

VSI Bulletin

Dedicated service to sugar industry since 1975

Vol. 10, Issue - 2, July, 2010

Quarterly For Private Circulation Only

www.vsisugar.com



**VASANTDADA
SUGAR
INSTITUTE**

Foreword...

As the second quarter of 2010 and subsequently the crushing season of 2009-2010 ended, the sugar industry in Maharashtra has overdone all the earlier expectations and produced about 7 million tons of sugar. With the country's sugar production just above the 18 million mark also surpassing the expectations, monsoon arrival, supply catching up demands and next crushing season scheduled to commence, sugar commodity will react sharply in next quarter for short term at least. The recent fall in sugar prices can be seen as an effect of Central Government's efforts to curb on the rocketing sugar prices at the start of the year. Sugar mills purchased cane at a high price from sugarcane growers when sugar prices were high. But now with ex-factory sugar prices falling below the cost of production, sugar mills have problems of non-payment of installments to sugarcane growers. The food ministry is considering decontrolling of sugar from next season starting in October.

Here in this issue of VSIBulletin for second quarter of 2010, readers will have details on sugar scenario for the past crushing season of 2009-10, an informative article on Pokka Boeng that is reportedly breaking out in the state and some other events at VSI during the last quarter. Readers are welcome to send their comments.

(A. A. Prabhavalkar)
Editor

CONGRATULATIONS



PhD awarded to Ms. Deepali Nimbalkar

The University of Pune has awarded a PhD to Ms. Deepali Nimbalkar, Scientist, Department of Environmental Sciences in April 2010. Ms. Nimbalkar had submitted her thesis on “Evaluation of various agrowastes for the composting of distillery spentwash” under the guidance of Prof. V.S.Ghole and Dr. A.S.Patil.



Dr. Devarumath returns from Australia

Dr. Rachayya M. Devarumath, Scientist, Molecular Biology and Genetic Engineering Division, visited to Centre for Plant Conservation Genetics at Southern Cross University, Lismore, Australia for a period of nine months from 30th September 2009 to 22nd June 2010 on Overseas Associateship from Department of Biotechnology, New Delhi. He worked with Prof. Robert Henry, Dr. Peter Bundock and Ms. Frances Elliott on molecular markers in sugarcane.

RECOGNITION



TISSUE CULTURE PRODUCTION FACILITY

The Institute's Tissue Culture Production Facility have received 'Certificate of Recognition' from the Accreditation Unit (AU) of Department of Biotechnology (DBT) established at Biotech Consortium India Ltd. (BCIL), New Delhi as per criteria laid down under National Certification System for Tissue Culture raised Plants (NCS-TCP).

NABL ASSESSMENT OF DRIP IRRIGATION MATERIAL TESTING LABORATORY

Drip Irrigation Material Testing Laboratory is accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) for testing of drip irrigation laterals, emitters, emitting pipes and microtubes as per applicable IS standards since May 2005. The assessment of the laboratory was conducted during 20th and 21st June 2010 by the assessment team appointed by NABL comprising of Mr. V. V. Modak, Mumbai as a lead Assessor and Mr. P. K. Shilotri, Pune as a Technical Assessor for continuation of NABL accreditation. A detailed assessment as regards to quality control, testing of the samples, reporting the test results, internal laboratory comparison results, internal quality audits, management review meetings, training of personnel, calibration of laboratory equipments etc. was conducted during these two days. An assessment team expressed the satisfaction over working of the laboratory as per NABL norms. During the assessment, team raised four minor non-conformities, which were complied with immediately and the compliance report was submitted to NABL. The letter regarding continuation of the NABL accreditation to Drip Testing Laboratory is awaited.

NATIONAL TECHNOLOGY DAY



The Institute celebrated the **National Technology Day** on 11th May 2010. Dr. Rajendra Jagdale, Science and Technology Park, University of Pune was the chief guest for this occasion. The Director General, Shri. Shivajirao Deshmukh welcomed and felicitated Dr. Jagdale. In his speech, Dr. Jagdale talked about climate change and technology, resources, business incubation centers, commercialization of technologies and his experiences on transfer of technology, patents and trading knowledge. He said that the serious issue of human induced technology has been responsible for climate change. He further said that the mission is to convert knowledge into technology and there is a huge gap between what our society wants in terms of technology and what industries are getting. There is so much research done to develop good products but not much goes to the market. Majority of technology used in India are reverse engineering i.e. technology already in the market in other countries has been imported and we reverse engineer, modify it and push in the market. He further insisted on commercialization of technology looking at market demand which has huge potential. We stressed upon the need to leverage on all the resources available in terms of manpower, laboratories, libraries, access to internet and other resources.

