Curriculum Vitae

1. General information

Name Ranganathan CHANDRA BABU

Date of birth October 8, 1957

Correspondence Address R. Chandra Babu, Ph. D., Post-doc., (USA)
Fulbright Fellow
Director
Center for Plant Molecular Biology and Biotechnology
Tamil Nadu Agricultural University (TNAU), Coimbatore, India

Phone No. Mobile: +91 9994437780; Landline: +91 422 6611462(W)
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Email chandrarc2000@yahoo.com

2. Present position		
a.	**Designation**	Director, Center for Plant Molecular Biology and Biotechnology
b.	**Organization**	Tamil Nadu Agricultural University, Coimbatore, India
c.	**Date of appointment to the present post**	1.6.2013
d.	**Total experience in the present position**	3 years and 7 months

3. Educational Qualification

S. No.	Qualification	University	Year	Subject
1.	Fulbright Senior Research Scholar	Cornell University, USA	2012	Translational genomics for drought resilience
2.	Post-doctoral study	Texas Tech University, Lubbock, USA	1994 - 1996	Rice Biotechnology
3.	Ph. D.	Tamil Nadu Agricultural University, India	1990	Crop Physiology
4.	M. Sc.	Tamil Nadu Agricultural University, India	1979	Plant Physiology
5.	B. Sc.	University of Madras, India	1977	Botany

4. Experience in Agrl. biotechnology research and education				
S. No.	**Post held**	**Organization**	**Nature of duties**	**Experience**
1	Director, CPMB&B	Tamil Nadu Agricultural University, Coimbatore, India	Administration of Agri. Biotechnology Education & Research programs	3 years and 7 months
2	Dean, Post Graduate Studies	Tamil Nadu Agricultural University, Coimbatore, India	Administration of Post Graduate Programs including biotechnology	3 years and 3 months
3	Professor (Biotechnology)	Tamil Nadu Agricultural University, Coimbatore, India	Teaching and Research in Agricultural Biotechnology	10 years and 9 months
Total experience in Professor cadre: 17 years and 7 months				

5. Administrative Experience					
S. No.	**Post**	**Organization / University**	**Duration**		**Experience**
			From	**To**	
1.	Director	Centre for Plant Molecular Biology & Biotechnology, TNAU	1.06.2013	Till date	3 years and 7 months
2.	Chairman	PG Board of Studies, TNAU, Coimbatore	10.03.2006	3.07.2009	3 years and 4 months
3.	Member	Board of Studies, TNAU, Coimbatore PG Board of Studies,	10.03.2006 & 01.06.2013 2007	03.07.2009 Till date 2009	6 years and 11 months 2 years
4.	Dean	School of Post graduate Studies, TNAU, Coimbatore	10.03.2006	03.07.2009	3 years 4 months
5.	Member	Academic Council Tamil Nadu Agricultural University	10.03.2006 & 1.06.2013	03.07.2009 Till date	6 years and 11 months
6.	Member of Executive Councils	Member, Research Council, TNAU	1.6.2013	Till date	3 years and 7 months
		Member, Deans' Committee, TNAU	10.03.2006	03.07.2009	3 years and 4 months
		Member, Standing Committee, TNAU	10.03.2006	03.07.2009	3 years and 4 months
		Member, Recognition Committee, TNAU	10.03.2006	03.07.2009	3 years and 4 months

7.	Member of Professional/ Academic Bodies	Indian Society for Plant Physiology, New Delhi – Life Member Madras Agricultural Students' Union, TNAU, Coimbatore, India – Life Member Plant Physiology Club, Bapatla, Andhra Pradesh, India – Life Member			
8.	Others				
	Appellate Authority	TNAU, Coimbatore	2007	03.07.2009	2 years and 7 months
	Member-Secretary	Financial Management Committee, TNAU	2007	03.07.2009	2 years and 7 months
	Chairman	Agricultural Assistants Welfare Committee, TNAU	2007	03.07.2009	2 years and 7 months
	Fulbright Campus Representative	TNAU, Coimbatore	April 2016	Till date	9 months
	Addl. Charge	Director, Students Welfare, TNAU	Aug. 2008	Oct. 2008	3 months

