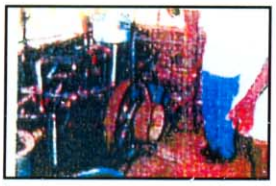


India Innovates

First National Grassroots
Technological Innovations
& Traditional Knowledge
Awards - 2001

November 29-30, 2001

National Innovation Foundation

National Innovation Foundation

National First Prize: Rs. 1,00,000
Plant Variety: New Cardamom Variety – "Njallani"

Mr. Rejimon Joseph

Mr. Sebastian Joseph

New cardamom variety – 'Njallani'

Sebastian Joseph with the help of his son Rejimon Joseph developed a new cardamom variety *'Njallani'* by selecting good berries and crosspollinating these. This variety could be multiplied by clonal propagation method. Presently a vast area under cardamom cultivation is covered by this variety.

Earlier, his attempt to cultivate food crops failed miserably due to attack by wild animals and consequent financial loss. In those days cardamom was widely cultivated in the high ranges. Sebastian tried to shift towards the cultivation of cardamom. With the help of his son, Rejimon Joseph, Sebastian started experiments. He observed variation in the shapes of the cardamom. He selected good berries and cross pollinated them. For this purpose he selected four cardamom plants and put bee hives in their midst. He then covered the plants with mosquito net. He also marked the flowers that produced the berries. These berries were pure clones. Next, the clones which bore more and bigger berries were selected. The selected four clones had born 148 berries. Capsule was double the size of the common Mysore variety. He called his selection '*Njallani*' after the ancestral name. Sebastian began to multiply this selected variety by the clonal propagation. It was observed that a *'Njallani'* variety has 120-160 capsules compared to 30-35 in the ordinary variety. Instead of planting

Idukki is Kerala's largest district and usually called spice village of the world. Mr. Sebastian Joseph is a marginal farmer and has studied only upto fourth standard. His first attempt at farming was banana cultivation, which failed miserably. But his determination and will power saw him through. With the help of his son Rejimon, Sebastian has developed a new variety of cardamom which heralded a revolution in the cardamom cultivation. Today 88.7 per cent of the total area under cardamom cultivation in Idukki is under cultivation of *'Njallani'*, the superior variety of cardamom selected by Sebastian and his son Rejimon.

Njallaniyil House
P. O. Kattappana
Dist. Idukki
Kerala

Scout:T.J.James, Bobby Issac, Sanu M. Simon, M. Thomas (PDS)

seedlings that take two to three years to bear fruit, he began to plant shoots and was able to shorten the yield span to two years compromising neither on quality nor on quantity of the yield. In his quest to constantly upgrade the cardamom variety, this industrious farmer has recently developed another cardamom variety which is yet to be named and which he says can even be grown in the plains and not just hilly terrains. His son Rejimon not only helped him in all these operations but also contributed significantly to the success of his selection.

National Innovation Foundation

National Second Prize: Rs. 50, 000
Plant variety: New Paddy Variety – 'Chinna Ponni'

Mr. C. Rajendran

New paddy variety – 'chinna ponni'

'*Chinna Ponni*' is a superior variety of paddy developed by Mr. C. Rajendran. Mr. Rajendran started his informal research work in 1989. He developed a pure line variety of paddy seed by selection and called it *Parani*. In 1991, he released it for use by the farmers in his neighbourhood. This variety had a maturity period of 105-115 days, excellent drought tolerance, resistance to pests and disease and gave higher yields giving a net profit of nearly Rs 11 625 per hectare. Then he developed the *Visakam* variety, which could withstand water stagnation due to heavy rainfall. His experimentation finally paid off in 1994 when he developed a superior variety, which he called *'Chinna Ponni'*.

This short duration variety has a maturity period of only 100 days. It can withstand drought and is disease tolerant. The average production is about 7-8 tonnes/ha. It is best suited to red loamy soil but can grow in all kinds of soils. It requires very little fertilizer and can be grown through out the year. Rice recovery is quite high, i.e., about 66-67 per cent. Farmers from all over Tamil Nadu have written or met him asking for the seeds. This made Mr.Rajendran start a seed selling business in his wife's name. Today, the 'Chinna Ponni' variety is grown in nearly two lakh acres in Tamil Nadu, which amounts to almost 1/3rd of the area under paddy cultivation.

Mr. Rajendran was not always a social worker. Mr. Rajendran is 45 years old and until a few years ago worked with the Tamil Nadu Government as an agricultural officer. He served with the Tamil Nadu Government for 20 years but retired prematurely because the Government instead of encouraging him, sued him for innovating a superior variety of paddy seeds.

Back Side Of Krishna Theatre
Thathampatti,
P. O. Vadipatti,
Dist. – Madurai
Tamil Nadu

Scout: P. Vivekanandan,SEVA

National Innovation Foundation

National Third Prize: Rs. 25, 000
Plant Variety: New Variety of Pigeon Pea – G. D. P. - 1

Mr. Dhulabhai Punjabhai Patel

New variety of pigeon pea – G. D. P. - 1

Dhulabhai Punjabhai Patel of Gadha village has developed a variety of Pigeon pea and named it as Gadha Dhudabhai Punjabhai – 1 (G.D.P.-1).

During 1994, Dhulabhai had sown the seeds of BDN-2, one of the most popular among improved pigeon pea varieties. Once during the normal field visit he found three plants that were completely different from the rest of plants in the field. The most peculiar characteristics of these three plants that caught his attention were, the red to pinkish red flowers, dark green leaves and lack of any pest or disease attack. This had a very desirable impact, which Dhulabhai initially hadn't anticipated. The conventional yellow flowers attract pests and thus conventional varieties required several sprays of chemical pesticide. The red flower in new variety didn't attract much pests. He started observing the growth of these three plants at regular intervals. He harvested the seeds of these three plants separately. He cultivated these seeds next year for trial in a separate row and keenly studied their characteristics. He found out that in addition to above characters the variety also was early maturing and slightly high yielding as compared to BDN-2. Variety also possessed greater resistance to wilt and had very low problem of borers and sucking pest. The variety had good responsiveness to fertiliser and irrigation and could also perform well if low level of fertilisers were applied. Today this variety has attained so much popularity that one can rarely find any farmer in Gadha and its surrounding village who sowed any other variety of pigeon pea

Mr. Dhulabhai Patel is a simple illiterate farmer, but with a keen sense of observation. He faced a piquant situation when some other farmer with whom he had shared the seed of his newly selected variety, tried to claim credit for the innovation. Thanks to the effort of Shri Rajnikant, a young village level worker of Agricultural department and SRISTI, justice was done to him. The variety has also been sent for further trials to the main pulses research station, Sardar Krishinagar of the Gujarat Agricultural University and also for inclusion in the gene bank at NBPGR, New Delhi.

Village: Gadha
Taluka: Modasa,
Dist. Sabarkantha
Gujarat

Scout: Rajnikantbhai Patel

National Innovation Foundation

National First Prize: Rs. 1,00, 000
Farm Implements: Arecanut Dehusking Machine

Mr. Narasimha Bhandari

Arecanut dehusking machine

The arecanut is the major commercial crop of the western ghats of Kerala and Karnataka.

Getting arecanut shell peeled off is not as cumbersome task as it used to be in the past. There is a lot of demand for mechanisation of the peeling operation. This prompted him to design and develop an arecanut dehusking machine. This automatic machine can dehusk upto twenty kilos of arecanut in an hour as opposed to the five kilos by a labourer. Also it can peel arecanuts of any size. Already, he has an order of twenty five dehusking machines. Mr. Narasimha Bhandari has also designed an arecanut drier that uses only agricultural waste as fuel and can dry arecanuts within 24 hours with outstanding quaility.

Narasimha Bhandari, just SSLC pass, with the only experience of working in hardware workshop for several years, established his own workshop 'Durga Engineering Works' in Koppa some years ago. He has designed both manual and automatic arecanut peeling machine. First he designed a machine in which arecanut had to be peeled by rotating the wheel manually. This was very slow and cumbersome. He later designed an automatic machine, which can do four times more work than what is possible manually. He is looking forward to file a patent for it.

Sri Durga Engineering Works
Vinobha Road
Taluka : Koppa,
Chickmagalur - 577 126
Karnataka

National Innovation Foundation

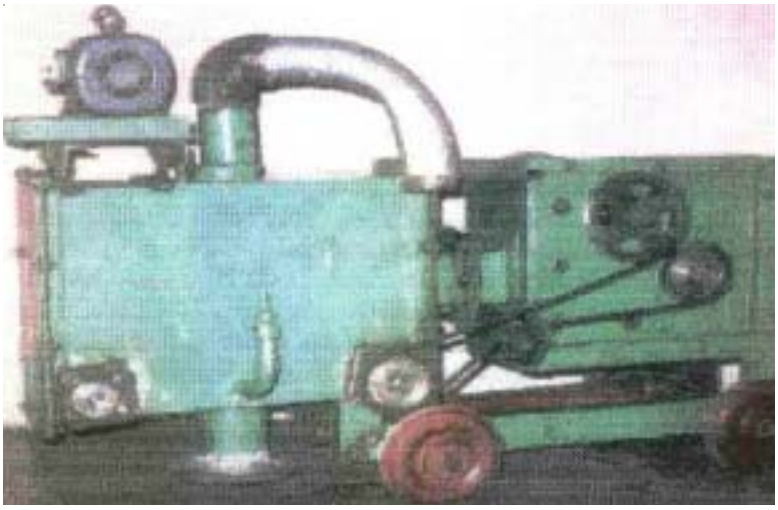
National Second Prize: Rs. 50,000
Farm Implements: Power Saving Technical Pump

Mr. Ram Naresh Yadav

Power saving technical pump

Ram Naresh Yadav has innovated a unique pump, the Power Saving Technical Pump (PSTP). This pump can solve the energy crisis faced in the agricultural sector. It has offered tremendous flexibility to economically disadvantaged farmers facing erratic power supply and limited resources. The pump can be operated by animals as well as human power. Normal version requires two bullocks. The smaller version can be run by two to four men without affecting the output compared to those being run on electricity or diesel. It can however, when required, be also run on electricity or diesel, using a two HP electric motor or 3.5 HP diesel engine. A centrifugal pump is neither suitable for animal power nor can it pump beyond 5 to 15 minutes under such conditions. It requires priming, which this pump does not. The pump has been tested at the Dept. of Mechanical Engineering, IIT, Kanpur and found very efficient.

The pump would prove very useful in drawing water from wells, bore wells, ponds and canals saving energy and providing flexibility in the choice of fuel. Mr. Yadav is still not satisfied with his design and wants to make many more modifications.



Ram Naresh Yadav has studied only upto high school. He has seen tough times as his father died before he was born and his mother reared the family all alone. After passing out from high school he involved himself in the family agriculture. But things did not go well so he opened a watch repair shop that took off and he gave his fields to labourers to farm. He remembers that during the Gulf war, diesel was in extremely short supply and farmers suffered police lathis to get a few litres of diesel to run their pump sets. The Government declared it mandatory for people to have identity cards to get their share of diesel which was a tedious process. To reduce dependency on electricity and diesel Ram Naresh started work on design of pump set that could be driven by animal power. It took him 20 years and in 1994 he was able to succeed in his innovation of a Power Saving Technical Pump (PSTP)

Power Saving and Generating Research Institute,
124/59 - C,
Govind Nagar, Kanpur
Uttar Pradesh

National Innovation Foundation

National Second Prize: Rs. 50,000
Farm Implements: Bullet Driven Santi

Mr. Mansukhbhai Ambabhai Jagani

Bullet driven santi

In the drought prone area of Amreli it was getting increasingly difficult to use animals to plough the land as they had become weak due to lack to fodder. Less number of farmers kept bullocks and were looking for mechanical alternatives. Also, labour had become scarce, as the tough times had led to migration to the towns. When Mr. Mohan Patel a farmer came over to Mansukhbhai asking for a replacement for his two bullocks, Mansukhbhai had a creative idea.

It was in 1994, inspired by a local mode of transport, the three-wheel taxi, he designed what he called the Bullet Santi. This amazing contraption was made from an Enfield Bullet, a hardy motorcycle whose engine was converted to a 5.5 HP diesel engine and the rear wheel was removed and replaced with an attachment with two wheels. Once a tool bar was fixed to the attachment this unique machine could plough, weed and even sow seeds. The machine was also cost effective and fuel efficient, it could plough an acre of land in just half an hour consuming only two litres of fuel. Ten hectares of land could be weeded in a day and cost of weeding was a mere eight rupees a hectare. NIF has provided financial assistance of Rs.1.5 lakh. GIAN - West, is operationalising the support. His patent application is being

Mansukhbhai Jagani was not too interested in pursuing education. He was always more inclined towards tinkering with nuts and bolts. In his early years he helped his father in agriculture but soon he became restless and went off to Surat to work as a diamond cutter. But even the glitter of diamonds couldn't shake off his restlessness. He returned home and with his savings, set up a small welding and drilling shop. His hour of glory came when Dr. Mashelkar personally saw his innovation at a meeting at IIM Ahmedabad in late 1990s and encouraged him to display his innovation at Indian Science Congress in Pune, January 2000. There was a tremendous response to his innovation at Pune.

Jay Kodiyar Welding Works
Village: Mota Devaliya
Taluka: Babra
Dist. : Amreli
Gujarat

Scout: Maheshbhai Parmar
SRISTI

filed in India and U. S. A. through voluntary help of Boston based patent lawyers.

His innovation has been displayed at the Indian Science Congress 2000 at Pune,and the Swadeshi Vigyan Mela at IIT, Delhi where it received an excellent response. Students at MIT Boston have developed a business plan for his technology. National Institute of Design, Ahmedabad is working on improving the design of the Santi as a part of GRIDS (Grassroots Innovation Design Studio) set up by GIAN at NID.

National Innovation Foundation

National Second Prize: Rs. 50,000
Chemicals: Metal Protected Acid-Scale Remover Radiator Cleaner

Mr. Bharat Thumar

Metal protected acid-scale remover radiator cleaner

Mr. Bharat Thumar has developed a solex cleaner that according to him can remove the most stubborn scaling without causing any damage to the cooling system metal.

Whether it be in the engines of automobiles or in heavy equipment movers or chemical industries the problem of scaling - the layer that forms on the surface of the cooling- heating system causing insulation and thus decrease in the rate of heat transfer- is a major one. The descalents used at present are either weak, not being able to completely remove hard scaling or too strong, causing corrosion of the metal. Coolants are not commonly used. To make the descalent, 25 per cent sulphuric acid is added to the inhibitor (the innovation) in powdered form with water. The solution is stirred and brought to a temperature of 95 degree Celsius. When used on a radiator not only is metal loss negligible but scaling is removed and sometimes there is an addition of metal or a protective layer. This product if used could save millions of rupees and thousands of man-hours and increase the life of the cooling system 20 times. Also it is claimed to be highly environment friendly.

Mr Thumar is a self employed small scale entrepreneur. He has developed this cleaner through his own research and development. When he was approached by NIF to assist in patenting, he expressed fears about leakage of his formulations.

Gypsy Interlink Industries
310, Panorama Complex
Opp. Bal Adalat, Gonda
Rajkot 360002
Gujarat

National Innovation Foundation

National Third Prize: Rs. 25,000
Farm Implements: A New Rotor Sprinkler: Rain Gun

Mr. Annasaheb Udgavi

A new rotor sprinkler: rain gun

During sugarcane cultivation, Annasaheb faced the problem of salinity and difficulty in irrigating the dense crop. He had gone to Japan to repair an old Buddhist statue. Being curious, he went around to look for new farm machineries. He observed a rotor sprinkler but didn't know how it worked. He came back and started to work on this sprinkler, he now calls, raingun. Also, he believed that the best method to solve the problem of aphids and white flies was a high-pressure water spray. He designed a rotor sprinkler to suit the sugarcane crop. After installing it in his field first, he identified need for many more improvements. To achieve a balanced shaft movement, he added about 400 gm additional weight. At the outlet, he provided a groove for fixing nozzles of different sizes to throw water at different lengths. Further, he introduced a locking system to prevent the sprinkler head from throwing water into neighbouring fields.

The advantages of the Chandraprabha rain gun are manifold. With a per head cost of just Rs.3,500/- and the per acre installation cost of Rs. 15,000/-, it can irrigate one acre in about one and half hours. Since it has a three inch pipe and a wide nozzle, even composts such as biogas slurry can be applied to the crop through it. Since water is applied with force, even pests like aphids and white flies can be washed down. It does not even need additional pipelines because of its ability to cover as much as 140 feet radius.

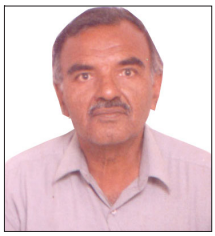
Annasaheb Udgavi, a sculptor and farmer in North Karnataka designed sprinkler head which does not do just that but a lot more. Sixteen years ago, when hardly anybody knew about drip irrigation, he pondered over the idea of using it in his own way. To save his betel-vine orchard from acute scarcity of water, Annasaheb fitted PVC pipes used in electrical fittings after making perforations in them with nails. By irrigating for an hour each day, he successfully maintained the orchard for seven years. But poor prices for betel leaf and labour problems made him switch to sugarcane. It was during this period, that he innovated a sprinkler system that could cover as much as 140 ft radius. He has named it after the goddess, Chandraprabha. He is also known for his extra ordinary skill in reparing old Buddhist statues.

Vill: Sadagala
Taluka: Chikkodi
Belgaum
Karnataka

Scout: Arun Balamatti
Nada Kattin

National Innovation Foundation

National Second Prize: Rs. 50,000
Other Implements : Modified Ganga, Saraswati and Yamuna Pulley



Mr. Amrutbhai Agrawat

Modified ganga, saraswati and yamuna pulley

Millions of women draw water from well with or without help of pulley every day. For many years these women have suffered because of rope burn from the pulleys, from the bucket getting detached from the rope or the pulley having undergone wear and tear thus hindering efficient functioning. More importantly, sometimes while drawing water from deep well, the women get tired and have to gasp for the breath. While doing so, they have to keep holding the row tied to water bucket. Once in while, the grip loosens and the bucket falls into the well. Our society devised ways to take the bucket out the well but did not devise a solution such that rope could not slide back. This is the problem affecting millions of women around the world which Amrutbhai solved. He has made three different models called the Ganga, the Saraswati and Yamuna pulley. Presence of a liver on the pulley prevents the downward movement of rope into the well. In the Ganga pulley there is no loss of the rope and bucket. The Saraswati is a detachable pulley, which can be used at various locations where a beam is present. These pulleys are also economical to use as they cost only between Rs. 75 to 250. Interested entrepreneurs can visit Mr. Agrawat's home for a demonstration of this new technology.

Mr. Amrutbhai Agrawat has learnt to solve problem faced by farmers, women and labourers essentially through his own life experience. He had to start his early life as a labourer because his father had died. He had to discontinue his education. His mother brought him up after working as farmer herself. Hardship in early life, created in him a desire to do something about the problems faced by common people. He pursued priesthood in the temple and also innovated as many as seven different useful farm implements such as tilting bullock cart, groundnut digger, multipurpose toolbar, wheat sowing box etc.

His son, Bharat is now continuing the tradition of innovations by innovating new devices. Incidentally, Amrutbhai did not put any restriction on the dessemination of this technology. He is a member of SRISTI board. He has got Gujarat Government's Sardar Krishi Puruskar for his innovation.