He was particularly impressed by the tissue culture laboratory and research done at VSI. He said that VSI has larger role to play in commercialization and have potential to be a business incubator.

Welcome speech and vote of thanks was given by Dr. Deepali Nimbalkar.

Pokkah boeng disease of sugarcane and its control

B.H.Pawar, Scientist and Head,

Plant pathology Section, Vasantdada Sugar Institute, Pune

Introduction

Amongst the foliar diseases, the pokkah boeng disease caused by fungus *Fusarium moniliforme* Sheldon is becoming a major disease of sugarcane in Maharashtra. Pokkah boeng, a Javanese term, which describes a disease affecting to sugarcane tops, was first reported in Java by Walker and Went in 1886 and later reported by Edgerton (1955) and Martin *et.al* (1961). Pokkah boeng became a major sugarcane disease in Java when POJ 2878 variety was cultivated on large scale and was extensively investigated in that country by Bolle during 1927 to 1937. This disease was recorded for the first time in Maharashtra on Co7219 and CoC671 varieties. At present, many commercially cultivated sugarcane varieties viz., CoC671, Co8014, Co419, Co 86032, CoVSI9805, Co7527, VSI434 and Co7219 are found susceptible to this disease in Maharashtra, India.

Distribution

The occurrence of the disease has been recorded in almost all the cane growing countries in the world. In India, it has been recorded in Maharashtra, Punjab, Haryana, Uttar Pradesh, Gujarat, Madhya Pradesh, Andhra Pradesh, Karnataka and TamilNadu States on most of the commercial varieties.

Economic Importance

Considerable losses have been recorded from pokkah boeng in Java because of cultivation of susceptible varieties grown under hot and dry climatic conditions followed by a wet season. Such climate is also found under Indian conditions. Three to seven month old vigorously growing crop is more susceptible to infection than the older crop. In Maharashtra, the initiation of the infection in the crop starts after the pre-monsoon rains (May). The intensity of the disease reduces after September with reduction in monsoon intensity. As the disease progresses, the leaves get entangled with each other with prominent necrosis on the uppermost leaves. This is followed by top rotting of the spindle. This result in shortening of internodes, affecting adversely the cane growth.

Symptomatology

The general symptoms of pokkah boeng are of three types; I. Chlorotic phase, II. Acute or top rot phase and III. Knife cut phase (associated with top rot phase).

The details of the symptoms as per the phase of disease development are as under,

I) Chlorotic phase (Designated as PB 1 and PB 2 stage)

The earliest symptom of pokkah boeng is chlorotic patches at the base of the young leaves and occasionally on the other parts of the leaf blades. Frequently, a pronounced wrinkling, twisting and shortening of the leaves accompanied with the malformation or distortion of the young leaves is observed. The base of the affected leaf becomes narrower than that of the normal leaf.

In affected mature leaves, the irregular reddish stripes and specks are observed within the chlorotic part. Sometimes development of ladder like lesions with dark longitudinal edges were also observed which subsequently become dark reddish to brown in color giving burned appearance to the foliage. In some





cases, chlorotic leaf sheaths are also developed. Later, irregular necrotic areas of reddish color, similar to that on the leaf blades are also noticed on leaf sheath and midribs.

II) Acute phase or 'Top-rot phase' (Designated as PB 2 stage)

The most advanced and serious stage of pokkah boeng is top rot phase. The young spindles are killed resulting in death of the entire top. As the disease progresses, the infection penetrates the stalk showing malformation of leaves together with pronounced wrinkling, twisting and rotting of spindle leaves. Red specks and stripes are also developed and the whole base of the spindle gets rotten resulting in 'Top-Rot' condition. This results in sprouting of the buds because of cessation of apical dominance.



III Knife cut phase (Designated as PB 3 stage)

The symptoms of knife cut stage are observed in association with the acute phase of the disease characterized by one or two or even more transverse cuts in the rind of the stalk /stem in such a uniform manner as if, the tissues are removed with a sharp knife. This is severe most stage of pokkah boeng disease. On stripping off the leaves, large horizontal conspicuous cuts are observed on the stalks. Acute phase is being considered as the most advanced stage of pokkah boeng disease, but the observations recorded have revealed that the 'Knife Cut' symptoms appearing after the acute phase are most damaging than the acute phase.

