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## **Transfer Of Technology Through Agricultural Scientists- Some Special Success Stories (From On Farm Testing, Frontline Demonstrations And Trainings) And Indegenous Technological Knowledges (ITKs) Identified By KVK, Visakhapatnam District**

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### **Abstract:**

*Agricultural Scientists observed the success of farmers in the aspect of On Farm Testing, Frontline Demonstrations and Trainings conducted by BCT-Krishi Vigyan Kendra (ICAR), Visakhapatnam and also identified Indigenous Technological Knowledge's (ITKs). Farmers got 28.3% increase in yield after advice given by KVK scientists for YLM-66 variety in Sesame.*

### **1.Introduction**

BCTKVK, Visakhapatnam District educated rural community to participate, in the economic, political and social sustainable development of the rural communities. The findings outlined in this paper suggest that, designed and implemented in ways that meet rural people diverse needs, community participation processes that can be important to facilitating social, technological, political and psychological empowerment in terms of rural development and how Krishi Vigyan Kendras (KVKs) are taking part. The findings of this investigation can assist rural developers in the implementation of community development strategies based on empowerment through Krishi Vigyan Kendras (KVKs).

There is a large section of farming community which is still unaware of technological developments in the field of Agriculture, Horticulture and Animal Husbandry. For this purpose a number of extension programmes have been introduced by ICAR and state departments to reduce this gap and these programmes have yielded good results. The Education Commission (1964-66) recommended that a vigorous effort be made to establish specialised institutions to provide vocational education in agriculture and allied fields at the pre and post-matriculate levels to cater the training needs of a large number of boys and girls coming from rural areas. The Commission, further, suggested that such institutions be named as "Agricultural Polytechnics". The recommendation of the Commission was thoroughly discussed during 1966-72 by the Ministry of Education, Ministry of Agriculture, Planning Commission, Indian Council of Agricultural Research (ICAR) and other allied institutions. The ICAR Standing Committee on Agricultural Education, in its meeting held in August, 1973, observed that since the establishment of Krishi Vigyan Kendras (KVKs) was of national importance which would help in accelerating the agricultural production as also in improving the socio-economic conditions of the farming community. The assistance of all related institutions should be taken in implementing this scheme. The ICAR, therefore, constituted a committee in 1973 headed by Dr. Mohan Sinha Mehta of Seva Mandir, Udaipur (Rajasthan), for working out a detailed plan for implementing this scheme. The Committee submitted its report in 1974. The 1st KVK, on a pilot basis, was

established in 1974 in Pondicherry under the administrative control of the Tamil Nadu Agricultural University, Coimbatore. Establishment of KVK is a landmark in the history of transfer of technology programmes in India. GOI, (1978-83)<sup>1</sup>

## 2. Concepts of Krishi Vigyan Kendra

- The Kendra will impart learning through work experience and hence will be concerned with technical literacy, the acquisition of which does not necessarily require as a pre-condition for the ability to read and write.
- The Kendra will impart training to only those extension workers who are already employed or to the practicing farmers and fisherman. In other words, the Kendra will cater to the needs of those who are already employed or those who wish to be self-employed.
- There will be no uniform syllabus for a Kendra. The syllabus and programme of each Kendra will be tailored to the felt needs, natural resources and the potential for agricultural growth in that particular area.

It is an innovative institution providing for (i) effective linkage among researchers, farmers and extension workers (ii) practical approach to training through "Learning by doing" (iii) flexible syllabi based on a survey and needs of farmers and location specific requirements. By the year 2011 there were 600 KVKs sanctioned under the administrative control of ICAR institutions, state agricultural universities and voluntary organizations (NGOs). It is now the policy of the government to establish more KVKs to fulfil the target of two KVKs in each district in Agriculture, Horticulture and Animal Husbandry. ICAR Reports (1975-2011)<sup>2</sup>.

## 3. Need Of The Study

The present study focused on how KVK is Transferring the technology through Vocational training programs as a mandate leading to Empowerment of rural India. Since KVKs are conducting many training programs every year under various disciplines for different clientele like Practicing farmers and farm women, Rural youth and Extension functionaries.

## 4. Locale Of The Study

Visakhapatnam District is having a Total population is 4,288,113 in 2011 compared to 3,832,336 of 2001. Out of the total population Male and female were 2,140,872 and 2,147,241 respectively. The average literacy rate for Visakhapatnam District is 67.70 percent, a change of from past figure of 59.96 percent.

