FARM INNOVATION - 1

INCREASES THE SUGARCANE YIELD BY EFFECTIVELY UTILIZING FARM RESOURCES

I am Mr. G.R. Sakthivel, invented a device to manage the cow dung and urine for fertigation in sugarcane with simple mechanization. Labour shortage is the key problem in sugarcane cultivation. Moreover cattle resources are being wasted or dumped. Hence, idea emerged to utilize the cattle dung and cattle urine effectively to reduce the input cost and labour. This is the root cause which made to think of an alternative which could circumvent the labour problem.

I developed a simple yet effective mechanism to filter cattle waste and use the same in the organic farming of sugarcane. The 4 compartment system developed by me consists of a step by step filtration technique ensuring that an enriched filtrated medium is collected at the end and sent by drip irrigation system through the field.

A believer of organic cultivation, I said here that one of the main reasons that encouraged me to innovate was the decreasing quality of soil due to the continuous usage of chemical fertilizers. “Fertilizers not only affect ones health considerably but also decrease the quantity of yield. I have worked on this innovation to do away with the use of fertilizers and instead use already available cattle resources for the purpose of soil nourishment.”Decreased availability of labour also acted as a catalyst to the process of innovation.

The increase in sugarcane yield is standing proof for the success of this innovation. From an output quantity of 60 tonnes in the first harvest, the yield has increased to 63 tonnes in the second harvest. The crop which is now in its third harvest is only expected to give an even greater yield. “The soil pH in my land has reduced from 8.0 to 7.3 after the application of this technique. This is a clear indicator that the soil quality is improving and hence, the yield from this land will surely increase even beyond that of the previous harvest.”

By adopting this technology I can save Rs.27,000/acre by reduction of labour and fertilizers through application of recycled cow dung and urine solution by

filtration techniques. Field application with drip irrigation instead of manual operation also adds advantage to the innovation. By adoption of this technology water holding capacity is increased, the earth worm multiplied well in the field .This crop would be allowed as ratoon for longer time, by the way it reduces the cultivation cost for subsequent years.

I am inspired other farmers from Dharmapuri, Madurai and Dindigul who are now approaching me to learn the technique and take to organic farming. This, according to the farmer, is his real prize. My greatest achievement would be to inspire as many farmers as I can to take to organic farming methods. Organic Farming the only way farming as an occupation can be saved from declining trends as seen today."

ADVANTAGES

- Reduces the cost of cultivation
- Increase the water holding capacity of the soil
- Reduces pH value of the soil

The technology can took care of the crop forever by increasing the productivity and soil fertility by its eco friendly way of farming. I experienced that continuous cultivation of sugarcane could be ensured as perennial crop which contributes my family with less investment.

Apart from reduction of labor and fertilizer cost, the innovation safe guard the health of present and future generation with organic agricultural produces. The technology can take care of the farm family and reduce their drudgery in sugarcane cultivation with its easy nature.

OTHER INNOVATION

FERMENTED CASTOR SOLUTION TRAP:

Pulverize the 5 kg of castor seeds and mix it in 5 litre of water. Keep this solution undisturbed for 10 days. The solution gets fermented. In the mean time place 5 mud pots of 5 litre capacity were placed in an acre area. Then 2 litre of fermented solution pour into the each mud pot and fill it with water till the neck portion. The foul smell / odour comes from the pot attracts the pests towards it. It is effectively used for controlling the white grub, stem weevil and rhinoceros beetle. It also caused the non-entry / re-infestation of rats into the field.

Cost of the entire process comes to Rs. 250 / acre

CLOD BREAKER

I also invented a clod breaker for breaking the hard soil. It is an animal drawn secondary tillage implemented for preparing the soil into a fine tilth. The cost of the equipment comes to Rs 2500 / unit. It is mainly used for the sowing of small seeded crops.

My entire farm is certified organically by the international certifying agency called IMO.

All the innovation made by me was documented by MYRADAKVK and it was popularized throughout the country through mass media. My innovation also telecasted by different channels (Puthiya Thalaimurai, Makkal TV, Narmatha TV) on a frequent interval

RECOGNITION:

- Best innovative farmer award (2003) for innovating clod breaker (District level - MYARADA KVK)
- Best innovator award for the year 2011 (National level - ICAR award)
- Krishi Samrat Samman award for the year 2013 (National level – Mahindra & Mahindra award)
- Member of Scientific Advisory Committee in KVK, Erode
- Identified as a resource person for organic farming by KVK, Erode

FARM INNOVATION - 2

COW BASED PRODUCTS

Mr.K.K.Somasundaram, progressive organic farmer hailed in Sinthagoundanpalayam village of Anthiyur Taluk, Erode district. He is a marginal farmer having 2 acres of land which was efficiently used by him to provide sufficient food for his family and livestock. He is a member in MYRADAKVK organized farmers group, Erode District Organic Farmers Federation (EDOFF) and member in scientific advisory Committee.

