Dr. Amol N. Nankar
Junior Group Leader
Department of Vegetable Breeding
Center of Plant Systems Biology and Biotechnology (CPSBB)
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Career Summary: Passionate plant breeder with 8+ years of extensive experience in biofortification, high-throughput phenotyping, and drought adaptation in array of crops.

HONORS AND AWARDS:

- **Invited Speaker: "IoT, Big Data and Smart Agriculture: Research Initiatives and Industry Perspectives"** at 2021 International Conference on Recent Advances in Agricultural Sciences "ICRAAS-2021", Noida, INDIA. March 16-17, 2021
- **Invited Co-Chair: "Pre-breeding and Breeding Session"** at 17th International EUCARPIA Meeting on Genetics and Breeding of Capsicum and Eggplant "CapsEgg2019", Avignon, FRANCE. September 10-13, 2019
- 2nd Annual Graduate Student Leadership Conference Award, Minneapolis, MN, USA. Nov 14-15, 2015
- Outstanding Graduate Assistant Award, New Mexico State University, Las Cruces, NM, USA. 2015
- Merit-Based Enhancement Award, New Mexico State University, Las Cruces, NM, USA. 2014
- Blythe William Mayfield Graduate Scholarship Award, New Mexico State University, Las Cruces, NM, USA. 2014
- Indian Council of Agricultural Research (ICAR), Junior Research Fellow, New Delhi, INDIA. 2007

RESEARCH INTERESTS:

Breeding for Biofortification and Drought Adaptation, High Throughput Phenotyping, Trait Introgression, Genomic Selection, Data Science Applications in Breeding, Pre-Breeding and Germplasm Enhancement

TEACHING INTERESTS:

Introductory Plant Sciences, Principles of Genetics and Plant Breeding, Introduction to Research Methods in Genetics and Plant Breeding

PROFESSIONAL EXPERIENCE:

Junior Group Leader, Center of Plant Systems Biology and Biotechnology (CPSBB), Plovdiv, Bulgaria (March, 2021 – present)
Responsibilities:

- Establish research lab to breed novel traits in solanaceous & other crops of economic importance
- Supervise doctoral students and participate in teaching plant breeding and genetics courses
- Prepare grant proposals to seek extra-mural grants

Research Scientist, Center of Plant Systems Biology and Biotechnology (CPSBB), Plovdiv, Bulgaria (July, 2018 – February, 2021)
Responsibilities:

- Lead efforts to collaborate with virologist/pathologists, tomato/pepper breeders, biochemist, and tissue culture/biotechnologist to conduct cutting-edge research on tomato and pepper breeding
- Collaborate with Maritsa VCRI laboratory to identify new viruses

•Prepare experimental proposals, technical reports and publications
• Writing grant proposals and assisting with grant management

Post-Doctoral Research Associate, Texas A&M AgriLife Research and Extension Center, Lubbock, TX, USA (Feb, 2016 – February 2018)
Responsibilities:

- Manage breeding nurseries to develop and release corn inbreds and hybrids
- Oversee and coordinate multi-location hybrid trials for seed production
- Prepare research proposals, research protocols, technical reports and publications
- Lead the collaborative research on early corn and drought tolerance

Graduate Research Assistant, Department of Plant and Environmental Sciences, New Mexico State University, Las Cruces, NM, USA (Aug, 2011 to Dec, 2015)

- Implemented and managed the field and laboratory research on characterization of anthocyanin from Southwestern blue corn landraces
- Managed winter nursery in Puerto Rico and summer nursery in New Mexico for inbred and hybrid development
- Doctoral Dissertation "Comprehensive Analysis of Agronomic, Biochemical and Genotypic Diversity of Southwestern U.S. Blue Corn"

Research Assistant, University of Hohenheim, Stuttgart, Germany (Nov, 2010 to July, 2011)

- Involved in collection of phenotypic data and breeding of Peruvian landraces
- Other duties included tissue sample collection, DNA extraction and gel electrophoresis

Junior Research Fellow, G.B.Pant University of Agriculture and Technology, Pant Nagar, India (July, 2007 to May, 2009)

- Involved in coordinated corn yield trials across North India
- Thesis: "Study of Genetic Parameters in corn through Varietal Diallel"

Proficiencies and Competencies:

Leadership Qualities: Strategic Planning, Project Management, Organizational Skills, Establish Synergistic Collaborations, Mentoring and Skill Development,

