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Collaborators

Category

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- Energy & Water Management
- General Utilities
- Transport
- Small Implements
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- Livestock Management
- Herbal
- Idea
- Students
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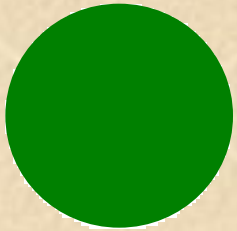
PIC Form(PDF)(DOC)|PIC Note (PDF)(DOC) | Technology Licensing

National Innovation Foundation

An autonomous scientific society set up in February 2000, by Department of Science and Technology, Government of India with Dr R A Mashelkar, Former Secretary, DSIR, as chairperson.

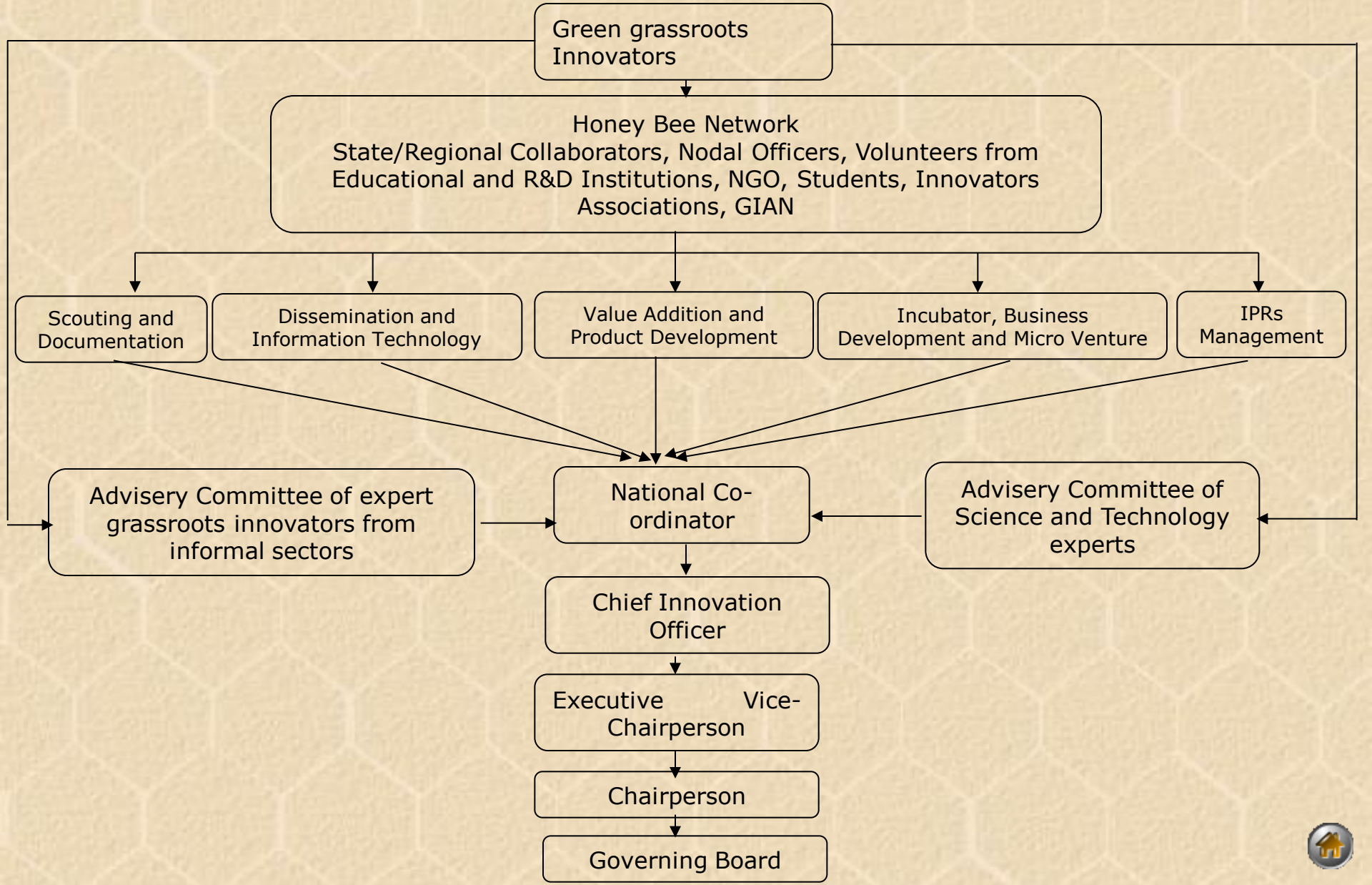
NIF is committed to make India innovative by documenting, adding value, protecting intellectual property rights, disseminating on commercial as well as non-commercial basis, contemporary unaided technological innovations as well as outstanding examples of traditional knowledge.

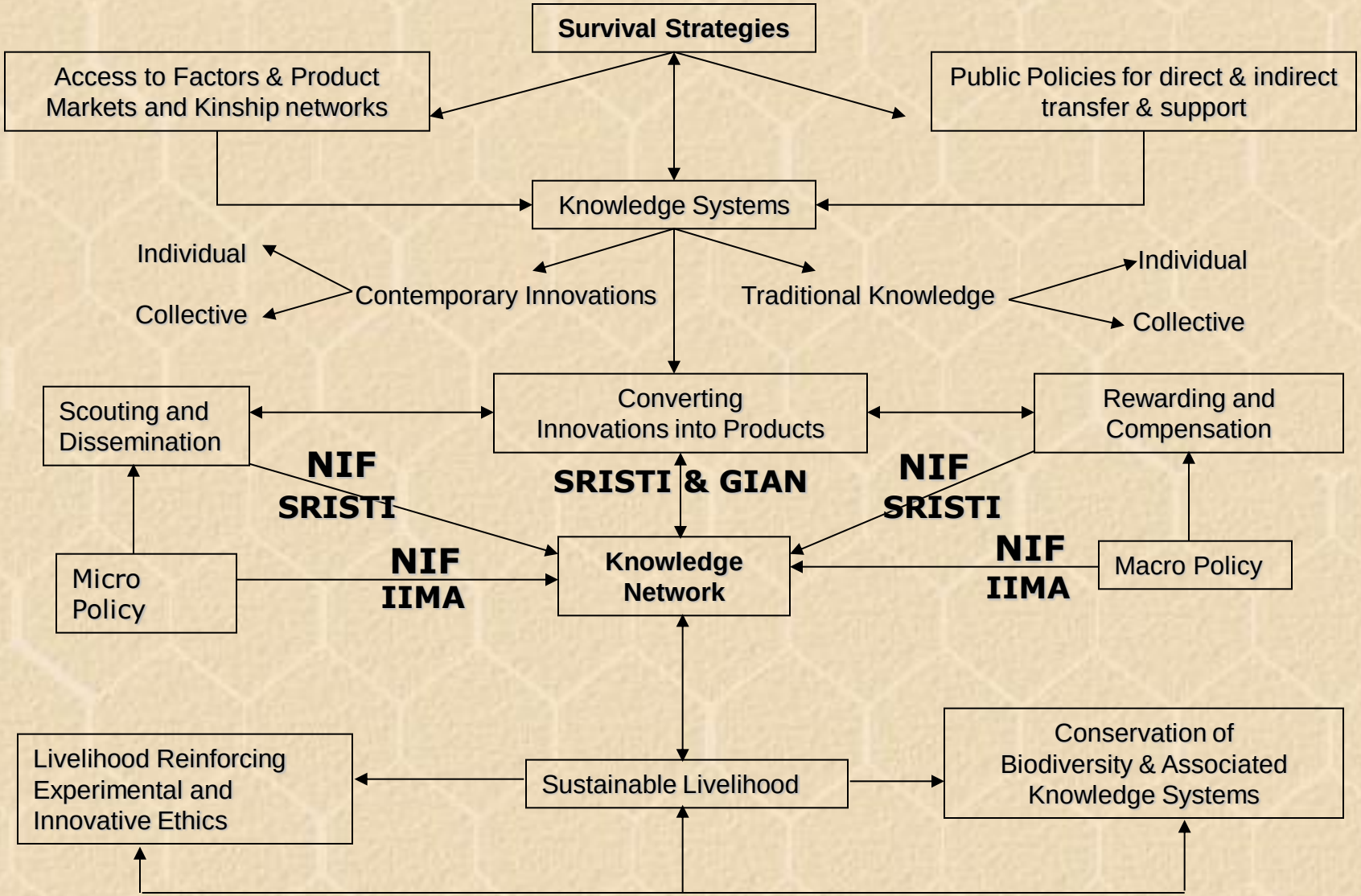
Mission



To make India innovative and a global leader in sustainable technologies by building upon the genius of green grassroots technological innovators and outstanding traditional knowledge experts, protecting their intellectual property rights and converting innovations into enterprises, be they in commercial or social spheres.

Organization Framework




Survival Strategies
Access to Factors & Product Markets and Kinship networks
Public Policies for direct & indirect transfer & support
Knowledge Systems
Individual
Collective
Contemporary Innovations
Traditional Knowledge
Individual
Collective
Scouting and Dissemination
Converting Innovations into Products
Rewarding and Compensation
NIF
SRISTI
SRISTI & GIAN
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IIMA
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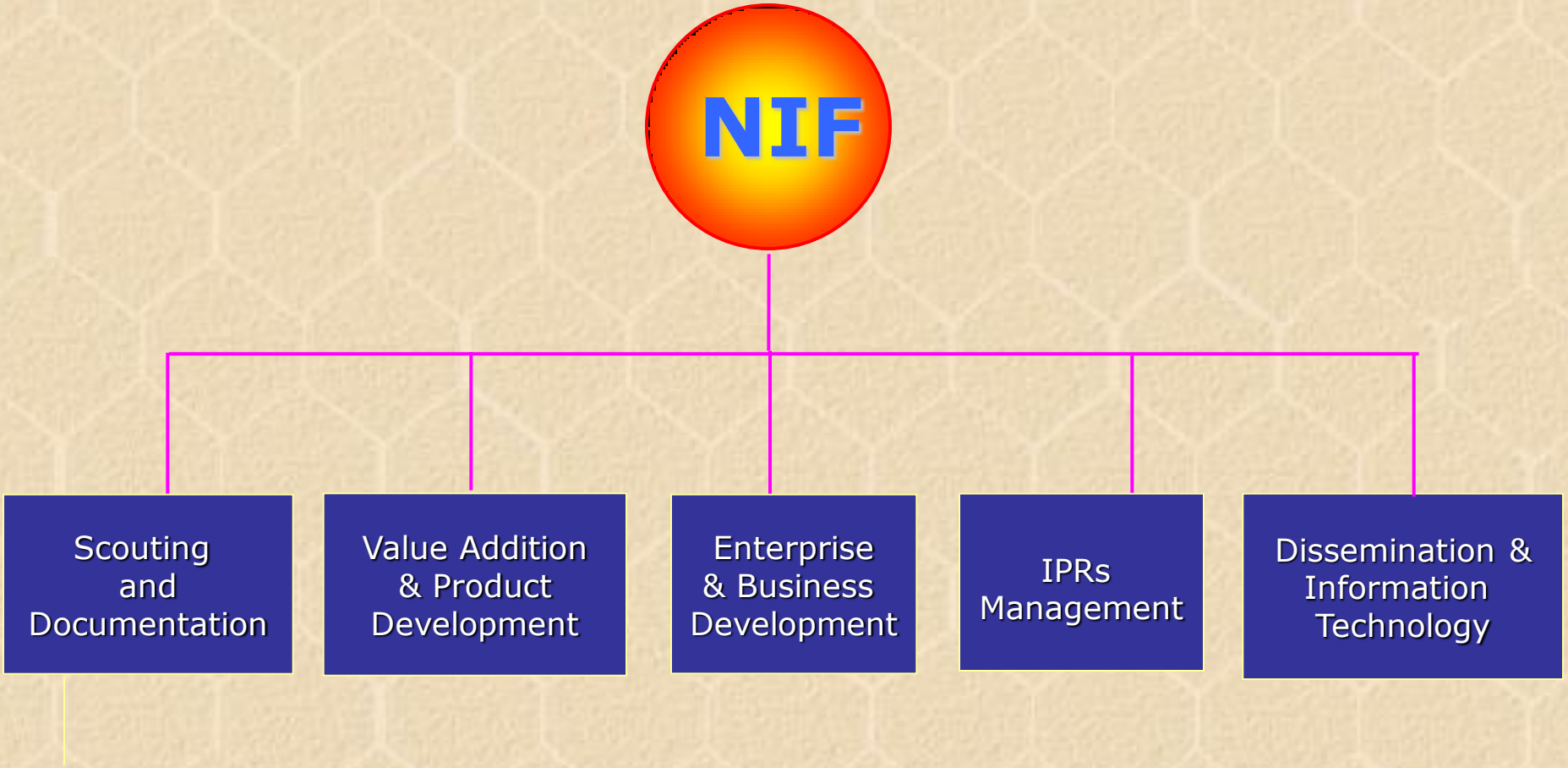
IIMA
Micro Policy
Knowledge Network
Macro Policy
Livelihood Reinforcing Experimental and Innovative Ethics
Sustainable Livelihood
Conservation of Biodiversity & Associated Knowledge Systems

Functions


NIF
Scouting and Documentation
Value Addition & Product Development
Enterprise & Business Development
IPRs Management
Dissemination & Information Technology

Honey Bee

Achievements

First Campaign

Scouted 948 entries comprising 1613 innovations and outstanding traditional knowledge examples

Awarded - 89 innovators and outstanding traditional knowledge holders and 17 scouts

Hon'ble Sh. K.C. Pant conferred the Awards on November 29, 2001 at New Delhi

Second Campaign

Scouted 6228 entries comprising 13533 innovations and outstanding traditional knowledge examples

Awarded - 52 innovators and outstanding traditional knowledge holders and 5 scouts

Hon'ble President of India, Dr. APJ Abdul Kalam, honoured the innovators on December 17, 2002 at New Delhi

Third Campaign

Scouted 9843 entries comprising 21931 innovations and outstanding traditional knowledge practices

Awarded – 98 innovators and outstanding traditional knowledge holders [including 20 appreciation awards] and 34 scouts

Hon'ble President of India, Dr. APJ Abdul Kalam, honoured the innovators on January 5, 2005 at IIM, Ahmedabad

Fourth Biennial Campaign

Scouted 14,194 entries comprising mechanical innovations and outstanding traditional knowledge practices

Hon'ble President of India, Dr. A.P.J. Abdul Kalam gave away the awards to 89 awardees in the fourth biennial Award Function in IARI auditorium, New Delhi on February 12, 2007

Fifth Biennial Campaign

Scouted 35,747 entries comprising mechanical innovations and outstanding traditional knowledge practices

Hon'ble President of India, Smt. Pratibha Devisingh Patil gave away the awards to 78 awardees in the fourth biennial Award Function in IARI auditorium, New Delhi on November 18th, 2009

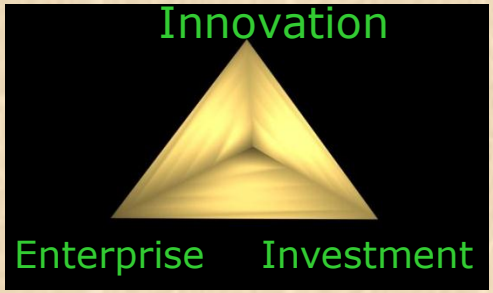
Sixth Biennial Campaign

- February 1, 2007 - January31, 2009

Seventh Biennial Campaign

- February 1, 2009 - March31, 2010

Establishment of GIANs



GIAN North – January 2003
GIAN cells – TN, Karnataka and Jammu & Kashmir

More GIANs are being proposed to be established all over India

Continued supporting all GIANs

Including GIAN West which was setup in March 1997

Linkages

- MoUs signed with ICMR,CSIR, BSI, NBRI for validation of potential herbal practices
- IT Mumbai, IIT Delhi, IIT Kanpur and NIT, Jalandhar
- NID (National Institute of Design, Ahmedabad) : GRIDS (Grassroots Innovation Design Studio)
- Private consultants and voluntary professionals :SIDBI, Matrix

Dissemination

1. Exhibitions
2. Websites
3. Posters, Pamphlets, Publications
4. Shodhyatra (organized by SRISTI)
5. Traditional Food Festival (Arranged by SRISTI)
6. Multilingual Kiosk

