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Sorghum

Recommendation released in last 10 years

2019-20	1	The <i>rabi</i> sorghum line RSV 1188 is recommended as a shootfly resistant source on the basis of morphological characters, biochemical traits and dead hearts percentage.
	2	After 13 years of long term (2005-06-2017-18) manurial trial, application of 25 kg N ha ⁻¹ through FYM @ 5.0 t ha ⁻¹ as a nutrient source + 25 kg N through Urea + 25 kg P ₂ O ₅ ha ⁻¹ through single super phosphate is recommended for maintaining soil health, higher grain and stover yields and monetary returns of <i>rabi</i> sorghum grown on medium deep black soil in scarcity zone of Maharashtra.
	3	Seed priming before sowing 10 to 12 hrs with 0.05 % potassium nitrate (5 g KNO ₃ 10 liters of water) along with recommended dose of fertilizer (40 kg N + 20 kg P ₂ O ₅ / ha) and 2 % foliar spray of KNO ₃ 55 days after sowing is recommended for obtaining more grain and fodder yield and net monetary returns from <i>rabi</i> Sorghum.
2017-18	4	One harrowing + sowing with seed drill and light harrowing + one hoeing at 3 rd week and 25 kg N through inorganic fertilizer (Urea) and 25 kg N through organic manure through crop residue and <i>Leucaena</i> loppings or any green loppings (50 % nitrogen through crop residue (byre waste) + 50 % <i>Leucaena</i> lopping or any green loppings) + 12.5 kg P ₂ O ₅ through fertilizer (SSP) is recommended for <i>rabi</i> sorghum grown on medium deep black soils in Scarcity Zone of Maharashtra for getting higher grain and stover yield and monetary returns with minimum energy use and maintaining soil fertility.
2016-17	5	It is recommended to undertake the biofertilizer seed treatment in <i>rabi</i> sorghum with <i>Acetobacter</i> and <i>Azotobacter</i> @ 25 g each per kg seed before sowing alongwith application of 25 kg N and 25 kg P ₂ O ₅ per hectare for improved grain and stover yield with 50% saving of N under dryland conditions in the scarcity zone of Maharashtra.
	6	It is recommended to undertake the biofertilizer seed treatment in <i>rabi</i> sorghum with <i>Acetobacter</i> and <i>Azotobacter</i> @ 25 g each per kg seed before sowing alongwith application of 25 kg N and 25 kg P ₂ O ₅ per hectare for improved grain and stover yield with 50% saving of N under dryland conditions in the scarcity zone of Maharashtra.
	7	The farmers in Maharashtra State earned gross economic benefit of Rs. 368.12 crores and net economic benefit of Rs. 64.03 crores from improved <i>rabi</i> sorghum varieties during 1993-94 to 2014-15 released by sorghum research project, MPKV, Rahuri accompanied with improved technology transfer by MPKV, Rahuri and Agricultural Department. It revealed that an additional investment of one rupee in <i>rabi</i> sorghum research generated additional income of Rs. 6.20 with 34.61 per cent Internal Rate of Return (IRR), indicating investment in <i>rabi</i> sorghum research generated substantial returns. Therefore, it is recommended that the State Government should allocate substantial funds to public research in <i>rabi</i> sorghum for productivity enhancement in ensuing food and fodder security.
2015-16	8	The following regression equation showing interrelationship between shoot fly incidence on sorghum and weather parameters is recommended. SSF incidence = 118.62 + 1.34 × Tmax + 2.10 × Tmin – 1.77 × RH-I – 0.04 × RH-II + 0.37 × RF



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		<p>Where, SSF - Sorghum shoot fly population (in equation), Tmax - Max. Temp. (0C), Tmin- Min. Temp. (0C), RH-I - Relative Humidity % (morning), RH-II- Relative Humidity % (evening), RF- Rainfall (mm) The resulting negative value in equation will indicate absence of shoot fly incidence and positive value indicates possibility of occurrence of incidence.</p>
	9	<p>The application of zinc sulphate @ 20 kg ha⁻¹ incubated for one week with cow dung slurry (1:4 fresh cow dung : water ratio) at 30 days after sowing through irrigation to <i>rabi</i> sorghum with general recommended dose of nutrients (80:40:40 kg ha⁻¹ N:P₂O₅:K₂O + 5 t ha⁻¹ FYM) is recommended in zinc deficient medium deep black soils of Western Maharashtra for increase in nutrient use efficiency, uptake of micronutrients, yield of <i>rabi</i> sorghum, returns and enhancing soil fertility.</p> <p>Technology</p> <ul style="list-style-type: none"> • Half dose of N, full dose of P₂O₅ and K₂O at sowing and half dose of N at 30 DAS. • Cow dung slurry 1:4 ratio (125 kg fresh cow dung + 500 L ha⁻¹ water) incubation for one week and application after 30 DAS with irrigation.
	10	<p>Planting of summer marigold and <i>rabi</i> sorghum (<i>Var.</i> Suchitra) in medium deep black soils of scarcity zone of Western Maharashtra for higher yield, water saving, net extra income and water use efficiency, marigold and <i>rabi</i> sorghum may be planted in sequence under drip irrigation at paired row planting of 30 – 60 x 15 cm with sub lateral spacing 90 cm and irrigated at 40 % evaporation to marigold and at 70 % Etc to <i>rabi</i> sorghum at every alternate day is recommended.</p>
	11	<p>Sweet sorghum genotype RSSV-313 is recommended as a donor parent in crop improvement programme based on specific physiological traits like stay green rating, juice brix and high biomass.</p>
2014-15	12	<p>In Scarcity zone of Maharashtra, application of 2.5 t FYM ha⁻¹ along with nitrogen, phosphate and potash as per yield targeting equation for 15-18 qha⁻¹ and 40-50 q ha⁻¹ fodder yield of rainfed <i>rabi</i> sorghum on medium deep black soil is recommended.</p> <p style="text-align: center;">With FYM</p> $FN = 9.27 \times T - 0.27 \times SN - 4.42 \times FYM$ $FP_2O_5 = 4.58 \times T - 2.48 \times SP - 0.89 \times FYM$ $FK_2O = 4.02 \times T - 0.03 \times SK - 2.15 \times FYM$ <p style="text-align: center;">Without FYM</p> $FN = 10.55 \times T - 0.31 \times SN$ $FP_2O_5 = 5.44 \times T - 2.94 \times SP$ $FK_2O = 5.24 \times T - 0.04 \times SK$ <p>Where FN, FP₂O₅ and FK₂O is fertilizer N, P₂O₅ and K₂O in kg ha⁻¹, T is yield target in qha⁻¹ and SN, SP and SK are soil available N, P and K in kg ha⁻¹, FYM in t ha⁻¹.</p>
	13	<p><i>Rabi</i> sorghum genotype RSV 1098 is recommended as a donor parent in crop improvement programme for drought tolerance based on physiological traits like RLWC, SPAD value, Leaf temperature difference, Photosynthesis rate, Transpiration rate, Stomatal conductance, Harvest index and root traits .</p>
	14	<p>“Phule Root Box structure” (Dimensions 10.0m Length X 2.0 m Width X 1.0 m Height) is recommended for screening of drought tolerance genotypes in field crops. (e.g. <i>rabi</i> sorghum)</p>