6. (a) Contribution towards higher education		
Position	**Organization**	**Area**
Adjunct Professor	University of Tokyo, Japan	Students and faculty exchange and Improving rice water productivity
Visiting Professor/Scientist	Rutgers State University, New Jersey, USA	Impact of Rockefeller Foundation's rice drought research
	University of Missouri-Columbia, USA	Microarray and Proteomics
	Texas Tech University, Lubbock, USA	QTL mapping and marker-assisted breeding for drought resistance
	International Rice Research Institute, Philippines	Drought resistance in rice
Resource Person	External expert: AP-Netherlands Biotech Program	M. Sc., & M. V. Sc., (Biotech) courses in ANGRAU, Hyderabad
Exchange/Visiting Scholar	Cornell University, USA	Leadership program Dual degree curriculum designing

S. No.	6. (b) Innovative Academic Programs formulated
1.	**Dual Degree Masters Programs with Cornell University, USA** As Dean, PG Studies, I took lead in formulation of dual degree masters programs with Cornell University, USA, first of its kind in India. TNAU students pursued MS Food science + MTech Food processing and marketing and MS Plant breeding + MTech Biotechnology and business management in Cornell and TNAU, respectively. Nearly 40 students got higher education through this premier program with USD 18,000/each from Sir Ratan Tata Trust.
2.	**International Agriculture and Rural Development Course with Cornell University, USA** I have facilitated more than 40 TNAU masters students to study International Agriculture and Rural Development (IARD 402/602) courses in Cornell University, USA learning global agriculture through field visits and classroom lectures in US and India fully supported by USAID and Sir Ratan Tata Trust.
3.	**New Academic Programs** Ph. D. in Agri-Business Management PG Diploma in Organic agriculture PG Diploma in Capital and Commodity Markets

6.	**(c) Important MoUs formulated**		
S. No.	**MoUs formulated**	**Agencies/Institutes involved**	**Year**
1.	Dual Degree program	Cornell University, USA	2008
2.	Student Research Attachment	National Parks Board, Singapore	2008
3.	Student and Faculty exchange	University of Adelaide, Australia	2008
4.	Faculty exchange	Durban University of Technology, South Africa	2008
5.	Student faculty exchange	University of Tokyo, Japan	2014
6.	Student research exchange	Duke University, USA	2015

7. International exposure						
S. No.	**Post/ Assignment**	**Organization/ University**	**Area of Assignment**	**Duration**		
				From	**To**	
1.	Visiting Scientist	International Rice Research Institute, Philippines	Drought phenotyping	May 2009 and March 2016	-	-
2.	Fulbright Scholar	Cornell University, USA	Translational genomics for drought resilience	January 2012	September 2012	9 months

3.	Visiting Scientist	Rutgers State University, New Jersey, USA	Impact of Rockefeller Foundation's rice drought research	September 2011	November , 2011	3 months
4.	Visiting Scientist	University of Missouri-Columbia, USA	Rice: QTL mapping for drought resistance	April 2004	June 2004	3 months
5.	Post-doctoral study	Texas Tech University, Lubbock, USA	Rice Biotechnology	Aug., 1994	Aug., 1996	2 years
6.	Biotechnology Career Fellow	Texas Tech University, Lubbock, USA	Rice: marker-assisted breeding for drought resistance	1998, 2001		3 months / year
7.	Adjunct Professor	University of Tokyo, Japan	Natural Resources Conservation	2013	2017	4 years
8.	Visiting Scientist	Duke University Durham, USA	Breeding for drought resilience in rice	2017	-	-
9.	Visiting Scientist	North Carolina State University Religh, USA	-	2017	-	-
10.	Visiting Scientist	University of California-Davis, USA	-	2017	-	-
11.	Visiting Scientist	Genentech Inc., San Francisco, USA	-	2017	-	-

