



Sugarcane

Recommendation released in last 10 years

2019-20	1	Application of irrigation water through drip at 75% of ET _c with 3 days irrigation interval for sugarcane variety MS 10001 is recommended for getting higher water use efficiency (20.37%) and yield.																																																																																																																																
	2	It is recommended to use cocopeat and vermicompost in equal proportion (1:1) as a growing media for raising single eye bud sugarcane seedlings for achieving higher germination percentage of sugarcane seedlings in HDPE polytray.																																																																																																																																
	3	<p>The crop coefficients given in the following table are recommended for the estimation of water requirement of Suru Sugarcane (Ratoon)</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th>Week</th><th>Kc</th><th>Week</th><th>Kc</th><th>Week</th><th>Kc</th><th>Week</th><th>Kc</th></tr> </thead> <tbody> <tr><td>1</td><td>0.48</td><td>16</td><td>0.95</td><td>31</td><td>1.17</td><td>46</td><td>0.93</td></tr> <tr><td>2</td><td>0.55</td><td>17</td><td>0.96</td><td>32</td><td>1.18</td><td>47</td><td>0.90</td></tr> <tr><td>3</td><td>0.62</td><td>18</td><td>0.98</td><td>33</td><td>1.18</td><td>48</td><td>0.88</td></tr> <tr><td>4</td><td>0.67</td><td>19</td><td>1.00</td><td>34</td><td>1.17</td><td>49</td><td>0.86</td></tr> <tr><td>5</td><td>0.71</td><td>20</td><td>1.01</td><td>35</td><td>1.17</td><td>50</td><td>0.84</td></tr> <tr><td>6</td><td>0.75</td><td>21</td><td>1.03</td><td>36</td><td>1.16</td><td>51</td><td>0.83</td></tr> <tr><td>7</td><td>0.78</td><td>22</td><td>1.05</td><td>37</td><td>1.15</td><td>52</td><td>0.83</td></tr> <tr><td>8</td><td>0.81</td><td>23</td><td>1.07</td><td>38</td><td>1.14</td><td></td><td></td></tr> <tr><td>9</td><td>0.83</td><td>24</td><td>1.08</td><td>39</td><td>1.12</td><td></td><td></td></tr> <tr><td>10</td><td>0.85</td><td>25</td><td>1.10</td><td>40</td><td>1.10</td><td></td><td></td></tr> <tr><td>11</td><td>0.87</td><td>26</td><td>1.12</td><td>41</td><td>1.07</td><td></td><td></td></tr> <tr><td>12</td><td>0.89</td><td>27</td><td>1.13</td><td>42</td><td>1.05</td><td></td><td></td></tr> <tr><td>13</td><td>0.90</td><td>28</td><td>1.14</td><td>43</td><td>1.02</td><td></td><td></td></tr> <tr><td>14</td><td>0.92</td><td>29</td><td>1.15</td><td>44</td><td>0.99</td><td></td><td></td></tr> <tr><td>15</td><td>0.93</td><td>30</td><td>1.16</td><td>45</td><td>0.96</td><td></td><td></td></tr> </tbody> </table> <p>Alternatively following equation is recommended Penman Monteith method:</p> $K_{c_t} = 23.38 \left(\frac{t}{T} \right)^5 - 59.18 \left(\frac{t}{T} \right)^4 + 52.65 \left(\frac{t}{T} \right)^3 - 21.23 \left(\frac{t}{T} \right)^2 + 4.784 \left(\frac{t}{T} \right) + 0.426$ <p>Where, K_{c_t} is the crop coefficient of Suru Sugarcane (Ratoon) on tth day; t is day and T is total crop growth period in day</p>	Week	Kc	Week	Kc	Week	Kc	Week	Kc	1	0.48	16	0.95	31	1.17	46	0.93	2	0.55	17	0.96	32	1.18	47	0.90	3	0.62	18	0.98	33	1.18	48	0.88	4	0.67	19	1.00	34	1.17	49	0.86	5	0.71	20	1.01	35	1.17	50	0.84	6	0.75	21	1.03	36	1.16	51	0.83	7	0.78	22	1.05	37	1.15	52	0.83	8	0.81	23	1.07	38	1.14			9	0.83	24	1.08	39	1.12			10	0.85	25	1.10	40	1.10			11	0.87	26	1.12	41	1.07			12	0.89	27	1.13	42	1.05			13	0.90	28	1.14	43	1.02			14	0.92	29	1.15	44	0.99			15	0.93	30	1.16	45	0.96		
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4	The subsurface drainage system with 40 m drain spacing between two perforated pipes and 1.25 m drain depth is recommended for optimum drainage, improving soil health and economic production of sugarcane in waterlogged Vertisols.																																																																																																																																	
