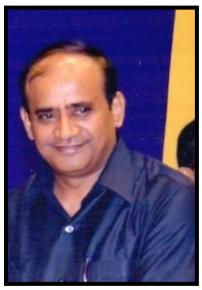
Curriculum Vitae



Name	:	DR SATI SHANKAR SINGH
Date of Birth	:	09.12.1959 December Nine, Nineteen Hundred Fifty Nine
Fathers Name	:	Late Sri Kashi Prasad Singh
Present position	:	Director, ICAR-Agricultural Technology Application Research Institute, Kolkata
Present Organization	:	Indian Council of Agricultural Research
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Educational Qualifications :

Degree	Year	OGPA	Major Subject	University	Remark
Ph. D.	1987	8.517 /10.00	Agronomy (WM)	NDUA&T Faizabad (U.P.)	Sr. Research Fellowship, ICAR
M. Sc. (Ag)	1983	3.916 /4.00	Agronomy	NDUA&T Faizabad (U.P.)	-
B. Sc. (Ag & A.H)	1981	3.948 /4.00	Agriculture & Animal Husbandry	CSAUA&T Kanpur (U.P.)	Third Rank in University

Awards and fellowships

- Rajeev Gandhi Gyan Vigyan Award 2014 from Ministry of Home Affair , Govt of India
- Fellow of Indian Society of Agronomy 2010 for excellent contribution in the Agronomy.
- ICAR Award for Excellent Team Research in Social Science in 2004 for Technology Assessment and Refinement through Institute Village Linkage Programme.
- Appreciation from Ambassador of USA, Nancy J. Powell in 2013 for USAID work.
- Certificate of Honor from National Association for Voluntary Initiative & Cooperation, Varanasi (U.P.) in 2004 for the work of sodic land reclamation in Bihar.
- ICAR Senior Research Fellowship.

Area of specialization

- Pulses agronomy and conservation agriiculture
- Land and water management with resource conservation technologies (RCTs)
- Farmers' participatory research / technology assessment and refinement (TAR)

- Rice , wheat , maize crop management and integrated farming system research (IFS)
- Inter institutional multidisciplinary collaborative project work

Employment Record & Experience (Starting from the present position)

Designation	**Pay scale** (INR)	**Nature of work**	**Organization**	**Institution & Place of posting**	**Period (From–to)**	**Duration (years, months)**
Director	37400-67000 + RGP 10000	Extension Research leadership and management	ICAR	ICAR-ATARI, Kolkata	12-04-2017 to till date	--
Head, Division of Crop Production	37400-67000 + RGP 10000	Research leadership and management	ICAR	ICAR-IIPR, Kanpur	22-01-2014 to 11-04-2017	8 Years
Head, Division of Crop Research	37400-67000 + RGP 10000	Research leadership and management	ICAR	ICAR-RCER, Patna	29.4.2009 to 21-01-2014	
Principal Scientist (Agronomy)	37400-67000 + RGP 10000	Research and Extension	ICAR	ICAR-RCER, Patna	01.09.2006 to 28.04.2009	02 Years 08 month
Research Scientist (Agronomy)	Basic 29,000 Total 67,500	Research Coordination & Monitoring	RWC-CIMMYT Mexico (CGIAR)	RWC/CIMMYT India, (Based at Patna for Eastern India)	22.06.2004 to 31.08.2006	02 Years 02 months
Senior Scientist (Agronomy)	12,000 – 18,300	Research and Extension	ICAR	CSWCR&TI RC, Koraput , Orissa ……. DWMR/ ICAR-RCER, Patna	08.06.1998 to 13.09.1999 ……. 14.09.1999 to 21.06.2004	5 years 1 months
Junior Scientist – cum-Assistant Professor (Agronomy)	10,000-15,300	Teaching , Research and Extension	Rajendra Agricultural University , Pusa, Samastipur Bihar	P.G. Dept of Agronomy, Pusa (06/1996 to 5/1998) …… Rice Research Unit Pusa (06/1992 to 5/1996) ……		7 years
	2200-4000	Research and Extension		AICRP Water Management (ORP), GADA Muzaffarpur. (08/1989 to 5/1992) …… NARP Regional Research Station, W. Champaran (06/1986 to 07/1989)		5 years

International Exposure

Country	Purpose / Subject title	Year	Duration	Sponsor
Australia	Fifth World Congress on Conservation Agriculture & Farming Systems Design Congress	2011	Sept. 26-29	ACIAR
USA	DFID – RIU Project review meeting workshop	2009	Oct 03- 07	DFID
U.K.	DFID – RIU Project review meeting workshop	2009	Sept 27 – Oct 02	DFID
Philippines	CSISA Project (Objective – 02) planning workshop	2009	March 23-24	IRRI
Thailand	Project Planning workshop on RIU in south Asia	2008	June 19-23	DFID
Mexico	Training on Zero Tillage and Bed Planting	2006	May 22 - June 23	USID
Bangladesh	Workshop & review meeting at BARC Dhaka; Visit at BRRI and BARI Joydebpur, Gazipur	2005	Feb 2-6	IFAD
U.K.	Training on Characterizing key environmental parameters that determine soil and crop management decisions	2001	August 20 – 31	DFID
Paper/Poster Presented in International Events – Seminar/Symposium/Conferences/workshop etc.				
USA	**Singh, S.S.,** Khan, A.R., Sikka, A.K., and Gupta, Raj K Air and soil pollution reduction through conservation agriculture in Indo Gangetic Plains.	2006	July 9-15	18th WCSS USA
Mexico	**Singh, S.S** Bed Planting in Rice – Wheat Systems in Eastern India – Scope and constraints	2006	June 20	USAID
Bangladesh	**Singh, S.S** and Bhattacharya P.B**.** Resource Conservation Technologies Acceleration in Bihar and West Bengal	2005	Feb 3	IFAD
U.K.	**Singh, S.S** People participation in natural resource management in Bihar	2001	August 28	DFID

Trainings attended in the relevant field of specialization

Title	Duration	Institution	Year
Agricultural Innovation System	November 12-14	ACIAR/CRISP at Budha Heritage, Patna	2013
Management Development Programme on Leadership Development (a Pre-RMP Programme)	October 8-19	NAARM, Hyderabad	2012
Communication Skills	October 25-27	Institute of Secretariat & Management, New Delhi	2010
Leadership Development for Innovation in Agriculture	Dec. 22 – 26	IIM, Lucknow	2008
Zero Tillage and Bed Planting	May 22-June 23	CIMMYT , Mexico	2006
Charactering key environmental parameter that determines soil and crop management decisions	August 21-31	Institute for Arable Crops Research, Rothamsted U.K.	2001
Agricultural research prioritization techniques	August 21-26	NAARM, Hyderabad	2000
Integrated water management for crop production	June 2-25	MPKV Rahuri , MS	1997

Remote sensing application to agriculture and soils	August 19- Sept	NBSS& LUP Nagpur	1997
Integrated nutrient management in intensive cropping system	June 22- July 11	GBPUAT, Pantnagar (U.P)	1995
Computer aided experimental design and data analysis course	Sept. 20- Oct 1	NDUAT Faizabad (U.P)	1995
Integrated farming system research and management for sustainable agriculture	June 6-15	TNAU Coimbatore (TamilNadu)	1994
Improved written communication	June 8-12	RKM Narendrapur West Bengal	1993
Improved written communications	Dec.1-8	IGKVV, Raipur (M.P)	1992
Water management under humid and sub-humid regions	Dec. 2-29	WTC, IARI, New Delhi	1991

Leadership initiatives for Research Management

Post	**Duration**	**Institution / Organization**
Head of Division, Crop Production Scientist/PS (Agronomy)	January 2014 to March 2017	IICAR-IIPR, Kanpur
Head of Division, Crop Research Scientist/PS (Agronomy)	April 2009 to January 2014	ICAR-RCER, Patna
Research Scientist (Agronomy)	June 2004 to August 2006	CIMMYT India

Linkages established		
Head, Crop Production Division (2014-15)		
• Institute projects	No-03	IISS Bhopal, DWSR Jabbalpur
• Farm development	No-02	CIAE Bhopal and CWSCRTI-RC Agra
• Flagship research (rice-fallow)	No-04	BCKV Kalyani, ICAR-NEH Barapani, TRRI Aduthutai, IGKV Raipur
Head, Division of Crop Research (2009-14)		
• AICRP on Crops	No. - 05	DWR Karnal, IIPR Kanpur, DMR Delhi, DRMR Bhartpur, DRR Hyd
• CSISA Projects	No. – 04	CIMMYT India, IRRI, TNAU, CSSRI Karnal, BARI Bangladesh
• NAIP (Comp - 4)	No. - 03	OUAT Bhubaneswar, IIT Kharagpur, CRIDA Hyderabad
• IFS	No. - 01	PDFSR Modipuram
IRRAS/IRRI (2012)	No. - 03	BAU Sabour, RAU Pusa, CRS Patna
IFS/IRRI (2010)	No. – 04	CSSRI, PDFSR, PAU, UBKV
RIU – DFID (2008)	No. - 05	GYA (UK), CPSL Bihar, BRLP Bihar, MPRLP M.P. and Baxis Bihar
USAID project (2004-06)	No. – 14	States-03 (East UP, Bihar and WB)- New centers were opened at CSAUAT, IISR, BHU, NDUAT, ICAR-RCER, NGOs KVKs in Bihar, Dept. Agric. WB, NGOs in WB on behalf of RWC/CIMMYT India
IFAD Project (2004-06)	No. – 02	NDUAT KVK Mau (U.P.) and ICAR-RCER, Patna (Bihar)

Initiation of Multi-disciplinary networking programmes	No. – 04	**Outcome** • ICAR institutes have identified to Patna as center for AICRP on wheat, maize, lentil, pigeon pea, mung after my joining as Head • Consortium mode project on Climate Change sanctioned by NAIP Comp – 4 • Centre for networking project on IFS headed by PDFSR, Modipuram

Bringing recognition to institution and Personnel

Detail	No. of Awards	Details	Year
Rajiv Gandhi Rastriya gyan-vigyan moulik pustak lekhan puroskar	One	The award was given by Ministry of Home Affairs, GOI for the book "Samokit Krishi Pranali- ek Brihad dristikon"	2015
Sriram award for best article on pulses in Khad Patrika	One	For best article in "Khad Patrika" published by Fertilizer Association of India	2014
Fellow of ISA	One	Indian Society of Agronomy has confirmed as fellow the Indina Society of Agronomy for for outstanding work in the subject	2012
One landless farmwoman, Smt. Lalmuni Devi has been conferred on State honour Navin Kishor Sinha award for poverty alleviation	One	As facilitator from CIMMYT guided ICAR-RCER, Patna to adopt village Azadnagar, Patna for IFAD Project in 2004. Later on worked as Co-PI in project after deputation from CIMMYT. The work was focused on alternative Livelihood support system for resource poor families.	2006
One share cropper young farmer (Jitendra Kumar) have been awarded state lavel Navin Kishor Sinha award	One		2007
One progressive farmer (Sudhanshu Singh, Patna) was awarded as "Kishan Bhusan" with cash prize Rs. 2.0 lakhs by Bihar Govt.	One	As CCPI of NATP (RCTs) arranged the training of the farmer and demonstration. He became very active member of upscaling. Further in USAID Project he was supported for RCTs.	2007
One farmer Shri Ram Jeet Sharma (Bagha Khol, Patna) was awarded as Kisan Shree (Rs. One Lakh) by Govt of Bihar on 22 August 2007.	One	As facilitator from CIMMYT helped ICAR-RCER, Patna to adopt farmer for USAID Project work on RCTs in 2004. Later on worked as Co-PI in project after deputation.	2007
One unemploed youth farmer Anil Kumar (Bhelura Rampur, Patna) was awarded as Kisan Shree (Rs. One Lakh) by Govt of Bihar	One	As Co-PI initiated, formulated and guided on horticulture nursery promotion. The focus was on quality planting material as income generation under irrigated canal system	2007
Excellent Team Research Award by ICAR to NATP (ICAR) sponsored project on Institute Village Linkage Programme to ICAR-RCER, Patna	One	As Co-PI initiated, formulated and contributed on Rice-Wheat system production system refinement. Total 22 technologies were assessed and refined. The focus was on natural resource management in rice – wheat system under irrigated canal system	2004
Base Camp office of RWC / CIMMYT at ICAR-RCER, Patna for USAID project on Resource Conservation Technologies in Rice – wheat system.	One	As CCPI , the work under NATP on Resource Conservation Technologies in Rice Wheat system was well appreciated and RWC/CIMMYT employed for coordination and monitoring USAID	2004-2006

		project with base camp at ICAR-RCER, Patna	
Excellent Team Research Award by ICAR to CSWCRTI RC , Koraput , Orissa	One	As team member initiated the work in 1999 on watershed management at Kokriguda, Koraput Orissa. After six month work, left centre in September 1999.	1999
Sodic land Reclamation Project of Rs 400 million in Bihar sponsored by European Union.	One	Work as Agronomist in ORP Water Management at Jian Minor, Patna (1989-1992) in Gandak Command with focused on sodic land reclamation which was recognised by EU team and sponsored mega project.	1994-1998