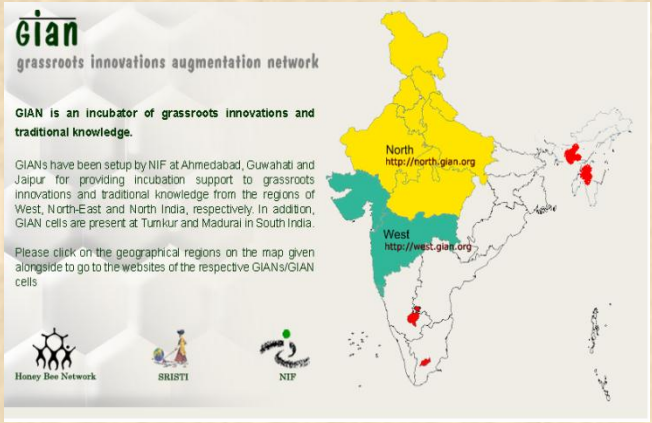
Exhibitions

Websites

www.nifindia.org

www.honeybee.org

www.sristi.org

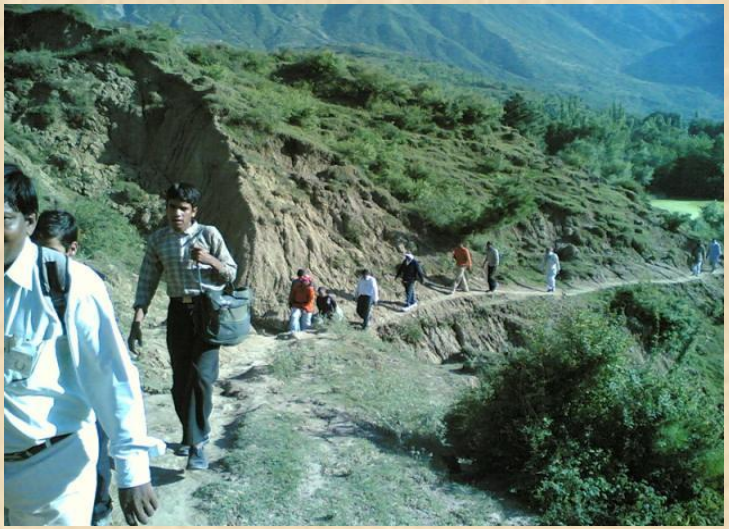


www.gian.org

www.indiainnovates.com

Posters & Publications

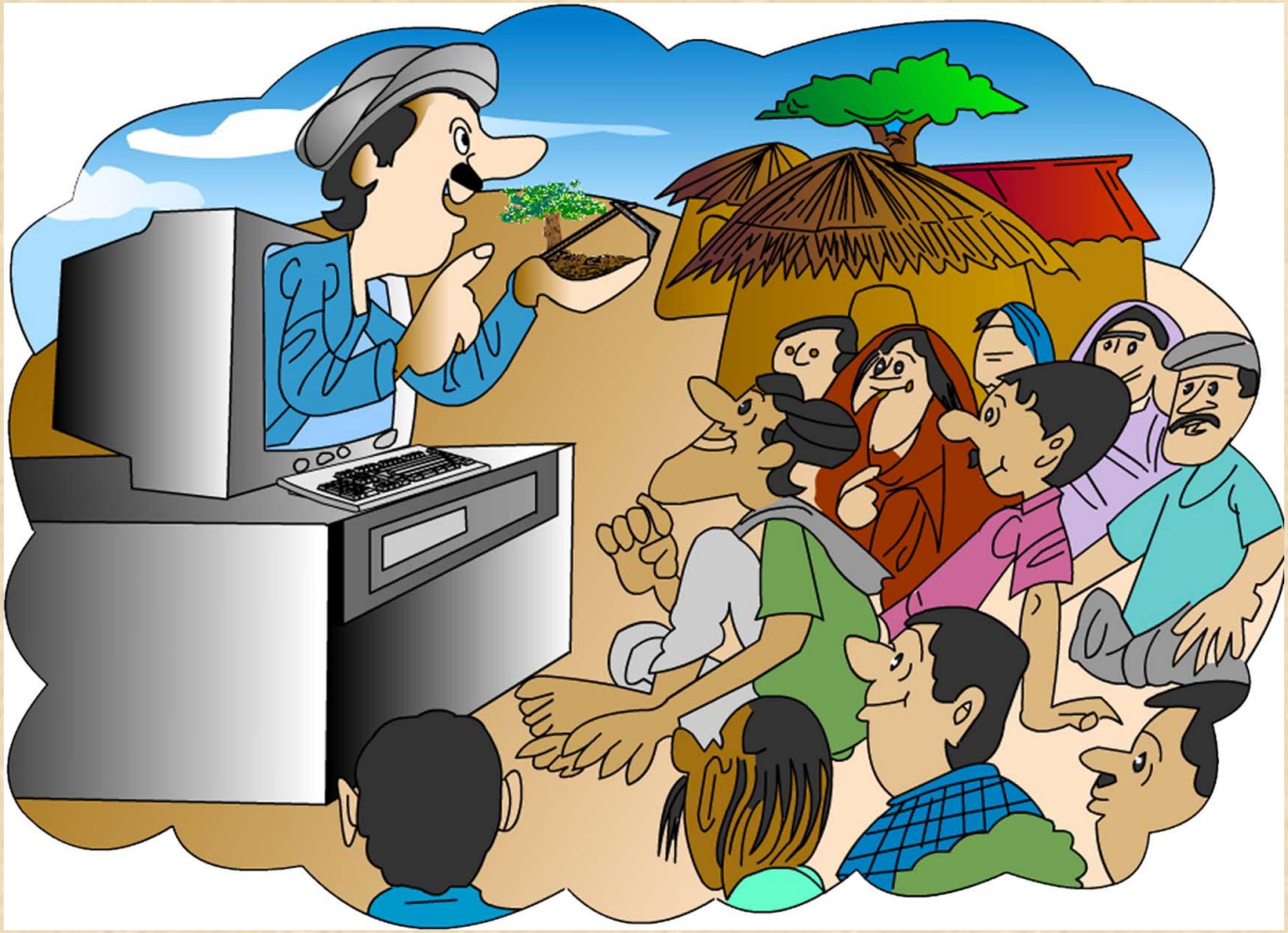
Shodhyatra



Honey Bee

Traditional Food Festival

MULTILINGUAL KIOSK



IPR Protection

The IP management team of NIF and its associates (GIANs) have filed more than 222 applications for Patent, Trade Mark and Design registrations.

- **Patent applications filed in India – 218**
- **Patent applications filed in USA – 07**
- **PCT applications – 01**
- **Trade Mark applications filed in India – 15**
- **Design applications filed in India – 04**
- **PPVFR-11**

Out of these, 34 patents have been granted in India and 4 in US.

For HMT paddy variety we have filed PPVFR Application

The first granted patent by the USPTO was for the Cotton Stripper Machine, No : 6543091 dated April 8, 2003.

Innovations in NIF database

- Click to see Innovations/Practices

Farm Equipments & Agro Processing

- Cotton Stripper
- 10 HP Tractor
- Machine for threshing coconut husk
- Tool for climbing coconut tree
- "Aaruni" bullock cart
- Bicycle Hoe
- Groundnut Digger
- Multipurpose agricultural equipment
- Paddy Thrasher
- Bullet santi
- *Tractor drawn onion transplanter*
- Coconut harvester
- Coconut husker
- Arecanut husking machine
- Rain gun
- Garlic peeling and lemon cutting machine
- Sugarcane Trash Grinder, Power Tiller operated Sugar cane stubble shaver cum weeder and tractor operated sugar cane stubble shaver
- Multi purpose processing machine

Honey Bee

Gujarat

Motorcycle Driven Santi

Mr. Mansukhbhai Jagani

A drought-prone region like Amreli has the usual problems: scarce fodder and thus weak draught animals, in addition to scarcity of labour due to migration to towns. Mansukhbhai, inspired by a local mode of transport, the three-wheeler taxi, converted his Enfield Bullet motorcycle into a ploughing, weeding and sowing contraption by simply removing the rear wheel and replacing it with an attachment with two wheels and a tool bar.

This unique motorcycle driven multipurpose tool bar is very cost effective as it is fuel efficient and saves on labour as well. GIAN has stepped in for value addition and patents have been granted in India and the US.

Video

Indian Patent Number :: 205097
US Patent Number :: 6854404

Tractor drawn onion transplanter

Pandharinath Sarjerao More

The task of transplanting onion seedlings manually is time consuming, labour intensive and toilsome process. PS More, a farmer and an innovator, has developed an affordable, semi-automatic transplanter for timely sowing of onion seedlings. It is a tractor drawn semi- automatic unit. It can perform three functions at a time viz. transplanting the onion, applying the fertilizer and making the irrigation channels.

When the tractor moves forward, the star wheel type metering mechanism gets the drive to release the fertilizer in the tubes. The seedlings are delivered manually in the delivery chutes for planting. The inter-row and inter-plant spacing can be adjusted in the machine to a finer level. Two depth controlling wheels fitted on either ends of the equipment maintain the uniform depth of onion planting, which is kept at 1 cm.

Honey Bee

Tamil Nadu

Coconut Harvester

Mr. P. Karuppiah

How does one harvest coconuts from tall trees in big farms while employing only two people? Simple: use a coconut harvester. Mr Karuppiah's Coconut Harvester is inspired by the JCB excavator model and can harvest matured nuts from trees up to a height of 50 feet. Using a hydraulic jack, 10 levers from a tractor and light-weighing iron plates, this machine elevates one person to the desired height while the other drives the machine.

Usable in even rainy season, this machine can harvest up to 10 acres of plantation in a day, saving time and labour costs to the tune of Rs 800 per day.

Indian Patent Number :: *198889*

Video

Honey Bee

Tamil Nadu

Coconut husker

Mr. R. Jayaseelan

The Coconut Dehusker is designed to reduce the price costs involved in manual dehusking. Mr Jayaseelan's machine has a 1.5 HP electric motor, a cylindrical metal shaft, one end of which has two sharp blades at a foot's distance from each other.

When these blades rotate, the husk is removed in four pieces, leaving behind only some coir fibres in the nut, which can be removed later. The machine can dehusk up to 150 nuts per hour!

Video

Honey Bee

Karnataka

Arecanut husking Machine

Mr. Narasimha Bhandari

Peeling the shell of an areca nut is not an easy task. To make it a little easier, Shri Bhandari designed a manually-operated machine, to be rotated by hand. This turned out to be too slow, so he designed an automatic version, which can peel 20 kilos of nuts in an hour.

This is four times more efficient than expert labour. The machine can peel an areca nut of any size and is better compared with others of its kind in the market.

Video

Honey Bee

Karnataka

Chandraprabha Water Gun (Rain Gun)

Shri Annasaheb Udagavi

The uses of the Chandraprabha Water Gun, more memorably known as 'Rain Gun', are twofold: it can wash away white flies and aphids from the tobacco plant, which is a novel method of pest control; and it can irrigate the dense sugarcane crop with great efficiency. After seven years of maintaining a betel-vine orchard with drip irrigation, Annasaheb shifted to tobacco.

He believed that the best way to get rid of pests was to wash them away with a high-pressure water spray. So he designed this innovative sprinkler. Later when he shifted to the difficult-to-irrigate, dense sugarcane crop, he realised that the rain gun had an alternative use as well.

Video

Honey Bee

Gujarat

Pulley with stopper

Mr. Amrut Bhai Agrawat

Women, while pulling up water from a well, have to contend with rope burn, fatigue and the prospect of a bucket full of water falling back into the well due to sheer tiredness and inability to continue pulling. SRISTI organised a brainstorming session with innovators and posed this as a problem.

Amrutbhai has come up with an entirely simple yet brilliant solution. Attach a lever or a ratchet on the pulley so that the bucket can be pulled up but cannot fall back down into the well, thus enabling the women to stop for a breather without the fear of previous effort going waste. Amrutbhai has since designed improved versions of the pulley, called Ganga, Jamuna and Saraswati, and they are cheap, costing only between Rs 150 to 250.

Video

Honey Bee

Gujarat

Cotton Stripper Machine

Mr. Mansukhbhai Patel

To reduce the drudgery involved in removing cotton from its shell and to reduce the costs of manual labour, Mansukhbhai has designed a cotton stripper which is a more efficient and a quicker way of obtaining cotton.

The machine can process 400 kg of cotton per hour, besides delivering an improved quality of cotton. It is available in two models, one with suction feed as auxiliary attachment.

Indian Patent Number :: 198755
US Patent Number :: 6543091

Video

Honey Bee

Gujarat

10 H P Tractor

Mr. Bhanjibhai Mathukia

Small farmers don't need big tractors. Working with this simple logic, which companies don't seem to have figured out, Bhanjibhai has developed small three and four wheel 10 HP tractors. These are cost effective, easily manoeuvrable, simple in design, with a load carrying capacity of two tonnes and capable of performing all agricultural operations.

Video

The Dept of Science and Industrial Research, Ministry of Science and Technology, the Govt of India, has supported the product while GIAN is acting as a nodal agency in its commercialisation.

Indian Patent Number :: 202478
US Patent Number :: 6902022

Madhya Pradesh

Shri Shamrao Parhate

Shivraj Multipurpose Equipment

The 'Shivraj' is a multipurpose tool frame drawn by paired bullocks. It is lightweight and can perform up to six agricultural unit operations. Different accessories can be attached to it for different operations like shallow ploughing, interculturing, weeding, sowing, residue collection, groundnut digging and soyabean harvesting. With modifications, it can also be used for spraying.

It consists of a multi-purpose tool frame mounted freely on the central shaft of ground wheel to which accessories can be fitted: for example, the seed drilling attachment can be replaced by a seating attachment.

The field capacity of the equipment is 0.27 hectare/hour and the cost of the product with attachments for seeding, ploughing and interculturing is around Rs. 12,000

Kerala

Machine for threshing coconut husk for coir industries

Mr. K.R. Chandran

A machine to thresh paddy from the hay was a first in Kerala when Mr Chandran introduced it after a year and a half of research. Soon it became quite popular in the Kuttanad paddy belt where many farmers have bought it.

The machine costs Rs 3 lakhs and is able to thresh 5000 husks in eight hours, with only two labourers required for the job. The machine, which works with a 10 HP diesel engine, has the additional advantage of being easily transportable.

Video

Honey Bee

Tamil Nadu

Sugar Cane Trash Grinder, Power tiller operated sugar Cane stubble shaver cum weeder and tractor operated sugarcane stubble shaver

Shri S.Ganesamurthy Asari

Mr. Ganesamurthi Asari (47) has developed- first, the sugarcane trash grinder and second, the stubble shaver operated by tractor or tiller and third, the tractor operated off baring plough The sugar cane trash grinder, which can handle both dry and fresh sugarcane trash, has a safe feeding chute with rollers that take in the input and then it moves on to a heavy duty grinding drum powered by an 3HP electric motor and the size reduction up to 2 mm is done by the crushing action Sugarcane stubble shaving has to be done immediately after harvesting, before it becomes dry. The manual methods employed are tedious and impractical and affected by labour shortage. It is a power tiller operated sugarcane stubble shaver and helps in good ratoon management. The cutting mechanism is rotary on a horizontal plane, similar to the tractor version and unique as compared to swinging blades available in most of the alternatives. This enables fine and closer depth of stubble cutting.

Video

Indian Patent Application Number :: *343/CHE/2007*

Honey Bee

Gujarat

Paddy Thresher

(Late) Shri Dilip Singh Rana

Traditionally paddy is threshed by beating followed by winnowing and cleaning by the fan. Paddy stalks are the main source of fodder for the animals in the region and in addition they are the raw materials for paper industries.

Dilip Singh developed paddy thresher where the paddy grains and stalks are obtained separately at the end of the threshing process.

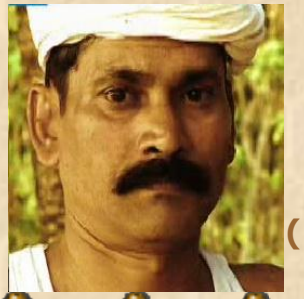
His innovation is a hybrid product of two well known concepts i.e. threshing by beating and retaining the whole stalk

Video

Honey Bee

Kerala

Coconut tree climber



(Late) Mr. M.J. Joseph alias Appachan

Climbing tall coconut trees is no mean task. But with Mr Joseph's tree climber, even women can easily climb up a coconut tree.

It is also ideal for climbing in the rainy season, which is otherwise dangerous. The device also serves in easy application of insecticide.

Indian Patent number: 194566

Video

Honey Bee

Gujarat

"Aaruni" bullock cart

Mr.Amrutbhai Agrawat

Amrutbhai's tilting cart symbolises the simplicity of great ideas. This device with is automatic tilting function resolves to a great extent the problem faced by female and child labour, working in severe heat and often pathetic working conditions. It helps in the easy application of fertiliser in the field.

Amrutbhai initially had a hydraulic tilting mechanism but later shifted to mechanical tilting. The idea has been promoted by SRISTI and has received many awards.

Indian Patent Number :: 194420

Video

Honey Bee

Maharashtra

Bicycle Hoe

Mr. Gopal Malhari Bhise

Sh. Gopal was planning for an alternative solution triggered by the impeccability of the bicycle's carrying capacity sometimes as high as four quintal of material. He thought of the innovative cycle drawing apparatus by utilising only the frontal portion.

The weeder costs around 1000/ 1200 rupees and can weed one acre of land in five hours by a person of his age. As it is manually drafted depending upon the capacity of the person the time of weeding can be reduced further. This cycle-hoe further adapted to weed the hard soil by fixing a pick-axe. He plans to attach a Luna / moped engine so that it becomes faster and requires less draft energy.

This is a multipurpose farm implement fashioned out of inexpensive bicycle components. The main part of the implement consists of the front portion of a bicycle, namely the handlebar, front axle and the wheel. A steel fork is connected to the axle and the other end carries different kinds of attachments. Separate attachments for weeding and tilling or a harrow are attached changing the attachments as needed. Suitable slots are provided for attachments so that the distance between the blades can be adjusted to suit specific requirements.

