DRIP FERTIGATION IS BEST SOLUTION TO IMPROVE SUGARCANE PRODUCTIVITY AND SUGAR RECOVERY! –SUCCESS STORY

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ABSTRACT

Sugarcane is a cash crop grown in India, mostly in Uttar Pradesh, Tamilnadu, Maharashtra, Karnataka, Andhra Pradesh, Gujrath. Area under sugarcane in our country is around 46 lakh hectares with average productivity 67 MT /ha. Improper water management and imbalanced nutrition are the major constraints in low productivity. Around 38 lakh ha area is covered under drip irrigation in our country. Maharashtra, Andhra Pradesh, Gujarath, Karnataka, Tamilnadu are the leading states in adoption of this technology. Around 3.95 lakh ha Sugarcane area is covered under drip irrigation in India. Maharashtra is on the top in adoption of drip irrigation in Sugarcane. Drip Fertigation is the best solution to improve productivity of sugarcane n sugar recovery. By adoption of drip fertigation technology farmers yields are increased by 100 %. Farmers are taking more than 250 MT / ha yields in Maharashtra and productivity of Sugarcane in India is just 67 MT / ha. Shri Sanjiv Mane from Sangli is consistently taking more than 300 MT / ha yield from last 18 years consistently. Shri Rupesh Bhimrao Patil from Sangli dist of Maharashtra has harvested highest yield of Sugarcane in world 422 MT / ha. The planting was done in deep black soil with 1.52 Meter (5 feet) row to row distance on 30th June 2014. The crop was harvested on 20th November 2015(16 Months & 20 days age). The inline drip system used is 4 LPH dripper at 0.50 Meter distance & 20 mm lateral. Weekly fertigation was practised up to the 12 month of the crop as per Jain Irrigation Fertigation schedule. Hence adoption of drip fertigation in Sugarcane is need of hour and best solution to improve productivity of Sugarcane and Sugar recovery.

INTRODUCTION

Sugarcane is a cash crop grown in India, Uttar Pradesh, Maharashtra, Gujarath, Karnataka, Andhra Pradesh, Tamilnadu, Punjab, Haryana, MP, Bihar are Sugarcane growing states. Area under sugarcane in our country is around 46 lakh hectares with average productivity 67 MT /ha. Improper water management and imbalanced nutrition are the major and important constraints in low productivity. Change in application methods of these two inputs has proved in improvement of the sugarcane yields. Farmers has adopted drip irrigation technology for most of the fruit crops, vegetables, flowers, and cash crops like cotton and sugarcane. Around 38 lakh ha area is covered under drip irrigation in our country. Maharashtra, Andhra Pradesh, Gujarath, Karnataka, Tamilnadu are the leading states in adoption of this technology. Around 3.95 lakh ha means till today 8.59 % Sugarcane area is covered under drip irrigation in India. Maharashtra is on the top in adoption of drip irrigation in Sugarcane. Drip Fertigation is the best solution to improve productivity of sugarcane. Most of the Sugarcane farmers are irrigating their entire fields not crop. Fertilizers are also applied to land but in drip fertigation both inputs are applied in to root zone of Sugarcane crop. Drip Fertigation also minimizes the problem of soil salinity. By adoption of drip fertigation technology farmers yields are increased by 100 %. Farmers are taking more than 250 MT / ha yields in Maharashtra and productivity of Sugarcane is just 67 MT / ha. Shri Sanjiv Mane from Sangli is consistently taking more than 300 MT / ha yield from last 18 years consistently. Shri Rupesh Bhimrao

Patil from Sangli dist of Maharashtra has harvested highest yield of Sugarcane in world 422 MT / ha. Hence adoption of drip fertigation in Sugarcane is need of hour and best solution to improve productivity of Sugarcane and Sugar recovery. This year again World's highest yield target Sugarcane under Jain drip irrigation and fertigation is demonstrated in the field of Shri Ashok Hindurao Khot, our targeted yield is 200 MT / Acre means 500 MT/ ha.

Application of water soluble fertilizer with pressurized irrigation method is called FERTIGATION. Water use efficiency in flood irrigation is 30 - 35 % and fertilizer use efficiency of conventional fertilizer is about 40 – 50 %. Application of the two inputs with drip irrigation gives efficiency more than 90 %. Fixation of Phosphorus & Potash, loss of Nitrogen due to leaching and evaporation are the drawbacks of conventional fertilizers, and can not applied as per the physiological demand of Sugarcane. Requirement of nutrients Nitrogen, Phosphorus, Potash, secondary and micronutrients is different with the growth phases viz tillering, grand growth phase and maturity. Requirement of nutrients and water can easily fullfilled with this drip fertigation technology.

This technology helps in saving of water by 40 – 50 %, Drip irrigation maintain field capacity always in a soil. Increases yields minimum 25 – 50 %, Also saves 25 – 30 % fertilizers, it improves efficiency of water and fertilizer. It discourage weeds growth. It saves time, labour and energy. and improves sugar recovery by 0.5 to 1.5 % are the important benefits of DRIP FERTIGATION in sugarcane which are beneficial for sugarcane farmers and sugar factories.