In-service Awards/Recognition

Name of the Award/ Prize/Recognition /Reviewer	**Awarding Organization (Place / country)**	**Year**	**Nat. / Int., Institutional/ Professional Society**	**Individual/ Collaborative**
Rajib Gandhi Rastriya gyan-vigyan moulik pustak lekhan puroskar	Government of India	2015	National	Individual
Sriram award for best article on pulses in Khad Patrika	Fertilizer Association of India	2014	National	Collaborative
Letter of appreciation for Coservation Agriculture adoption in Rural Bihar under CSISA Project	Ambassador of USA to India, HerHighness Nancy J. Powell	2013	International	Individual
Fellow, Indian Society of Agronomy	Indian Society of Agronomy, New Delhi	2012	National	Individual
Member national committee on agricultural management for Koshi flood 2008	ICAR, New Delhi	2008	National	Collaborative
ICAR Award for Excellent Team Research in Social Science	ICAR, New Delhi	2004	National	Collaborative
Certificate of Honor for sodic land reclamation work in Bihar	National Association for Voluntary Initiative & Co-operation, Varanasi	2004	National	Individual
Member sodic land review team 2000	ICAR, New Delhi	2000	National	Collaborative

Teaching

Item	Details	Year(s)
Courses taught at PG level	• Farming Systems • Contingency Crop Management • Water Management • Wetland Management • Soil Management • Fiber, Narcotics and Plantation Crops	1992-1998 1990-1996 1994-1997 1993-1998 1994-1996 1992-1998
Designing of course curriculum (PG level)	Management of Problem Soils	1994
Major Guide for M.Sc. / Ph.D.	• Guided two M.Sc. Ag Agronomy students in RAU Pusa ,Bihar as major advisor • Co-guided five M. Sc. Ag students of Agronomy, Soil Science and Extension Education in RAU , Bihar • Guiding three PhD students of Agronomy	1995 -1997 1993-1998 2012 to till date

Research

- Potential pulse inclusive cereal based rotations for upland and lowland production system has been identified. Long-term effect of pulses in conventional cereal based rotations was assessed.
- Resource conservation practices have been developed for promoting pulses in rice fallow production system.
- Contributed in development of rice variety Swarn Shreya as an Agronomist in ICAR RCER Patna for drought prone condition of Bihar
- Got training on important aspects of agricultural research at CIMMYT Mexico, IRRI Philippines, IACR Rothamsted, TNAU, GBPUAT, WTC IARI, NBSS& LUP, NDUAT and IGKVV Raipur.
- Developed package practices for flood prone rice area of north Bihar(mixed cropping of flood prone rice + short duration summer crops (mungbean, sesame or jute) with normal seed rate of rice + 60 per cent seed rate of mixed/ intercrop, use of P as basal and one hand weeding after mixed/ intercrop harvest)
- Developed Integrated farming system (IFS) model for deepwater rice system (rice + fish + mungbean + sesbania fuel + creeping vegetables + pigeon pea) with changed land configurations.
- Developed two IFS models of one (Food crops + Vegetable + goat + poultry + Mushroom + vermicompost) and two acres (Food crops + vegetable + fruits + cows + Duck + fish) for irrigated midland of eastern India. Validated those IFS components at farmer's field under NAIP -3.
- First time in Bihar started farmers participatory research on resource conservation technologies (RCTs) in 2001 on zero tillage (ZT) wheat, ZT direct seeded rice (DSR), surface seeded wheat.
- Did farmers participatory research validation and refinement on second generation RCTs on ZT wheat (paired row, equal row, strip row) using inclined plate roller, double disc,

punch planter, rotary till disc drills. Surface seeded wheat with balance NPK, ZT sown gram and lentil in tal area and rice fallow, laser land leveling, ZT DSR with Sesbania co-culture and use of pre plus post emergence herbicides + LCC for N management, bed planted wheat under timely sown condition, bed planted kharif QPM maize for water management, bed planted winter maize with inter crops, RCTs for terminal heat management in wheat.

- In third generation RCTs evaluated unpuddle mechanical transplanting of rice , use of turbo happy seeder for rice and wheat establishment in high residue load of previous crop, and conservation agriculture (minimum soil disturbance , residue retention and crop diversification) in rice – winter maize , rice – wheat – cowpea / mung and rice – maize + potato – cowpea system suiting for eastern India .
- Developed transplanted winter maize technology – raising nursery with FYM + soil + sand and its transplanting at 35 days in rice harvested fields having proper moisture.
- Participatory assessment of fish pond for multiple uses of Irrigation Water-routing irrigation water through fish pond for increased productivity of fish and crop .
- Feasibility of rice + fish culture in waterlogged lands of canal command was found out.
- Rice yield was found to increase by use of Ipomoea *cornea* as green leaf manure.
- Contingency cropping (mustard, rajmash and maize on residual soil moisture) was explored in deepwater rice area because of rice failure due to drought in Bihar.
- Potential of rainfed winter crops was explored after photosensitive rice in lowland calcareous soils of north Bihar. Rajmash, wheat (RW 3016) and sweet potato were found most suitable rainfed winter crops. The other suitable crops were barley, wheat (Sonali) and bakla.
- Introduced extra early pigeon pea (ICPL 88039) and summer green gram for crop diversification & crop intensification in rice – wheat system.
- As Agronomist in RAU, Pusa, on-farm evaluated to release five rice varieties;

    1. Prabhat (90 days) - for upland, multiple cropping
    2. Turant Dhan (75 days) - for contingency cropping
    3. Satyam and Kisori (both 150 days) - for Rainfed Lowland
    4. Saroj (180 days) - for boro season/spring planting

- **Concept -**Non–deterministic Dialectic Approach to PTD for Livelihood improvement was innovated. Key ideas / technologies are broadcasted to existing interested poorer groups. Local professionals / entrepreneurs emerge seeing opportunities for *'delivery of services to the door'* and are involved in the research and rapidly establish links with as potential customers.
- Rainfall and temperature variability of Bihar over the time (20-100 years) were analyzed for predicted climate change. Experiments in OTC on basic studies and in open field were carried out to see the effect of predicted climate change (1 degree increased temperature and 25% more CO2) on rice and wheat crops and its mitigation practices (variety change, CA practices, N splitting, biofertilizer use) in Bihar.
- Growing kharif rice nursery with use of ground water and its timely transplanting on yield, economics and water saving in canal commands was found best to increase system productivity. Seedling rose with groundwater irrigation and established early July; the rice crop could use rain water and reduced irrigation need during the later period. This facilitated timely transplanting of rice and wheat and system productivity could be doubled from 7 t/ha to 12.5 t/ha in Patna.
- Possibility of border irrigation and its effect on water saving and yield in wheat of canal irrigated area under field -to-field irrigation was found out.
- In heavy textured soil of south Bihar, 25 per cent NPK in wheat crop can be saved with

the use of FYM @ 15 t/ha.

- Suitability of wheat crop establishment methods (ZT, FIRB and Conventional till) and irrigation depth was found out for south Bihar. About 27 percent irrigation water saving was recorded in 1st irrigation under ZT wheat. The 5 cm irrigation water depth in wheat crop under ZT is most economical while better root growth with 7 cm depth.
- Crop diversification in rice based system by winter maize + potato and summer vegetables in north Bihar.
- Technology for boro rice and its potential in water logged canal commands of south Bihar – boro rice nursery raising was possible with use of FYM @ 15t/ha in November sown and in January sown condition use of polyhouse with use of FYM@ 15t/ha.
- Developed management practices for nematode in rice field at BTL through soil solarization of nursery field, application of nematicide and flooding water in alone or combination as per need.
- Deep summer ploughing (>25cm) at three years interval was found best to improve health of soil and crop in rice – wheat system in heavy soil when partial CA practice adoption. (zero tillage on wheat, puddle transplanting of rice and no residue retention)
- Best tillage management in rice- winter maize system – Unpuddle transplanting of rice followed by ZT winter maize with 30 % residue retention in both crops in south Bihar.
- For resource management and maximization of late sown wheat productivity in north Bihar, the furrow mulching of FYM @ 10 t/ha along with 125 kg/ha seed and 125 N + 60 P2 O5+ 40 K_2O was found best combination
- Under extreme late planting in rainfed lowland conditions of north Bihar , the *Indica* type rice varieties were found superior over *japonica* rice. Weakly photosensitive medium bold seeded rice variety Rajshree was found suitable up to 31 August planting. Course grained *indica* variety Vaidehi was found suitable only up to 21 August planting. Scented indica varieties Sugandha and Kamini were found suitable up to 10 September planting.
- For timely planted irrigated lowland ecosystem of north Bihar, rice variety Rajshree was rated to be the best at low level of nitrogen (40 kg/ha). Rice variety IET 8002 performed up to 160 kg N/ha and was the most exhaustive
- In north Bihar, the maximum productivity is in rice-potato-green gram cropping system with maximum zinc and iron uptake.
- In order to maintain the sustainable productivity of rice-wheat system and soil health, FYM @ 6.5 t/h on dry matter basis should be applied to the rice crop with 60 kg N + 30 kg P2O5 + 20 kg K_2 O/ ha to each rice and wheat crops grown in sequence.
- The potential of winter maize in lowland rice farming system of north Bihar was explored.
- Weed management technology in transplanted rice and wheat of north eastern Bihar.
- Spatial arrangement in wheat: mustard (9:1) intercropping in NE Bihar was found out.
- Response of mustard was found to irrigation (0.6 IW/CPE ratio) and nitrogen (120 Kg/ha) in newly reclaimed soil of eastern U.P.

Externally funded projects

Type of project	Details such as Title, PI/Co-PI, Allocation, etc	Duration	Accomplishments	Initiation / Formulation	Individual / Collaborative
Externally Funded-NASF	Mitigating Abiotic Stresses and Enhancing Resource-use Efficiency in Pulses in Rice Fallows through Innovative Resource Conservation Practices (NASF- ICAR) **PI** **Allocation: Rs. 244.4 lakhs**	5 years	Identification of abiotic stresses in rice fallows and its mitigating practices for pulse production. Three types of rice fallows and there characterstics have been identified. Use of crop varities and conservation agriculture practices have standardized for three types follows for pulse production in winter season.	Formulation	Collaborative
Externally Funded-IRRAS/IRRI	Improved Rice Based Rainfed Agriculture System in Bihar (IRRAS) **PI** **Allocation: Rs. 24 lakhs**	4/2012 to 06/2015	This project is focused to establish and implement an adaptive research pipeline addressing agronomic technologies for rainfed, rice based agriculture in Bihar, to develop, validate, refine and demonstration best agronomic technologies for improved rice varieties along with complementary crops to increase the productivity and reduce the risk of rice based systems in both the kharif and rabi seasons, and establish a knowledge exchange network that converges knowledge exchange actors & facilitates their interaction with the adaptive research pipelines.	Formulation	Collaborative
Externally Funded-IFAD/IRRI	Accelerating Resource-Conserving Technology (RCT) Adoption to Improve Food Security And Rural Livelihoods While Reducing Adverse Environmental Impacts in the Indo-Gangetic Plains **CCPI** **Allocation: 49,400 US$**	4/2011 to 12/2012	This project seeks to accelerate the adoption of technologies that will increase the productivity, profitability, and sustainability of rice-based cropping systems across the IGP through the refinement and targeting of technologies tailored to different agroecological and socioeconomic conditions, and through the outscaling of validated technologies. Outscaling will be enabled by developing strong links with relevant development projects, and with others charged with promoting technologies to small and marginal farmers (e.g., NARES, NGOs, other projects, and the private sector).	Formulation	Collaborative