Honey Bee

Rajasthan

Groundnut Separator

Mr. Yusuf Khan

- Powered by the coupler from the tractor unit
- Reduces labour for groundnut harvesting
- Harvests half acres per day.
- Economical as compared to conventional machines.
- Costs Rs. 35,000/- with motor power of 35 H.P

Indian Patent Application Number :: *1806/DEL/2004*

Video

Honey Bee

Tamil Nadu

Garlic Peeling and Lemon Cutting Machine

Mr. Nagarajan

GARLIC PEELING MACHINE

- Machine used for mass peeling of garlic
- It does not damage and it maintains the original property of garlic
- The machine is run by a 2 HP electric motor
- capacity of peeling of garlic is 200 kg/hr
- After peeling garlic is of uniform nature, neatly and conveniently collected and recovered
- simple in construction, easy in operation and maintenance
- Indian Patent Application Number :: *1374/CHE/2004*

GARLIC PEELING MACHINE

Video

LEMON CUTTING MACHINE

- Machine used for mass cutting of lemon to the required shape and size in a continuous fashion
- Single lemon is cut into eight pieces
- capacity to cut 450 Kg. lemons per hour
- Very useful for pickle industry
- Indian Patent Application Number :: *807/CHE/2004*

LEMON CUTTING MACHINE

Video

Plant Variety

- New cardamom variety – 'Njallani'
- New paddy variety – 'Chinna Ponni'
- New pigeon pea GDP-1 Variety
- New cauliflower variety – 'Ajitgarh selection'
- New White Flowered Cardamom Variety
- Improved varieties of wheat, paddy, mustard and pigeon pea
- Groundnut Variety – 'DHIRAJ 101' Tolerant to Wilt
- New paddy variety – 'Mysore Mallige'
- New nutmeg variety – 'Kadukkamakkan Jathi'
- New arecanut variety
- HMT Paddy Variety and DRK
- New Cardamom Variety "PNS" Vaigai
- New Cardamom Variety "Panikulangara Green Bold No.1"

Honey Bee

Mr. Reji Joseph Mr. Sebastian Joseph

Kerala

New cardamom variety – Njallani

Noting variations in the size and shape of certain cardamom berries, Mr Sebastian Joseph began the long process of nurturing a new variety. He selected the good berries and cross-pollinated them. Selecting four plants, he nurtured beehives in their midst and covered the plants with a mosquito net. He also identified the flowers producing the unusual berries which were double the size of the common Mysore variety. He called this new variety 'Njallaniyil' after his ancestral family name. Not content to rest on his laurels, Mr Joseph began to plant shoots instead of seedlings, thereby shortening the yield span without compromising its quality or quantity.

He has recently developed another cardamom variety, yet to be named, which he says can even grow in the plains and not just on the hills. His son, Rejimon, has been a significant help to him. However, the Josephs have not been able to derive much benefit from their breeding innovation due to the absence of a Plant Variety Act in our country.

Tamil Nadu

A New Paddy Variety - " Chinna Ponni "

Mr. C. Rajendran

In 1989 Mr Rajendran began his on-farm research work. He would visit farmers' fields and look for odd plants and request farmers for the seeds of outstanding plants. In this manner, he developed a paddy variety called 'Parani'. In 1991 he released it to the farmers, who liked it for its drought and pest resistance and higher yields.

He went on to develop another variety which had the ability to withstand water stagnation due to heavy rainfall. Experimenting further, in 1994 he finally developed a superior paddy variety, which he termed 'Chinna Ponni', which combined all these qualities. Now up to one thirds of Tamil Nadu's paddy growing area sows this seed variety. However, Mr Rajendran feels that farmer breeders should get more encouragement and incentive to share their innovations at a wider level.

Honey Bee

Gujarat

Groundnut Variety – 'DHIRAJ 101' Tolerant to Wilt

Diraj Lal Tummar

A new groundnut variety has been developed by a farmer Dhirajlal Virjibhai Thummar by selection from the GG 20 variety. This early maturing variety is resistant to wilt due to stem rot.

Flowering in 28-30 days, Dhiraj 101 matures in 95-105 days. The plant is 30-45 cm high and is of the semi-spreading type. It bears 35-40 pods per plant with a seed rate of 90-100 kg per hectare. At 3200-3500 kg per hectare, the yield is also higher than that of the locally cultivated varieties (GG 20 & GG 2). The oil content is also higher at around 42-45 per cent.

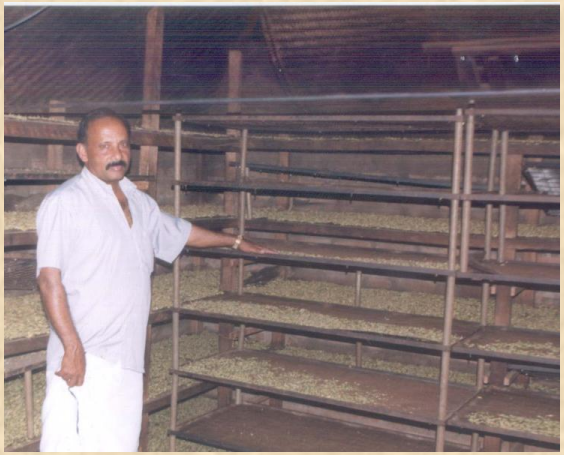
This variety performs well in average monsoon as well as in less irrigation conditions.

Honey Bee

Kerala

New Cardamom Variety "Panikulangara Green Bold No.1"

Joy Peter



Joy Peter has developed a high yielding variety of cardamom from the land race Vazhukka type of cardamom through recurrent selection. This variety, maturing 75-80 days after flowering, is less prone to disease and pests. Its green and dry capsules yield is1500 kg/acre and 375 kg/acre respectively.

The extent of flower drop is also lesser than the traditional variety. The capsules are bolder and the ripe ones retain green colour and size even after drying. Based on the performance, the former Director of Spices Board officially released the variety for distribution with the name: Panikulangara Green Bold No. 1.

Now that a colleague from formal sector has recognized the farmers; breeding innovation, will scientists and policy makers also respond?

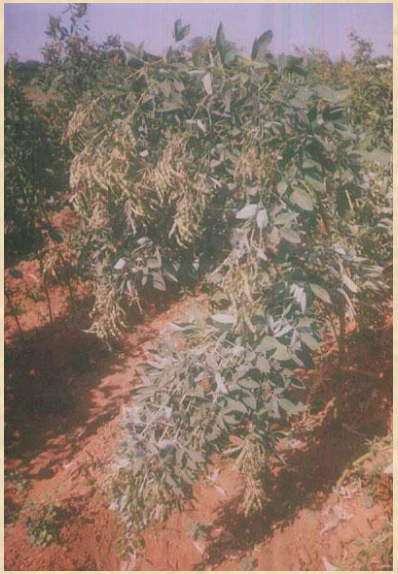
Honey Bee

Gujarat

New variety of pigeon pea – G.D.P 1

Mr. Dhulabhai Punjabhai Patel

Doing his usual round of the fields, Dhulabhai's attention was caught by three pea plants that had red and pink flowers instead of the usual yellow ones. Looking further, he observed that they also had a greater number of seeds. As Dhulabhai found out later, these plants had another great advantage, which was that they did not attract pests, as the yellow colour of the other flowers did, thus obviating the need for chemical pesticides.



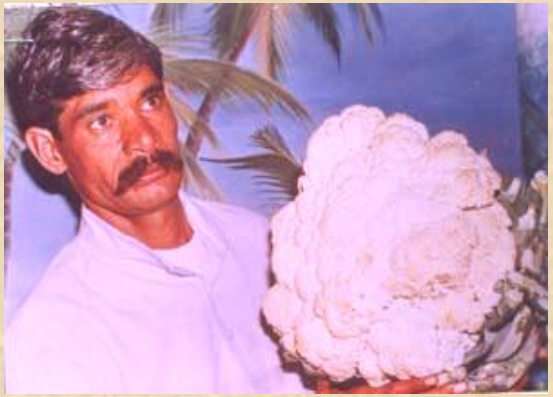
Sowing seeds of this variety, Dhulabhai found in the next harvest that even as they retained the parent characteristics, they had early maturity and higher yield, in addition to lower incidence of pest attack. The villagers called this variety the Gadha (name of the village) Dhulabhai Punjabhai-1 (or GDP-1). This variety is now popular not just in Gadha but in many of the surrounding villages.

Honey Bee

Rajasthan

A new cauliflower variety 'Ajitgarh Selection'

Mr. Jagdish Prasad Parikh



In 1970 when Mr. Jagdish Parasad Parikh went to Jaipur to purchase seeds, he saw saplings of Cauliflower in a farmer's farm. He got some plants and planted it near a well. Some of the plants significantly had white fruit, which was bigger as compared to other available fruits. So he took seeds from his choice of plant and sowed them.

Thus he developed a new variety of Cauliflower called "Ajitgadh - selection". It is very different from normal or other Cauliflowers. It is not affected by the high temperature of the region and insect and disease incidence is also less. This he has been doing for 25 years, and presently variety developed by him has cauliflower of 12-kg weight.

Honey Bee

Karnataka

‘Mysore Mallige’- A unique paddy variety

Mr. Lingamadaiah

Confronted with pest and disease problems with his paddy crop for many years, in addition to the problem of less milling recovery, Mr Lingamadaiah has bred a new paddy variety through the selection procedure.

This variety yields more without extra input (36 quintals/ acre) and the milling recovery is 80%. It is of short duration and if organically grown is free of pest and disease attack. Mr Lingamadaiah has been growing it since 1993 and it has covered 25-30% of paddy growing area.

Kerala

New Nutmeg variety - Kadukkamakkan Jathi

Mr. Abraham Mathew

From a garden of nutmeg seeds, introduced from Sri Lanka in 1946, Mr Mathew selected some seedlings and bred this variety at Kallanode in 1971.

The Indian Institute of Spice Research, Calicut, studied this variety in detail and they have issued a certificate testifying to the superiority of this variety.

Honey Bee

Karnataka

Dwarf, High yielding Arecanut Variety

Mr. Narayan Bhatt

By crossing two arecanut varieties, Mr Bhatt has developed a new third one. The Heerehalli dwarf variety grows to 20-25 feet but bears a single bunch of about 100-150 ripe nuts.

Mr Bhatt crossed this with the Tall variety, that grows to 50-60 feet but bears four to five bunches, yielding 450-500 ripe fruits, to obtain the new variety that has the height of the Heerehalli dwarf and the yield of the Tall variety, with an average of 400-500 ripe fruits. Pretty neat work.

Honey Bee

Maharashtra

HMT Paddy Variety

Mr. Dadaji Ramaji Khobragade

- Shri Dadaji Ramaji Khobragade selected and bred a new variety of rice called HMT from Patel 3 variety.
- Painstakingly developed this variety over a period of 5 years by experimenting and cultivating it on his own land. The average yield of the variety is 40 - 45 quintals/hectare Short grains, high rice recovery (80 %) Better smell and good cooking quality.

- PPVFR Application Number :: *REG/2008/138*

DRK varity

Deepak Ratna was neither notified nor protected. The initial material has been acquired from his field of Deepak Ratna variety. He provided the seed of the variety to farmers of his locality, neighbouring areas and Bilaspur (Madhya Pradesh). The farmers have given good feedback to Dadaji Ramaji.

Honey Bee

Kerala

New White Flowered Cardamom Variety

Shri K.J.Baby

The cardamom variety developed by the K.J. Baby is belonging to Vazhuka type cardamom cultivars bearing purely white flowers, has high productivity than other cardamom plants and can be grown in waterlogged areas as well. The variety has wider adaptability to different shade conditions apart from having high production with good quality that is even higher than other Mysore and Vazhukka cultivars viz., Njallani, Green-bold, Palakkudi and Veeraputhara varieties which are locally popular. It has sturdy plants, robust tillers and deeper root system which makes it resistant to various biotic and abiotic stresses

Honey Bee

Shri P.N.Surulivel

Tamil Nadu

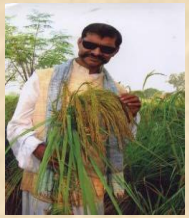
New Cardamom variety PNS Vaigai

The PNS vaigai variety, the seed size is large compared to the local variety Njellani. The yield obtained is also greater and consistent, 900-1400 kg / acre from 1996 till date, with 60-70 % of 7 mm capsules. The number of internodes (average 40-45 no.) is high when compared to the other locally popular varieties. The rhizomes are bigger, bolder bearing 3- 4 Inflorescence each, which in turn bears around 25-32 racemes each. The rind (skin of capsule) is thin and hence the recovery percentage is higher than Njallani. Also there is no difficulty in post harvesting. In fact the driage recovery has been higher than the local variety.

Honey Bee

Uttar Pradesh

Improved varieties of wheat, paddy, mustard and pigeon pea

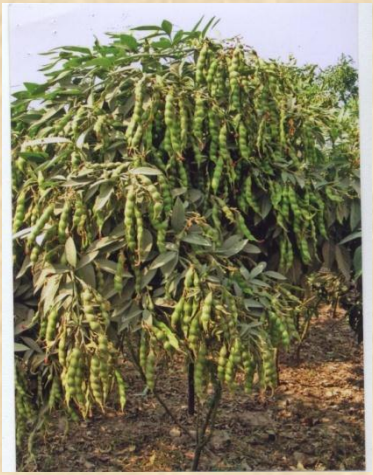


Prakash Singh Raghuvanshi

FEATURES

Wheat: More tillers; lengthy spikes; more seeds per spike; hardy stem; high protein content, High yield (**65-70 q/ha)**

Pigeon pea: Bold seeds, robust stem, more number of pods per plant, high yield (**3617 kg/ha)**



Mustard: Bunchy siliquae, higher number of seeds per siliqua, synchronous maturity, High oil content, high yield (**1405.24 kg/ha)**

Validation: CSUAT, Kanpur, IIPR Kanpur, NRCRM, Bharatpur

Diffusion: UP, MP, Chhattisgarh, Rajasthan, Bihar, Gujarat, Haryana, Punjab

Cultivation Practices

- Cotton cultivation under water stress condition
- 'Pappachan' style of pepper Cultivation

Honey Bee

Haryana

Cotton cultivation under stress condition

Mr Harbhajan Singh

Recently cotton cultivation was badly affected by the incidence of white flies, diseases and overuse of insecticides, to the extent that many farmers gave up cultivating cotton, enduring great economic loss. Harbhajan Singh and his brothers then devised a new method of cultivation, which is sowing cottonseeds on ridges in a pattern of 2feet-6feet-2feet. That is to say, they kept a six feet gap between each set of two ridges at two feet distance from each other.

Tractors were used to set the spacing between the ridges and water was allowed to flow only in the two feet gap and not in the six feet one. This pattern of sowing and irrigation helped them obtain a good yield even during the years of drought and in conditions of acute scarcity of water.

Honey Bee

Kerala

'Pappachan' style of pepper cultivation

Shri P.A.Francis

In Papachchan's agronomic practices adequate natural drainage is the best for pepper cultivation. He prescribes a two feet deep and one-foot wide trench along the border for isolating the pepper garden from other trees. No pits were taken up for planting.

Pepper is grown as a pure crop in order to avoid intercropping losses. Planting material is prepared by cutting runners just below the nodes to restrict the plant to a single root. Jackfruit is considered as the best of the standards due to its timber value and manorial value of leaves.

Saplings are planted close to standards so that the collar region is about three inches above the ground and is exposed to environmental conditions from the tender age so that the plants develop innate resistance. Mulching is used to reduce the erosion effects of raindrops and to conserve the soil. Mother vines are selected very carefully based on the past performance so as to obtain regular good yields, better growth and pest free cultivars.

Plant Protection Practices

- Solution for rice bug attack on paddy
- Organic pesticides & fungicides
- Herbal preparation to control termite in groundnut crop

Meghalaya

Baffling solution of rice bug attack on paddy

Mr K D Kharkongor

The Rice or Gandhi bug is a serious insect pest for a standing paddy crop in both the uplands and the lowlands. Usually its incidence is sought to be controlled through insecticides. The farmers of Ri-Bhoi district in Meghalaya have an alternative and interesting solution. They simply place dead crabs in the rice fields to divert the bugs who are attracted by the foul smell of the crab's dead body.

Even as they suck away the flesh of the crabs, the bugs are collected in a container and eliminated before they can migrate to the crop again. This traditional method reduces the bug population to a large extent, though it does not ensure the complete eradication.

Kerala

Organic pesticide & fungicide

Mr Sonu Mathew

A student in class VII took it into his head one day to conduct a survey, with the help of some other students, in the Mullankolly Gram Panchayat in Kerala, on the subject of farmers' problems.

They then developed five biofungi/ insect pest control agents, which they named as: Students' Garlic Mixture, Young Scientists' Ginger Grass Mixture, Karshaka Mithra Parpure Lavani, Plantain Saviour, and Udyana Rakshini. They have introduced the agents in Gram Sabhas and the farmers have been using them with good results.

Honey Bee

Gujarat

Herbal preparation to control termite in groundnut crop

Nathubhai Becharbhai Patel

Termite infestation is major problem in different crops and results in major losses. Nathubhai Patel (65), a farmer from Sabarkantha, has developed a formulation for termite control in groundnut crop.

