

NRDC Award Winning Technology

Grassroots Innovation to Enterprise

A case study on

Cotton Stripping Machine



Gujarat Grassroots Innovations Augmentation Network (GIAN)

www.gian.org

Index

Sr. No.	Title	Page No.
1	Overview	3
2	Executive Summary	4
3	Introduction	5
4	Product Development	6
5	Technology Commercialization	19
6	Events in Chronological Order	21
7	Recognition	23

Overview

Innovator:

Shri Mansukhbhai Patel, Studied up to 7th Standard, An Electrician in Textile mill by profession & farmer.

The Innovation:

- A machine that removes lint from the cotton shell in faster and efficient manner.
- Reduces drudgery for women & child labor
- Process 400 kgs of cotton per hour
- Staple cutting has been completely eliminated

Scouting:

- Scouted by SRISTI and registered as an entry in Second Campaign of NIF
- First National Award in category of Farm implements.
- First National Award (cash prize of Rs. 1,00,000) by NIF

Criteria for Selection:

- A unique solution to a tedious, manual process
- Social relevance – reduces drudgery of women & child labor
- Increasing efficiency & Quality of output
- Wider commercial application

Product Development:

- First few prototypes developed by innovator himself
- GIAN mobilized technical and financial support through NID and TePP respectively
- Product development completed in eight years

IPR Protection:

- Patent filed in India after product development (18 MUM 2001, January 8, 2001)
- US patent Awarded on April 8, 2002. US 6, 543, 091B2

Business Development:

- Innovator himself becomes entrepreneur
- Initially venture finance support extended by FOSS through SRISTI
- GIAN helps in setting up enterprise & arranging working capital from commercial banks

- About 100 units sold (Unit Price Rs. 2.75 lacs) in the last two years
- Innovator is the pioneer in setting up Innovators' Fund for supporting innovators of western region of India

Executive Summary

The indigenous cotton variety of Kalyan – V 797 comes enclosed in shell, which is very difficult to remove. This strain cotton is called “kala kapas”. In absence of any mechanism, manual labor was used to separate the cotton ball from the shell. This is an extremely tedious work, which could create health problem also due to debris of cotton released in the air. Women and children generally did manual labor.

Mansukhbhai hails from the Kala Kapas belt of Gujarat and right from his childhood, he saw children and women removing lint (cotton fiber with seeds) from shells. To get rid of this laborious work, Shri Patel innovated a machine called the Cotton Stripper Machine.

Shri Mansukhbhai Patel did extensive research and development work for this machine for almost a decade. He had designed and developed almost 7 models of this machine on his own. However, despite working in this right direction, inputs from formal channel of excellence were missing and the machine needed some improvement to become commercially viable.

Mansukhbhai's work got momentum after GIAN joined hands in the project. Extensive market research study was carried out to find marketing feasibility and to establish a project plan to commercially launch the product.

GIAN first approached the TePP (Technopreneur Promotion Program) Scheme, set up by the Department of Science and Technology, GOI, to raise the necessary funds and submitted a project proposal to seek financial assistance to make design improvements in the machine. A financial grant of Rs. 5.83 lakhs was released for the project. After receiving the grant, a project plan and a project implementation team was formed. The National Institute of Design, Indian Institute of Technology, Mumbai, ATIRA and some ginning mills were involved with the value addition activities of the project.

After continuous improvements, the machine reached a stage from where it could be commercialized. The machine, was made quite efficient and more importantly, safe for the user. Patent applications have been filed by GIAN in India and USA on behalf of the innovator during the course of the project.

The performance of the machine has been widely appreciated and after continuous hard work and patience, the innovator turned an entrepreneur and set up a manufacturing unit at Viramgam in Ahmedabad District. The unit has successfully achieved breakeven sales and has started making profits.

Introduction

A solution to Cotton Stripping Problem

In a hybrid cotton crop, the cotton is harvested from the field directly and seed is separated in ginning mills. But in dry area of Gujarat and other parts of the country, in the indigenous cotton varieties (like Kalyan – V 797, G-13 etc.) when cotton balls matures, it does not open fully like hybrid cotton and therefore cotton lint is tightly attached to the inner side of the cotton shell and therefore it is difficult to harvest cotton lint from the field. Therefore cotton ball is harvested from the field and lint is manually separated from cotton balls by removing the shells. This is very laborious and time consuming process.

As an answer to this problem, Shri Mansukhbhai Patel developed a machine named as Chetak Cotton Stripper, which removes lint from the cotton shell in faster and efficient manner.

Mansukhbhai's Trials and Tribulations

Shri Mansukhbhai Patel studied up to Class 7th before he started earning for his family. From his childhood, he was interested in technical and having worked in the process of separation of shells from cotton, he decided to find out a better alternative to reduce drudgery involved in this work.

Shri Mansukhbhai worked in a textile mill for a long time and gained a lot of experience in the textile field. He developed his first prototype from the available components or textile machinery almost ten years back. He manufactured some machines, but these machines soon developed severe faults and Mansukhbhai had to take back all these machines and return all the money.