Externally Funded-BMGF/IRRI	Crop and Resource Management for Sustainable Future Cereal Based System – CSISA - 2 **CCPI** **Allocation:**4.00 M INR	10/2009 to 12/2011	The project is focused on objective -02 of CSISA Project i.e. strategic experimental platforms for future cereal systems. ICAR – RCER, Patna is one centre as CSSRI, Karnal, Haryana, TNAU, Coimbtore and BARI/BRRI, Bangladesh. The activities are on participatory adaptation of new crop and resource management technologies for CA systems, experimental platforms: new generation of resource-efficient, high-yielding cereal systems, operating in Objective 1 hubs and selected other areas and interactions with breeding programs.	Formulation	Collaborative
Externally Funded-BMGF/IRRI	Delivery and Rolling Out of Conservation Agriculture based Resource Conserving Technologies (CSISA–1) **Co-PI** **Allocation:** 1.0 M INR	04/2010 to 12/2011	Local synthesis of cereal farming knowledge for greater impact. Design and implement pilot schemes for improved delivery of seeds and modern technologies in Patna. Design business models and outscaling strategies for large scale roll-out of technologies through public and private sector channels	Formulation	Collaborative
Externally Funded-NAIP –Comp – IV / ICAR	Modeling the performance of a few major cropping systems in Eastern India in the light of projected climate change **CCPI** **Allocation:**3.62 M INR	01/2009 to 03/2012	The project is focused on to prepare climate change scenarios, occurrence of extreme weather events and their agro-climatic analysis , to prepare diseases projections in rice-wheat cropping system under projected climate scenarios and modelling the impact of projected climate scenarios on performance of rice-wheat cropping system and their resource use efficiency to identify potential adaptation measures for Bihar.	Formulation	Collaborative
Externally Funded-DFID-RIU	Promoting Sustainable Livelihood Development (P1064 Rojiroti **– CO- PI** **Allocation** : 5.5 M INR	7/2008 to 6/2011	The project is focused on Livelihood improvement of resource poor rural families around natural resources through SHGs, microfinance and agricultural activities in 12 districts of 03 states (Bihar, East U.P. and MP). Improving service delivery enabling significantly number of RNR dependent poor to benefit from and access to agricultural services are task for ICAR-RCER, Patna	Formulation	Collaborative
Externally Funded-NAIP –Comp – III / ICAR	Sustainable Livelihood Improvement through Need Based Integrated Farming System Models in Disadvantaged Districts of Bihar. **Co-PI** **Allocation :** 7.70 M INR	4/2008 to 3/2012	Integrated Farming System Model evaluation and up scaling is being done in four districts of Bihar in consortium mode with RAU, BAIF, CIFRI. As Site Coordinator, working in Vaishali district at two sites with focus on irrigated and flooded system.	Formulation	Collaborative

Externally Funded- USAID-IRRI	Revitalizing the Rice-wheat cropping systems of the Indo-gangetic Plains: adaption and Adoption of Resource Conservation Technologies in India , Bangladesh and Nepal . **CO-PI** **Allocation :** 1.12 M INR	10/2008 to 3/2009	Upscaling of RCTs and demonstration to improve the production technologies and sustainable diversification in rice-wheat systems of Indogangetic Plains of eastern India	Formulation	Collaborative
Externally funded (USAID through RWC/ CIMMYT)	Accelerating the tillage revolution in the Indus-Ganges basin: Fostering adoption of resource conserving technologies to promote economic growth, resource conservation, and food security **Project Manager (RWC)** **Allocation:** $ 4.0 M ……. **Co-PI – ICAR-RCER** **Allocation:** 1.0 M INR	06/2004 to 08/2006	As project manager , Second generation resource conserving technologies (RCTs) in participatory mode on farmers' field in Rice-Wheat system in eastern IGPs (Eastern U.P., Bihar and West Bengal) were accelerated through 14 NARS partners including SAU, ICAR institutes , State Dept Agric and NGOs besides service providers and manufacturers.	Formulation	Collaborative
		09/2006 to 09/2008	Accelerated Second generation RCTs in participatory mode on farmers' field in Rice-Wheat system in 3 districts of Bihar • *Success stories published in CIMMYT News Letter (Feb. 2006) & CIMMYT Annual Report (2005-06).* • *Two project farmers were awarded Kisan Samman by Govt. of Bihar (22 August 2007)*	Formulation	Collaborative
Externally funded (IFAD through RWC – CIMMYT)	Multi-Stakeholder programme to accelerate technology adoption to improve rural livelihoods in the Rainfed Eastern Gangetic Plains **Project Manager (RWC)** **Allocation:** $ 1.2 M **Co- PI – ICAR-RCER** **Allocation:** 0.97 M INR	06/2004 to 08/2006	As project manager , Alternate livelihood support system apart from second generation RCTs in Rice- Wheat system in Eastern U.P. and Bihar were accelerated through NDUAT KVK and ICAR - RCER besides service providers and manufacturers.	Formulation	Collaborative
			Alternate livelihood support system apart from second generation RCTs in Rice- Wheat system were accelerated in Bihar • *Three Success stories published by IRRI, Philippines* • *One each unemployed rural youth and women farm labour have been awarded at State level & wide coverage at National and International Print & Electronic Media.* •	Formulation	Collaborative
Externally funded by DFID – NRSP through IACR , U.K.	Integrated land and water management for enhancing productivity in Bihar and eastern U.P. (NRSP - R 7830) **Co-PI** **Allocation:** UK £ 2,17,093	04/2000 to 06/2004	Sustainable and scalable institutional arrangements at the community level that facilitate livelihood improvement. Practical ways forward for participatory land and water management and to develop a strategic field demonstration to private sector service delivery. • *Results reported in DARE Annual Report 2002-2003 (Page 75)*	Formulation	Collaborative

Externally funded by DFID – NRSP through IACR , U.K..	Livelihoods improvement through improved crop and soil management (NRSP - R 7839)- **Co-PI** **Allocation:** UK £ 48,472	04/2000 to 06/2004	New dialectic approach through PTD in Bihar and Eastern Uttar Pradesh through various Self Help Groups (SHGs) to assess the transfer of technology. • *Results reported in DARE Annual Report 2002-2003 (Page 75)*	Formulation	Collaborative
Externally funded by DAC, MoA	FLD on Quality Protein Maize (QPM) with RCTs - **PI** **Alloc –** 2.8 M INR	06/2004 to 08/2006	QPM were demonstrated in 7 states with RCTs. First time NARS were convinced on success of QPM at farmer's field. W.B. state has started QPM seed production at farmers field for FLD.	Formulation	Collaborative
Externally funded by **NATP (ICAR)**	Accelerating the Adoption of Resource Conservation Technologies for farm level impact on Sustainability of Rice-Wheat Systems of the Indo Gangetic Plains- **CCPI** **Allocation**: 2.0 M INR	04/2001 to 06/2004	Accelerated RCTs in Rice – Wheat system in 22 districts of Bihar. Resource saving (Rs 1500/ha) and increased yield by 8-12 q/ha in zero till wheat , Rs 4500/ha saving direct seeded rice were found at farmers field. Surface seeded wheat , zero till rabi pulses and bed planted maize were other RCTs. Policy makers were sensitized. • The state govt. has given 25- 50% subsidy to farmers on ZT drills**.**	Formulation	Collaborative
Externally funded by NATP (DAC)	Development of Prototypes of Industrial Designs of Agricultural Implements including Horticultural Equipment and their trial at farmer's fields through ICAR- **CCPI** **Allocation :** 1.2 M INR	04/2001 to 06/2004 and 2004 to 2006	Evaluated the mechanization of tillage practices through modern equipments like Zero till multi crop drill, rotary disc drill, bed planter, bed shaper, potato planter and modular power tiller Bed planting refinement for direct seeded/ transplanted rice, wheat and maize including winter crops diversification. Need based refinement in machines were done.	Formulation	Collaborative
Externally funded by NATP (ICAR)	Technology Assessment and Refinement through Institute Village Linkage Programme in Irrigated Agro-Eco Region In the Command of Sone Canal System, Bihar- **Co-PI** **Allocation:** 2.8 M INR	04/2000 to 06/2004	Technologies were assessed and refined in Rice – Wheat Systems on land, water and crop management ; peoples participation in NRM , common property resource management, alternate livelihood support system, income generation through fruit crop nursery. The site is regularly visited by ATMA , NGOs and state govt. trainees for exposure case study. The project was awarded Excellent Team Research (2004). Two adopted farmers were awarded by state govt.	Formulation	Collaborative
Institutional	Effect of tillage and water management practices on soil and crop under rice-wheat cropping systems of south Bihar - **PI** **Allocation:** 1.64 M INR	04/2003 – 11/2009	Studies on long term effect of deep summer ploughing (DSP) followed by secondary tillage on soil and crop production in rice-wheat system of heavy soil under puddling in kharif and Zero till in winter is being taken. The effect DSP on physical edaphic properties of soil, nematode population, root development & other agronomic parameters are studied. DSP in 3 years is found superior. Transplanting of rice by planking is superior over puddling.	Initiation / Formulation	Collaborative

Institutional	Irrigation and nutrient management in heavy soils of Bihar **PI** **Allocation**: 0.9 M INR	1999 to 2004	For wheat in south Bihar, a combination of irrigation at CRI + Late tillering + milking + dough stages with 75% NPK + FYM 15/ha was found suitable for progressive farmers. Under limited water supply 3 irrigations at CRI + Jointing + Flowering stage in combination of 75% NPK or 50% NPK + FYM 15t/ha was found suitable. **DARE Annual Report 2003-04 p72**	Initiation / Formulation	Collaborative
Institutional	Tillage and water management in wheat **PI** **Allocation:** 0.7 M INR	2000-2004	Zero tillage wheat with 7 cm of irrigation water depth was found most suitable for south Bihar.. There was 60 % water saving under bed planting but yield was reduced by 10 % . DARE Annual Report 2003-04 p72	Initiation / Formulation	Collaborative
Institutional	Potential of boro rice in waterlogged area of Sone Command Bihar **PI** **Allocation:** 1.2 M INR	1999 to 2004	Growing of boro rice nursery in November with use of 15 t/ha FYM and in poly house in January for waterlogged land in non-traditional area of south Bihar was found suitable practice for assured nursery availability. Total 14 irrigations with 72.0 cm water required in normal lands. The crop responded up to 150 % NPK (150: 75: 60). DARE Annual Report 2003-04 p72-73	Initiation / Formulation	Collaborative
Externally funded by MORE, GOI	IWDP Model Watershed, Kokriguda Koraput, Orissa - **Co-PI** **Allocation:** 4.0 M INR	07/1998 to 08/1999	A typical high rainfall watershed of poor tribal area where diversion of perennial water to increase cropping intensity, increased rice yield, introduction of improved vegetable, social forestry were done. The ICAR awarded excellent Team Research 2003.	Initiation / Formulation	Collaborative
Externally funded by European Union	Alkali Land Reclamation Project- **Co-PI** **Allocation:** 400 M INR	04/1994 to 12/1997	The sodic land reclamation of farmers fields in 4 districts under Gandak Command was done in collaborative execution of GADA, RAU and NGO. Rice-Wheat system productivity was improved by 250%, mango and litchi plantation was successes, and conjunctive application of irrigation became practice.	Formulation	Collaborative
Externally funded by MORE, GOI	National Watershed Development Project, Larbaiya, Begusarai, Bihar- **– Co PI** **Allocation:** 2.8	04/1995 to 12/1996	The watershed of flood prone plain area with high rainfall was focused on integrated farming including fish, field crops, animal, fruits, vegetables and small scale cottage industry support .	Formulation	Collaborative
Externally funded by World Bank	Training and Visit Programme- **– Co PI** **Allocation** : 1.0 M INR	06/1986 to 08/1989	Training on improved production system to state govt. extension machinery in three districts of north Bihar and field visits for exposure.	Formulation	Collaborative
Externally funded by ICAR & MoWR	On-farm Water Management- **– Co PI** **Allocation:** 3.2 M INR	09/1989 to 05/1992	Land and water productivity of sodic land in Jian minor of Gandak command was increased to 200%. Rice fallow was converted in Rice- Wheat and Rice- Mustard – Mung . Sixty percent additional area was irrigated due to improved land and water management.	Formulation	Collaborative

Externally funded by Ford Foundation	Farming System Research/Extension in flood prone production system – **Co PI** **Allocation :** 5.0 M INR	06/1992 to 02/1996	Integrated farming system for food prone system of north Bihar where photosensitive rice crop is integral part. Mixed cropping of rice with mung , sesame , fodder sorghum and jute were refined. Typical flood land were evaluated for rice+mung + fish + *Sesbania* + vegetables + pigeon pea with increased productivity by 90%. Rice varieties were evaluated under farmers situations as feedback for field adoption . Five rice varieties namely *Prabhat, Turat Dhan, Satyam, Kishori,* and *Saroj* were released by RAU Bihar for different conditions.	Formulation	Collaborative
Externally funded by ICAR	National Agricultural Research Project- – **Co PI** **Allocation:** 4.2 M INR	06/1986 to 08/1989	Rice, wheat, sugarcane based crop management practices were evaluated for suitable varieties, improved practices and transfer of technologies. Seed production of sugarcane for sugar mills.	Formulation	Collaborative
Externally funded by ICAR	Lab to Land Programme-– **Co PI** **Allocation:** 0.7 M INR	06/1986 to 08/1989	Improved production practices of rice , wheat and sugarcane were demonstrated at farmers fields.	Formulation	Collaborative

Extension

- Up scaling of IFS Models in Bihar involving state Government, ATMA and Farmers group from 2009 onwards.
- Accelerated RCTs in eastern U.P., Bihar and West Bengal involving NARES, state govts, private sectors, service providers and participatory farmers through various projects funded by USAID, IFAD, NATP and DFID from 2001 to till date.
- Sodic land reclamation in collaboration with Gandak CADA , VASFA (NGO) and Bihar govt in Muzaffarpur and Siwan , Bihar from 1994-1997 through EU project.
- CMS / CPSL (NGO) collaborative technology upscaled through SHGs with micro finance in eastern U.P., M.P. and Bihar.
- Watershed management in tribal area of Koraput, Orissa in collaboration with local institutions from 2008 to 2011 under DID- RIU project.
- Farming System Research / Extension in flood prone rice area under Ford Foundation Project from 1992-1996.
- On-farm water management in Gandak canal commands, Bihar in collaboration with CADA and local Water User Association from 1989 -1992.
- Second and third generation Resource Conservation Technologies (RCTs) in collaboration with KVKs, NARES and farmers associations from 2004-2011.
- Resource poor farm livelihood development through raising vegetable nursery under low tunnel polyhouse, year round mushroom cultivation, duckery and backyard poultry under TAR -IVLP and IFAD project from 2002-2005 .
- Multiple use of water through renovated pond (common property) of the village
- Lab to Land programme of ICAR and Training & Visit programme of World Bank in three districts of north western Bihar from 1986-1989.