At : Pikhor
Taluka : Malia- Hathina
Junagadh 362245
Gujarat
Tele: 02870-45306
02871-31785

National Innovation Foundation

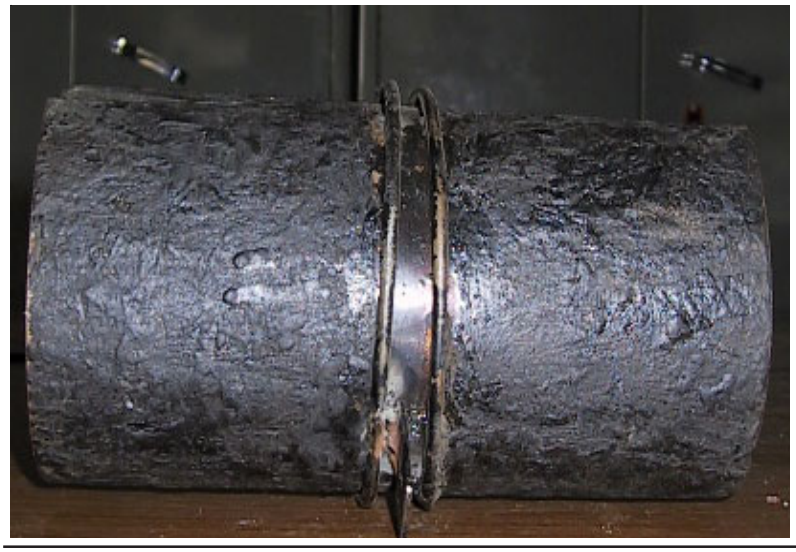
National Third Prize: Rs. 25,000
Other Implements: Rat Proof Collapsible Collar

Mr. Anand V. Gogte

Rat proof collapsible collar

Mr. Gogte, who is a consultant to the RCC pipe industry, has innovated a collapsible collar made from mild steel plate which can join two RCC pipes within two or three minutes and can make the joint completely rat proof.

The DOT is currently laying hundreds of kms of optical fibre cables in all the Indian states. However, a problem has surfaced. The dreaded menace of rats. Rats eat away the cabling and cause losses of lakhs of rupees to the nation. Mr. Anand Gogte has innovated a collapsible collar made from mild steel plate, which can join two RCC pipes. This is done by reducing the diameter of the collapsible steel plate collar by pressing it and inserting it in the pipe. When the collar is inserted in the inside of two adjoining pipes, by releasing the hand on the collar, the collar goes into its original shape and seals the joint. This takes about two to three minutes. The joint so made is rat proof. To prevent rusting or corrosion a suitable coating is added to the collar. It also has a stopper in the centre at the top, to mark the joint and to prevent it from going inside the pipes.



Mr. Anand Gogte is a technical consultant to the Pune Construction and Engineering Research Foundation and has also authored books on RCC pipes. Having been a practical person, he has had a keen desire to not just advise but develop new solutions to technical problems through experimentation.

Consultant Engineer
112 / 3, Erandavne ''AMRUT"
Anand Colony
Off. Prabhav Road
Maharashtra

National Innovation Foundation

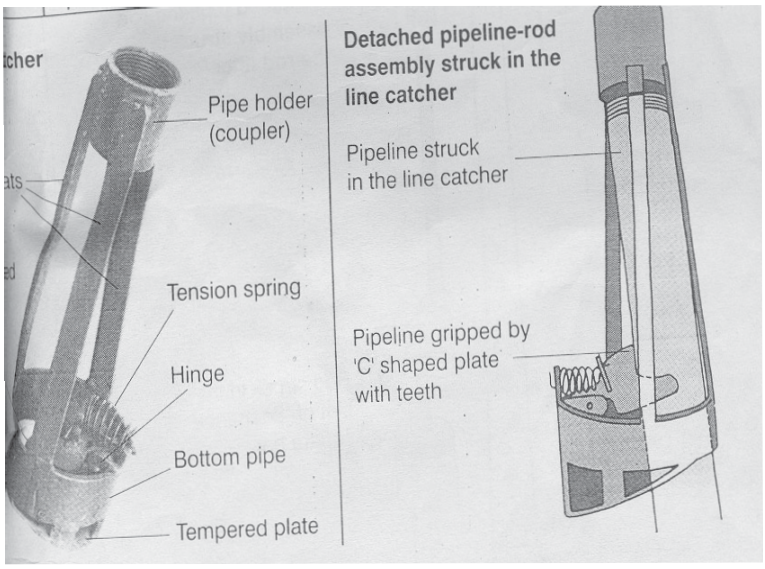
National Joint Third Prize: Rs. 25,000
Other Implements : Device Helping to Engage the Connecting Rod without a Checknut

Mr. Vinayak Kamble

Device helping to engage the connecting rod without a checknut

Mr. Kamble has brought back life to abandoned hand pumps with his innovative" fishing tools". He has been responsible for the repair and maintenance of hundreds of hand pumps in tribal and rural areas of Maharashtra, Gujarat, Karnataka and Rajasthan.

Invariably the handpump's raiser pipeline and connecting rod are broken and would have fallen down to bottom of the well. As he encountered more and more trouble with many hand pumps he resolved to find a solution. He devised a reverse funnel shaped tool with a coupler attached to the top. The funnel shaped bottom would guide the pipeline in the coupler. For pulling up a connecting rod, which had the checknut intact, he devised a Hook Shaped Tool, which caught the checknut thereby making it easy to draw out the fallen line assembly. Not satisfied with the repairing hundreds of handpumps he also trained youths in some talukas of Maharashtra, Gujarat, Karnataka and Rajasthan in using these tools to repair handpumps.



Vinayak Kamble had a very humble beginning. He was brought up in a small village near Phaltan in Maharashtra. He left school after the tenth standard. As a little boy, Kamble was fascinated by the way machines around him worked. His interest in oil engines, motor cycles and even bicycles led him to invent simple machines and tools. He worked in BAIF for 15 years as a lift operator and then based himself in Vansda as a hand pump mechanic

Vill: Manjri Khund
Taluka: Haveli
AT & Post: Manjri
Budruk – 412307
Maharashtra

Scout: Mr. Sharad Mahajan

National Innovation Foundation

National Joint Third Prize: Rs. 25,000
Other Implements : Connecting Rod Lifter

Mr. Gamanbhai Patel

Connecting rod lifter

Gamanbhai devised a pipeline catcher that is low cost, weighs only two and a half kilos and looks like a cone. The base forms the pipe holder ring and is connected to a piece of pipe at the top with three flat steel strips. One strip is shorter than the other two and is welded at a lesser angle to the pipe holder ring, at the base. Two C-shaped plates are attached on either side of the ring- one above and one below. Above the upper one there is a spring and a hinge, which helps to clasp the detached pipeline. The plate at the bottom helps to guide the detached pipeline into the tool.

Once a hand pump fitted in a 250 feet deep bore well in the village Randha (Akole Taluka, Ahmednagar district) stopped working because the entire pipeline rod assembly fell inside. He tried to use the hook shaped tool innovated by Kamble but it did not help. This gave him the opportunity to improvise on it and the designing of the S shaped fishing tool. The 'S' shaped tool has distinct features such as a facility to attach rods and aside support to keep the lifter straight inside the borehole.

Mr. Gamanbhai Patel continued Mr. Kamble's good work by improvising these tools. Gamanbhai is a Naika adivasi and originally hails from Ghonas Velgaon- Mahuwa Taluka in Surat district. He grew up at his uncle's place. Out of sheer poverty he could only attend half the days school sessions because the rest of the day he had to graze cows. Yet he always stood first in the class.

Vill: Chikatiya
Post: Jamliya
Navsari
Gujarat

Scout: Mr. Sharad Mahajan

Sometimes while lifting the cylinder out, loose stones from the inner sidewalls of the bore well get released. They make it difficult to lower the cylinder inside the bore well. Gamanbhai found a good solution to deal with this situation. He created a flat chisel, which looks like a piece of flattened crowbar. The chisel can also be used to chop the roots of plants along the walls of the well, which get wound around the casing pipe obstructing upward movement of the pipeline.

Gamanbhai has brought many abandoned hand pumps to life with these innovative fishing tools. He has been responsible for the repair and maintenance of hundreds of hand pumps in tribal and rural areas of Maharashtra, Gujarat, Karnataka and Rajasthan.

Note: This innovation was developed by Mr. Gamanbhai Patel and taken up further by Mr. Vinayak Kamble. Hence this is listed separately but the award would be jointly given to both, as without one, the other could not have been developed.

National Innovation Foundation

National First Prize: Rs. 1,00,000
Energy Conservation: Pressure Type Kerosene Stove

Mr. Usha Sankar Bhattacharya

Pressure type kerosene stove

In 1993, Mr. Bhattacharya set about his research work methodically. He narrowed his search to only small, low cost heat utilizing devices or processes of widespread application. Pressure type kerosene stove is Usha's new innovation which has the potential of saving five million tones of oil in a year which is surely impressive in a country which carries the reputation of being the world's least efficient energy user. Oil savings of forty to sixty percentage over the regular stove, enhanced safety, reduced operating noise and better combustion are the peculiarities of this stove . Mr. Bhattacharya has applied for patent registration of his stove.

Mr. Bhattacharya has done his mechanical engineering from Jadavpur University, Calcutta, specializing in heat, power and energy. He gave up his employment with the Bhaba Atomic Research Centre to concentrate on being a scientist entrepreneur in 1987. For someone who had staked his career for the success of his enterprenual project, it was difficult for him to continue his research efforts by 1991 due to sheer lack of funds. His research on pressure type kerosene had to be shelved. However, in 1993, he was able to resume his efforts to develop a superior stove.

C/o. A. K. Roy
58/1/3D, Raja Dinendra Street
Calcutta – 700 006
West Bengal

National Innovation Foundation

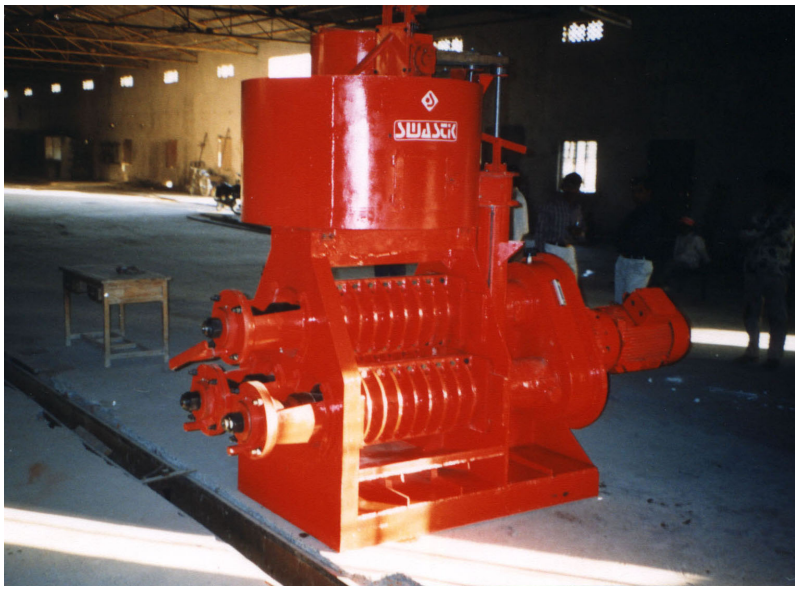
National Second Prize: Rs. 50,000
Energy Conservation: Energy Efficient Oil Expeller Machine

Mr. Kalpesh Gajjar

Energy efficient oil expeller machine

Mr Kalpesh Gajjar's innovation 'Energy efficient oil expeller machine' is half the size of the conventional expeller, three times as fast, consumes just 2/3rd the power and is automatic. Using CAD he innovated an oil seed crusher-the Swastik and this machine is mounted on gears instead of using V belts to drive the crushing shafts. Seeds are taken in automatically instead of being fed in manually, only three labourers are needed to operate it as opposed to six in a regular expeller and it is portable. It is Mr. Gajjar's dream that one day, even the small farmers, instead of selling out cheaps oil seeds to the oil barons, will be able to extract oil from their produce efficiently with the help of his innovative expeller.

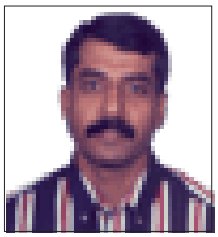
This high school dropout turned machine tool developer from Visnagar in Mehsana, was the first man in his town to own a computer. What is even more amazing is that Mr. Kalpesh Gajjar is self taught person. He used CAD to innovate an oil seed crusher the 'Swastik Expeller'. He has received Sarabhai award from Gujarat Government. GIAN has mobilised a grant from TePP programme to improvise his technology.



Swastik Entech Pvt. Ltd
Opp. Gunj Bazar
At : Visnagar
Mehsana 3284315
Gujarat

National Innovation Foundation

National Third Prize: Rs. 25,000
Energy Conservation :Highly Efficient Low Wattage Electric Water Heater



Mr. A. R. Shivakumar

Highly efficient low wattage electric water heater

Mr. A. R. Shivakumar has developed a 'low wattage high efficiency electric water heater'. With Shivkumar's innovative water heater, cold water is made to enter from the bottom of the container in reverse direction and hot water is drawn from the top at the farthest end from the cold-water entry to avoid mixing. This results in 80 per cent yield with rated temperature. During the initial operation, a convection shield creates hot water layers at the top and over time the conduction from the convection shield will heat the rest of the water in the container. This process results in hot water accumulating at the top of the container in layers. Thus, hotter water is always available at the top of the container for usage. Heater switching is controlled by thermostat. Glass wool insulation around the container helps in retaining heat for a long duration.Cladding on the insulation will protect insulation. Open ended hot water outlets add safety by making the system non-pressurised. In conventional geysers, opposite happens. The cold water enters from the top, where the hot water layers get formed first and hot water is drawn out from below.

Mr. Shivakumar who is a Programme executive at the International Energy Initiative lives in Vijaynagar in Bangalore. The man gets terribly indignant about wasting precious electricity for water heating and has come up with a solution to put lesser load on the electricity grid.

25/5, Borebank Road
Benson Town
Bangalore 560046
Karnataka

National Innovation Foundation

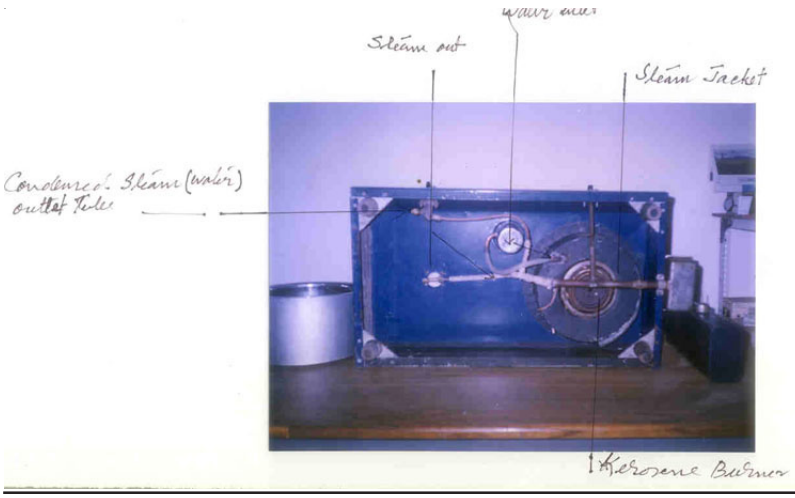
National Third Prize: Rs. 25,000
Energy Conservation: Multi-Utility Fuel Efficient Stove

Mr. S.J. Joe

Multi-utility fuel efficient stove

S.J Joe has designed and developed a multi-utility stove. It is fuel - efficient as cooking can be done for 14 hours in one litre kerosene. It has a built in water jacket and so heat lost on the sides is absorbed and the hot water or steam thus tapped can be used to cook idlies or steam cakes. This means 14 hours of cooking per litre of kerosene as against regular seven hours of cooking per litre, besides the added supply of steam/hot water. The stove is also smoke free. More importantly, it is not a pressure stove, so there is little chance of bursting and causing accidents. The stove comes with single, double and multi-burner units and has soft blue flame.

Mr. S.J Joe has 32 years of experience as an Industrial electrician as well as in the fields of air conditioning and refrigeration and solar equipment. Aged 56, he pursues experiments to develop difficult devices using his experience in heat exchange theory and practice.



STL 16/661 D
Francis Road,
Calicut 637003
Kerala

National Innovation Foundation

National Third Prize: Rs. 25,000
Artisanal: Bamboo Bicycle, Hand Pump and Tooth

Mr. Dodhi Pathak

Bamboo bicycle, hand pump and tooth

A unique bicycle made from bamboo, except for its tyres and tubes, was designed and constructed by him because he didn't have the money to purchase a regular one. He has also innovated a bamboo hand pump that can be used to pull water from wells or ponds. Every part of the pump including the piston, valve, barrel and the handle is made from bamboo. This illustrious innovator has even made artificial bamboo teeth, which he proudly uses himself and claims are strong enough to chew on chicken and fish. He has created beautiful replicas of the famous 'Saraighat Bridge', a toy train that gets activated to the notes of a flute. He once made a replica of that eternal ode to love in the world - The Taj Mahal without ever having been to visit the actual monument in Agra. He refused to sell it for Rs one lakh because he thought it was too little. He has also made models of bus, various monuments of Assam, apart from a few tools and implements like the spindle of musical instruments.

His one regret is that the tradition of bamboo carving might soon die off because the younger generation does not find it a lucrative career.

Mr. Dodhi Pathak is an unique innovator of articles made out of bamboo. He was discovered in a mela (rural fair). He is around 48 years of age. He firmly believes in the adage " necessity is the mother of invention". Having suffered a poverty stricken childhood, he faced many difficulties in life which reinforced his faith in his ability to innovate. The seeds of the innovations were laid when Mr. Pathak had to buy a second hand cycle for himself. He was not able to buy one as it was very costly. So he thought of constructing a cycle with a locally available raw material i.e., bamboo. With this idea in his mind Mr. Pathak was able to make his dream come true. He is a very good singer of folk tunes.

P. O. - Bobpeet
Village - Sandheli
Dist. : Nalbari
Assam

Scout: Alok Pradhan

National Innovation Foundation

National Second Prize: Rs. 50,000
Herbal Medicine : Doob Grass *(Cynodon Dactylon)* as Medicine

Mr. Ranjeet Kumar Pandey

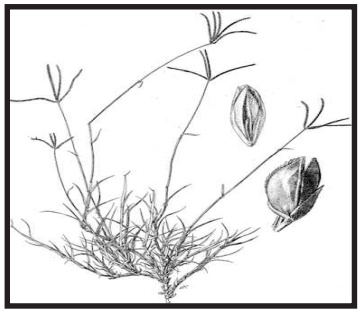
Doob grass (Cynodon dactylon) as medicine

Doob Grass (*Cynodon dactylon*) is available all over India. Generally it is found scattered in east India and tarai region. Doob Grass itself is very strong. It is pungent in taste and hot.It has many medicinal values and can be used against diabetes, to stop blood flow from wounds etc., since it contains pro- thrombin.

Diabetes: 1 cup of solution of onion (*Allium cepa*) and Doob Grass (*Cynodon dactylon*) should be extracted and one spoonful of honey (Extracted from neem flowers) should be added to the solution. This solution should be given to the diabetic patient everyday. Diabetes would become normal within 3 days. This practice has reportedly controlled 65% diabetic patients.

Wound healing:Doob Grass (*Cynodon dactylon*) should be crushed and strips are prepared out of it. It should be made wet with the help of limestone and then could be used as bandage. It would heal wounds immediately. It is very powerful and less expensive than common bandages.