Energy & Water Management

- Energy Efficient Stove
- Two in one stove
- Pumpless stove
- Oil expeller machine
- Crematorium
- Micro windmill
- Reversible Reduction Gearbox for Marine Diesel Engine
- Check Dam
- Rider-induced and terrain-induced transmission system for bicycle
- Air energized pressure cooker
- WindMill
- Reversible Reduction Gearbox for Marine Diesel Engine
- Biomass gasification system
- Eco-Friendly Mosquito Destroyer

Honey Bee

Kerala

Reversible Reduction Gearbox for Marine Diesel Engine

Mr. Mohanlal

The diesel engine powered systems do not have gear system for better maneuverability. To overcome the above major problems the innovator developed a suitable gearbox for inboard diesel engine for better maneuverability and to minimize the fuel cost.

Video

Gujarat

Energy Efficient Stove

Shri Bharatbhai Agrawar

Bharat fitted an exhaust chute to a wood stove and noticed that a lot of heat was still coming out which made him conclude that non utilization of heat as major lacunae in existing wood stoves. He decided to solve the problem by facilitating better heat utilization, allow sufficient airflow and provide correct channel for burning and achieve simultaneous heating of multiple vessels using the same heat source.

His basic idea is to utilize the maximum amount of heat from combustion of wood by passing through various chambers. The excess fumes are passed out using a silage pipe of about 7 foot.

The stove consists of three chambers; two burners for cooking and a geyser for heating water. All three burners can be used simultaneously saving time and using the heat effectively

Honey Bee

Karnataka

Two in one stove

Ms. Jyothi Ravi Shankar

- It uses wasted radiated heat in a wood fired stove to heat water
- Hot water on the side of the oven can be used for making tea, coffee
- In 2 hours up to 150 liters of hot water at 80 Deg C is made available
- Entire unit is portable and can be set up anywhere

Honey Bee

Uttar Pradesh

Pumpless stove

Mr. Sameerul Liaqati

- Eliminates need to pump air.
- No need of cleaning burner pores.
- Very less deposits due to high pressure gas burner.
- Cost is almost same as conventional stove (Rs 300/-)
- Easy to operate even for handicapped, children & women due to less efforts and time required.

Honey Bee

Gujarat

Energy efficient Oil expeller Machine

Mr. Kalpesh Gajjar

Kalpeshbhai is a high-school dropout. This did not prevent him from being the first in his town to own a computer and using it to innovate an oil seed crusher, called the 'Swastik Expeller'. Having taught himself the use of a computer, Kalpeshbhai employed Computer Automated Designing or CAD to design this expeller that is three times as fast as an ordinary one, consumes just two-thirds the power and is automatic. The machine is mounted on gears instead of using V-belts to drive the crushing shafts.

Seeds are taken in automatically instead of having to be fed in manually, only three labourers being required to operate it as opposed to the six in a regular expeller machine. What is more, this one is portable. Kalpeshbhai hopes that with his innovation even small farmers would become oil producers instead of having to sell out to the trade barons.

US Patent Application Number ::10/277859

Video

Honey Bee

Meghalaya

Low cost Crematorium

Mr. Kambel Chulai

- Low cost environment friendly
- Open at one end and connected to a 36 feet high chimney at the other end
- Only Rs.200 worth of firewood is used
- Cremation time reduced to less than 1 ½ hours
- Smoke and fume reduced by 90%

Video

Andhra Pradesh

Micro Windmill-driven battery charger

Mr. N V Satyanarayanan

Imagine a small fan functioning as a windmill while you travel and charging the batteries of your cellular phone or laptop. Mr Satyanarayan's device works as a miniature version of power windmills, harnessing wind energy to generate electrical charge.

Cost-wise, it works out to be less expensive than using dry cells and it has the additional advantage of minimizing disturbances in telecommunications. So the next time you travel long-distance, don't forget to take your micro-windmill along with you.

Indian Patent Application Number :: 1277/DEL/2002

Honey Bee

Gujarat

Innovative Check Dam

Mr. Bhanjibhai Mathukia

The river Dhrafad flowed serenely through Bhanjibhai's village until he decided one day to check dam it in an uncommon semi-circular pattern. Taking stones the size of 11*15 inches, Bhanjibhai placed them in the flowing water with a little distance between each pair of stones.

Video

These gaps were then filled with river sand, cement and stones. The total costs, including labour charges, came to Rs 8000. Bhanjibhai has built this dam without any help at all from the formal machinery.

Honey Bee

Assam

Bicycle with rider–induced and terrain-induced forces for transmission system

Mr. Kanak Das

A bicycle that only goes faster each time it encounters a bump is hard to imagine but that is exactly what Kanak Das claims to have achieved. Kanak's contraption features a transmission system that is actuated by terrain-induced forces and the rider's motional responses to them.

Terrain-induced vibrations are coupled with the weight of the rider to propel the bicycle with the use of a spring and freewheel. A pinion actuates the freewheel, which receives a corresponding motion to that induced by the undulations of the road.

Video

Tamil Nadu

Air energized pressure cooker

Mr. Duraisamy

The problem began when Mr Duraisamy was unhappy at having to eat cold food. By the time his wife could bring food from the house to the farm, it got cold. The solution came from a class IV text book belonging to Duraisamy's daughter. In it was written that air when compressed generates heat. He also knew from his own experience that a cycle pump gets hot when air is being pumped from it. He thought of utilising the heat wasted at the exhaust of a water pump.

Using an old engine as a compressor, Duraisamy took a pressure cooker and made two holes in it. Inside the cooker he kept a sealed container that was to act as a heat exchanger. The hot compressed air was pushed in through one hole and came out through the other. Thus was made a unique pressure cooker fuelled by compressed air. It takes about seven minutes reach a temperature of about 300 degrees centigrade.

Video

Honey Bee

Rajasthan

Biomass gasification system

Mr. Rai Singh Dahiya

- The system has unique gasification unit and filtering mechanism
- Gasifier is compact and surrounded by water jacket
- The system has two stage filtration and cooling system; One is grit filter while the other is triple action filter made of alternate perforated and non perforated plates
- Fuel consumption is reported to be 1 kg/kVA and claimed to be almost 30-40% less than available designs
- Price of the 10 kW, 25 kW, 30 kW and 35 kW unit is Rs. 1, 25,000, Rs. 2,00,000, Rs. 3,00,000 and Rs. 3,25,000, respectively.

Video

General Utilities

- Tea Making Machine
- Septic Tank Baffle System
- Eco-Friendly Mosquito Destroyer

Honey Bee

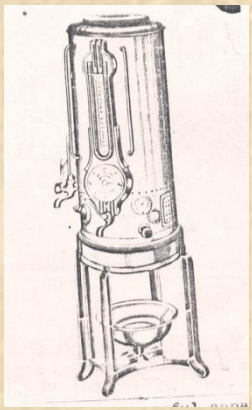
Haryana

Tea Making Machine

Late Sh. P.L. Mistry

Mr. Ashok Dhiman

- Facilitates the Indian method of making tea.
- Capacity to store tea-leaves and sugar for a month.
- No contamination or evaporation of milk due to enclosed preparation.
- Effective and easy cleaning and maintenance.
- Produces 4 cups of tea in 5 minutes.
- Indian Patent Application Number :: 994/Del/2004



Video

Tea / Coffee making apparatus innovated by Sh. Mistry in 1943

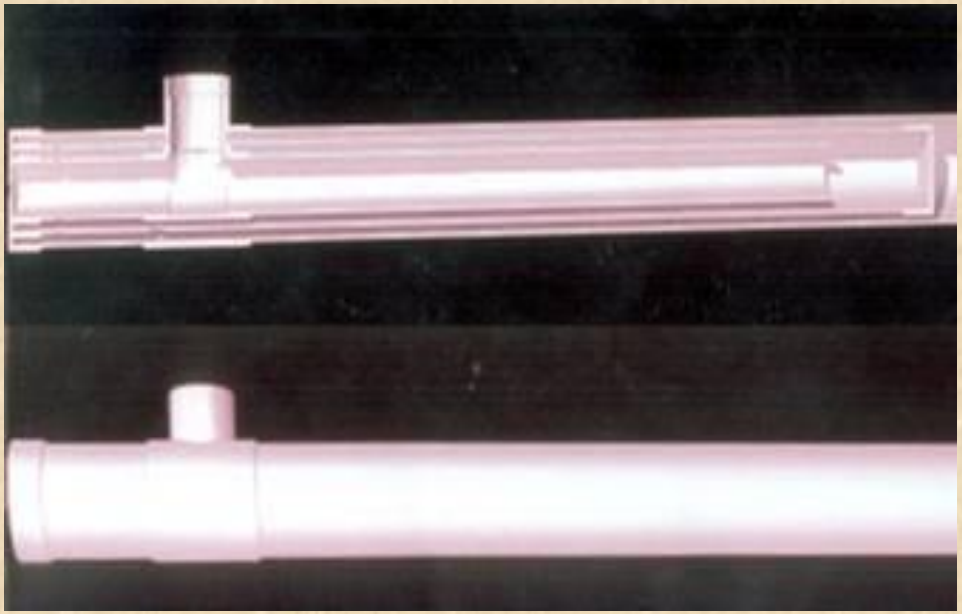
Honey Bee

Kerala

Septic Tank Baffle System

Mr. Rajesh T R

- Compact co-axial system of PVC pipe components which functions as filter unit when fitted with septic tank.
- Saves volume by replacement of separating walls used in conventional septic tank
- Test result has shown the effluent quality (Bios Chemical Demand-BOD) at outlet to be at 22 mg/liter.
- 30 - 40 % cost reduction as compared to the conventional septic tank.
- Patent granted
- Indian Patent Application Number :: *806/CHE/2004*



Video

Transport

- Amphibious bicycle
- Variable gear system
- Camel bus
- Water walking shoes
- Modified scooter

Honey Bee

Bihar

Amphibious bicycle

Mohd. Saidullah

- Bicycle can run stable in water and on land as well without need to dis-assemble the unit.
- Facilitate to cross ponds, rivers and will not dependent on boats
- The cost of the bicycle is Rs. 3000/-

Video 1 Video 2

Honey Bee

Uttar Pradesh

Water Walking Shoe

Shri Dwarka Prasad Chaurasiya

Dwarka Prasad uses large specially designed shoes filled with thermocol, fitted to each foot, and oars filled with thermocol to walk on water using buoyancy principles. The use of lightweight thermocol gives the desired buoyancy.

The shoes for walking on water consist of two floats made of thermocol bonded to rexine sheet. The whole unit is attached to the metal straps with back foot support and the two individual shoes are also tied to each other to prevent them from going too far apart beyond one's ability to steer or navigate them.
One needs a pair of hand held oars for balancing while walking in water.

Video

Honey Bee

Maharashtra

Variable Gear System

Sheikh Jabbar

- Set of gear system makes the system easier to drive in high terrain region.
- Indigenous design of dog-lift mechanism
- Remove drudgery to rickshaw puller

Video

Rajasthan

Camel Bus

Lt. Mewaram Jangid

Late Shri Mevaram Jangid was a native of village Sujangarh in Churu district, Rajasthan. He did not receive any education and was a carpenter by profession. He had 30 years of experience in wood and metal works. He designed a double decker camel bus to carry school children in the year 1980. The main features of camel driven bus are :

- Can transport 80 children.
- Zero emission transport since it does not need any fossil fuel and is therefore pollution free and environment friendly.
- Useful in transportation in rural areas and camel belt areas.
- Eliminates drudgery for women who accompany their children to school.
- A local school, Shri Bhanvarlal Kala School, is using 5 such buses for the last 20 years.

Small Implements

- Kittanal
- Pulley with Stopper
- Low cost milking machine
- Ultra Violet Ray Protection umbrella
- Dual security Alarm
- Mobile Operated Remote Switch
- Auto air kick pump
- Electronic robot
- 'VANRAI' bicycle pump
- 'Bestow'- Foot Operated Sprayer
- Incense stick making machine
- Horse shaver
- Cow Washing Apparatus

Honey Bee

Gujarat

Kittanal

Mr. Khimjibhai Kanadia

The ‘Kittanal’ is nothing more than a tapered PVC tube but its impact is revolutionary in reducing the drudgery involved for laborers in filling up polythene nursery bags. Instead of filling the bag by putting mud into the bag in several actions, the Kittanal helps fill the bag in simple scoop. Attach the polythene bag to its tapered end, then scoop through the mud through the other, and you have your bag filled.

The laborers’ efficiency is increased by this simple device by an amazing 300% and there is no estimating the relief afforded in an otherwise tedious and painful procedure.

Video

Honey Bee

Kerala

Low-cost milking machine

Mr.Raghva Gowda

Mr.V.A.Johny

Milking a cow was never so easy. With Mr Johny's simple device, which works on the principle of vacuum suction, a cow can be milked without any irritation to the cow and with less labour involved for the person doing the milking. The device consists of a pump with a valve, plastic tubes and rubber brushes. One end of the pump is attached to the udders of the cow and the other to the container.

The working of the device is simple and comprehensible to any person anywhere as is the cleaning process. It requires no electricity. The device costs Rs 4500 and is ready for launch in the milk market.

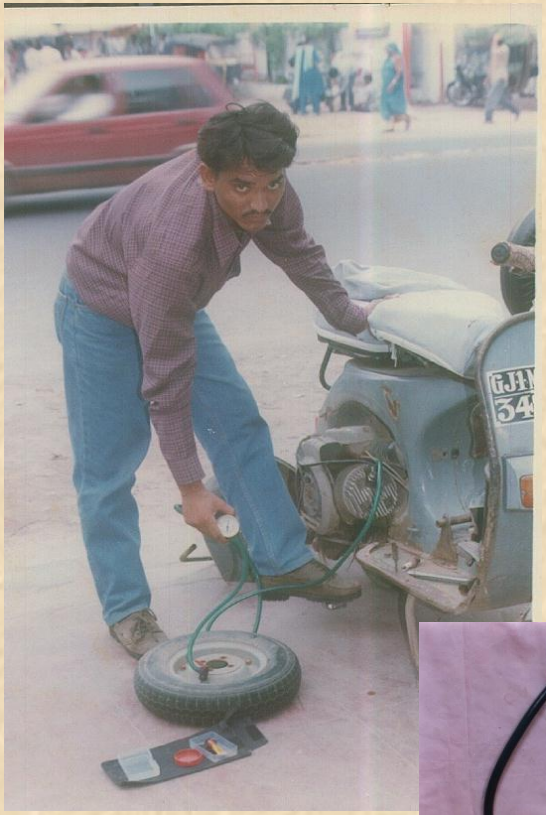
Mr. Arvindbhai Patel

Gujarat

Handy Auto Air Kick Pump

Carrying a Steppney wheel on a motorcycle is cumbersome. But what does one do when one has fixed a puncture and wants to inflate the tyre tube? Arvindbhai's device helps do this with the built-in kick-start mechanism of the vehicle. The basic principle is to transfer the air that gets compressed in the cylinder of the engine while cranking.

Applying gentle strokes to the starting handle after unscrewing the spark plug and keeping the petrol cock closed expels residual oil inside the carburetor. Then the adaptor of the device is screwed into the spark-plug hole while its other end is clamped on to the tyre valve. A few more kicks inflate the tyre. An on-line pressure gauge indicates the tyre pressure, before, during and after each stroke. Having attained the desired pressure, the device is removed and the spark plug screwed back and connected.



Video

Haryana

Electronic Robot

Mr. Prem Singh Saini

Prem Singh Saini left studies in class X in order specifically to design a robot. Since childhood Prem has been interested in electronics. His robot, manufactured at a cost of Rs one lakh, has the following most prominent features: access to places inaccessible to man, such as mines, battlefields and other planets; is operable by remote; can take photos with an attached camera; recognizes obstacles in its path and adjusts automatically.

The innovator says that it is the product of four years of unrelenting work. 40 ICs (integrated circuits), more than 200 transistors and more than 900 connections have gone into making of the robot. It has 10 wheels, 6 motors and a few sensors as well as a video transmitter and a 6 volt battery. Prem has more than 100 ideas, a few of them are : an electronic device to avert train disasters, a device to prevent hijacked planes from crashing into a building and phone operated ON/OFF switch.

Video

Maharashtra

'VANRAI' – bicycle pump

Mr. C.V. Pathak

We have seen the carrier above the rear wheel of a bicycle being used to keep stuff or seat a person. But Mr Pathak has used it to mount a pump, which can lift water for varied purposes, such as development of dry lands, in case of fire, for construction work or for irrigation.

The bicycle is taken to the water source, parked and pedaled on its stand to operate the pump.

Video

Mr. Parbatbhai Vaghani
Santokh Singh Khatra
Rasikbhai I Suthar
Chinmay C Patel

Gujarat

'Bestow' – Foot Operated Sprayer

Walking is not only healthy exercise but also enables Parbatbhai, with the help of a cylinder and piston mechanism, to convert the energy derived from the movement of his feet into pressure, which in turn enables the spraying of a liquid.

A farmer can use this device to cover two parallel crop rows simultaneously, cutting down the operation time by half, in addition to the cost cuts due to the non-requirement of any additional energy to operate the sprayer.

