REDUCING THE GESTATION PERIOD OF *HEVEA BRASILIENSIS* THROUGH IMPROVED PLANTING MATERIAL AND AGRO-MANAGEMENT PRACTICES

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INTRODUCTION

- *Hevea brasiliensis* - A prominent plantation crop of Indian economy
- Relative share - 8.1% global production
  8.9% consumption
- Kerala - 75% of the national area
  89% of NR production
  (Rubber Board, 2012)
- Share of small holdings - 93% of the total area
  95 % of production

INTRODUCTION

- The lengthy gestation period of rubber is a matter of concern among the rubber farmers, especially smallholders

- The organized research and development (R&D) efforts to reduce the gestation period of *Hevea brasiliensis* across the major producing countries during the past six decades have been primarily guided by the twin objectives of achieving an early farm income and savings in the development cost

GESTATION PERIOD OF RUBBER

- Inherent clonal characteristics
- Type and quality of planting materials
- Edaphic and environmental factors
- Nature of agromanagement practices
- Biotic and abiotic stresses

REDUCTION IN IMMATURITY

SELECTION

- Suitable clone
- Uniform and vigorous advanced planting materials

ADOPTION

- Appropriate agromanagement techniques
- Disease and other stress management strategies

Objective

To develop an agronomic package to reduce the immaturity period of *Hevea*

Experiment details

Year of Commencement	:	2008
Clone	:	RRII 105
Design	:	RBD
Replications	:	3
Location	:	Central Experiment Station, Chethackal (Traditional rubber growing region)

PHYSICO-CHEMICAL PROPERTIES OF THE SOIL

Texture	**:**	**Sandy clay loam**
pH	**:**	**4.83**
OC (%)	**:**	**2.46**
Av.P (mg/100g)	**:**	**1.24**
Av.K (mg/100g)	**:**	**19.33**

TREATMENTS

Planting material

- Green - budded stumps raised in poly bags
- Direct - seeding in polybags followed by green budding

Management options

- Standard practice
- Integrated Management

Integrated Management

Enhanced Nutrient Application

Application of

10 kg FYM
500 g bone meal
500 g ground nut cake
1.5 times the recommended dose of chemical fertilizers

Selective manuring

Application of 1.5 times the recommended dose of chemical fertilizers in 3 splits

