

BIO SKETCH OF DR. SURINDER SINGH GREWAL, FORMER DIRECTOR, PAU ZONAL RESEARCH STATION FOR KANDI AREA, BALLOWAL-SAUNKHRI, NAWANSHAHR (PUNJAB)



1. **Name** : DR. SURINDER SINGH GREWAL
 2. **Date of birth** : 27.10.1943
 3. **Last position** : Ex- Director, PAU Zonal Research Station For Kandi Area, Ballawal Saunkhri, P.O. Takarla-144521, Distt. Nawanshahr, Punjab
 4. **Present position** : Sr. Consultant Soil & Water Conservation/ Watershed Management
 5. **Permanent Address** :# 114, Sect. 46-A, Chandigarh 160047
 Tel. 91-1723252164, Mob 09417655612
 E-mail – drgrewal0114@yahoo.com

6. a) Educational qualifications:

Academic Qualifications	Class /Div.	% Marks	University	Yr. of passing	Major Subject
Matric	I	69.4	Pb. University, Chandigarh	1959	Sci., Pb. Drwg.
B.Sc. (Agri.)	III	49.8	Pb. Agri. Univ., Ludhiana	1963	Entomology
M.Sc. (Agri.)	I	$\frac{3.54}{4.00}$	-do-	1971	Soil Sci.
Ph.D. (Agri.)	I	73.1	Kurukshetra Univ.	1984	Soil Sci.

Advisor M.Sc. Dr. N.T. Singh, Assoc. Prof. Soil Physics, PAU, Ludhiana
 Ph.D. Dr. I.P. Abrol, Director, CSSRI, Karnal

Field of Specialization: Soil and water conservation/Watershed Management
 Water Resources Development and Community Participation

b) Professional Training Courses:

S. No	Name of the institution	Period From To	Name of Course	Position
1.	University of Endburgh (UK) Dept. of Forestry and Natural Resources	10/86 4/87 (Two trimesters)	Certificate course for lectures in forestry under Indo-UK teach. collaboration	-
2.	The Wolver Hampton Polytechnic Dadly a deemed University of UK	4/87 7/87 (One trimester)	Overseas Technical Teachers Award Course	Distinction
3.	National Academy of Agricultural Research Management Hyderabad	7/78 10/78 (4 month)	Foundation course for ARS scientists	-
4.	Indian Photo-interpretation Institute-Survey of India Dehradun	7/73 1/74 (7 months)	Certificate course on the use of aerial photographs for soil conservation survey and planning	Honours
5.	Central Soil and Water Conservation Research and Training Centre Kota	9/64 2/65 (5.5 months)	Certificate course in soil and water conservation	Ist Position

7. Positions held (In chronological order):

Position	Period	Pay Scale	Organisation
Agri. Inspector (Soil Conservation)	13.9.1963 to 30.9.1971	Rs. 130-320/250- 450	Punjab State Govt. Soil & Water Cons. Deptt.
Asstt. Soil Cons. Officer PAS Class-II Gazetted	1.10.1971 to 28.9.1977	Rs.350-900 and 400- 1100	-do-
Scientist S-I (Soil Phys./Soil Cons.) ARS-Direct Selection	29.9.1977 to 30.6.1983	Rs.700-1300	ICAR, CS&WCR&TI, Dehradun at Chandigarh Centre
Scientist S-2 Soil Physics/Cons.	1.7.1983 to 31.12.85	Rs.1100-1600	-do-
Senior Scientist (Soil Physics/Cons.)	1.1.1986 to 20.10.1993	Rs. 3700-5700	-do-
Assoc. Director(Trg.) (Direct Selection)	21.10.93 to 28.2.2001	Rs. 4500-7300 Rs.16400-22400	Punjab Agricultural University, Ludhiana ZRSKA, Ballowal Saunkhri
Director,	1.3.2001 to 31.10.2003	Rs. 4500-7300 Rs.16400-22400	Punjab Agricultural University, Ludhiana ZRSKA, Ballowal Saunkhri
Sr. Consultant	4.11.2003 to March 31, 2006 in slots – 30 months	Rs.55000 PM	Haryana Community Forestry Project. Though AFC, New Delhi
Sr. Consultant	Since April,2006 to March,2008	As per contract	Consultancy work in state/ national/ foreign funded projects in HP, UP& PB
Team Leader	April 16, 2008 To Date	As per contract	Swan River Integrated Watershed Dev.Project, Una Himachal Pradesh(JICA FUNDED)

8. Management experience

Worked as Associate Director (Training) from Oct. 1983 to Feb. 2001 under PAU in a World Bank funded Integrated Watershed Development Projects (Hills), operating in the priority watersheds of degraded Shiwaliks of 5 northern states of India. Management experience was gained as head of office with all financial and administrative powers of a Head of the Department of the University. Got the opportunity of establishing an advance-training center for Watershed development, which could meet the training requirements of IWDP Hills.. The job provided opportunities for in depth study of the socio-economic and biophysical conditions, refinement of technologies, interaction regarding implementation of such projects with state agencies, World Bank experts and Government of India, Ministry of Agriculture Officers. Joined as Director, ZRSKA, Ballowal-Saunkhri in March 2001 as overall Incharge of research, training and out reach programmes of the station.

Position provided administrative control over 12 scientists, 80 supporting and office staff and handling of budget of over 2 crores a year.

9. AWARDS & HONORS

(National and international awards based on scientific work, Peer Reviewed Recognitions such as Fellowship in Major Academies or Societies, Awards for excellence in teaching, Chairman of sessions of important International Symposia etc.)

1. Co-recipient of ICAR Award for Team Research 1991-93 for outstanding contributions in the field of natural resources management and engineering.
2. Co-recipient of K.G. Tejwani Award for 1998-99 for excellence in the field of natural resources conservation and management.
3. Role Honor by Indian Association. Of Soil water conservationists (1990) in recognition and appreciation of life time outstanding contribution to the cause of soil & water conservation especially in land use management.
4. Elected fellow of Indian Association of Soil & Water Conservationists (2004) for outstanding contributions to the cause of conservation of natural resources.
5. Conferred Leadership Award 2006 by the Soil Conservation Society of India New Delhi for outstanding contribution in soil & water conservation and agroforestry in Shivaliks.

Professional Recognitions

1. Invited by the Phillips University of Marberg Federal Republic of Germany to participate and contribute paper in the International Conference on “Fast Growing and Nitrogen Fixing Trees”
2. Invited by the Soil and Water Conservation Society of Thailand to present a lead paper on “Land and Water Management in North India:
3. Invited to present lead paper at the 8th International Soil Conservation Organisation Conference held at New Delhi from Dec. 4-12,1994 on the topic “Agro-forestry for Soil and Water Conservation: An Indian Experience”.
4. Invited to present research paper in 10th ISCO Conference hold in Perdue University USA.
5. The World Bank invited a team of eminent specialists in Watershed Management to review World Bank funding consequent upon severe drought in Rajasthan and Gujarat during 1999. Selected as one of the 30 specialists from all over the country to provide expert guidance.
6. Nominated by the Punjab State Government as one of the three member technical committee constituted to approve sites and type of works to be executed in soil conservation component of IWDP (Hills).
7. Nominated by the Govt. of Punjab department of Science & Technology as a member of the State Steering Committee constituted to look into the issues and activities concerning preparation of state Biodiversity strategy and action plan.
8. Worked in several foreign funded projects like Pilot Project Patiala (**USAID**), Watershed Management Project Sukhomajri (Ford Foundation), IWDP Hills (World Bank) and Haryana Community Forestry project (European Commission).
9. Remained associated with famous Sukhomajri project for 12 years and did most of the ground work in planning, execution & community participation.