Technical: Manage Operational Aspects of Breeding, Design Breeding Schemes and Crossing Blocks, Trait Characterization Phenotyping, Breeding Nursery Management, Breeding Pipeline Development, Organize Yield and Drought Screening Trials

IT Breeding System: Database Management, SAS, XLSTAT, and Unscrambler®

Competitive Grants:

Gancho Pasev (PI), Vesela Radeva-Ivanova (Co-PI), **Amol N. Nankar** (Co-PI), and Dimitrina Kostova (Co-PI). India-Bulgaria Inter-Governmental Programme of Cooperation in Science and Technology: Capsicum germplasm exploitation for resistance against important capsicum viruses across Bulgaria and India. 2019-2020 (€15000).

Wenwei Xu (PI), **Amol N. Nankar** (Co-PI), Charlie Johnson (Co-PI). Genomic insights of Texas AgriLife corn lines for high water use efficiency. 2016. Texas A&M Genomics of Plant Water Use Seed Grant Program 2016-2017 ($9792)

Invited Lectures:

Role of Artificial Intelligence and Data Science in Agriculture Improvement, Agri-Hackathon 2021, Amity University, Noida, Uttar Pradesh, INDIA, March 12, 2021

Agricultural Research: Challenges and Opportunities, Amity University, Noida, Uttar Pradesh, INDIA,

November 2, 2020

Mendelian Genetics, Dr. Wenwei Xu's Genetics Class (PSS 3421), Texas Tech University, Lubbock, TX, USA. February 18, 2016

Maternal Inheritance, Dr. Wenwei Xu's Genetics Class (PSS 3421), Texas Tech University, Lubbock, TX, USA. March 21, 2016

Corn Breeding: Perspectives, Techniques, Opportunities and Challenges, Dr. Mark Uchanski's Vegetable Production Class (HORT 485), New Mexico State University, Las Cruces, NMUSA. November 5, 2015

Teaching Experience:

PSS3421: Genetics at Texas Tech University, Lubbock, TX

HORT485: Vegetable Production at New Mexico State University, Las Cruces, NM

AGRO252: Soil Science at New Mexico State University, Las Cruces, NM

GCMB 202: Basic Genetics, Amity Institute of Organic Agriculture (AIOA), Amity University, Noida, Uttar Pradesh, INDIA and CPSBB, Plovdiv, BULGARIA

ACADEMIC QUALIFICATIONS:

Ph.D., Plant and Environmental Sciences, 2015
New Mexico State University, Las Cruces, NM
Advisor: Dr. Richard C. Pratt
Dissertation: Comprehensive Analysis of Agronomic, Biochemical and Genotypic Diversity of Southwestern US Blue Corn

M.S., Genetics and Plant Breeding, 2009
G.B.Pant University of Agriculture & Technology, India
Advisor: Dr. D.C. Baskheti and Dr. N.K. Singh
Thesis: Study of Genetic Parameters in corn through Varietal Diallel

B.S., Agriculture, 2007
Dr. Panjabrao Deshmukh Agricultural University, Akola, India

PUBLICATIONS:

Peer-Reviewed Publications:

- **Nankar A.N.**, Pratt R.C. (2021). Genotyping by Sequencing Reveals Genetic Relatedness of Southwestern U.S. Blue Maize Landraces. International Journal of Molecular Sciences. 22(7), 3436 (IF 4.556)
- **Nankar A.N.**, Scott M.P., Pratt R.C. (2021) Compositional analyses reveal relationships among components of blue maize grains. Plants. 9: 1775 (IF 2.762)
- **Nankar A.N.**, Tringovska I., Grozeva S., Ganeva D., Kostova D. (2020) Tomato phenotypic diversity determined by combined approaches of conventional and high-throughput Tomato Analyzer phenotyping. Plants. 9: 197 (IF 2.762)
- **Nankar A.N.**, Todorova V., Tringovska I., Pasev G., Radeva V., Ivanova V., Kostova D. (2020) A step towards Balkan Capsicum annuum L. core collection: Phenotypic and biochemical characterization of 180 accessions for agronomic, fruit quality, and virus resistance traits. PLoS ONE. 15(8): e0237741 (IF 2.740)
- Grozeva S., **Nankar A.N.,** Ganeva D., Tringovska I., Pasev G., Kostova D. (2020). Characterization of tomato accessions for morphological, agronomic, fruit quality, and virus resistance traits. Canadian Journal of Plant Sciences (IF 1.065)