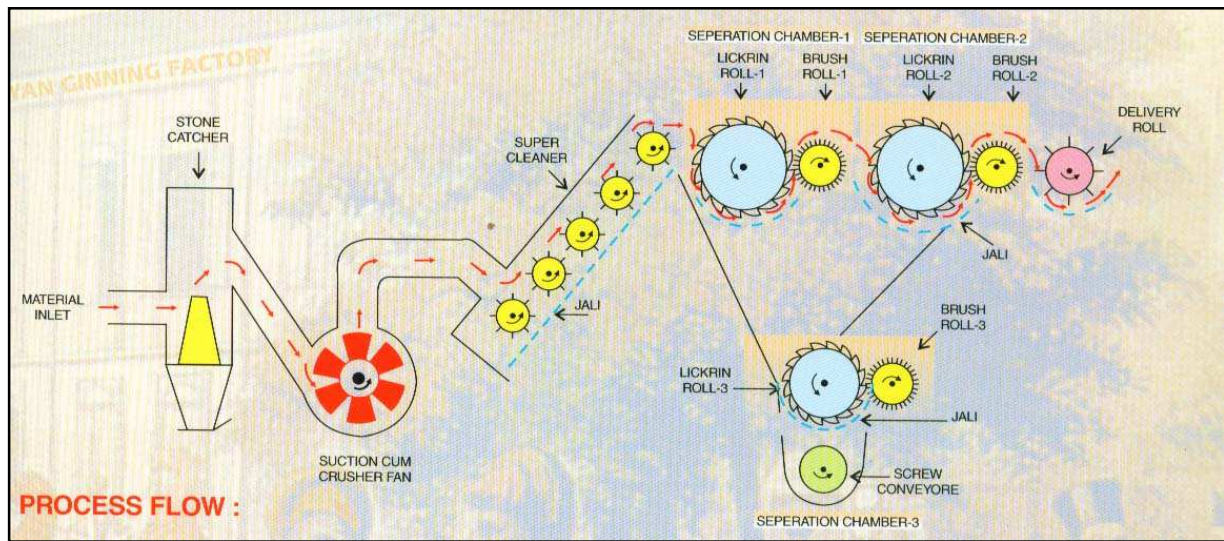
Since then, Shri Patel developed several more prototypes working on the same principle. These machines despite its improved performance with each new prototype, lacked formal technical and design inputs, thus, making it unsuitable for commercialization.

GIAN's involvement in the Project

Mansukhbhai's innovation had been recorded in the Honey Bee Database and GIAN came to know about the cotton stripper machine while scanning the database for high potential innovations. It was apparent that the machine held a lot of potential, not only for commercialization but also for social benefits. It was also felt that the innovator needed assistance in form of technical and design inputs from formal technical and design institutions to optimize the design of the machine. These improvements needed monetary aid as well as administrative aid. The cotton stripper, being a big machine, also required a good amount of financial assistance for R & D.

Product Development

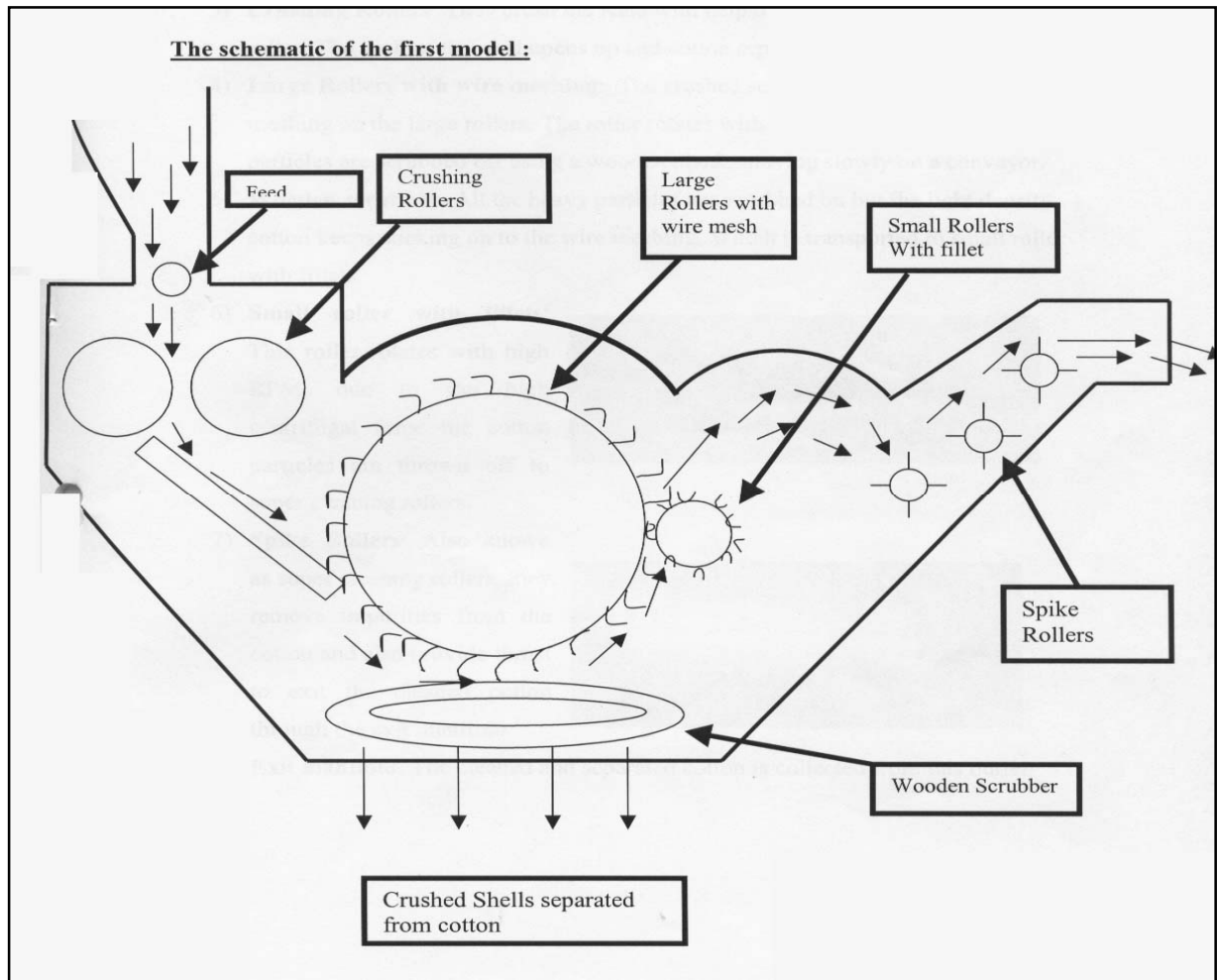
Product Development - 1991 – 2000 (Final product design)



First few prototypes were developed by innovator himself. He mobilized financial support on his own from friends and family.