MEMBERSHIP OF PROFESSIONAL ASSOCIATION.

- Executive Councilor, Soil Conservation Society of India, New Delhi.
- Life member and reviewer Indian Association of soil and water Conservationists, DehraDun. President, Society for Promotion and Conservation of Environment

Chandigarh. He was instrumental in extending this work in entire Shivaliks through externally aided projects.

10. Consultancies handled by Dr. S.S. Grewal

Sr. No.	Name of Organization	Nature of Consultancy Service
1.	Department of Agriculture, Govt. of Kenya	To prepare a need based training program in Soil & Water conservation for Kenyan Officers in India. Funded by SIDA –1990.
2.	Department of Land Development, Govt. of Thailand	Preparation of blue prints of a Soil & Water conservation research institute in Thailand carried out in – 1995
3.	Lea Associates New Delhi	Preparation of Environmental Impact Assessment Strategy for IWDP Hills – funded by World Bank – 1997.
4.	Gujarat State Land Reclamation and Development Corporation, Ahmedabad.	Planning and designing of cost effective measures for drainage lime treatment in IWDP (plains) – carried out in 1998.
5.	Society for promotion and conservation of environment Chandigarh	To study the scope of cost sharing by communities in Shivalik Watersheds. The study was supported by IWDP (Hills) Punjab and conducted during 1999-2000.
6.	Haryana Community Forestry Project – Forest Department, Panchkula	Evaluation of two water harvesting dams constructed by HCFP village Bharauli and Ibrahimpur, carried out during 2001.
7.	Haryana Community Forestry Project – Forest Department, Panchkula	Site selection, planning and design of water harvesting dams to be constructed by HCFP village during 2003.
8.	Integrated Watershed Development Project (Hills) Himachal Pradesh	Economic evaluation of four water harvesting projects conducted through ZRSKA Ballowal during 2002.
9.	Integrated Watershed Development Project (Hills) Punjab	Economic evaluation of four water harvesting projects conducted through ZRSKA Ballowal during 2003.
10.	Punjab State Forest Department	Planning soil & water conservation measures in a model watershed conducted during May 2004.
11.	World Bank, New Delhi	Review of financial management and implementation of IWDP (Hills) Jammu & Kashmir conducted during 2004.
12.	Haryana Community Forestry Project, Forest Department, Haryana	Planning, designing and supervision of construction of Harvesting dams and Soil & Water conservation works in catchment areas and production improvement in command area Nov. 2003 – to date.

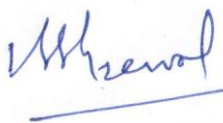
13	Integrated Watershed Development Project Hills II Jammu and Kashmir	Evaluation of Soil Conservation and Water harvesting structures in IWDP J&K – carried out in Jammu and Srinagar areas from April 24 to May 15, 2005. At a consolidated remuneration of Rs 50000/-.
14	Ritnand Balved Education Foundation New Delhi (2006)	Partner NGO consultancy for Garhwal Region under Uttranchal Decentralized Watershed Development Project (World Bank Funded).
15	HP mid-Himalayan Watershed Development Project Solan (2005) through JPS Associates New Delhi	Environment and Social Assessment and Management Guidelines including Monitoring Plan. 2005
16	Participatory Watershed Development Project Jammu & Kashmir	Environment and Social Assessment and Management Guidelines including Monitoring Plan 2005
17.	H.P. Mid-Himalayan Watershed Development – Project Solan (2006)	Capacity Building of project staff in technical aspects of Soil and Water Conservation through orientation training courses for all eleven divisions.
18.	Natural Resources Mangement and Poverty Allevation Project JBIC funded UP	Member of an International team on Special assistance for Project Formation as National consultant with M/s Natural Resources Management Consultant India New Delhi from April 5, 2007 to May 25, 2007.
19.	HP Mid Himalyan Watershed Development Project funded by World Bank.	To organize Field exercises in microplanning in Participation of Gram Panchayats in each Forest Division from June 13, 2007 to date.
20.	Shri Ram Fibers Gurgaon supported Natural Resource Conservation in degraded Aravali Hills of Alwar district of Rajasthan.	Working as team leader of an Impact assessment team of this project taken up under corporate sector social responsibility portfolio in Aravali hills – since April 2007 to date.
21.	Department of Environment, U.T. Chandigarh	Working as team leader of a study on Impact Assessment of Soil and Water Conservation measures in the catchment of Sukhna Lake on ground water recharge and soil a melioration Continues since October 2007 to date.
22.	Punjab State government, Department of Soil & Water Conservation and Land Reclamation	Impact assessment of centrally sponsored National Watershed Development Project for Rained Areas (NWDPRAs) in Kandi belt of Punjab. Working as team leader since October 2007 to date

23	Swan River Integrated Watershed Development Project Una (H.P) JBIC funded	Working as team leader of consultant group selected by JPS Assoc. New Delhi to provide out sourced services of planning, designing, estimating and costing of packages of water shed treatment- since April, 2008 to March 2011.
24	Preparation of DPRs for integrated watershed management programme Punjab	Working as team leader of consultant group preparing DPRs for integrated watershed management programme in four district of Punjab
25	Assessment of Soil Health Card Programme of Department of Agriculture, Govt. of Haryana	Consultancy awarded by NABARD Regional Office Haryana, covers assessment of programme in six selected district of the state – in progress
26	Impact assessment of Mid-Himalayan Watershed Development Project Department of Forest, Govt. of Himachal Pradesh	The impact assessment of this World Bank funded project has been awarded to TERI New Delhi. Working as one of the Team member as Watershed Management/Soil and Water conservation expert. – in progress

11. Publications

Large number of publications including book, bulletins reports and research papers in journals of national and international repute viz.

■ Book	2
■ Research papers	61
■ Technical papers	29
■ Seminar/Symposia papers	37
■ Bulletins	9
■ Reports	9
■ Popular vernacular articles	10
■ Soil cons news letters	6
Total:	<u>163</u>



Dr. S.S Grewal, Senior Consultant

:# 114, Sect. 46-A, Chandigarh 160047

Tel. 91-0172-2612736 Mob 09417655612

e-mail – drgrewal0114@yahoo.com

BIO SKETCH OF DR. SURINDER SINGH GREWAL

1. ACADEMICS

A. Educational qualifications:

- M.Sc. in Soil Physics with grade point average of 3.54/4.00 and merit scholarship from Punjab
- Ph.D. (Soil Sci.) in first division from the pioneering Central Soil Salinity Research Institute, Karnal
- The curriculum both at M.Sc. and Ph.D. level covered courses to provide a sound theoretical and practical base to a soil scientist pursuing professional career in soil and water conservation.
- M.Sc. and Ph.D. thesis covered the aspects relevant to soil and water conservation/resource management.