5	It is recommended to irrigate suru sugarcane with 100 % irrigation at tillering stage (45-135 days after planting), 30 % water deficit during grand growth stage (136 to 300 days after planting) and 60 % water deficit during maturity stage (301 to 360 days after planting) for obtaining optimum production in heavy deep black soils under scarcity zone conditions.																																																																																																																																	
6	<p>The crop coefficients given in the following table are recommended for estimation of water requirement of nursery planted seasonal (Suru) sugarcane.</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th>Period (days after planting)</th><th>Crop coefficients (Kc)</th><th>Period (days after planting)</th><th>Crop coefficients (Kc)</th></tr> </thead> <tbody> <tr><td>0-40</td><td>0.40</td><td>201-210</td><td>1.29</td></tr> <tr><td>41-50</td><td>0.31</td><td>211-220</td><td>1.29</td></tr> <tr><td>51-60</td><td>0.43</td><td>221-230</td><td>1.28</td></tr> <tr><td>61-70</td><td>0.53</td><td>231-240</td><td>1.27</td></tr> </tbody> </table>	Period (days after planting)	Crop coefficients (Kc)	Period (days after planting)	Crop coefficients (Kc)	0-40	0.40	201-210	1.29	41-50	0.31	211-220	1.29	51-60	0.43	221-230	1.28	61-70	0.53	231-240	1.27																																																																																																													
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		<p>The following 2nd order polynomial function expressed as ratio of days after planting to total crop period (t/T) is recommended for estimating crop coefficient values (Kc) of nursery planted sugarcane grown under semiarid conditions.</p> $Kc_t = -4.695 \left(\frac{t}{T}\right)^2 + 5.566 \left(\frac{t}{T}\right) - 0.360$ <p>Where, Kc_t = crop coefficient on tth day ; t = number of days since planting ; T = total crop period</p>																																																																															
	7	<p>The farmers in Maharashtra earned gross returns of Rs 100787 and Rs 31681 crores, whereas, net benefit of Rs 11059 and Rs 2215 crores from university released Co-86032 and CoM-265 varieties during 22 years (1995-96 to 2016-17) and 9 years (2008-09 to 2016-17), respectively. Further, it is revealed that an investment of a rupee in sugarcane research and extension generated income of ` 31 with 41 percent Internal Rate of Returns (IRR), respectively. Therefore, it is recommended that the substantial funds shall be provided for research and extension in sugarcane.</p>																																																																															
2017-18	8	<p>Application of 50 per cent recommended dose of NPK fertilizers to preseasonal sugarcane (170:85:85 N:P₂O₅: K₂O kg ha⁻¹) and its 3 successive ratoons (125:58:58 N:P₂O₅: K₂O kg ha⁻¹) through fertigation in 44 splits at weekly interval along with FYM 25 t ha⁻¹ and set treatment of acetobacter and PSB to plant cane and trash management practice along with application of composite culture of biofertilizers (Acetobacter, azotobacter, azospirillum and PSB each @ 1.25 kg ha⁻¹) to ratoon is recommended for higher cane and CCS yield and to maintain soil fertility.</p> <p>Fertigation schedule for preseasonal sugarcane and its ratoon :</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="3">Weeks after planting</th> <th colspan="6">Nutrients applied (kg ha⁻¹)</th> <th rowspan="3">No. of splits</th> </tr> <tr> <th colspan="3">Plant Cane</th> <th colspan="3">Ratoon</th> </tr> <tr> <th>N</th> <th>P₂O₅</th> <th>K₂O</th> <th>N</th> <th>P₂O₅</th> <th>K₂O</th> </tr> </thead> <tbody> <tr> <td>2 to 5 weeks</td> <td>7</td> <td>3</td> <td>2</td> <td>5</td> <td>2</td> <td>2</td> <td>4</td> </tr> <tr> <td>6 to 11 weeks</td> <td>31</td> <td>15</td> <td>5</td> <td>23</td> <td>11</td> <td>3</td> <td>6</td> </tr> <tr> <td>12 