- Pasev G., Radeva-Ivanova V., **Nankar A.N.**, Kostova D., Turina M., Vallino M. (2021). First report of TSWV on lisianthus (Eustoma grandiflorum) in Bulgaria. J Plant Pathol. 103: 375 (IF 1.152)
- Grozeva S., Tringovska I., **Nankar A.N.**, Todorova V., Kostova D. (2020) Assessment of fruit quality and fruit morphology in androgenic pepper lines (Capsicum annuum L.). Crop Breeding Genetics and Genomics. 2(1): e200005 (IF NA)
- Grozeva S., **Nankar A.N.** (2020) Effect of incubation period and culture medium on pepper anther culture. Indian Journal of Biotechnology. 19(1): 53-59 (IF 0.413)
- **Nankar A.,** Tringovska I., Grozeva S., Todorova V., Kostova D. (2019) Application of high-throughput phenotyping tool Tomato Analyzer to characterize Balkan Capsicum fruit diversity. Scientia Horticulturae. 260 (IF 2.769)
- Rane J., Sharma D., Ekatpure S., Aher L., Kumar M., Prasad S.V.S., **Nankar A.N.**, Singh N.P. (2019) Relative tolerance of photosystem II in spike, leaf, and stem of bread and durum wheat under desiccation. Photosynthetica. 57(4): 1100-1108 (IF 2.562)
- **Nankar A.**, Holguin O., Scott P., Pratt R. (2017). Grain and Nutritional Quality Traits of Southwestern U.S. Blue Maize Landraces. Cereal Chemistry. 94(6): 950-955 (IF 1.807)
- **Nankar A.**, Grant L., Scott P., Pratt R. (2016). Agronomic and Kernel Compositional Traits of Blue Maize Landraces from the Southwestern United States. Crop Science. 56: 2663-2674 (IF 1.878)
- **Nankar A.**, Dungan B., Paz, Sudasinghe N., Schaub T., Holguin O., Pratt R. (2016). Quantitative and Qualitative Evaluation of Anthocyanins from Southwestern US Blue Corn. Journal of the Food and Agriculture. 96(13):4542-52 (IF 2.614)

Extended Summaries:

- **Nankar A.N.**, Baskheti D.C. (2011). Study of genetic parameters in corn through varietal diallel.11th Asian Maize Conference, November 7-11, 2011, Nanning, Guangxi, CHINA. 171-172. Conference paper
- **Nankar A.N.**, Baskheti D.C. (2011). Study of carotenoid content from maize kernel through spectrophotometry and thin layer chromatography. 11th Asian Maize Conference, November 7-11, 2011, Nanning, Guangxi, CHINA. 336-337.Conference paper

Conference Presentations:

- **Nankar A.N.**, Tringovska I., Grozeva S., Todorova V., Kostova D. (2019). High-Throughput Phenotyping to characterize Balkan Capsicum fruit diversity. The 17th International EUCARPIA Meeting on Genetics and Breeding of Capsicum and Eggplant "CapsEgg2019",September 11-13, 2019, Avignon, FRANCE. Eds. Véronique Lefebvre and Marie-Christine Daunay, page 28-29. Oral Presentation.
- Choudhary S., Kholova J., Chadalwada K., Mallayee S., Prasad K.V.S.V., **Nankar A.N.,** Saini R.P., Vadev V., Blummel M. (2019). NIR spectroscopy: the gateway to physiology of nutritional traits of the crop. In: NIR 2019, September 15-20, 2019, Gold Coast, AUSTRAILIA.
- Tringovska I., Grozeva S., Todorova V., **Nankar A.N.,** Kostova D. (2019). Evaluation of fruit mineral composition in a diverse Balkan pepper collection. The 17th International EUCARPIA Meeting on Genetics and Breeding of Capsicum and Eggplant "CapsEgg2019",September 11-13, 2019, Avignon, FRANCE.Eds. Véronique Lefebvre & Marie-Christine Daunay, page 166-167. Poster presentation
- Grozeva S., Tringovska I., **Nankar A.N.,** Kostova D. (2019). Assessment of fuit quality and fruit morphology in androgenic pepper lines (*Capsicum annuum* L.). The 17th International EUCARPIA Meeting on Genetics and Breeding of Capsicum and Eggplant "CapsEgg2019", September 11-13, 2019, Avignon, FRANCE.Eds. Véronique Lefebvre & Marie-Christine Daunay, page 160-161.