Video

Chhattisgarh

Incense stick making machine

Mr. Usman Shekhani

- Developed a specialised bamboo cutter used for cutting bamboo strips into small pieces for preparing incense sticks (Agarbatti) and toothpicks.
- Portable machine, requires no electricity and minimal maintenance cost.
- 2000 sticks can be manufactured per hour
- Easily affordable to the small artisans as cost of the cutter is Rs.450
- Can provide gainful employment to lakhs of rural people
- Sold over 1000/2000 pieces of machine and trained over 2000 people
- Very good response especially in MP and Chattisgarh
- Shekhani also has an idea to develop a small handy oil expeller for highly priced nuts such as Badam and spices like clove

Indian Patent Application Number :: 73/MUM/2005

Md. Idris

Uttar Pradesh

Cycle-operated horse shaver

Mohammed Idris, born on January 18, 1970, hails from Meerut, Uttar Pradesh. He studied till Class V and is a barber by profession.

He designed and developed a horse shaving device having where the the shaving clipper is operated by using the driving force from a bicycle. Other features are:

- Can be used for sheep shearing, shaving camels, horses, etc.
- Can also be operated by hand or by using an electric motor.
- Costs approx. Rs. 4,000/-.
- Can improve economy of shepherds besides making horse shaving efficient and cheaper.

Video

Assam

Ultra Violet Ray Protection umbrella

Mr. Dulal Chaudhary

How about an umbrella that not only protects you from rain and sun, but also from the Ultra-Violet radiation that normal sunlight carries? Ordinary umbrellas do not offer protection from UV radiation, while Dulal Chaudhary's umbrella, made from a particular type of silk, offers UV protection as well as giving an appearance of glowing skin to the face of the user.

The cloth, called *mooga* silk, is normally hard and not used much in the clothing industry. But Dulal's research on the feasibility of its use and GIAN's research on its UV-proof qualities have combined to produce a unique, glowing and safe product.

Haryana

Mobile Operated Remote Switch

Shri Prem Singh

Prem Singh (28) is a prolific innovator with more than one hundred fifty innovations to his name, some of which include electronic robot, tea boiler, heartbeat amplifier, hand operated dynamo, water lever indicator etc.

Phone operated switch is an instrument with an attached mobile phone and electric circuit, which can switch on/off any device remotely from any location under mobile coverage

Video

Honey Bee

Assam

Dual Security Alarm

Shri Aminuddin Ahmed

'Dual Security Alarm'. In the new system, the alarm signal from a sub-station goes not only to the control room but also to all sub-stations and to a remote speaker, which can be placed anywhere in the barrack or the hall. Secondly, once the alarm is set off from a sub-station, only the operator in control room can switch it off, signaling that the message has been received. Thirdly, the control room can also give alarm signal to all sub-stations and to a remote speaker with the press of a single 'Alarm to All' switch.

The new model was designed for one main station unit and three sub-station units. The number of sub-stations could be increased or decreased as per the requirements.

In the main station unit, there are three indicator bulbs for each sub-station units. This indicator light is to locate the source of incoming alarm by the control room. A reset switch is used to acknowledge and stop the incoming alarm.

The sub station unit consists of one speaker, one LED indicator lamp and one push button switch by which the security personal can pass the alarm signal to the main station and to other sub stations.

Video

Indian Patent Application Number :: 355/KOL/2006

Mechanical

- Tile Making Machine
- Washing Machine
- Double Acting Reciprocating Pump
- Motek India Treadle Press
- Bicycle Operated Pump
- Trench Digging Machine
- Power Loom
- Laxmi Asu Machine
- Sanitary Napkin Making Machine

Honey Bee

Andhra Pradesh

Double-acting-Reciprocating Pump

Mr. Manubha Jadeja

The innovator has developed a double-acting-reciprocating pump to lift the water from the deep wells. The pump provides supply of water during both up and down strokes of the piston and therefore functions as a double acting pump. There are no idle strokes in this pump.

The double acting pump is operated by means of belt and pulley mechanisms with an electric motor (5 HP) as a prime mover, with two stage speed reduction, has one way-gravity operated cylinder with a bi-housing body, four valves and uses a four bar link mechanism to lift the water.

The pump has a unique balancing mechanism to give constant load distribution throughout the cycle. It can run on both electric power as well as diesel and has options in powering the pump. All the parts can be easily maintained as they are on the ground surface and not below as in the case of submersible pumps.

Usually reciprocating pumps are used for high pressure and low efficiency. This pump, however, can fulfill both high discharge and high pressure needs.

Video

Indian Patent Number :: 197695

Andhra Pradesh

Bicycle Operated Pump

Mr. Vikram Rathore

- Pedal driven pump comprises the belt-pulley, bicycle, flywheel, rim and 5 H.P centrifugal pump unit.
- Fabrication cost Rs. 3000/.
- Independent of power supply (electric/diesel) and so zero emission.
- Can be used in places where there is no electric supply.

Video

Indian Patent Application Number :: 371/CHE/2004

Honey Bee

Sikar, Rajasthan

Machine for trench digging

Nathulal Jangid &
Radhey Shyam Tailor

The innovators have co-developed a trench digging attachment that can be retrofitted to a modified 35-40 HP tractor and can dig a pit 6 feet deep and 14 inches wide while consuming 2.5 litres of diesel per hour and can dig 65 meters in an hour on level ground.

Video

The tractor is suitably modified with hydraulic levers to adjust trench digging depth and the planetary gear system allows for speed reduction of the tractor. The total weight of the machine is 1 ton (1000 Kg) with a weight of 90 Kg placed in the front to counterbalance the heavy rear end.

The cost of the unit is Rs 1.6 lakh with a tractor cost of about Rs 3.5 lakh. Retrofitted components include the gear set costing Rs 30,000/- and the roller chain costing Rs 10,000/- (requiring replacement after every 70-80 kilometers). Other competing units made in Belarus, India cost in the range of Rs 13-15 lakh and more.

Honey Bee

Chhattisgarh

Motek India Treadle Press

Shri Satish Deb Kaminkar

Motek India printing technology is a low cost, cutting-edge, up gradation tool for 85% of the printing machines in our country, which use conventional outdated treadle press and are unable to deliver quality output.

The innovation lies in the unique combination of registering computer printed images using an exposure unit on to a screen unit, which is pressed by a inked custom built polymer sheet holder fitted into existing treadle press to be able to print on various media by impact action

Mono or multicolor half tone output can be generated using existing treadle press inks.

The kit attachment is convenient, user-friendly, requires very little maintenance, and can be added to any working treadle-printing machine to get printing results comparable to desktop publishing up to 300 to 450 dpi.

Other important features include the fact that it can be operated by pedal or motor, can handle any paper size and secondly, and can be used to print on plastic surfaces such as printing of bags, *etc*.

Video

Honey Bee

Tamil Nadu

Conversion of plain power loom into continuous weft feeding power loom

Shri S.Shanmugam

Two weft cones stands are provided at sides of the loom and they are specially arranged so that they have the capability of controlling yarn tension and electronic weft stop motion. The yarn from the pirn is only used to bind the weft taken from the cones, by doing so the expense on pirn winding is reduced.

In this method weaving takes place by two weft threads so that the fabric is dense and with good cover. We have to change only the cones and unlike rapier looms, there is no frequent need to change the pirn as they can weave up to one thousand meters thereby reducing manpower and time.

Artisan and Handicraft

- Bamboo Products : bicycle, cap, tooth and hand pump
- Sculptures from termites
- Automatic sari border insertion technique in Handlooms

Honey Bee

Assam

Tooth made out of bamboo, Bamboo bicycle, Bamboo made hand pump

Mr. Dodhi Pathak

Dodhi Pathak had no money to purchase a regular bicycle, so he made one himself, with the abundantly available bamboo in Assam. Every part of the bicycle, except for its tyres and tubes, has been made from bamboo. Mr Pathak has also innovated a bamboo hand-pump, every part of which, including the piston, valve, barrel and handle, is made from bamboo. Going further with his bamboo artistry.

Mr Pathak has even made artificial bamboo teeth, which he says are sturdy enough to chew on chicken and fish! He keeps making innovative artifacts with bamboo, such as replicas of famous monuments or a toy train that gets activated to the notes of a flute. Mr Pathak fears he may be the last of his line, with the younger generation finding no prospects in bamboo artistry,

Honey Bee

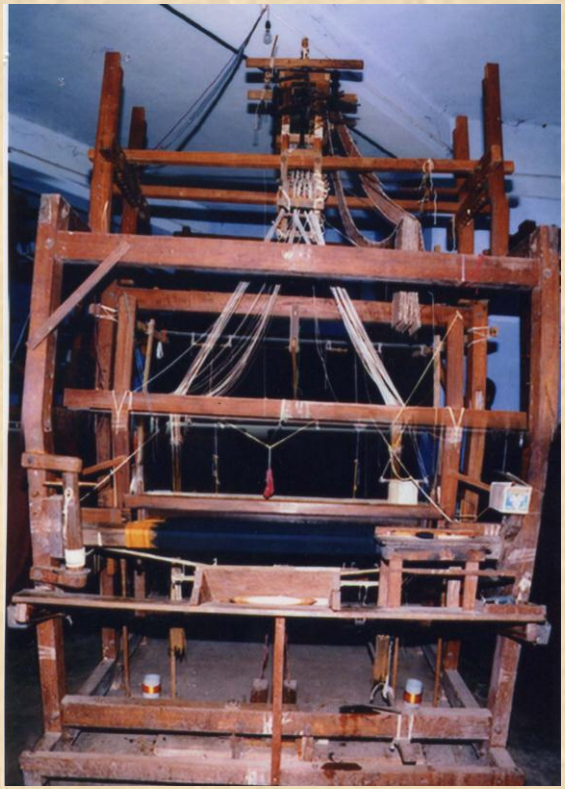
Tamil Nadu

Automatic sari border insertion technique in Handlooms

Shri P.L.Bhanumurthy

Traditionally all the weavers in his village had the knowledge of weaving in sets only and not korvai loom weaving. Korvai or `contrast' weaving involves intricate weaving where the design and often the colour of the borders are different from those of the main body of the cloth. Three shuttles are needed: the weaver operates two, and the assistant the third.

In the Bhanumurthy innovation "Multi Catch Cords" techniques are used to make "Temple Borders". The number of catch cords is equal to the number of steps required in the Temple borders. Each step in the Temple Border is controlled by a separate Catch Cord and individually operated by Dobby or Jacquard. In this technique, the picks per inch and the weave in temple border are equal and same as the picks per inch and the weave in the body.This technique does not employ the "Three/two cut shuttle working" and thereby eliminates an additional manpower requirement.



Video

Livestock Management

- Livestock management by Smt. Maltiben
- Traditional Livestock Healer
- Livestock management by Rehmat Khan
- Treatment of Mastitis

Honey Bee

Gujarat

Livestock management by Ms. Maltiben Chaudhary

Mr. Maltiben Chaudhary

Maltiben believes cows have to be nurtured with good care as well as good food. Starting with a very low investment, she has demonstrated that livestock management can be a good entrepreneurial choice for people with low funds.

Over time, she has developed practices that result in healthier livestock, increased and early milk production at minimal expense. This profession is ideally suited for women who wish to look after their household at the same time as devoting themselves to a profession.

Video

Honey Bee

Gujarat

Livestock management by Rehmatkhan

Mr. Rehmatkhan

Rehmatbapa believes that all his knowledge is meant only to serve animals, who cannot express their anguish and suffering. Therefore he does not charge for his services and subsists in hard living conditions.

He is widely respected for his knowledge of animals and people come from far off areas to fetch him to cure their animals. Rehmatbapa believes in healing the animals in a completely natural way and uses only herbs for his preparations.

Video

Honey Bee

Tamil Nadu

Traditional Livestock Healer

Shri Periya Ayyavu

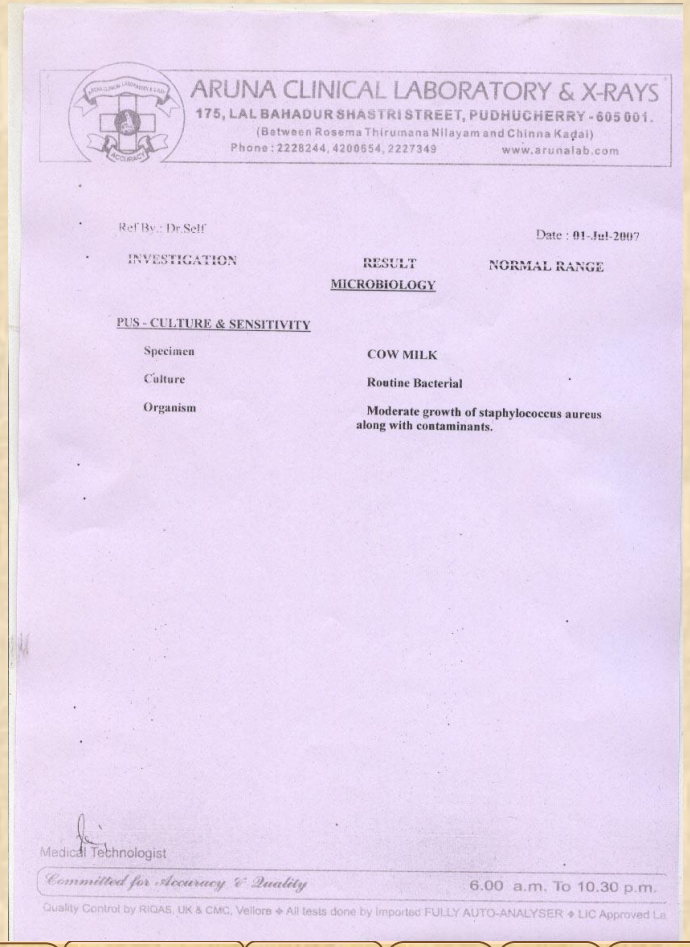
He has many practices for example for the control of "Sappai" disease (Black Quarter), bloat, for poisonous bites, Beetle bites, swelling in the knee joints (Molichoolai/ Vatham/ Muttiveekkam), for Mastitis, to increase milk production, Dysentry and for Intestinal worms. For treating the knee joint pain in the animals Periya Ayyavu uses the decoction of the leaves of "virali", "aathi", "peramutti" , bark of "marutham", bark of jamun, leaves of "neerkadambu" and applies it by the affected area and tying cloth over it

Indian Patent Application Number :: *506/CHE/2007*

Herbal formulation for Mastitis

- Clinical trial indicated efficacy over subclinical mastitis;Clinical mastitis & Chronic mastitis
- Efficacy over heamorrhagic milk due to mechanical injury
- Efficacy of the herb over mastitis due to Staphylococcus aureus confirmed
- Residual drug in the treated milk is meagre
- Advanced stage/about to calving animal were treated indicating safety
- There was only 10-15 per cent reduction in milk yield of treated animals from the conventional loss of more than 30 per cent

Mastitis milk culture sensitivity –
Staphylococcus aureus



ARUNA CLINICAL LABORATORY & X-RAYS
175, LAL BAHADUR SHASTRI STREET, PUDHUCHERRY - 605 001.
(Between Rosema Thirumana Nilayam and Chinna Kadai)
Phone : 2228244, 4200554, 2227349 www.arunalab.com

Ref By : Dr.Self

Date : 01-Jul-2007

INVESTIGATION	RESULT	NORMAL RANGE

MICROBIOLOGY

PUS - CULTURE & SENSITIVITY

Specimen	COW MILK
Culture	Routine Bacterial
Organism	Moderate growth of staphylococcus aureus along with contaminants.

Medical Technologist

Committed for Accuracy & Quality 6.00 a.m. To 10.30 p.m.

Quality Control by RIQAS, UK & CMC, Vellore ✦ All tests done by Imported FULLY AUTO-ANALYSER ✦ LIC Approved La

Type of cases treated

Flakes in the affected animal

Thelitis

Efficacy of the herbal drug

II day – Milk regaining the consistencay

III day – Milk regaining original consistency

Herbal

- Herbal treatment for diabetes, heart disease and malaria
- Herbal Treatment for Bone Fracture and Backache

Honey Bee

Assam

Herbal Medicine for heart palpitation/ Herbal medicine for malaria

Mr. Gunaram Khanikar

Mr Khanikar has medicines for just about everything, including diabetes, malaria, ulcer, piles, jaundice and eczema. He has also developed a drug to cure oral cancer. Most of his patients report having been cured with his treatment. A special medicine developed by Mr Khanikar involves the regularisation of palpitations of the heart. The bark of Arjun tree (*Terminalia arjuna*) should be ground along with Tejpatta leaves, and a spoonful taken with water. For patients at greater risk, the same mixture may be taken without water.

For malaria, he proposes a preparation of Margossa tree leaves (*Azadirachta indica*), Carlmeg seeds and Chirota seeds (*Andrographis paniculata*) as cure. Mr Khanikar is extremely reluctant to divulge information about his medicines as three of them have already been patented by others without any acknowledgement to him.

Honey Bee

Assam

Herbal Treatment for Bone Fracture and Backache

Mrs. Puspalatha Saikia

Traditional practice of curing broken bones and backache. A large no. of patients have been cured by this treatment.

Ms Pushpalata Saikia, living in a remote village in Assam has been practicing this for years together and is treating people successfully.

