WIDER ROW SPACING AND DRIP IRRIGATION IN SUGARCANE – DIFFERENT SPACING, CROP BEHAVIOUR, YIELDS AND RECOMMENDATIONS

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MAJOR COMPONENTS OF CROP PRODUCTION

- SUNLIGHT
- AIR
- WATER
- MACRO & MICRO NUTRIENTS

- SUNLIGHT & WATER ARE ABUNDANT
- DRIP IRRIGATION FACILITATES MOISTURE AND NUTRIENTS
- SPACING DECIDES AVAILABILITY OF SUNLIGHT – BOTH DURATION PER DAY/SEASON & INTENSITY

WATER CONSUMPTION FOR CANE PRODUCTION

	Conventional Crop	Drip crop
No. of irrigations	30	270
Quantity irrigated per ha	500000	62500
Total quantity irrigated (litres)	15000000	16875000
Yield of cane (ha)	112.5	137.5
Water required to produce one T of cane	1,33,000	1,22,700

WHAT IS THE SPACING FOR SUGARCANE?

30cm?

45 cm ?

60 cm?

80 cm ?

120 cm ?

150 cm ?

180 cm ?

240cm?

FEATURES OF SUGARCANE AS ROW CROP

- Cane is adaptable to all situations

***Being a grass and like a grass

even 12,000 stubbles per ha spread uniformly is giving good yield of 120 t

WHY ARE WE PRACTICING REDUCED SPACING?

- Its just because our cultivation is not mechanised
- We used country ploughs for ridging
- We have changed over to tractor drawn ridgers for quite some years only

POINTS TO BE CONSIDERED WHILE PLANNING FOR WIDER SPACING

- Physical and physiological factors affecting tillering ability
- Salinity, alkalinity, water logging during tillering phase
- Fertilizer availability, finance position of the farmer
- Factors that may tend to delay cultivation activities

Spacing has to be decided to suit the convenience of the machinery planned – farm machinery available with the farmer, for taking up inter-cultural operations.

CHOICE OF SPACING TO SUIT INTERCULTURE MACHINERIES:

Row spacing	Where it can be used?
Single row with 120 cm spacing	Where interculture is to be done with power tiller
Single row with 150 cm spacing	Where interculture is to be done with mini tractor
Single row with 180 cm spacing	Where interculture is to be done with narrow tractors
Single row with 240 cm spacing	Where interculture is to be done with conventional tractors
Double row/ double paired row under 1.2 m x 0.75m	Where manual harvesting is planned and interculture is to be done with mini tractor

WIDER ROW FOR DRIP AND CHOICE OF PLANTING METHOD

- Single row versus double row planting
- Spacing between the paired row
- Spacing in double paired row system

LATERAL SPACING, PLANTING METHOD AND SEED RATE

Lateral spacing (cm)	Planting method	Length of furrow in m (per ha.)	Seed rate (nos.per m).
135	Paired row	**7400**	10
155	Paired row	6450	11
195	Double paired row	5125	13
240	Double paired row	4165	15.6

PIT METHOD OF PLANTING

Diameter of pits (cm)	Spacing (cm)	No. of pits	No. of plants to be maintained per pit	No. of canes to be harvested per pit
90	150 x 120	5500	4	20
90	150 x 180	3625	6	28
90	150 x 150	4375	5	23
75	120 x 120	6800	3	15

CHOICE OF VARIETIES FOR WIDER ROW DRIP IRRIGATION

- Variety resistant to Red rot ..etc are to be selected
- Variety has to be profuse tillering

- Available varieties are

  Co 86032 Co V 92102 Co A 90081

  Co A 92081

CHALLENGES IN WIDER ROW PLANTING UNDER DRIP IRRIGATION:

1.Time taken for planting after installation is more. Advance planning is required.

2.Drip system care and maintenance is very vital. If left uncared, will report yield reduction.

3.The capital cost is high.

4.Since the roots do not go deep inside the soil, the crop quickly lodges.

5.Surface drip irrigation does not permit high earthing up

6.Power failure and transformer failure are greater issues in adoption of drip irrigation in India.

ADVANTAGES OF PIT-DRIP IRRIGATION

- Pit system of planting can provide the best yield . SSI can favour even higher yields.
- Pit system of planting under drip irrigation can be the choicest method for small farmer.
- Diesel engines can be perfectly used in pit system of planting.
- Cane can be harvested with in 10 months in tropics.