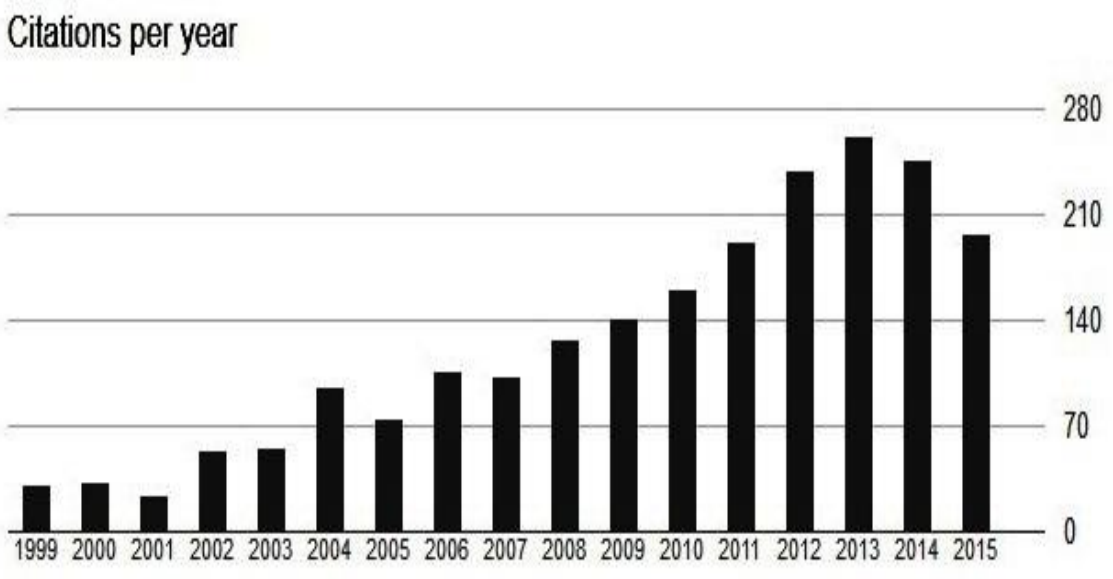
Peer reviewer for

Field Crops Research, Australia
Theoretical and Applied Genetics, Germany
Plant cell, tissue and organ culture, USA
Crop Science, USA
Plant Breeding, Germany
Environmental and Experimental Botany
Current Science
Netherland Journal of Life sciences

8. Publications: Total – 161

i.	Original research articles (Total)	127
	(a) International	66
	(b) National	61
ii.	Popular articles	30
iii.	Technical reports	4

Citation index for the publications



Recent publications

1. Muthukumar, C., V. Deshmukh Vivek, R. Poornima, S. Kavitha, V. Gayathri and R. Chandra Babu. 2015. Fine mapping of consistent quantitative trait loci for yield under drought stress using rice (*Oryza sativa*) recombinant inbred lines adapted to rainfed environment. Current Science. 109(5): 910-917.
2. Muthukumar, C., T. Subathra, J. Aiswarya, V. Gayathri and R. Chandra Babu. 2015. Comparative genome-wide association studies for plant production traits under drought in diverse rice (*Oryza sativa* L.) lines using SNP and SSR markers. Current Science. 109(1): 139 – 147.
3. Wade, L. J., V. Bartolome, R. Mauleon, V. Vivek Deshmuck, P. Sumeet Mankar, C. Muthukumar, E. Kameoka, K. Nagendra, K. R. Kamalnath Reddy, C. Mohan Kumar Varma, K. Gouda Patil, R. Shreshtha, Z. Al-Shugeairy, F. Al-Ogaidi, M. Munasinge, G. Veeresh, M. Semon, R.R. Suralta, V. Shenoy, V. Vadez, R. Serraj, H.E. Shashidhar, A. Yamauchi. R. Chandrababu, A. Price, K. L. McNally and A. Henry. 2015. Environmental response and genomic regions correlated with rice root growth and yield under drought in the OryzaSNP panel across multiple study systems. PLOS ONE, 10(4): e0124127.
4. Sellamuthu, R., Rachid Serraj and R. Chandrababu. 2015. Mapping QTLs for reproductive-stage drought resistance traits using an advanced backcross population in upland rice. Crop Science, 55(4): 1524 – 1536.
5. Prince, S. J., R. Beena. S. M. Gomez, S. Senthivel and R. Chandrababu. 2015 Mapping consistent rice (*Oryza sativa* L.) yield QTLs under drought stress in target rainfed environments. Rice. 8: 25.
6. Swamy, M., B. P., Ahmed, H.U., Henry, A., Dixit, S., Vikram, P., T. Ram, S.V. Verulkar, P. Perraju, N.P. Mandal, M. Variar, S. Robin, R. Chandra Babu, O.N. Singh, J.L. Dwivedi, S.P. Das, K.K. Mishra, R.B. Yadaw,Tamal Lata Aditya, Biswajit Karmakar, Ramil Mauleon, Kouji Satoh, Ali Moumeni, Shoshi Kikuchi, Hei Leung and Arvind Kumar. 2013. Genetic, physiological, and gene expression analyses reveal that multiple QTLs enhance yield of rice mega-variety IR64 under drought. PLOS ONE, 8(5): e62795, p.1-11.
7. Suresh, R., R. Chandra Babu, S. Michael Gomez and P. Shanmugasundaram. 2013. Genetic analysis of yield traits in rice under irrigated and water stress environments. Indian J. Genet. 73: 162-168.
8. Ahmed, H. U, A. Henry, R. Mauleon, S. Dixit, P. Vikram, R. Tilatto, S. B. Verulkar, P. Perraju, N. P. Mandal, M. Variar, S. Robin, R. Chandrababu, O. N. Singh, J. L. Dwivedi, S. Prasad Das, K. K. Mishra, R. B. Yadaw, T. L. Aditya, B. Karmakar, K. Satoh, A. Moumeni, S. Kikuchi, H. Leung and A.Kumar. 2013. Genetic, physiological, and gene expression analyses reveal that multiple QTL enhance yield of rice mega-variety IR64 under drought. PLOS One : e62795
9. Raman, A, Satish Verulkar B, Nimai Mandal P, Mukund Variar, V Shukla D, J Dwivedi L, B Singh N, O Singh N, Padmini Swain6 Swain, Ashutosh Mall K, S Robin, R Chandrababu, Abhinav Jain, Tilatoo Ram, Shailaja Hittalmani, Stephan Haefele, Hans-Peter Piepho and Arvind Kumar. 2012 Drought yield index to select high yielding rice lines under different drought stress severities. *Rice*, 5:31.
10. Suji, K. K., K. Silvas Jebakumar Prince, P. Sumeet Mankhar, P. Kanagaraj, R. Poornima, K. Amutha, S. Kavitha, K. R. Biji, S. Michael Gomez and R. Chandra Babu. 2012 Evaluation of