to 15 weeks</td> <td>34</td> <td>17</td> <td>3</td> <td>25</td> <td>12</td> <td>2</td> <td>4</td> </tr> <tr> <td>16 to 21 weeks</td> <td>41</td> <td>20</td> <td>10</td> <td>30</td> <td>14</td> <td>7</td> <td>6</td> </tr> <tr> <td>22 to 27 weeks</td> <td>31</td> <td>15</td> <td>10</td> <td>22</td> <td>10</td> <td>7</td> <td>6</td> </tr> <tr> <td>28 to 31 weeks</td> <td>14</td> <td>7</td> <td>10</td> <td>10</td> <td>5</td> <td>7</td> <td>4</td> </tr> <tr> <td>32 to 37 weeks</td> <td>14</td> <td>7</td> <td>20</td> <td>10</td> <td>4</td> <td>14</td> <td>6</td> </tr> </tbody> </table>				Weeks after planting	Nutrients applied (kg ha ⁻¹)						No. of splits	Plant Cane			Ratoon			N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	2 to 5 weeks	7	3	2	5	2	2	4	6 to 11 weeks	31	15	5	23	11	3	6	12 to 15 weeks	34	17	3	25	12	2	4	16 to 21 weeks	41	20	10	30	14	7	6	22 to 27 weeks	31	15	10	22	10	7	6	28 to 31 weeks	14	7	10	10	5	7	4	32 to 37 weeks	14	7	20	10	4	14	6
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		38 to 41 weeks	--	--	14	--	--	9	4
		42 to 45 weeks	--	--	10	--	--	7	4
		Total	170	85	85	125	58	58	44
	9	Irrigation at 60% crop evapotranspiration at every alternate day interval throughout the growth period is recommended for efficient water use in <i>Suru</i> sugarcane cultivated under subsurface drip irrigation system in medium deep black soils of Western Maharashtra.							
	10	Plantation of preseasonal sugarcane (Phule 0265) at row spacing of 150cm and intra row spacing of 60 cm using 30 to 35 days old Poly Tray settling is recommended for higher cane and CCS yield in medium deep black soils of Western Maharashtra.							
	11	Sett treatment of oilgochitosan @50ppm for 30 min at the time of planting followed by three foliar sprays 30.60 and 90 days after planting is recommended for sugarcane yield improvement in <i>Suru</i> season.							
2016-17	12	<p>The following regression equation showing the inter-relationship between early shoot borer incidence in sugarcane and weather parameters is recommended for use in model for one week prior forewarning of early shoot borer incidence in scarcity zone of Maharashtra.</p> <p>Early shoot borer = $-17.01 + 1.66 \text{ Max Temp} - 0.99 \text{ Min Temp} - 0.24 \text{ Morning RH} + 0.19 \text{ Afternoon RH}$</p> <p>Units in equation :</p> <p>Early shoot borer = Early shoot borer incidence in sugarcane, %infestation Max Temp = Maximum Temperature in $^{\circ}\text{C}$ (35.5 to 36.8$^{\circ}\text{C}$) Min Temp = Minimum Temperature in $^{\circ}\text{C}$ (18.9 to 19.7$^{\circ}\text{C}$) Morning RH = Morning relative humidity in % (82 to 83%) Afternoon RH = Afternoon relative humidity in % (39 to 43%)</p>							
	13	<p>The following regression equation showing the inter-relationship between brown rust incidence in sugarcane and weather parameters is recommended for use in model for one week prior forewarning of brown rust incidence in scarcity zone of Maharashtra.</p> <p>Brown rust (%) = $-162.67 + 0.109 \text{ Max Temp} - 0.068 \text{ Min Temp} - 1.776 \text{ Morning RH} + 0.088 \text{ Afternoon RH} - 0.035 \text{ RF}$</p> <p>Units in equation :</p> <p>Brown rust = Percent disease index of brown rust incidence in sugarcane Max Temp = Maximum Temperature in $^{\circ}\text{C}$ (28.3 to 31.7$^{\circ}\text{C}$) Min Temp = Minimum Temperature in $^{\circ}\text{C}$ (11.2 to 23.0$^{\circ}\text{C}$) Morning RH = Morning relative humidity in % (95 to 98%) Afternoon RH = Afternoon relative humidity in % (52 to 87%) RF = Rainfall in mm</p>							
	14	Sugarcane cultivation with single row planting at 5 feet distance under drip irrigation with 85% ETc (crop evapotranspiration) water applied at every alternate day throughout the growth period is recommended for obtaining higher yields and saving of irrigation water in medium deep soils of western Maharashtra.							
