

AICSIP- DSR network Sub-projects

Co-ordinator: S. Audilakshmi and VR Bhagwat

Sub-project-1: Enhancing resistance to biotic stresses & product quality in sorghum					
Activity No	Project activity	SPC	CSM	CS (Location) if not Hyderabad	Role
1.1	Marker-assisted improvement of sorghum hybrid parents for shoot fly resistance	SP Mehre, Parbhani	R Madhusudhana	R Madhusudhana	Introgression of glossiness (<i>gl</i>) and trichome density (<i>tr</i>) QTL from donor IS 18551 into kharif B lines (296B, 27B) for improved shoot fly resistance. Providing genotyping services to all.
1.1				SP Mehre, Parbhani	Introgression of glossiness (<i>gl</i>) and trichome density (<i>tr</i>) QTL from donor IS18551 and RILs derived from (BTX623 X IS 18551 , 296 B x IS18551 into rabi B lines 7B, 116B, 104B, 8B and 1409 B for improved shoot fly resistance.
1.1				VR Bhagwat	Evaluate QTL introgressed lines for shoot fly resistance; quantify the effects, Identify new mechanisms and sources of resistances, quantify relative magnitude of the component traits in imparting resistance
1.1				Gowri Sajjanar, Bijapur	Introgression of glossiness (<i>gl</i>) and trichome density (<i>tr</i>) QTL from donor IS18551 into rabi new R lines for improved shoot fly resistance.
1.1				Amarpalli Akhare, Akola	Introgression of glossiness (<i>gl</i>) and trichome density (<i>tr</i>) in sweet sorghum lines and rabi new R lines for improved shoot fly resistance and bioinformatics
1.2	Inter and intra-specific variation in shoot fly species in sorghum	T Hussain,	Kalaisekar	Kalaisekar	1. Morphological characterization, variation, species delimitation. 2. Preparation of identification tool
1.2				Shekhappa, Dharwad	Field collection of shoot fly sample from station and farmers field.
1.2				T Hussain, Udaipur	1. Morphological characterization, variation, species delimitation. 2. Preparation of identification tool
1.2				DG Daware, Parbhani	Field collection of shoot fly sample from station and farmers field.
1.2				P Anandhi, Kovilpatti	Field collection of shoot fly sample from station and farmers field.

1.3	Improvement of sorghum MS lines for grain quality (mainly grain moulds) to suit industrial uses	M. Y. Kamatar, Dharwad	TG Nageshwar Rao	TG Nageshwar Rao	Screening of newly evolved derivatives for resistant to GM in high rainfall areas (Shimoga, Hassan, Kolhapur)
1.3				MY Kamatar, Bijapur	Hybridization of superior derivatives with colour genetic stock, evaluation and selection of segregating material.
1.3				Sujay Rakshit	Breeding for superior color grain derivatives for GMR
1.3				RB Ghorade, Akola	Selections & advancement of segregating material in 2009R, 2010(K&R)
1.4	Improvement of sorghum for midge resistance	G. Shyam Prasad	R. Sankaranpadian, Kovilpatti	R.Sankarapandian, Kovilpatti	Development of early and midge resistance / tolerance lines
1.4				Shekarappa, Dharwad	Evaluation and selection of the midge resistant/ tolerant material
1.4				G.Shyam Prasad	Evaluation of new segregating lines for midge resistant/ tolerance and studies on mechanisms.
1.5	Improving sorghum for mite resistance	Rore, Surat	VR Bhagwat	BD Jadhav, Surat	Development of mite resistance / tolerance lines
1.5				P Anandhi, Kovilpatti	Evaluation and selection of the midge resistant/ tolerant material
1.5				Rote, Surat	Evaluation and selection of the midge resistant/ tolerant material
1.5				VR Bhagwat	Evaluation of the midge resistant/ tolerant material
1.6	Characterization of new resistance sources for sucking pests of sorghum	SS Ambekar, Parbhani	B Subbarayudu	SS Ambekar, Parbhani	To breed the improved resistant genotypes for shoot bug and aphid during kharif and Rabi using resistance sources (KR 191, KR 196, C-43 and I 12)
1.6				AP Biradar, Bijapur	To evaluate and investigate the role of phenolic acids imparting resistance to shoot bug and aphids in sorghum.
1.6				B. Subbarayudu	To study mechanisms of host plant resistance and identify resistant genotypes
1.7	Wide hybridization in sorghum to improve biotic stresses	Gowri Sajjanar, Bijapur	S.V. Rao	Gowri Sajjanar, Bijapur	Transfer resistance genes into the elite cultivated germplasm through cross-pollination
1.7				S V Rao	Maintaining wild species germplasm, crossing and introgression, compatibility studies, support to other groups
1.7				KBS Visarada	Compatibility studies on interspecific hybrids
1.7				Sameer Kumar, Tandur	Crossing and introgression for transferring resistant gene