He was exposed & trained in various organic farming, organic input production, Integrated farm development, etc., with the support of MYRADAKVK. This triggered him to think of conserving traditional livestock breeds and crop varieties. Since he is having small land holding, divided the lands accordingly for ensuring year round food production for their family and live stocks. He is also practicing natural & ecological farming and producing various types of Bio - inputs like Amrit gel, Jeevamirtham, Effective micro organisms, fish Amino Acids which was supporting to improve the crop economy.

Mr.S.Saravanakumar and Mr.P.Pachiappan, SMS from MYRADA KVK said “He is promoting and advocating the neighborhood farm families to practice the organic farming practices and he is also providing free guidance for preparing organic inputs which reduces the cost of cultivation and improves the fertility status of the soil. In search of organic farming he visited and trained by nationwide institutes like Go-Vigyan Anushandhan Kendra, Nagpur, Rotary Vocational training centre, Karaikal, Horticulture Training Centre, Pune, Tamil Nadu Agricultural University, Coimbatore and Micro, Small & Medium Enterprises, Chennai, with the support of KVK, Erode.

These trainings induce him to produce various Cow based (Cow dung & Urine) products from traditional breeds like Kangeyam. He initially started for producing / manufacturing soap from the cattle resources at small level and the recognition and feedback received from the consumers to motivate him to manufacturing various products. Currently he produces 10 different types of products such as soap, tooth powder, hair oil, pain relief oil, facial powder, vipoothi, incence stick and sampoo.

The specialty of his different products is made from single cow. The milk obtained from the cow is used for their own consumption. On an average he is producing the products with a value of Rs.35, 000.00 per month. Apart from that the manufacturing generates employment opportunities to their family members throughout the years and to the neighbour families. All the products were marketed through his direct contact and other source through *Uzhavan angadi,* (A farmer mall) promoted by organic farmers federation. Many farmers inspired by him and some of the approaches are followed by other farmers in the district.

Somasundram says that, *the customers become regular once they use his product since it natural and conserve tradition.*

His involvement is always to conserve the traditional breeds and varieties and to inculcate the importance of them to the community, Somasundaram is the active community resource Persons (CRP) for popularizing various organic farming techniques promoted by our Kendra, says. Dr.P.Alagesan, Programme Coordinator, MYRADA KVK, Erode district.

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FARM INNOVATION - 3

SIMPLE ORGANIC LIQUID MANURE PRODUCTION TECHNIQUE

Intensive agricultural practices heavily depend on external input (such as fertilizer and pesticides) application. Rising in the cost of inputs and its impact on soil environment, leads the farmers to think of an alternate practices, which aims to sustain the soil fertility. The type of initiative is under taken by farmers focusing their approach towards scientific management of their farming operations.

Mr.A.Alagesan, Manager of URC - Thulasiammal Farm, Mylady near Chennimalai (Mobile No.09842135117; *e*-Mail: alagesan.ponnusamy@urc.in) is an innovative progressive farmer in organic farming practices, who developed an effective liquid manure manufacturing technology from the cattle resources such as cow dung and cow urine. Since he is a member of MYRADA KVK farmers forum, got the exposure and guided him to look for cost effective method in fertilizers management in organic farming practices.

Investment in purchase of agricultural inputs in dry-land and labour shortage is the key problem faced by him and this is the root cause for the development of this technology. He is a believer in organic farming says that the digestive material obtained from the cattle (i.e. cow dung and urine) are the raw material use in this technology for making the liquid organic manures.

The basic principles behind this technology are fermentation and sedimentation process.

Cost effective farm level fertilizer factory:

A simple barrel unit with a capacity of 200 litres is the chamber used for manufacturing liquid manures. Two outlets were fitted in the barrel at the height of 1½ feet and 2 feet from the bottom end and one more at the lower part of the barrel.

A fresh cow dung and urine was mixed in the unit at 1:1 ratio. Then add 10 parts of water is thoroughly mixed and allow it for fermentation process. This will take 12 hours, and then add 1 kg of jaggery for every 100 litre fermented solution. Again, it is allowed for fermentation and sedimentation process. It is location specific,

the farm level other waste input like Palmyra fruit also can be used for the fermentation process. The clear and enriched liquid organic manure is ready for field application in another 12 hours. He is mainly used this manure for field applications like Moringa, Coconut and Amla crops.

The cost of this technology may come around 1500 rupees only. By adopting this technique a farmer can save Rs.4000 - 20,000 / ha depending upon the crop cultivation. Apart from reduction in cost of cultivation, it increases the water holding capacity of the soil and improves the beneficial micro organism presence in the soil. **A simple cost effective fertilizer factory at farm level is ready for self sufficiency in fertilizer**.

Advantages:

- Increases the water holding capacity of the soil
- Reduction in cost of cultivation
- Increase the drought tolerance in crops.
- Improves the beneficial micro organism population in the soil

This technology takes care of the sustainable soil fertility over the period of time in an eco-friendly manner. The technology would help the dry-land farmers in terms of reducing the external input purchase and improves the micro flora and fauna in the soil ecosystem.