rice (*Oryza sativa* L.) near isogenic lines with root QTLs for plant production and root traits in rainfed target populations of environment. *Field Crops Research*, 137:89-96.

11. Kumar, A., S. B. Verulkar, N. P. Mandal, M. Variar, V. D. Shukla, J. L. Dwivedi, B. N. Singh, O. N. Singh, P. Swain, A. K. Mall, S. Robin, R. Chandra Babu, A. Jain, S. Haefele, H. P. Piepho and A. Raman. 2012 High-yielding, drought-tolerant, stable rice genotypes for the shallow rainfed lowland drought-prone ecosystem. *Field Crops Research*, 133:37-47.
12. Suji, K. K., K. R. Biji, R. Poornima, K. Silvas Jebakumar Prince, K. Amudha, S. Kavitha, Sumeet Mankar and R. Chandra Babu. 2012 Mapping QTLs for Plant Phenology and Production Traits using indica rice (*Oryza sativa* L.) lines adapted to rainfed environment. *Molecular Biotechnology*, 52: 151-160.

9. Research projects handled

S. No.	Sponsor	Project	Duration	Grant
1.	Dept. of Biotechnology (DBT), Govt. of	Program support for developing resilient rice through genomics (CEIB)	2016-2021	US$ 8,00,000
2.	DBT, USAID and Gates Foundation	All children thriving Grand Challenge Program	2015-2017	US$ 4,00,000
3.	Monsanto's Beachell Borlaug International Scholar program	Breeding for drought resilience in rice	2014-2017	US$ 64, 000
4.	DBT	University Innovation Cluster Biotechnology	2013-2017	US$ 5,00,000
5.	Generation Challenge Program	Targeting drought avoidance root traits to enhance rice productivity under water limited environments	Oct., 2008 – March, 2013	US$ 43,200
6.	Rockefeller Foundation	Evaluation of Rockefeller foundations research and technology: Transfer projects on drought tolerant rice	Aug., 2008- March, 2013	US$ 110,420
7.	Sir Ratan Tata Trust, Mumbai	Dissemination of resilient and productive varieties to improve income and livelihood security of rainfed rice farmers in Tamil Nadu	April, 2008 - March, 2012	US$ 29,600
8.	Rockefeller Foundation	Delivery and dissemination of new drought tolerant rice varieties and its impact on socioeconomic conditions of rice farmers in drought prone rainfed ecosystems of Tamil Nadu	April, 2006 – March, 2012	US$ 55,000