## 5. Success Stories

### 5.1. Plant Health Clinic & Farm Advisory services

Giving timely Advisory Services to the needful farmers saves them from many problems. Hence this is one of the major activities of the KVK. To facilitate this a Plant Health Clinic was started in the year 2000 where farmers can approach the KVK scientists. The problems are diagnosed, explained and offered appropriate measures to be taken based on the samples brought. If necessary field visits are made to note the extent of the problem.

During the regular visits to the villages also advisory services are given to the farmers on various aspects of plant protection. The village facilitators identified during the PRRA surveys are also trained in diagnosing the seasonal problems by teaching them simple techniques and methods of identification and diagnosis. These facilitators thus help in faster dissemination of the services. The advices are followed up by further visits, demonstrations and trainings as per their needs.

Black boards are maintained in the operational villages on which KVK advices overcome the seasonal crop problems are displayed. These are updated at weekly or ten day interval. This system enables the KVK to disseminate their messages to more number of people.

Publications like Pamphlets and handouts help farmers in increasing their awareness and for referring back when they face a particular problem. So pamphlets were prepared for Pest Management in the few main crops locally prevalent and distributed to the farmers

### 5.2. Innovative Approaches

Saving Coconut Plantations through Novel approaches:

Coconut is a predominant plantation crop in the coastal mandals of the Visakhapatnam district. It is known as "Kalpavriksha" due to multiple uses of its various parts although the main produce being nuts. It is helpful to tide over difficult times. The soils in the coastal belt of Visakhapatnam are mostly light soils with poor organic matter content. In such soils Ganoderma infection was a common problem. Due to this, trees in peak yielding stage were lost as the farmers could not diagnose the disease in the initial stages and control it. Because of lack of awareness the dead trees were not properly disposed and replanting at the same spot aggravated the problem further.

An integrated strategy was adopted by the KVK to overcome the problem. As a first step selected farmers of Rambilli, Kothapeta, Kothapatnam, Lalam Kodur were trained in identifying the disease at a very initial stages i.e. oozing of gum as small droplets from the cracks on the stem, to take corrective measures. Change in agronomic practices like making irrigation channels in the ring and basin method so that the disease does not spread from one tree to another. Increasing the organic matter content of the soil by liberally using

<sup>1</sup> GOI, (1978-83)

<sup>2</sup> ICAR Reports (1975-2011)

FYM, preventive measures like applying neem cake regularly to the trees, proper disposal of the trees dead with the infestation were recommended to the farmers.

The farmers were then trained in techniques of preparing Bordeaux mixture for application to the basin of the tree and root feeding with calixin. Repeated efforts of the KVK have now resulted in educating most of the coconut farmers regarding Ganoderma and about 60% of the farmers are implementing the strategies recommended by the KVK.

Apart from this Coconut is attacked by many pests like red palm weevil, rhinoceros beetle, black headed caterpillar etc. But from the summer of 2000 a minute exotic pest called "Eriophyid mite" is devastating the coconut farmers of this area. The yields were reduced by 75% both quantitatively and qualitatively. This pest has even affected allied industries like Coir units in the area. This mite is invisible to the naked eye and completes its life cycle in 7-10 days. It multiplies prolifically in the hot dry climates and spreads quickly from one tree to another and from one area to another through the air. State Agricultural University Scientists and the Department of Agriculture recommended root feeding of 10 ml monocrotophos and spraying of dicophol or wettable sulphur or endosulfan. These measures were costing a minimum of Rs. 25/ tree for the complete schedule. Better results were only expected when it was taken up by mass action and combined approach which was not happening. Hence could not control the pest.

Natural enemies like *Hirsutella thompsonii* were identified at Project Directorate of Biological Control, Bangalore and developed it as a Mycoacaricide "Mycohit". To help the farmers out of this situation, BCT – KVK approached the scientists at PDBC and with their assistance KVK started a trial first of its kind in the state with the participation of farmers in selected fields in Rambilli and Govindapalem villages.

Mycohit samples were supplied by the PDBC . 50 plants were selected randomly in three locations of 8 farmers fields for spraying mycohit, 12 plants were selected for treatment with monocrotophos root feeding and 12 plants were selected as untreated checks. Pre treatment data was collected to know the level of infestation. Two litres per tree of 1% spray fluid was sprayed on the 50 plants twice at 3 weeks interval. The sprayings were done by the farmers under the supervision and instructions of the KVK scientists. The other required inputs were given by KVK. Apart from these sprays other management practices like clean cultivation i.e. removal of dried leaves and inflorescence and regular manuring and irrigating were recommended to the farmers.