Adoption of Drip Irrigation in Sugarcane – Actually adoption of drip irrigation introduced in Sugarcane by Jain irrigation with Biwall tubing drip irrigation system in 1989. Then on line Micro tube and on line dripper system was adopted in Sugarcane. Sugar factories from Maharashtra took initiative to promote drip irrigation in Sugarcane. Maharashtra government also took initiative to promote this technology for Sugarcane and other crops. Jain Irrigation, VSI Pune, Sugar factories, Agriculture department took lots of efforts to convince farmers for adoption of drip irrigation in Sugarcane. Initially it is started with on line drip system and now only inline drip irrigation system is adopted in Sugarcane. Farmers are using drip irrigation as above surface and subsurface. Results of drip irrigation in Sugarcane is amazing. It is helping farmers to overcome problem of water scarcity, electricity problem, labour problem. Now Maharashtra is the first state who has decided to bring entire area of Sugarcane under drip irrigation. Maharashtra, Karnataka, Andhra Pradesh, Gujarath and Tamilnadu are major states in adoption of drip fertigation in Sugarcane. Farmers are traditional fertilizers like Urea, White MOP with drip irrigation through Ventury or fertilizer tank. Automaization of drip irrigation technology is also introduced in Sugarcane. It is in use on 2000 acres area on farmers field at Cane Agro n Energy Raygaon dist Sangli.

Shri Rupesh Bhimrao Patil took world's highest yield of Sugarcane 422.17 MT / ha.

The planting was done in deep black soil with 1.52 Meter (5 feet) row to row distance on 30th June 2014. The crop was harvested on 20th November 2015(16 Months & 20 days age). The drip system used is 4 LPH dripper at 0.50 Meter distance & 20 mm lateral. Weekly fertigation was practised up to the 12 month of the crop as per Jain Irrigation Fertigation schedule.

World's Highest Yield of Sugarcane Success Story

1	Name of farmer	**Shri. Rupesh Bhimrao Patil**
2	Education	S.Y.BA
3	Address	**A/p Tandulwadi, Tal - Walwa, Dist - Sangli**
4	Total area acres	3 acre
5	Irrigated area acres	3 acres
6	Water source	well, river
7	Area under sugarcane	**0.40 ha**
8	Method of irrigation	Surface Drip Irrigation
9	Company	**Jain Irrigation systems Ltd.**
10	Soil	Black Cotton soil
11	Crop	Sugarcane
12	Variety	Co 86032
13	Method of planting	Two eye bud setts
14	Season	Adsali
15	Date of planting	30/06/2014
16	Drip irrigation inline details	Jain Turbo slim 20 mm
17	Lateral to lateral spacing	1.52 Meter
18	Dripper discharge& Dripper spacing	4 lph, 50 cm
19	Age of cane used for seed	8 month
20	Seed treatment	Bavistin 100 gm, Rogor 300 ml in 100 lit water + Humic acid 100 ml
21	Quantity of seed required	4500 Two eye bud setts
22	Mannures & Fertilizers	Rajaram samrudhi 20 bag+ Vermi compost 20 bag
23	Fertigation Schedule	Weekly
24	Water soluble fertilizers	As given in cost of cultivation.
25	Cane population / acre	43,100
26	Hight of cane at harvest	7.00 – 7.25 Meter
27	No. of tillers	Five - Seven
28	No.of internodes	55 – 60-
29	Av. Weight of cane in kg	3.90 – 3.95
30	Yield obtained	**168.87 MT/ acre (422.17 MT / Ha)**
31	Name of Sugar factory to whom sugarcane cane supplied	Rajaram bapu Patil SSK, Islampur
32	Date of harvesting	20/11/2015
33	Cost of cultivation Rs.	**70612**
34	S.cane selling rate Rs.	2525

35	Gross income	**426396.75**
36	**Net income**	**373784.75**

ECONOMICS OF SUGARCANE UNDER JAIN DRIP

Sr. No.	**Particulars**	**Per Acre Drip**
1	Cost of Drip irrigation system with subsidy	21750
	(32625 - 10875 = 21750)	
	A. Life of system years	5
	B. Depreciation 20%	4350
	C. Bank interest 12%	2610
	D. System maintenance 3%	652
	E. Total fixed costs (B+C+D)	7612
2	Cost of Cultivation Rs. Per acre	63,000
3	Total cost of cultivation (1 E + 2)	**70,612**
4	Yield MT/ acre.	168.87
5	Selling price Rs./ MT	2525
6	Gross Income	**426396.75**
7	Net Income	**355784.75**
8	Payback period	**One season**

Conclusion –

India is second country having largest area under Sugarcane followed by Brazil. Sugarcane is only cash crop cultivated under 100 % irrigation. Sugarcane productivity can be easily improved by use of Hi Tech production technology. Drip irrigation and Fertigation technology are important pillars of Sugarcane production. Shri Rupesh Patil and other farmers who are adopting drip irrigation has proved by getting Sugarcane bumper yields. It is also observed that by adoption of drip irrigation and fertigation not only Sugarcane yields are improved but also Sugar recovery improved. Shakti Sugar Madurai has already took separate mill test. Hence drip fertigation is the best solution to improve Sugarcane productivity and Sugar recovery.