Popularization of new technologies

Title of technology	Methods adopted	Impact assessment	Individual / Collaborative
Spray of 2% urea in pulses at reproductive stage under rainfed condition	On-station followed by on farm	• Foliar spray of nitrojan in pulses- new technology for rainfed agriculture • Yield increase by 10-15 % over control	Collaborative
Unpuddle Mechanical Transplanting of rice	Participatory on - farm research	• Unpuddle Mechanical Transplanting is new practice for eastern India • Saving of Rs. 8000/ha in crop establishment and 40% in irrigation water with high yield by 10 – 15 % over puddle transplanting	Collaborative
Zero Till Direct Seeded Rice	Participatory on - farm research	• Zero till direct seeded rice (ZTDSR) in conjunction with new practices of weed management in eastern India is being now done by NARS • Resource saving and higher yield	Collaborative
Brown manuring through co-culture of *Sesbania* in rice for Nitrogen management	Participatory on-farm research	• Addition of 35-38 kg N/ha , improved soil organic carbon by 0.03 – 0.07 %, reduction in 50 % weed population and more response in sodic land • Now large scale testing by AICRP Weed Management Project through its centers	Collaborative
Use of Nitrogen management through LCC in DSR & PT rice	Participatory on-farm research	• Saving of 25- 40 kg N/ ha, higher saving in canal irrigated areas. • LCC reduced the excess N use and optimized its use	Collaborative
Advancing the sowing time of wheat through use of improved implements.	Participatory on-farm research	• Zero tillage enabled sowing even in wet soil and advanced the sowing minimum by 12-15 days. • Saving of Rs 1700 - 2200 ha^{-1} • High demand of ZT drill was emerged from farmers.	Collaborative
Second Generation Resource Conservation Technologies (RCTs)	Participatory on-farm research	• Various zero tillage methods (equal row, paired row, double disc, control traffic) on yield and economics of wheat under normal and in rice residue • Double Zero Tillage in rice – wheat system Laser land leveling, Bed planting and crop diversification	Collaborative
Refinement of Surface seeding of wheat	Participatory on-farm research	• Early in wheat sowing by 20 to 25 days, minimum cost of cultivation and higher yields. • Use of potash @ 40 kg/ha at basal had manifold effect	Collaborative

Crop Diversification & Intensification in rice – wheat system	Participatory on-farm research	• Maize + potato on raised bed for diversification of RW system in winter RCTs: • Introduction of extra early (150 days) Pigeon Pea (ICPL 88039) for crop intensification in uplands and crop diversification in drought prone midlands. • Crop intensification by introduction of summer green gram after rice – wheat.	Collaborative
Studies on economic evaluation of RCTs induced cropping system	Participatory on-farm research	• Highest wheat equivalent yield was recorded in DSR – Potato + Maize followed by Transplanted Rice –Potato + Maize system. • DSR – Wheat - Moong system gave higher net return over transplanted rice- wheat system.	Collaborative
Raising vegetable nursery under low tunnel polyhouse	Participatory on-farm trial	• Landless unemployed rural youth & marginal farmers formed SHG and started raising vegetable nursery under Portable iron framed poly house. • Early planting of vegetables by 40-45 days was possible which resulted in high market rate of produce.	Collaborative
Alternate livelihood attempt through Mushroom Cultivation by Landless farmwomen	***Participatory on-farm trial***	• Landless women groups successfully adopted mushroom cultivation with SHG formation. • Earning throughout the year including during lean season developed self-confidence and financial security among poor, landless farmwomen by doing these activities.	Collaborative
Duckery and backyard poultry	Participatory on-farm trial	• Duckery and backyard poultry is introduced for poorest of the poor section of society among the unemployed rural youth and women of *Mushar* (sub-caste of Schedule tribe) community. • The above activities encouraged them to increase the number of ducks & birds and other poor resource family took the chicks from them and started both duckery & poultry activities.	Collaborative
Multiple use of water through renovated pond (common property) of the village	Participatory on-farm trial	• Waterlogged common abandoned land was managed by SHG through Gram Panchayat and fish were grown. Planting of horticulture plant was grown.	Collaborative
Optimization of flood – prone rice based farming system in north Bihar.	On farm research	In flood prone area of north Bihar, the risk in crop production can be minimized with increased land productivity mixed cropping of flood prone rice+ short duration summer crop (mungbean, sesame or jute). Normal seed rate of rice+ 60 percent seed rate of mix crop, use of P as basal and one hand weeding after mix crop harvest are important steps. Boro rice can be integrated farming system (rice+ fish +mungbean + sesbania+ vegetable +pigeon pea) may be good option. In draughty year when rice fails, the winter crops like mustard, rajmash and maize may be taken on residual soil moisture.	Collaborative

Reclamation of sodic land and crop production	Participatory	Participatory sodic land reclamation was done at the farmers' fields in two districts (Muzaffarpur and Siwan) of Bihar. After capacity building on-farm families was increased land reclamation the total yield and income of farm families was increased substantially due to adoption of rice- wheat- sesbania cropping system. Litchi and mango plantation was also successfully demonstrated.	Collaborative
On-farm water management in canal command	On-farm trail	In tail reaches of Gandak command, which faces where water scarcity for transplanting of rice and 1st irrigation of rabi crop, the use of ground water was found to boost up crop yield to substantial level. With improvement water management practices in co-operation with farmers the total irrigated area was increased with available canal water. The farmer's participation in canal water management was possible with active cooperation of irrigation department.	Collaborative

Innovation of new extension technologies

New approaches to Participatory Technology Development for Livelihood improvement.	• Key ideas or technologies that are broadcasted for livelihood improvement to poorer groups rather than trying to introduce a ***'new technology'*** it is often more effective to build upon the existing interests of the group • Local professionals / entrepreneurs emerge seeing opportunities for ***'delivery of services to the door'***. These services include provision of both information, access to agricultural inputs and credit • Existing service providers become involved in the research and rapidly establish links with farmers they previously ignored as potential customers.	Collaborative
Wider participation of stakeholders in technology transfer	• Participation of private manufacturer with scientist and participatory farmers feedback for machine improvement. • Promotion of service providers in technology up scaling having direct contact with govt., manufacturer and other potential stakeholders.	Collaborative

Collaborative extension programmes

- Acceleration of RCTs in eastern India involving NARS , state govts , private sectors , service providers and participatory farmers in eastern India through various projects funded by USAID , IFAD , NATP and DFID
- Sodic land reclamation in collaboration with Gandak CADA , VASFA (NGO) and Bihar govt. in Muzaffarpur and Siwan , Bihar .
- CMS / CPSL (NGO) collaborative technology upscaling through SHGs with micro finance in eastern U.P. and Bihar.
- Watershed management in tribal area of Koraput , Orissa in collaboration with local institutions
- On-farm water management in Gandak canal commands, Bihar in collaboration with CADA and local Water User Association.

Awards to beneficiaries farm families

- **Kisan Bhusan award** to Sri Sudhansu Singh (an adopted farmer under USAID project at Patna) in 2007 by Govt of Bihar with cash prize of Rs 2.0 Lakhs
- **Kisan Shree award** to Sri Ramjeet Sharma (USAID project), Sri Anil Kumar (IVLP –TAR project) and Ajay Kumar at Patna in 2007 by Govt of Bihar with cash prize of Rs 1.0 Lakhs each
- **Navin Sinha Pratibha Samman** 2007 to Landless Farm Women Smt Lalmuni Devi for women empowerment through altanate income generation activity (Mushroom)- IFAD project
- **Navin Sinha Pratibha Samman 2008** to Unemployed Rural Youth Shri Jitendra Kumar Verma for livelihood improvement through alternate income generation activity (poly culture vegetable seedlings and Mushroom)- IFAD Project

Organization of Winter School/ Summer School/ Refresher Course/Seminar/Symposium

Name of the programme Organized	Level of participation	Title	Year	Duration	Funding agency
	Programme organized 10 and above days - 06				
Short course	Scientists of ICAR and SAU faculty **Co- Director**	Biofortification in food crops	2014	August 3-12 (**10 Days**)	ICAR
89 FOCARS FET	ARS Scientists Probationers **Course Coordinator**	Field experience training of ARS Probationers at ICAR-RCER, Patna	2010	March, 02-22 **(21days)**	NAARM Hyderabad
Winter School	National level Scientists and faculty of ICAR institute and SAU – **Course Coordinator**	Resource Conservation Technologies - Conserving Resources for enhancing Productivity, Sustainability, Food Security and Improvement of Rural Livelihoods	2009	November 05-25 **(21 days)**	ICAR
82 FOCARS FET	ARS Scientists Probationers **Course Coordinator**	Field experience training of ARS Probationers at ICAR-RCER, Patna	2008	March, 18 to April 05 **(19 days)**	NAARM Hyderabad
Short course at ICAR-RCER , Patna	Scientists of ICAR and SAU faculty **– Course Coordinator**	Advances in micro irrigation system	2000	Dec. 11-20 **(10 days)**	ICAR
Short course at Pusa , Bihar	ICAR scientists and Faculty of SAUs **– Course Coordinator**	Soil and crop management for sustained productivity	1995	Dec. 11-31 **(21 days)**	ICAR
Short course at Pusa , Bihar	ICAR scientists and Faculty of SAUs- **Course Coordinator**	Advances in water management under limited supplies for sustainable crop production	1995	May 22-31 **(10 days)**	ICAR
	Programme organized less than 10 days - 08				
National Seminar at Pusa New Delhi	CAD officers, ICAR scientists and Faculty of SAUs **Associate Organizer**	Efficient Water Management in Command Areas	2006	September 18 – 19	CADWM, MoWR, GOI
Traveling workshop in	Farmers & officers in 5 districts of WB –	Resource Conservation Technologies	2006.	February	RWC

WB	**Organizer**	in rabi crops		22-28,	
Planning Workshop in U.P.	Scientists of 14 NARS centers under USAID project – **Organizer**	Kharif workshop of Eastern IGP for USAID Project, at BHU Varanasi	2005	April 15	RWC
Traveling seminar U.P.	Farmers of Bihar - **Organizer**	Resource Conservation Technologies in eastern U.P.	2004	October 28-31	RWC
Traveling workshop, in Bihar & U.P.	Officers, farmers, manufacturer and NGO of WB – **Organizer**	Resource Conservation Technologies in Rice in South Bihar and eastern U.P.	2004	October, 04-08	RWC
National Workshop of NATP at Patna	Scientists of 8 NARS centers under NATP-RCTs project - **Organizer**	Accelerating the Adoption of RCTs for farm level impact on sustainability of Rice-Wheat Systems of the IGPs	2002	Oct. 29-30	NATP-ICAR
National Seminar	Scientists of ICAR and SAU faculty – **Associate Organizer**	Archard Management.	1997	March, 10-11	ICAR-RAU
International workshop	Scientists of 6 countries working for flood prone system – **Associate Organizer**	Management of Flood prone rice	1996	Oct. 28-31	IRRI

Trainings conducted

Title	Year	Duration	No of bene ficiaries	Coordinator/ associated
State level training on Integrated Farming System, Resource Conservation Technologies and Rice production under adverse condition	2009-2013	1-3 days (18 nos.)	800	Co-ordinator
National level training course on " Water management under limited supplies for efficient crop production in command areas"	2008	March 10-15	23	Co- Course Director
State Level Training on "Water Management and Integrated Farming System"	2007	March 20–22	40	Course Director
Training on Operation and Maintenance of MPT for Zero Tillage in crops and other use at ZARS Jalpaiguri , WB	2005	December 07	20	Organizer
Training on QPM hybrid seed production by the farmers of West Bengal and Bihar, at DMR Begusarai	2005	October 19-22	15	Organizer
Training on Herbicide Spraying Techniques at Murshidabad (W.B)	2005	Sep. 22	70	Organizer
Training on RCTs in Quality Protein Maize, at Midnapur, WB	2005	June 16-17	75	Organizer
Master Training Programme on RCTs in rice, at CSAUAT, Kanpur	2005	May 20	20	Organizer
Training for farmers, scientists and officers on LCC at Jamui and WB	2005	May 10 – 14	230	Organizer
Farmers training on RCTs in Rice-Wheat system, at RAU , JRS	2005	April 06	45	Organizer