### 5.3. Other Success stories

Scientists of BCT – KVK visited Dimili, a Paddy mono-cropping village in October, 2002 as part of their regular field visits. In that village while they were assessing the losses due to drought in paddy, one old farmer of that village "Ganta Demudu" expressed his childhood experiences that in yester years millets like Ragi, Bajra and Jowar used to help them to tide over drought situations. But, now a days farmers have forgotten the cultivation of these millets and were interested in paddy only due to which the farming community is facing difficult situation whenever the monsoons fail.

Then the KVK scientists suggested to try a new variety of Ragi "Champavathi" and supplied the seed to him to demonstrate the importance alternate irrigated dry crops instead of paddy during drought conditions. The farmer has taken up the cultivation of ragi, the only green patch of field among fallow paddy fields in the taking up alternate crops. The farmer expressed his happiness with the scientists of KVK when they visited his field. He also told that other farmers of the village were asked to supply the seed for the next year. He harvested about 320 kg. From 40 cents of land and the major part of the produce is sold as seed fetching him higher returns. The KVK scientists in their visits during July'03 to this village saw that due to the above demonstration area under Ragi increased many folds.

K. Penta Rao is a small farmer of Haripuram village he took up Bajra in an area of 40 cents after this he took up chilly crop. At flowering stage the crop was heavily attacked by mites the leaves curled into inverted boat shape and the plants became stunted. There was a heavy flower drop. The villagers advised him to remove the crop & take up some other crop, as they believed that there is no control measure for this condition of the crop. As a last resort he approached KVK Scientists. They visited his field and gave appropriate advises on the control measures. They made periodic follow-up visits. Penta Rao followed these advises. The crop completely recovered and he achieved high yield 4 quintals this season compared to all other chilly farmers in the surrounding villages. Sri Ganta Ramana is an enthusiastic farmer of Penugollu Dharmavaram village in S.Rayavaram mandal, having good rapport with BCT - KVK and procured 2kgs of YLM – 11 variety of sesame seed from KVK. He has taken up this crop in 0.32 hectares after harvesting paddy. KVK Scientists regularly visited his field and gave required suggestions. The plot attracted many farmers from nearby villages as they found a drastic difference in the locally grown varieties like Tara Nuvullu or Pyru Nuvullu. Ramana realized a yield of 240kgs from his plot whereas his neighbours could harvest around 187kgs from same area plots, showing an increase of 28.3%. Farmers procured the seed from Ramana and spread it in an area of 80 acres in the next season in nearby villages. He has sold all his yields as seed at a premium price of Rs.25/kg compared to local variables at Rs.18/kg. He got an additional income of Rs. 2634 / 0.32 hectares. After the taste of his first success he is taking up seed production in sesame.

In a potential patch of paddy growing area non-availability of quality seed was a major problem. Dealers many times sold spurious and old seeds. To help the farmers to overcome this situation BCT-KVK brought foundation seeds of the locally popular varieties of paddy from Ragolu research station and supplied to the farmers for multiplication. Manchala. Baburao is one such farmer from marrripalem village of Rambilli mandal. He has taken up seed production of RGL-2538 in half acre initially. He followed precautions and suggestions advised by the KVK Scientists from time to time. He got 10 quintals of seed, which is supplied, to the farmers from in and around his village. He was happy to get almost double the income he used to get from one acre by becoming a seed farmer.

The farmers in the village Pallapusomavaram of Kasimkota mandal were traditionally growing only Ramasagaram (AKP – 12) variety of paddy. It was coarse grain variety yielding about 11 – 14 q / acre only. The farmers preferred it as it was consumed by themselves and also yielded more straw for their cattle.

BCT-KVK intervened under such circumstances and selected three farmers viz., Sri Karanam Kondal Rao, Sri Karanam Krishna and Sri Karanam Ramarao to take up high yielding varieties MTU 1001 and RGL 2537 as a trail. Two farmers took up MTU 1001 and one farmer took up RGL 2537 in an area of 50 cents each in the kharif of 1996. The KVK scientists regularly visited the plots and guided them in implementing the recommended package of practices through advisory services and training programmes. They achieved higher yields compared to the Ramasagaram variety and also had added benefits like non lodging, suitability to saline patches, medium type grain and also more straw yield.