Accidental cuts on bodies: For treatment first of all the injured (cut) part should not be washed with water. It must be washed with the help of the solution prepared from crushed Doob Grass (*Cynodon dactylon*). Then the injured part should be covered very smoothly with the paste of crushed Doob Grass. Injured part should not be uncovered for two days to avoid infection. This injured part won't be infected. Painkillers should be avoided to get rid of it fast. This treatment helps a lot to recover injury.



Mr. Ranjeetkumar Pandey has studied upto primary level. Because of his week economic condition he could not pursue his further studies. He earns his living by farming and labour. He is a great lover of nature. Moving around farms, listening sweet voices of nature, talking with plants etc., are his hobbies. He always thinks about plants and their advantages to human beings. He has observed that Doob Grass (*Cynodon dactylon*) increases soil fertility and is a blessing for living beings since it has many medicinal properties. He is sure that his innovations would be very useful to the society.

V. P. O: Sihipur
Taluks : Bikapur
Police Station Haiderganj
City: Faizabad
Uttar Pradesh

National Innovation Foundation

National Third Prize: Rs. 25,000
Herbal Medicine: Expulsion of Placenta In Animal

Mr. Sampatbhai Nanabhai Gangurde

Expulsion of placenta in animal

When placenta in animal does not detach after delivery, it should be treated immediately, otherwise some other ovary diseases might result in the animal. One kg of *'Mahuda'* (*Madhuca indica*) leaves should be mixed with two kg paddy and fed to the animal. This mixture could not only be fed to animal as medicine but also as food, which would assure no problem in future delivery. The placenta would get detached within one hour. With the above treatment the animal would get rid of wastes from uterus. There is no side effect of this treatment.

Mr. Sampatbhai Nanabhai Gangurde, 45 years, has studied upto the 5th standard. He earns his living by farming. He is a "Sarpanch" of his village Hathgadh.

Village: Hathgadh
Taluka: Surgala
City: Nasik
Maharashtra

National Innovation Foundation

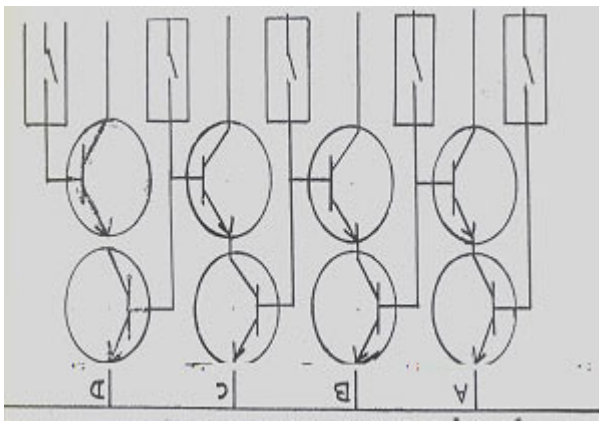
National First Prize: Rs. 50,000
Idea: Small Computer Keyboard

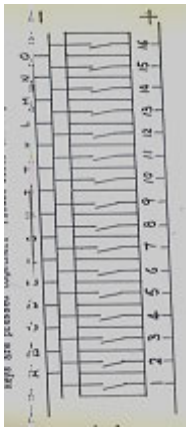
Mr. Sudarsana

Small computer keyboard

Haven't we all experienced the irritating problem of having pressed two keys instead of one on a keyboard resulting in a writing error, despite the fact that each key has been thoughtfully designed for the width of our fingertip. Now, can you imagine a keyboard half the size of the current one! Unimaginable but true as Mr. Sudarshana has proved. In his keyboard the number of keys are double that of the older version but the width of each key is half. Now, each key is nothing but a switch which closes an electronic circuit When key A is pressed it closes a circuit which feeds the computer chip a signal corresponding to letter A. In the new design instead of pressing a single key two keys are pressed together say key 1 and 2. When pressed together they close a circuit that feeds the computer chip a signal A. When keys 2 and 3 are pressed together it closes a circuit, which feeds the computer, chip a signal corresponding to B and so on. This is achieved by using a simple electronic circuit (see pic 1) or by providing two switches in a single key.

Thus in the new keyboard by using 'n' number of keys '2n' number of different signals can be fed into the computer chip that is by doubling the number of keys and reducing the width of a key to half the total length of the keyboard is reduced to half.





This is a man whose head is swarming with ideas and whose creativity knows no bounds. Mr. Sudarshana has many unique ideas to his credit and we could not write about all of them but we've singled out one that displays his fertile imagination. He sent a large number of creative ideas on a variety of subjects ranging from milking cows in more comfortable position to pumping water. He now edits a very popular farmers' journal viz., Adite Patrike.

IIIrd 1168, Cto Road
Darbe
Puttur 574202
Karnataka

National Innovation Foundation

National Second Prize: Rs. 25,000
Idea: Solar Spectacle Frame for Night Reading

Mr. Prakash Shende

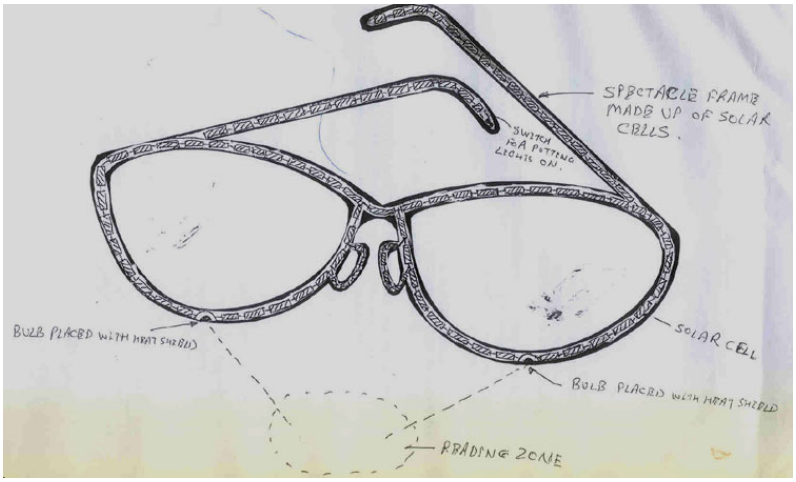
Solar spectacle frame for night reading

Imagine that frame of one's spectacles has solar cells embedded in them. In the day time, these get charged. When one wants to read comfortably in bed or otherwise without disturbing others, the light may be switched on, thus enjoying reading a book in the dark.

Mr. Shende's innovation is a spectacle frame consisting of solar batteries. There are two bulbs (covered with heat shields) at the bottom of the frame on both sides, which can be switched on with the help of a switch. These would be focused to aim light on the reading material and enable the person to read without disturbing his neighbour.

Mr. Shende's innovation is not only a boon for every traveller or reading addict but also conserves energy by using non-conventional solar energy.

Mr. Prakash Shende is based in Bombay and is an employee of Telco. Between November 1999 and March 2000 he attended a course at IIM. He was inspired by lectures by Prof. Mashelkar and Sam Pitroda on innovations. It was then that he also heard of an organization being formed, which would act as a platform to put forth brilliant ideas and innovations. Perhaps he knew then that this would be the platform to put forth his unique ideas.



F-70, Lokmanya Nagar,
T. H. Kataria Road
Mahim
Mumbai 400016
Maharashtra

National Innovation Foundation

National Third Prize: Rs. 15,000
Idea: Electricity on National Highways

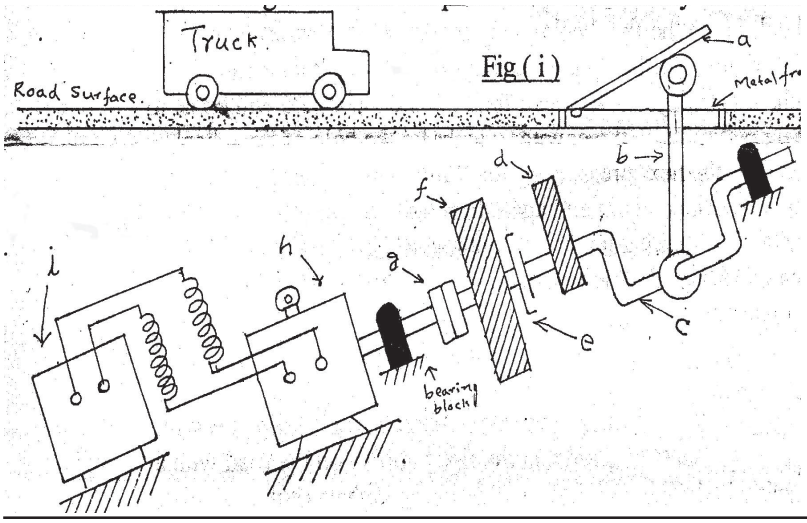
Mr. A.D. Nagendrappa

Electricity on national highways

Imagine every moving vehicle on main roads also does some work. One comes across normal speed breakers. The difference in this proposed scheme is that some of these speed breakers would be pressed down, move levels and rotate a dynamo, generating electricity in the process.

An inclined metal plate is hinged and fixed to a metal frame, and a connecting rod which is connected to the bottom surface of the metal plate. The other end of the connecting rod is connected to a crankshaft and this in turn is connected to a flywheel like the one is used in a bicycle. When a moving load passes over the inclined plate it will be pressed down. Due to this the connecting rod will move to the downward direction and make the crankshaft to rotate the flywheel. The process will continue to rotate the generator to produce electricity, till the moving loads continue to pass on the inclined plate. The electricity produced thus can be stored for further utilization.

With the energy crisis looming large over the world it is becoming increasingly necessary to find newer and newer forms of energy. Mr. A D Nagendrappa who hails from Bangalore and is an advocate by profession has come up with an excellent idea. He proposes to harness energy from moving trucks on highways.



No. 23, Maruthi Layout
Singapura Road, M.S. Palya
P.O. Vidyaranyapura
Bangalore 560097
Karnataka

National Innovation Foundation

Karnataka State Prize: Rs. 25,000
Small Implement: Tamarind Cultivation and Processing

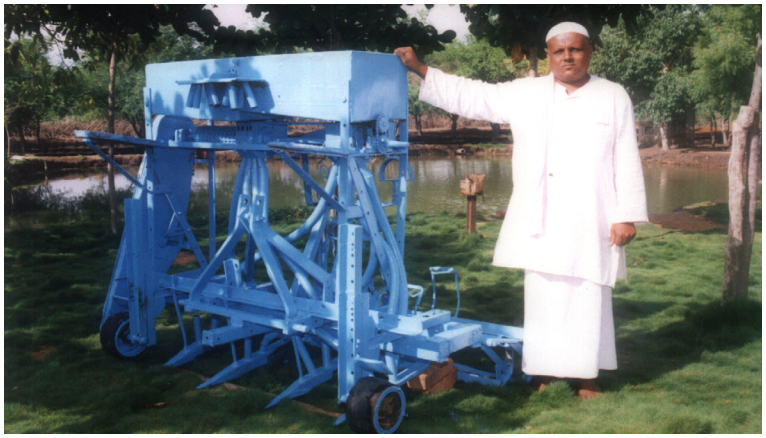
Mr. A.I. Nadakattin

Tamarind cultivation and processing under dryland conditions and water harvesting techniques

Nadakattin, deeply in debts, due to his love for research offers a strange paradox. He has solved so many pressing problems in tamarind processing but his own economic condition has worsened. He had funded all his research by mortgaging/selling in land or burrowing money.

He developed a tamarind seed separator so that pulp can be used for various preparations. It costed him Rs. three lakhs. It does in one day, what would take 500 persons to do in the same time. He has also developed a tamarind slicer. Within one hour, it can slice 2.5 quintals of tamarind.

He has also innovated water-harvesting methods for dryland cultivation of tamarind. Farm ponds measuring 100 x100 feet are dug up saved Rainwater is pumped into the farm ponds and later used for irrigation. (ii) A square pit is created in the centre of four *tamarind* trees. Along with water, dried leaves and twigs are collected in the pit. In addition, poultry and fish manure mixed with little salt and a six-inch layer of sand is kept in the pit. Rainwater is collected in the pit. The pit holds water for a long time due to sand and manure mixture.



Mr Nadakattin is a mechanic by hobby, a social worker and an environmentalist as a practitioner. Right from the childhood he was very innovative minded and had a observant nature. He has many small innovations to his credit. His emphasis always has been to promote cost-effective, eco-friendly and socially acceptable methods in agriculture. Even today, at the age of 46, Nadakattin has still not given up his innovative spirit. Some of his popular innovations are: machine to saparate tamarind seeds, tamarind slicer for preparing pickle, harvesting tamarind, bullock drawn tiller etc. Though all his innovations have been appreciated by politicians, researchers and scientists to a large extent but his economic condition has remained more or less the same. He has even sat on a hunger strike accompanied by his wife and two daughters but all in vain.

Vishwashanthi Farm House
Annigeri
Taluka : Navalagunda
Dharwad
Karnataka

Scout: G N S Reddy, BAIF

National Innovation Foundation

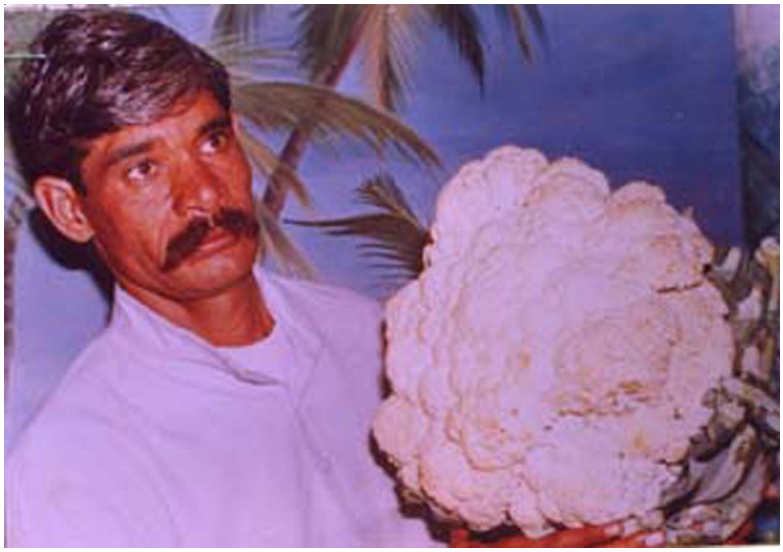
Rajasthan State Prize: Rs. 25,000
Plant Variety: A Cauliflower Variety- 'Ajitgarh' Selection

Mr. Jagdish Prasad Pareek

A cauliflower variety-'ajitgarh' selection

Mr. Jagdish Prasad Parikh has developed a new variety of Cauliflower called "Ajitgarh selection". The variety gives upto 12 kg cauliflower and can with stand hot temperature variations. It is disease resistant and less susceptible to insect attack. The plant is 3-4 feet in height, the thickness of trunk is 1.5-2.5 inch, the size of leaves is 1.5-2 feet wide and leaves are rough.

In 1970 when the farmer went to Jaipur to purchase seeds, he saw saplings of Cauliflower in a farmers farm. He got some plants and planted it near a well. Some of the plants were significantly different. In the sense that these had bigger than average fruit. He went on selecting every year plants giving him bigger and bigger white flower. After 25 year, he got this variety 'Ajitgarh'. Later, Shri Sundaram, a pioneering farmer breeder himself, found that this variety had another unique characteristic. It could be grown three times a year.



Jagdishbhai, 63, has pursued several other professions before taking up farming as a full time profession. The variety of cauliflower developed by him is very different from the normal ones. He has grown it without any chemical fertilizer and pesticides. He got this inspiration from his maternal uncle who follows organic farming at his farm. Shri Jagdish bhai has won number of prizes and awards. In 2000, he was awarded the SRISTI Sanman. The Limca book of record (LBR) after reading about the honour given by the Honey Bee Network, included his innovation in the previous edition of LBR.

Ajitgarh
Taluka : Shree Madhapur
Dist. : Sikar
Rajasthan

Scout: Sundaram Verma

National Innovation Foundation

Assam State Award : Rs. 25,000
Herbal Drugs: Herbal Treatment for Diabetes, Heart and Malaria

Mr. Gunaram Khanikar

Herbal treatment for diabetes, heart and malaria

.Mr. Gunaram Khanikar has developed herbal medicines for diabetes, heart disease, malaria, ulcer, piles, jaundice and even eczema. He also developed a multivitamin pill and a drug to cure oral cancer. He claims that, all his patients have been cured after taking his treatment. About the names of the herbs he has been using, he did not divulge much information because some people had already patented three of his medicines without acknowledging his contribution.

Herbal medicine for diabetes have seven ingredients. When asked about the herbs, he said he has already written about these in a book in Assamese, which was likely to be published in English soon. The herbal medicine for heart diseases is for regularizing heart palpitation and also to provide relief to the people suffering from this heart disease. The bark of Arjun tree (*Terminalia arjuna*) along with Tejpatta leaves can be ground properly and a spoonful taken with water. For patients who are at a greater risk, the same mixture is given but without water. Herbal medicine for Malaria is made out from:

Margossa tree leaves (*Azadirachta indica*), Carlmeg seeds, also

Mr. Gunaram Khanikar is a herbal medicinal expert. He started his practice around 20 years ago. He initially learnt about herbal medicines from his father. After completing his graduation, he plunged himself into the world of herbs,shrubs and the like, involving himself completely in herbal medicines. He tried out old things and at the same time developed new herbal medicines. He is also a prolific writer and has written around 30 books, most of them in Assamese, including one of the most successful of these “Sahaj Labhya Ban Darober Goon”, which is now being translated into English. He has also penned around 630 odd articles in different magazines. Mr. Khanikar also heads an NGO called The Regional Reseaech and Training Centre on Indian traditional Treatment (RRTCITT).

(Director, R R T C I T T)
P. O. - Golaghat
Tetlitol
Golaghat
Assam

Scout: Alok Pradhan
Kulranjan Kujur

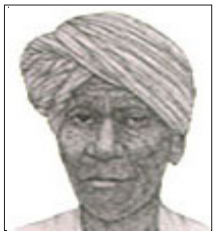
known as the king of bitter, and 'Chirota' seeds (*Andrographis paniculata*).These can be ground properly and a teaspoonful given to the patient suffering from malaria along with one glass of water. If this mixture is taken twice or thrice everyday, the patient is expected to be free from malaria. His claims would need to be scientifically validated and NIF is likely to enter into an agreement with NBRI (National Botanical Research Institute) soon, on the subject.

Though he has been invited to various seminars across India, nobody has cared to ask him if he required any financial help. He has already built a training centre to train rural youth in herbal medicines. He has plans to conduct training of 3-4 months duration where he expects youth from all over North East to come and learn about traditional medicines. The little amount of land he possesses has been turned into a herbal garden, which acts as a source for developing new herbal medicines.The garden is named as "Khanikar Banadrabya Bagicha".

National Innovation Foundation

Maharashtra State Prize: Rs. 25,000
Farm Implement: Groundnut Pod Separator/Wool Ginning Machine

Mr. Marutrao Sarode



Groundnut pod separator/ wool ginning machine

Groundnut Pod Separator: Mr. Marutrao Yashwant Sarode has developed a groundnut pod separator and / wool ginning machine. Groundnut is harvested by uprooting the whole plant. The pods are then separated by picking them individually by hand, or in bulk by twisting the roots with one hand while holding the plant firmly in the other, or by threshing: striking the roots on a horizontal stick or steel blade. All these methods are tedious. Marutrao designed and fabricated a unique pod separator that used rotating blades to snip off the pods. He used a bullock-drawn blade harrow to loosen the plants first so that they were then easy to uproot.