Conservation Oriented Tillage

Forking the plant basin
Mulching
Conservation pits @ 250 per ha

Observations

Growth

Soil nutrient status

Leaf nutrient status

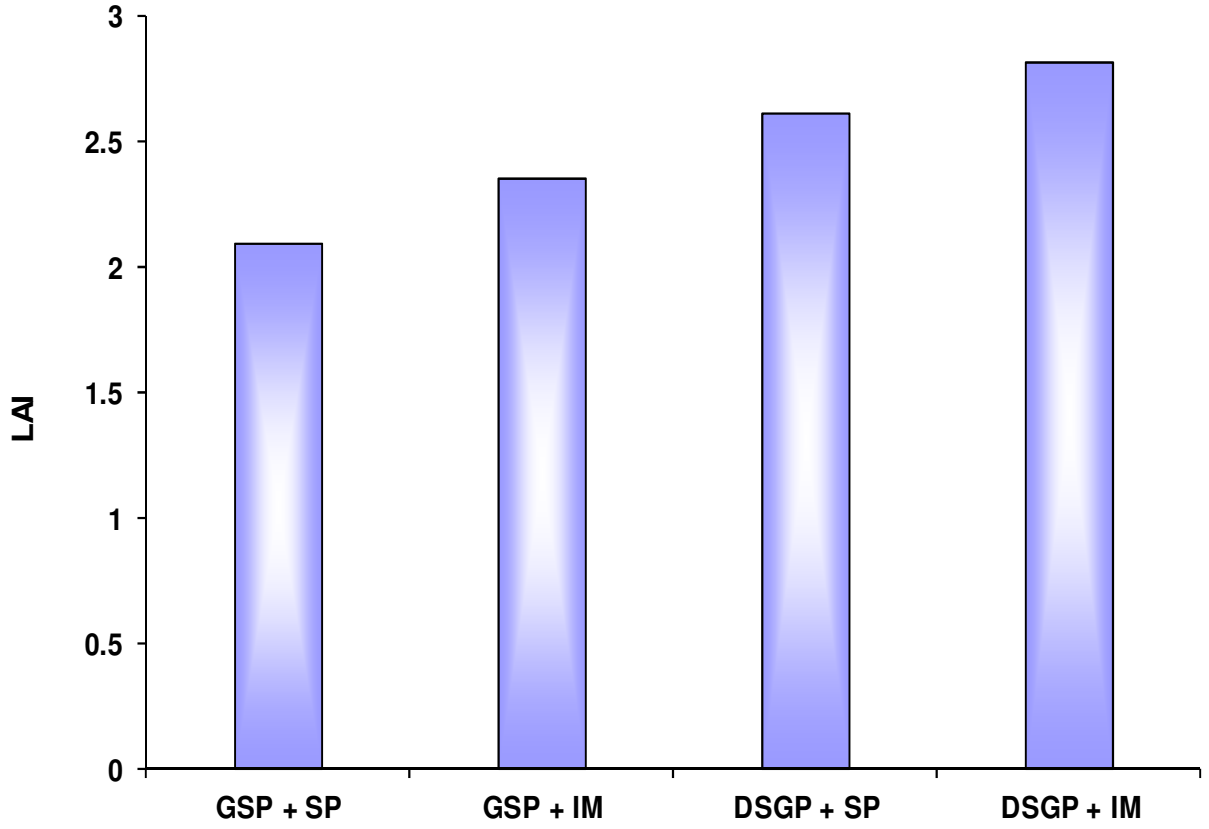
Soil moisture

Bark thickness

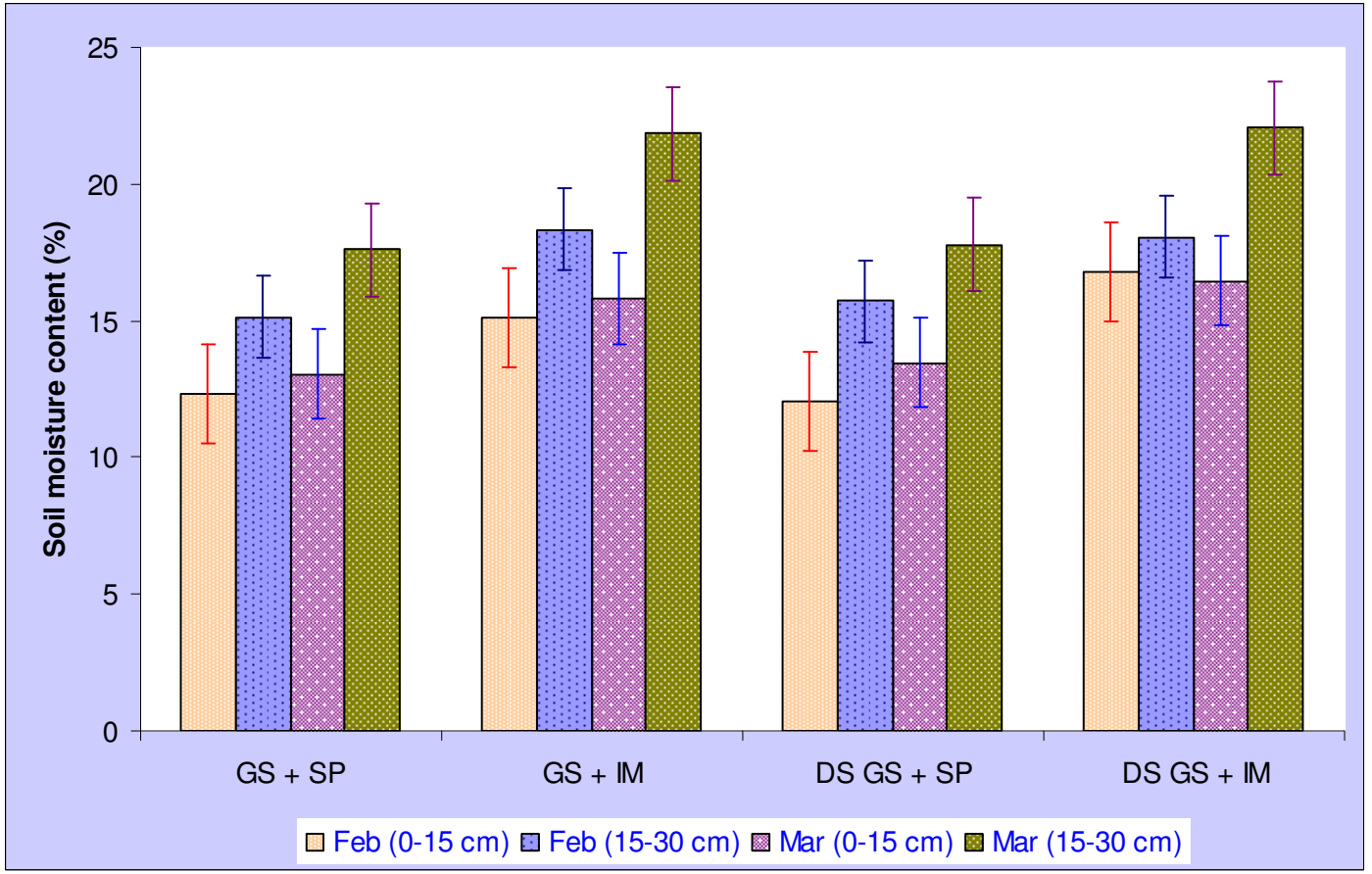
Disease incidence

Results and Discussion

LAI as influenced by planting material and agromanagement practices



Effect of planting material and agromanagement practices on soil moisture status



Effect of planting material and agromanagement practices on soil nutrient status

TREATMENT	OC(%)	Av.P mg/kg	Av.K mg/kg
Green - budded stumps raised in polybags + Std. practice	2.02	8.99	77
Green - budded stumps raised in polybags + Integrated management	2.47	14.29	112.6
Direct seeded green- budded plants + Std. practice	2.11	7.33	78.54
Direct seeded green- budded plants +Integrated management	2.45	13.06	122.10
SE	0.07	2.68	7.5
CD	0.23	NS	23.1

Effect of planting material and agromanagement practices on leaf nutrient status

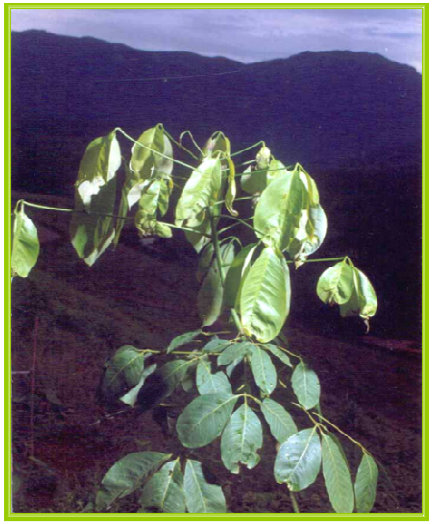
TREATMENT	Leaf nutrient status(%)		
	N	P	K
Green - budded stumps raised in polybags + Std. practice	2.99	0.18	0.83
Green - budded stumps raised in polybags + Integrated management	3.50	0.18	0.88
Direct seeded green- budded plants + Std. practice	3.20	0.18	0.93
Direct seeded green- budded plants +Integrated management	3.44	0.19	1.06
SE CD	0.22 NS	0.004 NS	0.02 0.08

DISEASE SEVERITY

Phytophthora leaf fall

Phytophthora shoot rot

Colletotrichum leaf disease



Mild to moderate

Effect of agromanagement practices on pink incidence

TREATMENT	Pink incidence (%)
Green - budded stumps raised in polybags + Std. practice	23.04
Green - budded stumps raised in polybags + Integrated management	23.45