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2013-14	15	To obtain higher yield and monetary returns of rainfed rabi sorghum in Western Maharashtra region, through in-situ moisture conservation; the preparation of compartmental bunding (3.60 m x 3.60 m) during first week of August followed by seed sowing at optimum moisture during third week of September and reconstruction of flat bed by “Bund-former” (Sara) implement is recommended.
	16	In kharif season harvesting of sweet sorghum green canes at 45 days after 50% flowering is recommended for obtaining maximum juice, sugar content and ethanol yield.
	17	Sowing of sweet sorghum in second fortnight of June is recommended for obtaining maximum juice, sugar content and ethanol yield.
2012-13	18	In medium deep soils of Scarcity Zones of Maharashtra, to achieve higher yield and monetary returns in rabi season, the sowing of sorghum and chickpea in strips (3:3) at 45 cm spacing is recommended.
	19	Additional increase of 88 and 122 per cent in the yield levels and reduction of 17 and 33 per cent in the per quintal cost of cultivation in medium and high adoption groups respectively, was the result of adoption of recommended package of dry land technologies for rabi sorghum under HOPE project. Therefore, it is recommended that the farmers should follow the package of dry land technology for rabi sorghum. <ul style="list-style-type: none"> • Insitu moisture conservation, • Seed selection as per soil depth • Proper time of sowing (15 Sept.-15 Oct.) • Interculturing (Thinning & 2-3 hoeing) • Integrated nutrient management and • Integrated pest management
2011-12	20	In scarcity zone of Maharashtra under dryland conditions, application of 25 kg K ₂ O ha ⁻¹ in addition to recommended dose of fertilizers (50:25 N:P ₂ O ₅ kg ha ⁻¹) is recommended for higher yield and monetary returns for rabi sorghum on Inceptisol (medium deep soils).
	21	In dryland sorghum cultivation seed inoculation with Azotobacter Strain-4 (25 g/kg seed) with 75% RDN (NPK45:30:0) is recommended for getting higher yield.
	22	The seed treatment of deltamethrin 2.8 EC @ 4 ml or azadirachtin 1% EC @ 150 ml mixed in 500 ml of water per 100 kg of seed is recommended for control of storage insect pest (Rhyzopertha dominica) and for maintaining the sorghum seed germination above seed certification standards (75%) upto 9 months of storage.
2010-11	23	Forage crops grown in medium black soils of Western Maharashtra during kharif season sorghum (Ruchira) along with cowpea (Sweta) in paired row planting 30cm apart (two lines of sorghum & two lines of cowpea) and during rabi season annual Lucerne (Anand-2) forage cropping sequence, gave higher forage yield & 25 % saving in Nitrogen fertilizer and sustain to maintain the soil fertility through integrated nutrient management along with Bio fertilizer seed treatment along with following recommendation. <p>A) Kharif season sorghum forage crops out of 75:50:40 kg ha⁻¹ NPK.</p> <ul style="list-style-type: none"> • 5 ton FYM and 50 kg P₂O₅ and 40 kg K₂O ha⁻¹ at sowing. • 50 kg N/ha after 30 DAS <p>B) Rabi season annual Lucerne crop out of 15:80:40 kg ha⁻¹ NPK.</p> <ul style="list-style-type: none"> • 1 ton FYM and 10 kg N, 80 Kg P₂O₅ & 40 kg K₂O ha⁻¹ through chemical fertilizer at the time of sowing.



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	24	Seed treatment of <i>Acetobacter diazotrophicus</i> to sorghum @ 25 g/kg seed with 75% (37.5 kg/ha) of recommended N (50.0 kg/ha) is recommended for obtaining higher grain and stover yield in Scarcity Zone of Maharashtra
	25	Seed treatment of Carboxin (polykoted thiram and carboxin) @ 2 g/kg of rabi sorghum seed before storage is recommended for maintaining the germination percentage above the minimum certification standards during storage (180 days) and higher yield.
2009-10	26	In situ in corporation or lopping of cowpea at flowering during kharif followed by application of recommended fertilizer (50:25 kg ha ⁻¹ N:P ₂ O ₅) to rabi sorghum for higher grain and fodder yield and sustained soil fertility is recommended for medium deep black soils of Scarcity zone of Western Maharashtra.