B. Professional courses:

- 5.5 months training course in soil and water conservation from CS&WCR&TI, Research Centre, Kata (Raj.).
- 7 months course in the Use of Aerial photographs for soil conservation survey and planning from IP Dehradun.
- 3 months foundation course for ARS scientists from National Academy of Agricultural Research, Hyderabad.
- 6 months (two trimester) certificate course for Lecturers in Forestry from the University of Edinburgh, UK.
- 3 months (one trimester) certificate course for Overseas Technical Teachers from the Polytechnic Wolver Hampton. UK. NAL

2. PROFESSIONAL EXPERIENCE

A. All the 38 years of professional experience in soil and water conservation/watershed management:

- 14 years in Soil Conservation Extension in Punjab State Government (6 years on PAS class II gazetted post).
- 16 years in Soil Conservation Research in ICAR under CS&WCR&TI, Dehradun at Regional Research Centre, Chandigarh.
- 10 years in Soil Conservation/Watershed Development Training under PAU Ludhiana at Regional Training Centre for Integrated Watershed Development, Ballawal.
- Director PAU Zonal Research Station Ballawal from 1-3-2001 upto 30-10-2003

B. Out of 34 years of professional career, 30 years were spent working in Shiwaliks of north India which forms the operational area of prestigious soil conservation/ watershed development projects

C. Remained deeply involved with Watershed Management Projects from grass root level to team leader pursuing Research/Teaching/Extension such as:

- Integrated Watershed Development Project (Hills) funded by the World Bank (21.10.93 to date).
- Environmental Rehabilitation of Degrded Shiwaliks through Watershed Management – Rel-Majra funded by the Min. of Environment and Forests, GOI, New Delhi (1990-92).
- Watershed Management in Aravali Foothills – funded by the ICAR (1980-81, 1991-92).

- National Watershed Management Project Nada and Bunga funded by ICAR/Min. of Agri. GOI (1980-81 to 1992-93).
- Operational Research Project on Watershed Development Sukhomajri funded by the Ford Foundation, New Delhi (1977 – 93).
- Soil and Water Conservation Pilot Project Patiala of Punjab State Govt. funded by USAID (Oct. 1971 – Feb. 1972).
- Haryana Community Forestry Project, funded by European Commission Deptt. of Forests, Van Bhawan Haryana from Nov. 4th 2003 - till date.
- Swan River Integrated Watershed Development Project Una (H.P) as team leader of a highly professional group providing all technical support to JBIC funded Project.

3. INTERNATIONAL EXPOSURE

- Spent 10 months (11.10.1986 to 18.7.1987) in under Indo-UK Technical – Operational Training Programme of ICAR.
- Visited Germany from 7.2.1989 to 16.2.1989 to attend an International Conference on “Fast Growing and Nitrogen Fixing Trees” held at Philipps University Marberg – under full sponsorship of the Organisers.
- Visited Kenya from 15.2.1991 to 1.3.1991 under sponsorship from ICAR as an expert to frame training programmes for a Kenyan Officers in Soil & Water Conservation in India at Dehradun.
- Visited Thailand from 2.6.1995 to 3.7.1995 to attend International Workshop on Soil Conservation Extension presented keynote paper and provided professional assistance to the Deptt. of Land Development Thailand, Bangkok.
- Visited USA for 30 days in May 1999 a) To present paper in International Conference at Perdue University b) Exposure visit to study Research Management in Ohio State University, Columbus.

4. RESUME OF WORK DONE BY DR. S.S. GREWAL

I Special Attainments in Research

Obtained Ph.D degree from pioneering Central Soil Salinity Research Institute, Karnal, M.Sc. and Ph.D research work covered soil physics/conservation aspects including establishment of agro-forestry on sodic soils. Received several professional trainings covering various aspects of soil and water conservation and watershed management. Visited United Kingdom for 10 months, Germany, Kenya, Thailand and United State of America on government assignment and for presentation of papers in international conferences. Special achievements in research are as under:

- **RESEARCH:** Served under the Central Soil & Water Conservation Research & Trg. Institute for 16 years at its Chandigarh Centre. He developed, tested and refined WATERSHED MANAGEMENT technology in operational research mode for rehabilitation of erosion prone degraded Shiwaliks (Kandi Area). This included characterization of bio-physical and socio-economic resource base, study of limited rain water harvested in small storage reservoirs, nutrient management and moisture conservation under diverse, complex, drought prone rainfed farming systems.
- He was instrumental in developing conservation effective package for establishing AGROFORESTRY SYSTEMS as an alternate land use on poor quality lands. This included integration of fast growing; multipurpose

tree species with sod-forming perennial grasses which minimize soil erosion and maximize economic returns on sustainable basis.

- His research work sharply focused to issues and concerns related to water resources development, productivity improvement, community participation and poverty alleviation through efficient natural resources conservation and management.
- Joined Punjab Agricultural University, Ludhiana as Assoc. Director Training in 1993. He organized intensive capacity building programs in the World Bank funded Integrated watershed Development Project (Hills) which included more than 100 job oriented professional training courses, equal number of study tours, workshop for all categories of staff in which 2500 staff members joined. As founder Assoc. Director he establish an advance centre of training at Regional level in Watershed Development which helped in extending the technology developed earlier in research mode. He compiled research work in usable packages, e.g. manuals, bulletins, monographs, prepared video films and presented this work at national and international forums to share experiences.
- He rose to the position of Director of the Regional Research Station for Kandi Area of PAU and guided Research and Extension programs for 2.5 years.
- Worked in USAID/World Bank/Ford Foundation funded research and development projects including operational research programs. Deep involvement at grass root in the internationally known Sukhomajri project followed by ICAR projects like Nada Bunga and Rel Majra on “integrated watershed development with people’s participation” was yet another remarkable achievement. Life long satisfying work in the most fragile Shiwalik ecosystem encompassing research, training and extension with deep understanding of issues and concerns which helped to make positive contribution for the human society.

POST RETIREMENT

- Worked for 3 years in EC funded Haryana Community Forestry Project as Senior Consultant and designed, planned and implemented 18 Watershed Development Projects at an outlay of Rs. 55 million in Haryana Shivaliks with complete package as models for replication.
- Established a professional NGO called Society for Promotion & Conservation & Environment (SPACE) through which conducted 14 studies and now president of SPACE.
- Provided consultancy services in foreign funded NRM projects in Punjab, UP, J&K, HP.
- Worked as Team Leader of a Management Consultant Team supporting Swan River Integrated Watershed Development Project at Una HP(JICA FUNDED) from April 16, 2008.

II Infrastructure development

- Established soil and plant laboratory with all equipment, glassware and chemicals.
- As founder Assoc. Director, established advance center of training in Integrated Watershed Development under PAU which included construction office, officers hosted and other buildings, procurement of vehicles, equipment, furniture, computer and posting of staff
- Helped the project in establishing gauging stations in 4 states for the study of treatment responses.

III Inter disciplinary programs formulated

- As team leader, conceived, planned and conducted 2 major research projects on Watershed Management and Agro forestry covering several experiments as inter-disciplinary team.
- Helped the institute in compilation of research in the form of technical bulletins.
- Contributed in the planning and implementation of operation research projects and studies conducted at project locations.
- Strongly influenced the policies, programmes and implementation strategies of IWDP (H) and bringing about radical changes in interdisciplinary of components of forestry, soil conservation, animal husbandry, rainfed agriculture and horticulture.

IV Research Management

As Director of ZRSKA Ballawal, planned and guided the research work of interdisciplinary team of 12 scientists and made research facilities available, arranged funds from various organizations and expanded the research and extension scope of the research station. Developed research farm to generate three times more funds from internal sources. Organized workshops and Kisan melas to disseminate the technology developed.

V Consultancies Earned about a dozen consultancies both from national and international agencies like the World Bank, Swedish International Development, European Union and Japanese Bank of International Co-operation. Several consultancy assignments were earned while working in PAU Ludhiana.