ADVANTAGES OF WIDER ROW SPACING UNDER DRIP IRRIGATION:

- Sub-surface drip irrigation is the ultimate solution for total mechanisation right from planting till harvest.
- The longevity of the drip system increases.
- This is very ideal for continuous ratooning.
- The drip system can be operated after harvest of cane and therefore the ratoon establishes very well.
- Sub-surface drip irrigation is the best system for water savings, labour savings and fertilizer efficiency.

Farm Mechanization

TRASH SHREDDER


1.95 M SPACING / DOUBLE PAIRED ROW

HON. CHIEF MINISTER OF PONDICHERRY


Mrs. & Mr. Krishnamoorthy
Spacing - 5.0 Ft. Sub-Surface Drip (Previous 3.0 Ft.)
Average Yield – 66 Mt./Ac. (Previous 46 Mt./Ac.)
Extent – 7.00 Ac.
CONVERSION OF NARROW ROW TO WIDER ROW
Harvested by machine

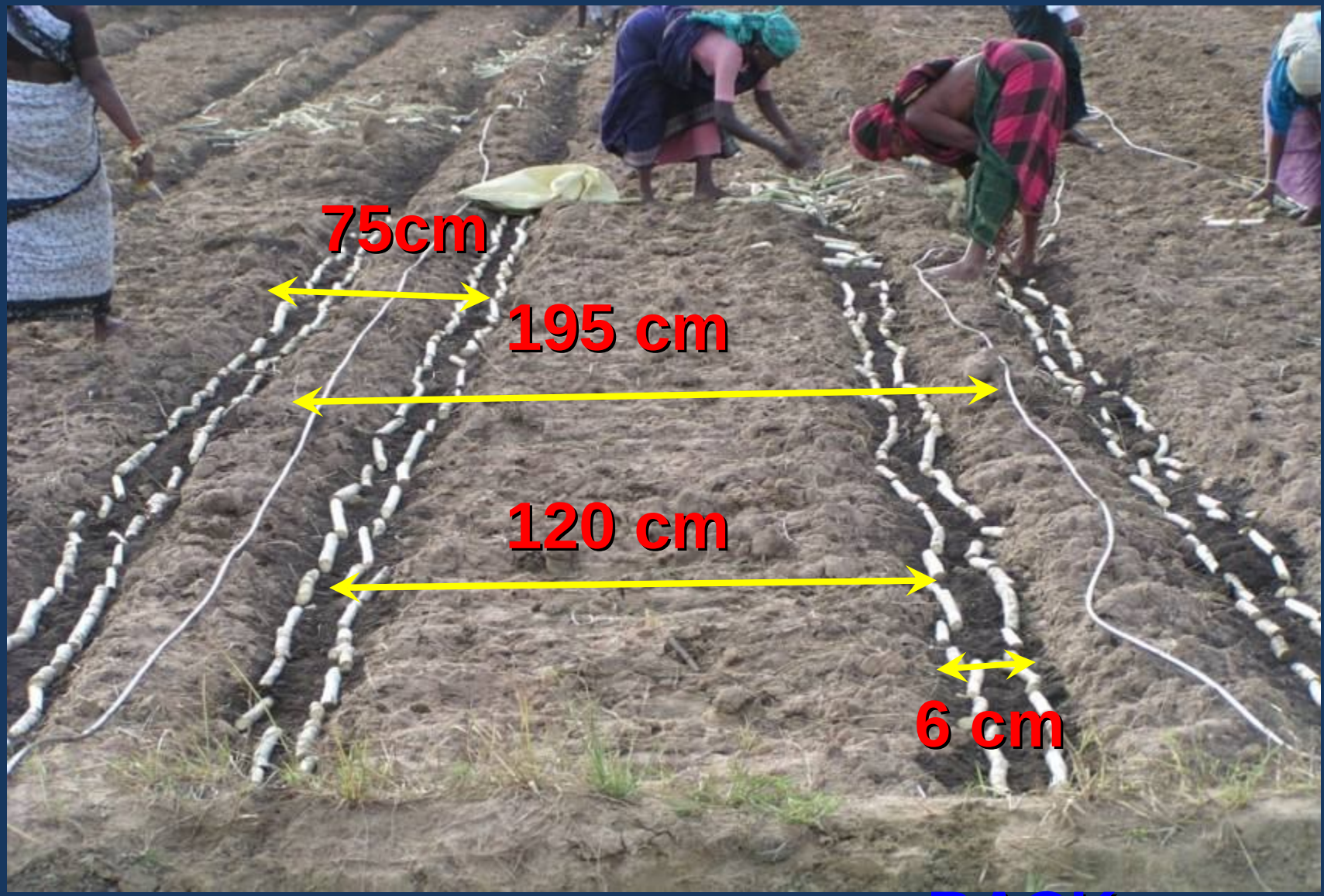
Mr. Subramaniam, Devakottai, Sivagangai

Spacing - 6.0 Ft. (Previous – 4.0 Ft.)
Average cane yield – 70 Mt./ac (Previous 53 Mt./Ac.)
Extent – 6.25 Ac.


Thank you

Field Preparation

DOUBLE PAIRED ROW – SURFACE DRIP



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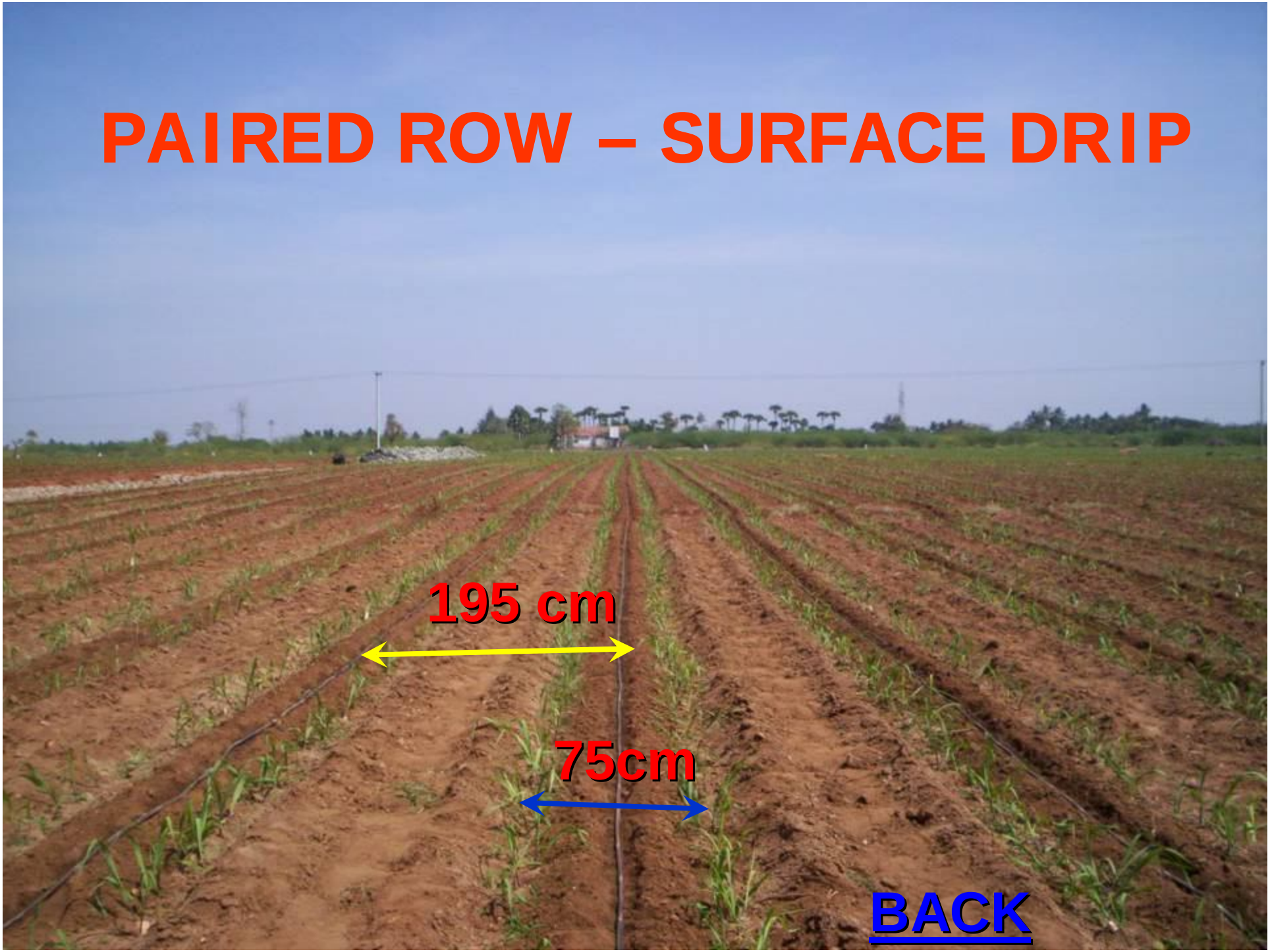
PAIRED ROW – SURFACE DRIP