Direct seeded green- budded plants + Std. practice	24.26
Direct seeded green- budded plants +Integrated management	22.19
SE CD	2.2 NS

Disease incidence was not influenced by treatments

Effect of planting material and agromanagement practices on bark thickness

TREATMENT	Bark thickness(mm) Dec/13
Green - budded stumps raised in polybags + Std. practice	7.24
Green - budded stumps raised in polybags + Integrated management	7.46
Direct seeded green- budded plants + Std. practice	7.32
Direct seeded green- budded plants +Integrated management	7.86
SE CD	0.12 0.39

Effect of planting material and agromanagement practices on growth of rubber

TREATMENT	Girth(cm)			
	Feb/11	Jan/12	Jan/13	Mar/14
Green - budded stumps raised in polybags + Std. practice	20.67	28.14	38.43	48.30
Green - budded stumps raised in polybags + Integrated management	22.01	30.44	41.29	46.88
Direct seeded green- budded plants + Std. practice	23.91	31.58	42.28	47.76
Direct seeded green- budded plants +Integrated management	26.17	34.10	44.78	50.64
SE CD	0.21 0.65	0.39 1.16	0.29 0.88	0.45 1.39

EFFECT ON PERCENTAGE TAPPABILITY AS ON 3/11

TREATMENT	Percentage tappability Mar,14
Green - budded stumps raised in polybags + Std. practice	19
Green - budded stumps raised in polybags + Integrated management	39
Direct seeded green- budded plants + Std. practice	53
Direct seeded green- budded plants +Integrated management	68
SE CD	4.1 12.7

Agromanagement practices have a profound influence on growth of rubber

CONCLUSION

The experiment clearly indicates the feasibility of substantially reducing the immaturity period of rubber through the adoption of improved agromanagement techniques


THANK YOU