VITA - Rosalyn B. Angeles-Shim

Department of Plant and Soil Sciences
Davis College of Agricultural Sciences and Natural Resources
Texas Tech University, Lubbock, Texas 79409-2122, USA
Tel No: 806-834-6121; E-mail: rosalyn.shim@ttu.edu

EDUCATION

1999	B.S.	Biology (Major in Genetics)	University of the Philippines, Los Baños, Laguna, Philippines
2008	M.S.	Genetics (Minor in Plant Breeding)	University of the Philippines, Los Baños, Laguna, Philippines
2011	Ph.D.	Agricultural Sciences	Nagoya University, Furo-cho, Nagoya, Aichi, Japan

PROFESSIONAL EXPERIENCE

1999-2000	*University Research Associate* Institute of Plant Breeding, College of Agriculture, University of the Philippines, Los Baños, Laguna, Philippines
2000-2007	*Editor* Plant Sciences Team, CAB International Project Information Analyst Corporation, 3/F Exchange Corner Building, Rufino cor. Bolanos Street, Makati City, Philippines
Aug-Dec 2007	*Assistant Scientist* T.T. Chang Genetic Resources Center International Rice Research Institute, Los Baños, Laguna, Philippines
Apr 2008-Mar 2011	*Research Assistant* Laboratory of Plant Molecular Biosystem, Bioscience and Biotechnology Center, Nagoya University, Nagoya, Aichi, Japan
Apr-Sept 2011	*Postdoctoral Fellow* Laboratory of Plant Molecular Biosystem, Bioscience and Biotechnology Center, Nagoya University, Nagoya, Aichi, Japan
Oct 2011-Jul 2012	*Consultant*, Japan International Cooperation Agency (JICA) (with courtesy appointment as *Visiting Research Fellow* at the Wide Hybridization Laboratory, Plant Breeding, Genetics and Biotechnology Division, International Rice Research Institute, Los Baños, Laguna, Philippines)
Aug 2012- Mar 2013	*Postdoctoral Fellow* Laboratory of Plant Molecular Biosystem, Bioscience and Biotechnology Center Nagoya University, Nagoya, Aichi, Japan (with courtesy appointment as *Visiting Research Fellow* at the Novel Gene Resources Laboratory, Plant Breeding, Genetics and Biotechnology Division, International Rice Research Institute, Los Baños, Laguna, Philippines)
Apr 2013-Mar 2017	*Assistant Professor* Laboratory of Plant Molecular Biosystem, Bioscience and Biotechnology Center, Nagoya University, Furo-cho, Nagoya, Aichi, Japan (with courtesy appointment as a *Visiting Research Fellow* at the Novel

	Gene Resources Laboratory, Plant Breeding, Genetics and Biotechnology Division, International Rice Research Institute, Los Baños, Laguna, Philippines)
Apr 2017-Aug 2023	*Assistant Professor of Plant Breeding and Genetics* Department of Plant and Soil Science, Davis College of Agricultural Sciences and Natural Resources Texas Tech University, Lubbock, Texas, USA
Sep 2023-present	*Associate Professor of Plant Breeding and Genetics* Department of Plant and Soil Science, Davis College of Agricultural Sciences and Natural Resources Texas Tech University, Lubbock, Texas, USA

MEMBERSHIP IN PROFESSIONAL, ACADEMIC AND HONOR SOCIETIES

Professional

1. Crop Science Society of America (CSSA)
   Member, 2018-present
   Chair-Elect, Division C-4 Seed Physiology, Production and Technology, 2020
   Chair, Division C-4 Seed Physiology, Production and Technology, 2021
   Chair, Program Planning Committee, C-4 Seed Physiology, Production and Technology, 2021
   Chair, Nominations for President –Elect Committee Division C-4, 2021
   Past Chair, Division C-4 Seed Physiology, Production and Technology, 2021
   Member, C457 Crop Science Graduate Student Scholarship Committee, 2021-2022
   Member, C4 Outstanding Paper Awards Committee, 2022-2023
2. American Society of Agronomy (ASA); *Member, 2018-present*
3. National Association of Plant Breeders (NAPB)
   Member, 2018-present;
   Membership Committee, 2018-2019;
   2019 NAPB Borlaug Scholar Mentor
4. American Society of Plant Biologist; *Member, September 2019-present*
5. Crop Science Society of the Philippines (CSSP); *Member, 2015-present*
6. Philippine Society for the Advancement of Genetics (PhilSAGEN); *Member, 2014-present*
7. Philippine Society for Biotechnology and Molecular Biology (PSBMB); *Member, 2014-present*

Honor Society

1. Sigma Xi Scientific Research Honor Society; *Member, January 2022-present*

RESEARCH INTERESTS AND SPECIAL COMPETENCIES

1. **Genetic resources development and wide hybridization**. (a) Development, molecular characterization and agronomic evaluation of wild crop species-derived genetic resources for value added traits. (b) Genetic analysis of the dynamics of alien chromosome transmission from wild to cultivated crop species using rice as a model.

2. **Molecular crop breeding**. (a) Map-based cloning and functional validation of genes/QTLs regulating traits of agronomic importance. (b) Introgression and pyramiding via marker-assisted backcrossing and parallel selection of genes/QTLs underlying traits of agronomic importance into existing or elite crop cultivars.

3. **Domestication genetics**. Identification, positional cloning and functional analysis of domestication traits using rice as a model.

INTERNATIONAL EXPERIENCE

2008 Served as *Organizing Committee Member* and *Convenor* of the 1st GCOE International Symposium (with the theme: 'Systems Biology for the Young Scientists') hosted by Nagoya University in Nagoya, Aichi, Japan, December 2-3, 2008

2011-2012 Served as a *Consultant* for the Japan International Cooperation Agency (JICA) with a courtesy appointment as a *Visiting Research Fellow* at the Plant Breeding, Genetics and Biotechnology Division of the International Rice Research Institute (IRRI) in the Philippines to assess the feasibility of implementing at IRRI a JICA-funded breeding program aimed at improving the rice culture in Africa

2012-2017 Appointed *Visiting Research Fellow* at the Plant Breeding, Genetics and Biotechnology Division of IRRI, Philippines while maintaining an Assistant Professor position in Nagoya University to lead a rice breeding program aimed at improving the rice culture in Africa

2017-2019 Appointed *Visiting Assistant Professor* at the University of the Philippines at Los Baños, Laguna, Philippines to serve as co-chair of an MS graduate student committee

2019-2020 Hosted and mentored a Short-term Scholar/Korean Government Overseas Fellow from the Rural Development Administration in South Korea

2017-2019 Served as an *Honorary Scientist and Advisor on Agricultural Science and Technology* at the Paddy Crop Research Division of the Department of Southern Area Crop Science, Rural Development Administration, South Korea

2019-2023 Served as an *Honorary Scientist and Advisor on Agricultural Science and Technology* at the Upland Crop Breeding Division of the Department of Southern Area Crop Science, Rural Development Administration, South Korea

2022-2023 Served as International *Consultant* for Olam Rice Business of Olam International in Rukubi, Doma, Nasarawa, Nigeria

SCIENTIFIC, ACADEMIC AND HONORARY AWARDS

Jun 2005-Dec 2008 *Affiliate MS Thesis Research Scholar*
T.T. Chang Genetic Resources Center,
International Rice Research Institute, Los Baños, Laguna, Philippines

Apr 1, 2008-Mar 31, 2011 *Recipient, Nagoya University Global Center of Excellence Scholarship*
School of Agricultural Sciences, Nagoya University, Japan

Jun 25, 2019 *2019 Journal of Plant Research Best Paper Award*
(awarded by the Botanical Society of Japan in recognition of excellence in publication)
Title of published paper: Sucrose affects the negative gravitropic growth of the rhizomes in *Oryza longistaminata*
(https://doi.org/10.1007/s10265-019-01120-y

Jan 1, 2017-Dec 31, 2022	*Honorary Scientist and Advisor on Agricultural Science and Technology* Department of Southern Area Crop Science Paddy Crop Research Division Rural Development Administration, South Korea
Jul 20, 2021	*2021 CASNR International Impact Award* College of Agricultural Sciences and Natural Resources Texas Tech University, Texas, USA
Oct 22, 2021	*2021 Open Access Award for Open Access Publication* Scholarly Publishing Team Texas Tech University Libraries

PATENTS: total of 0

PUBLICATIONS

Books: total of 0

Refereed Book Chapters: total of 3 (3 after hire)

1. **Angeles-Shim RB**, Ashikari M (2017) Advances in molecular breeding techniques for rice In: Sasaki T (*Ed*) Achieving sustainable cultivation of rice Volume 1: Breeding for higher yield and quality. Burleigh Dodds Science Publishing, Cambridge, UK, pp 298 (ISBN: 978 1-78676 024 1)

2. Nagai K, Hirano K, **Angeles-Shim RB**, Ashikari M (2018) Breeding applications and molecular basis of semi-dwarfism in rice In: Sasaki, T. and Ashikari, M. (*Eds*) Rice Genetics, Genomics and Breeding. Springer Nature Singapore Pte Ltd. Singapore, pp 556 (ISBN: 978-981-10-7460-8) https://doi.org/10.1007/978-981-10-7461-5_9

3. Pabuayon IC, Trinidad JL, **Angeles-Shim RB**, Kohli A (2020) Systems biology of crop improvement: Drought tolerance as a model to integrate molecular biology, physiology and breeding In: Tuteja N, Tuteja R, Passricha N, Saifia SK (*Eds*) Advancement in crop improvement techniques. Woodhead Publishing. Duxford, UK, pp 412 (ISBN: 978-0-12-818581-0 (print); 978-0-12-818582-7 (online), https://doi.org/10.1016/B978-0-12-818581-0.00013-9

Books and Book Chapters Edited: total of 1 (1 after hire)

1. **Angeles-Shim RB,** Park S, Lavania D, Pereira A, eds. (2022). Systems approach to understanding the biology of cold stress responses in plants. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88976-917-9

Original papers in refereed journals: total of 34 (19 after hire) ([*]corresponding author, [a]equal contribution with the first author, [1]graduate student, [2]undergraduate student)

1. Hirano K, Aya K, Hobo T, Sakakibara H, Kojima M, **Angeles-Shim RB**, Hasegawa Y, Ueguchi-Tanaka M, Matsuoka M (2008) Comprehensive transcriptome analysis of phytohormone biosynthesis and signalling genes in microspore/pollen and tapetum of rice. Plant and Cell Physiology 49(10):1429-1450, https://doi: 10.1093/pcp/pcn123.

2. Asano K, Hirano K, Ueguchi-Tanaka M, **Angeles-Shim RB**, Komura T, Satoh H, Kitano H, Matsuoka M, Ashikari M (2009) Isolation and characterization of dominant dwarf mutants, *Slr1-d* in rice. Molecular Genetics and Genomics 281(2):223-31, https://doi: 10.1007/s00438-008-0406-6.

3. **Shim RA**, Ashikari M, Angeles ER, Takashi T (2010) Development and evaluation of *Oryza glaberrima* Steud chromosome segment substitution lines in the background of *O. sativa* subsp. *japonica* cv. Koshihikari. Breeding Science 60:613-619, https://doi.org/10.1270/jsbbs.60.613.

4. Nagai K, Kuroha T, Ayano M, Kurokawa Y, **Angeles-Shim RB**, Kawano R, Shim J, Yoshimura A, Ashikari M (2012) Two novel QTLs regulate internode elongation of deepwater rice in the early vegetative stage. Breeding Science 62:178-185, https://doi: 10.1270/jsbbs.62.178.

5. **Angeles-Shim RB**, Asano K, Takashi T, Shim J, Kuroha T, Ayano M, Ashikari M (2012) A WUSCHEL-related homeobox 3B gene, *depilous* (*dep*), confers glabrousness of rice leaves and glumes. Rice 5:28, https://doi:10.1186/1939-8433-5-28.

6. Furuta T, Uehara K, **Angeles-Shim RB**, Shim J, Ashikari M, Takashi T (2014) Development and evaluation of chromosome segment substitution lines (CSSLs) derived from *Oryza rufipogon* in the genetic background of *O. sativa* L. Breeding Science 63:468-475, https://doi:10.1270/jsbbs.63.468.

7. Ayano M, Takahiro K, Sakakibara H, Kitaoka T, Kuroha T, **Angeles-Shim RB**, Kitano H, Nagai K, Ashikari M (2014) Gibberellin biosynthesis and signal transduction is essential for internode elongation in deepwater rice. Plant Cell and Environment 37(10):2313-2324, https://doi:10.1111/pce.12377.