LIST OF PUBLICATIONS OF DR. S.S. GREWAL

DISTRIBUTION	
• BOOKS	2
• RESEARCH PAPERS	61
• TECHNICAL PAPERS	29
• TECHNICAL BULLETINS	9
• TECHNICAL REPORTS	9
• SEMINAR/SYMPOSIA PAPERS	37
• POPULAR VERNACULAR ARTICLES	10
• SOIL CONS. NEWS LETTERS	6
TOTAL	163

LIST OF PUBLICATIONS OF DR. SURINDER SINGH GREWAL

RESEARCH PAPERS

1. Grewal, S.S. and Singh, N.T. 1974. Effect of organic mulches on the hydrothermal regime of soil and growth of potato crop in northern India. *Plant and Soil* 70: 40-47.
2. Grewal, S.S. and Singh, N.T. 1978. The effect of different moisture regimes on soil temperature and the yield and quality of potato in northern India. *Ind. J. Agron*; 23 (2) : 130-36.
3. Grewal, S.S. and Prihar, P.S. 1979. Experience on execution and design of drop structures. *Ind. J. Soil Conserv.* 7(1) : 46-53.
4. Grewal, S.S; Juneja, M.L. and Singh, Kehar. 1982. Soil water expense and water use efficiency of wheat in a system of supplemental irrigation through rainwater harvesting in foothills of Northern India. *Ind. J. Soil Consvr.* 10(1): 43-55.
5. Grewal, S. S; Juneja, M.L; Dubey, L.N and Chandrappa, M. 1982.Effect of some soil and site properties on seepage losses from harvested runoff water in small storage reservoirs. *J. Agricultural Engineering* 19 (3): 63-70.
6. Grewal, S.S. and Mittal, S.P. 1982. Effect of foliar spray of urea on rainfed wheat grown under poor soil fertility conditions in Shiwalik foothills. *Ind. J. Agron.* 27 (4): 448-450.
7. Grewal, S.S; Sud, A.D; Mittal, S.P. and Singh, Kehar.1982. Effect of farmyard manure and chemical fertilizers on yield of rainfed maize in Shiwalik foothills *Ind. J. Agron.* 27(3): 282-83.
8. Grewal, S.S; Mishra, P.R. and Agnihotri, Y. 1983. Economic development and rehabilitation of degraded areas through soil and water management – A case study. *Ind. J. Soil Conserv*, 11 (1): 1-9.
9. Grewal, S.S; Sud, A.D; Singh, Kehar and Singh, Prahlad. 1984. Effect of minimal irrigation on profile water use, water expense and yield of chickpea as modified by seasonal rainfall in Shiwalik region. *Ind. J. Agric. Sci.* 54(7): 576-81.
10. Grewal, S.S; Singh, Kehar and Surjit, Dyal. 1984. Soil profile gravel concentration and its effect on rainfed crop yields. *Plant and Soil* 81: 75-83.
11. Grewal, S.S. and Juneja, M.L 1984. Studies on the erosional behavior of soil in the catchment of a rapidly silting lake at Chandigarh. *Ind. J. Soil Conserv.* 12(1): 58-56.

12. Grewal, S.S; Mittal, S.P; Singh, Kehar and Singh, Pratap. 1985. Effect of fertilizer and manure on yield, soil moisture and monetary returns from rainfed maize wheat rotation. Intern, J. Trop. Agric. 3(2): 91-97.
13. Grewal, S.S; Mittal, S.P; Singh, Kehar and Singh, Pratap., 1985. Effect of manure and fertilizers on soil water retention and use by rainfed maize-wheat in Shiwalik region. J. Ind. Soc. Soil Sci. 33: 627-630.
14. Mittal, S.P; Grewal, S.S; Agnihotri, Y. and Singh, Pratap 1985. Economics of intercropping legumes in maize under rainfed conditions. Inter. J. Trop, Agric, 3 (3): 187-191.
15. Grewal, S.S. and Abrol, I.P. 1986. Agroforestry on alkali soils: biomass accumulation and chemical composition of selected tree species. Agro forestry Systems 4: 221-232.
16. Mittal, S.P; Mishra, P.R.; Grewal, S.S and Agnihotri, Y. 1986. Success story of Sukhomajri watershed management project. Ind. J. Soil Conserv. 14(3): 1-8.
17. Agnihotri, Y; Mittal, S.P; Grewal, S.S. and Mishra, P.R. 1986. Economic evaluation of water resource development in Shiwalik foothills – A case study. Ind. J. Soil Conserv. 14(2): 7-14.
18. Grewal, S.S; Abrol, I.P. and Singh, O.P. 1987. Rainwater management for establishing agroforestry on alkali soils. Ind. J. Agric. Sci. 57 (1): 30-37.
19. Mittal, S.P; Grewal, S.S; Singh, Pratap and Singh, Prahlad. 1987. Effect of minimal irrigation from harvested rainwater on the yield of wheat in Shiwalik foothill region. Ind. J. Agric. Sci. 57 (5): 346-350.
20. Grewal, S.S. and Abrol, I.P. 1988. Forage yield, chemical composition and reclaiming effects of Karnal grass (*Diplachne fusca*) grown with trees in alkali soil. Ind. J. Agric. Sci. 58 (4): 278-282.
21. Grewal, S.S; Mittal, S.P; Agnihotri, Y and Bansal, R.C. 1988. Study on hydrology of a small-eroded Shiwalik Watershed managed for rainwater harvesting and utilization. Ind. J. Dryland Agri. Res. & Dev. 2:31-40.
22. Mittal, S.P; Grewal, S.S; Agnihotri, Y; Dyal, S.K.N. and Sud, A.D. 1988. Studies on runoff, soil loss and productivity of small agriculture watershed. Ind. J. Dryland Res. & Dev. 3(2): 95-101.
23. Grewal, S.S; Mittal, S.P; Agnihotri, Y. and Dubey, L.N. 1989. Rainwater harvesting for the management of agricultural droughts in the foothills of northern India. Agric. Water Management 16: 309-322.
24. Grewal, S.S; Mittal, S.P; Agnihotri, Y. and Bansal, R.C. 1989. Production potential of a severely eroded Shiwalik watershed managed for rain water harvesting and utilization. Ind. J. Soil Consv. 17(1): 35-43.
25. Grewal, S.S. and Abrol, I. P. 1989. Amelioration of sodic soil by rainwater conservation and Karnal grass grown in interspace of trees. J. Ind. Soc. Soil Sci. 37: 371-376.
26. Grewal, S.S; Juneja, M.L. and Singh, Kehar. 1990. Growth performance of Eucalyptus (*Eucalyptus tereticornis*) on two alluvial soils of northern India. Ind. J. Agric. Sci 60(7): 457-62.
27. Grewal, S.S. and Abrol, I.P. 1990. Soil water and temperature regimes of a ridge-trench system of rainwater conservation and planting trees in sodic soil. J. Ind Soc. Soil Sci. 38(3): 504-510.
28. Grewal, S.S; Juneja, M.L; Mittal, S.P; Agnihotri, Y. and Bansal, R.C. 1990. Effect of some hydro- physical soil properties on erosion, seepage and grass