Poster presentation

- Todorova V., **Nankar A.N.,** Grozeva S., Tringovska I., Kostova D. (2019). Evaluation of agronomic and morphological traits of Balkan pepper (*Capsicum annuum* L.) accessions. The 17th International EUCARPIA Meeting on Genetics and Breeding of Capsicum and Eggplant "CapsEgg2019",September 11-13, 2019, Avignon, FRANCE.Eds. Véronique Lefebvre & Marie-Christine Daunay, page 48-49. Poster presentation
- Pasev G., Radeva-Ivanova V., Ivanova V., **Nankar A.N.,** Todorova V., Kostova D. (2019). Evaluation of Balkan pepper germplasm for resistance to tobamo and tospoviruses. The 17th International EUCARPIA Meeting on Genetics and Breeding of Capsicum and Eggplant "CapsEgg2019",September 11-13, 2019, Avignon, FRANCE.Eds. Véronique Lefebvre & Marie-Christine Daunay, page 104-105. Poster presentation
- Vavra C., **Nankar A.N.,** Kelly B., Xu W. (2017). A High-Throughput Method for Measuring Cob Structure and the Correlation of Chemical Composition with Compression Strength. 59th Annual Maize Genetics Conference, March 9-12, 2017, St. Louis, MO, USA. Poster presentation
- Vavra C., **Nankar A.N.**, Kelly B.,Rock C., Marek T., Xu W. (2017). Characterization of Cob Structural Integrity, Imagery Analysis and Biochemical Composition of Corn Hybrids. ASA, CSSA and SSSA International Annual Meeting "Managing Global Resources for a Secure Future", October 22-25, 2017, Tampa, FL, USA. Poster presentation
- Xu W., Odvody G., Ni X., Williams W.P., **Nankar A.N.(**2016). Corn Inbred Lines with Improved Pre-Harvest Aflatoxin Resistance. 3rdBiennial Genetics of Maize-Microbe Interactions Workshop, March 30 – April 2, 2016, College Station, TX, USA. Poster presentation
- **Nankar A.N.**, Odvody G., Ni X., WilliamsW.P., Marek T., Xu W.(2016). Evaluation of Aflatoxin Resistance in Corn Hybrids of Inbred Lines from Temperate x Tropical Background. ASA, CSSA and SSSA International Annual Meeting "Resilience Emerging from Scarcity and Abundance", November 6-9, 2016, Phoenix, AZ, USA. Poster presentation
- **Nankar A.N.**, Grant L., Scott M.P., Pratt R.C.(2015). Comprehensive Analysis of Agronomic and Biochemical Traits of Blue Corn.5th Annual Meeting of National Association of Plant Breeders, July 28-30, 2015, Pullman, WA, USA. Poster presentation
- **Nankar A.N.,** Pratt R.C. Racial Classification of Borderland Blue Corn Landraces. (2015). ASA CSSA and SSSA International Annual Meeting "Synergy in Science: Partnering for Solutions", November 15-18, 2015, Minneapolis, MN, USA. Poster presentation
- **Nankar A.N.**, Holguin F.O., Dungun B., Pratt R.C. (2014). Evaluation of Anthocyanin from Borderland Blue Corn Landraces. 2016 ASA CSSA and SSSA International Annual Meeting "Grand Challenges, Great Solutions", November 2-5, 2014, Long Beach, CA, USA. Poster presentation

RESEARCH PROJECTS:

- **PlantaSYST: H2020 Teaming Project. Funding:** European Union's Horizon 2020 Research and Innovation Programme (SGA-CSA No. 739582 under FPA No. 664620)
  Center of Plant Systems Biology and Biotechnology (CPSBB), Plovdiv, Bulgaria. July 2018 - Present
  Team: CPSBB, MVCRI, Stefan Angeloff Institute of Microbiology, IMBB, MPI, UP
  Role in the project: Develop the CPSBBs Breeding Department's research program under the leadership of Dept. Head Dr. Dimitrina Kostova and CPSBBs Director Dr. Tsanko Gechev. Collaborate with partner institute Maritsa VCRI colleagues in establishing core-collections of *Capsicum annuum* L. and *Solanum lycopersicum* using comprehensive phenotyping, metabolic

profiling, genotyping and screening for important viruses. Based on identified candidate genes from GWAS analysis, lead the collaborative efforts to characterize the candidate genes using functional analysis.