8. **Angeles-Shim RB**, Vinarao RB, Balram M, Jena, KK (2014) Molecular analysis of *Oryza latifolia* Desv.-derived introgression lines and identification of value-added traits for rice (*O. sativa* L.) improvement. Journal of Heredity 105(5):676-689, https://doi:10.1093/jhered/esu032.

9. Nagai K, Kondo Y, Kitaoka T, Noda T, Kuroha T, **Angeles-Shim RB**, Yasui H, Yoshimura A, Ashikari M (2014) QTL analysis of internode elongation in response to GA in deepwater rice. AoB Plants 6: plu028, https://doi:10.1093/aobpla/plu028.

10. Shim J, Torollo G, **Angeles-Shim RB**, Cabunagan RC, Choi I, Yeo U, Ha W (2015) Improvement of photoperiod-insensitive japonica rice cultivars for resistance to Rice tungro spherical virus by marker-assisted selection. Breeding Science 65:345-351, https://doi:10.1270/jsbbs65.345.

11. Furuta T, Komeda N, Asano K, Uehara K, Gamuyao R, **Angeles-Shim RB,** Nagai K, Doi K, Wang DR, Yasui H, Yoshimura A, Wu J, McCouch SR, Ashikari M (2015) Convergent loss of awn in two cultivated rice species *Oryza sativa* and *Oryza glaberrima* is caused by mutations in different loci. G3: Genes, Genomes and Genetics 5(11):2267-2274, https://doi:10.1534/g3.115.020834.

12. Kurokawa Y, Noda T, **Angeles-Shim RB**, Uehara K, Yamagata Y, Nagai K, Yasui H, Yoshimura A, Jena KK, Ashikari M, Doi K (2015) Construction of versatile SNP array for pyramiding useful gene of rice. Plant Science 242:131-139, https://doi.org/10.1016/j.plantsci.2015.09.008.

13. Ramos JM, Furuta T, Uehara K, Niwa C**, Angeles-Shim RB**, Shim J, Brar DS, Ashikari M, Jena KK (2016) Development and evaluation of chromosome segment substitution lines (CSSLs) of *Oryza longsitaminata* A. Chev. & Röhr in the background of the elit*e japonica* cultivar, Taichung 65. Euphytica, https://doi 10.1007/s10681-016-1685-3.

14. Bessho-Uehara K, Wang DR, Furuta T, Minami A, Nagai K, Gamuyao R, Asano K, **Angeles-Shim RB**, Shimizu Y, Ayano M, Komeda N, Doi K, Miura K, Toda Y, Kinoshita T, Okuda S, Higashiyama T, Nomoto M, Tada Y, Shinohara H, Matsubayashi Y, Greenberg A, Wu J, Yasui H, Yoshimura A, Mori H, McCouch SR, Ashikari M (2016) Loss of function at RAE2, a novel EFPL, is required for awnlessness in cultivated Asian rice. Proceedings of the National Academy of Sciences, USA 113(32):8969-8974, https://doi.org/10.1073/pnas.1604849113.

15. Furuta T, Uehara K, **Angeles-Shim RB**, Shim J, Nagai K, Ashikari M, Takashi T (2016) Development of chromosome segment substitution lines harboring *O. nivara* segments in Koshihikari and evaluation of yield-related traits. Breeding Science 66(5):845-850, https://doi:10.1270/jsbbs.16131.

16. Besho-Uehara K, Furuta T, Masuda K, Yamada S, **Angeles-Shim RB**, Ashikari M, Takashi T (2017) Construction of rice chromosome segment substitution lines harboring *Oryza barthii* genome and evaluation of yield-related traits. Breeding Science 67(4):408-415, https://doi:10.1270/jsbbs.17022.

17. Bessho-Uehara K, Nugroho J, Kondo H, **Angeles-Shim RB,** Ashikari M (2018) Sucrose affects the negative gravitropic growth of the rhizomes in *Oryza longistaminata*. Journal of Plant Research 131(4): 693-707, https://doi.org/10.1007/s10265-018-1033-x. **(2019 JPR Best Paper Award)**

18. Shim J, Mangat PK[1], **Angeles-Shim RB**[*] (2018) Natural variation in wild *Gossypium* species as a tool to broaden the genetic base of cultivated cotton. Journal of Plant Science: Current Research 2:005, https://doi:10.24966/PSCR-3743/100005.

19. Shim J, Gannaban RB[1], De los Reyes BG, **Angeles-Shim RB**[*] (2019) Identification of novel sources of variation for the improvement of cold germination ability in upland cotton (*Gossypium hirsutum*). Euphytica 215:190, https://doi.org/10.1007/s10681-019-2510-6.

20. Sanchez J[1], Mangat PK[1], **Angeles-Shim RB**[*] (2019) Weathering the cold: Modifying membrane and storage fatty acid composition of seeds to improve cold germination ability in upland cotton (*Gossypium hirsutum* L.). Agronomy 9(11):684, https://doi.org/10.3390/agronomy9110684.

21. **Angeles-Shim RB**[*], Reyes VP[1], Del Valle MM, Sunohara H, Shim J, Lapis RS, Jena KK, Ashikari M, Doi K (2020) Marker-assisted introgression of quantitative resistance gene *pi21* confers broad spectrum resistance to rice blast. Rice Science 27(2)*:*113-123, https://doi: 10.1016/j.rsci.2020.01.002.

22. **Angeles-Shim RB**[*], Shim J, Vinarao RB, Lapis RS, Singleton J[1] (2020). A novel locus from the wild allotetraploid rice, *Oryza latiolia* Desv. confers bacterial blight (*Xanthomonas oryzae* pv. *oryzae*) resistance in rice (*O. sativa* L.). PLoS ONE 15(2): e0229155, https://doi.org/10.1371/journal.pone.0229155.

23. Yamada S, Kurokawa Y, Nagai K, **Angeles-Shim RB**, Yasui H, Yoshimura A, Doi K, Ashikari M, Sunohara H (2020) Evaluation of backcrossed pyramiding lines of the yield-

related gene and the bacterial leaf blight resistant genes. Journal of International Cooperation for Agricultural Development 18:18-28.

24. Singleton JJ[1], Mangat PK[1], Shim J, Vavra C[1], Coldren C, **Angeles-Shim RB*** (2020) Cross-species transferability of *Solanum* spp. DNA markers and their application in assessing genetic variation in silverleaf nightshade (*Solanum elaeagnifolium*) populations from Texas, USA. Weed Science 68(4):396-404, https://doi: 10.1017/wsc.2020.25.

25. Mangat PK[1], Gannaban RB[1], Singleton JJ[1], **Angeles-Shim RB*** (2020) Development of a PCR-based, genetic marker resource for the wild nightshade species, *Solanum lycopersicoides* Dunal using whole genome sequence analysis. PLoS ONE 15(11): e0242882, doi.org/10.1371/journal.pone.0242882.

26. Mangat PK[1], Shim J, Gannaban RB[1], Singleton JJ[1], **Angeles-Shim RB*** (2021) Alien introgression and morpho-agronomic characterization of diploid progenies of *Solanum lycopersicoides* monosomic alien addition lines (MAALs) toward pre-breeding applications in tomato (*S. lycopersicum*). Theoretical and Applied Genetics 134:1133-1146, https://doi 10.1007/s00122-020-03758-y.

27. Reyes VP, **Angeles-Shim RB**[a], Mendioro MS, Manuel MCC, Lapis RS, Shim J, Sunohara H, Nishiuchi S, Kikuta M, Makihara D, Jena KK, Ashikari M, Doi K (2021) Marker-assisted introgression and stacking of major QTLs controlling grain number (*Grain number 1a* (*Gn1a*)) and number of primary branching (*Wealthy Farmer's Panicle* (*WFP*)) to NERICA cultivars. Plants 10(5):844, https://doi.org/10.3390/plants10050844.

28. Shim J, Bandillo N, **Angeles-Shim RB*** (2021) Finding needles in a haystack: Using geo-references to enhance the selection and utilization of landraces in breeding for climate-resilient cultivars of upland cotton (*Gossypium hirsutum* L.). Plants 10(7):1300, https://doi.org/10.3390/plants10071300.

29. Turner NJ[1], Sanchez J[1], Vavra C[1], Dhaliwal LK[1], Emendack Y, Coldren C, **Angeles-Shim RB*** (2021) Seed germination dynamics of silverleaf nightshade (*Solanum elaeagnifolium* Cav.) and implications for effective weed management. Weed Biology and Management 21(3):146-155, https://doi.10.1111/wbm.12233.

30. Dhaliwal LK[1], Gannaban RG[1], Shrestha A[1], Shim J, Mangat PK[1], Singleton J[1], **Angeles-Shim RB*** (2021) Integrated morpho-biochemical and transcriptome analyses reveal multi-dimensional responses of upland cotton (*Gossypium hirsutum* L.) to low temperature stress during seedling establishment. Plant-Environment Interactions 2:290-302, https://doi:10.1002/pei3.10067.

31. Dhaliwal LK[1], **Angeles-Shim RB*** (2022) Cell membranes features as potential breeding targets to improve cold germination ability of seeds. Plants 11:3400, https://doi.org/10.3390/plants11233400.

32. Bessho-Uehara K, Masuda K, Wang DR, **Angeles-Shim RB**, Obara K, Nagai K, Murase R, Aoki S, Furuta T, Miura K, Wu JZ, Yamagata Y, Yasui H, Kantar M, Yoshimura A, Kamura T, McCouch SR, Ashikari M (2023) *REGULATOR OF AWN ELONGATION 3*, an E3 ubiquitin ligase, is responsible for loss of awns during African rice domestication. Proceedings of the National Academy of Sciences, USA 120(4) e2207105120, https://doi.org/10.1073/pnas.2207105120.

33. Kikuta M, Menge DM, Gichuhi EW, Samejima H, Tomita R, Kimani JM, Musila RN, Doi K, Ashikari M, **Angeles-Shim RB**, Jena KK, Makihara D (2023) Contribution of genes related to grain number (*Gn1a* and *WFP*) introgressed into NERICA 1 to grain yield under tropical highland conditions in central Kenya. Plant Production Science 26(3): 309-319, https://doi.org/10.1080/1343943X.2023.2245127.

34. Turner N[1], Osti B[1], Kikanme K, Angappan R, **Angeles-Shim RB**[*] (2023) Exogenous control of dormancy and chemical regulation of germination in Texas watergrass (*Nassella leucotricha* (Trin. & Rupr.) Pohl) seeds. Crop Science, https://doi.org/10.1002/csc2.21146.

35. Dhaliwal LK[1], Shim J, Auld D, **Angeles-Shim RB**[*] (2024) Unsaturated fatty acids improve germination of upland cotton (*Gossypium hirsutum*) under cold stress. Frontiers in Plant Science, https://doi.org/10.3389/fpls.2024.1286908.

36. Shrestha A[1], Shim J, Mangat PK[1], Dhaliwal LK[1], Sweeney M, **Angeles-Shim RB**[*]**.** QTL mining of the cotton landrace Hopi using the Cotton63K SNP array identified novel genetic variation for gland formation. *submitted to Journal of Cotton Research (currently under review)*

Conference Proceedings:

Refereed (Invited): total of <u>0</u>

Refereed (Volunteered): total of <u>8</u> (6 after hire)

1. **Angeles-Shim RB**, Asano K, Takashi T, Kitano H, Ashikari M (2009) Mapping of the glabrous gene in rice using CSSLs derived from the cross *Oryza sativa* subsp. *japonica* cv. Koshihikari × *O. glaberrima*. Proceedings of the 6th International Rice Genetics Symposium, 16-19.

2. **Angeles-Shim RB**, Verdeprado MDA, Gibe GG, Lapis RS, Jena KK, Ashikari M (2015) Introgression of major QTLs for increased primary branching and grain number in select rice varieties by marker-assisted backcrossing. Proceedings of the 23rd FCSSP Scientific Conference *In*: The Philippine Journal of Crop Science, 40(1):88.

3. Makihara D, Samejima H, Kikuta M, Kimani JM, Ashikari M, **Angeles-Shim RB**, Sunohara H, Jena KK, Yamauchi A, Doi K (2017) Evaluation of lines of NERICA 1 introgressed with *Gn1a* ad *WFP* for yield and yield components as affected by nitrogen fertilization in Kenya. Proceedings of the Korean Society of Crop Science Conference 6:323.