	15	Two Soil applications of Chlorantraniliprole 0.4 % GR @ 22.50 kg/ha at the time of planting as well as 60 days after planting followed by light irrigation is recommended for effective control of early shoot borer, <i>Chilo infuscatellus</i> in timely and late planted suru sugarcane.							



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2015-16	16	Planting of pre seasonal sugarcane (CoM 0265) during 15 October to 30 November is recommended for higher CCS yield without reduction in cane yield in medium to deep black soils of Western Maharashtra.																																																																																																																																																								
	17	Foliar application of Multimacronutrient (N-8%, P-8%, K-8%) and Multi-micronutrient (Grade II: Fe-2.5%, Mn-1%, Zn-3%, Cu-1%, Mo-0.1%, B-0.5%) liquid fertilizers @5 L each in 500 L of water at 60 days and second spray @7.5L each in 750 L of water at 90 days after planting or ratooning with general recommended dose of nutrient is recommended for higher sugarcane yield and returns																																																																																																																																																								
	18	The application of recommended dose of compost @ 25 t ha ⁻¹ coupled with bagasse ash @ 1.5 t ha ⁻¹ and consortium of Silicate Solubilizing Bacterial (SSB) liquid bioinoculant @ 2.5 L ha ⁻¹ at the time of sugarcane planting with recommended dose of nutrient is recommended for increasing plant available silicon and higher cane yield.																																																																																																																																																								
	19	Application of 60% NPK nutrients in the form of urea, phosphoric acid and muriate of potash in 19 splits up to 9 months crop age as per the following schedule is recommended in <i>suru</i> sugarcane for higher yield and returns under drip irrigation in medium deep soils																																																																																																																																																								
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	21	The tables developed by Mahatma Phule Krishi Vidyapeeth for Tahsils of Western Maharashtra are recommended for estimating weekly water and irrigation requirement of sugarcane (Adsali, preseasonal and suru) by surface and drip methods. Further, the maps developed in Geographical Information System (GIS) are recommended for estimating weekly water and irrigation requirement by surface and drip methods.																																																																																																																																																								



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2014-15	22	It is recommended to use of 2.5 months stored onion seed-bulbs produced particularly via “Set Plantation Technique” for 15th November planting alongwith application of sugarcane trash (0.5 kg/m ²) at 60 days after planting (an organic mulch) for upscaling of seed production potential particularly of kharif onion cultivars in Maharashtra State.
	23	The higher activity profile of defense related enzymes <i>viz.</i> , phenylalanine ammonia lyase, chitinase and β -1,3 glucanase both under constitutive and pathogen inoculation conditions and SSR primer NKS11 is recommended for screening sugarcane clones for smut resistance.
	24	It is recommended to use following biofertilizers technology in sugarcane seed plot for saving 25% N and 25% P ₂ O ₅ for improved seed yield and quality. <ul style="list-style-type: none"> • Treat the sugarcane sets in the solution of 10 kg <i>Gluconacetobacte diazotrophicus</i> + 1.25 kg PSB in 100 lit. water/ha for 30 min before planting OR Use the planting material from last year Acetobacter inoculated plot. • Apply 20 t FYM, 450 kg N, 172 kg P₂O₅ and 115 kg K₂O per hectare to this sugarcane seed plot.