Transmission:

This is an air-borne disease. Sometimes, if the infected cane is used as planting material the disease is found to be transmitted to the next generation.

Effect of Environmental factors on disease development

i) Temperature : Temperature is an important factor governing the development and spread of the pathogen. It grows and sporulates luxuriantly in a temperature range of 20-30°C. This condition generally occurs in rainy season, which helps in increasing the intensity of the disease with quicker spread.

ii) pH : The pathogen is found to grow in a wider range of acidic to slightly alkaline pH soil. (6.5 to 7.5 pH).

iii) Humidity : The relative humidity higher than 70 to 80% with a cloudy weather or drizzling rains favor the growth of pathogen.

Control of the disease:

A. In the initial stage of disease infection for checking the growth of the pathogen and avoiding the further spread of the disease to healthy cane the crop should be sprayed with

1. Carbendazim at 0.1 % (1gm / lit. of water) or
2. Copper oxychloride at 0.2% (2gm / lit. of water) or
3. Mancozeb at 0.3% (3 gm / lit. of water)

Note: The suitable sticker should be mixed with the fungicide solution. Two to three sprayings with an interval of 15 days reduces the multiplication of pathogen and also helps in minimizing the losses in yield and quality of cane

B. In severely infected crop, roguing of the canes showing 'top rot' or 'knife cut' should be done followed by spraying of either of the above fungicides.

SUGAR SCENARIO DURING CRUSHING SEASON 2009-10

Shinde M.R., Sr. Statistician

Sugar scenario of Maharashtra

Initially during the 2009-10 season, sugar factories in Maharashtra were estimated to crush about 410 lakh tons of sugarcane and produce 47 lakh tons of sugar, assuming average sugar recovery of 11.50%. Region-wise expected sugarcane crushing and sugar production is shown in table 1. It indicates a slight increase of 1.33 lakh tons (2.91%) in sugar production as compared to 2008-09 season.

Table 1: Region-wise initial estimate of cane crushing & sugar production
in 2009-10 season and actual for 2008-09 season

Upper fig.: 2009-10 (Expected)
Lower fig.: 2008-09 (Actual)

Sr. No.	Regions	Cane crushed (Lakh tons)	Sugar production (Lakh tons)	Sugar recovery (%)	Sugar production difference over 2008-09
1	Kolhapur	120.00	14.69	12.24	0.09
		119.31	14.60	12.25	
2	Pune	171.25	19.73	11.52	0.53
		167.41	19.20	11.48	
3	Ahmednagar	55.00	5.86	10.96	-0.06
		55.76	5.92	10.62	
4	Aurangabad	25.00	2.61	10.46	0.35
		21.86	2.26	10.37	
5	Nanded	35.00	3.83	10.95	0.33
		32.72	3.50	10.77	
6	Amaravati	3.50	0.36	10.28	0.13
		2.45	0.23	9.87	
7	Nagpur	0.25	0.02	8.83	-0.04
		0.62	0.06	9.64	
	State	410.00	47.10	11.49	1.33
		400.13	45.77	11.44	

1 million = 10 lakh

As the season progressed, the figures of sugarcane crushing and sugar production showed upward trend and the initial projections became an underestimate. State sugar production estimate was then revised to 65 lakh tons by crushing 550 to 560 lakh tons of sugarcane. Till 30th April 2010, sugar factories in the State have crushed 586.33 lakh tons of sugarcane with sugar output of 67.96 lakh tons (Table 2). Due to untimely rain in the month of November 2009 and cultivation of high

yielding cane variety CoM 265 by cane growers in many parts of the State, cane productivity level improved by 10-15 tons per hectare. Because of these two major factors, there was substantial increase in total cane production and ultimately cane crushing showed upward trend due to more sugarcane availability for crushing. During the season, rise in sugar production is mainly observed in sugar factories of Nanded region and followed by Aurangabad, Ahmednagar and Pune regions respectively as compared to previous season. Out of 142 operating sugar factories, only 98 sugar factories closed their crushing operations upto 30th April 2010.