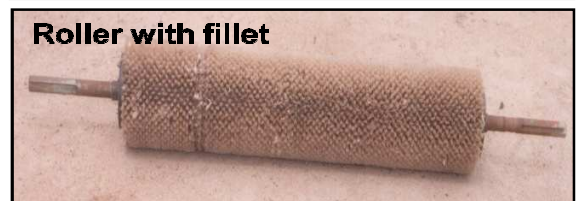
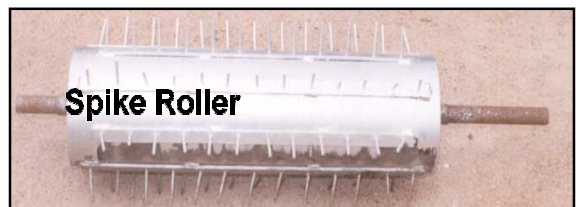
GIAN mobilized technical support from National Design Institute & Indian Institute of Technology and financial support from Technopreneur Promotion Program (TePP) Scheme of DSIR, Government of India. Innovator has developed seven different models in eight years to reach to a level of commercial product.

First Conceptual model (1991)



First Prototype: (1992)

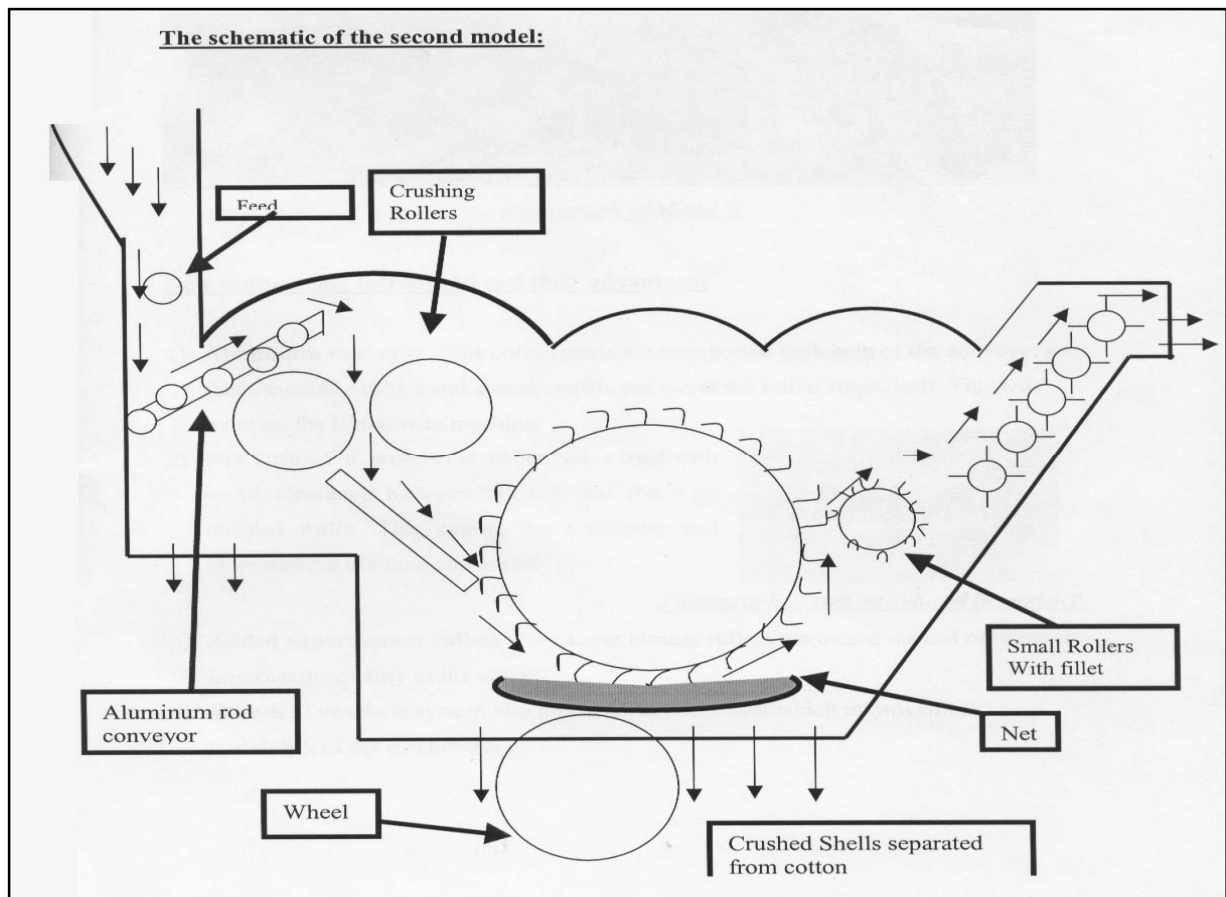
The machine required just three workers and processed 100-160 Kgs of cotton per hour. Innovator exhibited this model among the villagers. Mansukhbhai himself was not satisfied with this model; still the design was largely appreciated by those witnessing the exhibition.



Shortcomings identified in 1st prototype:

- Along with cotton, small pebbles were also infused in the system through hopper which caused system failure and shorten the life wire meshing
- Lifetime of the wire meshing (which was about 4000 kg) on the wheel was very less due to the scrubbing by the wooden scrubber. By the end of the exhibition, which lasted for 3 days the wire meshing was completely straightened out.
- Cotton dust reduced the life time of bearings used.
- Quality of cotton was not that good. As the balls were getting crushed, it broke the seed in to fine particles which stuck with the cotton and was impossible to separate.

Concept model 2 (1993)



Prototype 2

A friend who was a manager in local cooperative financed innovator Rs 150,000/- (USD 3750/-) as a loan and innovator further worked for a year on removing the shortcomings of his first model. He completed his next model before the start of next season.



