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**MAHATMA PHULE KRISHI VIDYAPEETH, RAHURI
DIST. AHMEDNAGAR (MAHARASHTRA)**

ANNUAL REPORT

Plant Pathology

2015-16

Submitted by

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All India Coordinated Research Project on Sugarcane

REGIONAL SUGARCANE AND JAGGERY RESEARCH

STATION, KOLHAPUR- 416 005

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(i)

GENERAL INFORMATION

- 1) Title of the project : All India Coordinated Research Project on Sugarcane
- 2) ICAR sanction No. and date : No.39-12/70 Fin II/CPH-II, dated 9/11/1971
- 3) Date of Commencement : 13/12/1971
- 4) Likely date of completion : The project is to be continued during XII Plan
- 5) Reporting period : 2015-16
- 6) Report No. : XXXXV
- 7) Location : Regional Sugarcane and Jaggery Research Station, Opp. Shahu Market Yard, Kolhapur-416005 (Maharashtra)
- 8) Objectives:
 - 1) To carry out effective sugarcane improvement programme through co-ordination of multidiscipline research by a team of scientists including Agronomist, Plant breeder, Soil scientist and Agril. Chemist, Entomologist, Plant pathologist.
 - 2) To facilitate free exchange of information and the seedlings for the purpose and to conduct varietal trials on zonal and national level.
 - 3) Evaluation of high yielding, early maturing, non flowering varieties with high brix and sucrose.
 - 4) To control the disease and pests (including scale insects and borers) by development of objectives fungicidal and insecticidal schedules.
 - 5) To organize a training programme for the scientists and technical persons engaged in the sugarcane improvement project.
 - 6) To maintain disease free nucleus seed material for distribution to the co-operative organizations.

(ii)

PRESENT STAFF POSITION

Sr. No.	Name of the Posts	No. of posts	Name of the incumbent	Date of Joining	Date of Relieving	Remarks
1.	Breeder	1	Dr.M.S.Kamble	01-11-2015	21/06/2016	Vacant
3.	Plant Pathologist	1	Prof. D.M. Veer	1- 4 -1996	-	-
4.	Technical Assistant	2	1. Kum.K.B.Patil 2. Mr.N.B.Ghodake	31- 1- 2009 31- 8- 2013	- -	1 post pooled at College of Agriculture, Karad for the period 16/07/2015 to 21/07/2016
5.	Lab. Assistant	1	1.Mrs.M.R.Pandav	24-9-2012	-	Agril Assistant is working instead of Lab. Assistant
6.	Fieldman	1	Vacant	-	-	Vacant since X th five year plan and not filled till today

Staff associated with present investigation

- 1) Associate Director of Research, NARP, Sub montane zone
Dr.N.Y.Patil (From 05/12/2013)
- 2) Agronomist, Regional Sugarcane and Jaggery Research Station, Kolhapur
Dr.S.M.More (From 04/03/2014)

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- 2) Miss.K.B.Patil (Technical Assistant)
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- 3) Mr.N.B.Ghodake (Technical Assistant)
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Weather Condition during Crop Period (December, 2014 to March, 2016)

The Regional Sugarcane and Jaggery Research Station, Kolhapur is geographically situated at an elevation of 574 meter above the sea level on 16°.43' North latitude and 74°.13' East longitude. It comes under the Sub-Montane Zone of Maharashtra. The weather parameters during the seasonal crop growth period from December, 2014 to March, 2016 are presented in Table 1 and 2.

The planting of experimental plots of sugarcane was carried out during last fortnight of December, 2014 to January, 2015. During germination phase of sugarcane the average maximum and average minimum temperature were 30.05°C and 16.22°C, respectively with average morning humidity of 83.38 per cent. This was favorable condition for good germination.

The tillering phase was started from February, 2015 to April, 2015. The average maximum temperature 34.75°C and average minimum temperature 19.10°C with slightly higher average morning humidity 81.85 per cent and average evening humidity 31.42 per cent as compared to previous year which was solicited for tillering phase.

Higher rainfall (336.80 mm) was received during early growth period of sugarcane with average maximum temperature 32.30°C. However, only 201.30 mm rainfall (27 RD) was received during grand growth phase of sugarcane with higher maximum temperature 30.25°C. Maturity and flowering phase of sugarcane was started from 40th meteorological week. 90.7 mm rainfall was received in early stages of the phase with higher average maximum temperature as well as average minimum temperature (33.53°C & 18.92°C, respectively) as compared to previous year.