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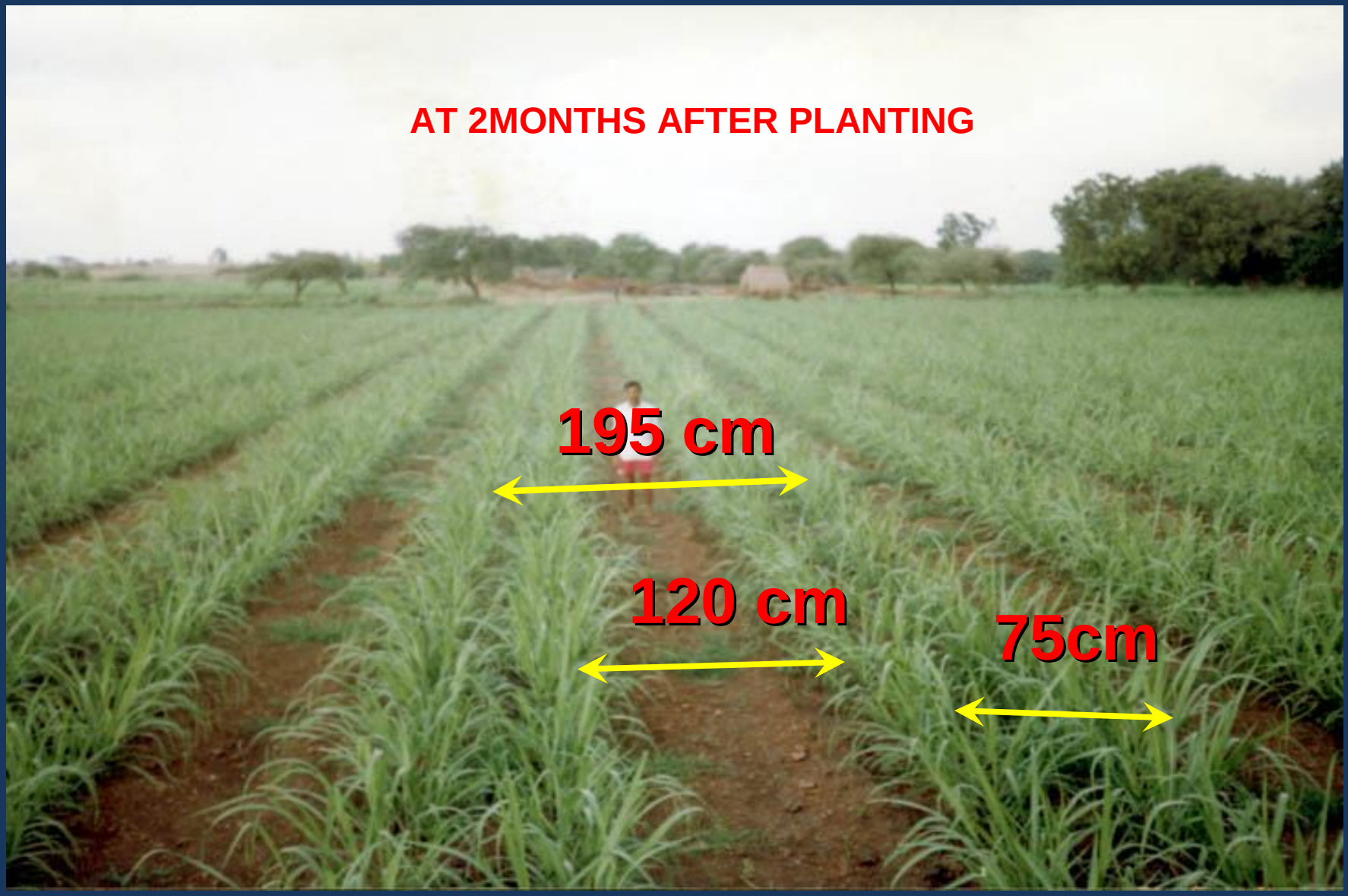