4. Menge D, Kikuta M, Samejima H, Gichuchi E, Kimani JM, Ashikari M, **Angeles-Shim RB**, Sunohara H, Jena KS, Yamauchi A, Makihara D (2019) Effects of *Gn1a* and *WFP* introgression on the yield and yield components in two rice varieties in Kenya. Abstracts of Meeting of the CSSJ, vol 247, https://doi.org/10.14829/jcsproc.247.0_110.

5. Dhaliwal LK, Shim J, De los Reyes B, **Angeles-Shim R**. Higher proportions of unsaturated fatty acids in seeds improve cold germination ability in upland cotton (*Gossypium hirsutum*) mutants. Proceedings of the 2021 Beltwide Cotton Conferences. p. 584.

6. Dhaliwal LK, **Angeles-Shim R**. Dynamics of membrane lipid composition of upland cotton (*Gossypium hirsutum*) seeds in response to cold water imbibition. Proceedings of the 2021 Beltwide Cotton Conferences. p. 585.

7. Dhaliwal LK[1], Shim J, **Angeles-Shim RB** (2021) Membrane lipid unsaturation confers cold germination ability in fatty acid mutants of upland cotton (*Gossypium hirsutum*). Proceedings of the 47th Annual Convention of the Philippine Society of Biochemistry and Molecular Biology *In*: Philippine Journal of Biochemistry and Molecular Biology, 2(1):21, https://doi:10.5555.pjbmb.ph.2021.02.02.15.

8. Reyes VP, **Angeles-Shim RB**, Lapis RS, Shim JH, Sunohara H, Jena KK, Ashikari M, Doi K (2021) Improvement of Asian rice cultivars through marker-assisted introgression of yield QTLs *Grain number 1a* (*Gn1a*) and *Wealthy Farmer's Panicle* (*WFP*). Proceedings of the 47th Annual Convention of the Philippine Society of Biochemistry and Molecular Biology *In*: Philippine Journal of Biochemistry and Molecular Biology 2(1):29, https://doi:10.5555.pjbmb.ph.2021.02.02.23.

Technical Reports: total of 5

1. Wonder Rice Initiative for Food Security and Health (WISH) Project, Annual Report FY2014 (April 2013-March 2014); Nagoya University, Nagoya and the Japan International Cooperation Agency, Tokyo, Japan

2. Wonder Rice Initiative for Food Security and Health (WISH) Project, Annual Report FY2015 (April 2014-March 2015); Nagoya University, Nagoya and the Japan International Cooperation Agency, Tokyo, Japan

3. Wonder Rice Initiative for Food Security and Health (WISH) Project, Annual Report FY2016 (April 2015-March 2016); Nagoya University, Nagoya and the Japan International Cooperation Agency, Tokyo, Japan

4. Wonder Rice Initiative for Food Security and Health (WISH) Project, Annual Report FY2017 (April 2016-March 2017); Nagoya University, Nagoya and the Japan International Cooperation Agency, Tokyo, Japan

5. Wonder Rice Initiative for Food Security and Health (WISH) Project, Annual Report FY2018 (April 2017-March 2018); Nagoya University, Nagoya and the Japan International Cooperation Agency, Tokyo, Japan

Abstracts: total of 88 (70 after hire; abstracts were also presented at scientific meetings)

1. **Angeles RB**, Aquino C, Juliano A, Macatangay M, McNally KL. Development of oligomeric hybridization to genomic DNA arrays for varietal classification of rice. 5th International Rice Genetics Symposium, Manila, Philippines November 19-23, 2005.

2. **Angeles-Shim RB**, Asano K, Takashi T, Shim J, Kitano H, Ashikari M. Mapping of the glabrous gene in rice using CSSLs derived from the cross *Oryza sativa* subsp. *japonica* cv. Koshihikari x *O. glaberrima* 6th International Rice Genetics Symposium, Manila, Philippines, November 16-19, 2009.

3. **Angeles-Shim RB**, Asano K, Takashi T, Shim J, Kitano H, Ashikari M. Positional cloning of the gene that conditions glabrousness in rice using *Oryza glaberrima* chromosome segment substitution lines in *O. sativa* subsp. *japonica* cv. Koshihikari background. 4th Nagoya University Global COE Retreat, Toyohashi, Aichi, Japan, September 13-14, 2010.

4. Shim J, Torollo G, **Angeles-Shim RB**, Choi I, Cabunagan RC, Yeo U, Ha W. Development of RTD-resistant, elite tropical *japonica* cultivar by marker-assisted selection for RTSV

resistance and photoperiod insensitivity selection. 7th International Rice Genetics Symposium, Manila, Philippines November 5-8, 2013.

5. **Angeles-Shim RB**, Vinarao RB, Quilloy NM, Malabanan RM, Balram M, Jena KK. (2013) Molecular characterization of disomic lines derived from *Oryza latifolia* Desv. Monosomic alien addition lines in the background of the elite *O. sativa* breeding line IR31917-54-3-2. 7th International Rice Genetics Symposium, Manila, Philippines, November 5-8, 2013.

6. **Angeles-Shim RB**, Asano K, Takashi T, Shim J, Kuroha T, Ayano M, Ashikari M. A WUSCHEL-related homeobox 3B gene, depilous (dep), confers glabrousness of rice leaves and glumes. 40th Annual Convention of the Philippine Society for Biotechnology and Molecular Biology, DLSU-Manila, Taft Avenue, Philippines, December 4-5, 2014

7. **Angeles-Shim RB**, Verdeprado MDA, Gibe GG, Lapis RS, Jena KK, Ashikari M. Precision breeding for increased number of primary branching and grain number in select rice varieties using marker-assisted backcrossing. 14th National Genetics Symposium, Southeast Asian Fisheries Development Center, Tigbauan, Iloilo, Philippines, November 27-29, 2014.

8. **Angeles-Shim RB**, Vinarao RB, Marathi B, Jena KK. Molecular analysis of *Oryza latifolia* Desv. (CCDD genome)-derived introgression lines and identification of value-added traits for rice (*O. sativa* Linn.) improvement. 41st Annual Convention of the Philippine Society for Biotechnology and Molecular Biology, Cebu, Philippines, December 4-5, 2014.

9. **Angeles-Shim RB**, Verdeprado MDA, Gibe GG, Lapis RS, Jena KK, Ashikari M. Introgression of major QTLs for increased primary branching and grain number in select rice varieties by marker-assisted backcrossing. 23rd Federation of Crop Science Society of the Philippines Scientific Conference, Clark Freeport, Pampanga, Philippines, May 11-16, 2015.

10. Furuta T, Reuscher S, **Angeles-Shim RB**, Uehara K, Kondo H, Doi K, Ashikari M. QTL analysis for rhizome formation loci using genotyping-by-sequencing on F_2 population from the cross between *Oryza sativa* and *Oryza longistaminata* International ERATO Higashiyama Live-Holonics Symposium & Technical Workshop 2015, Nagoya, Japan, August 27, 2015.

11. Furuta T, Reuscher S, Xinjiang Z, **Angeles-Shim RB**, Uehara K, Kondo H, Doi K, Ashikari M. QTL analysis in F_2 population derived from cross between wild and cultivated rice using GBS. 128th Lecture Meeting of Japanese Society of Breeding, Niigata University, Niigata, September 11-12, 2015.

12. Furuta T, Reuscher S, Uehara K, **Angeles-Shim RB**, Kondo H, Doi K, Ashikari M. Genetic approach toward unraveling rhizome formation in Rice. International symposium "Towards increased plant productivity through understanding of environmental responses and epigenetic regulation" RIKEN, Yokohama, Japan, November 24-25, 2015.

13. Furuta T, Reuscher S, Kondo H, Uehara K, **Angeles-Shim RB**, Doi K, Ashikari M. GBS and rhizogenesis QTL analysis in wild rice *Oryza longistaminata*. The 80th Convention of the Japanese Society of Botany, Okinawa, Japan, September 16, 2016.

14. **Angeles-Shim RB***, Vinarao RB, Vera Cruz CM, Jena KK. A novel gene for bacterial blight resistance from the wild rice species *Orya latifolia* desv. 5th International Conference on Bacterial Blight of Rice, Rice bacterial blight: New innovations for the Second Green Revolution, Bellevue Manila, Metro Manila, Philippines, October 17-19, 2016. **[Best Poster Award]**

15. Bessho-Uehara K, Wang DR, Furuta T, Minami A, Nagai K, Gamuyao R, Asano K, **Angeles-Shim RB**, Shimizu Y, Ayano M, Komeda N, Doi K, Miura K, Greenberg A, Wu JZ, Yasui H, Yoshimura A, Mori H, McCouch SR, Ashikari M. Variation in cysteine residue number in REGULATOR OF AWN ELONGATION 2, a novel EPFL gene, leads to awnlessness in rice. Cold Spring Harbor Asia Conference, Awaji, Japan, November 29-December 2, 2016

16. Furuta T, Reuscher S, Kondo H, Uehara K, **Angeles-Shim RB**, Doi K, Ashikari M. QTL study of rhizomatousness in rice using GBS and Bayesian QTL mapping. The 131st Meeting of the Japan Breeding Society, Aichi, Japan March 2017.

17. Makihara D, Samejima H, Kikuta M, Kimani JM, Ashikari M, **Angeles-Shim RB**, Sunohara H, Jena KK, Yamauchi A, Doi K. Evaluation of lines of NERICA 1 introgressed with *Gn1a* ad *WFP* for yield and yield components as affected by nitrogen fertilization in Kenya. 9th Asian Crop Science Association Conference, Jeju, South Korea, June 5-7, 2017.

18. **Angeles-Shim RB***, Del Valle MM, Lapis RS, Reyes VP[1], Shim J, Jena KK, Doi K, Ashikari M. Introgression of the quantitative blast resistance gene *pi21*, on select rice varieties by marker-assisted backcrossing. 14th International Symposium on Rice Functional Genomics, Suwon, Korea, September 25-28, 2017.

19. **Angeles-Shim RB****, Reyes VP[1], Del Valle MM, Lapis RS, Shim J, Jena KK, Ashikari M, Doi K. Introgression of *pi21* by marker-assisted backcrossing confers resistance to a wider range of Philippine blast isolates of select rice varieties. Plant and Animal Genome Conference XXVI, San Diego, USA, January 13-17, 2018.

20. Mangat PK[1], Gannaban RB[1], **Angeles-Shim RB***. Molecular characterization of disomics derived from *Solanum lycopersicoides* monosomic alien addition lines in the genetic background of tomato (*Lycopersicon esculentum*). Enhancing Productivity in a Changing Climate, 2018 ASA and CSSA Meeting, Baltimore, Maryland, USA November 4-7, 2018.

21. Singleton JJ[1], Gannaban RB[1], de los Reyes BG, **Angeles-Shim RB***. Evaluation of cotton germplasm for germination and seedling vigor under low temperature stress. Enhancing Productivity in a Changing Climate, 2018 ASA and CSSA Meeting, Baltimore, Maryland, USA, November 4-7, 2018.

22. Vinarao RB, Shim J, Lapis RS, **Angeles-Shim RB***. Mapping of a novel gene conferring bacterial blight resistance in the wild allotetraploid rice *Oryza latifolia* Desv. Enhancing Productivity in a Changing Climate, 2018 ASA and CSSA Meeting, Baltimore, Maryland, USA, November 4-7, 2018.

23. Sanchez J[1], de los Reyes B, Emendack YY, Ritchie GB, **Shim RA**, Hayes CM. Phenotypic assessment of seedling cold tolerance in *Sorghum biolor* (L.) Moench: Application of a variable temperature regime. Plant and Animal Genome Conference XXVII, San Diego, USA, January 12-16, 2019.

24. Mangat PK[1], Gannaban RB[1], **Angeles-Shim RB***. Analysis of genome sequence of the nightshade species, *Solanum lycopersicoides*. Plant and Animal Genome Conference XXVII, San Diego, USA, January 12-16, 2019.

25. Gannaban RB[1], Shim J, de los Reyes BG, **Angeles-Shim RB***. Genetic diversity analysis of cotton germplasm for cold tolerance improvement. Plant and Animal Genome Conference XXVII, San Diego, USA, January 12-16, 2019.

26. Menge D, Kikuta M, Samejima H, Gichuchi E, Kimani JM, Ashikari M, **Angeles-Shim RB***, Sunohara H, Jena KS, Yamauchi A, Makihara D. Effects of *Gn1a* and *WFP* introgression on the yield and yield components in two rice varieties in Kenya. The 247th Meeting of the Crop Science Society of Japan, Tsukuba, Japan, March 28-29, 2019.