Katihar, Bihar				
Training to farmers on Poly house for vegetable nursery in winter at ICAR-RCER, Patna	2004	December 23	15	Organizer
Training to farmers on winter maize + Potato at ICAR-RCER, Patna	2004	Nov 02	30	Organizer
State Agricultural Officers training at Field Crop Research Station, Burdhwan, WB,	2004	October 29-30	35	Organizer
Training to farmers on Zero Tillage Rice at ICAR-RCER, Patna	2004	June 19	60	Organizer
Divisional level training programme on Zero Tillage wheat	2003	Nov. 17-20	230	Organizer
State level officers workshop on Zero tillage wheat	2003	Oct. 21	70	Organizer
Training on Spraying Technique	2002	Nov19-21	180	Organizer
Training on Herbicide Application Techniques	2002	Mar.15-16	120	Organizer
State level training on Reclamation and management of alkali soil	1996	Dec. 22	25	Associate
State level training on Reclamation of alkali soil	1995	Feb. 06	25	Associate
State level training on Boro rice production technology	1995	Jan. 19-21	40	Associate
State level training on Summer and Deep water rice production technology	1993	March 27 – 29	45	Associate

Organization of Kisan Melas, exhibitions

Title and location	Year	Duration	Number of beneficiaries	Co-ordinator/ associated
Farmes fair in institute, state level exhibitions and Agri-Submmit in the institute	2009-2013	1-3 days	600	Associated
Kisan Gosthi at the foundation stone laying ceremony at Buxar (ICAR) on 23rd December 2007	2007	23rd Dec. (One day)	250	Associated
Kisan Mela & Kisan Gosthi at Rajendra stadium Chapra (Bihar)	2004	9th February (One day)	350	Associated
Exhibition in Sonepur Mela, Vaishali	1999 to 2002	Oct. – Nov (2 days)	Av 250 each 04 year	Associated
Farmers training camp/ exhibition in Madhubani and Darbhanga in Bihar	2000	22- 30 Nov (9 days)	540	Associated
Kisan Mela in Rajendra Agricultural University , Pusa, Bihar – Agronomy Department Stall	1986 to 1998 each year	March – April (3 days)	Av 400 per year	Associated

Research Co-ordination

Project Title	Nature of Management / Co-ordination

• Management of abiotic stress in rice through biotechnological approaches
  o Management of submergence stress through biotechnological approaches in lowland rice
  o Genetic variability analysis and development of mapping population for drought tolerance in rice
• Eco-biology and management of rodent fauna of rice wheat cropping system
• Management of wilt complex of lentil through bio-agents coupled with host resistance
• Characterization and evaluation of elite genotypes and high yielding varieties of rice for aerobic condition
• Optimization of methodology of transplanting and fertilizer application in transplanted maize
• Development of Bio-insecticides module for management of gram pod borer (*Helicoverpa armigera*) in chickpea crop
• Studies on irrigation and nutrient requirement of diversified cropping system in irrigated eco-system of Central Bihar
• Weather crop-pest-disease interaction studies of major crop of Eastern region
• Evaluation of different production system for carbon sequestration potential.
	As Head of Division, Crop Research monitoring institute funded projects in the division

Accelerating the tillage revolution in the Indus-Ganges basin: Fostering adoption of resource conserving technologies to promote economic growth, resource conservation, and food security – USAID	Coordinated 14 NARS centers in eastern U.P. , Bihar and WB
Multi-Stakeholder programme to accelerate technology adoption to improve rural livelihoods in the Rainfed Eastern Gangetic Plains - IFAD	On behalf of CIMMYT India coordinated two centers (NDUAT KVK Mau & ICAR-RCER , Patna)

Project Monitoring

Project Title	Targets vis-à-vis achèvements			Nature of Management /Co-ordination
	Physical	Scientific	Fiscal	
Accelerating the tillage revolution in the Indus-Ganges basin: Fostering adoption of resource conserving technologies to promote economic growth, resource conservation, and food security - USAID	03 states 14 centers	Conservation of resources and high productivity	US $ 4.0 m	Management and monitoring on behalf of RWC CIMMYT India
Multi-Stakeholder programme to accelerate technology adoption to improve rural livelihoods in the Rainfed Eastern Gangetic Plains - IFAD	03 states 02 centers	Adoption of RCTs in U.P. and Bihar	US $ 1.2 m	Management and monitoring on behalf of RWC CIMMYT India

Special Attainments

Category	Title	Year	Details	Individual /Collaborative	Additional information
Rice Variety - 5	**5**				As Agronomist in RAU, Pusa, contributed in On-farm evaluation for release of five rice varieties by Research Council of Rajendra Agricultural University , Pusa , Bihar and State Variety Release Committee , Bihar
	Swarn Shreya	2015	For drought prone condition of Bihar	Collaborative	
	Prabhat	1994	Duration 90 days - Suitable for upland, multiple cropping	Collaborative	
	Turant Dhan	1995	Duration 75 days - Suitable for contingency cropping	Collaborative	
	Satyam	1996	Duration 150 days - Suitable for Rainfed Lowland	Collaborative	
	Kisori	1996	Duration 150 days - Suitable for Rainfed Lowland	Collaborative	
	Saroj	2000	Duration 180 days - Suitable for boro season/ spring planting	Collaborative	
Concept -1	Non–deterministic Dialectic Approach to PTD for Livelihood improvement	2004	Key ideas / technologies are broadcasted to existing interests poorer groups. Local professionals / entrepreneurs emerge seeing opportunities for ***'delivery of services to the door'***. And are involved in the research and rapidly establish links with as potential customers.	Collaborative	Accepted the concept for Commercialization by DFID-NRSP for project on Research into Use (RIU) in South Asia
Methodology - 1	*Brown manuring* through co-culture of *Sesbania* in rice for Nitrogen management	2006	Sesbania co-culture with rice for soil health and N saving. Sesbania broadcasted at 2-3 days after rice seeding and it's killing done by 2,4-D spray at 30 days was found to be most effective. Addition of 35-38 kg N/ha , improved soil organic carbon by 0.03 – 0.07 %, reduction in 50 % weed population and more response in sodic land	Collaborative	Large scale promotion of the technology by RWC in IGP through NARS. Large Scale evaluation by various AICRP on Weed Management Centers
Assignments - 5	Evaluation of Sodic land reclamation in Bihar	2001	Member of evaluation team of Govt. of India on reclamation of sodic land by Gandak Command under EU Project in Bihar	Collaborative	Nominated by ICAR Krishi Bhawan, New Delhi
	Contingency agricultural management in Kosi flood	2008	Member of ICAR Committee on Kosi flood for technical advisory and liaison with Bihar State Govt. for contingency agricultural management.	Collaborative	Nominated by ICAR Krishi Bhawan, New Delhi
	Survey of Kosi flood area for assessment of damage and planning for agricultural activities	2008	Chairman of survey team for Madhepura and Purnea districts under Kosi flood. The team assessed the damage of soil, crop and animals. The report was submitted to ICAR and State Govt. for potential agricultural activities.	Collaborative	Nominated by ICAR-RCER, Patna
	Contingency drought advisory in	2009	Member of team for assessment of drought damage during kharif season and contingency drought management	Collaborative	Nominated by ICAR-RCER, Patna

	Bihar		for agriculture		
	Scoping studies of eastern India for climate resilient agriculture	2011	Member of Indo Australian team for developing project on climate resilient agriculture for India, Nepal and Bangladesh	Collaborative	Nominated by ICAR-RCER, Patna

Inter-Institutional Projects

PI / Co-PI	Title	Institutions	Year	Duration	Funding agency
PI	Mitigating Abiotic Stresses and Enhancing Resource-use Efficiency in Pulses in Rice Fallows through Innovative Resource Conservation Practices	BCKV, Kalyani ICAR-NEH, Barapani IGKV, Raipur TRRI, Adhuthurai	2011-2016	5 years	NASF
PI	Improved Rice Based Rainfed Agriculture System in Bihar (IRRAS/IRRI)	BAU Sabour, RAU Pusa, CRS Patna, ICAR-RCER, Patna	2012	03 Years	IRRAS/IRRI
CC-PI	Accelerating RCTs adoption to Improve Food Security And Rural Livelihoods While Reducing Adverse Environmental Impacts in the Indo-Gangetic Plains (IFAD/IRRI).	ICAR-RCER, CSSRI Karnal, PDFSR, BARI and NARC	2011	02 Years	IFAD/IRRI
CCPI	Crop and Resource Management for Sustainable Future Cereal Based System – CSISA -2	IRRI, CIMMYT, CSSRI, TNAU and BARI Bangladesh	10/2009 to 12/2011	02 years	BMGF/IRRI
CCPI	Modeling the performance of a few major cropping systems in Eastern India in the light of projected climate change	OUAT, Bhubaneswar IIT Kharagpur, CRIDA Hyderabad, ILS Bhubaneswar	01/2009 to 03/2012	03 years 03 months	NAIP – Comp – IV / ICAR
Co-PI	Delivery & Rolling out Conservation Agriculture based RCTs - CSISA -1	CIMMYT India, IRRI India, SAUs & NGOs of Eastern U.P., Bihar, Jharkhand and W. B.	03/2010 to 12/2011	02 Years	BMGF/IRRI
Co-PI	Promoting Sustainable Livelihood Development (P1064 Rojiroti –	GYA U.K,CPSL Bihar ICAR-RCER Patna and MPRL	7/2008 to 6/2011	3 years	DFID
Site Coordinator	Sustainable Livelihood Improvement through Need Based IFS Models in Disadvantaged Districts of Bihar	ICAR-RCER, RAU Pusa, BAIF INDIA and CIPRI	4/2008 to 3/2012	4 years	NAIP/ ICAR
Co – PI	Revitalizing the Rice- wheat cropping systems of the Indo-gangetic Plains: adaption and Adoption of Resource Conservation Technologies in India , Bangladesh and Nepal	RWC, CIMMYT, ICAR, SAU, NGOs, Private Sector, State Govt., Service Provider in IGP	10/2008 to 3/2009	1 year 5 months	USAID/ IRRI
PI	Accelerating the tillage revolution in the Indus-Ganges basin: Fostering adoption of resource conserving technologies to promote economic	RWC, CIMMYT, ICAR, SAU, NGOs, Private Sector, State Govt., Service	06/2004 to 8/2006	2 .5 years plus	USAID/ CIMMYT

	growth, resource conservation, and food security	Provider in IGP			
PI	Multi-Stakeholder programme to accelerate technology adoption to improve rural livelihoods in the Rainfed Eastern Gangetic Plains	RWC, CIMMYT, ICAR, SAU, NGOs, State Govt., Service Provider in IGP	06/2004 to till date	3.5 years plus	IFAD / IRRI
Co - PI	Integrated land and water management for enhancing productivity in Bihar and eastern U.P. (NRSP - R 7830)	IACR ,Rothamsted , IWMI, Univ. of East Anglia, , Univ. of Reading, , CMS, Bangalore ,CPSL, Patna and ICAR	04/2000 to 06/2004	5 years	DFID - NRSP
Co - PI	Livelihoods improvement through improved crop and soil management (NRSP - R 7839)		04/2000 to 06/2004	5 years	DFID - NRSP
CCPI	Accelerating the Adoption of Resource Conservation Technologies for farm level impact on Sustainability of Rice-Wheat Systems of the IGPs	Nine institutes of ICAR / SAUs , RWC and private manufacturer	4/2001 to 6/2004	3 years	NATP – World Bank
Co - PI	Alkali Land Reclamation Project-	RAU Bihar , Gandak CADA , State Govt. Bihar, VASFA (NGO) and MoWR ,	04/1994 to 12/1997	3 years	EU
Co - PI	On – farm water management in Gandak command	RAU Pusa Bihar , Gandak CADA , and MoWR , GOI	8/1989 to 6/1992	3 years	MoWR , GOI

LIST OF PUBLICATIONS

S.N.	Authors	Year	Title with full reference*	Journal with volume & page number
1	Bandyopadhyay, P. K., K. C. Singh, K. Mondal, R. Nath, P. K. Ghosh, N. Kumar, P. S. Basu, and **S. S. Singh.**	2016	Effects of stubble length of rice in mitigating soil moisture stress and on yield of lentil (*Lens culinaris* Medik) in rice-lentil relay crop.	Agricultural Water Management 173: 91-102.
2	Bandyopadhyay, P. K., K. C. Singh, K. Mondal, R. Nath, N. Kumar, and **S. S. Singh.**	2016	Effect of Balanced Fertilization in Puddled Rice on the Productivity of Lentil in Rice-Fallow System Under Zero Tillage.	Bangladesh Agronomy Journal 19, no. 1: 67-79.
3	Hazra, K. K., D. K. Swain, Abhishek Bohra, S. S. Singh, Narendra Kumar, and C. P. Nath.	2016	Organic rice: potential production strategies, challenges and prospects.	Organic Agriculture: 1-18.
4	Kumar, Santosh, J. S. Mishra, A. K. Singh, S. K. Dwivedi, S. K. Singh, **S. S. Singh**, A. A. Haris Mondal, S., Bhatt, B.P., Singh, S. and Yadav, A.	2016	Response of rice (*Oryza sativa*) genotypes to weed management in rainfed ecosystems of eastern India.	*Indian Journal of Agronomy* 61, no. 1 (2016): 37-44.
5	Ladha, J.K., Rao, A.N., Raman, A.K., Padre, A.T., Dobermann, A., Gathala, M., Kumar, V., Saharawat, Y., Sharma, S., Piepho, H.P. and Alam, M.M, Liak R, Rajendran R, Reddy CK, Parsad R, Sharma PC, **Singh SS,** Saha A, Noor S	2015	Agronomic improvements can make future cereal systems in South Asia far more productive and result in a lower environmental footprint	Global change biology, 22(3): 1054-1074
6	**Singh, SS**., Singh, A., Kumar, S., Mishra, J., Haris, A., Sangle, U.,	2015	Performance of Lentil under Rice-Lentil under different tillage in	Journal of AgriSearch 2, no. 4 (2015): 263-268.