“The trend in farming is encouraging that the farmers are approaching agriculture by understanding the science behind each intervention”, says Dr.P.Alagesan, Programme Coordinator, Myrada KVK, Gobichettipalayam, Erode District.

FARM INNOVATION - 4

A FARMER DEVELOPS A MACHINE FOR REMOVING STONES FROM FIELDS

Indian agriculture is traditionally rainfed and dry land cultivation. Farming practices are heavily dependent on physical labour and the rising cost of cultivation, acute labour shortage to carry out the farming practices in time, leads many to think of alternative practices for improving their farm productivity in a sustainable manner.

About 65 per cent of the total cropped area comes under rainfed farming situation. About 45 per cent of food grains and 75 - 80 per cent of pulses and oilseed production come from rainfed areas. Particularly in dry areas the soil contains a number of small pebbles and stones hindering farming activities such as land preparation and intercultural operations.

Though the rainfed / dry lands receive less amount of rainfall, the intensity during the short downpour is very high which leads to top soil runoff resulting in soil erosion and more amount of pebbles and stones getting exposed in the field. Over years, productive lands turns barren and uncultivable because of low fertility, water holding capacity and the presence of these stones.

“Huge amount of labour is engaged and its unavailability is the major problem faced by the farmers. In general, women are engaged in the removal of pebbles and stones in dry land farming before the start of the cropping season, and they undergo serious physical stress while doing such field operations” says Dr.P. Alagesan, Programme Co-ordinator, Erode KVK, MYRADA (Mysore Resettlement and Development Agency).

Till now there has been no machinery available to remove these stones from a field. While we have machines for sowing, spraying and harvesting till date no device has been developed for this small but importance aspect in farming.

It was left to Mr.K.Viswanathan, an innovative farmer from Kullampalayam village of Gobichettipalayam Taluk, Erode district who developed a tractor operated stone remover.

The stone remover requires 35 HP and above power. It consists of conveyor chains drive gearbox, PTO shaft and the bottom of the stone remover is connected with tines. Tippers are connected to the backside of the equipment.

While operating the conveyor chain is rotated at the rate of 12 – 16 rotation per minute. At the same time, the tines loosen the soil and the stones and small pebbles are pulled into the conveyor chain and collected in the tipper. The machine is capable of picking stones ranges from 25mm to 120mm size from a depth of 15 – 25. In a day it can used to clear five acres.

"In dryland farming system, the stone removing activity is essential before starting of the cropping season in order to obtain the optimum productivity from the farming. In this context this particular innovation is essential to improve productivity of the farming in dryland condition," says Mr.S.Saravanakumar, Agronomy specialist at the institute.

Priced at Rs.1,50,000.00 the salient features of the equipment are it removes the stones, pebbles from the field, improves the structure and texture of the soil, increases the water holding capacities of soil and makes the soil easy for nursery preparation and other activities.

It is suitable for hilly regions and dry lands. It can also be modified for harvesting tuber crops.

In the recent past, tuber crops become familiar and it is the best alternate crop in the hilly regions, since this crop fetches better prices when compared to cereal crops cultivation. Tapioca, potato, radish, turmeric are the major tuber and rhizome crops cultivated over 20,000 hectares in Erode district and it needs lots of labour for harvesting. Manual harvesting leads to lot damage of tubers and it is the chance for left over in the field itself. This particular innovation will helpful to the farmers in harvesting of tuber and rhizome crops without the additional labour involvement. It will harvest the crop without any damage and reduces the left over produces in the field. By using this machinery a farmer can harvest 2.5 acres of field in a day and preliminary cleaning were also made in this machinery at the time of harvesting, it was estimated that 40 – 50% of labour time can be saved. This machinery serves the multiple usages to the farming like stone removing, harvesting and preliminary cleaning of tubers and rhizomes says Mr.K. Viswanathan, innovator.

Development of agricultural sector is driven by innovations at all levels and in keeping pace with it Myrada KVK for the last three years has been actively involved in identifying and documenting of farm innovations in a farmer participatory mode.

Stone remover equipment

Technical specification	Salient feature
• Type: Tractor Mounted implement. • Power required: 35Hp Tractor & above. • Conveyer steel rod with Drive Gearbox & PTO shaft (6.00x5.50x1.00 feet) • Stone Collected box (6.00x5.50 x1.50 feet) Dipping with Hydraulic • Equipment Dimension: 12.00x5.50x4.00 feet • Conveyer chain speed: HD with 12-16 rpm • Operate depth (15-25 cm) • Stone removing efficiency is 70 % of 25mm - 120mm size (under ploughed condition) • Number of tines : 9 • Fuel consumption : 3-3.50 liters/hour • Field Capacity: 0.5 acre / hr • Weight: 1150 kg • Cost of the machine: Rs. 1,50,000/-	• Reduces the labour requirement for removing the stone from the field • Improves the physical properties of the soil • Easiness for nursery preparation and other land preparation activities Best suitable for the hilly tracts and dry tracts region

For more details

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