- yield from a Shiwalik watershed selected for water resource development. Ind. J. Soil Conserv. 18: 45-55.
29. Grewal, S.S; Juneja, M.L and Singh, Kehar. 1990. Effect of some establishment practices on early growth of *Eucalyptus tereticornis* (Smith) on poor quality soils of foothills of north India. Ind. J. Forestry 13(3): 179-185.
 30. Grewal, S.S. and Juneja, M.L. 1991. Effect of nitrogen source on the growth and fuel wood yield of short rotation and high density plantation of eucalyptus. Ind. J. Forestry 14 (4): 303—307.
 31. Grewal, S.S. and Juneja, M.L. 1991. Alkali soils in foothills of Shiwalik landscape and their management. J. Soil and Water Conserv. India 35:55-59.
 32. Grewal, S.S; Mittal, S.P; Surjit, Dyal and Agnihotri, Y. 1992. Agro forestry systems for soil and water conservation and sustainable production from foothill areas of north India. Agroforestry Systems 17:183-191.
 33. Mittal, S.P; Grewal, S.S; Agnihotri, Y. and Sud, A.D. 1992. Substitution of nitrogen requirements of maize through leaf biomass of *Leucaena leucocephala*; agronomic and economic considerations. Agroforestry Systems 18; 99-108.
 34. Agnihotri, Y; Mittal, S.P; Grewal, S.S. and Sud, A.D. 1992. Response surface equation for prediction of maize yield through combination of organic and inorganic sources of nitrogen. Ind. J. Soil Conserv. 20 (3): 89-91.
 35. Agnihotri, Y; Grewal, S.S. and Singh, Shivcharan. 1993. Economic appraisal of silvipastoral systems vis traditional agriculture in Shiwalik foothills. Ind. J Forestry 16(2): 138-43.
 36. Agnihotri, Y. and Grewal, S.S 1993. Economic evaluation of growing Eucalyptus with auger hole technique in association with Bhabar in Shiwalik foothills. Ind. J. Soil Conserv. 21(2): 79-84.
 37. Grewal, S.S; Juneja, M.L; Singh, Shivcharan and Singh, Kehar. 1993. Productive and protective role of Leucaena based agroforestry in comparison with rainfed field crops on a gravelly soil. Ind. J. Agric Sci. 63 (9): 32-36.
 38. Grewal, S.S; Singh, Kehar and Juneja, M.L. 1993. Response of high-density energy plantation of *Eucalyptus tereticornis* to basal nitrogen source, dose and phosphorus application on an alluvial soil. J. Tropical Forest Sci. 5(3): 387-402.
 39. Samra, J.S. and Grewal, S.S. 1993. Modeling competition of paired columns of Eucalyptus on inter planted grass. Agroforestry Systems 21(2): 177-190.
 40. Grewal, S.S; Juneja, M.L. and Singh, Kehar. 1994. A comparison of two agroforestry systems for soil, water and nutrient conservation on degraded land. Soil Technology 7(2): 145-153.
 41. Grewal, S.S; Juneja, M.L. and Singh, Kehar. 1994. Rainwater conservation and use by an energy plantation of Eucalyptus tereticornis and rainfed field crops in north India. J. Tropical Forest Sci. 6(4): 408-421.
 42. Arya, S.L; Kaushal, R.C. and Grewal, S.S. 1994. Economic viability of watershed management project selected to rehabilitate degraded Aravali foothills of Haryana. Ind. J. Agri. Econ. 49(4): 591-600.
 43. Agnihotri, Y; Mittal, S.P; Grewal, S.S. and Madhukar, R.M. 1994. Inter-comparison of performance of wheat straw to grain ratio estimators in ORP Sukhomajri. Ind. J. Soil Conserv. 22(3): 83-89.
 44. Grewal, S.S; Singh, Kehar and Juneja, M.L. 1995. Conservation and production potential of an agro forestry system integrating grey gum

- (*Eucalyptus tereticornis*), white popinae (*Leucaena, latisiliqua*) and turmeric (*Curcuma longis*). Ind. J. Agric Sciences 65 (3): 27-31.
45. Grewal, S.S. 1995. Nursery raising, growth, fertilization, cover crops and water use of Eucalyptus on foothill alluvium near Chandigarh – a review. Ind. J. Forestry, 18(1); 1-12.
 46. Grewal, S.S.1995. An eucalypt and bhabar grass plantation system to optimise resource use for biomass production in the foothills of sub-tropical north India: J. Tropical Forest Sci. 8(1): 87-106.
 47. Grewal, S.S.1995. Sukhomajri concept of integrated watershed development. J. Soil Water Cons. India 39 (3&4): 152-165.
 48. Sagwan, R.S; Grewal, S.S. and Sur, H.S. 1995. Livestock management for economic and ecological development of Shiwaliks, J. Soil and Water Cons. India 39 (3&4): 182-188.
 49. Grewal, S.S; Singh, Kehar; Juneja, M.L. and Singh, Shivcharan. 1996. Relative growth, fuel wood yield, litter accumulation and conservation potential of seven Acacia species and an understorey grass on sloping bouldry soil. Ind. J. Forestry 19(2): 174-182.
 50. Dyal, S.K.N; Grewal S.S. and Singh, Shiv Charan.1996. An agri-horticultural system to optimize production and cash returns from Shiwalik foothills. Ind. J. Soil Conserv. 24(2): 150-155.
 51. Grewal, S.S. 2000. Evaluation of Drake (*Melia azedarach*) raised in agroforestry systems by farmers of Punjab Shiwaliks. Indian J. Soil Cons. 28(3): 253-255.
 52. Grewal, S.S., Singh, B and Bharat Bhusan.2002.Evaluation of erosion control structures in treated watersheds by structural and functional efficiency criteria. Indian J. Soil Cons. 30(3):214-225.
 53. Grewal, S.S.2002. Implementation of soil conservation programmes in a foreign funded watershed development project: Analysis of some critical issues. J. Soil and Water Cons. India 1(4): 304-311.
 54. Grewal, S.S., Dogra,A.S., Sur,H.S. and Sud,Y.P.2003. Socio-economic profile of foot-hill villages of Punjab and its relevance to cost sharing in participatory watershed development. J. Soil and Water Conservation in India. 2(1&2):84-96.
 55. Grewal,S.S.,Dogra, A.S.,Sood,Y.P. and Sur, H.S.2003. Cost sharing by rural communities in watershed development: Genesis and scope in Shivaliks of north India. Indian J. Soil Cons.31 (2): 168-186.
 56. Dogra,A.S., Sharma,J. and Grewal,S.S 2005. Participatory process development in watershed projects – an implementation experience in Punjab Shivaliks Indian J.Soil Cons. 33 (3): 238-242.
 57. Grewal, S.S. and Bharat,Bhushan, 2005. Assessment of erosion control structures in treated watersheds for functional efficiency and cost economy. Indian J.Soil Cons. 33(3) : 193- 199.
 58. Dhar,S.K., Grewal,S.S. and Goran,Jonsson. 2006. Evaluation of water harvesting dams using a designed score card system. J.Soil and Water Conservation India 5(1) : 6-13.
 59. Dhar,S.K., Grewal,S.S. and Goran,Jonsson. 2006. Addressing issues, concerns and contradictions in technical and social domain of watershed development J. Soil and Water Conservation India 5(1): 48-55.

60. Rana, D.S. Bharat Bhushan and Grewal, S.S. 2006. Economic evaluation of water harvesting structures in Himachal Pradesh. *Indian J. Soil Cons.* 34(2): 134-139.
61. Bharat, B. and Grewal, S.S. 2007. Human resource development in an integrated watershed development project. *Indian J. Soil Cons.* 35(2): 174-176.
62. Dhar, S.K. and Grewal, S.S. (2008). Desiltation of reservoirs of water harvesting dams- lessons of experience. *Indian J. Soil and Water Conservation* 37(1): 1-8.
63. Agnihotry, Y. and Grewal, S.S. 2013. Economics of rain water conservation, waste land development and production improvement through watershed management: a case study in village Gualda of Aravali ecosystem. *Ind. J. Soil Conservation* 41:69-76.