New components Introduced

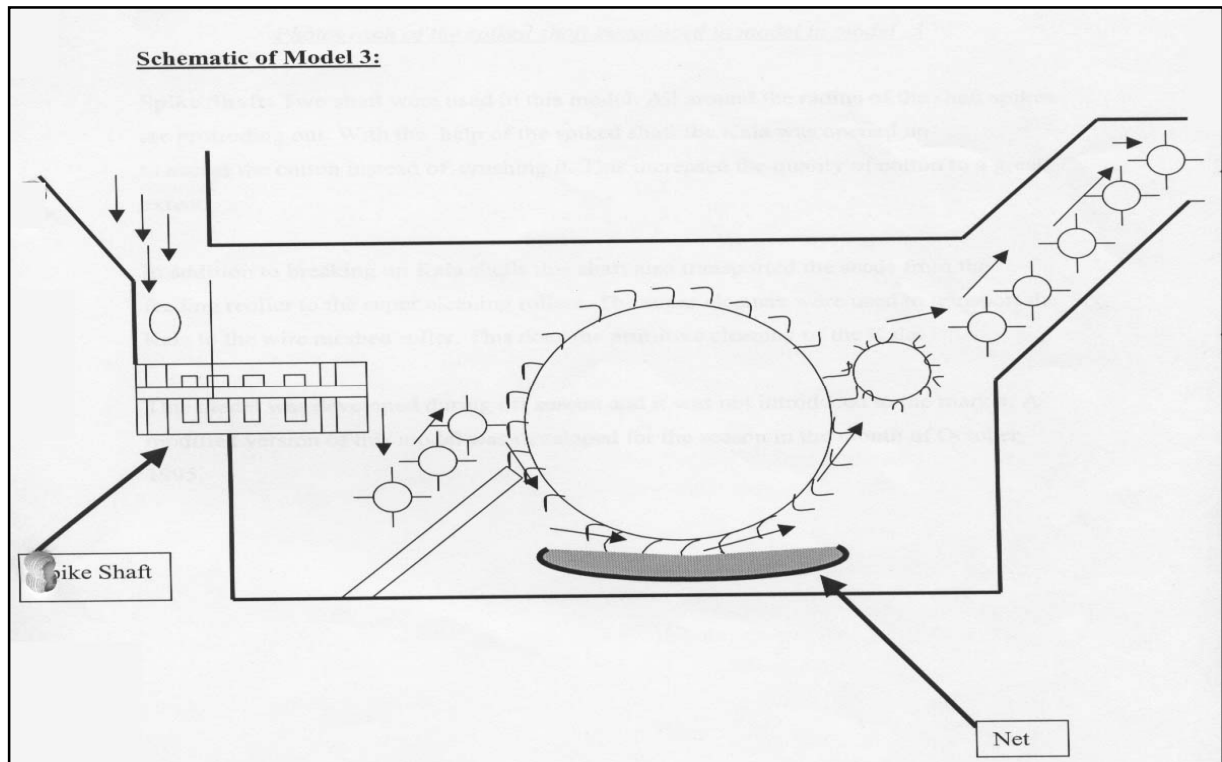
- Net
- Aluminum conveyor
- Added super cleaner rollers
- Wheels

Shortcomings identified in Model 2:

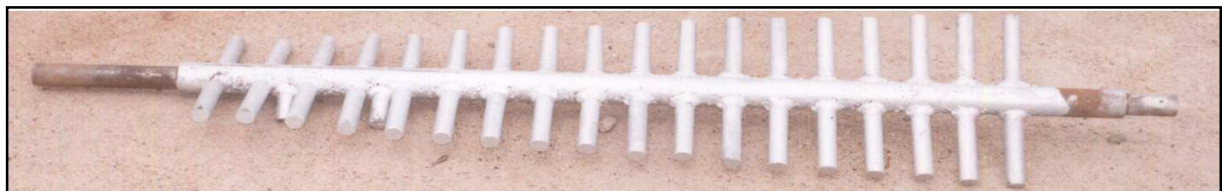
- The crushed shell particles still stuck to the cotton result into wastage of cotton and it also reduced its quality.
- Problem of motor failure persisted.
- Shells were falling under the machine and manual labor was required to collect the shells from bottom of the machine. This was very risky, as huge rollers were rotating at quite a high speed just above his head.

In this model the life time of wire mesh was increased to 20,000 Kg. It was a commercially viable model. In fact around 15 models were sold. Unfortunately though problems developed in the machines and they were returned back. Innovator returned the money of the buyers. He suffered grave financial losses.

Concept Model: 3 (1994)



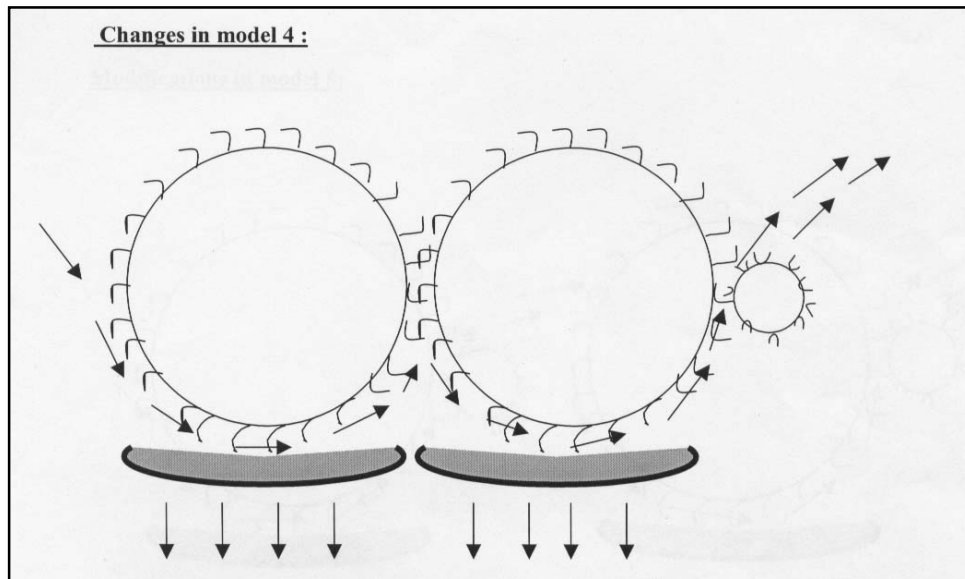
Spiked shaft introduced in model in model -3



Two shafts were used in this model. All around the radius of the shaft spikes are protruding out. With the help of the spiked shaft, the balls were opened up to access the cotton instead of crushing it. This increased the quality of cotton to a great extent. In addition to breaking up balls shells this shaft also transported the seeds from the feeding roller to the super cleaning rollers. The super cleaners were used to transport the balls to the wire meshed roller. This does the primitive cleaning of the balls.