Table 2: Region-wise Comparative Sugarcane crushing and sugar production
During crushing seasons 2009-10 and 2008-09 (upto 30th April week end)

Upper fig.: 2009-10

Lower fig.: 2008-09

Sr. No.	Regions	No. of sugar factory		Cane crushed (Lakh tons)	Sugar production (Lakh tons)	Sugar recovery (%)	Sugar production difference over 2008-09
		In operation	Closed operation				
1	Kolhapur	33	30	155.55	19.24	12.23	4.64
		32	32	119.31	14.60	12.25	
2	Pune	43	14	236.00	27.45	11.67	8.25
		40	40	167.41	19.20	11.48	
3	Ahmednagar	22	15	89.58	9.81	10.95	3.89
		23	23	55.76	5.92	10.62	
4	Aurangabad	17	17	36.18	3.82	10.57	1.56
		17	17	21.86	2.26	10.37	
5	Nanded	23	18	66.28	7.36	11.10	3.86
		25	25	32.72	3.50	10.77	
6	Amaravati	3	3	2.23	0.23	10.28	0.00
		6	6	2.45	0.23	9.87	
7	Nagpur	1	1	0.51	0.05	8.83	-0.01
		2	2	0.62	0.06	9.64	
	State	142	98	586.33	67.96	11.57	22.19
		145	145	400.13	45.77	11.44	

Some of the sugar factories from Pune (Pune & Solapur districts) and Ahmednagar (Ahmednagar district) regions continue their crushing operation till May end/ second week of June 2010. The sugar industry of the State produced 70.39 lakh tons of sugar by crushing 614.83 lakh tons of cane with average sugar recovery of 11.51% at the end of crushing season 2009-10 (Table 3). During the current season, sugar production raised by 24.62 lakh tons (53.79%) as compared to previous season 2008-09.

Table 3: Region-wise Comparative Sugarcane crushing and sugar production
During crushing season 2009-10 and 2008-09 (at end of season)

Upper fig.: 2009-10

Lower fig.: 2008-09

Sr. No.	Regions	No. of sugar factories in operation	Cane crushed (Lakh tons)	Sugar production (Lakh tons)	Sugar recovery (%)	Sugar prod. diff over 2008-09
1	Kolhapur	33	156.83	19.20	12.22	4.60
		32	119.31	14.60	12.25	
2	Pune	43	258.64	29.45	11.57	10.25
		40	167.41	19.20	11.48	
3	Ahmednagar	22	93.64	10.22	10.88	4.30
		23	55.76	5.92	10.62	
4	Aurangabad	17	36.26	3.83	10.57	1.57
		17	21.86	2.26	10.37	
5	Nanded	23	66.89	7.43	11.10	3.93
		25	32.72	3.50	10.77	
6	Amaravati	3	2.23	0.23	10.28	0.00
		6	2.45	0.23	9.87	
7	Nagpur	1	0.34	0.03	8.75	-0.03
		2	0.62	0.06	9.64	
	State	142	614.83	70.39	11.55	24.62
		145	400.13	45.77	11.44	

Sugar scenario of nation and world

The Food Ministry of Central Government of India earlier in November 2009 and on the basis of data provided by the state cane commissioners projected the country's sugar output for 2009-10 season at 146 lakh tons with the expectation of two largest sugar producing states viz. Maharashtra and Uttar Pradesh (UP) producing 47 & 40 lakh tons of sugar respectively while the Central Government stuck to its estimate of 160 lakh tons. A revision in the estimates of sugar output of UP from 40 to 55 lakh tons and actual sugar production of the Maharashtra state of 70.39 lakh tons, the country's sugar production projected now as 185 lakh tons. This projection is 45 lakh tons short of meeting the estimated demand level of 230 lakh tons.

Global sugar output of 1559.97 lakh tons in 2009-10 has been revised significantly downwards by 37 lakh tons as against 1596.97 lakh tons of initial estimate. The downward revision is a result of lower production than the expected in the range of Asian countries and Brazil, partly offset by an upward revision of European beet sugar output. World consumption is forecasted at 1632.74 lakh tons. This shows a widening gap between global production and consumption. As a result, the growth of 50.56 lakh tons in global production is far too small to cover anticipated increases in sugar consumption. Hence global stocks will reduce in the course of 2009-10 by 76.92 lakh tons.