Idea

- Solar spectacle
- Post-box alarm
- Modified stick for blind people
- Self dispensing container apparatus for liquids
- Energizer shoes
- Power source shoes
- Automatic Tariff Indicator in Electricity Meter

Honey Bee

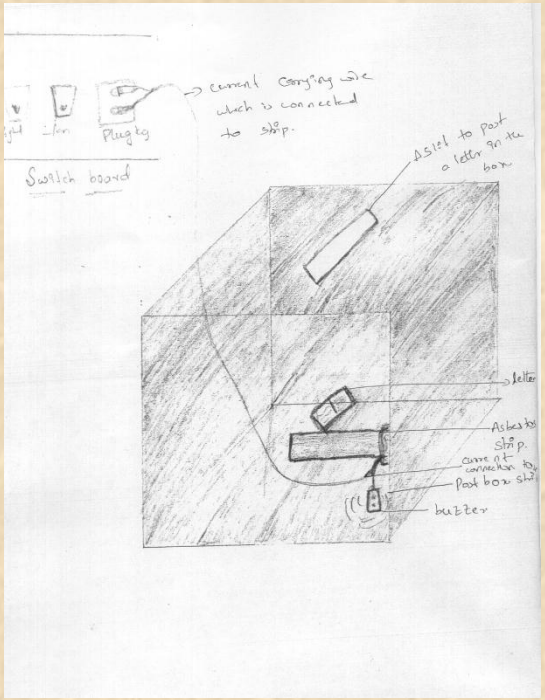
Andhra Pradesh

Post-Box Alarm

Ms. Swetha B. Selvi

A device to sound an alarm as soon as a letter is dropped into the letter-box would be quite useful in a large farm or similar sprawling premises and that is exactly what young Selvi has come up with. The device has a light spring-loaded flap at the bottom of the letter-box. When the postman delivers the mail, the flap is deflected with its weight and this results in the activation of a pulse alarm within the building.

The alarm could be a short-duration hoot or a lightflash. Emptying the box would automatically reset the device.



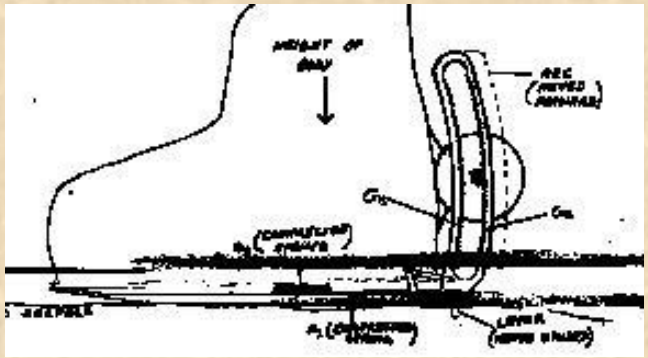
Jharkhand

Mr. Rajesh Ranjan

Power-source shoes

Mr Ranjan has conceived of a pretty unconventional source of energy: a shoe.

This shoe features a rack and pinion mechanism placed in the hollow of the sole. This mechanism drives a small dynamo located within the shoe.



The body weight of the person wearing the shoe generates impact energy each time he/ she steps on the ground, and this is converted into electricity by the dynamo, which charges a battery strapped to the walker. The more you walk, the more power you have!

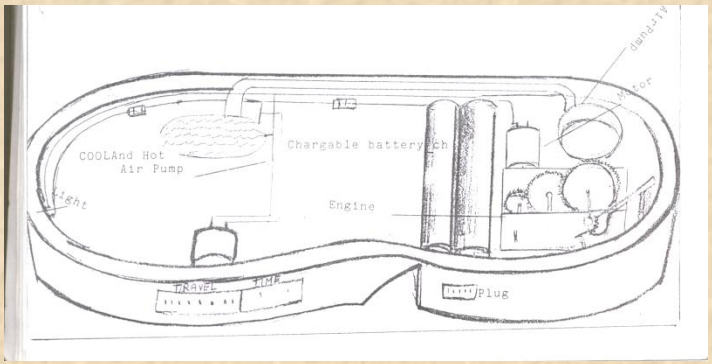
Himachal Pradesh

Energizer Shoes

Ms. Pooja Sharma & Team

Working along similar lines as Mr Ranjan (see 'Power-source Shoes'), Ms Pooja and her team propose to convert the impact generated at the soles at every step of a walking person into electrical energy. In these specially designed shoes, the energy generated by the impact of a step would be converted into electricity by a dynamo inside the shoe, which would then be able to charge a small battery worn by the person.

Additionally, by having air pumping in and out and circulating in the leather of the shoes, it is proposed to keep the wearer warm in winters or cold weather. This ventilation could also solve problems like perspiration of the feet inside the shoes, foul smell due to sweat and risk of infection. The intake and exhaust of air could also actuate a vibrator or run a motor.



Honey Bee

Tamil Nadu

Automatic Tariff Indicator in Electricity Meter

Shri G.Sathish Kumar

The product idea recommends having the electric meter display of "power consumption in terms of money" (Rs) rather than power units (Kilowatt Hour), and having a "prepaid system" of paying for power units. This way, at any point in the month, the balance amount shown will influence the future consumption or repurchase of more units as needed.

This unique scheme of things has many benefits. Firstly, since the meter reading for electricity consumption is in terms of money, anyone can understand and plan for future months and usage patterns.

Secondly, for the power company, collection of power tariff by deploying the prepaid SIM card style functionality is easier. It allows the ability to cut off power supply based on balance amount in SIM card and restoration of electric supply after the SIM card is renewed.

Students

- Post-box alarm
- Modified stick for blind people
- Rain Water Harvesting Umbrella
- Rural Refrigerator
- Use of medicinal plants as mosquito repellent
- Low Cost Electronic Slide Speed Breaker
- Five Wheel car
- Solar cum Electronic Laminator

Honey Bee

Rajasthan

Five wheeled Car

Shri Harimohan Saini & Manoj Saini

The five-wheeled car was developed using available materials. The car's chassis is made of commercially available nickel polished pipes and five wheels of scooter have been used. For giving power, an engine of a moped has been used. The steering is made with simple mechanical linkages, mechanical brakes and accelerator similar to jeep and other vehicles have been provided.

Indian Patent Application Number :: 2136/DEL/2006

Kerala

Low Coast Electronic Speed Breaker

Shri P.Krishnakant

This speed control device developed by Krishnakant is an 89C52 micro controller (Intel 8051) based system, which is used for governing the running speed of the vehicles and maintains it within specified limits. Currently the fitments are designed for heavy diesel vehicles.

The assembly consists of three basic units: a sensing unit, an electronic control unit or ECU and a solenoid valve. The sensor unit is installed on to the gearbox to sense the road speed of the vehicle. The valve unit, consisting of a normally closed solenoid valve is mounted on to the fuel line between the Fuel injection pump and Fuel filter and controls the fuel.

Honey Bee

Rajasthan

Solar Cum Electric Laminator

Shri Amandeep Singh

The device consists of a wooden box, 4 rollers, a mirror, a mirror stand, a handle, glass and two iron sheets, which are 2 mm thick. In a wooden box, a mirror is fitted that focuses solar radiation on the metallic plates.

The paper to be laminated is placed between two lamination sheets and is slipped in with the help of a roller and is passed through the heated plates. The lamination sheet gets heated from the metallic plates and the lamination takes place. The laminated item comes out smoothly and without wrinkles.

The machine can also be used as a conventional electrical lamination machine in absence of solar energy by powering the bulbs located in it. In a sunny day, it can laminate the document of A4 size in 15 min. It laminates both the sides in one pass.

Video

Indian Patent Application Number :: 403/Del/2007

Assam

Ms. Lina Talukdar &
Ms. Sushanta Mahanta

Use of medicinal plants as mosquito repellent

- A formulation useful as herbal insect repellents and more specifically to mosquito repellents
- Safe, eco-friendly and easy to use and has maximum repellence power against mosquitoes
- Cheap product and no costly ingredients required
- Does not require any electricity
- More employment opportunities in rural areas especially for woman in cottage industry
- Mosquito repellent incense sticks burns nearly 4.5 hours to 5.0 hours with an after effect of 3 hours

Indian Patent Application Number :: 449/KOL/2003

Innovations for/by Women

For

- Pulley with Stopper
- Panihari
- Kittanal
- Washing Machine
- UV cum Beauty Care Umbrella
- Puspalatha – Human herbal healer

By

- Air energized Pressure Cooker video
- Kushal Sprayer video
- Maltiben Livestock healer
- Coconut Dehusking Machine
- Postbox Alarm – Swetha

Honey Bee

Gujarat

Panihari

Mr. Khimjibhai Kanadiya

Women carry load of water vessels on their head, which can result in pain in their head.

Khimjibhai solve this problem by this simple device, with that women easily transfer load on their head to the shoulder and vice versa.

This could be done with two extended supporting rod from circular disk that is put on the head to keep the vessel.

Video

Innovations for/by Physically challenged

- Modified Scooter
- Modified Stick for Blind People
- Retrofitted kit for physically challenged

Honey Bee

Gujarat

Modified Scooter

Mr. Dhanjibhai Kerai

The innovator, a handicapped dwarf without any legs and with one single hand has demonstrated that where there is a will, there is a way. He has mastered the art of repairing various electronic items such as televisions, VCRs, radios, tape recorders and is a sought after technician in his area.

Video

His current innovation is a modification of the scooter done to convert it from a two-wheel drive to a four wheel stable unit so that he can ride it comfortably. Two additional wheels are fitted at the rear side and the front seat is extended and modified for him to reach the handlebars.

A person lifts Dhanjibhai and places him on the seat of the scooter and he positions himself and holds the handlebar. The person helps him by starting the scooter by cranking the kick pedal after which Dhanjibhai rides away merrily balancing him on kuchcha and pucca roads.

Honey Bee

Kerala

Retrofitted car for physically challenged

Shri Biju Varghese

Biju is an example for society that obstacles of physically challenged people are not merely challenges but stepping-stones for success. Being through a devastating accident, which left him physically handicapped, he came back strongly to develop this attachment for cars, making them handicapped friendly and winning freedom of mobility for himself.

The modifications made are in brake, clutch and accelerator. These controls are modified in such a way that hands can operate them. The modified brake is operated by the middle as well as adjoining finger by pushing the brake lever downwards.

The clutch is operated with palm. When clutch lever is pushed downwards with the palm, the cultch pedal connected to the lever is pushed and disengagement of clutch takes place. To engage the clutch, the lever has to be released gradually.

The accelerator is operated with forefinger by pressing the accelerator lever downward similar to the hand operated brake level.

Incubation @ NIF

Objectives

- Provide a means of finance for innovation and traditional knowledge-based micro-ventures
- Develop innovative financing options/models, which are tailor-made to the needs of Innovators/entrepreneurs
- A means of finance for all grassroots technologies which are in nascent/rudimentary stage and need help for developing proof of the concept
- Providing financial and technical support to Innovator/entrepreneur for managing subsequent product development life cycle
- Providing financial and technical support to innovator/entrepreneur for protecting their intellectual property rights
- Providing handholding support in early stages of micro-ventures

Incubation: Needs and Services

Need of Grassroots' Innovator	NIF	Type of funding (Conventional terms in VC Industry)
Innovator with idea, invested some of his amount, needs more to give a proof of concept, prototyping	**Yes**	Angel Funding, Technical Inputs
R&D financing for product development Start-up capital for initial production & marketing	**Yes**	Early stage funding, Technical Inputs, Market Research, Business Planning, IPR
First stage financing for full-scale production & Marketing Second stage financing for working capital & initial expansion	**Yes**	Expansion funding, Technical Inputs, Market Research, Business Planning Strategic & Transactional Services, IPR

Various Models

1) Idea licensing
2) Innovator needs support for proof of concept
3) Innovator develops proof of concept, needs financial support for further prototyping
4) Innovator comes up with prototype and entrepreneur gets involved in developing a commercially viable product
5) Innovator turns into an entrepreneur
6) Innovator develops technology, licenses to entrepreneur
7) Innovator develops prototype and commercialize through SHG Model
8) Joint Venture : Innovator and Entrepreneur
9) Corporate Acquiring Technology
10) Platform Technology with great promises

Idea Licensing

Mr. Parbatbhai Vaghani
Santokh Singh Khatra
Rasikbhai I Suthar
Chinmay C Patel

Foot Sprayer

Idea: Spraying while walking.

Case: The product was conceptualized based on the idea of the innovator. GIAN and SRISTI licensed the technology to an international firm.

Business Model: International Technology Licensing, one time payment of licensing fee.

Final status: The firm using the technology for manufacturing toys.

Patent: Filed in India by innovator and in foreign countries by the firm.

Video

Innovator needs support for proof of concept

"Aaruni" bullock cart

Mr.Amrutbhai Agrawat

Idea: Multi-purpose, efficient and user friendly bullock cart.

Case: SRISTI scouted the innovation and provided initial support for developing proof of concept. GIAN provided further support for product development, IPR and commercialization.

Video

Business Model: Innovator turned into an entrepreneur and also licensed the technology to three entrepreneurs in different regions.

Final status: Turnover more than 15 lacs

Indian Patent Number :: 194420

Innovator develops proof of concept, needs financial support for prototyping

Pedal operated washing machine

Ms. Remya Jose P

Idea: Pedal operated washing machine

Case: A School going girl felt the need of a washing machine. She explained her idea to a local mechanic and got it developed. After scouting, she shared with NIF the areas where this machine needs improvement e.g. Tap arrangement, improvement in makeshift arrangement, material of construction etc.

Video

Support Offered: A financial assistance for improving the prototype..

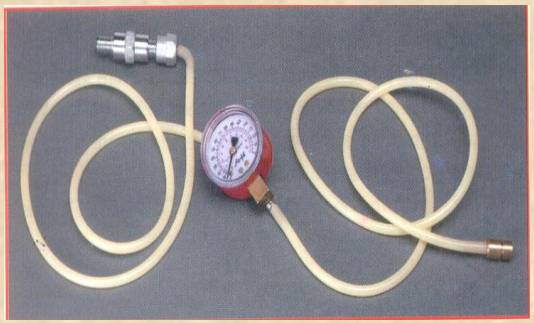
Potential for Commercialization: Could be marketed as washing machine cum exercising cycle.

Indian Patent Number :: 207634

Innovator comes up with prototype and entrepreneur gets involved in developing a commercially viable product

Auto Air Kick Pump

Mr. Arvindbhai Patel



Idea: An easy and unique solution to a commonly found problem: Punctured tyre on roads.

Case: Innovator came up with initial prototype. GIAN scouted an entrepreneur for him who helped him in developing a refined product.

Business Model: Technology acquired by the same entrepreneur with a upfront payment and a royalty arrangement for next ten years.

Final status: More than 1000 units sold

Patent: Filed in India & US

Innovator turns into an entrepreneur

Cotton Stripper

Mr. Mansukhbhai Patel

Idea: A machine which removes cotton from the cotton shell in faster and efficient manner. Reduces drudgery for women & child labour.

Case: SRISTI scouted Innovator and GIAN mobilized technical support for product development, IPR and commercialization.

Business Model: Innovator turned into an entrepreneur.

Video

Final status: 65 machine sold worth Rs. 2 core.

Patent: Filed in India & US.

The First Indian Grassroots Innovation to be awarded a US patent.

Indian Patent Number :: *198755*
US Patent Number :: *6543091*

Innovator develops technology, licenses to entrepreneur

Out of a group of 11 types of sprayers, four were bundled together and licensed to an entrepreneur

Mr. Khimjibhai Kanadia

Kushal Sprayer

Idea: Hand operated hassle free sprayer.

Case: GIAN helped in product development (NID), IPR (NIF), and commercialization (TIFAC)

Business Model: Innovator failed in this business then GIAN facilitated transfer of technology and existing manufacturing facilities to an entrepreneur.

Final status: Entrepreneur about to launch the product in market after some design improvements.

Contd...

Innovator develops technology, licenses to entrepreneur

Out of a group of 11 types of sprayers, four were bundled together and licensed to an entrepreneur

Mr. Arvindbhai Patel

Auto Sprayer

Idea: A dead weight propels the spraying function while walking.

Case: GIAN motivated an existing innovator to develop a unique sprayer which doesn't require any manual stroking. As a result of lateral learning, innovator came up with a concept which was refined at GRIDS-NID, subsequently IIT students worked with innovator and developed a working model. Entire cost of development supported by GIAN.

Business Model: The technology was acquired by the entrepreneur.

Final status: Entrepreneur about to launch the product in market.

Indian Patent Number :: 205768

First Prototype

Final Product

Contd...

Innovator develops technology, licenses to entrepreneur

Out of a group of 11 types of sprayers, four were bundled together and licensed to an entrepreneur

Idea: First sprayer develops fine quality mist, runs on battery. The second one does the spraying by manual pulling of the sprayer mounted on a pair of wheels.

Case: Innovators came up with prototypes. GIAN license the technology in the same stage to the innovator. Business Model: The technology was acquired by the entrepreneur.

Final status: Entrepreneur about to launch the product in market.

Patent: Being filed in India.

1) Battery Operated – Mr. Lalit Surana

2) Hand Driven Sprayer – Mr. Gopal Surtia

Innovator develops prototype and commercializes through the SHG Model

Tile making machine

Mr. Sukhranjan Mistry

Idea: Highly cost efficient, easy to make machine for cement roof-tiles.