Wool Ginning Machine: He began to design a wool-ginning machine based on the cotton gin he had seen in Indore. He finalised the design in 1942 and over the next six years, set about getting the components for it from the district headquarters and from Mumbai's Lokhand bazaar. He acquired pedestal bush bearings and shafting. He fixed 1200 nails on a wooden strip to form a comb and mounted it on the outer flat surface of a belt pulley. A stationary comb of nails was fixed in a curved housing below the pulley in such a way that nails on the pulley passed between the teeth of the comb. The pulley had a sprocket attached, and a chain and crank handle could be manually turned to achieve speeds between 60 and 100 rpm. One person fed in the raw wool while another turned the handle. The gin worked continuously and efficiently for 12 years; it still sits in the village.

Marutrao Sarode, more than 80 years has studied upto the first standard. He and his two friends, Marutrao Kadam, a cobbler, and Gangaram Sakve, a carpenter had keen interest in new ideas. His friends used to help him after finishing their own work, as they did not have any major family obligations. They would all have discussions till late in the night.

Marutrao got his first patent for a groundnut pod separator sealed in December 1990 (patent no 175864), well after he had crossed the age of seventy and fifty years after his first invention. He is always brimming with new ideas. He ambition is to own a factory and make machines which would be affordable by the poor. According to him he is a follower of *Saraswati* - the goddess of knowledge ans he wants to use his ability to the best of his knowledge.

Village: Sade,
Taluka : Rahuri
Ahmednagar
Maharashtra

Scout: Prof. Dhonde

National Innovation Foundation

Kerala State Prize: Rs. 25,000
Livestock Management: Low-cost Milking Machine

Mr. V. A. Johny

Low-cost milking machine

In order to reduce human labour in milking cows, a new low-cost machine has been innovated by Mr. V.A .Johny to milk cows easily without causing them any irritation. In fact, it can give lot of relief to the cow. No electricity is necessary for operating the machine and the cleaning process is simple, too.

It's a simple machine working on the principle of vacuum. It consists of the following parts : pump attached with hand liver, milk bottle and transparent plastic tube attached with four cup shaped rubber bushes, connected with air valve. One end of the pump is attached to the udders of cow and the other to a milk bottle. When we lift the liver upwards the milk will come from the udders of the cow and will be deposited in air valve through the attachend plastic tubes. Attached rubber bushes will prevent leakage of air in between the plasitc tube and nipples of the cow. As we pull the liver downwards the stored milk in the air valve will flow through the tube to milk bottle. Milk is drawn from the udders, only when we lift the pump. The downward movement will not draw the milk from the udders. Since he has used the transparent plastc tube we can see the process of milking. So we can stop pulling the lever, when the milking is over. Currently 20 farmers are using this machine. Experts have examined the working of the machine and have recommended for wider replication.

Johny Vithayathil is working as an A I Worker (Artificial Insemination) in the Kozhipilli milk society for the past 15 years. Farmers face severe shortage of labourers for milking and the process of milking is very tiresome. Difficulties in the conventional milking process prompted him to develop a low cost milking machine. Large corporations and high tech institutions are unlikely to address such problems of small farmers. Johny, being an experimentalist thought of mechanising the milking operation. Given the new international standards on hygiene and sanitation in post WTO regime, many more such innovations might become necessary.

Vithayathil House, Kozhippilly
P.O. Kothamangalam,
Ernakulam 686 691
Kerala

National Innovation Foundation

Gujarat State Prize: Rs. 25,000
Herbal Pesticides: Non Chemical Pest Control

Mr. Rajnikantbhai Patel

Non Chemical Pest Control

Mr. Rajnikantbhai has devloped several herbal pesticides ,crop protection methods and bio control methods for the Control of sucking pests, *Prodenia and Heliothis larvae*: Three kg of black veldi (croton sp.) leaves are boiled for three hours in 20 lits of water. After this, when the volume reduces to about 5 lt, it should be sieved properly and sprayed on cotton, castor and other green leafy vegetables in order to control sucking pests. The spray should be repeated after 10 days For the *Control of Prodenia and Heliothis larvae :* Four kg Aloe vera sp. (kuwar-patha) + Neem oil 500 ml + tobacco snuff decoction 500 ml should be added in 20 litre of water and boiled for three to four hours. When the volume of water is reduced to about five litre it should be cooled and then sieved properly. This could be sprayed on cotton or lady's finger (Abelmoschus esculentus) for effective control of Prodenia and Heliothis larvae. The pesticide is named as NEEKUNCHI [neem +Aloe vera + chi (tobacco snuff decoction)]

Lantana camara for controlling white flies

There are few village level workers who generate so much respect among their clients as Rajnibhai does. He has seven herbal formulations for controlling different pests to his credit in 10 years. He has been a Gram Sevak since December 1983. He has obtained diploma in Agriculture in 1982 and has undergone numerous departmental trainings. He was promoting the use of fertilizer and pesticide till 1990. The turning point in his thinking came, when he joined the 'Swadhayay Parivar' a religious sect that believes in promoting organic farming. Once the head of the sect, Pandurang Shastri came to a village in Sabarkantha and asked his followers to plant crops without using fertilisers or pesticides.This forced Rajnikantbhai to think about alternatives to pesticides and fertilisers. Ever keen to learn and promote new ways of organic agriculture he has managed to earn the respect of his superiors in departments and peers in NGOs also.

68, Jivanjyot Society,
Meghraj Road, Modasa Taluka,
Dist: Sabarkantha 383315
Gujarat

Scout: SRISTI

About 100 to 150 ml of extract should be diluted in 15 litre of water and sprayed. The spray should be repeated after 10 days.

Control of sucking pests with the help of predators

Calotropis species are grown around the field of crop plants to provide host for the Ladybird beetle. The Calotropis leaves are then spread in the field so that the Ladybird beetles could easily feed on the sucking pests, as it is a predator of sucking pests. Thus, the sucking pests could be controlled.

Crop protection using herbal formulations

(1) The latex of Euphorbia nerifolia can be used to control wilt, rotting & termites in various crop plants like pomegranate, castor, wheat, legumes etc.

(2) The juice of leaves of Lantana camara, can be used to control white flies. Due to control of these flies wilt in cotton can be controlled, since white flies act as a vector of wilt. In this process only the apical leaves are utilized.

(3) The extract of Jatropha can be used for the control of sucking pests.

(4) Salvadora oleoides can be used for the control of powdery mildew.

(5) Nicotiana tobacum powder is used to control Prodenia.

National Innovation Foundation

Himachal Pradesh State Prize: Rs. 25,000
Other equipments: Thermo Water Lifting Pump

Mr. Tej Singh Goyal

Thermo water lifting pump

Mr. Tej Singh Goyal has innovated a thermo water lifting pump, quite useful for lifting water where electricity is not available. Pine needles or any other dry bio waste can be utilised to lift water. The lifting is very quick - 200 litre in 80 seconds and fuel consumption is less – 100 gm for 200 litre. The pump can be used in a modified way to generate power.

Two steel tanks of one cubic meter each (approx. 1000 litre) are placed at the same height. One is kept for air and the other filled with water. They are connected with each other with the pipe as shown in the diagram. A 1.5-inch diameter opening is kept to fill the tank with water and is made airtight. One delivery pipe of two inches is fitted with non-return valve. The water tank is filled before the process of drawing it begins. When the air tank is heated with biomass or any other fuel, the air in the tank expands and exerts pressure on the tank so that water gets pumped outside. This process is repeated again to get the desired quantity of water for the purpose of irrigation or otherwise.

Mr Goyal, 55, does not hold any degree to back his claim as a technologist, but by pursuing his passion through his own genius, he has earned the distinction of being an innovator. He has studied upto high school. He failed to get admission in engineering course since he did not have the required percentage of marks. Although he has received recognition for his work from institutions like ICAR and Ministry of non-conventional Energy sources (MNES) but so far he has not received much support from any place. Although his struggle has continued to more than 30 years, his spirit is still soaring high as ever.

H. No. 167/8,
Mandi Town-175 001
Himachal Pradesh

Scout: Rajiv Patharia

National Innovation Foundation

Madhya Pradesh State Prize: Rs. 25,000
Other Implements: Pooran Pump

Mr. Pooranlal Kushwaha

Pooran pump

Looking at the shortage of diesel/ kerosene in the villages and crisis of electricity, Mr. Pooranlal Kushwaha developed the Bullock driven water lifting pump so that the farmers can use their existing resources and get sufficient water for irrigation and domestic work.

The pump has a gear box, crown gear teeth (24" diameter), pinion teeth 4" diameter, gear 70 teeth – 12" diameter, pinion – 20 teeth – 2" diameter, gear shaft, bearings, shaft, pulley, V belt, centrifugal pump (without electric motor) 3 HP and yoke (3 m long)

The major function of Pooran bullock driven water lift pump is to convert the bullock energy into mechanical energy. The main component is the reduction gear unit, which transmits the power to the system. The main conversion unit, which consists of an old chaff cutter gearbox and the gear reduction unit are installed on suitable foundation.

The Bullock's average speed is 3 rotation per minute. The 14" diameter pulley converts the rotation to – 10 rpm. The 4" diameter pulley further increases the rotation to – 350 rpm. The 25" diameter pulley fixed on 4" diameter pulley further increases it to 1400 rpm.

The pump provides output equivalent to 3 HP electrically operated centrifugal pump.

He lives with his three brothers and four sisters. His father died when he was a small boy. His mother took care of the family with a lot of difficulty as they were very poor. Although he was fond of studies yet he could not study after fifth standard because of the family condition. He was very upset when his studies were discontinued and fell ill for a month. He remained semiliterate and still he dreamt doing big things. During Gulf war when there was hike in diesel prices, he thought of moving the fans of the engine manually or by bullock so that water could be drawn from the well. In his place, people still use the bullock drawn prussian wheel and other devices to pull water from the well.

Village- Bhagwantpura
Tal : Jatara
P.O. Pahadi Bujurg
Dist. : Tikamgarh
Madhya Pradesh

National Innovation Foundation

Tamil Nadu State Prize: Rs. 25,000
Mechanical Devices: Coconut Dehusker

Mr. R. Jayaseelan

Coconut dehusker

Mr. R. Jayaseelan has developed a simple labour saving mechanical device called 'Coconut Dehusker'.

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 □ feet length and at 1" interval. These blades on rotation help to dehusk the coconut easily to the desired level. In the innovator's work spot there are six such sets. Each set is coupled to a 1.5 HP electric motor. With the use of this device the husk could be separated into four pieces still leaving some coir fibres in the nuts.

At average 150 nuts can be dehusked per hour. In a shift of 8 hours, about 7200 nuts (6x150x8) could be dehusked.

For feeding the nuts six labourers are needed. The cost of dehusking 7200 nuts with this mechanical device will only be Rs. 336. Wages for six labourers in a shift @ Rs. 50/- per labourers cost Rs. 300. Electricity charges for 12 units @ Rs. 3 per unit cost Rs. 36.

Mr. R Jayaseelan has studied upto SSLC and owns a coconut garden and mango orchard in Koomapatti. He also manages few coconut gardens on lease for the last six years. He performs dehusking and packs the coconuts in gunny bags. He sends lorry load of nuts through agents at Madurai and from there to northern states.

S/o Ramiah Nadar
J. J. ILLAM, 134. B. Kulalar Street,
Ramasamiapuram, P.O. Koomapatti
Taluka : Srivilliputhur
Dist. - Virudhunagar – 626 133
Tamil Nadu
Phone - 04563-82239

Scout: R.Ganesan , SEVA

National Innovation Foundation

Harayana State Prize: Rs. 25,000
Mechanical Devices: Indigenous Gas Kit for Moped

Mr. Ram Kumar

Indigenous gas kit for moped

He has developed an indigenous gas kit including a valve that is capable of resisting the damage caused when the moped engine might emit sparks back towards the carburetor. In that case, the valve automatically closes itself. The running cost is very low, and a small LPG gas cylinder is used for this purpose.

In the year 1994, while he was a young mechanic of 18 years he saw a Maruti van fitted with the gas kit and he started thinking of developing a gas kit for moped. He studied the gas kit of the car and developed his own indigenous gas kit with different tools assembled from different vehicles. He fitted the newly developed kit in moped and then ran it for 2-3 days in the year 1994. Many people advised him to abandon this kit in the face of danger involved in the usage of gas cylinder. Moreover, it was not allowed legally to use unauthorised gas kit in vehicles.

But Mr Ram Kumar was so confident of his kit that he even tested it in open space by igniting the gas in the pipe. As per his expectations, the valves used by him prevented any explosion and spread of ignition

Mr Ram Kumar, 25, is an employee in a spare part shop in Hisar. He is an expert mechanic of mopeds. His father is a mason. He skipped the school because of his love for working in the auto repair garage. His employer has put up a board of Ram Moped Works due to his credibility among clients.

C/o. Ram Automobiles
Ganesh Market,
Near Overbridge
Near Red Square
Hisar - 125 001
Haryana

Scout :Mr. P. K. Jain and
Mr. S.K. Kaura

in the pipe line. In March 2000, he again fitted the moped with kit and used it for his personal work. Daily he used to run it for 10 km on an average. He even tested it first in open ground by running at different speeds. This moped gave an average of 140-150 KMGL (Kilometers per litre of Gas), while the average of petrol moped is about 50 KMGL This was used upto October 2001, i..e., more than one and half years and no safety problem arose. Now for the last over one month, he has fitted this gas kit in a motorcycle which is being run with an efficiency of about 90 KMGL.

The kit costs only Rs 1500 and the moped demands less servicing (only after 7000-8000 km while petrol moped demands service after 5000-6000 km) compared to petrol engine. This moped, in addition to gas also runs on petrol. According to Mr Ram this innovation can be easily copied by aanybody as the accessories are available easily in the market and his innovation is to be protected by awarding some patent.

National Innovation Foundation

Andhra Pradesh State Prize: Rs. 25,000
Others: E-mail Informer/ Documentation-Cheque Authentication System

Mr. T. Sony Roy

E-mail informer/ Documentation-cheque authentication system

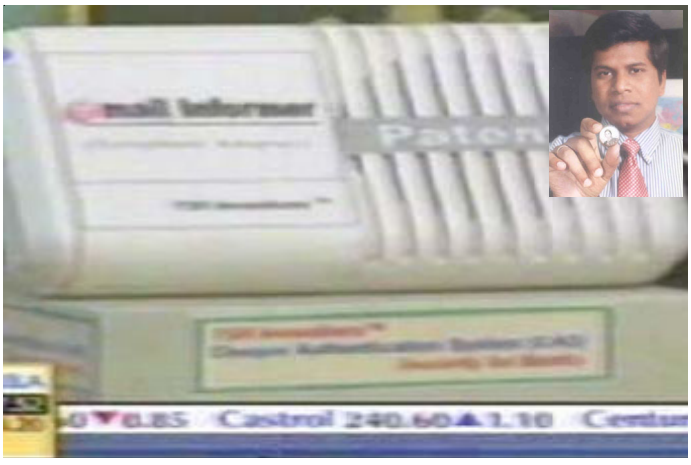
Cool Imager/Erpaper / Email Informer

Electronic Mail (e-mail) could inform the concerned person about the receipt of an email through different modes of communication such as Phone, Printout, Computer messages, fax, cellular, pager, post or telegram.

Document authentication system is related to the Biometric technology in general and automatic authentication of important papers / documents in particular. The present patented invention suggest a technique that is simple, easy to use, economical, clean, portable and gives quality fingerprint impressions. With the help of this, public could give finger print impression on any document or card as easily as making a signature with a pen which would cost much lesser than the cost of ink.

Erpaper

Wastage of paper mostly occurs at big computer automated offices where prints need to undergo several corrections. Thus the present invention, i.e. “Erpaper” and its supporting machine ‘‘Eraser Kit” tries to find the solution to the problem of paper wastage.



Since his childhood, Sony wanted to be an inventor. As a young student, he started impressing the teachers and others with his sheer brilliance. Although he feels that for an inventor, education cannot be the critieria, it’s only creativity and ideas that actually matter . He showed extradiordinary talent in solving mathematical problems and developing software solutions. In addition, he has also formed a local invention association to provide an united platform to inventors to yearn for policy and institutional change.

C-96,
S. R. Nagar
Hyderabad 500038
Andhra Pradesh

Cool-imager

In a Cool-Copier machine, when a plain paper is fed a special chemical or emulsion is sprayed on to the paper, making it sensitive to light instantly. Then through a lens system the image of the document is allowed to fall on to this paper and the image is copied on to it permanently.

New Method for Solving Non-linear Equations

He has devised a new method of solving non-linear equations. His method requires less computation efforts. The formula he has invented will simplify a process of calculation, which has been used for almost 400 years now. His formula helps in constructing trigonometric tables without using the Taylor series or the geometrical interpretation.

National Innovation Foundation

Students Award Rs. 5,000
Farm Implements: Ideas for Pest Control and Fertilisation

Ms. Selvi B Swetha

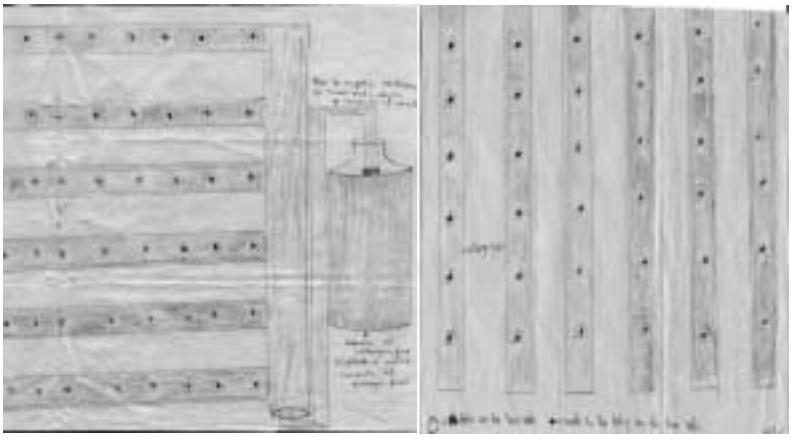
Ideas for pest control and fertilisation

Supply of nitrogen with the help of underground apparatus for seed germination / Chemcial reaction of blue green algae with soil kills pest. Pests are the major problem for the Indian farmers and they spray pesticides and fertilizers, which are highly effective. But nowadays pests are growing resistance towards pesticides.

Ms. Swetha, has developed a reaction, which can kill pests. Blue green algae is mixed in soil for growing plants. When the pests come to attack the plants, they immediately die, due to the chemical reactions that go on in the blue green algae which are harmful to pests but not to the man.

Her another idea is to overcome the problem of water in nitrogen fixing crop. In this type of growing plants, we can perhaps grow plants without the supply of water by supplying seeds with Nitrogen. An apparatus like pipe, made up of iron, is taken. It is kept under the ground and nitrogen is supplied to the seeds, which are kept in the holes. The seeds wouldl germinate after some days without water. Nitrogen is used as a gas, because it has the power to germinate the seeds much faster than all other gases.

Note: We have not rewarded the idea on the basis of its feasibility but for the sheer scope of imagination at young age.



She is a student, studying in the 10th standard in J.M.J High School, Hanam Konda. She has sent her ideas in the field of Agriculture, because she thinks that it is the most important and oldest industry, which supplies food and basic needs like clothing and shelter to human beings.