This model was developed during off season and it was not introduced to the market. A modified version of this model was developed for the season in the month of October, 1995.

Concept Model: 4 (1995)



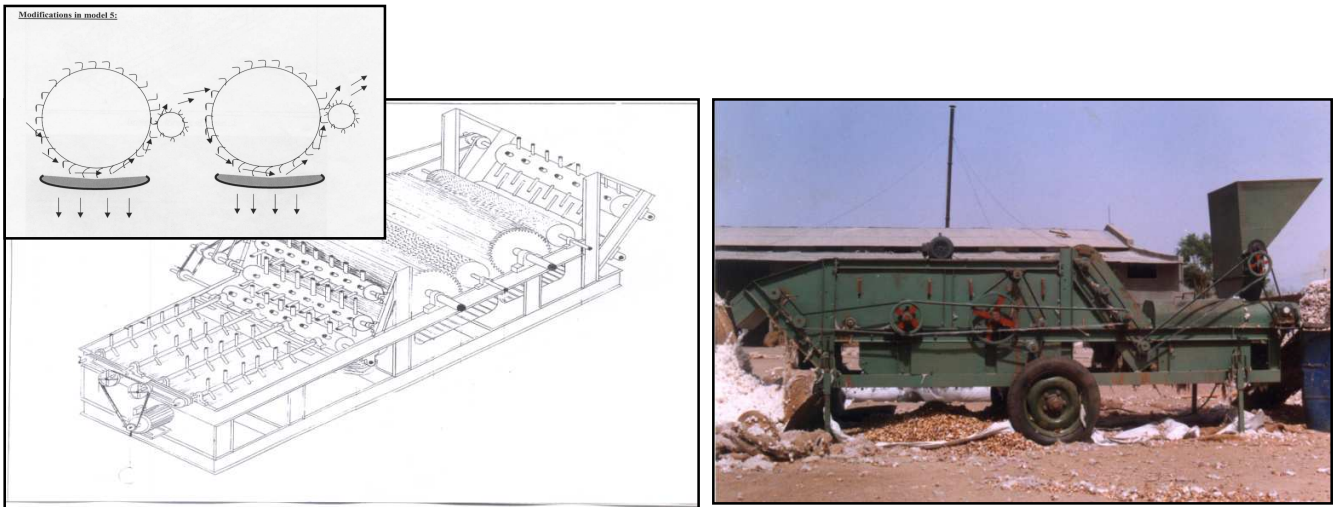
In this model 4, two large rollers of different RPM with wire mesh were used. Introduction of these two wire meshed wheels, the life of these wheel were further increased up to about 30,000 kg of processing.

Innovator used to provide these machines to cotton processing plants on rent and run them under his own supervision and observation. This way he was able to accurately monitor the performance of machines.

Feedback of Prof. Munsri (1997), IDC, IIT Mumbai

1. Drum Alignment: The three rolls supported by the two the sheet plate on the two ends of the rolls at an angle, there are chances of misalignment of the two sheet plate from the base point from where they are supported to the structure.
2. Hopper: - The hopper gets the clog up at the bottom and therefore to eliminate the problem a spiked shaft parallel to the drum was suggested to be incorporated.
3. Waste :- A provision was made to collect the cotton shell from the bottom and to dispose it on the other side, so that the crushed shell do not affect the quality of the cotton and also the risk associated with the manual picking of the shell is eliminated.

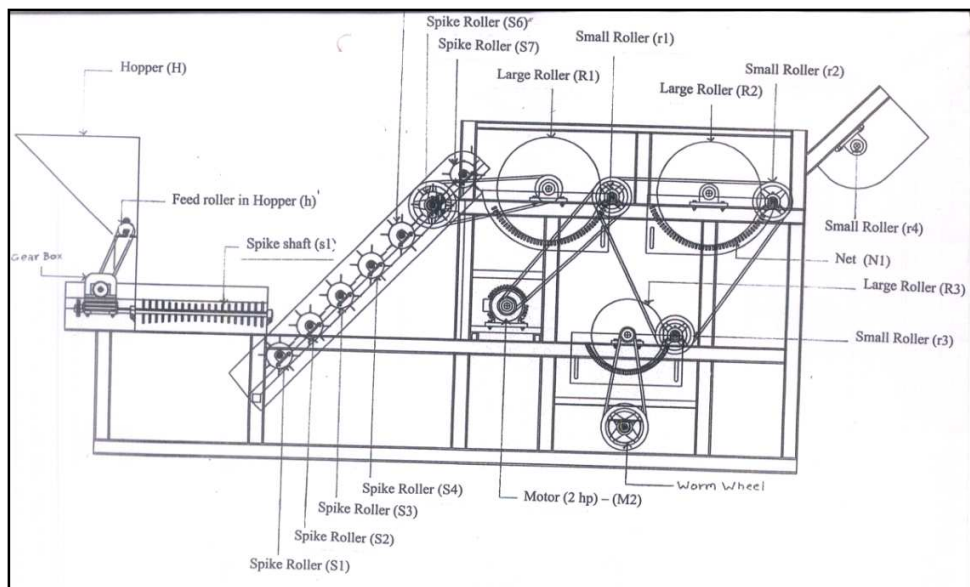
Concept model & Prototype 5



As shown fig, one more brushing wheel and one smaller roller with fillet was used corresponding to the second large roller with wire meshing introduced in model 4.