Table 4: Comparative sugar Balances (October - September)

(lakh tons, raw value)

Sugar	Projected for 2009-10			2008-09		
	World	India	State	World	India	State
Opening stocks	610.83	61.62	10.11	742.51	120.98	28.83
Production	1559.97	195.66	76.86	1509.41	158.04	49.75
Imports	583.17	54.35	10.87	529.36	27.18	2.17
Consumption	1632.74	250.01	70.66	1600.01	244.58	70.66
Exports	587.31	0.00	0.00	570.44	0.00	0.00
Ending stocks	533.91	61.62	27.18	610.83	61.62	10.11
Surplus/Deficit	-72.77	-54.35	6.20	-90.60	-86.54	-20.91
+/- Production	50.56	37.62	27.11	-157.64	-128.46	-48.98
+/- Percent	3.35	23.80	54.49	-9.46	-44.84	-49.60
+/- Consumption	32.73	5.44	0	1.69	7.65	-4.70
+/- Percent	2.05	2.22	0	0.11	3.23	-6.23
Stock / Consumption (%)	32.70	24.65	38.47	38.18	25.20	14.31

Source: F.O.Licht's International Sugar & Sweetener Report (Vol No. 142/No. 9 dated March 2010)

The Sugar Market

The downward projection of sugar production in 2009-10 over the last season and more gaps between production & consumption, the sugar supply is tightened in current season. Seventy percent of sugar stocks accumulated after the previous two surplus seasons (2006-07 and 2007-08) were already used during the first deficit season 2008-09. A continuing decrease in the level of stocks is expected to further support world market prices. The stock to consumption ratio has not been as low as the current 32.70% for the last twenty years since 1989-90. The world and domestic prices of sugar have shown a remarkable improvement since mid-November 2009.

The wholesale price (WP) of India's domestic white sugar during October 2008 was US\$ 354.69 per ton (Rs.17245/ton) that jumped to US\$ 678.58 per ton (Rs.31600/ton) in the month of October 2009, i.e. at the beginning of current season 2009-10. Initial low estimates of sugar production sent domestic sugar prices spiraling to record high US\$ 853.82 a ton (Rs 39207/ton) in January 2010. The government of India had already undertaken measures to control domestic prices. Sugar prices had scaled back from February 2010 onward to the level of US \$ 597.03 a ton (Rs 26550/ton) in April 2010. A recent sharp fall in domestic prices reflects impact of central government's policy on free sugar sale, stock limitation and import of sugar. The government instructed the sugar mills to sell quota of free sugar for February on weekly basis. It has also prevented large sugar buyers from stocking sugar equivalent to more than 10 days of consumption and extension of permission for importing raw and white sugar duty-free till 31st December 2010.

The international London Daily Prices (LDP) of sugar showed trend similar to domestic wholesale sugar prices. Domestic sugar prices remained higher than LDP in the range of US \$ 30-150. LDP white sugar improved from US \$ 597.75/ton in mid-November to US\$ 729.24 a ton in January 2010 and decreased to the level of US \$ 491.22/ton in April 2010.



SENDOFF FUNCTION



A farewell function for the outgoing M.Sc. Environmental Sciences students was organized on 3rd May 2010. Mr. Shivajirao Deshmukh, Director General was the chief guest for the function. . On this occasion the students shared their experiences during the course and their views about the teachers, the department, and the Institute. They also focused on the memories, the time they have spent in the campus etc. Dr. Deepali Nimbalkar, Academic Incharge, Mr D.B. Ghule, Registrar and other staff gave their guidance and best wishes to the students. The Director General asked the students to improve their communication skills and emphasized the importance of hard work in their careers to face the challenges of the world.



Advisor : Shivajirao Deshmukh
Editor : Atul Prabhavalkar
Layout & Photography : Shriram Patil

Committee :
Dr. S. H. Shinde, K.R. Patil, R.V. Dani, S. V. Patil,
D. S.Nimbalkar, A.S. Deshmukh, M.R. Shinde,
N.S. Pathan.

VSI Bulletin is published by the Vasantdada Sugar Institute, Pune.

Disclaimer: The views expressed in the articles are those of the authors and do not necessarily reflect the views of the VSI. The publisher makes no representation or warranties with respect to accuracy, applicability or completeness of information. Contents are for reference purpose only. Using it for any other purpose than for which it is shared is unauthorized and prohibited. No material from the issue may be copied, reproduced, republished, uploaded or commercially exploited in any manner without the prior consent of the publisher.
Copyright © Vasantdada Sugar Institute

SHORT TERM COURSES



V.S.I. offers many short term courses to fulfill the specific needs of the sugar industry. In the month of June 2010, such short term courses were conducted and 118 personnel sponsored by sugar factories participated. The courses on Pan Boiling & Centrifugals, Juice Clarification & Evaporation, Boiler Attendant, Mill Foreman, Fermentation & Distillation techniques in Distillery, Techniques in Analytical instruments and Repairs & Maintenance of Sugar Factory Instruments were organized successfully.

