

Success Story under RKVY

1. Title

“Efficient and judicious use water and power – A way for success”

(Success story of Smt. Indiramma w/o of late Gurubasappa, Doddabbigere, Channagiri Tq.)

2. Category- Horticulture

3. Challenge (150-200 words)

Smt. Indiramma w/o of late Gurubasappa, is a farm women owning 20 acres of land in a single piece in Doddabbigere village, Channagiri Tq. The whole garden was rain fed without any irrigation facilities having 200 each old coconut palms and mango with an annual income of Rs. 50 to 80 thousand which was very low. For the survival of the old plantations and revival of garden with irrigation and new plantings she installed a bore well to a depth of 480 ft. Due to poor underground water the yield of water was only less than one inch. Further, she went for two more bore wells without any success. Finally, she considered the bore well dug as failed system. Another constraint she facing was electricity. There was no electricity connection to her farm. It would take at least two years and it was a huge cost to get electricity to run the bore well.

It is not only the problem of Indiramma, it is of entire farming community in dry land horticulture.

4. Initiative (300-350 words)

Under RKVY project titled “Training and Demonstration of System Maintenance and Efficient Water use through Improved Irrigation Devices and Revival of Failed System” (2012-13) being implemented by University of Agricultural and Horticultural Sciences, Shivamogga came across the situation and helped her to overcome the problem of water scarcity through the interventions as hereunder.

The irrigation requirements were worked out as per the cropping plan she had planned. It was shown that, it is possible to manage the crops with available bore well water (which she considered as failed and abandoned) if supply is as per the scientific requirement of the crop.

Another intervention was to go for solar operated pump set instead of waiting for electric supply. The same was demonstrated through working 5 HP solar operated pump installed at Zonal Agricultural and Horticultural Research Station, Shivamogga. However, based on the quantity of water that is available and the pressure head that needs to be given, she was advised to go for 3 HP pump. Based on advice she adapted a slim stainless steel pump which is more efficient than older versions.

A drip irrigation system design was developed taking care to irrigate all the crops with minimum requirement of water. While designing the system, care was taken to distribute the sub mains from the center of the plot instead from one end where the bore well was existing, in order to achieve high uniformity in water distribution. The plot was divided into two sub units, suggesting to irrigate one unit at a time. In order to achieve high uniformity in water distribution, pressure compensating drippers of 4 and 8 l per hour were used. A high efficiency disc filter was also provided. The farmer was also advised to go in for fertigation through a venturi system as it was very difficult to get labour for manual application of fertilizers and also because of many other advantages of fertigation. Convinced with the project, the farmer after availing the bank loan installed the following components as per our expert advice

- Solar panels (18 nos) with inverter
- Stainless steel slim pump of 3 HP and 28 stages
- Drip irrigation system involving the mains (63 mm), the sub mains (40 mm), lateral pipes (12 mm OD), disc filter, venturi system for fertigation and pressure compensating drippers.

As per our plan she planted 100 coconut, 1000 mango seedlings, sapota and other mixed fruit plants along with short duration vegetables with some moisture conservation measures including basin management. The farmer now is happy with our intervention and her farm has become a good demonstration plot.

5. Key result/insight/interesting fact (150–200 words)

- Saving in electric bill due to solar pump
- Revival and effective use of failed and abandoned bore well
- Fertigation could save labour, time, money and nutrients
- Effective use of space near the drip points for vegetable cultivation
- High density cropping of mixed fruit trees has provided additional employment of

200 man days and short term income

6. Impact – (100-150 words)

The farmers evinced a lot of interest about the project with lot of apprehensions, because there were many new things which according to their perception would not work. However, within few months, farmers could see a very good crops response and the farmer realizing all the benefits of drip irrigation. Now many farmers have adopted solar system and major modifications like changing over from micro tubes to pressure compensating drippers, filter and ventury for fertigation, keeping the dripper away from the base of the stem. This has a relevance to farmers, livelihood security and also conservation of resources like power and water.

7. Lessons Learned

Farmers, who are already handling these drip irrigation systems, have many misgivings in spite of their long period experiences. This may be because of non availability of proper technical guidance with regard to designing of systems, selection of pumps and maintenance of systems. However, as an outcome of this project, we could understand that farmers are ready to learn the correct things if we can demonstrate and give good guidance.

Therefore, our university may seriously consider opening of a consultancy cell for efficient use of water and power in agriculture, which should be able to provide ‘*in to-to*’ solutions to needy farmers, if necessary on payment basis.

The university may also consider starting of a certificate course of six months duration on “WATER AND POWER MANAGEMENT IN AGRICULTURE”, which should ultimately huge number of trained man power required in this field.

8. Supporting Quotes and Images



Fig.1. Farmers interacting with scientists regarding solar pump.



Fig.2. Farmers and students of DEASI, Shivamogga, visiting the farm.



Fig.3. Young mango seedling being nurtured through drip irrigation



Fig. 4. Very good bearing of sapota grown under drip.



Fig. 5. Crescent moon bunding for old mango plants for in situ rain water harvest

9. Additional information:

The project may be continued with specific objectives of

1. Establishing good demonstrations on revival of failed bore wells on the farms of Research Stations / KVKs, which should be used for training of farmers.
2. Conducting experiments on safe periods of system shut down, effect of alternate day irrigation or alternate row irrigation etc, on the research stations.
3. Demonstration of a holistic energy and water efficient system in each KVK / research station.
4. Demonstration of efficient designing and management of drip irrigation systems on farmer's fields in resource challenged situations.
5. Providing paid training to young entrepreneur farmers, extension workers of line departments / NGOs, banks and all others interested with regard to
 - a. Scientific methods of ground water prospecting;
 - b. Correct measurement of water available in the bore wells;
 - c. Water quality assessment;
 - d. Proper selection of motor and pump sets;
 - e. Winding of burnt motors;
 - f. Scientific designing of drip irrigation systems;
 - g. Working out the pressure loss in pipes and the total pressure required in a system;
 - h. Selection of solar panels for pump sets;
 - i. Good management practices of drip irrigation systems to get high efficiency;

10. Checklist

Sl. No.	Question to consider	Yes	No
1	Is the story interesting to the target audience of the project/activity report?	✓	
2	Does the story explain what new insights the project brings? What is the main lesson learned from this story? Does the story describe a key insight on what works and what doesn't and something that future project could build on	✓	
3	Does the story describe the outcomes the project produced and the people who are benefitting? What changes—in skills, knowledge, attitude, practice, or policy—has the project brought, and who is benefitting from these changes?	✓	
4	Does the story make a compelling point that people will remember? Does the story show how the project makes a difference to improving livelihoods and lessening poverty?	✓	
5	Does the story provide an interesting fact that people will remember? For example, how much yields increased, how many hectares of land could become more productive from this innovation or technology?		✓
6	Does the story explain what kind of impact this innovation or technology could have if scaled up?		✓
7	Does the story show which partners contributed and how?	✓	
8	Does the story include quotes from Stakeholders or beneficiaries?		✓
9	Have I provided links to other media (journal articles, website news, newsletter, blogs, annual reports of other Programme/ project) that also feature this story?		✓
10	Have I provided the contact details of people who can provide more information?		✓

Principal investigator
RKVY project