- **Bul-India Pepper Virus Mapping:** Capsicum germplasm exploitation for resistance against important pepper viruses in Bulgaria and India. **Funding:** Bulgarian National Science Fund (BSF) (ПК-06-Индия-13)
  Center of Plant Systems Biology and Biotechnology (CPSBB), Plovdiv, Bulgaria. May 2019 – Present
  Team: Dr. Gancho Pasev, Dr. Vesela Radeva-Ivanova, **Dr. Amol N. Nankar,** and Dr. Dimitrina Kostova
  Role in the project: Develop the @PlantSci blog to disseminate the updates and information about pepper viruses in Bulgaria and India.

- **High-throughput phenotyping for drought stress adaptation in sorghum and wheat**. March 2018 - May 2018.
  Team: Dr. Jagadish Rane, Dr. Jana Kholova, and **Dr. Amol N. Nankar**
  Role in the project: Data analysis and manuscript preparation related to drought adaptation.

- **Irrigation management of short-season grain and silage corn hybrids for Texas. Funding:** Texas Corn Producer Board (TCPB)
  Texas A&M AgriLIfe Research and Extension Center, Lubbock, TX, USA. February 2016 – March 2018
  Team: Dr. Wenwei Xu, Dr. Thomas Marek, **Dr. Amol N. Nankar,** and Cody Vavra
  Role in the project: Extensively evaluated the corn hybrids for their performance in different irrigation regimes across different locations in Texas.

- **Molecular characterization of abiotic stress and qualitative traits of corn. Funding:** Texas A&M Seed Grant and National Corn Grower Association (NCGA/AMCOE)
  Texas A&M AgriLIfe Research and Extension Center, Lubbock, TX, USA. February 2016 – December 2017
  Team: Dr. Wenwei Xu, Dr. Charles Johnson, and **Dr. Amol N. Nankar**
  Role in the project: Conducting field experiments, data analysis, and preparing report and manuscripts.

- **Organic Agriculture Research & Extension Initiative (OREI). Funding:** USDA-NIFA OREI (2014-51300-22250)
  New Mexico State University, Las Cruces, NM, USA. August 2011 - January 2016
  Team Members: Dr. Richard C. Pratt, **Amol N. Nankar,** Dr. Lois Grant, Dr. Walter Goldstein, Dr. Kevin Montgomery, Dr. Paul Scott and Dr. Margaret Smith
  Role in the project: Design doctoral research project, conduct field and wet lab experiments related to breeding and NIR calibration development, data analysis, and preparing manuscripts.

- **Mutation Breeding for Disease Resistance in Chile Pepper.**
  New Mexico State University, Las Cruces, NM, USA. Jan 2013 - May 2013
  Team Members: Amol N. Nankar, Dr. Soum Sanogo and Dr. Paul Bosland
  Role in the project: Semester project to screen the germplasm for identifying a resistance source against chile pepper Phytopthora and Verticillium using mutation.

- **Genomic Selection for Genetic Diversity of Peruvian Corn Landraces.**
  University of Hohenheim, Stuttgart, GERMANY. Nov 2010 - July 2011
  Team Members: Dr. Karl Schmidt, Dr. Walter Schmidt, and **Amol N. Nankar**

Role in the project: Evaluate the genetic diversity of Peruvian landraces using genomic selection.

- **Evaluation of genetic parameters through varietal Diallel in maize.**
  G.B.P.U.A&T, Pant Nagar, INDIA. July 2007 - May 2009
  Team Members: Dr. N. K. Singh, Dr. M. K. Warasi, Dr. D. C. Baskheti and **Amol N. Nankar**
  Role in the project: Evaluate the breeding lines and hybrids to asses combining ability of North Indian maize inbreds and hybrids

PROFESSIONAL AND HONOR SOCIETIES:

- **European Association for Research on Plant Breeding (EUCARPIA)** (2019-Present)
- **Canadian Society of Horticultural Sciences (CSHS)** (2020-Present)
- **ASA, CSSA and SSSA: Committee Member -**
  ACS466 Golden Opportunity Scholars & Mentor Selection Committee (Jan 2017 - Dec 2018)
  AC540 Career Corps Committee (Jan 2015 - Dec 2017)
  C953 International Crop Science Committee (Jan 2014 - Dec 2016)
- **National Association of Plant Breeders (NAPB)**: July 2015 - June 2016
  Organizer- Plant Breeding Webinar Series Coordination Committee
- **Gamma Sigma Delta** (The Honor Society of Agriculture).