D/ O. B. V. Krishna Reddy
H. No. 3/10/227
Reddy Colony, Hanam Konda
Warangal
Andhra Pradesh

National Innovation Foundation

Special Consolation Prize Rs. 5,000
Other Implements: Development of an Environment friendly Oil Engine

Mr. M . Akasi

Development of an environment friendly oil engine

Usually the high speeds oil engine running on diesel at a consumption rate of 1.5 lt. per hour emits lot of black smoke and makes loud noise. Mr Akasi owned a high speed oil engine compressor, which was a cause for both sound and smoke pollution to the people living nearby. Eventually the residents of the locality complained to the local MLA to shift his centre to some other place. Therefore Mr. Akasi felt the need to develop a silencer with minimum sound pollution and least smoke emission.

At first, he converted the high-speed engine into one of low speed, but this didn't make any difference in reducing the loud noise and smoke. Next he changed the silencer tube size from 1 inch to 1.5 inches diameter. He changed the muffler size to a larger size of 20 cm diameter. He filled three tin sheets with a gap of 2 mm in 20 cm muffler. He also made holes similar to those found in the old 20 cm diameter muffler. This modified muffler assembled by him was fitted with the 20 cm diameter silencer tube.

Advantages are that :a) The sound produced in the oil engine is much less. b) Reduced level of smoke emission. The smoke released is white in colour instead of black indicating less carbon monoxide and carbon dioxide in it. The smoke is also free from any offensive odour.

Mr. Akasi, 42 years, has studied upto the sixth standard. As a child labour, he worked in the building construction industryfor four years till he matured to become a mason. Later he worked in an offset printing agency at Sivakasi for three years. Subsequently he had learnt driving and served as a lorry driver from 1990 onwards. In 1997, while transporting a load to Assam, he met with an accident and fractured both his legs. Since then he has been running a tyre-vulcanizing centre in Reserveline, Virdhunagar district.

S/o. Muthu Thevar
Muthukumar Vulcanising,
Sivakasi West Reserve Line,
Opp.Rasi Theatre
Sivakasi
Tamil Nadu

Scout: C. Balasubramanian,SEVA

National Innovation Foundation

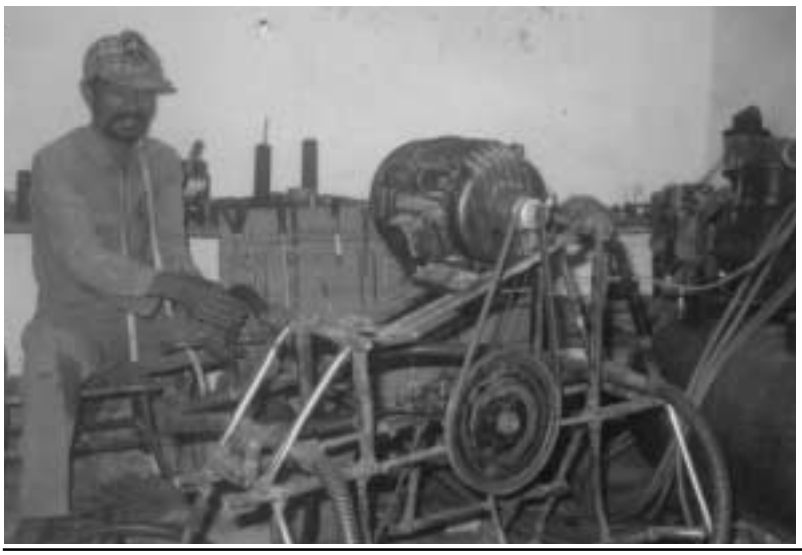
Special Consolation Prize Rs. 5,000
Other Implements: Water pump

Mr. Sakoon Das

Water pump

Sakoon has been adept in handling machines for quite sometime. He has developed a multipurpose machine, which can be run with the help of electric current or diesel engine and by human energy as well. The machine can draw water from a depth of 100 meters. At present it has a discharge of 1 inch. He has also developed a low cost bellow. He claims that it does not go wrong at any time and costs only Rs. 200. The motor pump costs only Rs. 3500. If this machine has to have discharge of 4 inches, then the pump would cost Rs. 5000.

Mr Sakoon Das has studied upto the fourth standard. He has worked as a mechanic for five years in the irrigation department of Baramkela on a daily wage basis. But the spirit to innovate has not been dampened by the hardships he has suffered.



c\o Gajraj Das
NearGayatri Mandir,
Vikas Khand, Baram Kela.
Tal. Sarangadh, Raigarh
Chattisgarh

National Innovation Foundation

Special Consolation Price Rs. 5,000
Energy Conservation: Energy Conservation in Agricultural Pump sets

Dr. A. Jagadeesh

Energy conservation in agricultural pump sets

In our country, over 75 lakh electric motors are operated for agricultural purposes besides lakhs of diesel pump-sets. In many cases the discharge velocity of water from the pipe is considerably high and in the process lot of "Kinetic energy" is wasted. Electricity could be saved if this loss is reduced. During an intensive survey conducted by the inventor, it was found that many of the motor pump sets have a mismatch between the suction and delivery.

Dr. Jagdeesh has thus designed a device to tap the Residual Kinetic energy and reduce the exit losses (without disturbing the pipes).

Design Details: A diverging section is fitted to the discharge end. The divergent truncated cone is about 1 foot with about 10 degrees angle to avoid separation in the diverging section. This arrangement leads to considerable saving of power, as energy is proportional to the square of the velocity. Metallic cone costs less than Rs. 75, and can be made locally.

Advantage: 1)The device is simple and can be made locally.2) It saves power in the case of electric motor and diesel in the diesel pump sets.3) Enormous saving of electricity is achieved as power for agriculture is heavily subsidised. 4) Energy is conserved.

Dr. A. Jagadeesh holds a Ph.D. in Wind energy from University of Roorkee. He is also an inventor, social scientist and a humanist, all blended into one. He believes in a pragmatic approach towards life. "Science to serve Society" theme is a passion for Dr. Jagadeesh. He has designed several other low-cost devices such as using the discharge water to charge batteries through a small pump based dynamo.

Nayudamma Centre For
Development Alternatives
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Nellore 524002
Andhra Pradesh

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E-mail : a_jagadeesh@yahoo.com
vayoo@hotmail.com

National Innovation Foundation

Special Consolation Prize Rs. 5,000
Pest Control : Protection of Grapes from Bird's Attack with the help of Honey bee

Mr. R. N. Janakiraman

Protection of grapes from bird's attack with the help of Honey bee

Usually birds attack the grape vineyards causing huge loss to the crops. This in turn causes a lot of hardship to the cultivators.

Mr Janakiraman has adopted a novel and natural method to eradicate this problem by growing honeybees in the vineyard.

In an acre of cultivation, honeybees can be grown around 12 places. The honeybees swarm all over the places thereby protecting the crops from the birds and in addition generating extra income from honey.

One day while Janakiraman was travelling to a nearby town, there were honeybees on the way. He noticed that the honeybees did not allow the birds to pass through them and drove them away. This incident provoked him to think if honeybees could be grown in the vineyard, it can save their crops.

This method when implemented gave good benefits.

A keen sense of observation can generate innovative solution. Mr Janakiraman's technique of of Honey Bee rearing in grape garden to keep birds away is one such example.

C/o Narayanaswamy
P.O. Sukkampatti
Via Thadikombu
Dindugal 624709
Tamil Nadu

Scout: Radha Krishnan, SEVA

National Innovation Foundation

Consolation Prize Rs.1,000
Other Implements : Multi-purpose Engine

Mr. Narayana Namboothiry V

Multi-purpose engine

He has developed a 'Multi-purpose engine' which can be used for cutting heavy and light wooden pieces, grinding metals and wood, buffing or polishing metal and wood, carving on wood, turning wood and light metal inside and outside & drilling holes etc.

Mode of Operation

It can be operated with a 1.5 H.P. motor. Speed for various operations are adjusted by changing the diameter of pulleys. A forward-reverse switch can change direction of rotation. A variety of wooden fancy and utility items can be made with the help of the machine. All operations such as cutting, carving, turning, and buffing, drilling etc., can be done simultaneously or in isolation with the single machine.

Mr. Narayanan Namboothiry works as a Senior Lecturer in Economics at the S.D.College, Alappuzha. He has developed a number of technologies and has made more than a dozen low-cost machines and equipment which are capable of converting low-cost, locally available, and waste materials into value added products such as fancy items, models etc. He also acts as a resource person in training programmes and demonstrations organised in villages all around to share his skills, experiences and innovative spirit.

Nalanda
P.O.: Sanathanapuram
Alappuzha - 688 003
Kerala

Scout : T.J. James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Prize Rs. 5,000
Other Machines: Microfine Wood Pulveriser

Mr. K. X. Benedict

Machine for microfine pulverizing of red sandalwood

Red sanders wood is a precious raw material used in the ayurvedic system of medicine. This machine can economically microfine pulverize red sanders wood by maintaining all of its natural properties including drug and colour values. Besides, the machine could also separate all impurities and wooden particles of low drug and colour values. Developing a machine for pulverizing red sanders wood has been indeed a long felt need of the ayurvedic system. The microfine powder of red sanders wood can be used to produce better drugs and cosmetics.

Working of the machine

1. The machine Pulverizes the very hard red sanders timber into microfine size by feeding and rotating the timber against a revolving mill having thousands of cutters. As a result (a) it produces very fine powder of upto 50 microns. (b) Low heat is generated at the cutting points, which is essential to maintain the quality of powder. (c) Generates very low sound while pulverizing. (d) No size reduction machines like cutters, slicers etc. are required. The timber of upto 60 cm length and 50 cm diameter can be fed into the machine. 2. The wood so pulverized contains around 80% microfine powder that is rich in colour and drug value. The remaining part contains tiny chips, sap wood particles, wood particles that are poor in drug and colour value and other impurities. The machine also separates the finest powder having colour and drug value out of it by pneumatic force. This machine can also be used for very fine pulverizing of other hard timbers used in the Ayurvedic system.

Mr Benedict is a Consultant in Machine Technology and basically a mechanical engineer from Cochin. He has innovated a machine for hard red sanders wood. Traditionally the red sander wood is used as paste and the paste making is a laborious job, since the wood is very hard and tough. Besides, paste so made cannot easily penetrate deep into skin. Recognising a long felt need of ayurvedic drug and cosmetic industry, he has developed this machine to make microfine powder from hard woods. He has developed five prototypes of the machine and the fifth one recieved financial support from TIFAC, under Ministry of Science and Technology for further development.

Kurupacherry House
Near Comapnypeedika Ochanthuruth
Cochin 682 508
Kerala
Phone: 0484-502607

National Innovation Foundation

Consolation Price Rs.1,000
Farm Implements :
Spathe Cutting Instrument

Mr. R. Muruga Selvan

Spathe cutting instrument

This is a device used for cutting Spathe of Palmirah (*Borassus flabelliformis*) tree, which secretes sweet juice from which black sugar is made. Extracting the juice of palmirah is a very laborious task, normally a worker climbs the trees more than 100 times a day. Realising this the innovator thought of a simple device to reduce the workload of the workers.

The instrument has a long rod having a knife. The rod is connected with an electric motor through wheels having teeth. The motor is connected with a timer circuit through which 12V DC current is passed. A small plastic box is attached around each Spathe. Another plastic box is attached at the bottom of the tree. The boxes are joined with a PVC pipe.

Working

The 12v Dc current is passed through the circuit. The timer circuit allows the current to pass to the motor 3 times a day. Thus the rod rotates and the knife cuts a small portion of the Spathe. Due to this more juice comes out from the Spathe & plastic box. When the upper box is filled it is diverted to the bottom plastic box through the PVC pipe without climbing the tree.

The cost of assembling the instrument is around Rs. 100. It is a low cost instrument, can be easily installed, and has no maintenance cost as such. Moreover, more juice is collected in less time.

Advantages

1. It is a low cost Instrument and can be easily installed.
2. More sweet juice can be produced without any wastage.
3. It reduces the workload of workers.
4. Zero percentage of maintenance. While minor repairs can be cleared by the workers easily.

Mr. Muruga Selvan is 27 years old B.SC, B.Ed. now working as a temporary teacher in a High school. He has two brothers and one sister. Ever since his child-hood, he is reserved in nature and looks things in deeper manner. He always keeps suggesting new ideas and concepts to his friends which nobody accepts easily. He also has a good ense of humor. During summer vacation when he has been running a tea stall he got the idea of tapping toddy from palmyrah trees. He shared his idea with his younger brother and there after started working in that idea.

1/80,
P.O.: Soorankudi
Taluka: Vilathikulam
Dist :Thoothukudi - 628 901
Tamil Nadu

Scouter: L. Vijayakamatchi, SEVA

National Innovation Foundation

Consolation Prize Rs.1,000
Mechanical devices: Conversion of Circular Motion to Reciprocating Motion

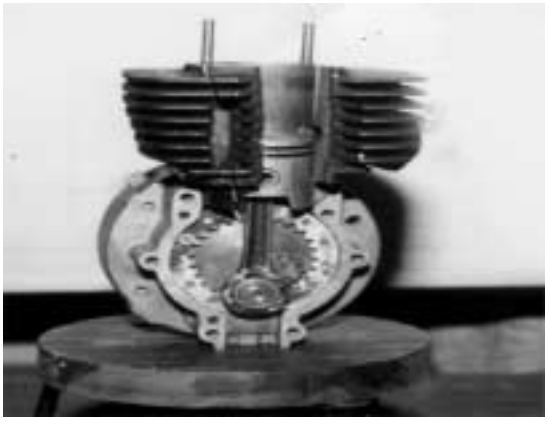
Mr. P. Joshua Devathathan

Conversion of circular motion to reciprocating motion & vice versa

For many years research engineers in the field of Mechanical Engineering have been trying to find an alternative for the "Slider Crank" mechanism, which converts reciprocate motion to circular motion and vice versa.

This innovation replaces the slider crank mechanism, which works on the principle of hypocycloid. This mechanism consists of a set of internal gears. The power - transmitting end of the connecting rod does not move in a circular motion. It travels vertically up and down or horizontally back and forth and side ways.

This mechanism consists of a set of internal gears; one spur gear, which revolves within a directing gear whose teeth are cut internally, which, is fixed firmly to the casing. One end of connecting rod is fixed to a crank pin; so as to enable the pin to revolve freely and in turn is fixed firmly overlapping the small gear (spur gear) at eccentrics. The small gear is firmly fixed to a shaft that freely revolves in a circular disc, which is attached to the main shaft. When the connecting rod moves up & down vertically, the crank pin also moves in the same direction, without any side ways movement as in the slider crank mechanism and the spur gear revolves freely within the directing gear driving the disc in a circular motion.



Mr. Joshua Devathathan, 50 years, is a Christian Pastor . Though he is not an engineer by profession but he has a strong bent of mind towards mechanics. In his spare time he pursues mechanical experiments to solve local problems.

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Phone: 2398704
Joshuadathan@yahoo.com

National Innovation Foundation

Consolation Prize Rs.1,000
Mechanical device: Water Level Indicator

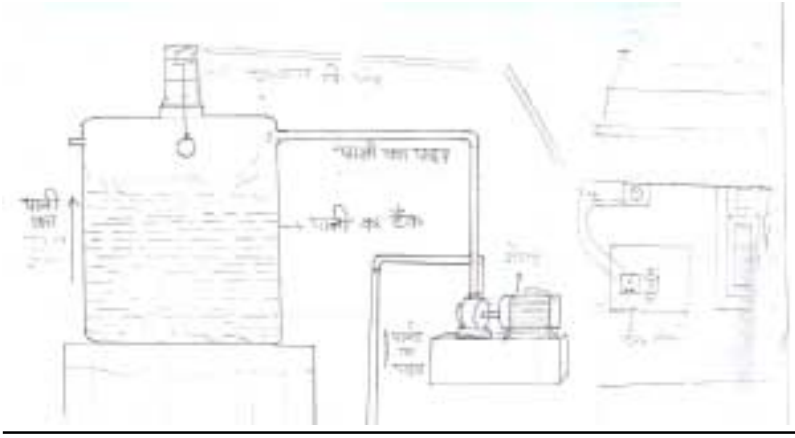
Mr. Bhupendra Kumar

Water level indicator

This water level indicator can be used in big tanks i.e., the public tanks, dams, even in the houses so that water losses as well as electricity losses can be reduced. This happens when overhead tank overflows.

The indicator works basically by using conventional floating ball based switch linked to an electronic circuit breaker . This in turn is connected to a bell. As soon as the tank gets filled up the alarm starts bell ringing.

Mr. Bhupendra Kumar , 24 years , has studied till the 12th standard. Because of an accident , he could not continue his studies but his interest in pursuing new experiments remained intact. He has dabbled in aeronautics. He is developing an earthquake indicator using submersible gas detector.



Avas Vikas
B-318 Udham Singh Nagar,
Kichha 263 148
Uttranchal
Phone: 05944-64807

National Innovation Foundation

Consolation Prize Rs.1,000
Mechanical device: Tamper Proof Locking Device

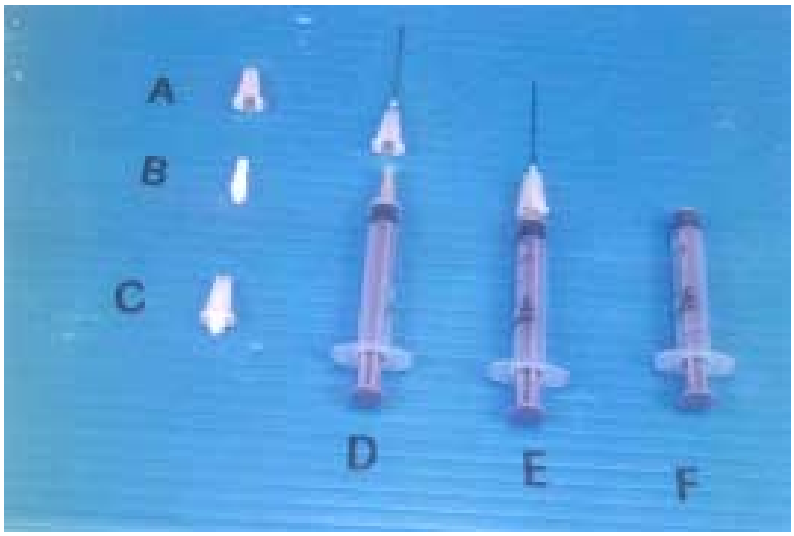
Mr. N Krishnamurthy

Tamper proof locking device without key

This locking arrangement overcomes the disadvantages of the lock and key system i.e. the lock can be opened by any key or the key can be duplicated. The locking arrangement once operated cannot be unlocked by another means other than the destructive method. Any attempt to tamper with the lock will be known. So the objective of this innovation is to remove the disadvantages in the lock and key system at the same time provide a fool proof, permanent/ semi permanent locking system.

This invention relates to mechanical locking device, which can be useful in applications where permanent locking is necessary amongst two objects. It achieves the purpose of tamper proof locking.

This DLD device as the name suggests is used to lock two objects. Once the lock is operated, the objects locked can be unlocked only by destroying the lock. This system is unique that it has no key, but still provides a locking function, at the same time, the non-existence of the key does not make the lock unbreakable.



