

## **Drip Revolution - A Granny's Out look**

'What does precision farming mean to the common farmers, apart from its science and technology ' Pennagram is a small village near the main centre of Dharmapuri. We inquired about precision farming to an old lady in the roadside an intuition to know to which level the knowledge has reached. Her replied included all the basics of precision farming namely, Chisel plough, Raised bed, black pipes (meaning drips ), fertilized water ( uranthani fertigation ), drip irrigation, more brinjal, tomato, banana, etc.

There are 5 precision farmers Association in Krishnagiri and 6 in Dharmapuri district. They form the precision farming army. They are on par with any scientist in explaining the latest system of farming. Precision farming has been modified to reach the common villagers. We shall start with granny's words.

### **Chisel plough**

Ploughing is done using tractor. The rear part is removed and the old model plough is fit to it. This is called Chisel plough (Uri kalapai ). This will plough 2 feet deep. The ordinary plough scrapes only the upper surface. Chisel plough, when used for 2 years, becomes highly loose and porous. This helps in deep rooting and aeration below the ground surface.

### **Raised bed**

Making of tall ridges is called raised beds. Beds and channels are used for farming. The beds have 1feet height and 4 feet width. The channels are 1feet deep from the ground surface. Thereby a total of 2feet below the upper surface of bed. In each raised bed two rows of crops are grown at a distance of 3 feet. Banana is raised only in one row on this bed.

### **Drip pipes**

Irrigation is given using drip method. Tubes of finger thickness are used for this purpose. Each lateral unit has two tubes. The distance between two such lateral unit is 1 ½ m or while the distance between two tubes in a single lateral unit is 3 feet. This aids in supplying water to two rows of crops on the raised bed. The drip pipes are fitted with nozzles. The emitters are not kept outside, they are kept within. These are manufactured by Jain Irrigation Ltd. The distance between two emitters is 3feet. Water does not drip throughout, based on the water requirement irrigation is done upto a maximum of 1hr per day. Reduced water usage is one major reason for the success of precision farming in the water scarce Dharmapuri district.

### **Fertigation**

Fertigation is commonly called 'Uranthani'. In the beginning of the drip system (i.e.,) the main pipe, water filter unit is fixed. Close to it is the mixing unit where fertilizers are mixed with the irrigation water. Special fertilizers are used in this system. They are water soluble fertilizers imported from Isreal. Mainly two types of fertilizers are used NPK 19:19:19 and Multi K 13-0-45. one kg of the first and 3kg of the latter is sufficient for 1 acre for 1 time of fertigation. However the periodicity is decided based on the crop growth. Micronutrients named Micnelf is also given in slight dose. The fertilizers are manufactured by Heiff chemicals, Isreal. The required chemicals at the required time in the root zone is the specialty of this system. This saves 50% water over the conventional method.

### **Higher yield in Brinjal**

Our granny says more brinjal, tomato..., Tamilnadu Agricultural University gives the statistics.

S.NO	CROP	YIELD	TONNES/HA	INCREASE %
		National average	Precision yield	
1	Tomato	17.35	150	764.55
2	Chilli	12.02	35	191.18
3	Brinjal	10.46	156	1334.03
4	Ladies finger	6.28	16	154.78
5	Tapioca	25.52	52	103.76
6	Turmeric	4.95	9	81.81
7	Sugarcane	80-100	250	177.77
8	Cotton	15-20(Quintal)	30(Quintal)	111.43
9	Watermelon	12.71	60	372.06
10	AshGourd	21.95	40	82.23
11	Onion	11.32	21	85.51
12	Banana	28.58	110	284.88
13	Cabbage	14.38	120	734.49
14	Cauliflower	14.22	33	132.06
15	Pumpkin	11.91	50	319.81
16	Bittergourd	6.23	15	140.77
17	Ribbedgourd	15.85	34	114.51
18	Bottlegourd	12.21	66	440.54
19	Cucumber	6.48	20	208.64
20	Beans	5.8	12	106.89
21	Beetroot	16.75	35	108.95
22	Rose	10lk stems	25lk stems	150.00
23	Marigold	10	25	150.00
24	Chrysanthemum	8-15	25	117.39

#### Marketing:

The farmers in Tamilnadu never had to search markets for their produce. Kerala is their biggest market. More than 50% of their produce are sent to Kochi market. The best quality goes to safal market in Bangalore where it fetches more prices. The remaining finds place in Tamilnadu markets. Marketing is by collective bargaining by the associations. Moreover, Dharmapuri Producers Company also has created influence.

#### Other details:

Our granny has not done farming. Her words missed out the following – seed, land preparation, nursery, group strength, etc.,

#### Varieties:

The vegetables growers in TamilNadu are different from Keralites. In Kerala, only the subsidized government seeds are mostly used. Whereas in TamilNadu the farmers usually go for hybrid seeds developed by private seed companies. They are ready to pay more than Rs.10, 000/- for seeds alone. The popular seed firms for vegetables are Mahyco, Namdhar and US seeds. In Kerala, seeds of hybrids are used, whereas in TamilNadu, hybrid seeds are used. In the latter, hybrid vigour is more as it is 1st generation of hybrids.

### **Nursery**

The farmers do not raise individual nursery. The associations grow community nursery to meet the demand of its members. Since the seeds are costly, care is taken not to waste even a single seedling. Portrays are used to grow single seedlings. The pits in the portrays are filled with vermicompost and coir pith. One seed is diddled into each pit. When grown up the seedlings are transplanted along with the growth media. Community nurseries are always in poly houses, maintaining temperature by the use of mist irrigation.

### **Land preparation:**

The first step in land preparation is filling using chisel plough. Four types of fertilizers are used. Straight fertilizers (urea, potash ), organic manure (cow dung, poultry manure, vermicompost ), biofertilizers (trichoderma ) and water soluble fertilizers ( 19-19-19, Multi K ). They are applied at four stages of plant growth. i) root fixation (10-15 days ), growing stage (upto 45days ), flowering stage and harvesting stage. The scientist of Tamilnadu Agricultural University has given the exact dose for each of these stages. It is highly precise.

### **Remote sensing:**

Satellite technology has been used but with limitations to get the soil formation map and utilization map. Apart from survey, the area of the farms was also estimated using this technology.

### **ABBREVIATIONS**

In precision farming three abbreviations are commonly used. They are RS, GPS and GIS. GPS means Global Positioning System, which a particular farm or portion of farm is taken up for study using satellite. RS stands for Remote Sensing- which takes data on various aspects of this area. GIS stands for Geographical Information System- which is the use of the data obtained from satellite for various benefits.

### **DEBT TRAP IS AN OLD TALE**

Denkanikotta Taluk in Krishnagiri district is the Telangana of Tamilnadu. The villagers here are settlers from Andhra Pradesh. They speak only Telegu even now.

P.Ramareddy entered into farming 40 years back after he obtained his degree. Earlier farming was lucrative but later it turned to be a total loss. From his 5acres of land, he had a debt of Rs.6 lakhs. In 2004, he entered into precision farming. He was able to repay his debts within 3 years and he has Rs.5 lakhs as his bank balance. Along with him 50 farmers in Sargapalli village have ventured into precision farming.

He has cultivated a total of 25 vegetable varieties, including Cabbage, Cauliflower, Tomato, chilli, Beans, etc., Grand Naine Banana, Ducth rose, Marigold and also Chrysanthemum. This 57 year old farmers is all in all of precision farming, he explains this system more scientifically and truthfully than any other farmers.

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