TECHNICAL PAPERS

64. Grewal, S.S. 1973. Discharge measurement of tubewells from simple curves. *Progressive Farming* July 1973.
65. Grewal, S.S. 1973. Lining irrigation water courses. *Progressive Farming*, December 1973 pp 9-10.
66. Singh, N.T; Grewal, S.S. and Singh, Arjan. 1974. Irrigating spring crop of potato. *Progressive Farming* Feb., 1974 pp 19.
1. Grewal, S.S. 1974. Tale of a village without villagers. *Progressive Farming* September, 1994 pp 11.
2. Grewal, S.S. 1975. Land development leads to progress. *Progressive Farming* December 1975. pp 21-22.
3. Grewal, S.S. 1975. Scheduling irrigation on our farms. *Soil Cons. Digest* 3(1): 53-66.
4. Grewal, S.S. 1975. Some facts about sprinkler irrigation in Punjab. *Soil Cons. Digest* 3 (1): 68-69.
67. Grewal, S.S. 1975. Improving irrigation efficiencies of our farms *Soil Cons. Digest* 4 (1):1-3.
5. Grewal, S.S; Mishra, P.R. and Singh, Kehar 1981. Integrated development of small farm in Shiwalik foothills – A success story. *Indian Farming* 31(6): 21-25.
6. Grewal, S.S. and Mishra, P.R. 1982. Sukhomajri model of development, a boon for foothill farmers. *Indian Farming* 32 (10): 31-33.
7. Mittal, S.P; Grewal, S.S; Agnihotri, Y. and Mishra, P.R. 1982. Small dams for economic development. *Bhagirath - Irrigation and Power Quarterly* 29: 1-3.
8. Grewal, S.S. 1983. A model of farm and forest development for Shiwalik foothills. *Indian Farming* 33 (5): 31-34.
9. Grewal, S.S. 1984. Rainwater harvesting boosts crop production in foothills of Haryana. *Farmer and Parliament* 29(3): 23-24.
10. Grewal, S.S. 1985. Tackling drought made easy. *Farmer's Journal* 5 (2): 28-29.
11. Grewal, S.S. 1985. Increasing wheat yield in Shiwaliks through harvested rainwater. *Indian Farming* 35 (8): 12-13.
12. Grewal, S.S. 1985. Gravelly soils can be productive. *Farmers Journal* 5 (11) : 27-28.
13. Grewal, S.S; Agnihotri, Y. and Mishra, P.R. 1986. Resource development in Shiwaliks. *Indian Farming* 36(2): 13-15.

14. Grewal, S.S. 1986. Minimal irrigation stabilizes rainfed gram yield. *Indian Farming* 36(3): 9-12.
15. Grewal, S.S.; Mittal, S.P. and Singh, Gurmel. 1990. Rehabilitation of degraded lands in Himalayan foothills: Peoples participation. *AMBIO* 19 (1) 45-48.
16. Bansal, R.C. and Grewal, S.S. 1991. Sukhna Lake, corrective measures and hydrology. *OPEN HAND (A MAGAZINE OF CHANDIGARH ADMINISTRATION)* 9(2): 8-13.
17. Grewal, S.S. 1991. Eucalyptus + Bhabar grass; Best bet for slopes. *SPECTRUM OF THE TRIBUNE*, August 8, 1991. Tribune Group of Publications, Chandigarh.
18. Grewal, S.S. 1992. Eucalyptus and Bhabar grass together conserve rainwater in the Shiwaliks. *Indian Farming* 42 (5): 12-14.
19. Grewal, S.S. and Juneja, M.L. 1992. Eucalyptus on alkali soils. *Farmer's Journal* 11 (8&9): 18-19.
20. Grewal, S.S. and Singh, Gurmel. 1992. Researchers in northern India test an agro forestry system that makes a profit and conserve the soil. *Agroforestry Today* 4 (3): 11.
21. Grewal, S.S. 1995. Leucaena – Napier grass association holds promise on gravelly soils of foothills of north India. *Indian Farming* 44 (10): 31-32.
22. Dyal, S.K.N., Grewal, S.S. and Singh, Shiv Charan. 1996. For Shiwalik foothills: Horticulture based agro forestry system. *Indian Horticulture* 40(4): 13-14.
23. Grewal, S.S. 2002. Drake a profitable tree in Kandi area. *Progressive Farming* April 02, pp 22-23.
24. Sardana, V. and Grewal, S.S. 2003. Agro-technology and contingent planning for crops under Drylands. *Indian Farming* 53(5):3-5.
25. Sardana, V. and Grewal, S.S. 2003. Crop production strategies for rainfed and dry land areas. *Progressive Farming* 39:10-13.
26. Sardana, V., Grewal, S. S. and Mahajan, G. 2003. Adapt to monsoon vagaries. *The Tribune* June 2, pp 16.

III TECHNICAL BULLETINS

1. Grewal, S.S.; Mittal, S.P.; Singh, Pratap and Sud, A.D. 1990. Cropping practices for soil and water conservation in Shiwalik foot-hills. *Technical Bulletin No. T-23/C* of the Central Soil and Water Conservation Research and Training Institute, Research Centre, Chandigarh – 160 019. pp 1-55.
2. Singh, Gurmel; Grewal, S.S. and Kaushal, R.C. 1990. Watershed Management in Aravali foothills. *Bulletin No. T-22/D-18* of the Central Soil and Water Conservation Research and Training Institute, Dehra dun India pp 1-119.
3. Mittal, S.P.; Sud, A.D.; Samra, J.S.; Grewal, S.S. and Singh, Gurmel 1991. Grasses for Soil Conservation in Shiwaliks. *Technical Bulletin No. T-25/C-4* of the Central Soil and Water Conservation Research and Training Institute, Research Centre, Chandigarh. Pp 1-54.
4. Grewal, S.S.; Prakash, C.; Kaushal, R.C.; Yadav, K.S.; Arya, S.L. and Singh, Gurmel. 1992. For rehabilitation of degraded Aravalis through watershed management: manethi watershed (Distt. Rewari, Haryana). Publication of the Central Soil and Water Conservation Research and Training Institute, Dehradun (U.P).
5. Grewal, S.S.; Samra, J.S.; Mittal, S.P. and Agnihotri, Y. 1995. Sukhomajri Concept of Integrated Watershed Management. *Technical Bulletin No. T-*

- 26/C-5 of the Central Soil and Water Conservation Research and Training Institute, research Centre, Chandigarh (India), pp 1-57.
6. Grewal, S.S. 1997 (Eds.). Strategies for Sustainable Integrated Watershed Development. Proceedings of workshop on “Implementation Strategies to Improve Sustainability and Replicability of Integrated Watershed Development Project (Hills)” held at Chandigarh from Dec. 6-8, 1995.
 7. Grewal, S.S; Brar, S.P.S. and Kolar, J.S. 1999. Indigenous Natural Resources Management in Shiwaliks. A publication of the Directorate of Extension Education, Punjab Agriculture University, Ludhiana pp 1-28.
 8. Grewal, S.S; Brar, S.P.S. and Kolar J.S. 2000. Human Resource Development in Watershed Management publication of the Punjab Agricultural University Ludhiana
 9. Grewal, S.S. 2000. Base flow harvesting from Shiwaliks Watersheds publication of the Punjab Agricultural University Ludhiana