Mr Krishna Murthy born in a small village of Shimoga is a diploma holder in Mechanical Engineering and has also undergone training in FTII (an Indo German Collaboration unit). He works as a Executive Engg , Asst in QA/QS - Military Radar, Bharat Electronic. Other than his profession, he also has interest in fine arts, literature and poetry. As he puts it, his main source of inspiration has been his parents who have struggled and sacrificed a lot to bring him up to this stage. He has also drawn a great deal of inspiration and personality from Shri M Ratnakar Hebbar, retired Jr College principal.

586,1St Cross
3rd Stage, BEML Layout
Rajarajeswary Nagar
Bangalore 560 039
Karnataka
Phone: 080-8602387

Advantages:

The Operation of the device is simple. The unlocking of lock can be done only by destruction, hence the locking is tamper proof.

Application:

It can be used for all serviceable equipment, which should not be opened by the user, but only be opened by the service engineer at the time of service. After service the, service engineer may install a new DLD.

It is also useful for the devices that need periodic calibration, but requires locking protection from tampering. The DLD devices can be used in locking hard disks packs, electricity meters, flow measurement meters etc. It is also used in sealing insured parcels, which are valuable, sealing ballot boxes etc.

National Innovation Foundation

Consolation Price Rs.1,000
Other implements: Veetamma – The All Purpose Grinding Machine

Mr. Md. Asraf N

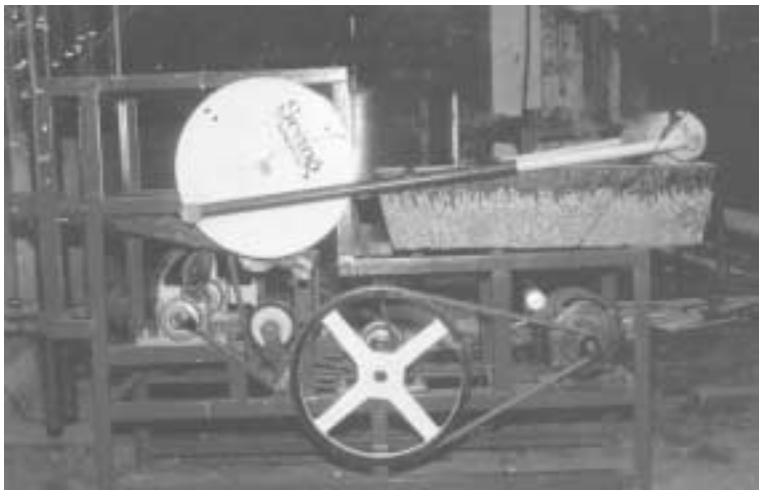
Veetamma – the all purpose grinding machine

Veetamma means housewife and *Yantram* means a grinding machine for home applications. This machine is capable of doing all household-grinding applications (wet and dry).

On one side grinding can be done using the grinding stone and roller. On the other side dry pounding of soaked rice, chilly etc. using mortar and pestle can also be done. The gear allows selecting a specific function to be carried out.

Everything works on 0.5 HP Motor. This machine enables a housewife to complete the entire household grinding work, easily, speedily and maintaining the traditional taste.

Mr. Ashraf is a first class diploma holder in Electrical Engineering and has also completed Post Diploma in Business Management from R.E.C. Calicut.He pursues his engineering activities under his establishment Srang Engineering. Many of his inventions have attracted the attention of small scale industrialists and other distinguished readers through newspapers etc. However, he feels let down by the fact that there isn't much encouragemen so far from his state for his inventions in the industrial sector.



NSrang's Technoworld Engineering Consultants & Machinery Suppliers.
P. O. : Kondotty
Malappuram - 673 638
Kerala

Scouter: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Price Rs.1,000
Others: Low Cost Hand Pump

Mr. Ouseppachan Anchukandathil and Reji Joseph

Low cost hand pump

The innovation is a low cost, easy to handle hand pump, which has the capacity to lift water up to a height of 200 ft through a one-inch diameter pipe.

The pump consists of inverted T shaped one inch pipe. The vertical end is attached to piston pump. The one end of horizontal end is connected with 5-7 meter hose which is dipped in water or stream for intake of water and the other end is attached to 200-300 m hose for delivering water. Two-non return valve system is attached in opposite direction of the both ends of horizontal ends.

The pump can draw water from 5-7 meter depth stream or tank and it can pump upto 200 meter height vertically. When the lever of the piston raises, water will rise upwards through the suction hose and enter the piston due to the suction pressure and when the lever move down water will pump through the delivery hose. The two non-return valve prevents backward flow of water. The pump work with the principle of suction pressure and no electricity is needed, can be operated manually. It can pump 1.5 litres of water at a a stretch.

The inovators have installed 30 such pumps in nearby villages and the cost of each pump comes around Rs 200. This would be ideal for water supply within the house using an overhead tank.

Both Mr Anchukandathil and Joseph hail from low income group, inhabiting in a hilly village, about 1500 m above sea level. The terrain is slopy and is subject to gully erosions. The area is subjected to high slopes and gullies. Even though the area receives good rainfall during the monsoon, yet they face severe water scarciity during summer season. Women have to walk down few km to fetch water. These difficulties promoted them to develop this low cost pump in 1999.

Anjukandathil
10th Mile, Kattappana
Idukki
Kerala

Scouter: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Price Rs.1,000
Other Implements: Thermocol catamaran

Mr. B. Masoor Pahalwan

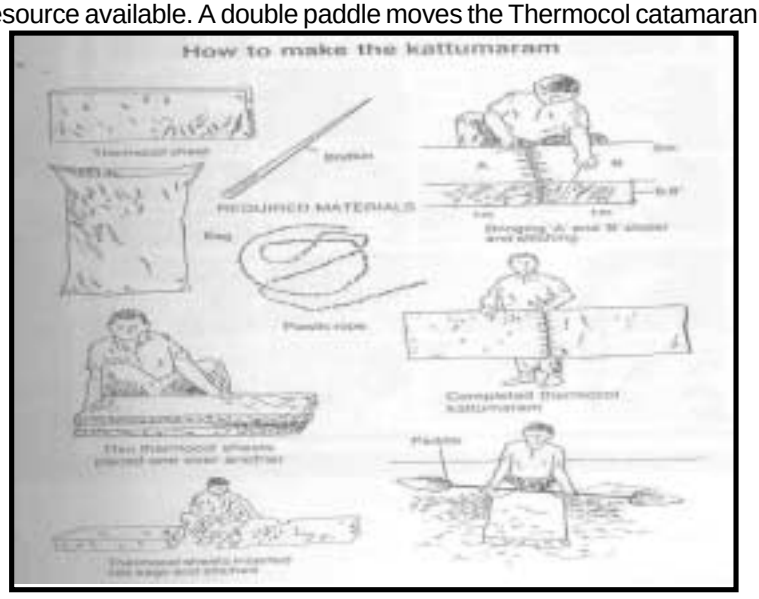
Thermocol Catamaran

An unlettered fisherman, Mr. Masoor Pahalwan has fabricated a catamaran, by using thermocol, a cheap packaging material. The weight of the thermocol catamaran is four kg, it can carry 150 kg of weight in the water.

Procedure:

The materials required are Thermocol sheets, empty chemical fertilizer bags or gunny bags, plastic rope and a bodkin to stitch the bags.

Two Thermocol sheets of one meter length and 0.5 meter width and 6" – 8" inches thickness are inserted into two empty fertilizer bags. The mouth of the bags is brought together and stitched with a plastic rope with the help of a bodkin. If thermocol sheets of the required thickness are not available, smaller dimension thermocol sheets can be placed one over the other to get the required thickness. The materials and method of stitching can be varied depending upon the resource available. A double paddle moves the Thermocol catamaran.



Mr. Pahalwan is a fisherman in the Adilabad district of Andhra Pradesh. In 1972, when he was coming out of a shop in Hyderabad, he noticed a heap of plastic – based Thermocol-packing material lying around. The thought of using this as 'floats' for fisherman struck him.

That is how the idea of low cost thermocol catamaran was born.

Ice Factory
Near Bus Stand, Nirmal
Adilabad 504106
Andhra Pradesh

Scout: T Sampath Kumar

National Innovation Foundation

Consolation Price Rs.1,000
Other Implements: Arrowroot Grinding Machine

Mr. A. T. Thomas

Arrowroot grinding machine

He had plenty of arrowroot in his field which he had to powder manually and it took lot of time and labour. Then he developed a machine with 16-inch wooden roller a which was also time consuming. After continuous trials, he has developed this machine to powder arrowroot. The machine is 1 feets square, 3 feet height and 40 kg weight in dimension. With this machine 100 kg of fresh arrowroot can be powdered in 25 minutes. Hundred kg fresh arrowroot will givse 8 kg powder. The cost of one kg is Rs. 250. Most people in the neighbourhood areas use this machine for powdering. Mr Thomas charges Rs 1.50 for one kg of arrowroot.

Mr. A. T. Thomas is a 50 year old marginal farmer who has studied upto S.S.L.C. He has pursued several experiments to develop low cost, easy to use, hand operated processing machines. He is in the process of making a machine for slicingTapioca.

Edayal
Melukavumattom
Kottayam
Kerala

Scout: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Price Rs.1,000
Energy Conservation: Kerosene Stove With Gravity Feed Fuel Tank & Cylindrical Wick

Mr. Mathew .V. Mathew

Kerosene stove with gravity feed fuel tank and cylindrical wick

Kerosene stoves that are in existence are working through pressure by pumping or by keeping the fuel tank at a higher level than the stove. They are likely to cause explosion due to pressure and on burning there is smoke, sound and odour.

This Kerosene stove consists of a burner set with gravity feed fuel tank and cylindrical wicks for reducing fuel consumption in Kerosene stoves.

When the kerosene flows from tray through fuel tube into the bottom of cylindrical wick, the fuel level in kerosene tray falls.When the Kerosene level in the tray falls, an air gap is formed between the valve and Kerosene level in the Tray. Then the air gets into the Fuel tank through the valve and Kerosene flows once again into the tray from the fuel tank till the Kerosene covers the air gap.

The process continues till the fuel flows through the Fuel feed tube by a knob. The fuel level in the tray will always remain the same till the process continues. As the wick burns, the required quantity of Kerosene flows into the wick.

Mathew. V. Mathew has developed an innovative fuel efficient Kerosene Stove with gravity feed fuel tank and cylindrical wicks. He has started the production commercially and presently is a successful entrepreneur of his innovation.

The Innovated stove is smokeless, odorless and soundless without any chance for explosion. As the fuel flow is controlled automatically and the cylindrical wick can be placed on burner, this leads to high fuel efficiency. No pressure is required other than gravity. As the fuel tank and kerosene tray can be fixed on a side of the stove so that the stove looks like L P G stove. The fuel is regulated through a valve. The fuel tank has only one hole, which is closed all times except when kept upside down on the tray. The mechanism is in such a way that the fuel level in the tray will always remain same and as the wick burns the required quantity of kerosene flows in to the wick continuously.

Veenamalil House
P.O. Keezhillam, Perumcavoor,
Ernakulam
Kerala

Scout: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Prize Rs.1,000
Energy Conservation: Relay Switch

Mr. Ponnusamy

Relay switch

He has invented a relay coil (switch) that automatically stops that motor pump set when there is no water in well/tank. This also operates in such a manner that it stops automatically if there is high/low electricity load appears (load changes due to fluctuations in the voltage).

Sometimes the electricity supply is not iof uniform voltage and fluctuates. When the voltage of the electricity comes down from 440-350v the motor will immediately stop. He has designed the coil system in such a manner so as to increase the voltage of the electricity from 350-440 V which enables the continuity of running of motor otherwise it stops.

Preventing the burning of motor coil

While rewinding the motor with the coil the load and capacity has to be critically observed. Based on this principle he has rectified the defect, which many mechanics couldn't understand.

If a HP motor is running on 440 V electricity with 7 1/2 ampere fluctuates to reduced load of 350V with 6 amp then the motor exposed

Mr. Ponnusamy, 56, is an illiterate farmer residing in Srivilliputhur. He runs a small motor rewinding workshop. He owns two acres of land, which being adjacent to the forest area is frequently subject to the attack of wild animals. So in order to overcome the menace of wild animals to save his crop, he made an electric fencing by using AC electricity from the pumpset and releasing the voltage electricity 200V by using mini transformer. In addition, he has done many other experiments such as auto switch for pumpset which switches of the pump when the water table goes down, relay switch for dealing with fluctuation in power phase, new kind of vulcanizing heater etc.

6 A/3, Kannan Motors Rewinding Works
Athukadai Theru Rajaji Road,
Srivilliputhuir
Viruthunagar
Tamil Nadu

Scout: Mr. Chinnappan,SEVA

to such fluctuation, increase the heat of the motor leading to burning of the coil. By using his relay switches the electricity supply to the motor will automatically cut down and that prevents burning of the coil.

Whenever water in the well is fully exhausted the electricity motor will run without stopping and such type of practice will affect to life span of the pump set leading to frequent repairing work. He has been using the relay switch for stopping the supply of electricity and there by the motor will stop automatically when there is no water in well. Therefore the relay switch will help the farmers in involving other operations without bothering of watching closely the water level in the well.

In order to help the small vulcanizing centers he has designed an electric heater using 6-12V of power. The models he created are based on his understanding of Ohm's law and magnetic system of supply of electricity.

National Innovation Foundation

Consolation Prize Rs.1,000
Others: Water Level Indicator

Mr. Eldose. K. Markose

Water level indicator

Mr. Markose has developed a device for monitoring the water levels in wells.

Apparatus

A probe is connected to a 50 m long graduated and insulated wire which is fixed on a wheel. The wheel is connected to a stand and can rotate on the axil. One end of the wheel is connected to the circuit consisting of PCBs, IC, Battery, Transistors, etc. which is fixed at the whole on the centre of the wheel

Working

The wire with the Probe is inserted into the borewell. When the tip of the probe touches the water level, the LED glows and a beep sound is heard. We can measure the depth directly from the graduated wire.The unit costs only Rs. 2000.

Mr. Markose is 30 years of age and has studied upto the 9th standard. He is working on daily wages as a Lascar in Kerala Samuhya Jalasechana Samithi. He has invented a new device called 'Water Level Indicator' to monitor water level in wells.

Karikkathottathil (h)
P. O. Chennaippara
Peechi,
Thrissur - 680 653
Kerala

Scout: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Prize Rs.1,000
Others: Mosquito Repellant Coil

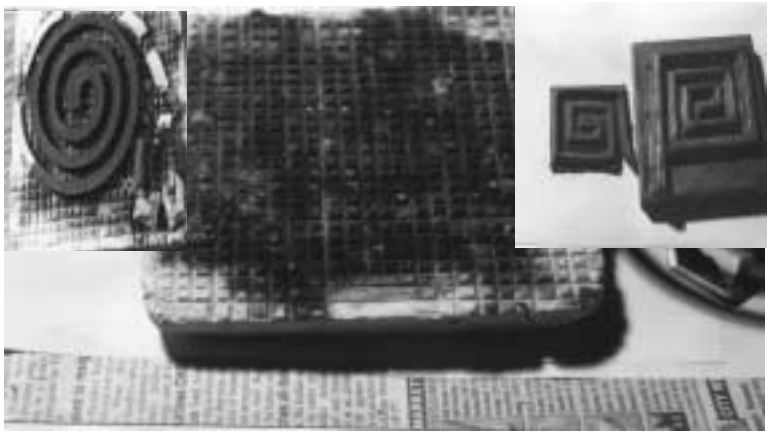
Mr. Parag P Khedkar

Mosquito repellant coil

He has developed (1) A safe and user friendly device for burning mosquito repellant coils (2) a method of making mosquito repellant coil and (3) A method of making multiple mosquito repellant coil.

It consists of a fire resistant tray provided with a fire resistant coil supporting air circulation located in the tray and a fire resistant perforated lid located in the tray above the coil. The coil supporting air circulating means comprises a wiremesh. The perforated lid is hinged on the try.

Special Features of the Mosquito Repellant Coil: 1. Economical Product - It is smaller and lighter than the existing coil and thus saves on raw material (saw dust,dye etc.), in packaging, energy, transportation, handling, storage etc. 2. User Friendly product – The coils need not be separated from each other for burning. The user can burn one coil, it will turn into ash, and the second one would remain intact. The coils need not be intermeshed, i.e. It is possible to make one coil in one layer. 3. The user can generate additional smoke initially for sometime to drive away the mosquitoes. It is possible to generate 300 per cent to 500 per cent smoke, after some time the coil will automatically switch over to normal quantity (100 per cent) of smoke.



Mr. Parag Khedkar from Nasik has developed a mosquito repellant coil, which according to him is unique in the entire world. He has done Bachelor in Mechanical Engineering and is 35 years of age. Currently he is working with Crompton Greaves Ltd. He holds three patents to his credit relating to the mosquito repellant coil.

Flat No. 3, Prathmesh Apartment,
Prassanna Colony, Behind Hotel
Surya, Indira Nagar
Nasik 422 009
Maharashtra

National Innovation Foundation

Consolation Prize Rs.1,000
Others: Development of a New Coagulant

Mr. K. K. Thomas

Development of a new coagulant

The test result of evaluation of natural rubber latex (conducted by Cochin university of Science & Technology, Dept. of Polymer Science & Rubber Technology) coagulation using coagulant supplied, shows that pH. of 5% solution is 0.88 and the fungus growth on keeping the coagulation for two days is also appreciable. Colour of Serum is Yellow and it is less volatile.

Dry rubber properties:Ash content of the rubber sample (%) is 0.156, PO is 33.9, PRI is 83.1 and Mooney viscosity ML (1+4) at 100 degree Celsius is 60. The curing behavior shows slight increase in the scorch time.

The test result shows that the acid supplied can coagulate natural rubber latex.

Mr. Thomas, 37 years, has studied till 6th standard. He is interested in carrying out chemical reactions and reading. He has made a coagulant for rubber latex, which is used by many natural rubber latex producers. A large number of rubber planters are satisfied with his new invention.

Kavungal House,
Dhanya Nagar,
P. O. Anchery,
Thrissur - 680 006
Kerala

Scout: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Prize Rs.1,000
Others: Simple Coffee Pulper

Mr. N. Sudhakar

Simple coffee pulper

It is a simple hand operated device, which is very compact in size. The pulper can be easily dismantled into smaller units and can be transported and reassembled in a place wherever needed .

In a round disc there are slots of the size of coffee berry. Coffee berries are fed into the device through a side pipe. On operating the handles on either side, the wheels rotates and the pulp on the coffee berries is separated by the rotating action. The peeled pulp being separated from the coffee beans does not get damaged due to the rotating action of the wheels. The separated coffee beans will come out through another pipe and are collected.

Mr. N. Sudhakar, 21, has completed the 12 standard. His family profession is carpentry. While he was in school, he used to help his father in repairing agricultural implements. Presently his family runs a lathe workshop. But simultaneously he continued his repairing skills in different places. Presently he is working at Nagappan Motor works in Periyakulam. Has developed a coffee berry pulper to extract coffee bean separately without any damage to the bean.

Koralampatti
P. O. Konur,
Dindugal
Tamil Nadu

Scout: Mr. G. Pandi,SEVA

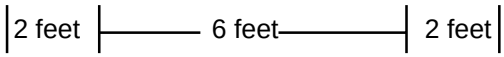
National Innovation Foundation

Consolation Prize Rs.1,000
Others: Cotton Cultivation Under Water Stress Condition

Mr. Harbhajan Singh

Cotton cultivation under water stress condition

In last three to four years cotton cultivation was badly affected because of white fly attack and over spraying of insecticides. This has forced the farmers to stop the cultivation of cotton, which is causing them great economic loss. Keeping these in mind Mr. Harbhajan Singh and his brothers started sowing the cotton seeds on the ridges. In last two years there was drought and scarcity of water, but still these people managed to get good yield. Their cropping arrangement was 2 feet 6 feet and 2 feet i.e.,



The lines indicate the ridges on which the seeds were planted.