	25	It is recommended to treat the sugarcane sets before planting or spray the liquid culture at 60 days after planting as follows for saving 50% N and 25% P ₂ O ₅ to the <i>Suru</i> sugarcane besides improved sugarcane yield and quality and sustenance of soil fertility. <ul style="list-style-type: none"> • Treat the sugarcane sets in the solution of 10 kg <i>Gluconacetobacter diazotrophicus</i> or 1 litre liquid culture of <i>G. diazotrophicus</i> + 1.25 kg PSB in 100 lit water/ha for 30 min before planting
	26	Majority of the sugarcane growers have very less knowledge and adoption about use of silicon, composite bio-fertilizers, Phosphate Solubilizing Bacteria (PSB), neem seed cake in Urea, micronutrients and trash decomposing culture. For increasing the knowledge level of the sugarcane growers, it is recommended to organize awareness campaigns through print and electronic media, whereas, for increasing the adoption level, trainings and method demonstrations should be organized by the State Department of Agriculture in collaboration with sugar factories. <p>Sugarcane INM technology:</p> <ol style="list-style-type: none"> i. Use of silicon 400 kg/ha through bagasse ash 1.5 tonnes / ha or Calcium Silicate 832 kg / ha for increased sugar and cane yield of one plant cane and two ratoons ii. Use of Acetobacter, Azotobacter, Azospirillum and PSB @ 1.25 kg, each, per ha. for saving of 25% N and P fertilizers in ratoon iii. Sett treatment by Phosphate Solubilizing Bacteria (PSB) 1.25 kg./ ha. for 25% P fertilizer saving iv. Use of neem seed cake in a ratio of 1:6 in Urea v. Use of micronutrients (25 kg FeSO₄, 20 kg ZnSO₄, 10 kg MnSO₄ and 5 kg Borax / ha) vi. Use of trash decomposing culture 10 kg / ha in ratoon
	27	The adoption of drip technology for sugarcane cultivation under farmers participatory action research programme in Western Maharashtra resulted in increase in 25.38% yield, 50.19% water saving and increased economic returns of 33.5% (Rs.70615 per ha). Hence, large scale adoption of drip irrigation in sugarcane is recommended



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2013-14	28	<p>Application of 20 t ha⁻¹ FYM with Nitrogen, Phosphorous and Potassium fertilizers for 200 t ha⁻¹ yield target of preseasonal sugarcane (Cv. Phule 265) is recommended for medium deep black soils of Western Maharashtra.</p> <p>Fertilizer prescription equations</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">With FYM</th> <th style="text-align: center;">Without FYM</th> </tr> </thead> <tbody> <tr> <td>FN = 4.03 x T - 1.43 x SN - 3.81 x FYM</td> <td>FN = 4.21 x T - 1.49 SN</td> </tr> <tr> <td>FP₂O₅ = 1.23 x T - 2.44 x SP - 1.83 x FYM</td> <td>FP₂O₅ = 1.39 x T - 2.75 SP</td> </tr> <tr> <td>FK₂O = 2.26 x T - 0.55 x SK - 1.40 x FYM</td> <td>FK₂O = 2.36 x T - 0.58 SK</td> </tr> </tbody> </table> <p>Where FN, FP₂O₅ and FK₂O fertilizer N, P₂O₅ and K₂O in kg ha⁻¹, T is yield target in t ha⁻¹ and SN, SP and SK are soil available N, P and K in kg ha⁻¹, FYM in t ha⁻¹.</p>	With FYM	Without FYM	FN = 4.03 x T - 1.43 x SN - 3.81 x FYM	FN = 4.21 x T - 1.49 SN	FP ₂ O ₅ = 1.23 x T - 2.44 x SP - 1.83 x FYM	FP ₂ O ₅ = 1.39 x T - 2.75 SP	FK ₂ O = 2.26 x T - 0.55 x SK - 1.40 x FYM	FK ₂ O = 2.36 x T - 0.58 SK				
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29	<p>In Sub-montane Zone of Maharashtra, the sugarcane species viz. <i>Saccharum spontaneum</i> (SES-37A) and <i>Saccharum officinarum</i> (IJ 76-501) with good soil binding abilities are recommended for effective control of small and medium gullies in combination with regular structures in upper catchment.</p>													
2012-13	30	<p>In Western Maharashtra, for obtaining higher economical returns from pre-seasonal sugarcane, dibbling of chickpea as an intercrop-on the top of the ridge is recommended.</p>												
