

## Report on Demo Plots

### **Introduction:**

In Anantapur district rain fed farming has become a very high risk, especially for the small and marginal farmers due to erratic rainfall year after year. The recurring droughts have become a common phenomena. About 90% of the farmers are small and marginal. They are forced to give up farming as the cost of cultivation is increasing, and they are not assured of crop yields. Since many years AF has been exploring various possibilities of making rain fed farming a profitable and assured source of income. AF has been collaborating with reputed research organizations and scientists in this process.

In the beginning of the year 2009 the senior staff of AF visited ICRISAT, Hyderabad and studied some Sustainable Agriculture models developed for rain-fed areas. AF took initiative and developed three models for rain fed areas. These models include 1. IFS (Integrated Farming System) 2. M.C.S. (Multiple Cropping System). 3. IBM (Intensive Bio-mass development). Then AF developed one more model called BIFSRA (Bio-intensive Farming System in Rainfed Agriculture), in consultation with Dr. Om.P.Rupela, a renowned scientist. He was formerly working with ICRISAT and now he is also a consultant for FAO (Food and Agriculture Organization). Dr. Rupela is also providing hand holding support to AF in implementing BIFSRA model. During this kharif season, all these 4 models have been implemented in project villages on experimental basis with the participation of selected farmers. **Totally 43 IFS plots 8 BIFSRA plots 43 IBM plots and 86 MCS plots have been implemented in 180 villages with 280 farmers.**

**The over all objective for all the Demo plots is to successfully demonstrate Sustainable Agriculture at farm level under rain fed conditions that is economically and ecologically viable even in a drought prone district like Anantapur.**

### **1. Integrated Farming System (IFS) PLOTS:**

In each IFS plot of 2.5 acres rain fed land, perennial fruit crops like Mango, Sapota, Custard Apple and Amla have been planted under 3 methods i.e., (1) Rock wool (2) Mother womb and (3) Common method. All three methods are specially designed in terms of pit size, spacing between the plants, planting and watering in order to ensure maximum survival with less water. Apart from the fruit plants, perennial fodder and bio-mass plants like Pongamia, Casia Siamea, Subabul, Sesbonia, Glyricidia etc have been planted on the field borders apart from the seed dibbling. Diversified seasonal crops including food crops like groundnut, millets, pulses and vegetables are sown in the land. Fodder and vegetables are also grown in these plots in about 30 cents each. The farmer can rear 2 or 3 dairy animals and 2 or 3 small ruminants with the available

grass fodder from the 2<sup>nd</sup> year onwards. Bio-fertilizers like Jeevamrutham, Vermi Compost and Fly Ash have been applied for each fruit plant for quick establishment and better survival. The details of fruit plants planted under 3 methods in each plot are as follows :

Sl.No	Name of the plant / variety	Rock wool method	Mother womb method	Common method	Total
1	Mango	20	20	5	45
2	Sapota	20	20	4	44
3	Custard apple	17	15	8	40
4	Amla	18	15	3	36
	<b>Total</b>	<b>75</b>	<b>70</b>	<b>20</b>	<b>165</b>

Totally 7640 fruit plants have been planted in 43 IFS plots in 43 villages covering 43 farmers in the project Area.

Once these fruit plants start yielding the farmer will be getting income through out the year as the different plants yield in different seasons. Thus the income will be stabilized from all the above sources if this model succeeds. The farmer will also get green matter for Bio-fertilizers through Bio-mass plantations and need not depend on external inputs.

## **2. Bio-Intensive Farming System in Rainfed Areas (BIFSRA) PLOTS:**

In each BIFSRA plot of 2.5 Acres alleys at 50 feet interval are made by ploughing. Fruit plants like Mango, Amla, Sapota and Custard apple have been planted in the alleys. In between the fruit plants fodder and forest species seed like Subabul, Sesbania, Pongamia, Glyricidia and Casia Siamia have been dibbled. The same seed is dibbled on the field borders also. For each plant 5 Kgs of Vermi Compost, 5 liters of liquid Jeevamrutham, Fly Ash are applied for better growth and survival. Staking is done for each plant. A specially designed method called "Mother womb method" has been followed for planting fruit plants ( In this method pit is dug in concave shape with 60 mm diameter and 30 cm deep. The depth and diameter may vary with age and size of sapling)

On an average 75 Mango, 49 Sapota, 28 Amla and 30 Amla (Total 182) plants have been planted in each BIFSRA plot. **Totally 1570 fruit plants are planted in 8 BIFSRA plots covering 8 farmers in 8 villages of the Project Area.**

Once these fruit plants start yielding the farmer will be getting assured income through out the year as the different variety of plants yield in different seasons, apart from the income that comes from the annual crops like ground nut, millets, pulses and vegetables. Thus the income will be stabilized from all the above sources. The farmer

will also get green matter for Bio-fertilizers through bio-mass plantation and he need not depend on external inputs as fertilizers.