9.	DBT	Program support for Ag. biotechnology: Ph I	Jan. 2007 to Dec. 2011	US$ 25,000
10.	Rockefeller Foundation	Developing drought tolerant rice cultivars using genetic research and participatory breeding program	June, 2003 – May, 2008	US$ 2,75, 800
11.	Rockefeller Foundation	Developing and disseminating resilient and productive rice varieties for drought prone environments of India	April, 2005 – March, 2008	US$ 36,500
12.	Generation Challenge Program, Mexico	Identifying genes responsible for failure of grain formation in rice and wheat under drought	Apr. 2005 - Mar. 2008	US$ 1, 044, 220
13.	Rockefeller Foundation	Screening for drought tolerance in land races and improved genotypes from India and germplasm collections from IRRI, Philippines	June, 2002 – May, 2005	US$ 1,44, 325
14.	Rockefeller Foundation	Social and economical implications of drought and farmers' coping strategies in rainfed rice ecosystems of Tamil Nadu	Nov. 2002 - Oct. 2005	US$ 40, 650
15.	Rockefeller Foundation	Genetic improvement of rice for water-limited environments: Identifying QTLs and marker assisted selection	April, 2000 - Dec., 2004	US$ 84,500
16.	Rockefeller Foundation, USA	Development of molecular markers for insect and drought resistance and production of transgenics in rice	Apr. 2000 - Mar. 2003	US$ 2,05,000
17.	Rockefeller Foundation, USA	Marker-assisted selection for drought resistance improvement in rainfed lowland rice	Jan., 1998 - Dec., 2003	US$ 44, 100
18.	Rockefeller Foundation, USA	Molecular marker-assisted selection for drought resistance improvement in rainfed lowland rice	April, 1997 – March, 2001	US$ 55,600
19.	Rockefeller Foundation, USA	Identifying genes associated with water stress tolerance	Jun.1999 - May 2001	US$ 22, 000

10. Trainings Organized for faculty

S. No.	Title	Duration		Sponsor
		From	To	
1.	Educational technology	April 2006		NAARM, Hyderabad
2.	Nano technology	February - March, 2008		GOI-Special fund for HRD
3.	Organic farming	February - March, 2008		-do-
4.	E learning and resources	February - March, 2008		-do-
5.	Horticulture	February - March, 2008		-do-
6.	Library management	February - March, 2008		-do-
7.	Dual degree program	2008	2013	Sir Ratan Tata Trust
8.	Post doctoral study	April, 2008	March, 2009	Durban University of Technology, South Africa
9.	Training in IRRI, Philippines	May 2008	June 2008	GOI-Special fund for HRD

11. International Research Collaborations

I have showcased the potential of TNAU by promoting collaborative research with experts in advance institutes around the globe. These include:

- Henry Nguyen, University of Missouri-Columbia, USA
- Abraham Blum, The Volcani Center, Bet Dagan, Israel
- Ray Wu and Mark Sorrells, Cornell University, USA
- Adam Price, University of Aberdeen, UK
- Theerayut Toojinda, Kasetsart University, Bangkok, Thailand
- Andrew Paterson, University of Georgia, Athens, USA
- Kamoshita, University of Tokyo, Japan
- Carl Pray, Rutgers University, USA
- Shu Fukai, University of Queensland, Australia
- Arvind Kumar and Amelia Henry, IRRI, Philippines
- Mark Sorrells, Cornell University, USA
- Philip Benfey, Duke University, USA
- Anindya Bandyopadhyay, IRRI, Philippines
- Raja Sivamani, UC Davis, USA

12. Countries visited and purpose:

Country	Purpose	Duration
USA	Crop Genome analysis workshop, Texas Tech University, Lubbock, TX	Sep 30, 1995
Philippines	To present paper in Rice Genetics III symposium	Oct 16-21, 1995
Malaysia	To present paper during Annual meeting of International Program on Rice Biotechnology at Malacca	Sep 20-27, 1997
Philippines	To present paper in international workshop on 'Genetic improvement of water-limited environments' in IRRI	Dec 1-3, 1998
USA	For collaborative research at Texas Tech University, Lubbock, TX under Biotechnology Career Fellowship	Jan 17 - Apr 28, 1999; Sep 27-Dec 10, 2000
Thailand	To present paper in the General meeting of International Program on Rice Biotechnology at Phuket	Sept 15-21, 1999
Canada	To present a paper in 6th ISPMB Conference in Quebec	June 16-24, 2000
Thailand	Visiting drought screening experiments at Rice Research Stations in Ubon and Chum Phae and for discussion on developing consensus map of drought resistance QTLs with colleagues in Kasetsart University, Bangkok	Dec 18-21, 2001
Philippines	To present paper in international workshop on Progress towards developing resilient crops at IRRI	May 25-29, 2002
USA	To present paper in International Congress on Plant biotechnology 2002 and beyond, Orlando	June 26-30, 2002
Philippines	To participate in International workshop and training on micro array and BMZ meeting at IRRI	Dec 2-5, 2002
USA	Collaborative research at University of Missouri, Colombia on microarray and proteomics in rice	Apr 7 – Jul 13, 2003
Mexico	Resilient crops workshop	May 26-31, 2004
Japan	World rice research conference, Tsukuba	Nov 5-7, 2004
Australia	University of Queensland, Brisbane and CSIRO, Canberra	May 23-28, 2005
Italy	InterDrought-II Conference in Rome	Sep 24-28, 2005
South Africa	University of Cape Town, University of Western Cape, University of Stellenbosch, Durban University of Technology,	Feb, 2007