The incidence of early shoot borer was observed on sugarcane crop planted after 15th February and in late ratoon, hence, farmers were suggested to undertake plant protection measures against early shoot borer during tillering phase. High rainfall received during early growth period and higher temperature during subsequent grand growth stage provided favourable condition for incidence of white wooly aphids on sugarcane. The incidence of the same was reported from some parts of the region, particularly on Co 86032. In grand growth period, comparatively more incidence of whitefly was noticed, especially in water logged area and poorly managed ratoon crop in some part of zone. White grubs continue to be a menace to sugarcane cultivation in the region, especially, *Leucopholis* spp. is harboring in along the river basin area. The incidence of white grub is increasing in the region, hence, it is necessary to undertake effective management practices.

(iv)

The fungal diseases *viz.*, rust and ring spot, have been observed during monsoon period particularly in high rainfall region of the zone however, intensity was less as compared to previous year. The brown spot disease was less on CoM 0265 variety. Another viral disease, yellow leaf (YLD) was observed during grand growth and maturity phase on Co 86032. This may be due to continuous use of same planting material year after year.

The total rainfall of 724.90 mm in 58 rainy days was received during entire crop period of sugarcane, which was less as compared to average rainfall (1028.3 mm).

(v)

Table 1. Week wise weather data recorded at Zonal Agricultural Research Station, Shenda Park farm, Kolhapur for the year (December, 14 to March, 16).

MW	Period	Rainfall mm.	RD	Mean Temp °C		Wind Speed kmph	BSS Hrs	Relative Humidity		Evap. mm.
				Max.	Min.			M	E	
	Dec-14									
49	3/12 – 9/12	0	0	31	17.3	0.9	8.8	90	51	3.2
50	10/12 – 16/12	11.1	1	30.6	18.7	0.8	2.8	89	65	3
51	17/12- 23/12	0	0	29.2	16.1	1.3	2.2	79	50	3.4
52	24/12-31/12	0	0	29.6	14.4	1.2	2.4	85	48	3
		11.1	1	30.1	16.62	1.05	4.05	85.75	53.5	3.15
	Jan-15									
1	01/01-07/01	0	0	28.7	15.9	0.6	2.5	83	57	2.8
2	08/01-14/01	0	0	29.3	15.2	1.3	9.3	73	36	3.5
3	15/01-21/01	0	0	30.3	15.2	0.9	8.8	84	33	3.3
4	22/01-28/01	0	0	30.8	16	1	6.2	86	39	3.3
5	29/01-04/02	0	0	30.9	16.8	1.8	8.3	79	32	3.1
		0	0	30	15.82	1.12	7.02	81	39.4	3.2
	Feb-15									
6	05/02-11/02	0	0	31.7	15.6	1.7	9	81	27	4.1
7	12/02-18/02	0	0	34.2	17.4	0.8	9.4	76	21	3.1
8	19/02-25/02	0	0	33.8	16.5	1.8	9.3	81	23	3.7
9	26/02-04/03	44.4	2	30.2	15.4	1.1	7.6	87	50	2.1
		44.4	2	32.47	16.22	1.35	8.82	81.25	30.25	3.25
	March, 15									
10	05/03 – 11/03	0	0	34.2	16.9	1.8	9.2	86	34	3
11	12/03 – 18/03	0	0	34.2	18.4	1.6	8.3	80	36	3.5
12	19/03 – 25/03	0	0	35.6	20.3	1.2	5.2	83	30	4
13	26/03 – 01/04	6.2	1	37.2	21.9	1.6	5	73	28	3.4
		6.2	1	35.3	19.37	1.55	6.92	80.5	32	3.475
	April, 15									
14	02/04 – 08/04	0	0	37	21.4	1.3	8.6	66	27	2.8
15	09/04 – 15/04	4.2	1	33.8	21.6	1.1	6.3	89	41	3.7
16	16/04 – 22/04	0	0	36.4	21.8	1.6	8.3	89	30	3.5
17	23/04 – 29/04	11.2	1	37.7	22	1.6	8.2	86	31	3
18	30/04 – 06/05	19	1	37.5	21.7	2	8.2	89	31	3.4
		34.4	3	36.48	21.7	1.52	7.92	83.8	32	3.28
	May, 15									
19	07/05 – 13/05	52.1	2	35.8	21.5	1.4	8.2	90	38	2.7
20	14/05 – 20/05	4	1	34.6	21.1	0.8	5	87	48	2.9
21	21/05 – 27/05	3.2	0	36	22.2	2.5	9.9	87	43	3.1
22	28/05 – 03/06	58.4	2	33.4	18.4	1.9	6.4	88	57	2.1
		117.7	5	34.95	20.8	1.65	7.37	88	46.5	2.7

