



The Directorate of Sorghum Research (DSR), a premier agricultural research institution under the Indian Council of Agricultural Research (ICAR) was established on 16th November, 1987. In 1966, It was initiated as a regional research station of the

Indian Agricultural Research Institute (IARI), New Delhi.

### Sub centres

**Centre on Rabi Sorghum at Solapur:** To work mainly on Rabi sorghum, The Centre on Rabi Sorghum (CRS) was established in 1991 under NRCS at Solapur in Maharashtra.

**Off Season Nursery at Warangal:** An Off-Season Nursery Facility was also established in 1995 at Warangal in AP to support research activities on sorghum by advancing one season.

### Coordination and linkages

The responsibility of applied research on sorghum is networked under AICSIP through 16 major research centres of 12 State Agricultural Universities (SAUs) spread over in 10 states in India. As a national advisory agency on all aspects of sorghum research, production and utilization, the DSR-AICSIP system has embedded interactions with private sector research and developmental agencies and traders for commercialization of technologies.

### Mandate

- To conduct basic and strategic research leading to technology development for increased productivity of sorghum, its diversified utilization, to promote profitability from sorghum based cropping systems, and to serve as national repository of sorghum germplasm.



- To serve as a national centre for training and consultancy on all aspects of sorghum production and utilization and to foster collaborative research with national and international agencies.

- Orient sorghum research towards market and export promotion and to coordinate and conduct multilocation AICSIP programmes at the national level and other network projects.

### Vision

Enhancing global competitiveness of Indian sorghum through value-addition to food, feed, fodder, fuel types of sorghum, and to enable nutritional security, environmental quality and economic prosperity of resource-poor dryland farmers.

### Current focus

- Enhancing and sustaining sorghum productivity and global competitiveness.
- Improving the quality and cost-effectiveness of sorghum production systems.
- Improving efficiency of natural resources and input use.
- Reducing avoidable yield losses and stabilizing yield gains without impairing the environmental quality.
- Making sorghum farming remunerative under a range of ecologies.
- Effective transfer of improved technologies.
- Promoting sorghum as a health-food, and industrial raw material.

### Infrastructure

**Labs:** This National centre has modest laboratory facilities for all premier research areas including: Marker-Assisted Selection; tissue culture, stem borer screening facility, alternate uses, value addition and bio-chemistry, crop production, plant protection, physiology and seed science and technology.



### Other facilities:

Three cold storage modules for medium term storage of genetic stocks and breeder seed. A glass house with regulated soil profile facility, Guest house and Canteen.



### Publications

DSR has to its credit several periodicals and publications such as Annual reports, Technical bulletins, books, monographs and monthly in-house newsletter "Happenings at DSR and AICSIP News", quarterly scientific newsletter "Jowar Samachar" and brochures.

### Activities and other Services

DSR undertakes all mandatory research services including DUS testing, Breeder Seed Production, Front Line Demonstration and consultancy on all aspects of sorghum research, production and utilization. We also coordinate network projects such as DBT sponsored projects on biotechnology of millets.

### Saleable technologies identified for upscaling

- Ethanol and bio-fuel from sweet stalked sorghum
- Potable alcohol from molded grain.
- Sorghum as adjunct in brewing industry.
- Sorghum for poultry and animal feed.
- Natural syrup from sorghum cane juice.
- Jaggery from sorghum juice.
- Beer from sorghum malt.
- Use of community driers to ameliorate the problem of grain molds in kharif season.



### Research collaboration and linkages

The institute has partnership in research with following national and international research institutions :

- DBT:** To coordinate network project on biotechnology of millets
- ACIAR, Australia:** Sorghum protoplast research; book publication on sorghum TC & transformation.
- AGROPOLIS, France:** Bt. technology with CIRAD
- AP- Netherlands:** Sorghum transformation technology



- **DFID (UK):** Farmers' participatory varietal identification project
- Linkages with **ICRISAT, ILRI** and many foreign universities also exist

### Major achievements on cultivar development

**Crop Improvement with AICSIP:** Over years we have released 23 sorghum hybrids and 22 sorghum varieties for both kharif and rabi seasons.

**Kharif:** Among the kharif hybrids, CSH 1, CSH 5, CSH 6, CSH 9, CSH 14 and CSH 16 needs special mention. While CSH 5 and CSH 6 had a yield potential of 34 q/ha, this potential was raised to 40 q/ha in CSH 9. It is now further advanced to more than 41 q/ha in CSH 16 and CSH 23.

**Rabi :** The three rabi varieties CSV 8R, CSV 14R, CSV 18, Swathi and the hybrids CSH 7R and CSH 8R were better received by farmers. Recently developed hybrids CSH 15R and CSH 19R are more productive, but acceptability among farmers is still low.



**Forage sorghum:** The multi-cut varieties and hybrids such as CSH 20 MF, MP Chari, UP Chari 1, UP Chari 2, RC 1, RC 2, PC 9, PC 23, HC 171, HC 260 and HC 308 have been developed for All-India cultivation and few other varieties released at State level .

**Sweet sorghums:** SSV 84 and CSV 19 SS are the nationally released sweet stalked varieties and CSH 20SS is the first sweet stalked sorghum hybrid.

### Recently identified and released sorghum cultivars (2005-06) include:

CSH 21, CSH 23 (Grain sorghum hybrids), CSV 17 and CSV 18 (Grain sorghum varieties), CSV 20 (Dual-purpose sorghum), CSH 20 MF (Multi-cut forage sorghum hybrid), CSV 21SF (SRF 286) Single-cut forage, CSH 22SS (Sweet sorghum hybrid) and CSV 19SS (Sweet sorghum variety)



### All India Coordinated Sorghum Improvement Project (AICSIP)

AICSIP was initially located at IARI, New Delhi. In January 1970, it was relocated at Hyderabad. Sixteen of the major research centres under 12 SAUs are networked under AICSIP. ICAR guides, supports and coordinates research activities on all applied aspects of sorghum. This project is supported by 61 scientists, 77 technical, 8 administrative and 9 auxiliary staff posted at the above centres in various SAUs in 10 states.

### Mandate

- Develop superior hybrids and varieties combining high yield and acceptable quality of grain and fodder, wider adaptability and resistance to major stress factors .
- Evolve appropriate crop management practices and formulate efficient sorghum-based cropping systems for sustainable sorghum production in each zone
- Conduct investigations on key or potential pests and diseases of sorghum and identify and evolve elite sources of resistance to develop suitable integrated plant protection strategies .
- Promote research and extension to meet local needs within each state through SAUs and other partners

*Please see inside for list of achievements*



For more information, pl. contact:

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# DSR

## an overview...



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