Panam Irrigated Plantation Project Area Administrative Details

Sr. No.	Name of Irrigated Range and area in Ha	Name of Round	Name of Beat	Total Forest Area in Ha. As per G. R.	Forest Area Diverted other purpose (in Ha.)	Net Forest Area (in ha.)
1	**Godhra 1927.34** Ha.	(1)Karasana	(1)Karasana	534.66	34.41	500.25
		(2)Isarawadi	(2)Isarawadi	370.99	13.03	357.96
		(3) Rena	(3)Rena	580.44	9.62	570.82
		(4) Dhanitra	(4)Dhanitra	527.91	29.6	498.31
		Total for Range		**2014**	**86.66**	**1927.34**
2	**Ratanpur 1852.36** Ha.	(1)Kabirpur	(1)Kabirpur	367.83	0	367.83
		(2)Bhurakhal	(2)Bhurakhal	537.4	0	537.4
		(3)Kalesari	(3)Kalesari	502.65	12.12	490.53
		(4)Gusar	(4)Gusar	456.6	0	456.6
		Total for Range		**1864.48**	**12.12**	**1852.36**
3	**Shahera 1935.08** Ha.	(1)Dhayaka	(1) Dhayaka	732.64	2.16	730.48
		(2)Guneli	(2)Guneli	1040.55	378.94	661.61
		(3)Sadara	(3)Sadara	285.56	0	285.56
		(4)Dharapur	(4)Dharapur	257.43	0	257.43
		Total for Range		**2316.18**	**381.1**	**1935.08**
	Panam Project	**Total for Project**		**6194.66**	**479.88**	**5714.78**

Establishment of High Tech Vegetative Propagation Nurseries and CMAs

GSFDC Ltd. has taken lead in Gujarat State for raising Clonal Eucalyptus plantations in large scale in Panam Project.

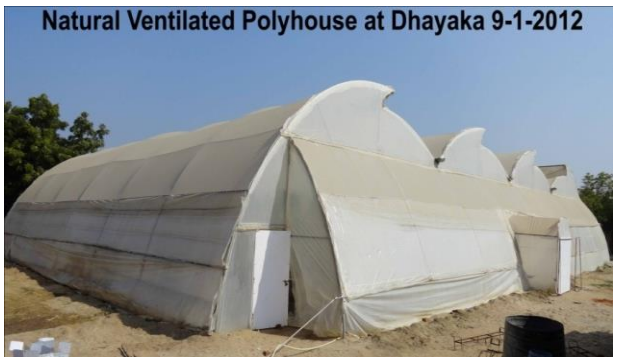
- Corporation has experienced less availability of Clonal Plants in year 2003-04 onward, so that Panam Project has decided to establish the vegetative Propagation complex.
- Panam Irrigated Plantation Project has taken advantage and brought Clonal Eucalyptus Plants from J.K.Paper Ltd. Rayagadha.(Orissa) in year 2003-04. Small numbers of these Clonal Plants were used to develop multiplication areas in 2003-04 and established High tech Nursery at Dhayka , Village of Shahera Taluka in Panchmahals.
- Clones No. J.K.S.C. 2, 4, 5, 8, 9 was used to develop C.M.As in 2003-04 onwards. Clones No. J.K.S.C. 8, 2, 4 are screened for further cloning seeing better performance in field plantations.

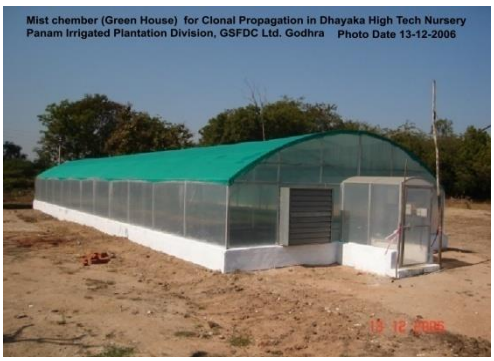
  Besides, Corporation has introduced 5 no.s (2135, 2253, 2151, 2149, 2070) hybrid clones of Eucalyptus from I.T.C. Bhadrachalam (A.P.) in year 2007-08.
- In the year 2008-09, New C.M.A.of 2 Ha of JKSC-8 has been raised in Sadara Forest Campus and in the year 2009-10, new C.M.A. of 2 Ha of ITC – 413 has been raised in Sadara Forest Campus