27. Mangat PK[1], **Angeles-Shim RB***. Characterization of *Solanum lycopersicoides*-derived introgression lines and identification of value added-traits for tomato improvement. 18th Annual Graduate Student Research Poster Competition, Texas Tech University, Lubbock, TX, USA, March 26, 2019.

28. Singleton JJ[1], Mangat PK[1], Shim J, Gannaban RB[1], **Angeles-Shim RB***. Genetic diversity analysis of silverleaf nightshade populations under herbicide stress. 1st Annual PSS Graduate Student Research Symposium, Texas Tech University, Lubbock, TX, USA, April 22, 2019.

29. Mangat PK[1], **Angeles-Shim RB***. Characterization of *Solanum lycopersicoides*-derived introgression lines and identification of value added-traits for tomato improvement. 1st Annual PSS Graduate Student Research Symposium, Texas Tech University, Lubbock, TX, USA, April 22, 2019.

30. Singleton JJ[1], Mangat PK[1], Shim J, Gannaban RB[1], **Angeles-Shim RB***. Genetic diversity analysis of silverleaf nightshade populations under herbicide stress. 10th Texas Tech Annual Biological Sciences Symposium, Texas Tech University, Lubbock, TX, USA, April 26-27, 2019.

31. Mangat PK[1], **Angeles-Shim RB***. Deciphering the whole genome structure of the nightshade species *Solanum lycopersicoides*. 10th Texas Tech Annual Biological Sciences Symposium, Texas Tech University, Lubbock, TX, USA, April 26-27, 2019. **[placed 2nd in oral competition under the Genetics and Genomics category]**

32. Mangat PK[1], **Angeles-Shim RB***. Draft genome assembly of the wild nightshade species, *Solanum lycopersicoides* and its pre-breeding applications for tomato (*S. esculentum)* improvement. 2019 KSBS and SABRAO International Conference in Plant Breeding for Sustainable Development, Gwangju, South Korea, July 2-5, 2019.

33. **Angeles-Shim RB***, Lapis RS, Verdeprado MDA, Shim J, Sunohara H, Ashikari M, Doi K. Marker-assisted introgression of *Gn1a* and *WFP* increased primary branching and grain number in rice. 2019 NAPB Annual Meeting, Pine Mountain, Georgia, USA, August 25-29, 2019.

34. Turner N[1], **Angeles-Shim RB***, Plowman R. *De novo* generation of doubled haloid Texas native wildflowers. Embracing the Digital Environment. 2019 ASA-CSSA-SSSA International Annual Meeting, San Antonio, Texas, USA, November 10-13, 2019.

35. Singh A, Deb SK, Gannaban RB[1], **Angeles-Shim RB**, Mangat PK[1], Singleton J[1]. Evaluation of interactive effects of soil moisture and temperature on the growth and development of early-planted cotton. Embracing the Digital Environment. 2019 ASA-CSSA-SSSA International Annual Meeting, San Antonio, Texas, USA, November 10-13, 2019.

36. Singleton JJ[1], Mangat PK[1], Shim JH, Gannban RB[1], Vavra C[1], **Angeles-Shim RB***. Cross-species transferability of *Solanum lycopersicoides*-derived DNA markers and their applications in genetic diversity assessment of silverleaf nightshade (*S. elaeagnifolium*) populations. Embracing the Digital Environment. 2019 ASA-CSSA-SSSA International Annual Meeting, San Antonio, Texas, USA, November 10-13, 2019.

37. Shim JH, Gannaban RB[1], Mangat PK[1], **Angeles-Shim RB[*]**. Cell membrane unsaturation confers cold germination ability to seeds of cotton mutants with reduced palmitic acid profile. Embracing the Digital Environment. 2019 ASA-CSSA-SSSA International Annual Meeting, San Antonio, Texas, USA, November 10-13, 2019.

38. Sanchez J[1], Turner N[1], Vavra C[1], **Angeles-Shim RB[*]**. Investigating the germination dynamics of silverleaf nightshade (*Solanum elaeagnifolium*) towards development of control strategies. Embracing the Digital Environment. 2019 ASA-CSSA-SSSA International Annual Meeting, San Antonio, Texas, USA, November 10-13, 2019.

39. Mangat PK[1], **Angeles-Shim RB[*]**. Role of ABA in conferring drought tolerance in *Solanum lycopersicoides*-derived germplasm. Embracing the Digital Environment. 2019 ASA-CSSA-SSSA International Annual Meeting, San Antonio, Texas, USA, November 10-13, 2019. **[placed 3rd in poster competition under the Plant Breeding and Genetics Division]**

40. Kaur L[1], Gannaban RB[1], Shim J, Mangat PK[1], de los Reyes BG, **Angeles-Shim RB[*]**. Transcriptomic profiling in upland cotton (*Gossypium hirsutum*) in response to cold stress at the early seedling stage. Beltwide Cotton Conferences, Austin, Texas, USA, January 8-10, 2020.

41. Turner N[1], **Angeles-Shim RB[*]**, Plowman R. *De novo* anther culture with *Salvia farinacea*. 19th Annual Graduate Student Poster Competition, Texas Tech University, Lubbock, Texas, USA, March 10, 2020.

42. Mangat PK[1], **Angeles-Shim RB[*]**. Whole genome assembly and structural analysis of the nightshade species, *Solanum lycopersicoides*. 19th Annual Graduate Student Poster Competition, Texas Tech University, Lubbock, Texas, USA, March 10, 2020.

43. Dhaliwal LK[1], **Angeles-Shim RB[*]**. Effects of fatty acid composition on cold germination ability in upland cotton (*Gossypium hirsutum*). 19th Annual Graduate Student Poster Competition, Texas Tech University, Lubbock, Texas, USA, March 10, 2020.

44. Mangat PK[1], Shim J, Gannaban RB[1], Singleton JJ[1], **Angeles-Shim RB[*]**. Characterization of diploid introgression lines derived from *Solanum lycopersicoides* monosomic alien addition lines towards introgressive breeding for tomato improvement. Preparing agriculture for the future: There is no crystal ball. 2020 UIUC Plant Science Symposium, October 9, 2020.

45. Dhaliwal LK[1], Shim J, de los Reyes B, **Angeles-Shim RB[*]**. Lipid unsaturation provides membrane stability during cold germination in upland cotton (*Gossypium hirsutum*). Preparing agriculture for the future: There is no crystal ball. 2020 UIUC Plant Science Symposium, October 9, 2020.

46. Turner NJ[1], Sanchez J[1], Vavra C[1], Dhaliwal LK[1], **Angeles-Shim RB[*]**. Ecological dynamics of seed germination in silverleaf nightshade (*Solanum elaeagnifolium* Cav.) and implications for its effective management. Translating Visionary Science to Practice. 2020 ASA-CSSA-SSSA Virtual Annual Meeting, November 9-13, 2020. **[placed 1st in poster and 5-minute rapid oral competition under the Seed Physiology, Technology and Production Division]**

47. Turner NJ, **Angeles-Shim RB[*]**. *De novo* anther culture using *Salvia farinacea*. Translating Visionary Science to Practice. Translating Visionary Science to Practice. 2020 ASA-CSSA-SSSA Virtual Annual Meeting, November 9-13, 2020.

48. Singh A[1], Deb SK, **Angeles-Shim RB[*]**. Effects of early season planting and soil physical

environments on seedling emergence, growth, development and yield of cotton germplasm with cold germination ability. Translating Visionary Science to Practice. 2020 ASA-CSSA-SSSA Virtual Annual Meeting, November 9-13, 2020.

49. Mangat PK[1], Gannaban RB[1], Singleton JJ[1], **Angeles-Shim RB[*].** Development of a molecular marker resource for the wild tomato species, *Solanum lycopersicoides* Dunal based on whole genome sequence analysis. Translating Visionary Science to Practice. 2020 ASA-CSSA-SSSA Virtual Annual Meeting, November 9-13, 2020. **[placed 1st in poster competition under the Plant Genetic Resources Division]**

50. Dhaliwal LK[1], Shim J, de los Reyes B, **Angeles-Shim RB[*]**. Membrane lipid unsaturation confers cold germination ability in upland cotton (*Gossypium hirsutum*). Translating Visionary Science to Practice. 2020 ASA-CSSA-SSSA Virtual Annual Meeting, November 9-13, 2020.

51. Reyes VP, **Angeles-Shim RB**, Lapis RS, Shim JH, Sunohara H, Jena KK, Ashikari M, Doi K. Improvement of Asian rice cultivars through marker-assisted introgression of yield QTLs *Grain number 1a* (*Gn1a*) and *Wealthy Farmer's Panicle* (*WFP*). Responding to Health and Environmental Issues Through Biochemistry and Molecular Biology, A Virtual International Conference. 47th Annual Convention of the Philippine Society of Biochemistry and Molecular Biology, December 1-4, 2020. **[placed 3rd in poster competition under the Agriculture and Fisheries Category]**

52. Dhaliwal LK[1], Shim J, **Angeles-Shim RB[*]**. Membrane lipid unsaturation confers cold germination ability in fatty acid mutants of upland cotton (*Gossypium hirsutum* L.). Responding to Health and Environmental Issues Through Biochemistry and Molecular Biology, A Virtual International Conference. 47th Annual Convention of the Philippine Society of Biochemistry and Molecular Biology, December 1-4, 2020.

53. Dhaliwal LK[1], **Angeles-Shim RB[*]**. Temporal changes in membrane lipid composition of upland cotton (*Gossypium hirsutum*) seeds in response to cold water imbibition. Beltwide Cotton Conferences, Virtual livestream event. January 5-7, 2021.

54. Dhaliwal LK[1], Shim J, de los Reyes BG, **Angeles-Shim RB[*]**. Higher proportions of unsaturated fatty acids in seeds improve cold germination ability in mutants of upland cotton (*Gossypium hirsutum*). Beltwide Cotton Conferences, Virtual livestream event. January 5-7, 2021.

55. Reyes VP, **Angeles-Shim RB**, Jena KK, Ashikari M, Doi K. Development and evaluation of *Gn1a* and *WFP* lines in NERICA genetic background. 139th Meeting of the Japanese Society of Breeding, Nagoya, Japan, March 19-21, 2021.

56. Dhaliwal LK[1], **Angeles-Shim RB[*]**. Whole seed lipidomics to unravel the response of upland cotton (*Gossypium hirsutum*) to cold germination. 3rd Annual PSS Student Research Symposium, Texas Tech University, Lubbock, TX, USA, April 5, 2021. **[placed 2nd in the 3-minute poster competition]**

57. Dhaliwal LK[1], **Angeles-Shim RB[*]**. Cold stress-induced changes in the regulation of whole seed lipidome during early germination in upland cotton (*Gossypium hirsutum* L). Southern Section of the American Society of Plant Biologist 2021 Virtual Meeting, April 16-18, 2021.

58. **Angeles-Shim RB[*]**, Shim J, Vinarao RB, Lapis RS, Singleton JJ. A novel locus from *Oryza latifolia* Desv. confers qualitative bacterial blight (*Xanthomonas oryzae* pv. *oryzae*) resistance

in rice (*Oryza sativa* L.). Emerging Research and Technologies to Address Current Challenges in Building a More Sustainable Agriculture System, 3rd International Conference on Plant Science and Research (Virtual), May 10-11, 2021.

59. Dhaliwal LK[1], Shim J, Zabet M, de los Reyes BG, **Angeles-Shim RB***. Membrane lipid unsaturation confers cold germination ability to seeds of upland cotton (*Gossypium hirsutum).* 10th Asian Crop Science Association Conference, Nagoya, Japan, September 7-10, 2021.

60. Turner N[1], Mangat PK[1], **Angeles-Shim RB**. Whole genome assembly and structural analysis of *Nassella leucotricha*. A Creative Economy for Sustainable Development. 2021 ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, Utah, November 7-10, 2021.

61. Shrestha A[1], Mangat PK[1], Dhaliwal LK[1], Shim J, **Angeles-Shim RB**. Harnessing novel genetic variation from cotton landraces to enhance the agronomic performance of upland cotton (*Gossypium hirsutum* L.). A Creative Economy for Sustainable Development. 2021 ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, Utah, November 7-10, 2021.

62. Mangat PK[1], Shrestha A[1], **Angeles-Shim RB**. Comparative gene expression patterns of ABA-dependent transcription factors *AREB1* and *ABI5* in a drought tolerant introgression line of tomato. A Creative Economy for Sustainable Development. 2021 ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, Utah, November 7-10, 2021.