Case: Scouted during the shodhyatra in Uttranchal, GIAN financed in second prototype development

Business Model: GIAN identified an NGO which agreed to adopt this technology to manufacture low cost cement tiles for small medium houses with the help of women SHG's. Apart from being a cheap and stronger solution to roofing in houses, the technology is also being used as an instrument to generate employment for women in the region.

Final status: Innovator is about to start training of women who are going to undertake this activity as an occupation.

Indian Patent Application Number :: 995/Del/2004

Mr. Bharat Kamble in Maharashtra and SEVA, Madurai are also practicing the same model of involving women SHGs for manufacturing their innovation based products i.e. pump protector circuit and mobile phone charger in two wheelers respectively.

Joint Venture : Innovator and Entrepreneur

Power saving technical Pump

Mr. Ram Naresh Yadav

Idea: Highly efficient double cylinder reciprocating Pump saves about 60% energy. IIT Kanpur tested and validated the data for the first prototype.

Case: The first prototype of the pump was developed by the innovator with the help of GIAN. Two entrepreneurs joined hand with him and starting a JV firm with 33% equity holding each partner. Besides, innovator gets employment in the same firm and earns a good salary for his technical inputs

Business Model: Joint Venture with two entrepreneur

Final status: The firm refining the technology e.g. trying to make parts made of strong , heat resistant plastic with glass to improve the performance

Indian Patent Application Number :: 354/DEL/2003

Corporate acquiring Technology

Unique Coupling Device

Mr. Robindra Kumar Debgupta

Idea: A unique coupling device which saves about 12-15% energy losses in transmission. Lever principle applied in circumferential manner on two wheels of a coupler. IIT Guwahati validated the claims for the first prototype in pumps.

Case: GIAN NE scouted the innovator who developed this device for bicycle, cars and buses. With IIT G inputs , GIAN helped in refining technology. Kirloskar Industries groups showed interest and invited GIAN team to demonstrate the technology.

Business Model: On successful validation, the company would enter into an MOU for ToT with royalty arrangement.

Final status: Tests at the factory are on and efforts are being made to improve the performance for final applications.

Contd...

Corporate acquiring Technology

Bamboo Fan

Mr. Nipul Bezobora

Idea: Double layer, multi bladed design, throws high volume of air in first plane of about 6 feet.


Testing at Tezpur University, Energy Dept. Bamboo Fan made by Nipul Bez.

Case: GIAN NE scouted the innovator who was using the technology for paddy cleaning. GIAN NE and Jadavpur University tested the results. Presentation was made to Crompton Greaves (CGL) by NIF team. CGL promised to acquire the technology after validation.

Business Model: Technology requires lot of inputs from CGL, possibility of joint patent of modified technology and design

Final status: Final validation due in September 2003.

Platform Technology with great promises

Kanak Das's Bicycle

Mr. Kanak Das

Idea: Bicycle with rider-induced & terrain induced forces for transmission.

Video

Case: GIAN NE scouted the innovator and supported the prototype development. Innovator developed several prototypes and reached up to a stage of E-BIKE, which runs on battery and highly energy efficient as it gets propelling energy from the rider-weight and terrain induced jerks.

Business Model: Technology transfer/licensing

Application: Automobiles, Two wheelers, Cycle Rickshaws(where it can reduce drudgery for the puller)

Final status: Product development and business development on.

GIAN's Licensing

Hand Driven Sprayer

Auto Sprayer

Battery Operated Sprayer

Kushal Sprayer

GRIDS @ action

Grassroots Innovation Design Studio at NID

Honey Bee Network Meeting

Clusters of creativity

Cycles

Motorbike based innovations

Electronics

Sprayers :
Cluster Details
Coconut Practices

Bicycle based Innovations

Rider Induced bicycle
Mr. Kanak Das, Assam

Bicycle based sprayer
Mr. Mansukhbhai Jagani, Gujarat

Amphibious Bicycle
Mohd. Saidullah, Bihar

Bamboo bicycle,
Mr. Dodhi Pathak, Assam

Bicycle with gear
Mr. Jayanti J Patel,Gujarat

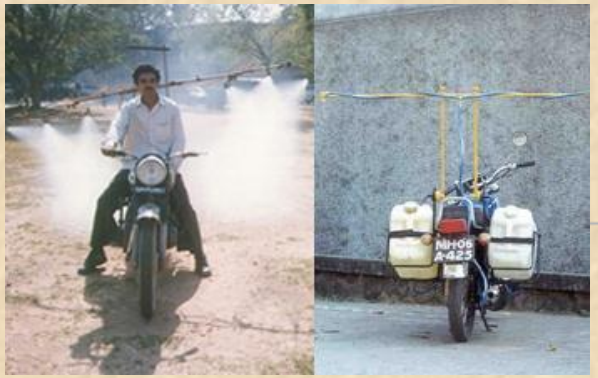
Bicycle based mobile spray pump Subhas Vasantrao Jagtap, Maharastra

Multipurpose Bicycle,
Md. Kamruddin, Rajasthan

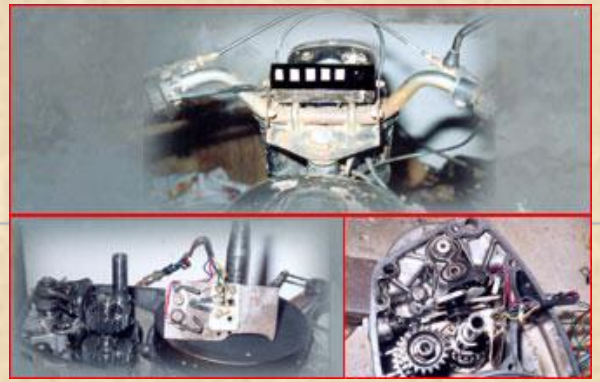
Bicycle operated pump,
Mr. Vikram Rathore, AP

Bicycle based portable Pump,
Mr. Nasiruddin Gayen, WB

Motor-bike based Innovations



Modified scooter for handicapped
Mr. Dhanjibhai Kerai, Gujarat



Motor-cycle based ploughing attachment 'Bullet-Santi'
Mr. Mansukhbhai Jagani, Gujarat

Auto engine Stopper
Mr. Tukaram Varma Chhattisgarh

Motorcycle based sprayer
Mr. Ganeshbhai Dodiya, Gujarat

Non-return valve for 4-stroke engine
Mr. Arvind Khandake, Maharashtra

Small efficient diesel engine
Mr. Mansukhbhai Sanchaniya, Gujarat

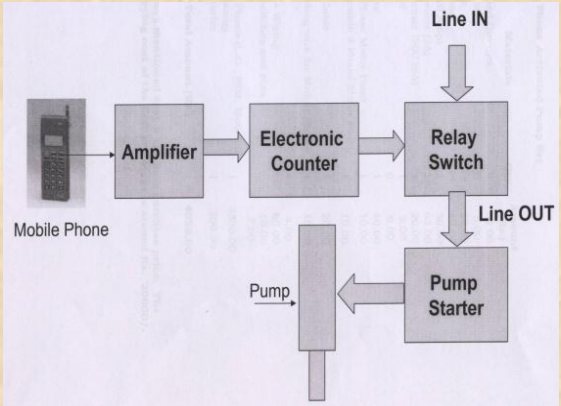
Electronics based Innovations

Remote Fire Cracker Device
Balram Singh Saini, Haryana

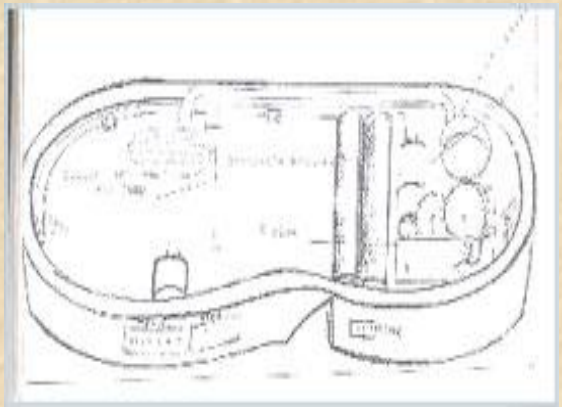
Micro Windmil
Mr. N V Satyanarayanan, AP

E-bike
Mr. Kanak Das, Assam

Motor Protecting Device
Mr. Bharat Kamble, Maharashtra



Mobile Operated Switch
Mr. Prem Singh Saini, Harayana



Energizer Shoes
Ms. Pooja Sharma & Team, HP

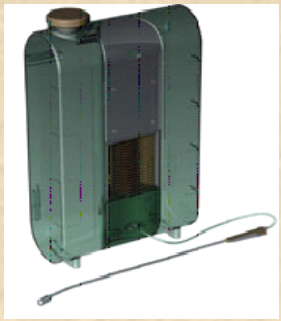
Agriculture Sprayers

Bestow-Foot Operated Sprayer
Mr. Parbhatbhai Vaghani, Gujarat

Kushal Sprayer
Khimjibhai, Gujarat

Motorcycle based sprayer
Mr. Ganeshbhai Dodiya, Gujarat

Motorized multi-purpose
Mulubhai Senjaliya,Gujarat



Bicycle based sprayer
Mr. Mansukhbhai Jagani, Gujarat

Hand Operated Sprayer
Mr.Gopalbhai, Gujarat

Jayant Sprayer
Mr. Rameshbhai Bhalala, Gujarat

Bullock-cart based sprayer
Mr. Bhanjibhai Mathukia, Gujarat

Coconut Practices

- Implements
- Germination
- Sowing Method
- Intercropping
- Pollination
- Plant Care
- Disease Control
- Pest Control
- Pesticide
- Yield
- Use of Coconut

Implements

- Coconut tree climber
- Coconut husker
- Coconut husking machine
- Coconut harvester

Coconut Harvester

Implements

Mr. P. Karuppiah

- The coconut harvester is useful for harvesting matured nuts from trees which are as tall as 50 feet
- The coconut harvester needs only two people to operate it. One person steers the vehicle around while the other only has to harvest the nuts
- A hydraulic jack is fitted to a tractor with ten levers. This hydraulic jack can be adjusted, so as to carry a person to the top of the tree. Also light weight iron plates have been used.

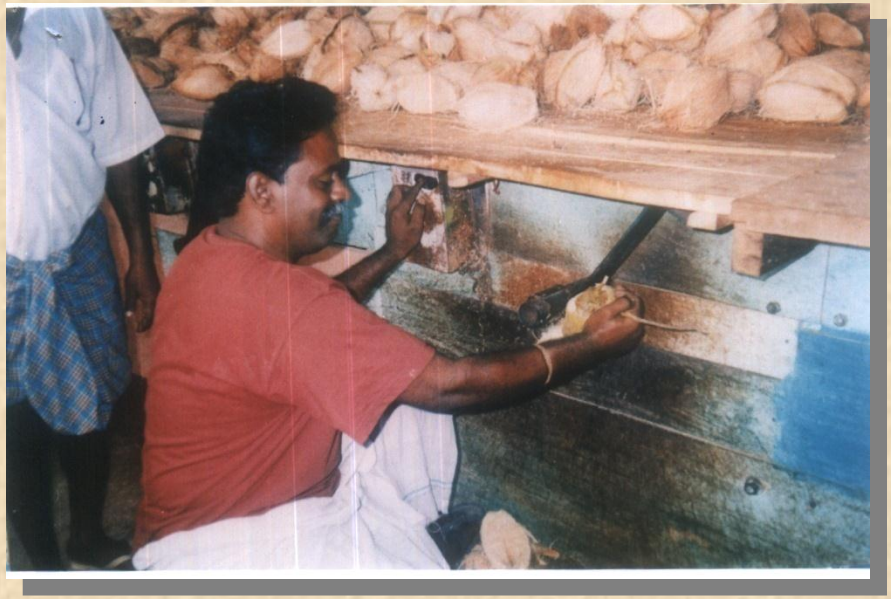
Indian Patent Number :: 198889

Coconut husker

Implements

Mr. R. Jayaseelan

- A 1.5 HP electric motor is coupled through a belt to a long cylindrical metal rod. The tip of the rod is fixed with two sharp blades at one side
- The blades are at ¾ feet length and at 1" interval. These blades on rotation help to dehusk the coconut easily to the desired level
- On an average 150 nuts can be dehusked per hour, thereby dehusking about 7200 nuts in an 8 hour shift



Coconut Frond Shredder

Mr. A. R. Shivakumar

Implements

- This is an attempt to mechanize the process for shredding or cutting coconut frond using a prime mover
- The concept used here is of shearing (and not chopping)

Coconut Cutter

Mr. Duraisamy

Implements

- The iron cutter developed, is used to cut a whole nut into two halves
- These nuts could then be used to extract oil or for culinary purpose

Veepees Tender Coconut Punch cum Cutter

Implements

Mr. V.P. David

- The machine can cut and punch tender coconut
- The equipment facilitates drinking coconut water using a straw and also cuts the coconut into halves

Selecting Seeds

Germination

Mr. James Abraham

- It was observed that planting materials collected from the parent plant which is fifteen to twenty years old, has twenty four leaves and each bunch contains at least twenty four nuts, are the best. The matured nuts are not allowed to fall down and are collected separately.

Effective Method of Sowing

Sowing Methods

Mr. G. Shivananjaiah

- Instead of sowing arecanut or coconut in a vertical angle, sow it in horizontal position. This practice reportedly ensures 100 per cent germination.

Early Germination of Coconut

Sowing Methods

Mr. Shridatta

- For early germination of coconut, place the coconut upside (embryo side) down. After 13 days take the nut out and replant them in the inverse position. This reportedly resulted in early germination.

Trench and Platform Method

Sowing Methods

Mr. Bhaskarbhai Hiraji Save

- The trees are planted on platforms, 16 feet wide. The trenches are used to feed nutrients and water to the roots. Almost all organic wastes of the farm as well as FYM are placed in the trench. This method of planting is believed to increase yield.

Banana with Coconut

Intercropping

- Planting banana all around the newly planted coconut tree saves the coconut from scorching sun in the initial stages of its growth.

- They also create a humid micro climate for the young coconut. After the harvest of Banana the stem which are succulent serves as a water reservoir for the coconut.

Spacing

Pollination

Mr. Bhaskarbhai Hiraji Save

- It was observed that if the leaves of two coconut trees touch each other, especially due to strong wind/ breeze, they will disturb the pollen, as a result of which fruiting may be adversely affected. Hence spacing should be such that trees do not touch each other. This has reference to a folk saying that, “Lage to na lage; na lage to lage”.

Preventing Fruit Dropping

Plant Care

Mr. Shridatta

- The shoots are chopped and spread around the coconut palm to increase the yield.

Oozing of Brown Liquid from the Palm Trunk

Plant Care

- Application of lime up to six feet from the base of the palm stops oozing.

Root Wilt

Disease Control

Mr. T. J. Thomas

- Root wilt can be minimized by mixing red soil around the main trunk in the leaf canopy zone of the tree.

Rhinoceros Beetle

Pest Control

Mr. T Shivashankar

- Extract of fruit of Opium plant (Cannabis sativa) mixed with latex of Ficus sap is poured into the hole, the beetles come out and thus can be killed manually.

Rhinoceros Beetle

Pest Control

Mr. Thevasi Perumal

- Kolunchi (Tephrosia purpurea)
- Placing the leaves in the primordial region of the palm is believed to repel the insect.

Rhinoceros Beetle

Pest Control

Mr. Thevasi Perumal

- Karpooravalli (Coleus aromaticus)
- It is grown in the coconut orchard. The strong odor of this plant is believed to drive away the beetle.

Rhinoceros Beetle

Pest Control

Mr. Sumantra Baruah

- Raw cow dung and dried fish

- These are kept in a basket near the coconut tree. The beetles are attracted to the strong odor and are killed manually.

Rhinoceros Beetle

Pest Control

Mr. Jethabhai Arshibhai Kamaliya

- Jaggery and hot water

- About 25 g of jaggery is mixed in 100 ml of hot water and poured into the beetle hole. Ants get attracted to the solution and kill the beetles.

Rhinoceros Beetle

Pest Control

- Sand

- Sand is put into the hole made by the beetle, it is believed that if the sand falls into the thorax region then the beetle cannot move its head and it dies.

Eriophyid Mite

Pest Control

Mr. Subramaniam R

- Chilli powder, tobacco leaf powder and Butea monosperma

- All these ingredients when powdered, mixed and dusted in the bunches of coconut, prevents the attack of mites to a large extent.

Eriophyid Mite

Pest Control

Mr. K. Panickan

- Kerosene

- Kerosene filled in a bottle when tied to the coconut palm is believed to drive away the mite.

Red Palm Weevil

Pest Control

- Jaggery and water and Agave tuber

- Paste is prepared by boiling jaggery and water and smeared on the tuber of Agave. This is placed in a dish and filled with two inches of water. The weevil bore hole in the tuber and stay there for few days which are later on destroyed. One such tuber is said to be sufficient for one hectare.

White Fly

Pest Control

- Jaggery and water

- Jaggery mixed with water is applied to the hole bore by the grubs. Ants get attracted to it and they kill the grub.

Termite

Pest Control

- Tar or flooding

- Tar is applied at 30 cm from the base of the palm or sometimes the entire orchard is flooded with water.

