



# Proceedings of 3rd International **Millet** Symposium

(3rd International Symposium on Broomcorn Millet)

**Eds: Dipak Santra, Jerry Johnson**

## **Finding New Markets And Uses for Millet**

August 8-12th, Marriott  
Inn, Fort Collins, CO, USA

**Organized by:**

University of Nebraska-Lincoln (UNL)  
and Colorado State University (CSU)



**International Millet Symposium  
(The 3rd International Symposium on Broomcorn Millet)  
Marriot Inn, Fort Collins, CO, USA  
August 8-12, 2018**

ORGANIZING COMMITTEE

Chairs: Dr. Dipak Santra (UNL) and Dr. Jerry Johnson (CSU)

Members:

University of Nebraska-Lincoln: Dr. Cody Creech, Dr. Bijesh Maharjan, Dr. Xin Qiao, Dr. James Schnable, Dr. Jinlinag Yang, Dr. Yue Zhang, Karen Deboer, David Ostdiek, Michael Riese, Patricia Martin, Stefani Cruz, and Dr. Gary Hergert

Colorado State University: Sally Jones, Kierra Jewell, and Dr. Rick Novak.

USDA-ARS: David Brenner.

PROGRAM SUMMARY:

Date	Morning Session	Afternoon Session	Evening Session
8-Aug		Registration	Welcome dinner & keynote speech
9-Aug	Technical Oral	Technical Oral and Poster	Dinner
10-Aug	Technical Oral	CSU campus tour	Banquet dinner
11-Aug	High Plains Millet Tour (Golden Prairie, Nun, CO and HPAL, Sidney, NE)		
12-Aug	Site-seeing (optional)		Return to hotel and dinner (your own)
13-Aug	Check-out from hotel and departure		

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## **Germplasm for Enhancing Productivity and Nutritional Quality of Proso Millet**

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Proso millet (*Panicum miliaceum* L.), also known as common millet or broomcorn millet, is an important ancient crop mostly grown for food, feed and fodder purposes largely in China, Russia, India and USA. It is an under-researched and under-utilized crop. Over 29,000 germplasm accessions have been conserved in genebanks globally. Five races (compactum, contractum, miliaceum, ovatum and patentissimum) have been recognized in proso millet based on panicle morphology and shape. The genebank at ICRISAT conserves 849 accessions of proso millet originating from 30 countries and represents all five races. Characterization of these germplasm revealed large variability for morpho-agronomic traits, including for days to flowering (26 to 50 days), plant height (20 to 133 cm) and inflorescence length (22 to 400 mm). On an average, the race miliaceum was tall (62 cm) with long panicles (209 mm) and ovatum had short plants (46 cm) with small panicles (108 mm). The average Gower's distance based on 18 morpho-agronomic traits on 849 accessions was 0.261. The race miliaceum had highest Gower's distance (0.254) while distance was lowest in ovatum (0.192). Miliaceum and ovatum showed largest divergence (0.275) whereas compactum and ovatum showed lowest divergence (0.229). A set of 200 accessions including 106 accessions from core collection characterized for yield and nutritional traits resulted in identification of 18 high yielding accessions (1.6 to 2.3 t ha<sup>-1</sup>) and 26 accessions that were rich in two or more grain nutrients (Fe 49 to 73 mg kg<sup>-1</sup>, Zn 34 to 47 mg kg<sup>-1</sup>, Ca 143 to 235 mg kg<sup>-1</sup>, and 15 to 19% protein). Extensive evaluation of these trait specific genetically diverse accessions would be useful to identify high yielding stable accessions for release as cultivars and for use in breeding program to develop high yielding nutrient dense cultivars.