NEW PROPAGATION TECHNIQUES INTRODUCED IN 2009-10

Original Clone selections optimized to coppicing ability and volume growth. While recent priorities have moved to improve volume growth and Gall insect resistance.
In Year 2007-08, heavy attack of Gall pest is noticed in CMAs and in all type of Eucalyptus plantations so that Outdoor CMA based Technique is out dated and not economical also.
The new technique of Eucalyptus clonal propagation is based on indoor clone gardens. . These gardens are planted in raised beds of 30 cm deep, 1mt. wide, and 10 to 20 m long. They are usually covered with **Natural Ventilated Polyhouse** with insect net to control attack of Gall insect. Elevated Beds are usually filled with washed sand and irrigated drip by drip from above with drainage at one or both ends.


Shoot tips of 3- to 4-cm lengths are harvested for use in cutting propagation. Mini-cutting Method (Sand bed Technology) (Indoor Clonal Mini –Garden) is more economical to manage than larger outdoor CMA gardens, The result is a highly proficient system that produces Gall free, healthy, vigorous, genetically advanced planting stock.





Infrastructure of High-tech Nurseries in Panam Irrigated Plantation Division Godhra

Sr. No.	Name of Range	Place of Nursery	Green House	Net House	Insect Net House	Sand Bed Poly House
			Capacity	Capacity	Capacity	Capacity
1	Shahera Irrigated Range	Dhayaka High Tech Nursery	4 (684 Sq. Mt.)	1 (240 Sq.Mt.)	3 (2000 Sq.Mt.)	3 (1584Sq.Mt.)
			150000 Plants	50000 Plants	400000 Plants	28 Beds
2		Sadara High Tech Nursery	1(120 Sq. Mt.)	2 (480Sq. Mt,)	0	0
			25000 Plants	100000 Plants	0	0
3	Ratanpur Irrigated Range	Kabirpur High Tech Nursery	2 (360 Sq.Mt.)	2 (480Sq. Mt,)	1 (240 Sq.Mt.)	1 (1008 Sq.Mt.)
			50000 Plants	100000 Plants	25000 Plants	10 Beds
4	Godhra Irrigated Range	Karasana High Tech Nursery	1(120 Sq. Mt.)	2 (480Sq. Mt,)	0	0
			25000 Plants	100000 Plants	0	0
5		Isaravadi High Tech Nursery	1(120 Sq. Mt.)	3 (720Sq. Mt,)	1	0
			25000 Plants	150000 Plants	0	0

Plantation Details

Year of Plantation	Plantations Taken (in Ha.)					Eucalyptus Clones
	Clonal Eucalyptus	Eucalyptus By Improved Seed	Bamboo Ha.	Medicinal Plantation	Total Area in Ha	
2003-04	28	20	0	0	48	JKSC -5 , JKSC- 8
2004-05	14	22	0	0	36	JKSC -5
2005-06	42	23	0	0	65	JKSC -5
2006-07	100	0	0	0	100	JKSC-2, JKSC-5
2007-08	150	0	0	0	150	JKSC-2, JKSC-5, JKSC-8
2008-09	156	0	0	0	156	JKSC-2,4,5,8,9,
2009-10	210	0	0	0	210	ITC-413,ITC-7,ITC-283, JKSC-2,JKSc-4 JKSC-8
2010-11	225	0	0	0	225	ITC-413, ITC-71, JKSC-2, ITC – 2045, ITC-2135, ITC-106, ITC-283, JKSC-8
2011-12	267	0	33	0	300	ITC-413 JKSC-2 JKSC-8. B.valagaris, B. balcoa
2012-13	350	0	0	4	354	ITC-413 JKSC-2 JKSC-8
2013-14	363	0	0	0	363	ITC-413 JKSC-2 JKSC-8
2014-15	392	0	0	30	422	ITC-413 JKSC-2 JKSC-8
2015-16	501	0	0	26	527	ITC-413 JKSC-2 JKSC-8
2016-17	422.4	0	0	0	422.4	ITC-413 JKSC-2 JKSC-8
2017-18	55	0	0	10	65	ITC-413 JKSC-2 JKSC-8
2018-19	167	0	0	0	167	ITC-413 JKSC-2 JKSC-8
2019-20	57	0	0	20	77	ITC-413 JKSC-2 JKSC-8
2020-21	71.75	0	0	8	79.75	ITC-283,ITC-413,JKSC-2 JKSC-8
Total	3571.15	65	33	98	3767.15	

Average Productivity of Clonal Eucalyptus Plantations (5 Year Rotation)