	University, Kwazalu-Natal, African Center for Crop Improvement and Plant Bio, Pietermariztburg	
Thailand	Planning meeting for Developing project proposal on Impact assessment of Rockefeller Foundation's Research on Developing drought tolerant Rice Cultivars	Apr 22-24, 2007
USA	Cornell University, IARD course and Dual degree program syllabus and curriculum finalization	Sep 8-21, 2007
Australia	International Drought Genomics Conference and MoU with University of Adelaide and Univ. South Australia	Oct 22-25, 2007
Singapore	National parks board - MoU for student attachment	Aug 11-12, 2008
Australia	Student and faculty exchange with University of Adelaide and University of South Australia, Adelaide	Aug 13-16, 2008
Philippines	To deliver a seminar, student research work in IRRI	May 8 -16, 2009
USA	Committee meeting for MPS and Food and Agri. Business management course in Cornell University	Jun 24-July 2, 2009
Australia	Paper presentation in SABRAO Conference, Cairns	July, 2009
China	Interdrought III Conference, Shanghai	Sep, 2009
Philippines	Paper presentation in 6^{th} International Rice Genetics Symposium, Manila	Dec, 2009
Vietnam	Paper presentation in 3^{rd} International Rice Congress, Hanoi	Nov, 2010
Philippines	Targeting drought avoidance root traits in rice annual research meet, IRRI	Sep, 2011
USA	Rice drought research Impact study, Rutgers University	Sep – Nov, 2011
Japan	Paper presentation in International Conference, ANESC, University of Tokyo	Feb, 2012
USA	Fulbright Senior Research Fellow, Cornell University	Jan – Sep, 2012
Japan	Adjunct Professorship	Feb, 2014
Kenya	Bioeconomy conference in Nairobi	June 26-30, 2014
Japan	ANESC international conference	Feb, 2015
UK	University of Oxford	March, 2015
Philippines	Monitoring Student research work at IRRI	March, 2016

USA	Monitoring Student research work at Duke University, Durham; Visited University of California, Davis; North Carolina State University, Raleigh; Genentech Inc., San Francisco; Joint BioEnergy Institute, Berkeley	January, 2017

13. References

S. No.	Referee	Affiliation	E mail	Phone No.	Mobile
1.	Dr. K. Ramasamy	Vice Chancellor, Tamil Nadu Agricultural University, Coimbatore, India	vctnau@tnau.ac.in	+91 422 6611307	+91 9444065656
2.	Dr. Carl E. Pray	Distinguished Professor Dept. of Agriculture, Food and Resource Economics, Rutgers University, USA	pray@AESOP.Rutgers.edu	+1 848-932-9121	
3.	Dr. Mark Sorrells	Professor of Plant Breeding Cornell University, USA	mes12@cornell.edu	+1 607-255-1665	

14. Contribution to Teaching/Research/Extension and Institutional Development:

I took concerted effort taking higher education in TNAU to international standard through novel academic programs and linkages with institutes of global repute. The important initiatives include:

- **Dual Degree Masters Programs with Cornell University, USA**

  I launched dual degree program with Cornell University, USA, first of its kind in India. TNAU students pursued MS Food science + MTech Food processing and MS Plant breeding + MTech Biotechnology in Cornell and TNAU, respectively. More than 40 students have got higher education through this premier program with USD 18,000 /each from Sir Ratan Tata Trust.

- **International Agriculture and Rural Development Course with Cornell University, USA**

  I have facilitated more than 40 TNAU masters students to study International Agriculture and Rural Development (IARD 402/602) courses in Cornell University, USA and exposed them to global opportunities in agriculture and food science through field and classroom study in US and India with financial support.

- **Academic collaboration with University of Tokyo, Japan**

  I have taken concerted efforts and facilitated formalizing academic and research collaboration with University of Tokyo, Japan, ranked 14th in the world. Four TNAU students are doing PhD in University of Tokyo.

- **Student Research Attachment with National Parks Board, Singapore**

  I have taken personal initiative facilitating research attachment of TNAU's post graduate students in National Parks, Singapore with financial support. TNAU students are placed in National Parks Board, Singapore after internship.

- **Fulbright mentoring workshop**

  I have close collaboration with United States – India Educational Foundation (USIEF). I have brought TNAU as a prominent institute of Tamil Nadu and facilitated mentoring workshop for Fulbright Nehru Fellowships for faculty and students.