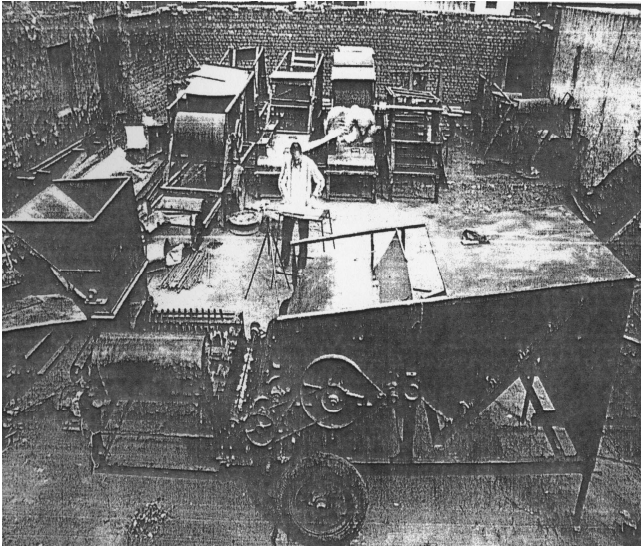
Around 15 machines of this model were sold. The performance of these machines was much better than previous machines. Still there were some shortcomings in the model.

Concept Model: 6 (2000) – Mr. Alexander, a German student from National Institute of Design has provided inputs and TePP (DSIR) provided financial support



A very detailed and comprehensive market and feasibility study was carried out for the machine. The study also included development of Project Management plan for the innovator for his anticipated shift into commercial production.

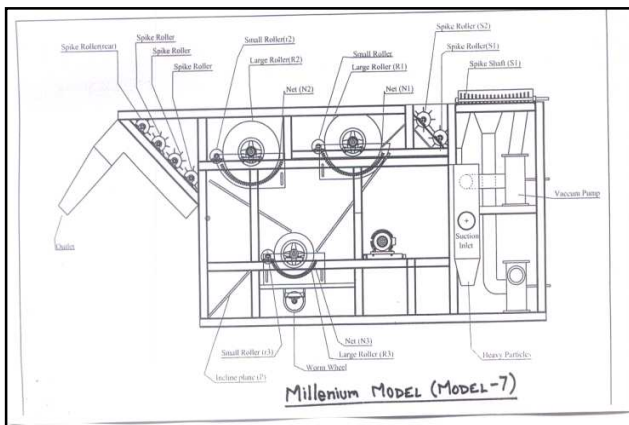
Photograph of model 6 (2000)



Advantages of Model 6:

- Efficiency of the machine has increased due to addition of the new roller as recycling of the shells is avoided.
- The suction mechanism has also solved one major problem of recurring expense of lycryl mesh.
- Introduction of worm wheels has eliminated the problem of collection of shells drop on one side of the machine, where they could be easily collected.
- Suction mechanism has also eliminated labor requirement for pouring the cotton into the hopper without any additional cost (It has replaced hopper, shaft and spiked shafts).

Model 7 – Final Commercial Model named as Millennium Model (2001)



The machine contains two 5HP motors one of which rotates the Blower and the spike shaft and other rotates three big rollers. There is also another 2HP motor, which is used to run smaller brush rollers. In this model, innovator has offered full guarantee for one season to the customers. This confidence has been gained over a decade of indigenous R&D on the prototype.

Stage wise development.....



Technical Details of the machine:

- Weight : 3000 kgs
- Input : 15 HP motor
- Capacity : Processes 2000 kg / hr of cotton
- Material : Mild steel and cast iron

Salient Features :

- Extremely efficient & effective machine to separate the seed cotton from the shells
- Saves cost involved in manual labor and reduces drudgery of women & children
- Improves the quality of cotton , Staple cutting has been completely eliminated
- Can be used as Pre-cleaning in hybrid cotton

The Technopreneur Promotion Program (TePP) was approached by GIAN on behalf of the Innovator Shri Mansukhbhai Patel with following project. The project was sanctioned by TePP in February, 99 for an amount of Rs. 5.83 Lakhs.

Project : Design Improvement of Cotton Stripper developed by a grassroots Innovator

Amt. Sanctioned: Rs. 5.83 lakhs (Rupees Five Lakhs Eighty Three Thousand Only)

Time Period: 1 year and six months

Date of completion: 24.8.2002

Initially, the project was sanctioned for 18 months and was due to be completed on 24th August, 2000. However, the project was given an extension till 30th November, 2000 to help innovator take advantage of the season opening and to get feedback of the market.

Objectives of the Project

The major objectives of the project were:

- New design development incorporating improved functional attributes and technical features ensuring superior performance
- Prototype development incorporating new features and designs
- Market research and feasibility study for setting up an enterprise on the innovation.

Activities Performed

- New design development incorporating improved functional attributes and technical features ensuring superior performance.
- Prototype development incorporating new features and designs
- A detailed market research study and feasibility study carried out for the product for establishing a production unit based on the innovative product

New Design Development

Following improvements have been done in the design of the machine to improve efficiency of the machine and to make it safer to use:

<i>Original Cotton Stripper Machine</i>	<i>Modified Cotton Stripper Machine</i>
Some portions of shells were to be recycled as some cotton used to stick to the shells leading to wastage of cotton	An additional roller added into the machine, making efficiency of the machine almost 100%
Some shells would fall under the machine and manual labor was required to collect the shells. This was very dangerous as huge rollers were rotating at high speed	A wheel has been provided to collect the shells and guide them out of the machine, where they can be easily collected and balls of those shells could be prepared. This has added much needed safety factor

<p>Laborers have to use a ladder to reach to the hopper and pour the Kala into the hopper. This process required at least three labors.</p>	<p>in the machine</p> <p>Suction Mechanism has been added in the machine, which automatically sucks the cotton and pours into the machine. The suction mechanism has reduced labor requirement, as now only one person is needed to guide the Kala to the suction pipe instead of three, which were required earlier</p>
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Due to the above listed modifications the machine became optimized. Efficiency of the machine increased due to addition of the new roller as recycling of the machine increased due to addition of the new roller as recycling of the shells was avoided. Earlier, a very negligible portion of cotton used to stick to the shells dropping at the bottom of the machine. Though, the amount was very negligible (less than 0.1%), people were worried about the efficiency of the machine as cotton could be seen in the stark contrast to dark shells in the background.