### **3. Multiple Cropping System (MCS) PLOTS:**

**The objective of the Multiple Cropping System is to achieve food and nutritional security for the rural community through diversified cropping under rainfed conditions that is economically and ecologically viable**

In each multiple cropping plot of 2.5 Acres, 1Ac. of Groundnut with intercrop, 30 cents of pure castor, 30 cents of pure Redgram, 30 cents of pure Jowar , 30 cents of pure Bajra, and 30 cents of pure vegetables have been sown. In each Demo plot 10 cart loads of F.Y.M (Farm Yard Manure) and 8 cart loads of Tank Silt has been applied before sowing. There is good response from the farmers as the investment is not so high for sowing multiple crops. And more over there is minimum guarantee of getting yields at least from one or two crops. The farmers have invested about Rs. 3000 and the expected yields are:

<b>Crop</b>	<b>Groundnut</b>	<b>Red Gram</b>	<b>Castor</b>	<b>Bajra / Korra</b>	<b>Jowar</b>	<b>Vegetables</b>	<b>Total</b>
Yield in Kgs	120	30	100	50	100		
Worth in Rs.	4400	1200	2000	400	1200	800	<b>10000</b>

Multiple cropping is considered as one of the drought proofing mechanism / system in Anantapur District. **Totally 86 Multiple Cropping Plots have been implemented in 43 clusters covering 86 farmers in 43 villages of the Project Area.**

Under the normal weather conditions the farmer will get stabilized annual net income about Rs. 7000/- from 2.5 acres of land and have food and nutritional security not only for the family but also for the cattle from both commercial and food crops (fodder).

### **4. Intensive Biomass (I.B.M.) Plot :**

The objective of the IBM is to successfully demonstrate on farm bio-mass production for improving soil fertility and carrying capacity of the land and in turn promote organic farming.

In each cluster one plot with 10 ha. of land has been selected for developing bio-mass. The forest species seed / plants like Pongamia, Glyricedia, Casia Siamea, Subabul and Sesbania were dibbled / planted on the field border bunds during the rainy months of July, August and September 2009. When there was sufficient moisture in the field

bunds. Totally seed dibbling and plantation has been done in 4300 ha. of land in 43 clusters of the Project Area. About 3,00,089 dibbles and 14900 plants have been dibbled / planted. The survival is 90% in seed dibbling and 95% in plantation. Provision for critical watering and gap filling is made for the 1<sup>st</sup> year i.e., 2010 for better survival of the plants.

The yield (availability of Bio-mass / Green matter) will start from 3<sup>rd</sup> year onwards. It is estimated that about 20 tonnes of green matter (worth Rs. 20,000) will be harvested in 2 cuttings / loppings a year which will give sufficient compost for the 10 ha. plot. Because of the production of Bio-mass the farmer will be saving the investment (about Rs. 20,000/-) on fertilizers for 10 ha. of farming land. He need not depend on external inputs like chemical fertilizers. Thus the IBM production will play pivotal role in promotion of Sustainable Agriculture.

A part from the fruit plants and Bio-mass plants 33100 Agave plants have been planted in 8 BIFSRA and 43 IFS plots.

⇒ **Farmer's participation in Demo plots**

- Assisting the staff (STO/FC/AO) in Marking, Alignment and Planting the plants accordingly.
- Staking, Fencing, Mulching and Weeding on regular basis
- Application of organic fertilizers like F.Y.M Vermi compost and Jeevamrutham
- Dibbling of seed (Bio-mass) in between the fruit plants and field borders
- Regular watering once in 15 days.
- Gap filling in place of dead / dried up plants.
- Sharing of experience and motivation to other farmers.

⇒ **GSS participation in Demo plots**

- Awareness and motivation to other farmers
- Assist the SMGs in selection of Interested Farmers (preference to women farmers)
- Support to the farmers in implementation
- Visiting the demo plots once in a week or 10 days and assist the staff in monitoring the progress.
- Necessary support and suggestions to the farmers and staff.

⇒ **Role of AF staff**

- Awareness and motivation to the SMG farmers
- Timely supply of required material (plants, rockwool blocks, seed etc)
- Strictly follow the technicalities as per the plan.
- Regular monitoring of plots and timely actions (Mortality, Pests, Diseases, Water problem etc)

- Maintaining records (plan, visits, material register, photos, practices followed etc)
- Arranging name boards with all details in each plot.
- Assistance to the concerned farmers in regular management of the plot.
- Arrange field days and motivate other farmers.
- Keep records of expenditure and income for each demo plot.

AF strongly believes that these models will be successful and are replicable.