IV TECHNICAL REPORTS

1. Mishra, P.R; Grewal, S.S; Mittal, S.P. and Agnihotri, Y. 1980. Operational Research Project on Watershed Development for Sediment, Drought and Flood Control – Sukhomajri. Publication of Central Soil and Water Conservation Research and Training Centre, Chandigarh pp 1-57.
2. Singh, Gurmel; Mishra, P.R; Bhardwaj, S.P; Bansal, R.C. and Grewal, S.S. 1981. Watershed Management Plan vill, Pali, Tehsil. Rewari, District Mohindergarh. Technical Bulletin No. T-15/D-12, CS&WCR&TI, Dehradun, pp 1-43.
3. Singh, Gurmel; Mishra, P.R; Bhardwaj, S.P; Bansal, R.C. and Grewal, S.S. 1981. Watershed Management Plan villager Bazar and Ghanyar, The. Rewari, Distt. Mohindergarh. Publication of CS&WCR&TI, Dehradun, pp1-57.
4. Singh, Gurmel; Mishra, P.R; Bhardwaj, S.P; Bansal, R.C. and Grewal, S.S. 1981. Watershed Management Plan Village Rampur Dedoli, Tehsil Rewari Distt Mohindergarh. Publication of CS&WCR&TI, Dehradun, pp1-56.
5. Samra, J.S; Grewal, S.S; Bansal, R.C; Mittal, S.P; Agnihotri, Y; Goel, P.K; Sastri, G. and Singh Gurmel. 1991. Management plans for environmental rehabilitation of degraded Shiwaliks through watershed management. A technical report of the Central Soil and Water Conservation Research and Training Institute, Research Centre, Chandigarh 160019 pp 1-108.

SEMINAR/SYMPOSIA PAPERS

68. Singh, N.T. and Grewal, S.S. 1975. Drip V/s furrow irrigation in potato under subtropical conditions. Proceedings of International Drip Irrigation Conference Davis USA pp 515 – 520.
1. Bhumbla, D.R; Mishra, P.R; Grewal, S.S. and Mittal, S.P 1980. Soil Conservation in Sukhomajri – A new direction. Proceedings of National Symposium on Soil Conservation and Water Management in 80 are held at CS&WCR&TI, Dehradun from February, 12-14, 1980.
2. Mittal, S.P; Grewal, S.S; Agnihotri, Y. and Mishra, P.R. 1980. Strategy for people’s participation in watershed management – A case study. Proceedings of seminar on ‘Strategy for mass mobilization and people’s participation in implementation of watershed management programme’, organized by Central Board of Irrigation & Power at New Delhi on October 10, 1980.
3. Grewal, S.S. and Mishra, P.R. 1981. Concept of social fencing for hill denudation control. Proceedings of workshop on Modern techniques of site

- identification for afforestation pasture development” held at IPI, Dehradun from October 21-22, 1981.
4. Mittal, S.P; Grewal, S.S; Mishra, P.R. and Agnihotri, Y. 1981. Economics development of small farmers of Shiwalik foot hills. Proceedings of seminar on ‘Transfer of Technology for Rural Development’ held at Lucknow from January, 9-10, 1981.
 6. Mittal, S.P; Grewal, S.S; Agnihotri, Y. and Mishra P.R 1980 Economics development of small farmers of Shiwaliks foothills Proceedings of National Symposium on Soil conservation and Water Management in Soils, held at CS&WCR&TI Dehradun for Feb 12-14, 1980.
 7. Grewal, S.S. and Juneja, M.L. 1989. Rainwater harvesting for supplementary irrigation to wheat in Shiwaliks. In Soil Conservation in India. (Eds.), R.K Gupta & M.L. Khybri, Jugal Kishore & Sons, Dehradun, pp 215-223.
 8. Grewal, S.S. and Abrol, I.P. 1987. Effect of rainwater conservation in alkali soils on tree and grass growth and soil amelioration. Proceedings of International symposium on afforestation of alkali soils, held at CSSRI Karnal on Feb 12-14, 1987.
 9. Grewal, S.S; Bansal, R.C. and Juneja, M.L. 1988. Faster siltation of Sukhna Lake, In. 13th Anniversary Sovenier of the Environment Society of Chandigarh, pp 16-20.
 10. Grewal, S.S; Juneja, M.L. and Singh, Kehar. 1989. Growth performance of *Eucalyptus tereticornis* (Smith) on two alluvial soils of north India. Proceedings of International Conference on ‘Fast Growing and Nitrogen Fixing Trees’ held at Phillips University of Marberg FRG from Feb, 8-12, 1989.
 11. Grewal, S.S; Mittal S.P; Surjit, Dyal and Agnihotri, Y. 1990. Studies on some agro forestry systems developed for soil and water conservation and sustained production from eroded Shiwaliks. Presented at International Symposium on ‘Natural Resources Management for a Sustainable Agriculture’ organized at New Delhi by Ind. Society of Agronomy from Feb 6-10, 2990.
 12. Grewal, S.S. 1990. Agroforestry for soil and water conservation and sustainable production from marginal lands. Proceedings of the International Symposium on Water Erosion, Sedimentation and Resource Conservation held from Oct 9-13, 1990 at The Central Soil and Water Conservation Research & Training Institute, Dehradun, (India), Vol. II, pp 173-179.
 13. Grewal, S.S. 1992. Soil fertility management on marginal lands. Proceedings of symposium on ‘Nutrient Management for Productivity’, The Punjab Agricultural University’ Ludhiana Punjab, Feb. 10-12, Vol. II.
 14. Grewal, S.S. 1992. Integrated watershed management for the development of degraded lands of Shiwaliks, Proceedings of the National Workshop on Watershed Management, Institute of Forest Management, Bhopal, Aug. 24-27, 1992, pp 30-35.
 15. Grewal, S.S; Singh, Gurmel and Abrol, I.P. 1992. Integrated watershed management for harmonizing relations between the barren hills and the poor people of the foothills of north India. Proceedings of the 7th International Soil Conservation Organisation Conference on ‘People Protecting their Lands, held at Sydney, Australia from 23-30 Sept., pp 288-298.
 16. Grewal, S.S. 1993. Agroforestry systems for Soil and Water Conservation in Shiwaliks. Proceedings, National Seminar on ‘Agroforestry in 2000 AD for