	31	<p>Application of 70 % of recommended dose of NPK in the form of Urea, Phosphoric acid (61% P₂O₅) and Muriate of Potash, respectively in thirteen equal splits starting from planting at an interval of 15 days up to 6 months through drip irrigation is recommended for higher productivity and monetary returns in pre-seasonal and ratoon sugarcane.</p> <ul style="list-style-type: none"> • The recommended dose of NPK under surface irrigation for sugarcane (Kg/ha) Pre-seasonal - 340:170:170 Ratoon - 250:115:115 • The dose of NPK through drip irrigation for sugarcane (Kg/ha) Pre-seasonal - 240:120:120 Ratoon - 175:80:80 • The quantities of fertilizers for each split application through drip irrigation for sugarcane (Kg/ha) <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Particulars</th> <th style="text-align: center;">Urea</th> <th style="text-align: center;">Phosphoric acid</th> <th style="text-align: center;">Muriate of Potash</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Pre-seasonal</td> <td style="text-align: center;">40</td> <td style="text-align: center;">15</td> <td style="text-align: center;">15</td> </tr> <tr> <td style="text-align: center;">Ratoon</td> <td style="text-align: center;">30</td> <td style="text-align: center;">10</td> <td style="text-align: center;">10</td> </tr> </tbody> </table>	Particulars	Urea	Phosphoric acid	Muriate of Potash	Pre-seasonal	40	15	15	Ratoon	30	10	10
	Particulars	Urea	Phosphoric acid	Muriate of Potash										
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32	<p>Majority of sugarcane growers are not aware of the “Ratoon Management” improved technology developed by the University, due to which, the actual adoption of this technology was observed to be very less. Hence, for notable increase in sugarcane ratoon crop yield under water scarcity situation of Maharashtra, it is recommended that, the State Government should disseminate improved sugarcane ratoon management technology on large scale by conducting district wise demonstrations and trainings through the University.</p> <p>Sugarcane Ratoon Minimum Tillage Improved Technology</p> <ul style="list-style-type: none"> • Improved trash management for soil moisture conservation • Stubble shaving and management • Fertilizer management using crowbar • Gap filling by using single eye bud seedlings 													
2011-12	33	<p>Application of 187:87:87 N, P₂O₅ and K₂O Kg ha⁻¹ through briquettes prepared from Urea, DAP and MOP fertilizers is recommended based on following points for higher cane yield, CCS yield and increased fertilizer use efficiency of ratoon</p>												



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		<p>sugarcane grown in medium deep black soils of Western Maharashtra.</p> <ul style="list-style-type: none"> • Apply 50 % dose through briquettes at the time of ratooning on one side and 50 % at 135 days after ratooning on another side. • Apply briquettes by crow bar at 10 cm apart from stool, 10 cm depth with 30 cm distance between holes. 																								
	34	Application of Metribuzine @ 1.25 kg a.i./ha as a pre-emergence spray after planting followed by post-emergence spray of 2-4-D @ 1 kg a.i./ha at 75 days after planting is recommended for management of binding weeds in sugarcane.																								
	35	For maximum sugarcane and sugar yield application of consortia of Sulphur Oxidizing Microbial (SOM) liquid bioinoculant @ 5 lit. /ha. by mixing with compost @ 2 t/ha at the time of planting is recommended.																								
	36	In Western Maharashtra, due to higher adoption of manure and N, P and K fertilizers, the yield gap of Cotton, Onion and Suru and Adsali Sugarcane planting types decreased by 20, 44 and 10 and 21 per cent, respectively. It is, therefore, recommended to increase the awareness amongst the cultivators to use the recommended levels of the inputs.																								
