa jeevi*), medium life-span (*madhya-jeevi*), and long life-span (*deergha-jeevi*) species. The community of dense vegetation ensures that the soil's microclimate is well moderated all year round. The groundcover provides shade on hot days, while leaf litter (mulch) cools and slightly dampens the surface of the soil. On cold nights it serves as a blanket that conserves heat gained during the day. High humidity under the canopy of mature long-life trees reduces evaporation, and minimizes the need for irrigation. The drooping leaves of plants act as a water metre to indicate falling moisture levels.

Save grows a tall, native variety of rice, *Nawabi Kolam*, that is rain-fed, high yielding, and needs no weeding. After harvest, he seasonally rotates several kinds of pulses, winter

wheat and some vegetables on the paddy field that grow entirely on the sub-soil moisture still present from the monsoon. When they too are harvested, cattle can browse the crop residue and provide dung fertilizer to further enrich the soil for the next cycle of planting.

The polyculture model produces a year round continuity of harvests. First from the short life-span species such as the various vegetables, and then from the medium life span species such as banana, custard apple and papaya, until the long life-span species of coconut, mango and chickoo begin to bear fruit. It provides self-sufficiency for a family of ten (including grandchildren) and an average of two guests from a modest two-acre plot. Most years, a surplus of rice is gifted to relatives or friends.

Signs of hope in story of change

Bhaskar Save was not always an organic farmer. At first, he used chemical fertilisers together with dung manure for his vegetable plants and rice paddy. His rice harvest was so good that it attracted the attention of the Gujarat Fertilizer Corporation. They asked him to teach other farmers to use the chemical fertilizers for which he received 5 rupees for every bag he sold. He quickly became a "model farmer" for the new technology while earning enough to extend the

acreage of his farm. Soon he realised that he was caught in a cycle of spending more money to use more chemicals to maintain productivity. Inspired by Mahatma Gandhi and his successor Vinoba Bhave, he adopted some of the farming methods of the Adivasi, the tribal majority of India's rural population. From then on his costs reduced and the soil flourished. By 1959-60 he abandoned chemicals altogether.

Save has learned his major lesson: "By ruining the natural fertility of the soil, we actually

create artificial 'needs' for more and more external inputs and unnecessary inputs for ourselves, while the results are inferior and more expensive in every way. The living soil is an organic unity, and it is this entire web of life that must be protected and nurtured"

Water and food security depends on soil

Save has updated a traditional intercrop system specifically for growing cotton in low rainfall areas (see fig 1). The six integrated crops are

harvested in stages during a 365-day cycle: two types of millet, three kinds of edible pulse legumes, and cotton. Every other row of legume crops provides nitrogen to the soil. Weeds that attract predators that feed on crop damaging species are welcome. So are worms that aerate and provide compost, and nutrient rich soil microorganisms. All are the natural keepers of soil health. As this system needs no irrigation, it is crucial that chemicals are not added as they diminish the soils capacity to absorb moisture.

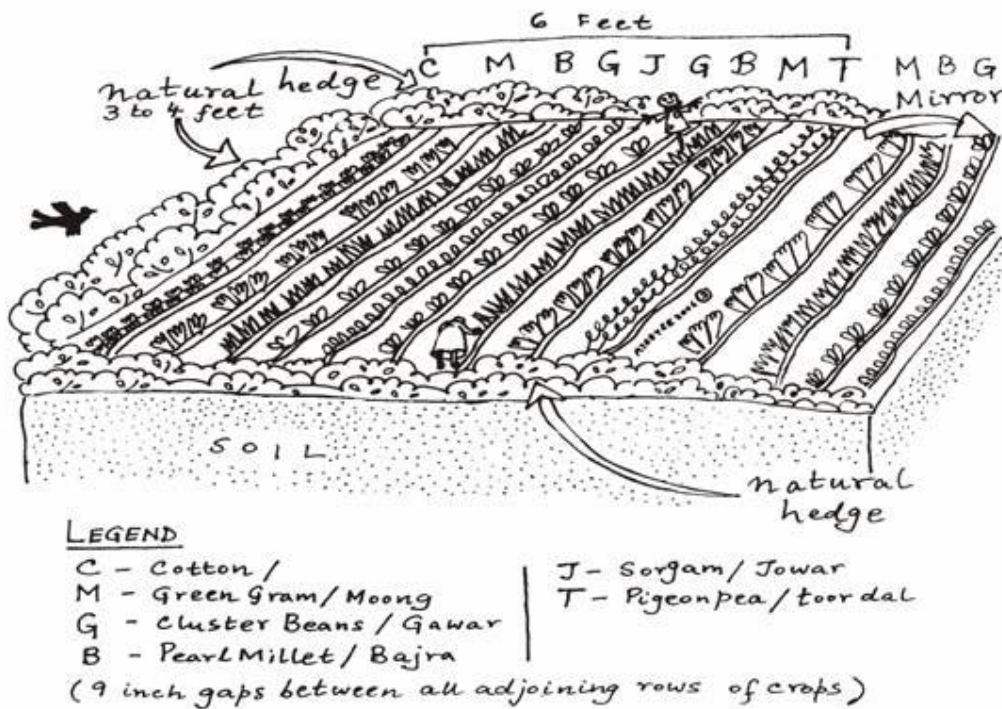


fig 1

For millennia organic farming was practiced in India without any marked decline in soil fertility. In areas where polyculture is replaced by monocrops such as sugarcane and basmati rice the soil is

ruined by the excessive use of water irrigation.