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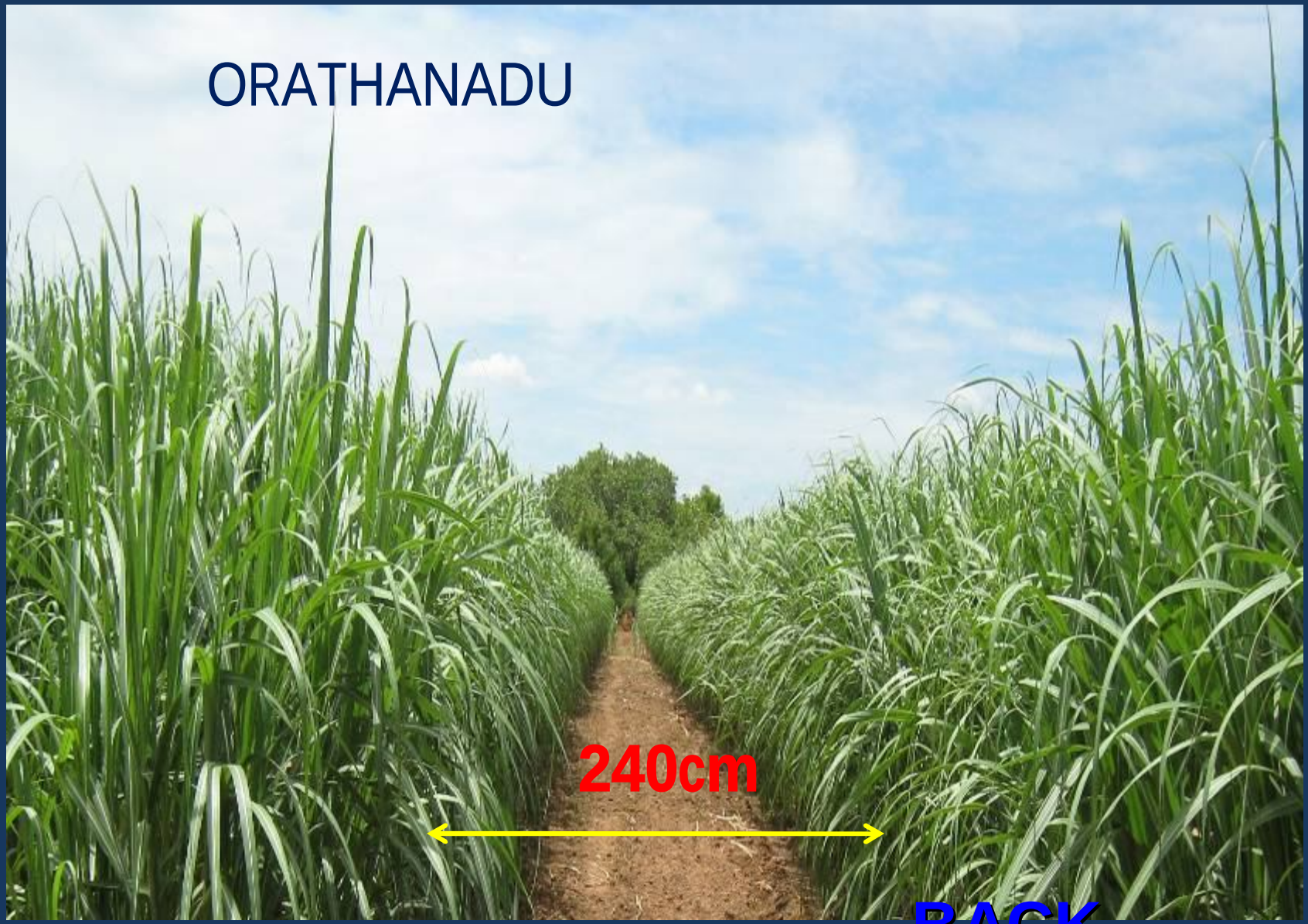

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