2010-11	37	Application of 100 % NPK fertilizer through briquettes (prepared from 725 kg Urea, 370 kg DAP and 285 kg MOP ha ⁻¹) crow bar at 10 cm depth, 10 cm apart from setts with 30 cm distance between holes, 50 % at the time of planting on one side and 50 % at 135 days after planting on another side is recommended for increased fertilizer use efficiency and getting higher cane and CCS yield from preseasonal sugarcane (cv. Co. 86032) grown in medium deep black soils of Western Maharashtra.																								
	38	Application of 25 % recommended dose of NPK through organics and 75% dose through chemical fertilizers is recommended for preseasonal sugarcane (cv. Co. 86032) and its ratoon to get higher cane, CCS yield and for maintenance of soil fertility. To achieve this, <i>in-situ</i> green manuring of sunnhemp before sugarcane, use of composite culture of biofertilizers @ 5 kg ha ⁻¹ (<i>Azotobacter</i> , <i>Azospirillum</i> , <i>Acetobacter</i> and PSB @ 1.25 kg each) in 100 liter water for sett treatment and application of 300 : 125 : 125 kg N, P ₂ O ₅ and K ₂ O ha ⁻¹ to plant cane and <i>in-situ</i> decomposition of trash (7.5 t ha ⁻¹) as per recommended practice, soil application of composite culture of biofertilizers @ 5 kg ha ⁻¹ and application of 225 : 105 : 105 kg N, P ₂ O ₅ and K ₂ O ha ⁻¹ to ratoon crop is recommended.																								
	39	Application of 80 % recommended dose of fertilizer in water soluble form in 26 weekly splits as per following schedule through drip with 100 % of Etc water applied on every alternate day is recommended for improved productivity, efficient use of water and nutrient and higher economical returns from <i>suru</i> sugarcane cultivated in medium deep black soils.																								
		<table border="1" style="width: 100%; border-collapse: collapse; margin: 0 auto;"> <thead> <tr> <th style="width: 25%;">Weeks</th> <th style="width: 25%;">Nitrogen (N) Kg/ha</th> <th style="width: 25%;">Phosphorous (P) Kg/ha</th> <th style="width: 25%;">Potassium(K) Kg/ha</th> </tr> </thead> <tbody> <tr> <td>1-4 weeks</td> <td style="text-align: center;">30</td> <td style="text-align: center;">09</td> <td style="text-align: center;">09</td> </tr> <tr> <td>5-9 weeks</td> <td style="text-align: center;">79</td> <td style="text-align: center;">32</td> <td style="text-align: center;">14</td> </tr> <tr> <td>10-20 weeks</td> <td style="text-align: center;">100</td> <td style="text-align: center;">51</td> <td style="text-align: center;">32</td> </tr> <tr> <td>21-26 weeks</td> <td style="text-align: center;">--</td> <td style="text-align: center;">--</td> <td style="text-align: center;">37</td> </tr> <tr> <td style="text-align: center;">Total</td> <td style="text-align: center;">200</td> <td style="text-align: center;">92</td> <td style="text-align: center;">92</td> </tr> </tbody> </table>	Weeks	Nitrogen (N) Kg/ha	Phosphorous (P) Kg/ha	Potassium(K) Kg/ha	1-4 weeks	30	09	09	5-9 weeks	79	32	14	10-20 weeks	100	51	32	21-26 weeks	--	--	37	Total	200	92	92
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	40	A sett treatment of acetobacter @ 3 lit/ ha, application of 10 % n and 70 % p through DAP briquettes in two equal slits at planting and earthing up and 25 % N and 70 % K through Urea and Muriate of Potash, respectively in twelve equal slits																								



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		starting from planting at an interval of fortnight through drip irrigation is recommended for higher productivity and monitory returns of suru sugarcane.																																																																											
	41	<p>Application of 50 t FYM, 600 Kg N, 230 kg P₂O₅ and 115 kg K₂O ha⁻¹ is recommended to <i>Phule-265</i> sugarcane seed nursery for obtaining maximum planting material of two eye bud setts and net profit.</p> <p>Fertilizer dose for Sugarcane seed nursery</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Sr. No.