This type of planting was followed by all their brothers in 12 acres and it fetched them good yield. In order to avoid the water losses and to conserve water he started this method of planting. They used the tractors to set the spacing between the ridges six feet apart. In this way there were 24 ridges in an acre and water was allowed to flow only in the two feet ridge and the six feet space between the two set of ridges was not watered.

A hard working farmer, 45 years, limited education, but has a strong desire to experiment. Years ago, his family had migrated from Pakistan and settled down in water logged part of Karnal district of Haryana. There they had tried to grow cotton successfully on the ridges. Some five years ago, when water logging problem became acute in Fatehabad district where he is now settled, he recalled that old practice. He experimented with the ridge based cultivation of cotton and succeeded in saving 65 per cent irrigation as well as seed cost. He has grown mustard, Napier grass and vegetables also. In one acre, he has grown 22 different kinds of vegetables. More than hundred farmers have emulated his experience and saved on irrigation and seed cost and have achieved higher yields. Some farmers have also tried to grow wheat in the similar fashion. Scientists are still to learn though, from his revolutionary innovation in cultivation of cotton and other such crops.

Village- Bighad
Fathehabad
Haryana

Scout: Hira Lal, Mr. P K Jain and Sudhir Kaura

National Innovation Foundation

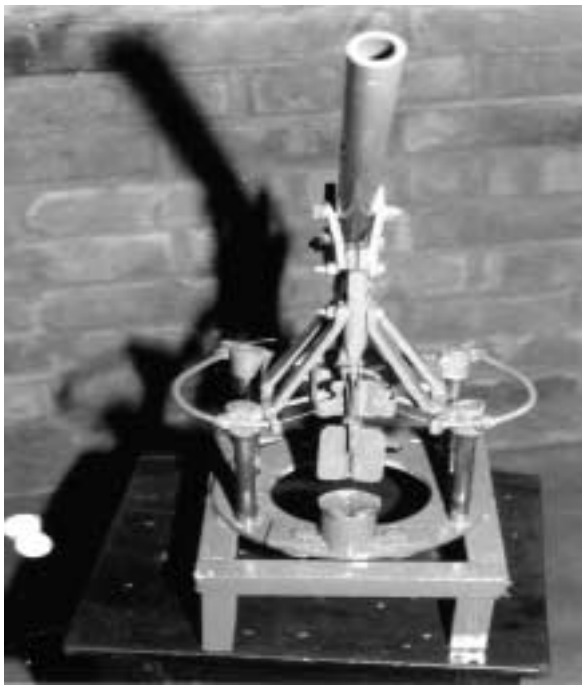
Consolation Price Rs.1,000
Others: Banana Slicer

Mr. Joy Augustin

Banana slicer

This device called as “Banana Slicer” has five cylinders to put bananas. With the help of a blade set attached on a round plate, the banana can be sliced. There is a holder having spring-action in the cylinders to keep the banana vertically in it. In order to keep the banana tightly in the cylinders a spring load system is attached, which operates easily. There is a mechanism to reduce or enlarge the thickness of the piece in the machines itself. In one minute 1200 pieces can be sliced.

The operation of the machine is very simple. First of all the spring load system is raised and the bananas are inserted in the cylinders. Then the spring load system is released and the handle of the machine is rotated. As a result the blade set rotates and the bananas are sliced.



Mr. Augustin is a farmer and also a teacher. He has a deep knowledge about the agricultural products. After about nine years of hard work, he has developed a device useful for the bakery and those who make chips.

Fathima Matha E. M. H. S.
Tirur- 7 P. O. - Pookayil,
Malappuram
Kerala

Scout: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Price Rs.1,000
Farm Implements: Improved Thresher

Mr. Madan Lal Kumawat

Improved thresher

When Mr. Madan Lal was working in the company he learnt that farmers always complained about the problems of breaking of the grains, motor not running properly and different threshers for grains, oilseeds and for pulses. Madan Lal thought of starting his own company on small-scale basis and try out some thing, which was helpful for the farmers. In 1997 Madan Lal started his own workshop at Danta in Sikar district which is 80 km. away from Bagru village.

There are only two bearings in the thresher, which makes it easy to change and reduces the cost of changing the bearings. 2. This machine can thresh oilseeds and pulse crops also, for this we have to change the mesh only. Threshed grains are clean and can be packed for the market. This machine can run with the help of tractor also. It can thresh 15 – 20 quintals of grains per hour.

Mr. Madan Lal Kumavat lives in Jaipur district in a village known as Balmukundpura, which is near Bagru Village. He lives with his parents, sister, wife and his three children. His father is literate and makes his own agricultural implements. He and his brother have studied upto primary level. His brother helps him in his work. Making agricultural implements is their family business. For last 12 years Shri Madanlal's brother Shankar Lalji has been working on daily wage basis in a small company which makes threshers. He learned all the things required for making threshers, and he has taken care that the problems faced by the farmers should not repeat in his machine. He and his brother have made some innovative machines.

Bagruwale
Thresher Machine Workshop
Gaushala Road
Dist. –Danta-332702
Rajasthan

Scout: Mr. Sundaram Verma

National Innovation Foundation

Consolation Price Rs.1,000
Farm Implements: Bullock Cart

Mr. Karpanna Gownder

Bullock cart

The single bullock drawn cart is made up of iron and has two yokes. Instead of wood, there are iron pipes of two inches diameter that act as a “Mooki”. Both sides of ‘mooki’ are fixed to the yoke. The cart moves once the pipe is bolted. Releasing the bullock & tying it on the other side, one can reverse the cart. For this the iron pipe and ‘mooki’ is to be pushed backward and bolted so that the bullock can be properly yoked in the reverse direction. The cart can also unload itself. One has to loosen a latch that joins the wooden planks. The unloading can be done on both sides of the axle.

Karpanna Gownder is full of adventure and endowed with a spirit of innovation. When he came from Tamilnadu he bought two acres of dry, barren land at H.D.Kote, that no one would have preferred to. Since then he is settled there and has been experimenting in land and agriculture

11/8/00 H. D. Kote
Mysore
Karnataka

Scout:T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Prize Rs.1,000
Farm Implements: Cardamom Drying Chamber

Mr. P. J. Abraham

Cardamom drying chamber

Mr. Abraham has designed, “Abraham Low pressure Cardamom Drying Chamber”. The speciality of this drying chamber is that cardamom is able to retain its natural green colour. Cardamom is just filled in a container and not spread over a large area. This innovation therefore saves time, space and labour.

The main part of the drying chamber is an air blower run by 1 HP motor. The unit would be of the size of a big refrigerator and it uses electricity and LPG. The cost would be Rs.20, 000/ unit.

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Mr. Abraham, 48 years, has a keen interest in Physics. He has developed various new innovations. Due to financial problems he had to stop his studies in the 10th standard. Even then he has not given up the experimental spirit.

P.O. Block No.4, Chempalam
Nedumkandam
Idukki 685 553
Kerala

Scout: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Prize: Rs. 1,000
Farm Implements: Coconut Harvestor

Mr. P. Karuppiah

Coconut harvestor

Cocnut farms In Watrap are facing acute shortage of labourers especailly for plucking coconuts.This prompted Mr. Karuppiah to innovate 'Coconut Harvestor' for harvesting matured nuts from the coconut trees. It can harvest coconut upto 50 feet height and the machine can be operated with the help of two persons. One person for driving the tractor and the other for harvesting nuts .After looking at the model of a JCB excavator, he had developed the "coconut harvester. He has attached hydraulic jack and fitted ten levers by using a tractor. This hydraulic jack can be adjusted, so as to carry a person on the top of the hose for plucking coconut at tree height. He uses light weighing iron plates in this machine.Ten acres of coconut plantation can be harvested in a day by this machine. Besides, "Coconut harvester " can work in all seasons. He has invested about ten lakh rupees to design the first prototype of coconut plucker.

Mr. Karuppiah has been running a lathe workshop in Watrap village, in Virdhunagar district. He does repairing of agricultural implements, lathe requirements of local people. Due to competition among Lathe workshop owners, the income was less, and this led Mr. Karuppiah to think of introducing innovative implements, so that the local people could approach him and give him work orders.The coconut harvester devloped by him is very easy to operate and ten acres of coconut plantaion can be harvested in a day thus saving the time and cost of labour of Rs 800 per day

Subbarayar Street
Gomathi Lathe Works
Watrap
Virudhunagar
Tamil Nadu

Scout : Mr.C Balasubramanian,SEVA

National Innovation Foundation

Consolation Prize: Rs. 1,000
Farm Implements: Improved Forage Cutter

Mr. Karanpal Vishwakarma

Improved forage cutter

Mr Karanpal is an experienced mechanic. The breakage of bearings or breaking of rollers are the common problems faced in this field and as a result the chaff cutter machines normally need servicing after 15 to 20 days of intensive work. Karanpal from his experience visualised a novel idea and developed this technique for preventing the damage by making certain changes in the normal cutter. He has

averted the problem of wear and tear for atleast five years. Besides, the cutter can also be used for harvesting forage for the cattles and cutting herbal plants for medicinal purposes.

He is basically a mechanic by profession. He has learnt this art from his father who was a very skilled mechanic. But after his fathers death due to financial problem he could not achieve much in this field.

Village: Biharigarh
Deharadun Road.
P. O. Biharigarh,
Dist : Saharanpur
Uttar Pradesh

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Variety:Perennial Brinjal Variety
With Round the Year Fruiting

Mr. P. R. Krishna Prasad

Edible perennial brinjal variety

Mr. P. R. Krishna Prasad has done successful grafting in brinjal and has developed two varieties which bear fruits throughout the year for a very long season. Tall Tree Type and Bushy Type are the two varieties and both the varieties are high yielding, drought resistant, and disease resistant to bacterial and nematodal attack.These varieties are easy to cultivate and can be cultivated on road sides, on farms etc. It provides fuel for the farmers as well. Tall Tree Type (PRK -1 or Karthik Raksha) variety grows about 15-20 feet high, bearing fruits heavily and continuously. Bushy Type (PRK - 2 or Anugocori) has a potential to grow to a height of 6 - feet, with a life span of 6 to 8 years. The yield ranges from 10,000 to 50,000 kgs/acre/year - 2000 plants/acre.

Mr.Krishna Prasad, 50 years of age has done his Ph.D. in Agriculture.He is an Agricultural scientist in the University of Agricultural Sciences, VC Farm, Mandya. He carried out this innovation in the backyard of his residential premises at Mysore. He has published more than 50 research papers and 15 books on Agriculture. Apart from this he has many awards and honours to his credit.

6/ A, Gokulam Park Road
V. V. Mohalla
Mysore - 570 002
Karnataka

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Variety: New Nutmeg Variety

Mr. Tom C. Antony

New nutmeg variety

Tom C Antony has done patch budding in nutmeg by budding scion of nutmeg to the stock of wild forest variety. Once, when he had gone for field budding, he accidently came across this wild variety. Usually 100-120 nutmegs are required to weigh one kg and 800-1000 mace for one kg. But his budded variety requires 80-100 nutmegs to weigh one kg and 300 to 350 mace nutmegs (as against 800-1000) to weigh one kg. One nutmeg weighs 8-10 grams and one mace weighs 2.5 – 3.5 grams. A 15-year-old tree yields 3500 to 5000 nutmegs in a year. In the ordinary nutmeg, the sex can be determined only after flowering of the tress, which usually takes 6-8 years. This problem does not arise in the budded variety as it yields with in four years. Since the stock is a forest variety, the budded variety has deep roots and does not fall down in windy seasons.

Mr. Antony of Kottayam district has been experimenting with patch budding in Nutmeg trees for a long time. The high-yielding variety of budded nutmeg developed by him is a boon for the farmers, especially when the prices of many agricultural and cash crops have come down. Moreover, nutmeg is a perennial crop and low investment is required for cultivation. Intercropping is also possible in nutmeg cultivation.

Cheripurathu
P. O.: Chengalam
Kottayam 686 585
Kerala

Scout:T.J.James,Bobby Issac,
Sabu M Simon, M. Thomas,(PDS)

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Variety: Propagation of Pepper

Jose Madhavath

Propagation of pepper

The cuttings of *Piper colubrinum* is collected in December and January and planted in polythene bags. By the beginning of monsoon, it is replanted in the field. When it attains two feet height, it is cut at 1.5 feet and the pepper (*Piper nigrum*) is budded on to it. The budded portion is covered with plastic and within one month the wound will heal. The resultant plant is resistant to dreadful disease of quick wilt.

Mr. Madhavath has been doing budding of ordinary pepper with *Piper colubrinum*, a wild variety successfully for the past 8 years. Many farmers in Kerala and Karnataka are using budded plants based on his advice.

Andoor,
Marangattupilly
Kottayam 686 635
Kerala

Scout: T.J.James,Bobby Issac,
Sabu M Simon, M. Thomas,(PDS)

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Variety: Crossing in Coconut Trees

Mr. K.R. Duraisamy

Crossing in coconut trees

Mr. Duraisamy has developed hybrid coconut tree by crossing tall and dwarf coconut varieties. He used to keep the seedlings up to three years in the nursery and then take them out and put them in sacks filled with soil for one month after which they were planted in the main field.The advantage is that the planted seedlings will start yielding within two years.

Mr. Duraisamy is a farmer owning 40 acres of land mostly under coconut cultivation. He is 50 years of age and has an inquisitive mind to observe things differently. He likes to find out the reason behind each phenomenon.

Krishnapuram
P.O.: Elumathur
Erode: 638 104
Tamil Nadu

Scout: Mr. P. Vivekanandan, SEVA

National Innovation Foundation

Consolation Prize: Rs. 1,000
Energy conservation: Air energised pressure cooker

Mr. K.R. Duraisamy

Air energised pressure cooker

Duraisamy was quite unhappy that food used to get cold by the time his wife brought it from his home to the pump house at the farm where he spent most of his time. He was very keen to find a solution to this problem.

He had read in a class IV textbook of his daughter that air when compressed gets heated up. He recalled that when he used to pump air in the cycle, the pump used to get hot. He got an idea.

Mr. Duraisamy noticed that lot of heat was wasted through the exhaust of the engine used for pumping water. He took an old oil engine and used it as a compressor. The exhaust of the oil engine used for pumping water was taken as input in the compressor. He took a pressure cooker and made two holes at the bottom. On the top of these holes, inside the cooker, he sealed an inverted container. He then led hot compressed air through one of the holes in the cooker and it came out from the other hole. The container in the cooker acted as a heat exchanger. Now the cooker was ready to cook food through the heat of compressed air. Thus he has brought the first pressure cooker fueled by compressed air.

He observed that it took about seven minutes to develop the temperature of about 300 degrees centigrade.

Mr. Duraisamy is a farmer owning 40 acres of land mostly under coconut cultivation. He is 50 years of age and has an inquisitive mind to observe things differently. He likes to find out the reason behind each phenomenon.

Krishnapuram
P.O.: Elumathur
Erode: 638 104
Tamil Nadu

Scout: Mr. P. Vivekanandan, SEVA

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Variety: Grafting in Lemon

Mr. Rajabhai Ghusabhai Harkhani

Grafting in lemon

Rajabhai Ghusabhai Harkhani has developed a variety of lemon which is seedless and has no thorns. Normally lemon fruit has 8-10 seeds and the tree has many thorns. Rajabhai did a crossbreeding of lemon flowers with orange flowers, the resulted hybrid plant had fewer seeds and the sourness of lemon fruit went away. He then crossed 'bijora' (big size citrus fruit plant) flower and sowed the resulting hybrid seeds. The hybrid plant thus developed was seedless and had no thorns on its tree.

Mr. Rajabhai, 45 years old has studied upto the 10 standard. He has total four hectares of land.

Once when he went to pick a lemon, he got hurt due to the thorns in the plant. So he thought of developing a variety of this plant without thorns and thus started his experiment. The farmer worked for seven years on this variety and now has 250 trees out of it. He also sells the 'cutting' commercially.

Village: Mandva
Taluka: Bhesan
Junagadh
Gujarat

Scout: Rasik Bhesaniya, SRISTI

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Variety: High Yield Plantain

Mr. Roy Scaria

High yield plantain

Roy Scaria has developed a new variety of banana by crossing two dwarf varieties of banana viz., Robesta and Morris. This hybrid variety bears upto 300 bananas, weighing around 60 kgs and gets matured within two and a half months.

He has also developed organic cultivation practice for this crop. The seed removed from the parent tree is to be kept under shade for three days and is to be dehydrated. Thereafter one foot deep and one foot wide pit is to be prepared, in the enriched land. A handful each of salt and ash is mixed with the soil inside the pit. The seed is planted in it, straight and firm. The seed starts developing leaflets within three weeks. The first manuring is to be done one month after this. One plant would need eight kg of cowdung and tree leaves. This is to be applied by filling the land well surrounding the plant. After two months, two kg of ash is applied around the plant and then covered with soil. After two months, cowdung and tree leaves are applied and soil heaped around the plant well. The plant needs irrigation once in a week.

Mr. Scaria is a marginal young farmer 25 years of age and has studied only upto intermediate. He owns one acre of land. Besides, he takes lands on lease from others and grows vegetables, paddy, banana etc. in them.

Parappad House, P.O. Palankara
Karulai Via. Nilamboor,
Malappuram
Kerala

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Variety: 'ADARSH-8' A New Variety of Sesamum

Mr. Laljibhai Ramjibhai Murani

'ADARSH-8' a new variety of sesamum

Mr Laljibhai from Gujarat has identified and propogated a new variety of sesamum having six to eight lines as against four in the ordinary ones. In early nintees, he had planted Gujarat Til-1 variety and sprayed chemical pesticides on the plantations. The insecticide used had crossed it's expiry date. Hardly one third of the crop or less survived and the rest perished. Shri Laljibhai collected the seeds from the surviving plants and planted these in the next season. He noticed plants having pods with eight rows of seeds. The stem of this resultant plant was thicker and taller than the Til-1 variety. There were pod containing four lines, six lines and eight lines. Mr. Laljibhai's spraying of chemicals caused hereditary mutations in the plant.

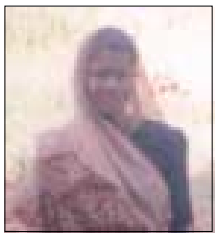
This variety has more branches than the conventional variety, staright stem, higher yield, and is taller. It is also resistant to diseases like Powdery mildew and blight. kg per acre and the plant.

Laljibhai Ramjibhai Murani has been farming for the last 20-25 years. He has three acres of land and he takes lot of interest in agricultural research. He has kept one acre of land exclusively for research purpose. He has named his new variety of til as ADARSH-8 where Adarsh stands for Agricultural Development and Research Super House Seed Farm and 8 means presence of eight lines in the pod. He has spiritual bent of mind. Everyday in the evening, the whole family including his younger brother who is no less adventurous, sit and discuss days work and reflect on their action.