	Bhatt, B., Singh, S.K., Yadav, A.K., Singh, U. and Singh, S.,		Drought-Prone Rainfed Ecosystem of Bihar.	
7	Kumar, N., Hazra, K.K., Yadav, S.L., and **Singh, S.S.**	2015	Weed dynamics and productivity of chickpea (*Cicer arietinum*) under pre-and post-emergence application of herbicides	Indian Journal of Agronomy **60**(4): 570-575.
8	Kumar, N., Singh, M.K., Praharaj, C.S., Singh, U. and **Singh, S.S.**	2015	Performance of chickpea under different planting method, seed rate and irrigation level in Indo-Gangetic Plains of India	Journal of Food Legumes **28**(1): 40-4.
9	Singh, U., Praharaj, C. S., **Singh, S. S**., & Kumar, N	2015	Influence of crop establishment practices and genotypes in pigeonpea-wheat system under IGP of India.	Journal of Food Legumes, 28(4), 315-319.
10	Praharaj, C.S., Kumar, N., Singh, U., **Singh, S.S.** and Singh, J.	2015	Transplanting in pigeonpea- A contingency measure for realizing higher productivity in Eastern Plains of India.	Journal of Food Legumes **28**(1): 34-9.
11	Praharaj, C.S., Rajesh K., Akram, M., Jha, UC., Singh, U., Kumar, N., **Singh, S.S.** and Singh, S.K.	2015	Dissemination of pulses production technologies through participatory approach for enhancing profitability of farmers in Uttar Pradesh.	Journal of Food Legumes **28**(2): 1-7.
12	Mukherjee, J., **Singh, S.S.**, Kumar Santosh, Idris, Mohd.	2015	Radiation use efficiency and yield of wheat grown under elevated CO_2 and temperature in open top chamber at Patna, Bihar	Journal of Agrometeorology 17 (2): 158-164
14	Kumar, N., Hazra, K., Yadav, S., & **Singh, S. S.**	2015	Weed management using post-emergence herbicides in chickpea (*Cicer arietinum*) + mustard (*Brassica juncea*) intercropping system	Indian Journal of Agricultural Sciences 85(8):1074–79.
15	Singh, U., Kumar, N., Praharaj, C., **Singh, SS**., & Kumar, L	2015	Ferti-fortification: an easy approach for nutritional enrichment of chickpea	The Ecoscan **9**(3&4): 731-36.

16	Elanchezhian, R., Haris, A. A., Kumar, S., & **Singh, S. S.**	2015	Positive impact of paclobutrazol on gas exchange, chlorophyll fluorescence and yield parameters under submergence stress in rice	Indian Journal of Plant Physiology 20(2). DOI:10.1007/s40502-015-0144-9
17	Kumar, S., **Singh, S. S.**, Dwivedi, S. K., & Kumar, S.	2015	Yield attributing physio-morphological trait response in rice (*Oryza sativa*) genotypes grown under aerobic situation in eastern Indo-Gangetic plain	Indian Journal of Agricultural Sciences 85(8):1102-1108.
18	Kumar, S , Dwivedi S.K ,**Singh, S.S,** Kumar S. , Sundaram P.K, Shivani and Mall P.K.	2015	Characterization of rice rice (*Oryza sativa* L.) genotypes on the basis of morpho-physiological and biochemical traits grown under aerobic situation in rainfed ecosystem	Journal of Environmental Biology. 36 (4): 999-1005
19	Kumar S, Dwidedi S K, **Singh SS**, Jha SK, Lekkshmy S, Kumar S, Elanchezhian R, Singh ON, Bhatt B. P.	2014	Identification of drought tolerenct rice genotype by analysing drought tolerance indices and morpho-physiological traits.	SABRAO Journal of Breeding and Genetics 46 (2) 217-230
20	Laik, Ranjan, Sheetal Sharma, M. Idris, A. K. Singh, **S. S. Singh**, B. P. Bhatt, Yashpal Saharawat, E. Humphreys, and J. K. Ladha.	2014	Integration of conservation agriculture with best management practices for improving system performance of the rice–wheat rotation in the Eastern Indo-Gangetic Plains of India.	Agriculture, Ecosystems & Environment 195: 68-82.
21	Kumar, S., Dwivedi, S. K., **Singh, S. S**., Bhatt, B. P., Mehta, P., Elanchezhian, R., Singh V. P., Singh, O. N.	2014	Morpho-physiological traits associated with reproductive stage drought tolerance of rice (*Oryza sativa* L.) genotypes under rain-fed condition of eastern Indo-Gangetic Plain	Indian Journal of Plant Physiology 19(2):87-93.

22	Elanchezhian R., Kumar Santosh, **Singh S. S**., Dwivedi S.K., Shivani, and Bhatt B.P.	2013	Plant survival, growth and yield attributing traits of rice (*Oryza sativa L*.) genotypes under submergence stress in rainfed lowland ecosystem.	Indian Journal Plant Physiology Online published:10 December 2013. DOI 10.1007/s40502-013-0050-y.
23	**Singh, S.S.,** Mukherjee, J., Kumar, S. and Idris, M.	2013	Effect of elevated CO_2 on growth and yield determination of rice crop in Open Top Chamber in sub humid climate of Eastern India	Journal of Agrometeorology 15(1):1-10
24	Kumar, S., Dwivedi, S. K., Elanchezhian, R., **Singh, S. S**., Singh, O. N., Arora, A., & Bhatt, B. P.	2013	Influence of aerobic condition on physiological traits and yield attributes of rice (*Oryza sativa* L.) genotypes under rainfed lowland ecosystem.	Indian Journal of Plant Physiology, 18(3), 263-269.
25	Kumar S., Elanchezhian R., **Singh S. S**., Kumar C and O N Singh.	2013	Yield Response of Rice (*Oryza sativa* L.) Genotypes to Reproductive Stage Drought Adapted to Drought Prone Rainfed Lowland	Oryza Vol. 50. No. 4, 2013 (344-350)
26	Kumar Sanjeev, Shivani, Meena M.K. and **Singh S. S**.	2012	Production potential and plant water status in transplanted maize *(Zea mays L*.) as influenced by methods of seedling raising and age of seedling under irrigated midlands of eastern India.	International Journal of Agricultural and Statistical Sciences 8(2): 697-704.
27	Subash, N.; **Singh, S. S**. and Neha, Priya	2012	Rainfall variability and its impact on change of cropping systems in Bihar.	Indian Journal of Soil Conservation. 40, (1), 33-40
28	Subash, N.; Singh, S. S. and Neha, Priya	2012	Observed variability and trends in extreme temperature indices and rice-wheat productivity over two districts of Bihar, India - A case study.	Theoretical and Applied Climatology. Online published: 08 May. DOI 10. 1007/s00704-012-0665-3
29	Kumar Sanjeev, Subhash N, **Singh S.S.,** Shivani and Dey	2012	Evaluation of different components under Integrated farming	Experimental Agriculture 48(3):399-413

	A.		system (IFS) for small and marginal farmers under semi- humid climatic environment.	
30	Kumar, Sanjeev; **Singh, S. S**.; Meena, M.K.; Shivani and Dey A.	2012	Resource Recycling and their management under integrated farming system for lowlands for eastern India.	Indian Journal of Agricultural Sciences. 88 (6) :32-38
31	Kumar S.; **Singh, S. S.;** Shivani,; Dey, A.	2011	Integrated Farming System for Eastern India.	Indian Journal of Agronomy 56 (4): 297-304
32	Rajan K.;**Singh S. S.** and Subash N.	2011	Effect of nursery raising techniques of Boro rice on plant growth and soil physical properties.	Oryza 48 (2):137-141
33	Kumar, Sanjeev; **Singh, S. S.;** Meena, M.K.; Shivani and Dey A.	2012	Resource Recycling and their management under integrated farming system for lowlands for eastern India.	Indian Journal of Agricultural Sciences. 88 (6)
34	Subash, N.; **Singh, S. S.** and Neha, Priya.	2011	Variability of rainfall and effective onset and length of the monsoon season over a sub-humid climatic environment.	Atmospheric Research 99:479-487
35	Subash ,N.; **Singh, S. S.** and Neha, Priya.	2011	Extreme rainfall indices and its impact on rice productivity case study over sub-humid climatic environment.	Agricultural Water Management 98:1373-1387
36	Shankar Tara,; Singh, K. M.; **Singh S. S**.; Kumar Anand	2011	Changes in Area Under Agricultural Sector of Bihar : A Zone aggregated View	Environment & Ecology 29 (4A) 2140-2143
37	Subash, N.; **Singh, S. S**. and Neha, Priya.	2011	Nakshatra based rainfall variability, trends and its influence on rice-wheat production – A case study over two sites in Bihar, India.	Journal of Agrometeorology 13(1):31-37
38	Singh S.S., Rajan K and Subhash N.	2008	Effect of puddling methods, water regimes and NPK levels on yield, income and water use of boro rice(*Oryza sativa* L.).	Oryza 44 (3): 280-281

39	Bhatnagar, P.R.; Sikka, A. K.; Gautam, U.S.; **Singh, S. S**.; Kumar, U. and Rajan ,K.	2007	Microtube Irrigation for banana Cultivation in South Bihar: Participatory Assessment and Refinement.	Journal of Agricultural Engineering 44 (2): 109-115
40	Singh, Abdhesh K.; **Singh, S. S.;** Khan, A.R. and Singh, J.P.	2006	Effect of tillage on physical properties of young alluviam and residual root volume after winter maize (*Zea mays* L.).	Journal of Agricultural Engineering 43 (1) 66 – 69
41	**Singh, S. S**.; Prasad, L. K. and Upadhyay, U.	2006	Root growth, yield and economics of wheat (*Triticum aestivum*) as affected by irrigation depth and tillage practices in south Bihar.	Indian J. Agronomy 51 (2) : 33-36.
42	Khan, A. R.; **Singh, S. S**.; Chandra, D.; Nanda, P; Ghorai, A. K. and Behra, M. S.	2005	Response of irrigation and phosphorus on productivity of black gram (*Phaseolus mungo* Roxb.) in monocropped rice system	Agrochimica 49 (3-4) : 132-139
43	Singh, J.P. and **Singh, S.S**.	2004	Climatological parameters and its variation at Bikramganj, Bihar.	Indian J. Soil Conservation 32 (1) : 69-71.
44	**Singh, S.S**.; Srivastava, Soni and Singh A.K.	2002	Comparative performance of indica and japonica rice (*Oryza sati*va L.) varieties under extreme late planted rainfed lowland conditions.	Indian J. Agronomy 47(1): 50 – 56.
45	**Singh, S.S**.; Srivastava, S. and Singh, A.K.	2000	Comparative performance of photosensitive varieties of under extreme late planted conditions in north Bihar alluvial plains.	Oryza 37 (1) : 85-87.
46	Singh, A.K.; Pandey, K, **Singh, S.S**. and Thakur, S.S..	1999	Agronomic management for maximizing the productivity of late sown wheat (*Triticum aestivum*).	Indian J. Agronomy 44(2): 357-360.
47	Singh, A.K.; Kumar, A. and **Singh, S.S.**	1998	Performance of rice varieties at different nitrogen level under irrigated lowland ecosystem of north	Indian J. Agronomy 43 (2); 273-277.