</th> <th rowspan="2">Time of fertilizer application</th> <th rowspan="2">FYM (t/ha)</th> <th colspan="3">Recommended fertilizer dose (kg/ha)</th> </tr> <tr> <th>N</th> <th>P</th> <th>K</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>At the time of land preparation</td> <td>50 (100%)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>At the time of planting</td> <td></td> <td>44 (7.50%)</td> <td>115 (50%)</td> <td>57.5 (50%)</td> </tr> <tr> <td>3</td> <td>One month after planting</td> <td></td> <td>44 (7.50%)</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Two months after planting</td> <td></td> <td>100 (17%)</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Three months after planting</td> <td></td> <td>54 (9%)</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>Four months after planting</td> <td></td> <td>54 (9%)</td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>At the time of earthing up</td> <td></td> <td>104 (17%)</td> <td>115 (50%)</td> <td>57.5 (50%)</td> </tr> <tr> <td>8</td> <td>One month after earthing up</td> <td></td> <td>48 (8%)</td> <td></td> <td></td> </tr> <tr> <td>9</td> <td>Two months after earthing up</td> <td></td> <td>48 (8%)</td> <td></td> <td></td> </tr> <tr> <td>10</td> <td>Three months after earthing up</td> <td></td> <td>104 (17%)</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Total</td> <td>50 (100%)</td> <td>600 (100%)</td> <td>230 (100%)</td> <td>115 (100%)</td> </tr> </tbody> </table>	Sr. No.	Time of fertilizer application	FYM (t/ha)	Recommended fertilizer dose (kg/ha)			N	P	K	1	At the time of land preparation	50 (100%)				2	At the time of planting		44 (7.50%)	115 (50%)	57.5 (50%)	3	One month after planting		44 (7.50%)			4	Two months after planting		100 (17%)			5	Three months after planting		54 (9%)			6	Four months after planting		54 (9%)			7	At the time of earthing up		104 (17%)	115 (50%)	57.5 (50%)	8	One month after earthing up		48 (8%)			9	Two months after earthing up		48 (8%)			10	Three months after earthing up		104 (17%)				Total	50 (100%)	600 (100%)	230 (100%)	115 (100%)
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			N	P	K																																																																								
1	At the time of land preparation	50 (100%)																																																																											
2	At the time of planting		44 (7.50%)	115 (50%)	57.5 (50%)																																																																								
3	One month after planting		44 (7.50%)																																																																										
4	Two months after planting		100 (17%)																																																																										
5	Three months after planting		54 (9%)																																																																										
6	Four months after planting		54 (9%)																																																																										
7	At the time of earthing up		104 (17%)	115 (50%)	57.5 (50%)																																																																								
8	One month after earthing up		48 (8%)																																																																										
9	Two months after earthing up		48 (8%)																																																																										
10	Three months after earthing up		104 (17%)																																																																										
	Total	50 (100%)	600 (100%)	230 (100%)	115 (100%)																																																																								
	42	In suru sugarcane planted on 90 cm spaced ridges, sowing of groundnut as an intercrop at 10 cm on both sides of ridges, one week after planting of sugarcane is recommended on medium deep soil of Maharashtra.																																																																											
	43	In sugarcane based integrated farming system model consisting components of cash crops (soybean, pre-seasonal sugarcane + potato) on 0.60 ha, seasonal crops (Soybean/bajara/green gram/onion, rabi sorghum/wheat/chickpea and cowpea on 0.25 ha, fodder crops (jowar/maize on 0.44 ha), perennial grasses (0.10 ha), on 0.14 ha and cattle shade for one crossbred cow on 0.01 ha area is recommended for getting sustainable income from 1.00 ha, irrigated area in scarcity zone of Maharashtra.																																																																											
2009-10	44	The pre seasonal sugarcane be planted by using polybag settlings of 45 days old at 90-180 x 90 cm paired row system under drip irrigation is recommended for medium deep black soils of Western Maharashtra.																																																																											
	45	Intercropping of Lady's finger in suru sugarcane in paired row method (90 – 180 x 15 cm) under Rain gun (45m and Pressure 4 kg/cm ²) sprinkler irrigation system for higher yield & monetary returns is recommended saving and less <i>parawilt</i> .																																																																											
	46	Planting of one eye bud set of Phule-265 at 45 cm apart in 120 cm furrow is recommended for pre-seasonal sugarcane																																																																											