1.8	Genetic alteration of starch quality in sorghum	Narpinder Singh, Amritsar	S. Audilakshmi	S. Audilakshmi	Identifying superior lines for amylos/amylopectin lines, developing new mutant lines having high amylose/amylopectin lines
1.8				IK Das	Identifying superior lines for high ethanol fermentation efficiency lines
1.8				Narpander Singh, Amritsar	Evaluating F ₄ and M ₄ for amylose content, geletinization, viscosity

1.9	Development of good combining 'B' lines endowed with Maldandi grain quality traits	B.D.Biradar, Bijapur	Prabhakar	B.D.Biradar, Bijapur	Generation advancement, and selections for grain quality & yield traits
1.9				G.M.Sajjanar, Bijapur	Combining ability studies of selected lines
1.9				Prabhakar	Conversion of derivatives of good grain quality exotic germplasm to MS lines and studying their combining ability

1.1	Development of superior single-cut forages and improvement forage sorghums for yield and HCN quantity by agronomic means	Tiwana, Ludhiana	Aruna C	Aruna C	Development of forage sorghum varieties with improved shoot fly resistance and yield
1.1				Tiwana, Ludhiana	Evaluation of HCN content in different agronomic post harvest practices
1.1				Pahuja SK, Hissar	Development forage sorghum varieties with improved resistance to stem borer
1.1				Modi, Surat	Development forage varieties with improved yield
1.1				P Shroteria, Pantnagar	Development forage varieties with resistance to foliar diseases

1.11	Processing Technology for Innovative ready to eat foods from sorghum	D Malathi, Coimbatore	CV Ratnavathi	CV Ratnavathi	To evaluate the quality and recovery scale up testing of multigrain atta/rotis/extruded products
1.11				D Malathi, Coimbatore	Standardization & Development of ready to eat foods from sorghum
1.11				UD Chavan, Rahuri	Selection and standardization of suitable variety for niche products like (flake, extruded, hurda and pop sorghum).
1.11				Sankarapandian, Kovilpatti	MLT of promising lines, generation advancement and selection for niche food products (flake, hurda and pop sorghum)

Sub-project 2 : Accelerating development and testing of parental lines for making better hybrids

Activity No	Project activity	SPC	CSM	CS (Location) if not Hyderabad	Role
2.1	Line improvement of mega parental line	RB Ghorade, Akola	Hariprassna	RB Ghorade, Akola	Improvement of 296 B lines for grain size and luster.
2.1				SS Ambekar, Parbhani	Improvement of 104 B lines for grain shape and luster.
2.1				Hariprassna	To improve 296 B for early flowering to synchronize with RS 29

2.1				Usha Saxena, Indore	To improve IMS 9B for maturity and height
2.2	Utilization of new germplasm for development of	Ganesamurthy, Coimbatore	Umakanth	K. Ganesamurthy	Selections and further advancement of segregating material for varietal development
2.2	development of			Umakanth	Development of hybrid parental lines
2.3	Identification of saline tolerant sorghum genotypes	HS Talwar	ML Soni, Bikaner	HS Talwar	Screening and basic studies
2.3				M Elangovan	Germplasm collection and Characterization
2.3				D Nandwal, Hisar	Field Screening
2.3				ML Soni, Bikaner	Field Screening
2.3				PK Roy, Pali	Field Screening
2.4	Genetic and molecular mapping for fertility restoration on	B.D.Biradar, Bijapur	Madhusudhana	BD Biradar, Bijapur	Genetic analysis of fertility restoration on maldandi cytoplasm
2.4				Madhusudhana	Molecular mapping and identification of markers linked to fertility restorer genes on <i>maldandi</i>
Sub-project 3: Breeding for nutritionally improved sorghum with special to biofertilization for human health & stover quality					
3.1	Breeding for nutritionally improved sorghum with special reference to biofertilization and yellow sorghum	Nagesh Kumar, Palem	Hariprasanna	Hariprasanna	Incorporating desirable levels of Iron and zinc
3.1				Nagesh Kumar, Palem	Yellow pericarp sorghum improvement, MLT of promising lines
3.1				Vaishali Agle, Pune	Micronutrient analysis of grains, Analysis of yellow pericarp lines for pharmaceutical properties
3.2	Organic Rabi Sorghum Production based Cropping Sequence	S.S. Angadi, Dharwad	S. Ravikumar	S.S Angadi, Dharwad	To assess the impact of organic farming practices on soil properties, growth, yield, quality and net returns of rabi sorghum based cropping sequence.
3.2				S Ravikumar	Organic seed production
3.2				Seema Nemade, Akola	To assess the impact of organic farming practices on soil properties, growth, yield, quality and net returns of rabi sorghum based cropping sequence.
3.3	Processing Technology for Innovative health foods from sorghum	TS Chandra, Chennai	CV Ratnavathi	CV Ratnavathi	To identify sorghum rich in antioxidants and functional properties.
3.3				TS Chandra, Chennai	Effect of millet and sorghums rich in anti oxidants, whole grain diet or subcomponents on human health identified.
3.3				Gouri Sajanan, Bijapur	Standardization of varieties for niche products (flake and pop sorghum).

1 SC = Scheme Convener, 2. CSM = Channel Support Manager, 3. CS = Co-operating Scientist