The economics of the trial were (as per 1996 prices):

		MTU 1001	RGL 2537	Ramsagaram
<b>A</b>	Total cost of cultivation (Rs)	1693	1656	1255
	Total yield / acre (Kg)	1570	1890	735
	Price (@ 70 Kg / bag) Rs / bag	300	300	300
<b>B</b>	Sale value (Rs)	6728	8100	3150
<b>B-A</b>	Profit or return (Rs)	5035	6444	1895
	Benefit/cost	2.97	3.89	1.51

Table 1

After this trial the other farmers from the village also started cultivating these varieties and since 1996 Ramasagaram variety has been completely replaced by RGL 2537 and MTU 1001 in this village and neighbouring areas.

#### 5.4. Mixed Vegetable Cultivation – A Sustained Cropping System

In the dryland patches of BCT-KVK operational area farmers have developed a sustained farming system with the help of KVK scientists. In this system the farmers adopted mixed vegetable cultivation. In one of the case studies Mr. Viyyapu Appa Rao from Haripuram village has grown crops like Brinjal, Pumpkin, Bindi, Lablab, bottle gourd, Chillies, tapioca and flower crops like a chrysanthemum in an area of 0.3 acres of Redcsandy soil. After sowing different vegetable seeds irrigated the plot continuously for eight days with pot irrigation. Afterwards the crop survived with rain water. He has taken up Inter Cultivation practices thrice during cropping duration and applied 4kgs of urea apart from 2 tons FYM, since the soil is rich in available Phosphorus and Potash fertilizers. He has applied pesticides six times during the cropping period. He got a net income of Rs 5000 / 0.3 acre within a short span of three months.

#### 5.5. Organic Farming – Vermicomposting

Kali Mavulaih a progressive farmer from Dhoerla village of BCT – KVK operational area. Under guidance from KVK scientists he cultivated Bhagmathi variety of brinjal in 16 cents area of which 6 cents is allotted for organic farming by using vermicompost and farm yard manure and in remaining 10 cents area he cultivated brinjal by using chemicals. He got an yield of 800 kgs in test plot and 600 kgs in control plot. The quality and size of the brinjal grown in test plot with vermicompost is good. He got an additional income of Rs. 1600 by using vermicompost. He marketed all the produce in Rythu bazar in Visakhapatnam.

Pusarla Rama Rao of Chodavaram is a resource rich farmer who is one of the farmers to take up the paddy cultivation in Kharif '03 in "SRI" method of cultivation under the supervision of KVK scientists. He took SRI cultivation in 16 cents area using NDLR-8 (a medium duration fine grain variety being introduced by KVK). He followed the recommendations of the KVK Scientists and raised the paddy nursery in tiles and transplanted at the age of 10 days. Though he faced difficulties in maintaining optimum moisture due to failure of motor during the crop season, he harvested 600 kg of paddy. He also took up cultivation of Srikakulam Sannalu (RGL-2537) under normal practice and harvested 2100 kg from one acre. Enthused by the increased yield with low seed rate and low water required Rama rao has taken up NDLR- 8 cultivation in 2 acres land under "SRI". The neighbouring farmers who visited his plot are also impressed by the difference visible between the two methods of cultivation. NDLR – 8 is gaining popularity among the farmers in that village due to its fine quality and high yielding potential.

Dopperla, a village in Atchuthapuram mandal, where most of the farmers grow vegetables viz., brinjal, chillies, cucumber, tomato, ridge gourd, bhendi and leafy vegetables from long time. But due to excess growth of cyperus, commulina, Chloris barbata (Rhodes grass), cynodon and some other weeds, their yields were reduced drastically from past few years. Last year based on the suggestions of Zonal Coordinator we have adopted this village as one among our cluster villages. After adoption of this village we have conducted demonstration and training with Glyphosate along with Ammonium sulphate as tillage herbicide in the field of Kolli Chitemma to control the weed growth. After spraying of this chemical, weed growth was very much reduced. Farmers in this village were very much impressed by this demonstration.

They sprayed the same herbicide and reduced the weed growth in their fields.