TABLE – 1 : Short Term Training Program conducted during the June - 2010

Date	Topic	No. of Participants	Details of Participants
14/6/2010 to 18/6/2010	Pan Boiling & Centrifugals	26	Pan attendants and centrifugals from factories
14/6/2010 to 18/6/2010	Juice Clarification & Evaporation	42	Juice supervisors from factories
14/6/2010 to 18/6/2010	Boiler Attendant	06	Boiler attendants from sugar factories
14/6/2010 to 18/6/2010	Mill Foreman	07	Mill foreman from sugar factories
14/6/2010 to 18/6/2010	Fermentation and Distillation Techniques in Distillery	03	Fermentation and distillation operative in distillery
14/6/2010 to 18/6/2010	Techniques in Analytical Instrumentation	10	Lab chemists and manufacturing chemists from sugar factories
07/6/2010 to 18/6/2010	Repairs and Maintenance of Sugar Factory Instrumentation	24	Instrumentation mechanics, electricians from sugar factories
Total Strength		118	

VISITORS



VISIT OF DELEGATION FROM INGA FARMS LTD. GHANA TO VSI

Mr. Kojo Graham, Managing Director, Mr. Oleseum Layade, Director, Mr. Shaunak Satpute, Director, Mr. Anant Upadhye, Director and Mr. Manab Mitra, Chief Finance Officer of INGA Farms Ltd., Ghana visited VSI on 21th June 2010. The purpose of the visit is to decide future action plan for proposed green field project at Ghana. The technical

discussion was held with Director General and VSI officers on implementation of various technologies suggested by VSI team in the Detailed Project Report. The delegation also visited Biotechnology, Tissue culture, Alcohol Technology, and NABL accredited Sugar Technology laboratories of the Institute.



AGRICULTURE VISITORS

The following visited the Institute during last three months (April-10 to June-10) to see new innovations, experimental plots and technologies developed by VSI.

Month	Name of Institute	Govt. Officers	Factory Officers	Farmers	Number
April 2010	Arni Taluka Agriculture Office Dist: Yavatmal	2		28	30
	Kagal Taluka Agriculture Office Dist: Kolhapur	6		98	104
	Karveer Taluka Agriculture Office Dist: Kolhapur	4		100	104
	Radhanagari Taluka Agriculture Office Dist: Kolhapur	2		48	50
	Ajara Taluka Agriculture Office Dist: Kolhapur	2		50	52
	Yaval Taluka Agriculture Office Dist: Jalgaon	2		45	47
	Kagal Taluka Agriculture Office Dist: Kolhapur	3	5	42	50
	Tasgaon Taluka Agriculture Office Dist: Sangali	1	28	56	85
Phaltan Taluka Agriculture Office Dist: Satara	2		85	87	