Herbal Broad Spectrum Pesticide

Pesticide

Mr. Purushottam Rao

- Lasiosiphon eriocephalus or Strychnos nuxvomica or Neem or Agave americana

- The leaves of the plants are collected in a bucket and 10 litres of boiled water poured over them. It is allowed to ferment for 2 days. The leaf residues are removed and the resultant solution is believed to have good pesticidal properties.

Pest control in Paddy

Mr. P Senthilkumar

Pesticide

- Coconut water

- About 20 ml. of coconut water in 100 ml. of water is to be applied to the field to irrigate paddy crop as soon as the saplings are transplanted. This would help to reduce the pest attack considerably. The same can be used to irrigate plants like lady's finger, bitter gourd etc. This also help to increase the yield.

Better Yielding

Yield

Mr. G. Shivananjaiah

- Better yield in fruit crops and also in arecanut and coconut garden

- 10 kg cow dung + 1 kg of neem cake + 1 kg ground nut cake + 1 kg jaggery + 100 g turmeric powder

  All these ingredients are soaked in water for 48 hours and its mixed with water in 1:10 ratio and its sprayed to plants 3-4 times. This practice was found to produce better yields in Coconut, Arecanut and fruit crops.

Treatment for wounds (Coconut oil)

Use of Coconut

Mr. G. Shivananjaiah

- Datura metel, Copper sulphate, Coconut oil

- Leaf extract of Datura is mixed with Copper sulphate and boiled in coconut oil in a mud pot. The mixture is boiled until traces of water is removed. This when applied to the wounds, is claimed to prevent infection.

Scratches on Udder
(Outer Cover of Coconut Kernel)

Use of Coconut

Mr. Kanabhai M Patel

- Outer cover of coconut kernel and castor oil

- Ash obtained by burning the outer cover of coconut kernel is mixed with castor oil and applied to the udder.

Weed Control- Marshilia Quadrifolia (by Using Coconut Fibre)

Use of Coconut

- Calotropis gigantea and coconut pericarp
- Use of Calotropis as green manure prevents the growth of weed and spreading the fibrous pericarp of coconut in paddy field has also been reported to inhibit the growth of this weed.

Coconut Flower to Cure Diarrhoea

Use of Coconut

- Fenugreek seed and coconut flower bunch

- Fenugreek seed is soaked overnight and pounded with coconut flower bunch. This is fed to cattle as a remedy to diarrhoea.

Growth promoter

Use of Coconut

Mr. Saileshbhai Bhatia

- Coconut water

- About 250 ml of coconut water with 15 litres of water should be sprayed on the weak or yellowish plants. This would make the plants healthy.

Controlling Yellowing Disease in Nagli (Finger millet- Eleusine coracana)

Use of Coconut

Mr. Kashirambhai Kawar

- Coconut water

- About 100 g of the bark of 'sadad(Terminalia tomentosa)' and 'payar(Ficus cordifolia)' are ground minutely and mixed in a litre of water. Then the water of a dried coconut is added in. This mixture is sprinkled over one bigha of Nagli as remedy to this disease.

To Promote Regrowth of Cut Bark

Use of Coconut

Mr. Kuppuswamy Chettiar

- Coconut fiber and red soil

- The fibers of coconut are mixed with red soil in equal proportion and made into a paste with water. This paste is applied over the portion where the tree has lost its bark and the paste is covered with polythene paper and tied to the tree. This treatment reportedly enables the bark to develop again.

Animal health

Use of Coconut

- Coconut oil

- A fresh Wasp-hive without egg is burnt into ashes and then powdered very minutely. 3 g of this powder is mixed thoroughly with 25 ml of home prepared coconut oil. Now the medicine is ready to be used against infantile eczema, cracked teats and nodular growth of teat cowpox affecting teats and perinirem and very obstinate cases of fungal infection in case of cows. Tests are needed to further confirm this practice.

Animal health

Use of Coconut

Mr. S. Pitchai

- Cardiospernum halicacabum, onion and coconut
- All these ingredients are ground well, made into bolus and fed orally.

Tonic for cattle

Use of Coconut

- Matured coconut kernel, common salt, Tephrosia purpurea leaves and Turmeric rhizome.

- These are ground well and mixed in one litre of fermented rice water. This is fed to the animal for seven days.Bottle gourd added to this mixture and fed to the animal reportedly improve the appetite.

Household Utility

Use of Coconut

Mr. Jose D. Elavungal

- Coconut water

- Coconut water can be used for preparation of glucose , tender coconut & the liquid endosperm can be powdered for baby food , chapatti etc.

Household Utility

Use of Coconut

Mr. Jose D. Elavungal

- Coconut water and Cashew spirit

- Coconut water could be used to produce vinegar and spirit. The cashew spirit and coconut spirit would not cause pollution if used in vehicles. A liter of fuel would cost only Rs. 5.00 when produced commercially.This fuel could be used for cooking without any smoke.

Getting Attractive Flowers in Ornamental Plants

Use of Coconut

Mr. G. Shivananjaiah

- Tender coconut water to get good quality flowers
- Tender coconut water is mixed with water in 1:10 ratio and sprayed over flowering crops at the time of bud formation.

Natural Fertilizer

Use of Coconut

Mr. G. Karthesan

- Fibres of coconut

- Coconut fibres are believed to retain moisture for a considerable period. Hence, when used as fertiliser, they would enable the roots of the crop to absorb water slowly, as a result of which, in places where there is water scarcity, crops would not suffer.

Sprayers

- Kushal Sprayer
  Mr. Khimjibhai Kanadia
- "Bestow" Sprayer
  Mr. Parbatbhai Vaghani
  and others
- Automatic Spray Pump
  Mr. Arvindbhai Patel
- Hand Driven Pump
  Mr. Gopalbhai Surtia
- Bullock Driven Sprayer
  Mr. Dayarjibhai Aslaliya
- Bicycle Sprayer
  Mr. Mansukhbhai Jagani
- Motorcycle Driven Sprayer
  Mr. Ganeshbhai Dodiya
- Battery Operated Sprayer
  Mr. Lalit Surana
- "Jayant" Sprayer
  Mr. Rameshbhai Bhalala
- Tractor Mounted Sprayer
  Mr. Dahyabhai Patel

Kushal Sprayer

Mr. Khimjibhai Kanadia

- A small, portable sprayer, with ease of use
- Fine droplet size (mist spray) due to nozzle improvisation.
- Light weight makes it maneuverable for aged people and also for women.
- Most cost efficient (Rs. 475) in the range of sprayer products
- Maintenance free

Indian Patent Number :: 211154

“Bestow” Sprayer

Mr. Parbatbhai Vaghani
Santokh Singh Khatra
Rasikbhai I Suthar
Chinmay C Patel

- Energy derived from movement of feet while walking is converted into pressure with the help of cylinder and piston. This in turn enables the spraying of the liquid.
- No additional energy is required to operate the sprayer.
- Operator can cover two parallel rows simultaneously and thereby cut down the operation cost and time by half.

Automatic Spray Pump

Mr. Arvindbhai Patel

- When user walks with this sprayer mounted on his back, jerks experienced by the user are used to create pressure in tank for spraying.
- Does not require any external additional energy and effort.
- Prototype already tested with concept, under development stage.

Indian Patent Number :: 205768

Hand Driven Pump

Mr. Gopalbhai Surtia

- Rotary motion of wheels used to generate pressure in the tank for spraying.
- 40 litre barrel mounted on the chassis of the hand driven body of the sprayer.
- Adjustable nozzle and spray boom giving better performance.

Bullock Driven Sprayer

Mr. Bhanjibhai Mathukia

- Consists cylinder pump assembly mounted on iron bar attached with two small iron wheels at both ends.
- A small kit consisting of two wheels and cylinder-piston arrangement is attached to harrow.
- Rotary motion of the wheel is utilized to build the pressure for spraying
- Easy to assemble and covers 12 acres of land in a day.

Bicycle Driven Sprayer

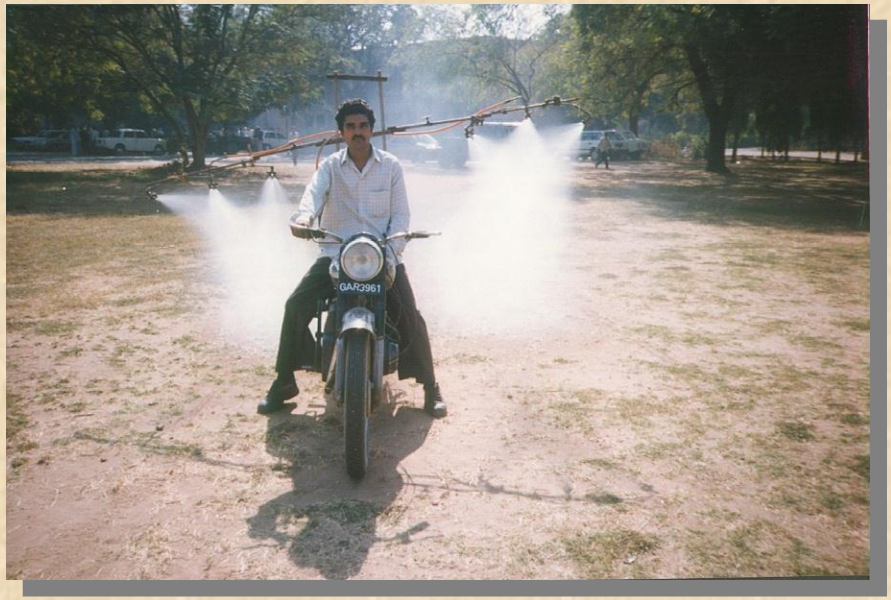
Mr. Mansukhbhai Jagani

- Mansukhbhai has reversed the sprocket arrangement of cycle-chain drive to get the required pressure for spraying.
- Pedals are replaced by piston rods, connected with brass cylinder pumps on either side. Movement of bicycle builds up pressure for spraying.
- Less space is required to move compared to other power sprayers, especially in between rows of plants.
- The innovation came up with the aim of utilizing wide-availability of cycles with small and marginal farmers.

Motorcycle Driven Sprayer

Mr. Ganeshbhai Dodia

- Bullet, a powerful motorcycle, available with marginal farmers, has been used for this sprayer.
- Sprayer is powered by energy generated in the engine coupled with a belt drive.
- It is extremely flexible product with adjustable height and width of spraying boom.
- Can spray up to 40 acres in a day.



Battery Operated Sprayer

Mr. Lalit Surana

- Sprayer is operated by deriving power from Kisan Torch
- One person can spray one acre of land in one hour
- Amount of chemical, size of droplets can be controlled
- Spraying area is six feet in diameter
- With the help of one battery it can operate for six hours

Indian Patent Application Number :: 940/MUM/2003

“Jayant” Sprayer

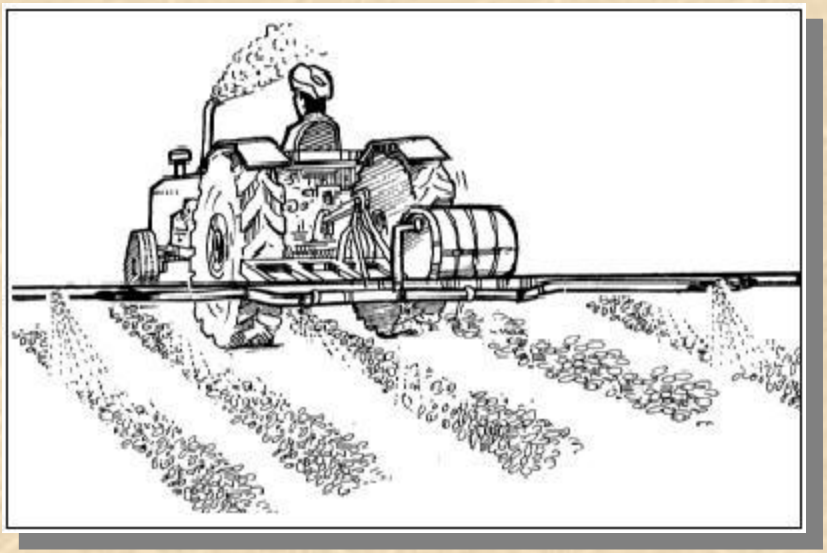
Mr. Rameshbhai Bhalala

- Operated through 7.2 HP diesel engine and three-piston ASPEE sprayer pump.
- Engine & pump mounted at five feet height on the self designed iron chassis mounted on four pneumatic wheels.
- Highly efficient for cotton and other crops where the plant height is more.
- Also used for interculturing by attaching harrow behind it.
- Consumes four litres of diesel to cover 50 acres of land in a day.

Tractor Mounted Sprayer

Mr. Dahyabhai Patel

- Leyland oil pump is mounted behind the tractor along with PTO shaft to generate pressure.
- High volume capacity and uniform spraying.
- Easy installation on tractor
- Cost is about Rs. 4000/-



Award Winners

1st Competition

2nd Competition

3rd Competition

4th Competition

Low cost windmill Assam

Md. Mehtar (32) and Mushtaq Hussain

- This is an environment friendly cheaper solution for water lifting (having low initial cost and negligible operating cost). An alternative solution for water lifting by electric power operated pump/pumps guzzling fossil fuels or in absence of both pumps operated manually with low discharge.
- The supporting structure/tower of windmill has been developed using low cost, readily available material in the region (eg. bamboo, eucalyptus, etc depending upon regional availability). This structure houses a horizontal shaft made of mild steel (or cast iron) with four blades placed at the centre. The blades of turbine are made of mild steel sheet. The rotary motion of the shaft over which blades are mounted, (resulting due to wind power) is transferred to reciprocating movement of pump-lever using cam and lever mechanism.

Video

Cow Washing Apparatus

G Vijaykumar

This is a simple innovation where a rectangular structure of perforated water pipes is erected. The cow is made to stand in the centre of the structure. Water either from an overhead tank or a pressure pump is forced into the perforated pipes. The water comes out from the perforations and washes the cow. This method is simple and can be used to wash troublesome animals in 10-15 minutes just by tying them in the centre of the structure. Regularly cleaning becomes easy and better hygiene of the animal can be ensured.

Video

Sanitary Napkin Making Machine

Mr. A. Murgunanatham
Coimbatore , Tamilnadu

Salient features:

- Semi automatic sanitary napkin machine
- A team (3 persons) can produce 2 -4 napkins/min.
- Cost of the Machine is Rs. 70,000/-
- Cost of production- Rs.1.15 per pad
- Generates rural employment for women
- A worker can earn Rs.60-70/day

Eco-Friendly Mosquito Destroyer

Mr. Mathews K Mathew

Kannur, Kerala

- The smell from septic tank attracts mosquitoes
- Once the mosquitoes get trapped they cannot escape
- The transparent plastic tubes act as a Solar furnace and kills the mosquitoes
- Costs : Rs. 500 , Price: Rs. 1,450

Honey Bee

Multi purpose processing machine

Mr. Dharamveer
Yamuna Nagar, Haryana

This is a portable multipurpose unit which is capable of processing various plants like Aloe vera, Gooseberries, etc. to extract gel, juice etc. similarly extracting essence from Chillies, Coriander, flowers (Rose, Jasmine, etc.) and fruit juice/ pulp from Mangoes, Tomatoes, Oranges etc. with good efficiency. It can also be used as a big pressure cooker as and when required. Multiple utility and multi processing capability of the device processes the raw material in several ways and thus giving multi products as end products. An Indian Patent (367/DEL/2008) has been filed for the Innovation. The project has also been supported for venture assistance.

Honey Bee

Laxmi Asu Machine

Mr. Chintakindi Mallesham
Andhrapradesh

Usually, the process of making a tie and dye' silk saree in Pochampally tradition begins with the selection of silk thread. Using the process of Asu, a triangular shape is given to the threads and designs are drawn on this shape. Tying is done where required as per the design and the threads are then dyed in selected colours. Once dried and untied, the dyed silk threads are rolled into spindles. The spindles are used appropriately in looms and the saree is woven.The Laxmi Asu machine, created by Mallesham in Andhra Pradesh, has relieved women from 8-9 hours of labour everyday. This has brought a revolution in the weaver community. An Indian Patent has been filed for the Innovation. The innovator has sold more than 500 units of the same.

Self dispensing container apparatus for liquids

Sukomal Basak
Cooch Behar, West Bengal

The innovator is tenth pass only and has conceived an idea about a container and a dispenser that will pour liquid as soon as a glass is kept below the dispenser. Main container with four dispensers (on four sides) is kept on a stainless steel material. Below each dispenser, on the platform, are four switches. These switches are connected to a valve, which gets open when the switch gets pressed due to the weight of the glass. As a result, the liquid from the main container flows out through the dispenser into the glass.

Rain Water Harvesting Umbrella

Ojasvi Goel

Delhi

An umbrella that protects from rain and at the same time collects water and makes it available for drinking in a bottle

Rural Refrigerator

Tehrim Qaiser Umar Ali
Anantanag

The rural refrigerator developed by two children works on the principle of evaporation. There is an outer steel jacket having pores in the upper half. There is a main storage compartment made of copper and another inner compartment which acts as a cooler. The exterior of the storage compartment and interior of the inner compartment are covered with cotton lining. The outermost jacket and innermost jacket are filled with water which takes away the heat from storage compartment.

Honey Bee

...Making India Innovative

Thank You

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