Small Agri-Business Development of BCT-KVK in its efforts to empower the rural youth and Farm women has identified and selected two rural youth and a youth from semi urban area after looking their enthusiasm, aggressiveness and interest in sales of rural

Micro Enterprise products. These youth were been identified in one of the village visits by SABD. They held the discussions with them on their interest and motivated, trained them in selling the rural products. These three rural youths were from different places, one is from pallapusomavaram village, one is from Panchadarla village and one is from Kurmanapalem of Paravada Mandal. Mr. Ch. Sathish from Pallapusomavaram completed 10<sup>th</sup> class discontinued inter and searching for jobs because of money problem, then he came to know about SABD training programs and joined as sales trainee. During the training program on campus and off campus (in the field directly) he was imparted with the skills on sales techniques, while in the training period he was trained in direct sales, campaign sales and retail outlets development etc., he was paid Rs.30 and traveling allowance per day. After training he was continuing his work as sales person in their village for selling their village SHGs products. This training program on sales has served his purposes and improved their family status, as now he was earning Rs. 50+ per day.

Ms.G. Rambabu a youth from Panchadarla after completing 10<sup>th</sup> class he came to know about SABD training program on sales and joined it. While in training period during on campus and off campus he was imparted with all the sales techniques and methods, he was paid Rs.30 per day. After training he was now joined private company as sales person and earning Rs.40 per day. This training program improved their family status.

Mr. A.Bhanu prakash a student from Kurmannapalem of paravada mandal had visited one of SABD campaign sales at vizag and approached our Scientists for training on sales. He was a graduate and pursuing Post graduation in Management as a part of his curriculum he joined the training program and learned the entire sales techniques and methods etc. After training he was now appointed as a sales executive in a pesticides company and he was also doing a part time job as commission agent with SABD. He was now earning Rs. 75 + per day and commission percent on the sales made from SABD. This training program helped in getting good job and improved their family position.

Chinni Dhanunjaya Rao, is a Matriculate student from Uppavarm village of Atchuthapuram Mandal. His family financial position doesn't permit him to go for higher studies. At this stage he attended the "Yuva Shakti Sibiram" organised by BCT-KVK from 31<sup>st</sup> jan to 2<sup>nd</sup> feb-2004. the Workshop discussed at length on different Youth Empowerment activities and their viability. Out of many Activities like Vegetable cultivation, Tailoring, Detergent & Cleaning powder preparation, Electrical winding & Repairs, Computer training He showed interest in Detergent powder training. He attended a three day training program on Detergent powder & Cleaning powder preparation organized at KVK campus from 9<sup>th</sup> june to 11<sup>th</sup> June-04. He learned Raw material needed, how to prepare the powders & the strategies to be adopted in marketing the product.

Mr. Dhanunjaya Rao made a five member team of Youth from his village to start the enterprise. They put an initial investment of Rs 6,000/- (Rs 1200/ member) procured a raw material of 300 kgs Detergent powder & 250 kgs of cleaning powder. Added to the production cost packing, labelling & marketing charges the cost production of Detergent powder is Rs18.50/kg and Cleaning powder cost is Rs6.00/kg. He sold the Detergent powder at Rs25/kg & Cleaning powder Rs10/kg. They are preparing the product and marketing the product within one week in the near by villages. Their turnover is 4 times a month (once in a week). Mr. Chinni Dhanunjaya Rao is earning Rs2360 net profit / month.

Same is the case with other four members of the team. They gained lot of self confidence through this enterprise. This success story was Broad casted in Etv-2, "Yuva Bharat" program on 02- 09-2004.

## **6. ITKs(Indigenous Technological Knowledges) In Agriculture**

### *6.1.Using Ash For Seed Storage*

Brinjal and Tomato seeds, collected from the fruits, will be dried on beds of ash and allowed for during; the seeds will be rolled back along with the ash bed and will be stored until the next season. This will prevent the attack of pests on seeds.

### *6.2.Weed Control*

On the bunds of the paddy fields weed control is done by following method. A spade will cut a thin layer of earth, along with the weeds and it will be stamped on the same place in reverse direction, so that the weed will go down and it will be covered with the soil. This prevents the propagation of the weeds.

### *6.3.Mechanical Pest Control*

The eggs, larva and adult insects of different sp., on different crops are picked up by hand and pest control will be managed without using any chemicals.

### *6.4.Protecting Nursery Beds From Ants*

For protecting the vegetable seed nurseries from ants, finely grinded ash powder will be put as a band and it will act as a repellent for the ants, those coming to eat away the sown seeds.

### *6.5.Storing Tobacco Seed*

The dried up tobacco plant along with the dried up fruits will be cut from the field and it will be tied up side down above the stove in the kitchen, in such a way that only smoke will reach the plant and not the flame. This smoke will dry the plant and it will be protected from fungal attacks.