63. Dhaliwal LK[1], **Angeles-Shim RB**. PLD-mediated generation of phosphatidic acid acts as a biomarker for cold germination ability in upland cotton (*Gossypium hirsutum* L.). A Creative Economy for Sustainable Development. 2021 ASA-CSSA-SSSA International Annual Meeting, Salt Lake City, Utah, November 7-10, 2021. **[placed 1st in 5-minute rapid oral and poster presentation under the Seed Physiology, Technology and Production Division]**

64. Hale A[2], Dhaliwal LK[1], Shrestha A[1], **Angeles-Shim RB**. Integrated physiological and transcriptome analyses reveal alterations in the photosynthetic apparatus of upland cotton (*Gossypium hirsutum*) in response to cold stress. Plant Genomes, Systems Biology and Engineering Conference, Cold Spring Harbor Laboratory, December 1-3, 2021.

65. Shrestha A[1], Shim J, Mangat PK[1], Dhaliwal LK[1], **Angeles-Shim RB**. Mapping novel genetic variation for low gossypol content in the cotton landrace, Hopi. 2022 Graduate School Poster Competition, Texas Tech University, March 3, 2022.

66. Shrestha A[1], Shim J, Mangat PK[1], Dhaliwal LK[1], **Angeles-Shim RB**. Mapping novel genetic variation for low gossypol content in the cotton landrace, Hopi. 3rd Annual PSS Graduate Student Research Symposium, Texas Tech University, Lubbock, TX, USA, April 18, 2022. **[placed 2nd in poster competition]**

67. Stephens C[1], Shrestha A[1], **Angeles-Shim RB**. Development and characterization of F_1 hybrids between the Texas-bred rice variety, Presidio and the landrace ST-12 towards yield improvement. 2022 TRUE Symposium, Texas Tech University, Lubbock, Texas, October 14-15, 2022.

68. **Angeles-Shim RB.** Phospholipase-mediated accumulation of phosphatidic acid in response to cold stress negatively impacts cotton seed germination. Communication and Public

Engagement for Healthy People and a Healthy Planet. 2022 ASA-CSSA-SSSA International Annual Meeting, Baltimore, Maryland, November 6-9, 2022.

69. Turner N, **Angeles-Shim RB**. Chemical promotion of seed germination in Texas wintergrass (*Nasella leucotricha*). Communication and Public Engagement for Healthy People and a Healthy Planet. 2022 ASA-CSSA-SSSA International Annual Meeting, Baltimore, Maryland, November 6-9, 2022. **[placed 1st in 5-minute rapid oral competition under the Seed Physiology, Technology and Production Division]**

70. Dhaliwal LK, **Angeles-Shim RB**. PLD-mediated phosphatidic acid production causes imbibitional chilling injury in upland cotton (*Gossypium hirsutum* L.) 2023 Beltwide Cotton Conference, New Orleans, Louisiana, January 10-12, 2023. **[placed 1st in poster and 5-minute rapid oral presentation]**

71. Shrestha A[1], Shim J, Mangat PK[1], Dhaliwal LK[1], **Angeles-Shim RB**. Genetic variation in the cotton landrace, Hopi, reduces gossypol content. Annual Meeting of the Southern Association of Agricultural Scientists, Oklahoma City, Oklahoma, February 2-7, 2023.

72. Turner N[1], **Angeles-Shim RB**. Elucidating endogenous control of dormancy in Texas wintergrass (*Nasella leucotricha*). Annual Meeting of the Southern Association of Agricultural Scientists, Oklahoma City, Oklahoma, February 2-7, 2023.

73. Baldera K, Travelstead K, Ridge M, Meadows K, Sanchez DL, Samonte SOPB, **Angeles-Shim RB**. Variation in panicle length and weight of diverse rice varieties. 9th Annual Texas A&M Plant Breeding Symposium, College Station, Texas, February 16, 2023.

74. Osti B[1], Dhaliwal LK[1], **Angeles-Shim RB**. Impact of cold stress on glycerolipids and sphingolipid profile of upland cotton (*Gossypium hirsutum* L.). 2023 Graduate Poster Competition, Texas Tech University, Lubbock, Texas, March 30, 2023.

75. Stephens C[1], Shrestha A[1], **Angeles-Shim RB**. Marker-assisted introgression of QTLs regulating number of grains and primary branching in rice towards yield improvement. 2023 Undergraduate Research Conference, Texas Tech University, Lubbock, Texas, April 11, 2023.

76. Stephens C[1], Shrestha A[1], **Angeles-Shim RB**. Marker-assisted introgression of QTLs regulating number of grains and primary branching in rice towards yield improvement. 4th Annual PSS Graduate Student Research Symposium, Texas Tech University, Lubbock, TX, USA, April 19, 2023

77. Osti B[1], Kaur L[1], **Angeles-Shim RB**. 4th Annual PSS Graduate Student Research Symposium, Texas Tech University, Lubbock, TX, USA, April 19, 2023.

78. Shrestha A[1], Shim J, Mangat PK[1], Dhaliwal LK[1], **Angeles-Shim RB**. Genetic variation in the cotton landrace, Hopi, reduces gossypol content. 4th Annual PSS Graduate Student Research Symposium, Texas Tech University, Lubbock, TX, USA, April 19, 2023.

79. Stephens CJ[1], Samonte, SOPB, **Angeles-Shim RB**. Precision breeding for improved yield and disease resistance in Presidio. Rice Field Day, Beaumont, Texas, June 28, 2023. **[placed 3rd in graduate student poster competition]**

80. **Angeles-Shim RB**, Samonte SOPB. New Breed: Training work-force ready plant breeders by integrating core knowledge with applied research and experiential learning, NARRU Annual Conference-NIFA Update, Lubbock Texas, October 10, 2023.

81. Stephens C[1], Ponce KS, Sanchez DL, Samonte OPB, **Angeles-Shim RB**. Precision breeding for improved yield of the Texas-bred rice cultivar Presidio. 2023 ASA-CSSA-SSSA International Annual Meeting, St. Louis, Missouri, October 29-November 6, 2023.

82. Osti B[1], Kaur L[1], **Angeles-Shim RB**. Impact of cold stress on lipidome and free fatty acid profile of upland cotton during seed germination (*Gossypium hirsutum* L.) 2023 ASA-CSSA-SSSA International Annual Meeting, St. Louis, Missouri, October 29-November 6, 2023.

83. Singh A, Deb S, Escamilla E, **Angeles-Shim RB**. Evaluating root zone soil water dynamics in early-season planted upland cotton with cold germination ability. 2023 ASA-CSSA-SSSA International Annual Meeting, St. Louis, Missouri, October 29-November 6, 2023.

84. Osti B[1], **Angeles-Shim RB**. Fate of triacylglycerol during cold stress in upland cotton germination: Metabolism and enzymatic regulation. 2024 Beltwide Cotton Conferences, Fort Worth, Texas, January 3-5, 2024. **[placed 3rd in graduate student oral competition]**

85. Shrestha A[1], Shim J, Mangat PK[1], Dhaliwal LK[1], **Angeles-Shim RB**. Landraces as genetic resources for sustainable cotton cultivation. 2024 Beltwide Cotton Conferences, Fort Worth, Texas, January 3-5, 2024.

86. Unruh-Synder L, Dever J., Morgan V, Starr M, Crisp MC, Ortiz R, **Shim RA**, Osti B, Angelovici R. Project overview: Understanding biotic and abiotic factors of visually mechanical damaged seed impacting cotton seed quality that can lead to improved value and profitability. 2024 Beltwide Cotton Conferences, Fort Worth, Texas, January 3-5, 2024.

87. Pena B, Morales E, Rosas A, Sanchez DL, Samonte SOPB, Prodhan ZH, Elec V, **Angeles-Shim R**. Artificial cross pollination in rice. 10th Annual Texas A&M Plant Breeding Symposium: Seeding Sustainability, February 15, 2024. (*accepted*)

88. Pena RB, Morales E, Rosas A, Sanchez DL, Samonte SOPB, Prodhan ZH, Elec V, **Angeles-Shim R**. Grain quality analysis in rice. 10th Annual Texas A&M Plant Breeding Symposium: Seeding Sustainability, February 15, 2024. (*accepted*)

PRESENTATIONS AND LECTURES

Invited talks and lectures: total of 10

1. **Angeles-Shim RB.** Exploring the important agronomic traits loci of *Oryza glaberrima*. Biology Lecture Series for SCIMATB. Yuchengco Auditorium, De La Salle University, Taft Avenue, Manila, Philippines, March 8, 2013.

2. **Angeles-Shim RB.** Designing the rice genome to increase productivity and secure the world food supply. Laboratory Seminar for Incoming Freshmen. Laboratory of Plant Molecular Biosystem, Bioscience and Biotechnology Center, Nagoya University, Nagoya, Aichi Japan, June 13, 2014.

3. **Angeles-Shim RB.** WISH for Africa. Lecture presented during the Rice Breeding Course 2015. International Rice Research Institute, Los Banos, Laguna, Philippines, March 16-27, 2015.

4. **Angeles-Shim RB.** Breeding for increased number of primary branching and grain number in select rice varieties using marker-assisted backcrossing. Lecture presented during the Molecular Breeding Course 2015. International Rice Research Institute, Los Banos, Laguna, Philippines, September 28-October 9, 2015.

5. **Angeles-Shim RB.** Precision breeding for increased yields and improved biotic stress resistance in rice. Presented during the 6th General Meeting of the Coalition for African Rice Development. Accra, Ghana, November 17-19, 2015.

6. **Angeles-Shim RB.** Precision breeding in rice for increased yield and improved biotic stress resistance by marker-assisted backcrossing. Seminar presented at the National Institute of Crop Science, Rural Development Administration, Milyang, South Korea, December 20, 2016.

7. **Angeles-Shim RB.** Precision breeding in rice for increased yield and improved biotic stress resistance by marker-assisted backcrossing. Seminar presented at the National Institute of Corp Science, Rural Development Administration, Jeonju, South Korea, December 22, 2016.

8. **Angeles-Shim RB.** Precision breeding in rice for increased yield and improved biotic stress resistance by marker-assisted backcrossing. Seminar presented at the Philippine Rice Research Institute, PhilRice Central Experiment Station, Maligaya, Munoz, Nueva Ecija, Philippines, January 27, 2017.

9. **Angeles-Shim RB.** Precision breeding in rice for increased yield and improved biotic stress resistance by marker-assisted backcrossing. Invited seminar presented at the Junbok University in Jeonju, South Korea, September 22, 2017.

10. **Angeles-Shim RB**. Oils and fats: Cotton seed secrets to surviving cold stress. Upland Crop Breeding Research Division, Department of Southern Area Crop Science, Rural Development Administration, Milyang, South Korea, May 18, 2023.

11. **Angeles-Shim RB.** The four Cs guide to writing a research manuscript for publication. Upland Crop Breeding Research Division, Department of Southern Area Crop Science, Rural Development Administration, Milyang, South Korea, May 19, 2023.

12. **Angeles-Shim RB** A novel locus from the wild allotetraploid rice, *Oryza latifolia*, confers bacterial blight resistance in rice. Crop Foundation Research, National Institute of Crop Science, Rural Development Administration, Jeonju, South Korea, May 22, 2023.

Poster and oral presentations in conferences (volunteered): total of <u>21</u>

1. **Angeles RB**, Aquino C, Juliano A, Macatangay M, McNally KL. Development of oligomeric hybridization to genomic DNA arrays for varietal classification of rice. 5th International Rice Genetics Symposium, Manila, Philippines November 19-23, 2005.

2. **Angeles-Shim RB**, Asano K, Takashi T, Shim J, Kitano H, Ashikari M. Mapping of the glabrous gene in rice using CSSLs derived from the cross *Oryza sativa* subsp. *japonica* cv. Koshihikari x *O. glaberrima* 6th International Rice Genetics Symposium, Manila, Philippines, November 16-19, 2009.

3. **Angeles-Shim RB**, Asano K, Takashi T, Shim J, Kitano H, Ashikari M. Positional cloning of the gene that conditions glabrousness in rice using *Oryza glaberrima* chromosome segment substitution lines in *O. sativa* subsp. *japonica* cv. Koshihikari background. 4th Nagoya University Global COE Retreat, Toyohashi, Aichi, Japan, September 13-14, 2010.