On the other land, worm wheel has increased safety factor of the machine. In the initial model, shells were dropping at the bottom of the machine. A laborer was used to collect these shells and at the same time he would dangerously expose himself against rotating rollers. In the peak season, machine runs for almost 20 hours per day and mills don't have time to shut the machine for removing these shells. Also, laborers don't care too much about safety, making them vulnerable to such hazards. Introduction of worm wheels has eliminated this problem altogether as shells drop on one side of the machine, where they could be easily collected.

While the suction mechanism has eliminated labor requirement for putting cotton into the hopper and made machine more cost effective, no additional cost has been incurred to incorporate the suction mechanism. The suction mechanism has replaced the hopper, hopper shaft (used to control input volume of raw material) and spiked shafts and therefore the cost of the suction mechanism has been compensated by removal of these components. In this way, facilities have been added to the machine without any escalation in the cost of the machine.

The suction mechanism has also solved one major problem of recurring expenses of lycryl mesh (an important costly component of the machine). In the earlier version, there was no facility to prevent small stones or metal particles from entering into the machine with the input material. This was very damaging as such solid material could easily damage the expensive lycryl mesh of the rollers and result in heavy replacement of the same. Now, with the suction mechanism in place, heavy particles like stone or metal parts could not enter the machine as their weight did not allow them to be sucked with the lightweight cotton. This material gets accumulated in the bottom part of the suction mechanism and can be easily removed time to time.

So it can be seen that new design and technical features has made the machine much superior to its primary crude version, which had many problems.

Extension of the Project:

The project was sanctioned on 24th February, 1999 for duration of 18 months. The project was expected to be completed on 23rd August, 2000. However, as the season of the Kala cotton starts in November month only, an extension of little over 3 months was sought to arrange for the demonstration of the machine in the season. The extension was provided by the Technopreneur Promotion Program (TePP) to arrange for demonstrations in the season and take the project to its logical conclusion. The project was completed on 30th November, 2000. This extension did not result in escalation of the cost of the project and all the expenses were met from original sanctioned amount of Rupees Five lakhs Eighty Thousand Thirty Three Only.

At the end of the project, a complete commercial prototype of Cotton Stripper machine was developed with modified design and technical features with the inputs of formal and informal science. It was ripe for market launch and commercial production.

Patent Registration

In order to protect the intellectual property rights of innovator, patent application has been filed in India and USA by GIAN. The Indian application has been filed with the help of National Research Development Corporation (NRDC). The application has been filed on 8th February 2001 in India and number is 18/MUM/2001 thought D. P. Ahuja and company, Calcutta.

Looking to the potential demand by American entrepreneurs and investors to market the product in other countries, GIAN has decided to file the patent in USA. GIAN took the help of Law Offices of Test, Hurwitz and Thibeault, LLP, Boston, USA for pro bono help. The patent was filed on 7th January 2002 in USA and granted by USPTO on April 82003. (US 6,543,091 B2) GIAN has also filed patent for the machine through National Research Development Corporation (NRDC), New Delhi. GIAN got the technical designs necessary for patents done through a professional draftsman. Basic write up required to apply for the patent was prepared by GIAN.

Comparison with conventional methods

Traditional Process	Cotton Stripper Machine
Manual Separation of cotton from shell	A completely mechanized process
Extremely cumbersome and tiresome process	Extremely easy to handle, efficient and effective
Cotton is wasted in case of un-seasonal rains due to deterioration	Faster processing saves cotton from deterioration in case of un-seasonal rains
Inferior quality of cotton output	Superior quality of cotton output
Gets lower price in the market due to poor quality output	Fetches higher price in the market due to better quality
Children and women are the labors, who are engaged in this cumbersome and low value task	Requires only 2 labors at any point of time to handle the operation
A labour can process 20 kgs of cotton in a day	Can operate 800 Kgs of Cotton in an hour
Results in much higher running cost	Cover all its cost within a single season

- It totally replaces the manual method of separating cotton from the harvested cotton shells. A unique solution to a tedious, manual process
- Social relevance-reduces drudgery of women and child labor
- Increasing efficiency & Quality of output by eliminating staple cutting
- Wider socio-commercial application

Technology Commercialization

Market Research and Feasibility Study

A very detailed and comprehensive market and feasibility study was carried out for the machine. The study also included development of a Project Management plan for the innovator for commercial production. Nirma Institute of Management Studies was involved in the study along with GIAN. The report of the study gave a very positive demand for the machine. In fact, the market had been waiting for such a machine for long time and showed a great interest in the machine. The study had predicted a standing demand of almost 350 machines from the Gujarat market only.

Manufacturing

Shri Mansukhbhai Patel, the innovator, himself took over the manufacturing responsibilities and GIAN extended its helping hand to Shri Patel to help him become an entrepreneur. Chetak Agro Industries, a partnership firm, was created to manufacture the machine and the workshop is based in Viramgam taluka of Ahmedabad district.

Basic manufacturing facilities were established in the unit. GIAN also arranged for working capital loan for the unit from State Bank of Bikaner and Jaipur to initiate production. Yet, the unit was running short of the required funding to go for full-fledged production. Additionally, a grim monsoon condition had forced a rethink in the strategy of using debt finance option, since despite all positive points of the machine, poor monsoon could have spoiled all the calculations and Shri Patel would have found it difficult to serve the debt.

In this scenario, the Friends of SRISTI in Singapore was approached for venture assistance with an understanding that the funding would be paid back by the unit in case of successful launch of the machine in the first season. FOSS (Friends of SRISTI in Singapore) provided venture assistance of Rs. 2,50,000/- (Rupees Two lakhs fifty thousand only) in October 2000 through SRISTI.

Sales and Promotion

The Cotton Stripper machine was also provided good exposure through media, fairs, exhibition etc to get market feedback and to generate awareness about the application of the machine. The machine was demonstrated in the Swadeshi Mela in Ahmedabad and its model was displayed in many other fairs and exhibition like Indian Science Congress, Pune & Swadeshi Fair, New Delhi.

Successful demonstrations have also been arranged in different parts of the state, which included Viramgam and Bahucharaji. The demonstration helped in removing any doubts from people's mind over functionality and applicability of the machine.