Harvested	Harvested Area	Trees	Productivity		Sale Value	Expenditure	Profit	Profit per Ha.
			Timber	Fire wood				
Year	Ha.	Lac.	C.mt.	Quintal	Rs in Lac	Rs in Lac	Rs in Lac	in Rs.
2013-14	560	6.71	10703	33019	704.95	181.33	523.62	93503
2014-15	578	6.30	10244	29489	796.14	223.91	572.23	99000
2015-16	682	7.29	11671	30877	575.55	280.82	294.73	43215
2017-18	574	8.33	14258	33913	548.87	410.07	138.79	24780
2018-19	488	8.54	16188	35314	517.99	422.96	95.02	19471
2019-20	548	10.11	22212	91743	820.41	526.27	294.14	53675

Comparative Statement of Production of Irrigated and Rainfed Clonal Eucalyptus
Plantation of Year 2013-14 Harvested in Year 2019-20 as Age at 6 Year.

Auction Year 2019-20	Production Weight in Tone Per Hact. Per Year	Production in Volume Per Hact. Per Year		Average Price Received Per Tone in Rs.	Average Price Received Per Cmt. in Rs.	Average Price Received Per Hact. in Rs.	Average Expenditure Per Hact. in Rs.	Average Profit Per Hact. in Rs.
		Timber in Cmt.	Fuelwood in Quintals					
Irrigated	**15.7**	**9.5**	**16.1**	**2080**	**3201**	**196130**	**153198**	**42932**
Rainfed	**9.9**	**5.9**	**13.5**	**2006**	**3035**	**118760**	**122895**	**-4135**
Second Cutting	**12**	**4.6**	**54.3**	**1747**	**2891**	**128757**	**13375**	**115382**
Third Cutting	**20.8**	**10.2**	**50.2**	**1784**	**2885**	**222518**	**13375**	**209143**

Medicinal Plantation in Panam Irrigated Plantation Division, Godhra

Panam Project decided to take up Medicinal Plantations to provide the virgin raw material for Ayurvedic Pharmaceutical Factory at Por Managed by GSFDC.

Sr. No.	Name of Plot	Plantation year	Area Ha.	Spacement	Plants per Ha.	Name of Species	Species
1	Karsana	2012-13	4	2.5x0.90 mt.	4444	Madhunasini	Gymnema Sylvestre
2	Karsana	2014-15	2.5	Different Spacement of each Species	1600	Herbs and Shrubs species	Hurbal Garden
3	Isarwadi	2014-15	1		1600		Herbal Garden
4	Kabirpur	2014-15	1		1600		Herbal Garden
5	Karsana	2015-16	6	3x3 mt.	1111	10 Species.	Dashmula Verieties
6	Kabirpur	2015-16	3	2.5x0.60 mt	6666	Shatavari	Asparagus racemosus
7	Dhayka	2017-18	10	3x3 mt.	1111	10 Species.	Dashmula verieties
8	Karasana	2019-20	2.5	2.4 x 2.4 Mt.	1736	Saragavo	Moringa Oliefera
9	Karasana	2019-20	2.5	2.4 x 0.6 Mt.	6944	Saragavo	Moringa Oliefera
10	Karasana	2019-20	5	5 x 5 Mt.	400	Jambu	Syzygium Cumini
11	Karasana	2019-20	5	3 x 3 Mt.	1111	Arjun Sadad	Terminalia arjuna
12	Karasana	2019-20	5	2.5 x2.5 Mt.	1600	Madhunasini	Gymnema sylvestre
13	Padhiyar	2020-21	1	5 x 5 Mt.	400	Mahudo	Madhuca indica
14	Padhiyar	2020-21	1	5 x 5 Mt.	400	Rakt Chandan	Pterocarpus santalinus
15	Padhiyar	2020-21	1	5 x 5 Mt.	400	Ashok	Saraca indica
16	Padhiyar	2020-21	1	5 x 5 Mt.	400	Harade	Terminalia chebula
17	Padhiyar	2020-21	1	5 x 5 Mt.	400	Bahedo	Terminalia bellirica
18	Padhiyar	2020-21	1	5 x 5 Mt.	400	Biyo	Pterocarpus marsupium
19	Padhiyar	2020-21	1	5 x 5 Mt.	400	Bili	Aegle marmelos
20	Padhiyar	2020-21	1	5 x 5 Mt.	400	Aritha	Sapindus mukorossi
Total			56				