Month	Name of Institute	Govt. Officers	Factory Officers	Farmers	Number
	Walva Taluka Agriculture Office Dist: Sangali	2		108	110
	Agasti SSK Ltd.,Tal: Akole,Dist:Ahmednagar			6	6
	Ajara Taluka Agriculture Office Dist: Kolhapur	2		49	51
	Jai Jawan Jai KisanPost: NalegaonjTal: ChakurDist: Latur			12	12
	Hatkanagale Taluka Agriculture Office Dist: Kolhapur	9		141	150
	Shirpur Taluka Agriculture Office Dist: Dhule	5		74	79
	Kagal Taluka Agriculture OfficeDist: Kolhapur	5		100	105
	Nandurbar Taluka Agriculture OfficeDist: Dhule	2		50	52
	Koregaon Taluka Agriculture OfficeDist: Satara	1		35	36
	Pandharpur Taluka Agriculture OfficeDist: Solapur	3		50	53
	Savenar Taluka Agriculture Office Dist: Nagpur	5		45	50
	Khajurao Divisional Agricultural OfficeState: Madhyapradesh	2		30	32
	Kagal Taluka Agriculture Office,Dist: Kolhapur	2		50	52
	Radhanagari Taluka Agriculture OfficeDist: Kolhapur	2		50	52
	Shirur Taluka Agriculture Office,Dist: Pune	7		67	74
	Shri. Venkatswara Co-operative Sugar Factory Limited, Gujulmandyam – 517 520State: Andhra Pradesh			55	55
	Angapur Circle Agriculture Office,Dist: Satara	1		11	12
	Karad Taluka Agriculture Office,Dist: Satara	3		47	50
	Shahuwadi Taluka Agriculture Office,Dist: Kolhapur	3		46	49
	Karveer Taluka Agriculture Office,Dist: Kolhapur	4		96	100
Karad Taluka Agriculture Office,Dist: Satara	4		38	50	
Shahuwadi Taluka Agriculture Office,Dist: Kolhapur	6		94	100	
May 2009	West Kenya Sugar Co. Ltd.,Country: Kenya		10		10
	Umred Taluka Agriculture OfficeDist: Nagpur	1	10	34	45
	Patan Taluka Agriculture Office	3		37	40
	Kadegaon Taluka agriculture OfficeDist: Sangali	4		86	90
	Shriala Taluka Agriculture OfficeDist: Sangli	1	1	38	40
	Malegaon Taluka Agriculture OfficeDist: Nashik	1	1	48	50
	Kadegaon Taluka Agriculture OfficeDist: Sangali	4		96	100
	Dharur Taluka Agriculture OfficeDist: Beed	1		19	20
	Bhudargad Taluka Agriculture Office,Dist : Kolhapur	5		85	90
	Kej Taluka Agriculture Office,Dist : Beed	3		30	33
June 2010	Ajara Taluka Shetkari Vikas Mandal, Ajara,Dist: Kolahapur			50	50
	Panhala Taluka Agriculture office,Dist: Kolhapur	1	1	50	52
	Latur Taluka Agriculture office,Dist: Latur	1		13	14
	Hatkangle Taluka Agriculture office,Dist: Kolhapur				
	Karad Taluka Agriculture office,Dist: Satara	2		98	100
E.I.D.Parry (India) Limited, Tal: Pudukatti, Dist & State :Tamilnadu	1		11	12	
	Total :	120	111	2446	2677

Library Update (April - June 2010)

- 1) PIC Microcontroller and embedded systems Mazidi, Muhammad Ali
- 2) Proceedings of XVIII International symposium on alcohol fuels held on 9th -12th March, 2010 All India Distilleries Association
- 3) Environmental hazards: Assessing risk and reducing disaster - 5th Smith, Keith & Petley, David N.
- 4) Climate change: The Science, impacts and solutions - 2nd Pittock, A.Barrie
- 5) Design with PIC microcontrollers - 5th Peatman, John B.
- 6) Carbon markets: an international business guide Brohe, Arnaud, Eyre, Nick & Howarth, Nicholas
- 7) Proceedings of Australian society of sugarcane technologists held at Bundaberg, Queensland on 11th-14th May 2010 Australian society of sugarcane technologists, Australia
- 8) Chemical reaction engineering Levenspiel, Octave
- 9) Biochemical engineering fundamentals – 2nd Bailey, James E. & Ollis, David F.
- 10) Unit operations of chemical engineering - 7th McCabe, Warren L., Smith, Julian C. & Harriott, Peter
- 11) Principles of unit operations - 2nd Foust, Alan S., Wenzel, L.A., Clump, C.W. & Maus, Louis
- 12) Modern food microbiology - 7th Jay, James M., Loessner, Martin J. & Golden, David A.
- 13) Brock Biology of microorganisms – 12th Madigan, Michael T., Martinko, John M., Dunlap, Paul V. & Clark, David P.
- 14) Biochemical methods – 3rd Sadasivam, S. & Manickam, A.
- 15) Food microbiology – 4th Frazier, William C. & Westhoff, Dennis C.
- 16) Unit operations of chemical engineering - 7th McCabe, Warren L., Smith, J.C. & Harriott, Peter
- 17) Textbook of microbiology - 8th Ananthanarayan, R. & Paniker, C.K. Jayaram
- 18) Chemical Engineering Vol.1 & 2. Coulson, J.M. & Richardson, J.F.
- 19) Principles of Fermentation Technology - 2nd Stanbury, P.F., Whitaker, A. & Hall, S.J.
- 20) Mass-Transfer Operations - 3rd Treybal, Robert E.