			Bihar.	
48	**Singh, S.S**.; Prasad, S.M.; Thakur, R.B. and Singh, A.K.	1998.	Potential of rainfed winter crops after photosensitive rice (*Oryza sativa*) in lowland calcareous soils of north Bihar.	Indian J. Agronomy 43(4): 628-631.
49	**Singh, S.S**.; Md. Ehsanullah, Singh, S. J. and Mishra, S.S.	1996	The post emergence weed control studies in wheat (*Triticum aestivum* L*)* under rice-wheat system of north Bihar.	Indian J. Agronomy 41(2): 243-246.
50	**Singh, S.S**.; Md. Ehsanullah,; Singh, A.K. and Singh, B.K.	1995	Spatial Arrangement in wheat- mustard intercropping.	Indian J. Agronomy 40(1): 91-92.
51	**Singh, S.S.**	1992	Effect of fertilizer application and weed control on yield of mustard (*Brassica juncea* L.).	Indian J. Agronomy 37 (1): 196-198
52	**Singh, S.S**.; Singh, S.J. and Mishra, S.S.	1992	Weed management in transplanted rice under mid-land calcareous ecosystem.	Indian J. Agronomy 37(1): 173-175
53	**Singh, S.S**. and Dixit, R.S.	1989	Response of mustard to various levels of Irrigation and Nitrogen	Indian J. Agronomy 34(3): 307-311

S.N.	Authors	Year	Title with full reference*	Journal with volume & page number
3	Kumar, S., Kumar, S., Singh, S. S., & Elanchezhian, R.	2014	Studies on genetic variability and inter-relationship among yield contributing characters in pigeonpea grown under rainfed lowland of eastern region of India.	Journal of Food Legumes, 27(2), 104-107.
4	Singh, P. K.; Kumar B.; Singh, S. K.; Shankar T. and **Singh, S. S.**	2012	Performance of rice hybrids under zero tillage direct seeded condition in Eastern India.	Journal of Interacademicia 16
5	Parwez Arif,; Singh, S. K.,; Shankar, T.,; Singh, P. K. and **Singh, S. S.**	2012	Influence of meteorological parameters on the incidence of leaf folder and spider on boro rice ecosystem in north Bihar.	Journal of Interacademicia 16
6	Parwez Arif,; Singh, S. K.,; Shankar, T.,; Singh, P. K. and **Singh, S. S.**	2012	Leptocorisa vericornis – weather relationship studies in boro rice.	Journal of Interacademicia 16 (2): 274-277
7	Singh, P. K.; Kumar B.; Singh, S. K.; Shankar T. and **Singh, S. S.**	2012	Performance of rice hybrids under zero tillage direct seeded condition in Eastern India.	Journal of Interacademicia 16
8	Parwez Arif,; Singh, S. K.,; Shankar, T.,; Singh, P. K. and **Singh, S. S.**	2012	Influence of meteorological parameters on the incidence of leaf folder and spider on boro rice ecosystem in north Bihar.	Journal of Interacademicia 16
9	Parwez Arif,; Singh, S. K.,; Shankar, T.,; Singh, P. K. and **Singh, S. S.**	2012	Leptocorisa vericornis – weather relationship studies in boro rice.	Journal of Interacademicia 16
10	**Singh, S.S.;** Prasad L.K.; Subrahmanyam, D.; Saha, B. and Singh, R.D.	2006	Influence of irrigation schedule and nutrient management on soil properties, growth and yield attributes of wheat in alluvial soils of Bihar.	International J. of Tropical Agriculture 24 (1-2): 205 - 217
11	**Singh, S.S.;** Gautam, U.S.; Kumar Ujjwal, Rajan K.; Bhatnagar, P.R. and Pal, A.B.	2006	Minimization of technological gap in irrigated rice crop by Technology Assessment and Refinement (TAR) through IVLP in Sone Command, Bihar.	International J. of Tropical Agriculture 24 (1-2): 7-11
12	**Singh, S.S**.; Subash, N.; Rajan K. and Subrahmanyam, D.	2006	Effect of nursery growing environments on seed germination, seedling growth, chlorophyll, root behaviour, flowering and grain yield of boro rice *(Oryza sativa* L.) in south	International J. of Tropical Agriculture 24 (3 &4) : 469 - 478

			Bihar.	
13	Bhatnagar, P.R.; Gautam, U.S.; Sikka, A. K.; Kumar, U., **Singh, S. S**. and Rajan, K.	2006	Participatory assessment of fish pond for multiple uses of Irrigation Water.	International Journal of Tropical Agriculture 24 (3 & 4) 461 – 467.
14	Rajan, K.; **Singh, S. S.,** Gautam, U.S. and Sikka, A.K.	2006	Yield and economics of rice and wheat under On-farm nutrient management in field-to-field canal irrigation system.	International Journal of Tropical Agriculture 24 (3 & 4) 479 – 485
15	Bhatnagar, P.R.; Haris, A. A.; Sikka, A.K. and **Singh, S. S.**	2006	Feasibility of rice-fish culture on waterlogged lands in canal command.	International Journal of Tropical Agriculture 24 (1-2): 199-203.
16	Singh, A.K.; **Singh, S. S.;** Khan, A.R. and Singh, J.P.	2006	Physical characters of soil and residual root volume of rice (*Oryza Sativa* L.) as influenced by resource management in young alluviam soil.	International Journal of Tropical Agriculture 24 (3&4) 395 – 399
17	Singh, A.K.; **Singh, S. S.;** Khan, A.R. and Singh, J.P.	2006	Effect of tillage, irrigation and nitrogen levels on weed dry weight and leaf area index of winter maize *(Zea mays).*	International Journal of Tropical Agriculture 24 (3 & 4) 379 - 383.
18	**Singh, S. S.** and Khan, A.R.	2005	Managing flood prone ecosystem for rice production in Bihar plains.	International Journal of Tropical Agriculture 23(1-4) : 25-30.
19	Khan, A.R.; Chandra ,D.; Nanda,, P.; Anand, P.S.B.; **Singh, S.S.** and Singh, R.D.	2004	Response of rice to *Ipomoea cornea* as Green Leaf Manure.	J. Indian Soc. Coastal Agric 22 (1&2), 223-225
20	Rajan, K.; **Singh, S.S.;** Gautam, U.S. and Pal, A. B..	2003	On-farm nutrient management in HYV rice under field-to-field canal irrigation system of Sone Command, Bihar.	J.Farming Systems Research & Development 9(1): 94 – 95
21	Singh, A.K.; Amagin, L.P.; **Singh, S.S.** and Singh, J.P.	2003	Effect of integrated management on yield, nutrient uptake and nutrient balance in rice-wheat system.	J.Farming System Research and Development 9(1) : 14 – 18.
22	Singh, R.D.; Prasad, U.K., Singh J.P. and **Singh, S.S.**	2002	Effect of irrigation on availability and uptake of Zn and Fe in rice (*Oryza sativa* L.) based crop sequences.	J.Farming System Research and Development 8 (1&2): 42-47

23	Singh, J.P.; **Singh, S.S.** and Singh, A.K.	2001	Agri-horti. Production system for Rehabilitation of sub-humid calcareous sodic lands of north Bihar.	J.Farming System Research and Development 07 (1&2): 77-81
24	**Singh, S.S.;** Singh, A.K and Srivastava Soni.	2001	Nutrient uptake pattern in *indica* and *japonica* type rice (*Oryza sativa* L.) under late-planted rainfed lowland conditions.	J.Farming System Research and Development 7 (1& 2): 43 – 47.
25	**Singh, S.S.;** Prasad, S.M. and Singh, A.K.	1999	Nutrient uptake by rainfed winter crops and their effect on soil fertility under lowland calcareous soils of north Bihar.	J. Farming System Research and Development 5 (1&2): 78-80.
26	**Singh, S.S.,** Prasad, S.M. and Singh, A.K.	1999	Soil moisture studies on rainfed winter crop in lowland soils of north Bihar.	J. Farming System Research and Development 5(1&2): 10-15.
27	**Singh, S.S.** and Singh, A.K.	1998	Integrated farming system under shallow deep-water ecosystem in north Bihar.	J. Farming System Research and Development 3(1): 56-58.

S.N.	Authors	Year	Title with full reference*	Journal with volume & page number
1	Singh, A. K., **Singh, S.S,** Prakash, V., Kumar, S., & Dwivedi, S	2015	Pulses Production in India: Present Status, sent Status, Bottleneck and Way Forward.	Journal of AgriSearch, 2(2), 75-83.
2	**Singh, S. S**., Singh, A. K., & Sundaram, P. K.	2014	Agrotechnological options for upscaling agricultural productivity in eastern indo gangetic plains under impending climate change situations: A review.	Journal of Agrisearch, 1(2).
3	Kumar S.;**Singh S. S.**; Singh A. K.; Elanchezhian; Sangle U. R. and Sundaram P. K.	2012	Evaluation of Rice Genotypes for Resistance to Blast Disease under rainfed lowland ecosystem.	Journal of Plant Science diseases 7(2):175-178
4	Kumar, L.; Gupta, V.K.; Khan, M.A.; **Singh, S.S**.; Jee, J. and Kumar, A.	2011	Field based Makhana cultivation for improving cropping intensity of rice fields. *Bihar*	Journal of Horticulture, I, pp-71-72
5	Meena, M. S.; Singh, K. M. and **Singh, S. S**.	2010	Conservation Agriculture: Adoption Strategies,	Agricultural Extension Review, Vol. 22 (4): 20-23
6	Shankar, T.; Singh K.M.; **Singh S. S.** and Kumar, A.	2009	Natural and human resource status in divided Bihar- An Agro - Economic Perspective.	Indian Journal of Environment & Ecoplan 16 (2-3): 537-548

7	Shankar, T.; Singh, K.M. and **Singh S. S.**	2009	An Economic Analysis of Net Sown Area in different Agro-climatic Zones of Bihar.	Indian Journal of Environment & Ecoplan 16 (2-3): 531-536
8	Khan, A. R. and **Singh, S. S.**	2008	Nematode management in rice production system through deep tillage	International J. of Nematology 18 (1) : 83 – 85
9	**Singh, S. S.;** Haidar, M.G.; Khan, A.R.; Sikka A.K.; Prasad L.K.; Gaunt, John L. and Singh, J.P.	2007	Effect of nematode management in nursery on rice grain yield.	International Journal of Nematology 17 (1) : 13-16
10	**Singh, S.S.;** Haidar, M.G.; Khan, A.R.; Sikka, A.K.; Prasad, L.K.; Gaunt, John L. and Singh, J.P.	2005	Biodiversity and management of nematodes associated with rice in Eastern India.	International Journal of Nematology 15 (2) : 141-144
11	Khan, A.R.; Chandra, D.; Nanda P., **Singh, S.S.;** Ghorai, A.K. and Singh ,,S.R.	2004	Integrated Nutrient management for sustainable rice production.	Archives of Agronomy and Soil Science 50:161-165.
12	**Singh, S.S.** and Khan, A.R.	2002	Strategy for managing natural resources in flood-prone eco-systems for sustainable agricultural production	Acta Agronomica Hungarica 50(1), pp 107 – 115.
13	**Singh, S.S.** and Khan, A.R.	2001	Management of irrigated rice for higher productivity in Bihar plains.	Thought 5 (II): 33-36.
14	**Singh, S.S.;** and Verma D.K.	2000	Contingency cropping in deepwater rice area because of rice due to drought	Indian Farmers' Digest 33 (6&7): 18.
15	Prasad, S.M.; Sinha, S.P. and **Singh, S.S.**	2000	Comparative performance of rainfed winter crop in low land soils of north Bihar.	J. Applied Biology 10 (1) 51-54.
16	Prasad, U.K., **Singh, S.S.,** Prasad T.N. and Jain. S.K.	1997	On-farm water management studies in rice fields of north Bihar, *India*	International Rice Research Notes 22(3): 35-36.
17	Thakur, R.; **Singh, S.S.;** Singh, A.K. and Singh, R.S.	1996	The potential of winter maize in lowland rice farming system of north Bihar.	Rice Farming Technical Exchange Philippines 3 (4): 7-9.
18	**Singh, S.S.**; Singh, B.K. and Singh, A.K.	1995	Performance of some high yielding transplanted rice varieties under medium land.	BAU J. Research 7(2): 155-156

19	Thakur, R; Singh, A.K.; R.S, and **Singh, S.S.**	1993	An Approach to develop sustainable deep-water rice farming system in north Bihar.	Eastern India FSR/E News Letter 7(2): 9-16.
20	Thakur, R, Singh, A.K.; R.S, and **Singh, S.S**.	1993	Development of a sustainable deep-water rice farming system in Bihar, India.	Rice Farming System Technical Exchange Philippines 3(2): 7-9