4. **Angeles-Shim RB**, Vinarao RB, Quilloy NM, Malabanan RM, Balram M, Jena KK. (2013) Molecular characterization of disomic lines derived from *Oryza latifolia* Desv. Monosomic alien addition lines in the background of the elite *O. sativa* breeding line IR31917-54-3-2. 7th International Rice Genetics Symposium, Manila, Philippines, November 5-8, 2013.

5. **Angeles-Shim RB**, Asano K, Takashi T, Shim J, Kuroha T, Ayano M, Ashikari M. A WUSCHEL-related homeobox 3B gene, *depilous* (*dep*), confers glabrousness of rice leaves and glumes. 40th Annual Convention of the Philippine Society for Biotechnology and Molecular Biology, DLSU-Manila, Taft Avenue, Philippines, December 4-5, 2014

6. **Angeles-Shim RB**, Verdeprado MDA, Gibe GG, Lapis RS, Jena KK, Ashikari M. Precision breeding for increased number of primary branching and grain number in select rice varieties using marker-assisted backcrossing. 14th National Genetics Symposium, Southeast Asian Fisheries Development Center, Tigbauan, Iloilo, Philippines, November 27-29, 2014.

7. **Angeles-Shim RB**, Vinarao RB, Marathi B, Jena KK. Molecular analysis of *Oryza latifolia* Desv. (CCDD genome)-derived introgression lines and identification of value-added traits for rice (*O. sativa* Linn.) improvement. 41st Annual Convention of the Philippine Society for Biotechnology and Molecular Biology, Cebu, Philippines, December 4-5, 2014.

8. **Angeles-Shim RB**, Verdeprado MDA, Gibe GG, Lapis RS, Jena KK, Ashikari M. Introgression of major QTLs for increased primary branching and grain number in select rice varieties by marker-assisted backcrossing. 23rd Federation of Crop Science Society of the Philippines Scientific Conference, Clark Freeport, Pampanga, Philippines, May 11-16, 2015.

9. **Angeles-Shim RB**, Vinarao RB, Vera Cruz CM, Jena KK. A novel gene for bacterial blight resistance from the wild rice species *Orya latifolia* Desv. 5th International Conference on Bacterial Blight of Rice, Rice bacterial blight: New innovations for the Second Green Revolution, Bellevue Manila, Metro Manila, Philippines, October 17-19, 2016.

10. **Angeles-Shim RB**, Del Valle MM, Lapis RS, Reyes VP[1], Shim J, Jena KK, Doi K, Ashikari M. Introgression of the quantitative blast resistance gene *pi21*, on select rice varieties by marker-assisted backcrossing. 14th International Symposium on Rice Functional Genomics, Suwon, Korea, September 25-28, 2017.

11. **Angeles-Shim RB**, Reyes VP[1], Del Valle MM, Lapis RS, Shim J, Jena KK, Ashikari M, Doi K. Introgression of *pi21* by marker-assisted backcrossing confers resistance to a wider range of Philippine blast isolates of select rice varieties. Plant and Animal Genome Conference XXVI, San Diego, USA, January 13-17, 2018.

12. Vinarao RB, Shim J, Lapis RS, **Angeles-Shim RB**. Mapping of a novel gene conferring bacterial blight resistance in the wild allotetraploid rice *Oryza latifolia* Desv. Enhancing Productivity in a Changing Climate, 2018 ASA and CSSA Meeting, Baltimore, Maryland, USA, November 4-7, 2018.

13. Mangat PK[1], **Angeles-Shim RB**. Draft genome assembly of the wild nightshade species, *Solanum lycopersicoides* and its pre-breeding applications for tomato (*S. esculentum)* improvement. 2019 KSBS and SABRAO International Conference in Plant Breeding for Sustainable Development, Gwangju, South Korea, July 2-5, 2019.

14. **Angeles-Shim RB**, Lapis RS, Verdeprado MDA, Shim J, Sunohara H, Ashikari M, Doi K. Marker-assisted introgression of *Gn1a* and *WFP* increased primary branching and grain number in rice. 2019 NAPB Annual Meeting, Pine Mountain, Georgia, USA, August 25-29, 2019

15. Shim JH, Gannaban RB[1], Mangat PK[1], **Angeles-Shim RB**. Cell membrane unsaturation confers cold germination ability to seeds of cotton mutants with reduced palmitic acid profile.

Embracing the Digital Environment. 2019 ASA-CSSA-SSSA International Annual Meeting,San Antonio, Texas, USA, November 10-13, 2019.

16. Dhaliwal LK[1], Shim J, **Angeles-Shim RB**. Membrane lipid unsaturation confers cold germination ability in fatty acid mutants of upland cotton (*Gossypium hirsutum* L.). Responding to Health and Environmental Issues Through Biochemistry and Molecular Biology, A Virtual International Conference. 47th Annual Convention of the Philippine Society of Biochemistry and Molecular Biology, December 1-4, 2020.

17. Dhaliwal LK[1], **Angeles-Shim RB**. Cold stress-induced changes in the regulation of whole seed lipidome during early germination in upland cotton (*Gossypium hirsutum* L). Southern Section of the American Society of Plant Biologist 2021 Virtual Meeting, April 16-18, 2021.

18. **Angeles-Shim RB**, Shim J, Vinarao RB, Lapis RS, Singleton JJ. A novel locus from *Oryza latifolia* Desv. confers qualitative bacterial blight (*Xanthomonas oryzae* pv. *oryzae*) resistance in rice (*Oryza sativa* L.). Emerging Research and Technologies to Address Current Challenges in Building a More Sustainable Agriculture System, 3nd International Conference on Plant Science and Research (Virtual), May 10-11, 2021.

19. Dhaliwal LK[1], Shim J, Zabet M, de los Reyes BG, **Angeles-Shim RB**. Membrane lipid unsaturation confers cold germination ability to seeds of upland cotton (*Gossypium hirsutum*). 10th Asian Crop Science Association Conference, Nagoya, Japan, September 7-10, 2021.

20. **Angeles-Shim RB.** Phospholipase-mediated accumulation of phosphatidic acid in response to cold stress negatively impacts cotton seed germination. Communication and Public Engagement for Healthy People and a Healthy Planet. 2022 ASA-CSSA-SSSA International Annual Meeting, Baltimore, Maryland, November 6-9, 2022.

21. **Angeles-Shim RB**, Samonte SOPB. New Breed: Training work-force ready plant breeders by integrating core knowledge with applied research and experiential learning, NARRU Annual Conference-NIFA Update, Lubbock Texas, October 10, 2023.

UNDERGRADUATE STUDENT ADVISING/MENTORING

Undergraduate Student Advisees: total of 41

Department of Plant and Soil Science: total of 38

1. Bednardz, Cade (Fall 2017-Spring 2019)
2. Lafferty, Haynes (Fall 2017; **graduated Summer 2021**)
3. Tatum, Dillard (Fall 2017-Spring 2018)
4. Kyley, Riedt (Fall 2017)
5. Ware, Savana (Spring 2018; **graduated Summer 2021**)
6. Lampshear, Sydney (Fall 2018)
7. Long, Macy (Fall 2018; **graduated Fall 2020**)
8. Steadman, James (Fall 2018; **graduated Spring 2022**)
9. Waltrip, Tanner (Fall 2018-Fall 2019)
10. Welch, Brady (Fall 2018-present)
11. Gentry, Cooper (Spring 2019; **graduated Summer 2022**)
12. Preston, Coleman (Spring 2019)
13. Smith, Maxwell (Spring 2019; **graduated Summer 2021**)
14. Watts, Derick (Spring 2019; **graduated Spring 2022**)

15. Johnson, Jared (Fall 2019-present)
16. Daniels, Eric (Fall 2020-Spring 2022)
17. Diver, Justin (Fall 2020-present)
18. Sawvell, Kassidy (Fall 2020; **graduated Fall 2022**)
19. Chavez, Edgar (Fall 2020; **graduated Spring 2023**)
20. Smith, Taylor (Fall 2020-present)
21. Imbach, Max (Fall 2020-Spring 2022)
22. Wild, Griffin (Fall 2020; **graduated Fall 2023**)
23. Crowl, Jonathan (Fall 2021; **graduated Spring 2022**)
24. Gerhart, Seth (Fall 2021-present)
25. Gudino, Maximus (Fall 2021-present)
26. Mazziotti, John (Fall 2021-present)
27. Nuckols, Carson (Fall 2021-present)
28. Stinson, Audra (Fall 2021-present)
29. Swinney, Kylan (Fall 2021; **graduated Spring 2023**)
30. Weaver, Brendan (Fall 2021; **graduated Spring 2023**)
31. Finkenbinder, Hayden (Fall 2022)
32. Fraire, Karla (Fall 2022-present)
33. Haden, Madeline (Fall 2022-present)
34. Hale, Ava (Fall 2022-present)
35. Wells, Alexander (Fall 2022)
36. Box, Kayce (Fall 2023-present)
37. Stark, Hunter (Fall 2023-present)
38. Strickland, Blake (Fall 2023-present)

Department of Agricultural and Applied Economics: total of 3

1. Rush, Carson (Fall 2021; **graduated summer 2022**)
2. Glass, Benjamin (Fall 2021-Spring 2023)
3. Mills, Blake (Fall 2021-present)

Undergraduate Research Students: total of <u>3</u>

1. Hale, Ava (BS Plant and Soil Science; March-September 2021)
   Project title: Understanding the dynamics of alien chromosome transmission from the wild allotetraploid species, *Oryza latifolia* Desv. to cultivated rice (*O. sativa* L.)
   (Fellowship supported by the CASNR Undergraduate Research Minigrant)

2. Stephens, Christian (BS Plant and Soil Science; February-August 2022)
   Project title: Towards a marker-assisted improvement of rice yields: Development and characterization of F_1 hybrids from crosses between the Texas-bred rice variety, Presidio and the landrace ST-12
   (Fellowship supported by the CASNR Undergraduate Research Minigrant)

3. Gudino, Maximus (BS Plant and Soil Science; December 2023-December 2024)
   Project title: Genetic diversity assessment of cotton landraces with variable oil content and photoperiod sensitivity
   (Fellowship supported by the 2024 Davis College Research Scholarship)

Undergraduate Interns: total of <u>1</u>

1. Fraire, Karla (BS Plant and Soil Science)
   Undergraduate intern from November-December 2023

GRADAUTE STUDENT COMMITTEES

Completed: total of 15

Chaired: total of 6

MS thesis option: 2

1. Ritchel B. Gannaban. Completed in Summer 2019. Title of thesis: Identification of novel sources of variation for the improvement of cold germination ability and early seedling vigor in upland cotton (*Gossypium hirsutum* L.).

2. Joshua J. Singleton. Completed in Summer 2019. Title of thesis: Role of genetic diversity in the adaptive success of silverleaf nightshade (*Solanum elaeagnifolium*) under variable environmental pressures.

MS non-thesis option: 2

1. Hyde, Maxwell. MS in Horticultural Science. Completed in Spring 2023.
2. Wendy Steward. MS in Plant and Soil Science. Completed in Spring 2023.

PhD: 2

1. Puneet Kaur Mangat. Completed in Fall 2021. Title of thesis: Exploring natural variation in *Solanum lycopersicoides* towards introgressive breeding for target trait improvement in tomato (*S. lycopersicum*).

2. Lakhvir Kaur Dhaliwal. Completed in Fall 2023. Title of thesis: Seed lipid composition as a breeding target to improve cold germination ability in upland cotton (*Gossypium hirsutum*)

Co-Chaired: total of 1

MS: 1

1. Vincent P. Reyes. Completed in Spring 2018. Title of thesis: Genetic effects of major QTLs controlling grain number (*Grain Number 1a* (*Gn1a*)) and number of primary branches per panicle (*Wealthy Farmer's Panicle* (*WFP*)) on the agronomic performance of different NERICA varieties of rice (*Oryza sativa* L.).

PhD: 0

Committee member: total of 8

MS thesis option: 3

1. Jake Gendron. Completed in Fall 2018. Title of thesis: Genetic network rewiring configures a novel dehydration stress tolerant phenotype in transgressive recombinant inbreds of rice (*Oryza sativa L. subsp. indica)*

2. Lindsay Williams. Completed in Summer 2019. Title of thesis: Interaction studies of photoperiodic flowering time regulator *FKF1* and characterization of *UCH-L1*

3. Jay Pendergrass. Completed in Fall 2019. Title of thesis: Utilizing phenotypic traits to predict seedling field vigor in a cotton breeding program.