### 6.6. Agricultural Calendar

The farmers follow the traditional Calendar for operating different agricultural practices. The whole year will be divided into 27 karthes, each karthe, comprising 12-15 days. The different agricultural operation, from sowing to harvest, in different crops will be practiced as per the scheduled recommendations of this Calendar.

### 6.7. Enriching The Soil For Raising Seed Beds

The place will be selected for raising nursery bed. On that place, animals like Cattle will be stalked at that place. The dry paddy husk and other crops wastes like groundnut husk, dry Bajra straw will be layed down on the floor. These materials along with the soil get soaked with urine and dung of the animals. After some days, the animals will be changed to another place. The soil along with the soaked organic matter will be thoroughly mixed, this results in the enrichment of soil in that particular place. Then the farmers raise the nursery beds of various crops in that particular place. This will help in raising healthy seedlings.

### 6.8. Ash In Preventing Soil Born Pests

Ash will be used in land preparation of Ragi crop. The ash incorporated in the soil will act as repellent and prevents the soil born pests those attacks the crop.

### 6.9. Observing good time to start the Cultivation

On the new year day of the Telugu Calendar the village purohit will tell the most auspicious day to undertake first ploughing of the season, anticipating the rain fall of the season. The elder member of that family will under take a plough in his field on that day in the early hours of the day for the sake of "Muhartham". This is called Donyeru. The real ploughing of the land will be carried out later by the farmers. This will help in utilizing the summer showers and under taking appropriate agricultural operations.

### 6.10. Pegging Goats For Soil Enrichment

Goats are being pegged on the fields where tobacco and chills, over night for 3,4 days depending on the size of the land. The dung and the urine passed by the goats will be incorporated in the soil by ploughing the land thoroughly. This will enrich the soil.

### 6.11. Rain Forecast

The villages nearby the seacoast have been forecasting the rain based on their experience by hearing to the sounds of the sea. They say that based on the changes in moisture in the wind, they can predict whether they receive rain from monsoon or local rain.

### 6.12. Pest Control In Paddy

Paddy at grain filling stage when infested with swarming caterpillars and leaf folders cooked rice mixed with sheep blood is broad castled. These rice halls attract birds to the paddy field and they pick up these caterpillars thus controlling pest.

### 6.13. Sand Spray For Leaf Folder Attack

To prevent leaf folder attack in paddy and ragi, sand is sprayed on the leaves that are wet with fog, so that sand sticks to the leaves. This sand prevents the larva from attacking the crop and feeding on the leaves. The sand also abbreviates the skin of the larvae and causes desiccation and death of the larvae.

## 7. ITK's in AH & Veterinary Science

ITK s in Animal Husbandry and Veterinary Science are mainly related to the treatment of different ailments and other health related aspects. They are presented as per the disease conditions.

### 7.1. In appetite Condition

- Medicine : Aizwan –50gms +salt –little.  
Preparation : Mix the two, grind to powder.  
Administration : Add the powder in Sufficient water –Daily once –give for two days.
- Aizwan, Dry Ginger , Asafetida, Jaggery and Salt –about 25 g each.  
Mix ,Grind to paste.  
Apply the paste on tongue.

The preparations used in the above medicines are believed to increase the appetite by stimulating the secretion of digestive juices. Many farmers of the KVK operational area do practice these ITKs.

### 7.2. Stomach Ache / Impaction

- Medicine :Take a banana fruit and make pieces of it. These pieces are to be dipped in gingelly oil for sometime and administer then to Calves suffering from stomach ache ,Once daily for two days .This is very effective in Case of Calves. Banana in oil helps in digestion and relieves the impaction, according to the farmers.

- Take *Holarrhena antidysentrica* ( Palakodisha / Palakonda ) Roots grind the roots and take the juice extract. Take Some pieces of earthen pot, heat then and dip them in the juice extract and remove. Then take about 200ml –give twice daily for two days.

### 7.3. Bloat

- Dry ginger – about 50 gm +pepper – little about 10 gm.  
Grind them to powder  
Add water and give to the animals as a drench.
- Aizwan –about 50 gm  
Salt - 50 gm grind and add to half a liter of water than drench at once.

The above preparations are thought to relieve the gas / froth produced in the stomach during the bloat condition. Many farmers use these preparations for their animals.