Establishment of commercial venture – Chetak Agro industries



Recognition & Reward:

1st Award by National Innovation Foundation Award in the year Feb 2002

Best Technology Award for the year 2003 by National Research Development Corporation, Govt. of India in the year June 2004.

Honored by SRISTI including him in the Governing body



Events in Chronological Order

- The study carried out by GIAN revealed a huge latent demand in the market for the machine
- The report showed a standing demand for more than 300 machines in the market
- Chetak Agro Industries was established to manufacture the machine on commercial scale.
- Total size of the project (including working capital requirement) to initiate production was envisaged at Rs. 18,50,000/-. Shri Mansukhbhai Patel could arrange Rs. 12,00,000/- from his relatives and partners, which was used to set up the primary infrastructure and to purchase the basic machinery. GIAN arranged working capital loan of Rs. 4,00,000/- from the State Bank of Bikaner and Jaipur to take care of his working capital requirement. This left the unit with a shortfall of almost Rs. 2,50,000/- which was absolutely vital to initiate the production.
- This requirement forced us to look for options of venture assistance as in the case of poor monsoon; Shri Patel would have found it extremely difficult to serve debt finance.
- FOSS (Friends of SRISTI in Singapore) was approached by GIAN for the identified gap of Rs. 2,50,000/-.
- Turnover for 16 machines was expected to be around Rs. 45 Lacs and based on it, following valuation was worked out for return towards venture assistance and Venture Assistance of Rs. 2,50,000/- from FOSS was provided to the unit in October 2000.
- Chetak Agro Industries commenced production of Cotton Stripper machine in November 2000
- Initially, poor monsoon played its role and season was delayed due to less supply of cotton in the market and only 4 machines could be sold in the first one and a half month of production, which was much less than expected demand. This forced us to make a mid term correction in the expected market and revised market demand for the first season was put at 12 machines.
- However, once the machine reached the market and started performing, people's interest in the machine shot up once. Also, earthquake of Kutchh diverted cotton from that region to Surendranagar region, thus increasing supply of the cotton in the market
- The orders started pouring in due to these reasons after mid January and by the end of the season, which is mid March, the unit had sold 20 Cotton Stripper machine.
- Thus, Chetak Agro Industries achieved a turnover of more than Rs. 50,00,000/- (Rupees Fifty Lakhs Only) for the year.
- Going by the valuation done earlier, return to the fund came to more than 80%, which was not only staggering but also impractical, as this was the first case of

venture assistance for GIAN as well. A very high return would have affected the unit also, as it would have squeezed a big chunk from the burgeoning business.

- Shri Patel also requested us to take a more rational view on the matter and showed his willingness to pay back the amount at the earliest possible
- Therefore, taking more pragmatic view, GIAN decided to take back return of Rs. 25,000/- from Chetak Agro Industries. Thus, Shri Mansukhbhai Patel return Rs. 2,75,000/- (Rupees Two Lakhs Seventy Five Thousand Only)
- The money has been returned in almost 4 months of establishing the unit and thus has provided an annualized return of almost 30%
- More importantly, the market gave a wonderful feedback for the machine in the very first season it sold and Chetak cotton stripper had established itself as a brand in the market. This secured long term survival of the unit as well.
- Due to success of the machine, Shri Mansukhbhai Patel was able to wipe off all his losses incurred till date. The losses accumulated because of high initial R & D expenditure and failure of primary models of the machine
- Above all, Shri Patel has also vowed to provide infrastructural support to innovators in future through his workshop and also his expertise.
- Shri Mansukhbhai Patel received venture assistance from FOSS at a time when his unit was in need of support from non-conventional funding channels
- Chetak Agro Industries, established with venture support from FOSS has proved to be a successful model for ventures based on grassroots innovations.
- Despite poor monsoon conditions, the unit has surpassed all expectations, and has achieved tremendous success in the very first year of operations. In turn, it has reinforced confidence of everyone associated with the network in Grassroots innovations and their potential
- Venture assistance provided by FOSS has got more than just monetary return as Shri Patel has now decided to provide active support for new innovators in the future. In this way, a long cherished dream of lateral learning amongst innovators and their active interaction with the process is also getting realized.

Recognition

Mansukhbhai stripping machine innovation was scouted by SRISTI. Grassroots Innovations Augmentation Network (GIAN - West), took up the task of value addition. Mansukhbhai was put in touch with Council of Scientific Industrial Research (CSIR) and other arms of Department of Science and Technology (DST). With GIAN's support, Mansukhbhai could secure a Rs 5,80,000 under Technopreneur Promotion Program (TePP). GIAN-W also arranged for technical assistance from National Institute of Design (NID), Ahmedabad. A German student pursuing his studies at NID systematically worked for six months on the design of the machine and provided some valuable inputs. Faculty from IIT-Mumbai also gave suggestions for design improvement.

This stripper saves cost involved in manual labour and eliminates drudgery for women and children. It processes 400 kg cotton per hour. It improves the quality of cotton. The machine is available in two models. It is available with suction feed as auxiliary attachment.

At present the national patent has been applied for and the international patent application is under process in United States through the efforts of SRISTI, NIF and GIAN- West.

NIF Award

Second Annual Award Function-2002 for honoring the outstanding green grassroots innovators and traditional knowledge experts was held at National Physical Laboratory Auditorium, Dr. K S Krishnan Marg, Pusa Campus, New Delhi, on December 17, 2002. Hon'ble President of India, Dr A P J Abdul Kalam had awarded innovators and guided the path towards making India innovative. GIAN helped the innovator participate in the Award function. The innovator was given an award of Rs. 1 lakh by Hon'ble President, A P J Abdul Kalam for his innovation.

NRDC Award

The cotton Stripper machine technology developed by Shri Mansukhbhai Patel has been selected for the Best Technology Award for the year 2003 awarded by the National Research Development Corporation , Department of Science and Technology, New Delhi. The innovator was given cash prize of Rs.75000/- and trophy by Kapil Sibal, Minister of Science and Tech & Ocean Development , Government of India on 30th June 2004.