Other Publications

Item	Year	Details	Publisher	Pages
	A) Books Published			
	Books Authored -3			
1	2016	Singh, U., Praharaj, C.S., Singh, S.S., Singh, N.P. Biofortification of food crops.	Springer Publication, New Delhi	491
2	2013	कुमार संजीव, **सिंह एस.एस.,** षिवानी , भट्ट बी. पी. एवं राज नारायण. समेकित कृषि प्रणाली – एक वृहद दृष्टिकोण	बामेती, कृषि विभाग, बिहार सरकार, पटना	333
3	2011	Kumar Sanjeev, Shivani and **Singh S.S.** **Integrated Farming System**	New India Publishing Agency, New Delhi	331
	Book Edited -2			
2.	2010	Khan A. R., **Singh S. S**., Bharati R. C., Srivastava T. K. and Khan M. A. *Resource Conservation Technologies for Good Security and Rural Livelihood*	Agrotech Publishing Academy Udaipur-Rice- Wheat Consortium for IGPs Publication	528
3.	2005	Malik R.K., Gupta R.K., Singh CM., Yadav Ashok, Brar S.S., Thakur T.C,**Singh S.S.,** Singh A.K., Singh Randhir and Sinha R.K. *Accelerating the Adoption of Resource Conservation Technologies in Rice - Wheat Systems of the Indo-Gangetic Plains.*	Directorate of Extension Education, CCS HAU, Hisar.	292
B) Book Chapters/Manuals/ Mimeograph -19				
1	2016	**Singh, S. S**., Hazra, K.K., Praharaj, C.S., and Singh Ummed. Biofortification: Pathway Ahead and Future Challenges (Chapter 34). In Bioforification of Food Crops. Springer	Springer India	479-492
2		Praharaj C S , Singh Ummed, **Singh S S** and Kumar Narendra 2016.Improving Protein Density in Food Legumes Through Agronomic Interventions Editors : U Singh et al	Springer India	199-216
3	2015	**Singh, S.S**. and Srivastava, T.K. Agriculture management strategies for flood affected regions in eastern India.Water management in agriculture	Jaya publishing house	287-306
4	2013	Kumar Sanjeev, **Singh S. S.,** Kumar Ujjwal, Dey. A. and Shivani. *Sustainability of Integrated Farming Systems in the Eastern Region.* Natural Resource Conservation: Emerging Issues & Future	CSWCR & TI, Dehradun	455-464

		Challeges.		
5	2012	**Singh. S.S**. and Singh A.K. *Agronomic Research and Technological Development for Agricultural Productivity*. Status of Agricultural Development in Eastern India.	ICAR-RCER, Patna	169-185
6	2012	Sundaram P.K., **Singh S.S**., Sharma S.C. and Rahman A. *Prospects of of Farm Mechanization*. Development for Agricultural Productivity Status of Agricultural Development in Eastern India.	ICAR-RCER, Patna	279-292
7	2012	**Singh, S. S.** Gender Perspective in Integrated Farming System. Edited by Women Empowerment through crop based farming system.		25-32
8	2012	**Singh, S.S.** and Subash, N. ICTs and Climate Change with reference to Crop Production. Edited by K. M. Singh and M. S. Meena in ICT for Agricultural Development in Changing Climate.	Narendra Publishing House	115-122
9	2012	Idris, Mohd. and **Singh, S.S.** ICTs for Integrated Rodent Pest Manatement. Edited by K. M. Singh and M. S. Meena in ICT for Agricultural Development in Changing Climate.	Narendra Publishing House	311-321
10	2010	**Singh, S. S.** Resource Conservation Technologies in Salt affected areas. ***In Khan, A.R. et al. Resource Conservation Technologies for Food Security and Rural Livelihood***.	Rice-Wheat Consortium (RWC), IRRI, New Delhi	92-97.
11	2010	Idris M. and **Singh S.S.** Integrated pest management on RCT's in rice and wheat cropping system. ***In Khan, A.R. et al. Resource Conservation Technologies for Food Security and Rural Livelihood***.	Rice-Wheat Consortium (RWC), IRRI, New Delhi.	384-401
12	2010	Chandna, P., **Singh S. S.,** Erenstein, Olaf., Khan, A. R., Ladha, J. K., Gupta, R., Punia, M., Nelson, A., Gopal, R. and Singh, P.K. Geo-Spatial techniques for assessing natural resource and targeting resource conserving technologies. ***In Khan, A.R. et al.***. ***Resource Conservation Technologies for Food Security and Rural Livelihood***.	Rice-Wheat Consortium (RWC), IRRI, New Delhi	501-513
13	2009	**Singh ,S. S.** Resource Conservation Technologies in Salt Affected Areas. Winter School training manual on *RCTs – Conserving resources for enhancing productivity, sustainability, food security and improvement of rural livelihoods*	ICAR-RCER, Patna. Nov. 5-25, 2009.	13-16
14	2009	Khan M. A., Singh K. M., **Singh, S. S**., Upadhayaya A., Srivastava T. K., Kumar U. , Dey A and Subash N. *Bihar Agricultural Contingency Plan*. Mimeograph M – 01/PAT – 01/2009	BAMETI, Dept. of Agriculture, Govt. of Bihar	27
15	2007	**Singh, S. S**. *Devising communication products for irrigation management solutions* . Participatory Irrigation management.	Agrotech Publishing Academy Udaipur	48-52
16	2007	Khan, A.R**.; Singh, S.S**. and Sikka, A.K. *Efficient use of limited resources and family manpower through adoption of RCTs is sustainable*. Technologies for improving rural livelihoods in rainfed systems in south Asia *IRRI*	Los Banos, Philippines	25-27
17	2007	Khan, A.R.; **Singh, S.S.** and Sikka, A.K. Jitendra *Kumar improves his family's well being by efficient labor use on the farm*. Technologies for improving rural livelihoods in rainfed systems in south **Asia** IRRI	Los Banos, Philippines	43-45

18	2007	Khan, A.R.; **Singh S.S**. and Sikka A.K. *One day lobourer finds a way out of poverty and inspiresothers*. Technologies for improving rural livelihoods in rainfed systems in south Asia IRRI	Los Banos, Philippines	46-48
19	2003	Subash, N.; **Singh, S.S.;** Rajan, K. and Subrahmanyam, D. *Performance of Boro Rice Nursery vis-à-vis the Growing Environment and Temperature in Southern Bihar*. **Boro Rice**	IRRI India	199 – 205
	Technical Bulletins - 11			
1	2014	Prasad, Y.G., Osman, M., **Singh, S.S**., M, Kumar., Singh, K.M., Singh, A.K., Maheshwari, M., Bhatt, B.P., Venkateswarlu, B. and Sikka, A.K. Contingency measures for deficit rainfall districts in south Bihar- a kharif 2013 field survey report.	Central Research Institute for Dryland Agriculture, Hyderabad.	*P-19*
2	2012	Kumar Saneev, **Singh S.S.,** Sundaram P.K., Shivani and Bhatt. B. P. Agronomic management and production technology of unpuddled mechanical transplanted rice. Technical bulletin R-37/Pat-25.	ICAR-RCER, Patna	51
3	2012	कुमार संजीव, **सिंह सती षंकर**, कमार उज्जवल, कुमार सुन्दरम् एवं भट्ट बी. पी. राईस मैट नर्सरी उगाने एवं मषीन द्वारा रोपनी की विधिः संरक्षित कृषि की ओर बढ़ता एक कदम। Technical bulletin R-38/Pat-25	ICAR-RCER, Patna	27
4	2006	**Singh S.S.,** Khan, A.R., Prasad L.K., Sikka A.K. and Gaunt J.L. *Zero tillage technology in wheat for resource conservation, higher yield and better livelihood. Technical*	Bulleting No. R - 20/Pat-l 1, ICAR RCER Patna.	21
5	2006	**Singh, S.S.,** Prasad, L.K., Khan, A.R., Sikka, A.K. Subramanyam, D. Murphy Sean and Gaunt, J.L. *Diagnosis of problems in crop production for improved livelihood in canal command of Bihar.*	Bulletin No. R - 21/Pat - 12, ICAR RCER, Patna.	20
6	2006	Khan, A.R., **Singh, S. S.,** Prasad, L. K., Sikka, A. K., Subrahmanyam, D., Singh, S. R. and Gaunt, J. L. *Improved livelihood and environment through Deep Summer Ploughing in rice based cropping system of heavy soils of Eastern India.*	Bulletin No. R - 19/Pat -10, ICAR RCER, Patna.	36
7	2006	Pande S., Gupta R.K., Dahiya S.S., Chauhan Y.S., Singh S., Singh U.P., Jat M.L., **Singh S.S.,** Sharma H.C., Rao J.N. and Chandna P. *Reintroduction of Extra Short Duration Pigeon pea (ICPL 88039) in Rice – Wheat Cropping Systems of the Indo-Gangetic Plains.*	RWC Technical Bulletin no. 9. RWC-ICRISAT, NASC Complex Pusa, New Delhi,	48
8	2006	Gupta R.K., Ladha J.K., Singh Samar, Singh Ravi Gopal, Jat M. L., Saharawat Yashpal, Singh V.P., **Singh S.S**., Singh Govindra, Sah Ganesh, Gathala Mahesh, Sharma R.K., Gill M.S., Alam Murshad, Rehman Hafiz Mujeeb Ur, Singh U.P, Mann Riaz A., Pathak Himanshu, Chauhan Bhagirath Singh, Bhattacharya P. and Malik R.K. *Production Technology for Direct Seeded Rice*.	RWC/ CIMMYT New Delhi, India	16
9	2004	Gautam U.S., **Singh S.S.,** Kumar U., Bhatnagar P.R., Rajan K. and Sikka A.K. *Enhancing agricultural productivity through bio-physical interventions.*	TAR-IVLP, NATP B. No. R-12/PAT-4, ICAR-RCER Patna, India.	60
10	2004	Gaunt J.L., Murphy S., Khan A.R., Prasad L.K., **Singh S.S.,** Kumar R., Choudhary S., Khan K. and Mishra V.K.. *New approaches to participatory technology development*.	DFID-NRSP Project R-7830 and R-7839,UK	11

11	2003	Gupta R.K., Singh Sammar, Malik R.K., Singh Govindra, Naresh R.K., Mehla R.S., Sidhu B.S., Brar S.S., Sah G, Tripathi J., Prabhakar S.R.R.K, Sharma R.K., **Singh S.S,** Singh CM., Kumar M., Singh U.P., Bhushan L., Hobbs P.R., Ladha J.K. and Singh B.K. *Zero tillage in rice-wheat systems: Frequently asked questions*.	Technical Bulletin No.6, RWC/ CIMMYT New Delhi 110 012, India.	28

Popular Articles

Singh Ummed · **S.S. Singh** · C.S. Praharaj · A.K. Parihar ·Sujayananda G.K. (2015). Rabi Dalhan phasaloen ki utpadakata badhane hetu uttam prabandhan kriyaen. Khad Patrika. September 2015. pp 7-28

SS Singh · AK Singh (2013)Agronomic research and technological development for improving agricultural productivity in Eastern India. Indian Farming. 63 (9), 18-27). 32

Dwivedi, S.K., Kumar, S., **Singh, S.S**. and Shivani. 2014. Sustaining higher productivity of rice through varietal intervention in water logged areas of eastern India. Indian Farming 64 (3): 7-10.

Kumar Santosh, Dwivedi S. K., Kumar Sanjeev and **Singh S. S**. 2013. Sustainable food production system and food security in rainfed area of eastern India through drought tolerant rice varietyes. Indian Farming 63(7):16-21.

Kumar Sanjeev, Shivani, Kumar Santosh and **Singh S.S.** 2013. Sustainable food and nutritional security through Integrated Farming System. Indian Farming 63(7):30-36, 55.

Singh S.S. Idris Mohd., and Bhatt B.P. 2013. Demand and strategies for food security in the Eastern Region. Indian Farming 63(7):56-57, 66

Dwivedi S. K. Kumar Santosh and **Singh S.S**. 2013. Sustaining wheat food production system under adverse climatic condition Indian Farming 63(7):70-72.

Singh S.S., Idris Mohd. And Bhatt B. P. 2013, Demand and strategies for food security in the Eastern Region. Souvenir, World Food Day 2013. Bihar State Productivity Council, Patna. pp 34-38.

Singh S. S. 2013. Conservation agriculture in Alluvial Plains of Eatern India. Souvenir, Agri-Submit, April 8-9 ICAR-RCER, Patna pp 17-22.

Kumar Sanjeev, Sundram P.K., **Singh S. S**. and Shivani 2013. Unpuddled mechanical transplating of rice : a way towards conservation agriculture. Indian Farming 62(12):21-26.

S. S. Singh