P.O. Samdhiyala
Taluka: Upleta
Rajkot 360 490
Gujarat

National Innovation Foundation

Consolation Prize: Rs. 1,000
Agricultural Practices : Protection of Seedlings of Chilli Plant from Gavala



Ms. Kapuriben Chauhan

Protection of seedlings of chilli plant from 'gavala' (Insect)

Ms Kapuriben Chauhan from Gujarat identified a novel method to protect the seedlings of chillies from '*Gavala*' (*Spodoptera litura*), the flying black insect that eats the leaves. The branches of '*kada*' (*Picrorhiza kurrava*) plant are used. The 30 day seedling s are transplanted onto the field, in the rows with a spacing of one foot between each row. Then the branches of *kada* are spread in between the rows. Due to the bitterness of the leaves of *kada*, the insect do not come near the crop. By spreading *kada* in the field, it acts as mutch and helps in keeping the soil moist, therefore less irrigation is needed.

Kapuriben Chauhan, 54 years, is an illiterate farmer. She does farming and livestock management. She is a hard working lady who takes care of the household as well as her farm and thus earns her living. She gets maximum profit from chilli, garlic, brinjal, and onion every year. At present, she is trying to grow various types of yams near her field. She does not use any chemical fertilizers in her farm. She could also cure animals for minor ailments

Village: Veddungarkulia
Post: Ved
Taluka: Dhanpur
Dahod
Gujarat

Scout: Puroshottam Patel,SRISTI

National Innovation Foundation

Consolation Prize: Rs. 1,000
Agricultural Practices: Control of Heliothis in Lady's Finger
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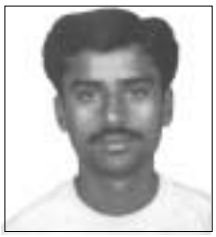


Mr. Kantibhai Vankar

Control of heliothis in lady's finger

Mr. Kantibhai Vankar has developed an organic pesticide to control Heliothis in lady's finger crop. One kg of fenugreek flour is needed for the prepration of the pesticide. One kg of the flour is mixed with two litres of water and kept aside for 24 hours, so that the solution becomes very bitter and mildly toxic. This mixture is then sprayed on the standing crop of lady's finger. By this, 50 per cent Heliothis is controlled. Then 10 liters of water is added to the remaining solution and sprayed on the lady's finger crop. The solution should be mixed (or stirred) continuously. For one acre, approx one kg fenugreek flour solution is necessary.

Mr. Kantibhai Vankar 28, has studied upto 10 standard. Instead of pursuing further studies he focussed on farming activities. Along with farming, he has knowledge of livestock management as well. He is very sensitive towards animals. He keeps on experimenting with traditional herbal medicines for agricultural activities. He is a hardworking, enthusiastic, self-confident person, who tries to attain perfection in all his work activities.

Village: Dhamalia
Post : Hathivan Taluka : Lunavada,
Panchmahal
Gujarat

Scout: Praveen Vankar
SRISTI

National Innovation Foundation

Consolation Prize: Rs. 1,000
Agricultural Practices: Organic Pest Control Measures

Ms. Mariamma Thomas

Organic pest control measures

Ms. Mariamma Thomas from Kerala suggests a novel technique of fuming instead of insecticide application for controlling pest attacks in creepy vegetables. Normally creepy vegetables are cultivated over five to six feet high '*pandals*' (platform).

One kg of dried cow dung is mixed with 15 gm of tobacco and kept in an earthen pot. Thereafter the smouldering earthen pot is kept below the pandal/platform of the vegetable canopy. The smoke helps to kill the harmful pests. The procedure is to be repeated every week. For treatment of insects and pests affecting grams, 25 gm of tobacco is ground, diluted with water and kept overnight. In the morning, this is mixed with a little quantity of coconut oil and soap solution and then sprinkled on the leaves of gram (Chick Pea).

Ms. Thomas, 40 years, hails from a farming family. She owns one and a half acre of land and a house. She manages kitchen garden in the backyard of her house where she grows cucumber, bitter gourd, chilli etc. She practices only organic and eco-friendly techniques.

Chellikunnel House
P. O. Palenkara
Malappuram 679 330
Kerala

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Protection: Controlling Mite Attack in Coconut

Mr. K. Panickan

Controlling mite attack in coconut

K. Panickan developed a novel technique to prevent the dread full attack of '*Mandari*' (*Eriophyid mite*) a kind of insect that destroys tender coconuts.

Two 200 ml. plastic bottles are taken and tied to the ends of a plastic string. The bottles should be open. One should climb up the coconut tree to place the yarn at the neck of the tree, little away from the flower bunch and tender coconuts. The yarn is taken through one of the leaf stems allowing the bottle to hang freely at one side. Another bottle can be tied to the other end of the string standing at ground level. Seventy five per cent of both the bottles are filled with kerosene. By pulling the string the bottles are made to hang straight below the neck of the coconut tree and the string is tied firmly onto the tree. The smell of kerosene generated by the swinging action of these bottles keeps the '*Mandari*' mites away. Kerosene is to be replaced every week by opening the string and getting the bottles down.

The innovator has developed a method to prevent the attack of 'Mandari' (*Eriophyid mite*), a kind of insect that destroys tender coconuts by hanging two plastic bottles (200-mg. capacity) with the help of a strong plastic yarn or twine yarn filled with kerosene.This method has been found very effective against this dreadful insect.

Chaluthara; Vaikom
P.O.: Udayanapuram
Dist. - Kottayam
Kerala

National Innovation Foundation

Consolation Prize: Rs. 1,000
Crop Protection: Controlling Leaf Curl in Chilli and Brinjal Plant

Mrs. Rupiben Machhar

Control of leaf curl in chilli and brinjal plant

To control leaf curl in chilli and brinjal plants, Mrs. Rupiben Machhar uses goat milk and it has been found very effective. With the help of the broom, milk is sprayed on the plants.

Rupiben is a small illiterate farmer and owns a small piece of land. She grows maize, pigeon pea, etc. as intercrop. But when there is less or scanty rainfall she goes for working as labourer in nearby villages. Other members of her family also work as labourer.

Village: Nanapuvaala
Post: Baria
Taluka: Devgadhbaria
Dist. : Dahod - 389 380
Gujarat

Scout: SRISTI

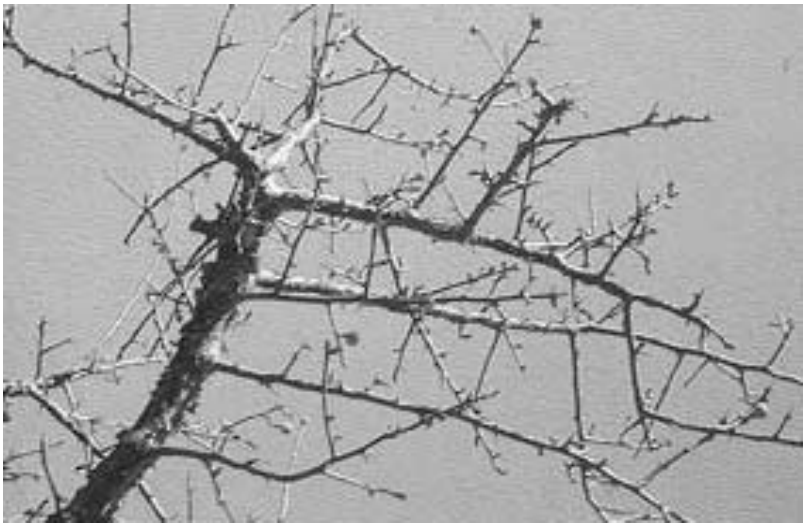
National Innovation Foundation

Consolation Prize: Rs. 1,000
Crop Protection: Control of Leaf Curl in Chilli Crop

Mr. Rameshbhai Baria

Control of leaf curl In chilli crop

Late Rameshbhai had developed an innovative fumigation practice to control leaf curl in Chilli. The bark of 'mukul' (*Commiphora mukul*) and its gum were mixed with maize, flour and sugar. The smoke of this mixture helped in controlling the leaf curl disease.



Late Rameshbhai Baria, 40 years, died six months ago. He is survived by wife and four children. After his death, his eldest son, Manubhai Rameshbhai Baria, is looking after farming. His other children are studying in primary school in their village. His son has studied upto SSC and goes for mason work in spare time at a nearby town of Devgadh Bariya. Rameshbhai's family is supported by his two brothers. His practice is also used by some other farmers of his village. His son Manubhai Rameshbhai Baria would recieve the award on behalf of his father.

Village: Nanapuvaala
Taluka: Devgadh Baria
Dist. - Dahod 389 380
Gujarat

Scout: Puroshottam Patel, SRISTI

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Protection: Prosopis Juliflora against Discolouration

Mr. V. K. Jayaveeran

Prosopis juliflora against discolouration

The ladies finger (*Abelmoschus esculentus*) crop suffer from the problem of discolouration of leaves and the field appears purplish in colour. The problem arises generally 20-35 days after sowing. Jayaveeran takes 2.5 kg leaves of *Prosopis juliflora* and grinds them in water. About 600 ml of this extract is mixed in 100 litre of water and sprayed once in a fortnight over the affected crop. The crop recovers its natural green colour within two to three days. The same extract can be used for Chilli crops.

Jayaveeran, 45 years used to run a grocery shop till 1992. He has studied upto the 10th standard. He took to full time farming after 1992, though he had been conducting meeting of farmers' discussion forum under Krishi Vigyan Kendra since 1982. He got the best convenor award for organising a very active discussion forum in 1985. He has 7.5 acre land and grows brinjal, tomato, paddy, chilli etc. He is known for his production skills.

Kuppanampatti
Post – Ariyapatti
Taluka – Usilampatti
District – Madurai – 625 532
Tamil Nadu

Scout: L. Vijayakamatchi, SEVA

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Protection: Tapioca Water as Insecticide

Mr. V. J. Joseph

Tapioca water as insecticide

Mr.V Joseph has developed a novel technique for preventing scales in pepper. Usually tapioca is dried after boiling in water. He found that the application of this hot sticky starch water over the pepper plants kills all the scales. The application is usually done in summer so as to save the tender leaves whereas the older leaves withstand the heat anyway.

Mr. Joseph from Idukki district of Kerala state is a marginal farmer with 2.5 acres of land. Pepper is the main crop cultivated in the area . The problem of scales is a serious threat to pepper. He found an innovative method for preventing the scales in pepper.

Valummel
P. O. Upputhara Kakkathod,
Idukki
Kerala

Scout: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Protection Practices: A Trap for Worms Affecting Cardamom

Mr. T. T. Thomas

A trap for worms affecting cardamom

Mr Thomas has developed a decoction from tulsi (basil) leaves for preventing insect attack, especially from green worms and thrips in Cardamom. Leaves of 'krishna tulsi' are crushed, without adding water in it. Then one pinch of mosquito killing powder is added and this mixture is then kept in a small vessel. Metal vessels shouldn't be used. Thereafter these vessels are placed in different parts of the cardamom field. The vessel should be kept open. This reportedly kills all the insects affecting cardamom. This mixture can be used for three days.

Mr. Thomas is a farmer from Kanchiar. He grows mainly cardamom, pepper, and coffee. Green worms and thrips are the major diseases of cardamom. The decoction developed by Thomas is found to be very effective against these pests.

Thekkan Veedu
P.O.Kanchiar
Kanchiyar
Kerala

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Protection: Mukkadaka Decoction to Control Hoppers In Paddy

Mr. B. S. Dinesh

Mukkadaka decoction to control hoppers in paddy

Brown plant hopper is a serious sucking insect pest of paddy. When it attacks the leaf of the plant; the leaf gradually turns to brownish white in colour and the entire area seems burnt. When the pests attack is excessive the entire crop is lost. Chemical insecticides like Quinalphos, Diazinon etc. are not affordable by the small and poor farmers. Uncertainty in the yield due to erratic weather and rain also makes the farmers hesitant to apply any marketed costly inputs. There are many ill effects of these chemicals. Mr. Dinesh thought about an alternative method for the control of Brown plant hopper. One kg Mukkadaka (*Lasiosiphon eriocephalus* - a common plant in the locality which is very bitter and found to cause burning even if a small amount of the extract falls on the skin) leaves are boiled in 10 litres of water. The solution is filtered and diluted with water in 1: 10 ratio and sprayed twice, once during nursery stage and second time after transplantation of paddy. The decoction is also effective against crabs, which otherwise cuts the plant at a very tender stage.

As this decoction is very strong, it may have some allergic effects on the person who applies it. The innovator is using this method for last ten10 years. His innovation was appreciated at the International Conference on Creativity and Innovation of the Grassroots at IIM, Ahmedabad in 1997. Few agricultural scientists and students from UAS, Bangalore are also planning to take up this practice for research to validate Mr. Dinesh's Mukkadaka practice. Hittalagida, the Kannada version o Honey Bee is trying to popularise the practic

Mr. Dinesh is a young farmer cultivating arecanut and paddy under rainfed conditions in the tropical forest Western Ghats region of Karnataka. He has been influenced by the organic farming experiments conducted by the late Shri Purushotham Rao in the region. Mr. Dinesh has innovated an effective bio-control measure against hoppers and other insect pests by using a decoction from a local herb Mukkadaka (*Lasiosiphon eriocephalus*).

Village : Bavikaisaru
Taluka: Thirthanhalli
Shimoga
Karnataka

Scout: PRITVI

National Innovation Foundation

Consolation Prize: Rs. 1,000
Agricultural Practices: Control of Dropping of Flowers in Lemon Plant and Mango Tree

Mr. Prabhakarbhai Chaudhary

Control of dropping of flowers in lemon plant and mango tree

To reduce flower dropping in lemon, Mr. Prabhakarbhai Chaudhary revived and practiced a traditional and eco-friendly technique. A pit of half feet is dug around the trunk of lemon and mango tree. Around two kg of undigested waste from dead goat's stomach is filled in the pit and covered with soil. Then one or two pots of water is poured in this soil. This method is applied only once per tree. This method can be implemented at any time but the result is seen in the next year. This prevents dropping of flowers in lemon and mango trees and the the innovator has been iimplementing this practice for the last three years.

Mr. Chaudhary, 35 years, has studied upto the 6th standard. He hails from a middle class family and his source of income is farming and animal husbandry. Flower droppingis a serious disease of lemon causing a severe loss. His method is found to be very effective against this disease.

Village: Maanmahudi
Taluka: Aahwa
Dist. : Dang
Gujarat

National Innovation Foundation

Consolation Prize: Rs. 1,000
Agricultural Practices: Increasing Mango Yield by Planting Sunflower Plants on the Bunds

Mr. S. Nanda Kumar

Increasing mango yield by planting sunflower plants on the bunds

Nandakumar has developed a simple practice to increase mango yield by planting sunflower plants on the bund of mango orchard. Sunflower plants are sown on the bunds of mango field during the first fortnight of October. Flowering commence in sunflower during the first week of December. Mango plants attract the honeybees and this increases the pollination in sunflower also. Fragrance of sunflower plants repels hoppers that attack mango flowers and bean size tender mangoes. Premature droppings of mangoes is comparatively thus less.

Nandakumar recieved Sristi Sanman Award during 1994. He looks after the dryland owned by his father in law. He experiments different agroforestry models suitable for his land area. He has conserved lot of indigenous tree species viz., neem, *iluppai* (*Bassia latifolia*), jack fruit, tamarind at his farm. He has also conserved many traditional crop varieties in cholam, horse gram, black gram, green gram, fodder sorghum etc.. He developed innovative bunding method for water harvesting in black cotton soil area by using soil excavated during well digging. This soil is very good for bunding and prevents the soil erosion. He also grows vetiver grass and Aloe vera on the bunds for strengthening the bunds. He uses biowaste as mulch in coconut garden and thus saves on irrigation.

Post : Konda Goundanpalayam
Via : Negamum
Taluk : Pollachi
Dist : Coimbatore - 642 120
Tamil Nadu

Scout: P. Vivekanandan,SEVA

National Innovation Foundation

Consolation Prize: Rs. 1,000
Horticulture: Budding in Nutmeg Trees

Mr. Varkeychan Kalapurackal

Budding in nutmeg trees

Nutmeg is unisexual plant. After planting several nutmeg trees only a few grow to be female plants bearing nutmeg fruits. The remaining male trees are of hardly any use. In case of nutmeg only female flowers are productive. But the sex of the tree cannot be ascertained immediately on planting but only at the time of flowering. Although male folwers are required for fruit bearing in the female trees, if too many trees turn out to be male, the cropping will not be profitable. This problem can be solved by budding on the male trees. Budding can be done on all trees in the farm after one year of planting. The graft is made after leaving five to six branches from the bottom. Now the plant will turn to be a bisexual tree and self-pollinate. By this practice all grafted nutmegs plants turn to be bisexual and high yielding.

Mr Kalapurackal is basically a marginal farmer from Kottayam. He hails from a low income family. His main income comes from agriculture and agricultual labour. He has been practicing grafting in nutmegs for the past ten years. By adopting this grafting techniques all nutmegs trees turn bisexual and productive. He does budding in others' fields also and charge small amount for the same.

P. O. Kappumthal
Via.-,Muttuchira
Kottayam 686 613
Kerala

Scout: T.J.James, Bobby Issac, Sabu M. Simon, M. Thomas (PDS)

National Innovation Foundation

Consolation Prize: Rs. 1,000
Horticulture: Imparting Disease Resistance through Grafting in Brinjal

Mr. H. S. Sahoo

Imparting disease resistance through grafting in brinjal

Grafting has now become an essential phenomenon in modern horticulture. Mr. H. S. Sahoo has tried grafting in brinjal. Brinjal is produced from seeds. When seeds are sown repeatedly some degeneration in quality is possible through cross pollination. The character of good varieties like Nilgiri, Muktakeshi hybrid remains same. Fruits are obtained according to the mother plant quality only through grafting. By taking scion from the hybrid variety, grafting can be done successfully in 15 days. The distance of the plants is to be maintained at least 0.6-1 meter in lines & rows. Maximum of 10,000 of plants can be planted per hectare. It does not require ploughing or other inter-cultural operations etc., as normal, brinjal plant requires. Grafted brinjal reportedly does not suffer much from most of the diseases like wilt, fruit rot, yellow mosaic virus and pest attack by fruit stem borers.

Mr. Sahoo has done his Masters in Agriculture and is a Jr. Hort. Officer at O.T.D.P. Kashipur.

Jr. Horticulture Officer
O.T.D.P. Kashipur,
Rayagada
Orissa

National Innovation Foundation

Consolation Prize: Rs. 1,000
Plant Protection: Control of Brown Plant Hopper in Paddy

Mr. Basavaraj Santeshivara

Control of brown plant hopper in paddy

Brown plant hoppers are known to jump from plant to plant when something obstructs them. By making use of this feature, Basavaraj could effectively eradicate the hoppers out of field through a light trap in the night and by using a long stick in the day, and killing them outside the field.

During the day time, he holds the stick horizontal to field to cover the total width of the field, and walks slowly to touching/smearing the top portion of paddy plant from one end to other. This disturbs the hoppers settled on the top, and as he moves the stick horizontally, the hoppers jump from plants to plants and finally to the fire set or chemical sprayed at the end of the field. In the night, if a person walks with a torch in hands, attracted by the light, the hoppers

Simply follow the light upto a far distance. Basavaraj encourages the spider population in the paddy field, so as to make them to act as the predator for the insects affecting the rainfed paddy.

Mr. Santeshivara is a innovative organic farmer cultivating coconut in addition to paddy. He has developed several organic farming methods: like effective composting through coir pit and gober gas slurry. He has obtained a paddy field of 38 quintal per acre by following strictly organic methods. He is an active member of Parisara Priya (Nature Loving Farmers Forum in Hassan district) and is regular writer to Hittalagida. He has received the SRISTI award during February 2000 at IIM Ahmedabad.

Santeshvara,
Balur, Hassan
Karnataka