MS non-thesis option: 1

1. Belo, Oluwatobi Belo. MS Plant and Soil Science. Completed in August 2022.

PhD: 4

1. Zach Hinds. Completed in Summer 2020. Title of thesis: Exploration and improvement of cotton fiber length distribution.

2. Isaiah Pabuayon. Completed in Fall 2020. Title of thesis: Physiological and molecular causes of genetic novelties: A case study on transgressive salinity tolerance across a recombinant inbred population of rice.

3. Jacobo Sanchez. Completed in Spring 2022. Title of thesis: Analysis of genetic and physiological factors governing drought and cold stress effects on yield penalty in model cereal species.

4. Swarupa Mandal. Completed in Spring 2023. Title of thesis: Examining the roles of genomic and epigenomic confrontation in configuring transgressive stress tolerance phenotypes of interspecific introgression lines of *Oryza sativa x O. rufipogon* and *O. sativa* x *O. meridionalis*

In progress: total of 12

Chair: total of 8

MS thesis option: 2

1. Bandana Osti. Anticipated completion: Summer 2024. Tentative title of thesis: Cold-induced regulation of storage lipid metabolism and translocation in upland cotton (*Gossypium hirsutum*)

2. Kassidy Sawvell. Anticipated completion: Spring 2025. Tentative title of thesis: Biostimulants and their beneficial effects on overall physiology of alfalfa (*Medicago sativa*) and soil health.

MS non-thesis option: 3

1. Zachary Ruprath (MS in Horticultural Science; Spring 2023-present)
2. Ivette Morales (MS in Horticultural Science; Fall 2023-present)
3. Sai Keerthi Seelam (MS in Plant and Soil Science; Spring 2024-present)

PhD: 3

1. Nathaniel Turner. Anticipated completion: Fall 2023. Tentative title of thesis: Genetic and genomic studies towards breeding for the utilization of Texas wintergrass (*Nasella leucotricha*) as a cool season forage grass.

2. Avinash Shrestha. Anticipated completion: Fall 2025. Tentative Title of thesis: Utilizing the potential of landraces as novel sources of genetic variation for the agronomic improvement of upland cotton (*Gossypium hirsutum* L.)

3. Christian Stephens. Anticipated completion: Fall 2027. Tentative Title of thesis: Marker-assisted introgression of yield-related and blast resistance QTLs in the genetic background of

the Texas-bred rice (*Oryza sativa*) variety, Presidio.

Co-chair: total of 0

Committee member: total of 4

MS: 1

1. Nick Rohr. Anticipated completion: Spring 2023. Tentative title of thesis: Identifying the gene network involved in drought-mediated yield penalty within rice Decussate orthologs in *Arabidopsis thaliana*

MS non-thesis option: 1

1. Chakri Voruganti (MS in Plant and Soil Science; Spring 2023-present)

PhD: 2

1. Teresa Gaus-Bowling. Anticipated completion: Fall 2022.
2. Coenraad Van Beek. Anticipated completion: Spring 2023

Did not complete: total of 5

MS (thesis option): 1

1. Guadalupe Martinez (AY 2021)

MS (non-thesis option): 3

1. Dannie Wright (AY 2018)
2. Margo Petitti (AY 2018)

PhD: 1

1. Cody Vavra (AY 2021)

OTHERS

NAPB Borlaug Scholar (2019)

1. Jason Knapp Wilson, MS Student
   Arizona State University, Arizona, US

International Fellow: total of 1

1. Eunyoung Oh
   Short-term Scholar/Korean Government Overseas Fellow
   Rural Development Administration, South Korea
   November 18, 2019-April 23, 2020

TEACHING RESPONSIBILITIES

1. PSS 3324: Fundamental Principles of Seed Science (Spring even; 3 credits; 100% responsibility; Fall odd-distance; 100% responsibility)

- Spring 2019 -Total of 28 students
- Spring 2021- Total of 19 students
- Fall 2021 (distance) - Total of 13 students
- Spring 2023 - Total of 25 students
- Fall 2023 (distance) – Total of 20 students

2. PSS 4321: Principles of Plant Breeding (Spring odd; 3 credits; 100% responsibility)
    - Spring 2018 - Total of 9 students
    - Spring 2020 - Total of 17 students
    - Spring 2022 - Total of 19 students
3. PSS 5321: Plant Breeding Theory (Fall even; 3 credits; 100% responsibility)
    - Fall 2022 - Total of 11 students

Other teaching responsibilities

2017

1. PSS7000: Research. Total of 3 students.

2018

1. PSS 5000: Professional Internship. Total of 1 student.
2. PSS 6000: Master's Thesis. Total of 3 students.
3. PSS 6001: Selected Topic in Plant and Soil Science: Methods and concepts in quantifying plant responses to low temperature stress. Total of 1 student.
4. PSS 7000: Research. Total of 3 students.

2019

1. PSS 4000: Internship. Total of 1 student.
2. PSS 6000: Master's Thesis Total of 3 students.
3. PSS 6001: Selected Topic in Plant and Soil Science: Practical exercises towards understanding dormancy and germination traits in seeds. Total of 3 students.
4. PSS 7000: Research. Total of 3 students.

2020

1. PSS 4000: Internship. Total of 1 student.
2. PSS 6000: Master's Thesis. Total of 2 students.
3. PSS 6001: Selected Topics in Plant Science: Molecular markers and applications in marker-assisted selection for crop improvement. Total of 2 students.
4. PSS 7000: Research. Total of 5 students.
5. PSS 8000: Doctor's Dissertation. Total of 1 student.

2021

1. PSS 4000: Internship. Total of 7 students.
2. PSS 6000: Master's Thesis. Total of 1 student.
3. PSS 7000: Research. Total of 5 students.
4. PSS 8000: Doctor's Dissertation. Total of 2 students.

2022

1. PSS 4000: Internship. Total of 2 students.

2. PSS 4001: Problems. Total of 1 student
3. PSS 7000: Research. Total of 3 students.
4. PSS 8000: Doctor's Dissertation. Total of 1 student.

2023

1. PSS 4000: Internship. Total of 7 students (Summer I and II, Winter intersession)
2. PSS 4001: Problems. Total of 3 students
3. PSS 5001: Problems in Plant and Soil Science: Plant-symbiont interactions. Total of 2 students.
4. PSS 6001: Selected Topics in Plant and Soil Science: Physiological and nutritive manipulation to induce stretching in cut flowers. Total of 1 student.
5. PSS 6001: Selected Topics in Plant and Soil Science: Lipid regulation in cotton seeds in response to cold stress. Total of 1 student.
6. PSS 7000: Research. Total of 4 students.
7. PSS 8000: Doctor's Dissertation. Total of 2 students.

2024

1. PSS 4001: Problems. Genetic diversity assessment of cotton landraces. Total of 1 student.
2. PSS 4001: Problems. Genetic complementation of decussate mutants in Arabidopsis thaliana. Total of 1 student
3. PSS 6000: Master's Thesis. Total of 1 student.
3. PSS 7000: Research. Total of 4 students.
4. PSS 8000: Doctor's Dissertation. Total of 2 students.

Summary of Student Ratings of In-Class Teaching Effectiveness
Evaluation scale: 5 = excellent, 4 = outstanding, 3 = good, 2 = fair, 1 = poor
Entries are the section mean by term.

On Campus courses

						Question1: Course Objectives				Question2: Effectiveness				Question 3: Learning experience			
Year	**Term**	**Course**	**Course Title**	**Students enrolled**	**Students evaluating**	**Shim**	**PSS**	**Davis College**	**TTU**	**Shim**	**PSS**	**Davis College**	**TTU**	**Shim**	**PSS**	**Davis College**	**TTU**
2018	Spring	PSS 4321-001	Fundamental Principles of Plant Breeding	9	9	**4.40**	4.60	4.50	4.50	**4.20**	4.50	4.40	4.40	**4.20**	4.40	4.40	4.40
2019	Spring	PSS 3324-001	Seed Science	28	20	**4.40**	4.60	4.50	4.50	**4.30**	4.50	4.40	4.40	**4.50**	4.40	4.40	4.40
2020	Spring	PSS 4321-001	Fundamental Principles of Plant Breeding	17	7	**4.40**	4.60	4.50	4.50	**4.40**	4.50	4.40	4.40	**4.40**	4.40	4.40	4.40
2021	Spring	PSS 3324-001	Seed Science	19	14	**4.70**	4.60	4.50	4.50	**4.80**	4.50	4.40	4.40	**4.80**	4.40	4.40	4.40
2022	Spring	PSS 4321-001	Fundamental Principles of Plant Breeding	19	11	**4.90**	4.60	4.50	4.50	**4.80**	4.50	4.40	4.40	**4.80**	4.40	4.40	4.40
2022	Fall	PSS 5321-001	Plant Breeding Theory	11	10	**4.70**	4.60	4.50	4.50	**4.70**	4.50	4.40	4.40	**4.80**	4.40	4.40	4.40
2023	Spring	PSS 3324-001	Seed Science	25	19	**5.00**	4.60	4.60	4.50	**5.00**	4.50	4.40	4.40	**5.00**	4.40	4.40	4.40

Distance Courses

						Question1: Course Objectives				Question2: Effectiveness				Question 3: Learning experience			
Year	**Term**	**Course**	**Course Title**	**Students enrolled**	**Students evaluating**	**Shim**	**PSS**	**Davis College**	**TTU**	**Shim**	**PSS**	**Davis College**	**TTU**	**Shim**	**PSS**	**Davis College**	**TTU**
2021	Fall	PSS 3324-D01	Seed Science	13	8	**4.30**	4.50	4.60	4.50	**4.30**	4.40	4.40	4.30	**4.40**	4.40	4.40	4.30
2023	Fall	PSS 3324-D01	Seed Science	20	16	**4.30**	4.60	4.50	4.50	**4.20**	4.40	4.40	4.40	**4.10**	4.40	4.30	4.30

GRANTS AND AWARDS

Total funded: US$ 1,181,257.00

1. PI: Rosalyn A. Shim. 2018. Novel sources of seedling cold tolerance and vigor traits in cotton: Identification, characterization and use in marker-assisted breeding (Year 1). Cotton Incorporated (**$25,000**)

2. PI: Rosalyn A. Shim. 2018. Mapping the genomic landscape of introgression lines derived from *Solanum lycopersicoides*. Proposal Assistance Program, Office of Research and Innovation, Texas tech University (**$4,000**)

3. PI: Rosalyn A. Shim. 2019. Novel sources of seedling cold tolerance and vigor traits in cotton: Identification, characterization and use in marker-assisted breeding (Year 2). Cotton Incorporated (**$32,000**)

4. Co-PIs: Rosalyn A. Shim and Megan Sweeney. 2019. Understanding the genetic basis of phenotypic variation in fuzz fiber development in upland cotton. Project Revolution (**$180,000**)

5. Co-PI: Rosalyn A. Shim and Sanjit Deb. (2019) Effects of early season planting and soil physical environment on the growth, development and yield of cotton germplasm with cold germination ability (Year 1). Texas State Support Committee (**$20,000**)

6. PI: Rosalyn A. Shim. 2019. Korean Government Overseas Research Fellowship (**$4,000**)

7. Co-PI: Rosalyn A. Shim and Sanjit Deb. (2020) Effects of early season planting and soil physical environment on the growth, development and yield of cotton germplasm with cold germination ability (Year 2). Texas State Support Committee (**$20,000**)

8. PI: Rosalyn A. Shim. 2020. Novel sources of seedling cold tolerance and vigor traits in cotton: Identification, characterization and use in marker-assisted breeding (Year 3). Cotton Incorporated (**$35,200**)

9. Open Access Publication Initiative-Fall 2019/Spring 2020, Texas Tech University (**$1,000**)

10. Faculty Travel Grants (Fall 2019 Travel), Texas Tech University **($1,000**)

11. Co-PI: Rosalyn A. Shim. 2021. Novel sources of seedling cold tolerance and vigor traits in cotton: Identification, characterization and use in marker-assisted breeding. Cotton Inc **($36,187**)

12. Co-PI: Rosalyn A. Shim. 2021. Effects of early season planting and soil physical environment on the growth, development and yield of cotton germplasm with cold germination ability. Texas State Support Committee **($20,000)**

13. Co-PI: Rosalyn A. Shim. 2021. Genetic basis of segregation distortion leading to preferential chromosome transmission in interspecific hybrids of rice. International Research Seed Grants (**$2,000**)