(vi)

MW	Period	Rainfall mm.	RD	Mean Temp °C		Wind Speed kmph	BSS Hrs	Relative Humidity		Evap. mm.
				Max.	Min.			M	E	
	Jun-15									
23	04/06 – 10/06	48.5	4	32.4	17.5	1.4	8.2	95	53	1.7
24	11/06 – 17/06	15.9	3	30.1	20.4	1.5	4.2	93	69	2.4
25	18/06 – 24/06	138.7	5	26.7	17.1	3.8	1.2	96	84	1.1
26	25/06 – 01/07	16	2	29.4	19.5	3.1	2.3	93	73	2.5
		219.1	14	29.65	18.625	2.45	3.975	94.25	69.75	1.925
	Jul-15									
27	02/07 – 08/07	1.5	0	30.7	20.5	2.5	6.6	89	62	3
28	09/07 - 15/07	15.3	3	30.9	20.9	2.2	4.8	94	71	3.1
29	16/07 – 22/07	25.2	5	29.3	20.7	2.5	1.8	95	75	2.1
30	23/07 – 29/07	39.3	7	28.2	19.7	1.9	1.6	97	84	0.9
31	30/07 – 05/08	25.8	2	29.2	20.2	1.9	3	96	81	0.5
		107.1	17	29.66	20.4	2.2	3.56	94.2	74.6	1.92
	Aug-15									
32	06/08 – 12/08	22.3	4	28.4	19.4	1.8	1.8	97	81	1
33	13/08 – 19/08	8	2	30.6	20.7	1.4	4.1	98	66	2.2
34	20/08 – 26/08	15.6	2	30.2	21	1.4	4	96	69	2.8
35	27/08 – 02/09	5.3	0	29.8	20.2	1.5	2.1	95	74	3.2
		51.2	8	29.75	20.325	1.525	3	96.5	72.5	2.3
	Sep-15									
36	03/09 - 09/09	0	0	31.8	19.9	1.1	4.1	89	59	3.3
37	10/09 - 16/09	42.1	2	30.4	19.4	1.1	1.5	97	67	1.3
38	17/09 - 23/09	0	0	31.2	19.9	2	4.4	92	63	3.2
39	24/09- 30/09	0.9	0	32	20.7	1.6	7.7	94	46	2.9
		43	2	31.35	19.975	1.45	4.425	93	58.75	2.675
	Oct-15									
40	01/10 - 07/10	79.9	4	30.9	19.8	1.6	4.1	94	66	1.1
41	08/10 – 14/10	0	0	33	30.3	1.1	5.7	92	53	2.7
42	15/10 – 21/10	2.2	0	33.9	19.8	1.2	3.5	92	53	2.2
43	22/10 – 28/10	0	0	33.3	19.3	1.7	2.6	90	43	3
		82.1	4	32.775	22.3	1.4	3.975	92	53.75	2.25
	Nov-15									
44	29/10 – 04/11	0	0	33	20.1	1.6	5.8	85	45	3.1
45	05/11 – 11/11	8.6	1	32.8	19.6	1.7	8.1	92	44	2.3
46	12/11 – 18/11	0	0	32.3	19.4	2.9	9.3	90	46	2.1
47	19/11 – 25/11	0	0	31.9	18.3	2.8	4.4	90	50	2.7
48	26/11 – 2/12	0	0	32.6	17.6	1.9	7.2	82	40	2.6
		8.6	1	32.52	19	2.18	6.96	87.8	45	2.56
	Dec-15									
49	3/12 – 9/12	0	0	32.8	18.3	2.6	5.6	80	41	3.1
50	10/12 – 16/12	0	0	33.6	17.8	1	3.8	86	48	2
51	17/12- 23/12	0	0	30.7	18.1	1.1	2.1	96	37	2.1
52	24/12-31/12	0	0	30.4	15	2.8	2.4	77	54	2.2
	TOTAL	0	0	31.875	17.3	1.875	3.475	84.75	45	2.35