- **Student Exchange with University of Saskatchewan (UoS), Canada**

  I have initiated collaboration with University of Saskatchewan, Canada enabling TNAU Ph. D., students to conduct research in nanotechnology, bioremediation, genetic engineering for drought tolerance and biodegradable packaging in UoS, Canada with funding support.

- **Academic collaborations with International Institutes**

  I have taken efforts for academic partnership with many international institutes enabling TNAU students and faculty for joint research in frontier areas. These include:

  i. Florida International University, USA
  ii. McGill University, Canada
  iii. Durban University of Technology, South Africa
  iv. Hebrew University of Jerusalem, Volcani Centre, Israel
  v. Universita Polytechnica delle Marche, Italy
  vi. University of South Australia, Australia
  vii. University of Adelaide, Australia
  viii. International Rice Research Institute, Philippines
  ix. University of Missouri – Columbia, USA
  x. Duke University, USA
  xi. University of Cambridge, UK
  xii. Cornell University, USA
  xiii. Queensland University of Technology, Australia
  xiv. University of Queensland and Department of Agriculture and Fisheries, Australia
  xv. Pennsylvania state University, USA
  xvi. Bangladesh Asgirultural Research Institute, Bangladesh
  xvii. University of California Davis, USA
  xviii. Rutgers University, USA
  xix. University of Tokyo, Japan
  xx. Dalhousie University, Canada

Key Research contributions include:

Evaluated and released Anna 4, high yielding rice suitable for rainfed areas. It has high potential yield of 6 t/ha.

Parentage: Pantdhan 10 x IET 9911
Duration: 100 - 105 days
Season: Sept., - October (NE monsoon)
Yield: 3.7 t/ha
Grain: Medium slender white rice, high head rice recovery, high L/B (3.45), good elongation (1.60)

Anna 4, drought tolerant rice

- Mapped meta-QTL for yield under drought in target rainfed environment using local landrace Nootripathu and elucidated physiological mechanism underlying this QTL (Rice, 2015, 8: 25; IF – 2.45)

- Fine mapped meta-QTL for drought resistance using local landrace Norungan (Current Science, 2015, 109(5): 910-917; IF – 0.833)

  Developed high yielding near-isogenic lines using marker assisted breeding by introgressing quantitative trait loci (QTLs) for deep root growth from Columbian rice (Field Crops Research, 2012, 137: 89-96; IF – 2.608). Five high yielding advance breeding lines were developed using molecular marker-assisted breeding with root QTLs from Columbian rice and field tested.

- Mapped meta-QTLs for root traits under drought using the OryzaSNP panel across multiple study systems globally (PLOS One, 2015, 10(4): e0124127; IF – 3.53)

- Mapped QTLs for reproductive growth traits under drought in rice (Field Crops Research, 2011, 124: 46-58; IF – 2.608; Crop Science, 2015, 55(4): 1524 – 1536; IF – 1.478).

- Mapped QTLs for yield under drought in TPE using diverse rice accessions through genome wide association mapping studies (Current Science, 2015, 109(1): 139 – 147; IF – 0.833)

- Mapped QTLs for drought resistance in indica and japonica rices (Molecular Biotechnology, 2012, 52: 151-160; IF - ; Science Asia, 2008, 34:265-272; Plant Growth Regulation, 2006, 50:121-138; IF – 1.627; American J. Biochemistry and Biotechnology, 2006, 2: 161-169).

- Landraces are repository of genes for drought resilience. I have screened landraces from Tamil Nadu (Plant Breeding, 2001, 120: 233-238; IF – 1.598), and detected QTLs for yield under drought (Molecular Biotechnology, 2012, 52: 151-160; IF – 2.25).

- Deduced meta-QTLs for drought resistance in rice lines (Field Crops Research, 2008, 109: 1-23; IF – 2.608).

- Fine mapped meta-QTL on chromosome 1 using Nootripathu derived RI lines (Current Science, 2010, 98: 836-839 IF – 0.833; Molecular Biotechnology, 2011, 49: 90-95 IF – 2.25).

- Deduced genes underlying the above meta-QTL *in silico* (Online J Bioinformatics, 2012, 13: 1-13).

- Mapped QTLs for root traits (Genome, 2000, 43: 53-61 IF – 1.424 ; Theor. Appl. Genet., 2001, 103: 19-29; IF – 3.507), osmotic adjustment (Crop Science, 1999, 39: 150-158; IF – 1.478), cuticular wax (Plant Growth Regulation, 2008, 56: 245-256; IF – 1.627) and yield under drought in rainfed environment (Crop Science, 2003, 43: 1457-1469; IF – 1.478) in rice.