14. Co-PI: Rosalyn A. Shim. 2021. Understanding the dynamics of alien chromosome transmission from the wild allotetraploid species, *Oryza latifolia* Desv. to cultivated rice (*O. sativa* L.) CASNR 2021 Undergraduate Research Grants **($2,000)**

15. Open Access Publication Initiative-Fall 2020/Spring 2021, Texas Tech University **($1,000)**

16. PI: Rosalyn A. Shim. 2022. Towards a marker-assisted improvement of rice yields: Development and characterization of F_1 hybrids from crosses between the Texas-bred rice variety, Presidio and the landrace ST-12. CASNR 2022 Undergraduate Research Grants **($2,000)**

17. PI: Rosalyn A. Shim. 2022. Novel sources of seedling cold tolerance and vigor traits in cotton: Identification, characterization and use in marker-assisted breeding. Cotton Inc. **($36,187)**

18. PI: Rosalyn A. Shim. 2022. New Breed: Training work-force ready plant breeders by integrating core knowledge with applied research and experiential learning. USDA-NIFA. **($299,996)**

19. Co-PI: Rosalyn A. Shim. 2022. Understanding the genetic basis of phenotypic variation in fuzz fiber development in upland cotton. Project Revolution (extension) (**$112,500**)

20. Co-PI: Rosalyn A. Shim 2023. Improve the understanding of biotic and abiotic factors of visually mechanical damaged seed impacting cotton seed quality that can lead to improved value and profitability. USDA-NIFA. (**$300,000)**

21. PI: Rosalyn A. Shim. 2023. High-throughput genotyping of rice (*Oryza sativa* L.) breeding lines for the marker-assisted introgression of genes controlling number of branches per panicle and grain number in Nigerian rice cultivars. Olam International. (**$10,000)**

22. PI: Rosalyn A. Shim. 2023. Novel sources of seedling cold tolerance and vigor traits in cotton: Identification, characterization and use in marker-assisted breeding. Cotton Inc. **($36,187)**

23. Open Access Publication Initiative-Fall 2023/Spring 2024, Texas Tech University (**$1,000**)

Not funded: (total amount requested: US$ 5,193,160.39)

1. PI: Rosalyn A. Shim. 2017. The CH Foundation Student Research Symposium. The CH Foundation. Total amount requested: **$7,200**.

2. PI: Rosalyn A. Shim. 2017. Molecular characterization of gene(s) conditioning the naked seed phenotype in cotton towards enhancing the breeding capacity for the trait. AFRI Foundational USDA/NIFA. Total amount requested: **$131,359**.

3. PI: Rosalyn A. Shim. 2017. Understanding the genetic basis of phenotypic variation in fuzz fiber development in upland cotton. Project Revolution. Total amount requested: **$180,000**.

4. Co-PI: Rosalyn A. Shim and Brendan Kelly. 2017. Evaluation of the potential of naked seed mutants as a genetic resource to enhance the within sample distribution of fiber length and improve ginning efficiency in cotton. Cotton Inc (pre-proposal).

5. Co-PI: Benildo de los Reyes, Venugopal Mendu and Rosalyn A. Shim. 2017. Broadening the genetic base of cultivated cotton for resistance to *Verticillium* wilt. Cotton Inc (pre-proposal).

6. Co-PI: Gloria Burrow and Rosalyn A. Shim. 2018. Enabling sorghum double haploid technology via reverse genetics and translational genomic studies of putative *Sorghum*

bicolor matrilineal (*SbMTL*) gene orthologue. NSF/USDA. Total amount requested: **$300,000**.

7. Co-PI: Benildo de los Reyes, Mark Burrow, Venugopal Mendu and Rosalyn A. Shim. 2018. Establishing a high-resolution reference panel for the tetraploid cultivated peanut using a subset of iconic breeding donors: Foundations for gene discovery, allele mining, and genomics-assisted breeding for the peanut research community. USAID Feed the Future Innovation Laboratory for Peanut. Total amount requested: **$2.25 million**.

8. PI: Rosalyn A. Shim. 2018. Rice breeding for a new high-yield variety resistant to disease and humid conditions. Norman E. Borlaug International Agricultural Science and Technology Fellowship Program. Total amount requested: **$47,705**.

9. PI: Rosalyn A. Shim. 2018. Understanding the roles of genetic variation and phenotypic plasticity in the adaptive success of *Solanum elaegnifolium* under abiotic stress. AFRI Foundational USDA/NIFA. Total amount requested: **$149,025**.

10. PI: Rosalyn A. Shim. 2018. Systematic characterization of *Solanum lycopersicoides*-derived pre-bred derivatives to strengthen introgressive breeding capacity in tomato. AFRI Foundational, USDA/NIFA. Total amount requested: **$209,908**.

11. Co-PI: Rosalyn A. Shim and Joyce Cartegena. 2019. Elucidating the molecular mechanism of adaptive success of silverleaf nightshade (*Solanum elaeagnifolium*) as a noxious weed. Grants-in-Aid for Scientific Research – KAKENHI. Total amount requested: **¥14,160,000/$130,421.39**.

12. PI: Rosalyn A. Shim. 2020. Understanding the contributory roles of phenotypic plasticity and genetic adaptation in the invasiveness of *Solanum elaeagnifolium.* AFRI Foundational USDA/NIFA AFRI Foundational. Total amount requested: **$416,715**.

13. PI: Rosalyn A. Shim. 2020. Blister Blight Disease in Tea. Norman E. Borlaug International Agricultural Science and Technology Fellowship Program. Total amount requested: **$58,157**.

14. PI: Rosalyn A. Shim. 2020. New Breed: Training work-force ready plant breeders by integrating core knowledge with applied research and experiential learning. NLGCA. Total amount requested: **$298,745**.

15. PI: Rosalyn A. Shim. 2020. Understanding the genetic basis of preferential chromosome transmission using wide hybrids of rice. Halo, BAYER. Total amount requested: **$15,000**.

16. PI: Rosalyn A. Shim. 2020. Elucidating the genetic basis of local adaptation in primitive landraces of upland cotton using the framework of landscape genomics. Project Revolution (BASF/Texas Tech University).. Total amount requested: **$278,000**.

17. PI: Rosalyn A. Shim. 2021. Precision breeding to improve farmer-preferred rice cultivars with new genes for blast resistance and yield components. AFRI Foundational, USDA/NIFA. Total amount requested: **$499,992**.

18. Co-PI: Rosalyn A. Shim. 2023. Understanding the contributory role of phenotypic plasticity and genetic adaptation in the ecology and invasiveness of silverleaf nightshade (*Solanum elaeagnifolium*). Davis College Grand Challenges Competition. Total amount requested: **$220,933**.

SERVICES

Service to Professional Organizations:

1. 2018-2019 *Membership Committee*, National Association of Plant Breeders (NAPB)
2. 2019 *NAPB Borlaug Scholar Mentor* to Jason Knapp Wilson, MS Student Arizona State, University, Arizona, US
3. 2020 *Chair-Elect*, Division C-4 Seed Physiology, Production and Technology Crop Science Society of America
4. 2021 *Chair*; *Chair of Program Planning Committee; Member of Nominations for President –Elect Committee, Member of C457 Crop Science Graduate Student Scholarship Committe*e C-4 Seed Physiology, Production and Technology Crop Science Society of America
5. 2022-2023 *Member, C4 Outstanding Paper Awards Committee* C-4 Seed Physiology, Production and Technology Crop Science Society of America
6. 2023 *Judge, ASA, CSSA and SSSA Diversity Poster Contest, 2023*

Service to University:

1. Served as Mentor under the MentorTech program of the Texas Tech University (FY2017-FY2021)
2. Member, Internal Reviewer Committee for the 2023 USDA-ARS and TTU Collaborative Seed Grants (June 5-20, 2023)

Service to the College (College of Agricultural Sciences and Natural Resources):

1. Member, Davis College International Activities Committee (FY2022-2023)
2. Member, Search Committee for Davis College Associate Dean for Research (March-November 2023)
3. Panelist, Davis College Tenure and Promotion Workshop (December 14, 2023)

Service to the Department (Department of Plant and Soil Science, PSS):

1. Served as Dean's Representative for the thesis defense of PhD candidate Anh Bui (Dissertation title: Understanding the molecular mechanism of cotton fiber initiation) on October 6, 2017.
2. Member of the Search Committee for Professor/Associate Professor/Professor of Ecological Modelling, Plant Ecohydology and Quantitative Plant Ecology (June-September 2017)
3. Served as a Guest Lecturer in PSS 2316 (Sustainable Agriculture) on the 'Role of Plant Breeding in Sustainable Agriculture' (October 30, 2018)
4. Served as a Proctor for PSS 2316-D01 (Introduction to Sustainable Agriculture) (Fall 2018)
5. Served as a Member of the Search Committee for the Rockwell Endowed Associate Professor/Professor of Horticulture (January 2018-January 2019)
6. Served as a Proctor for PSS 2313-D01 (Herbaceous Plant Materials) (Fall 2019)
7. Served as PSS Internal Evaluator for the 2020 GO Mott Meritorius Graduate Student Award
8. Served as a Member of the Strategic Planning Committee of the Department of Plant and Soil Science (March 2021)
9. Member of the PSS Graduate Students Committee (FY2017-present)
10. Member of the PSS Undergraduate Research Committee (FY2017-present)
11. Member of Organizing Committee for the Annual PSS Graduate Student Symposium (2019-present)

12. Member of the Department of Plant and Soil Science Graduate Coordination Committee (July 2020-present)
13. Member of the PSS Undergraduate Research Committee (FY2017-present)
14. Member of the of the Department of Plant and Soil Science Hall of Fame Committee (December 2021-present)
15. Member of the PSS Curriculum Committee (FY2022-present)
16. Served as Dean's Representative for the thesis defense of PhD candidate Alireza Asadi (Dissertation Title: Application of advanced modeling techniques in groundwater, surface water, and wastewater treatment) on March 21, 2022.
17. Member of the Three-Year Review Committee of Kalavathy Rajan (Assistant Professor, Department of Plant and Soil Science; 2023-2026)

Service to the Scientific Community

1. Guest Editor for PLoS One (May 2018)
2. Academic Editor for PLoS One (July 2018-present)
3. Served as an External Reviewer for a Texas A&M Hatch Proposal (No. TEX09441) entitled 'Hybrid Rice Cultivar Development: Integrated conventional, ideotype, model- and marker-assisted selection and breeding' (September 2018)
4. Guest Academic Editor for the Special Issue of Agriculture: "Utilization of Wild and Exotic Germplasm for Crop Improvement" (July 2018-May 2019)
5. Guest Academic Editor for the Special Issue of Plants on 'Pre-Breeding Towards the Effective Utilization of Plant Genetic Resources Volume I' (July 2020-August 2021)
6. Guest Academic Editor for the Special Issue of Plants on 'Pre-Breeding Towards the Effective Utilization of Plant Genetic Resources Volume II' (September 2020-August 2022)
7. Guest Editor for a collection of articles in Frontiers in Plant Science on 'Systems Approach to Understanding the Biology of Cold Stress Responses in Plants' (September 2020-August 2021)
8. Served as an External Reviewer for Texas A&M Hatch Proposal (No. TEX09441) entitled 'Specialty and Healthful Rice Cultivar Development: Integrated Conventional, Ideotype, Model- and Marker-Assisted Selection and Breeding' (November 2023)
9. Reviewed for Plant Disease, PLoS ONE, BMC Biology, Theoretical and Applied Genetics, Rice, Rice Science, Breeding Science, Molecular Biotechnology, Genes, Molecular Breeding, International Journal of Molecular Sciences, Agronomy, Weed Science, Crop Journal, Crop Science, Physiologia Plantarum, Plants MDPI, Biodiversitas Journal of Biological Diversity, Journal of Cotton Research, Plant Genetic Resources

Service to the Industry: None

PRINT MEDIA

1. https://ricetoday.irri.org/bacterial-blight-resistance-gene-discovered-in-wild-rice-from-south-america/
2. https://businessmirror.com.ph/2017/02/23/government-to-improve-rice-varieties-via-precision-breeding/
3. http://www.philrice.gov.ph/precision-breeding-improves-rice-cultivars/
4. https://www.jica.go.jp/philippine/english/office/topics/news/180702_03.html
5. http://www.seedquest.com/news.php?type=news&id_article=85552&id_region=&id_category=&id_crop=7
6. http://www.dailytoreador.com/news/experts-explain-gmos-discuss-benefits/article_970d4f2c-d882-11e7-bd93-ebf478128e17.ht
7. https://www.jica.go.jp/philippine/english/office/topics/news/140519.html