### 7.4. Worm Infestation

- *Holarrhena antidysenticva* -(Palakonda )  
Take little powder of Palakonda stem and add in 200ml of water then administer as one dose.
- *Aristolochia bracteolata* ( Gadida gadapa )  
Take leaves of the above, about 50 gm – grind to paste  
Apply on navel - once for one day only.  
Best for calves of cows and buffaloes

### 7.5. Enteritis / Diarrhoea

- Take Leaves of *Phyllanthus reticulates* (Puredu) –about 100 gms.  
Grind to fine paste. Add about 150 gms Ragi flavour to it. Make a bolus and then administer to the animal. Give one time a day for two days.
- 150 gm –leaves of *Phyllanthus reticulatus* + 150 gm –Banana  
Grind the two and add to 150 gm Ragi flour. Make the above mix into three equal parts and administer to the animal three times a day. Puredu leaves act as astringent and thus arrest the diarrhoea. Ragi flour provide energy.

### 7.6. Wounds

- Neem leaves –adequate + about 10 Black pepper granules  
Grind the two and apply the paste on wound.
- *Achyranthes aspera* (Uttareni) Leaves –adequate  
Take extract of the leaves and apply on the wound region .one time daily for 3- 4 days.  
(This is mostly used in the case of yoke gall or B.Q lesions.).
- *Coccinia indica* (Kaki Donda) Leaves – about 4+ *Achyranthes aspera* leaves –4  
Take extract of the two –Apply two drops of the extract in between the two horns and the rest to the base of horns.  
The remnant Leaves are to be on the wound.  
(This is mostly used for the wounds caused by plough).

### 7.7. Foot Lesions Of FMD Like Diseases

- *Annona Squamosa* (Seethaphal ) leaves – 50 gm.  
*Jatropha gossypifolia* leaves – 50gms.  
Fine grind to paste .Apply on the lesions. Daily once – for 4-5 days.
- *Annona Squamosa* leaves + *Strychnos nox vomica* leaves +*Jatropha* leaves  
Take 25 gm leaves of each of the above and add little Tobacco.  
Grind to fine paste and apply to the foot lesions .

### 7.8. Sprains

- *Cassia auriculata* (Tangedu) leaves –adequate –grind the leaves and add water and then heat to fumes. Then take warm leaves apply on the sprain area, put bandage .  
Daily once – for three days.
- Leaves of *Tamarindus indica* –adequate. Grind to fine paste .Apply on the sprain area and put bandage.  
Daily once – for three days.

### 7.9. Anaestrus

- 3 Kgs. of Brinjal fruits :  
Grind and administer to the animal daily .Give for 3 days continuously. Then the animal will come to heat after two weeks. This is believed to stimulate the follicular growth and ovarian release.

## 8. ITK s in Health & Nutrition

### 8.1. Kayam Recipe For Infant Mothers

This is a popular and special recipe given to mothers from 3<sup>rd</sup> day to 9<sup>th</sup> day after delivery.

The ingredients of this recipe include:

- Nutmeg (Karakkaya) - 2No
- Induva - 2No
- Turmeric - 1No
- Papilla - 25gm
- Aizwan(---) - 25gm
- Cumin(Zeelakarra) - 10gm
- Dry ginger - 25gm
- Black pepper - 25gm.

All ingredients except Aizwain & Cumin are boiled & in this water the Aizwain & cumin are tied in a cloth & put in it & boiled. Then the ingredients are made into a paste. To this little till oil or gee and half a kg of Jaggery powder. The whole paste is fried till it doesn't stick to hands. Then it is fed to the mothers along with rice. This recipe is given for body strengthening, proper regression of uterus and for other health reasons.

### 8.2. Syrup For Recently Delivered Mothers

The neem seed kernel is taken and grind to paste. Then the paste is boiled in tamarind juice for some time and the syrup thus prepared is given to recently delivered mothers. This is given especially for deworming purpose and it is also believed to help in uterine regression.

## 9. Conclusion

BCTKVK is doing lot of work in Visakhapatnam District to empower the Rural and Farming community through On Farm Testing, Frontline Demonstration, Trainings and Extension Activities as a Mandate given by ICAR (Indian Council of Agricultural Research), New Delhi, Ministry of Agricultural, a GOI Project.

## 10. References

1. GOI, DARE, Reports(1978-83)
2. ICAR Reports (1975-2011)
3. BCTKVK reports (2010-13)