- Deep roots, leaf cuticular wax and osmotic adjustment are key for rice drought resilience (Crop Science, 1997, 37: 1426-1434; IF – 1.478; Plant Breeding, 2001, 120: 233-238 IF – 1.598; Plant Growth Regulation, 2008, 56: 245-256; IF – 1.627).

- LEA gene improved drought resistance in rice (Plant Science, 2004, 166: 855-862; IF – 3.607).

- Generated US$ 8 million to TNAU in >30 externally funded research projects.

- Mentored > 50 Ph. D., M.Sc., and research fellows in marker-assisted breeding for drought resilience. All are now pursuing higher studies and careers in public and private sectors within and outside India.

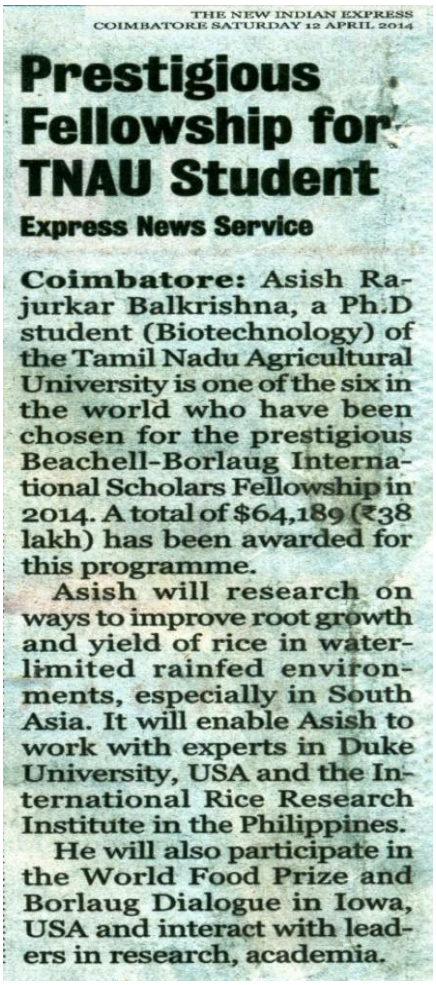
- Published > 127 original research papers in journals of international repute.

- Varietal dissemination to small farmers in rainfed rice ecosystems: Three high yielding rice (Anna 4, PMK 3 and RMD 1), with an average yield of 3.0 – 3.5 t/ha under rainfed condition were released. >30 tons seeds were disseminated through OFTs.

- Centre of Excellence in Biotechnology: Taking concerted efforts to bring a project from Govt. of Tamil Nadu at a budget estimate of US$ 70 millions for establishment of 'Centre of Excellence in Biotechnology' in TNAU, Coimbatore.

- Center for Excellence in Biotechnology and Innovation: Took leadership effort in bringing a Center of Excellence in Biotechnology and Innovation in CPMB&B, TNAU, Coimbatore at a cost of about US$ 1 millions from DBT, New Delhi

- University Innovation Center in Biotechnology (Entrepreneurial development): Established University Innovation Cluster in Biotechnology at a cost of about US$ 0.5 millions from BIRAC, DBT to foster innovation and entrepreneurship in young researchers and fresh graduates.
- Mentoring and guiding students for academic achievements: I have mentored and motivated students to prepare for competitive exams and fellowships and have motivated them to pursue higher studies. TNAU students were able to compete and acquire prestigious fellowships for their study as well as further studies and have been placed in different institutes



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Prestigious Fellowship for TNAU Student

Express News Service

Coimbatore: Asish Rajurkar Balkrishna, a Ph.D student (Biotechnology) of the Tamil Nadu Agricultural University is one of the six in the world who have been chosen for the prestigious Beachell-Borlaug International Scholars Fellowship in 2014. A total of $64,189 (₹38 lakh) has been awarded for this programme.

Asish will research on ways to improve root growth and yield of rice in water-limited rainfed environments, especially in South Asia. It will enable Asish to work with experts in Duke University, USA and the International Rice Research Institute in the Philippines.

He will also participate in the World Food Prize and Borlaug Dialogue in Iowa, USA and interact with leaders in research, academia.

- As a Director, CPMB&B, I have been organizing inspiring lectures on various topics from speakers invited from India and other countries. A National level symposium on “Bioconcorrenza’ conducted in the years 2015 and 2016 and PG Biotechnology Seminar” was organized by the undergraduate and postgraduate students of this centre.