(vii)

MW	Period	Rainfall mm.	RD	Mean Temp °C		Wind Speed kmph	BSS Hrs	Relative Humidity		Evap mm.
				Max.	Min.			M	E	
	Jan-16									
1	01/01-07/01	0	0	32.2	17.2	1.9	4.5	49	42	2
2	08/01-14/01	0	0	30.6	15.7	1.5	4.1	60	30	2.2
3	15/01-21/01	0	0	29.5	16.9	1	5.1	60	42	2.2
4	22/01-28/01	0	0	30.9	15.9	1.6	4.5	67	36	2.2
5	29/01-04/02	0	0	34.2	16.8	1.3	6.2	68	32	2.4
	TOTAL	0	0	31.48	16.5	1.46	4.88	60.8	36.4	2.2
	Feb-16									
6	05/02-11/02	0	0	34.1	15.9	1.6	4.9	80	41	3.1
7	12/02-18/02	0	0	33.2	15.8	2.5	6.9	79	37	3.6
8	19/02-25/02	0	0	35.9	19	2.1	5.8	69	34	3.4
9	26/02-04/03	0	0	36	19.5	2	2.2	69	35	3.8
	TOTAL	0	0	34.8	17.55	2.05	4.95	74.25	36.75	3.475
	March, 16									
10	05/03 – 11/03	0	0	37	19.7	1.7	5.1	70	32	4.5
11	12/03 – 18/03	0	0	36.5	19.3	2	5.3	83	23	4.9
12	19/03 – 25/03	0	0	38.8	21.8	2.2	7.8	53	20	5.9
13	26/03 – 01/04	0	0	38.6	22.6	2.1	6.5	73	28	6.2
	TOTAL	0	0	37.725	20.85	2	6.175	69.75	25.75	5.375

Table 2: Weather conditions during the year December, 2014 to March, 16.

Growth Stages	Month	Rainfall (mm)	RD	Mean Temp (°C)		Wind Speed (kmph)	BSS (Hrs)	Relative Humidity (%)		Evap. (mm)
				Max.	Min.			M	E	
Germination	Dec-14	11.1	1	30.1	16.62	1.05	4.05	85.75	53.5	3.15
	Jan-15	0	0	30	15.82	1.12	7.02	81	39.4	3.2
		11.10*	1*	30.05	16.22	1.09	5.54	83.38	46.45	3.18
Tillering	Feb-15	44.4	2	32.47	16.22	1.35	8.82	81.25	30.25	3.25
	March, 15	6.2	1	35.3	19.37	1.55	6.92	80.5	32	3.475
	April, 15	34.4	3	36.48	21.7	1.52	7.92	83.8	32	3.28
		85.00*	6*	34.75	19.10	1.47	7.89	81.85	31.42	3.34
Early growth	May, 15	117.7	5	34.95	20.8	1.65	7.37	88	46.5	2.7
	Jun-15	219.1	14	29.65	18.62	2.45	3.97	94.25	69.75	1.925
		336.80*	19*	32.30	19.71	2.05	5.67	91.13	58.13	2.31
Grand growth	Jul-15	107.1	17	29.66	20.4	2.2	3.56	94.2	74.6	1.92
	Aug-15	51.2	8	29.75	20.32	1.525	3	96.5	72.5	2.3
	Sep-15	43	2	31.35	19.97	1.45	4.42	93	58.75	2.675
		201.30*	27*	30.25	20.23	1.73	3.66	94.57	68.62	2.30
Flowering and maturity	Oct-15	82.1	4	32.77	22.3	1.4	3.97	92	53.75	2.25
	Nov-15	8.6	1	32.52	19	2.18	6.96	87.8	45	2.56
	Dec-15	0	0	31.87	17.3	1.875	3.47	84.75	45	2.35
	Jan-16	0	0	31.48	16.5	1.46	4.88	60.8	36.4	2.2
	Feb-16	0	0	34.8	17.55	2.05	4.95	74.25	36.75	3.475
	March, 16	0	0	37.72	20.85	2	6.17	69.75	25.75	5.375
		90.70*	5*	33.53	18.92	1.83	5.07	78.23	40.44	3.04

* = Total values

Total rainfall during crop season: 724.90mm (58 Rainy days)