Thick crusts of salt (salinisation) progressively form on the waterlogged land where roots rot. Supplying huge amounts of water for refined sugar that requires 2 to

3 tonnes of water per kilo has encouraged extensive dams and river linking schemes by industry. These short-term solutions displace people and wreak devastating ecological consequences.

In contrast, organic farming practice is light on irrigation. The best yields come from soil that is just damp. Porous soil under Save's organic orchard of mixed local crops acts like a sponge, soaking up the huge quantities of monsoon rains that percolates down to the ground water table. Restoring a minimum of 30 percent of mixed indigenous trees and forests to India within the next 20 years could prevent the impending threat of water scarcity. Storing water underground in natural reservoirs is the way forward to ensure food and water security.

As Save points out, *"More than 80% of India's water consumption is for irrigation, with the largest share hogged by chemically cultivated cash crops. Most of India's people practising only rain-fed farming continue to use the same amount of ground water per person as they did generations ago."*

A real revolution for India's farmers

Bhaskar Save's method of mixed short to long life span intercrops on plots as small as two acres proves that it is possible to regenerate even

barren wastelands in less than ten years. This is the revolution that India's small farmers need as transnational corporations threaten to impose a new kind of serfdom with patented biotech crops. Save's sixty years experience shatters the illusion that farmers can boost productivity and profits by increasing inputs of agrochemicals and engineered seeds. S.M. Swaminathan must embrace organic farming models that can revive the fortunes of Indian farmers and negate the need for costly debt relief packages when coordinating the new Agricultural Policy.

<http://www.i-sis.org.uk/farmersuicides.php>

Vidarbha farmers resort to *Gandhigiri*

Spearheading this new 'life-saving' movement, a group of farmers under the banner of Vidarbha Janandolan Samiti resorted to the peaceful Gandhian agitation—Lage Raho Kisanbhai—at Patanbori, bordering Andhra Pradesh in Yavatmal district on October 12.

The debt-stricken farmers of Vidarbha have now found the will to live. Instead of taking the extreme step, they have found a new ally to keep them alive and virtually kicking—Gandhigiri. And their new mantra is *Lage Raho Kisanbhai!*

Drawing inspiration from the runaway hit Hindi movie, *Lage Raho Munnabhai* these beleaguered ryots have now resorted to a novel Gandhian way to protest—Gandhigiri—by washing the feet of a bank manager and worshipping him,

for his refusal to finance the farmers recently.

Spearheading this new 'life-saving' movement, a group of farmers under the banner of Vidarbha Janandolan Samiti resorted to the peaceful Gandhian agitation—*Lage Raho Kisanbhai*—at Patanbori, bordering Andhra Pradesh in Yavatmal district on October 12.

Farmers, including women of nearby villages gathered at the village at noon and approached MB Kakde, the branch manager of SBI and

garlanded him for refusing fresh loans to farmers.

It was said that the manager had issued a notice on September 30 saying that the farmers of the area would not get fresh loans as per the new directives from his superiors.

He also allegedly rejected several fresh loan cases. This irked the farmers of the area who badly needed the money for harvesting and other needs, particularly with Diwali round the corner.

Kishore Tiwari of Vidarbha Janandolan Samiti organised the local farmers on the issue and decided to take out a morcha to the bank in protest against the new decision.

However, they decided that the agitation would purely be on the lines of 'Gandhigiri' and christened it as *Lage Raho Kisanbhai*.

Over 1000 farmers, including women, gathered at Patanbori village on Thursday and marched to the SBI branch at 2 pm. They first garlanded the bank manager while women activists in the group washed his feet with water, carried from the neighbouring Painganga river; and persuaded him to restart the credit to needy farmers.

Vijay Borshettiwar, bother of Ramesh Borshettiwar, who had committed suicide a few days back as the SBI branch rejected his loan application, also washed the feet of the bank manager on the occasion.

Some of the farmers also submitted memoranda to the

bank manager, requesting him to restart fresh loans. Responding to the "Gandhigiri", the SBI branch manager, Kakde told the agitators that although he agreed and sympathised with them, he could not sanction their loans but would forward their request to the Finance Ministry.

"I will try my level best that the coming Diwali should not be a black one for you," he said and assured that he would follow up with his superiors to restart loans soon.

Tiwari admitted that the protest was inspired from the Bollywood blockbuster, *Lage Raho Munnabhai*, which recently revived the Gandhian ideology and popularised the peaceful agitation initiated by the Father of the Nation.

"We are planning to resort to such an agitation in front of all nationalised and cooperative banks in Yavatmal district, which have stopped financing farmers" he declared.

Yavatmal is one of the worst affected districts in the region.

Around 400 farmers have committed suicide in Yavatmal district alone in the current kharif season.

Meanwhile, five more farmers have taken their lives in the last 24 hours and the death toll has touched 976, since June last year. As many as 43 farmers have taken the drastic step in October month alone while 125 farmers had committed suicide last month.

Among the farmers who had committed suicide in the last 24 hours, two were women. The latest to join the spiraling list of suicide victims were: Pundalikrao Gayki of Dongaryawli (Amravati), Sanjay Jerapure, Kherda (Washim), Devibai Rathod of Warandari (Yavatmal), Bhaurao Thegre of Shindur (Chandrapur) and Narmdabai Chavan of Jamb in Akola district

http://www.hindustantimes.com/news/181_1819547,000900040001.htm