- the Semi arid and Arid Tropics', held at National Research Centre for Agroforestry, Jhansi (U.P) from March 4-5, 1993 pp 82-85.
17. Grewal, S.S. 1993. Management of tree and crop competition in farm forestry systems. Proceedings National Workshop on Farm Forestry Management held at Indian Institute of Forest Management, Bhopal from June 23-26, 1993. pp 26-29.
 18. Grewal, S.S. 1993. Assessment of resource competition in a tree-grass association. National Seminar on Development in Soil Science organised at the 58th Annual Convention of the Indian Society of Soil Science held at Dehradun from Oct. 8-12, 1993, pp 180-181.
 19. Partap Narain and Grewal, S.S. 1994. Agroforestry for Soil and Water Conservation; Indian Experiences. Paper presented at 8th International Soil Conservation Conference held at New Delhi from Dec. 4-12, 1994. PP 1407-1418.
 20. Grewal, S.S 1994. Conservation and production potential of a Eucalyptus – Bhabar grass association in an eroded alluvial soil of foothill north India. Paper presented at 8th International Soil Conservation Conference held at New Delhi from Dec 4-12, 1994 PP. 1442-1449.
 21. Grewal, 1995. Land and Water Management in north India: an assessment of success and failures in implementation of programmes. Paper presented at the International Workshop on Soil Conservation Extension: Concepts, Strategies, Implementation and Adoption; held at Chiangmai, Thailand from June 4-11, 1995.
 22. Grewal, S.S.1996. Community participation in watershed development. In Sustainable Development: Ecological and Socio-cultural Dimensions: Ed. K. Gopal Iyer, Vikas Publishing House, New Delhi, pp 210-217.
 23. Grewal, S.S.1996. Competitive and synergetic effects of some agroforestry systems evaluated for optimizing production and resource conservation. Proceedings of UFRO-DNEAS International meet on “Resource Inventory Techniques to Support Agroforestry and Environment”, held at DAV College, Chandigarh from October 1-2, 1996; pp 274-285.
 69. Grewal, 1996. Land and water management in north India: an assessment of success and failures in implementation of programmes. Paper presented at the International Workshop on Soil Conservation Extension: Concepts, Strategies, Implementation, and Adoption; held at Chiangmai, by the Department of Land Development Thailand from June 4-11, 1995.
 24. Grewal, S.S. 1997. Relative Performance of grasses raised for soil and water conservation in an agroforestry system. Paper presented at the 3rd Agricultural Science Congress held at PAU Ludhiana from March 12-15, 1997.
 25. Grewal, S.S. 1998. Rainwater harvesting to stabilize agricultural production in high risk farming systems of Shiwalik foothills. Paper presented at “International Symposium on Sustainable Agriculture in Hill Areas” organised by HPKV, Palampur from Oct. 29-31, 1998.
 26. Grewal, S.S. 1998. Environmental rehabilitation of highly fragile foothills eco-system of north India through participatory watershed management. Published in the proceedings of International conference on watershed management and conservation organised by the Central Board of Irrigation and Power at New Delhi from December 8-10,1998 pp 296-304.
 27. Grewal, S.S. 1998. Human resource development through professional trainings in IWDP (H). Paper presented at the national workshop on

- “Watershed Approach to Rainfed Farmings: Strategies for Integrated Watershed Development in Hill Regions; Organised by Rainfed Farming Division of the Ministry of Agri., Govt. of India at Vigyan Bhavan, New Delhi from May 1-2, 1998.
28. Grewal, S.S. 1998. Participatory management of watersheds to enhance agricultural production. Paper presented at the workshop on “Peoples Participation in Irrigation Systems Management to Enhance Agricultural Production”. Organised by ICAR’s Directorate of Water Management Research Patna (Bihar) from April 22-25,1998.
 29. Jain, T. C; Grewal, S.S. and Dogra, A.S. 1998. Rehabilitation of degraded Shiwalik ecosystem through integrated watershed management. In Principles and Practices of Integrated Watershed Management in India published by Indo-German Bilateral Project, New Delhi.
 30. Grewal, S.S. and Dogra, A.S. 1999. Favorable change in the hydrological behaviour of degraded watersheds rehabilitated under Kandi project of Punjab. Paper presented at regional workshop on “Improved moisture regime through afforestation” organised by the Eco-Development Board, Ministry of Environment and Forests, Govt. of India, New Delhi from April 20-21, 1999 at Chandigarh
 31. Grewal, S. S; Dogra, A.S. and Jain, T.C.1999. Poverty alleviation and resource conservation through integrated watershed management in a fragile foothills ecosystem. Paper presented 10th International Soil Conservation Organisation Conference on “Sustaining the Global Farm: Local action for land stewardship” organised at the Purdue University West Lafayette, Indiana, USA from May 23-28, 1999.
 32. Grewal, S.S. and Dogra, A.S. 2000. Addressing the challenges of land degradation: an overview and Indian perspective. Paper presented at the International conference on land Resource Management for Food, Employment and Environment Security. Organized by the Soil Conservation Society of Indian New Delhi from Nov. 9-14, 2000.
 33. Jain, T.C; Dogra, A.S; Grewal S.S; and Lohan H.S. 2000. Impact of Watershed Development on Environment of Fragile Ecosystems. Proceedings of the International Conference on “Land Resource Management for Food, Employment and Environmental Security; organized by the Soil Conservation Society of India at New Delhi from Nov. 9-24, 2001 pp 487-502.
 34. Dogra, A.S; Grewal, S.S. and Sharma Jitendra 2001. Integrating Technology and participatory approaches to watershed development in degraded ecosystems of India paper presented at the 3rd International conference on Rio de Janeiro of held at “Land Degradation: New Trends towards Global Sustainability.
 35. Grewal, S.S. and Dhar, S.K. 2004. Ground water recharge by rainwater management in shiwaliks of north India an – overview. News letter of the Punjab State Land use Board Deptt. Of Soil & Water Conservation Punjab PP 6-7 Research.
 36. Dhar,S.K. and Grewal,S.S. 2005. Desiltation of reservoirs of small earthen dams- technological options and lessons of experience. Paper presented at the National Conference on Watershed Management for Sustainable Production. Livelihood and Environmental Security, held at G.P. Pant University of Agriculture and Technology Pantnagar, Uttranchal from May 19-21, 2005 PP 55.

POPULAR ARTICLES

1. Grewal, S.S. 1973. Jamin dose nalian rahin sinchai. Changi Kheti(PAU) April 1973, pp 18-19.
2. Grewal, S.S. 1973. jamin padar Karan de labh. Changi Kheti (PAU) June 1973, pp 11-13.
3. Grewal, S.S. 1973. Pake Khal Jiwan Khushal. Changi Kheti (PAU) July 1973. pp 11-12.
4. Grewal, S.S. 1975. Jamin padar Karan de samasia. Changi Kheti (PAU) Dec. 1975, pp 9-11.
5. Sur, H.S. and Grewal, S.S. 1976. Unnat Kheti Lai Suchajja Jal Parbandh. Changi Kheti, (PAU) Nov. 1976. pp 22-25.
6. Grewal, S.S. 1991. Sukhi dalanon ke leye safeda avm bhabar ke upjogita. Haryali – A publication of Haryana Forest Department 2(8): 2-3.
7. Grewal, S.S. 2000. Integrated development of Kandi area. Television Talk over Doordarshan Jalandhar recorded on 12.12.2000 and Telecasted on 8.1.2001.
8. Grewal, S.S. 1999 Kandi Khetar De Bauhpakhi Unanti Li Kuz Dhukwen Upraly. Changi Kheti Jan 1999 PP 20-22.
9. Grewal, S.S. 1999. Watershed development in Shiwaliks. The Science Tribune. Aug. 15, 1999.
10. Sardana, V., Grewal, S.S. and Mahajan, G. 2003. Adapt to monsoon vagaries. The Tribune June 2, 2003. pp 16.

SOIL CONSERVATION NEWSLETTERS

1. Grewal, S.S. and Juneja, M.L. 1985. Eucalyptus tereticornis gives better root development in auger holes than pits under rained conditions of Chandigarh region. Soil Conservation Newsletter 4(1): 10.
2. Grewal, S.S. 1985. Punjab Govt. adopts our Sukhomajri model for soil and water resource development in Kandi area. Soil Conservation Newsletter 4(1): 13.
3. Grewal, S.S. and Juneja, M.L. 1985. Soil moisture depletion by Eucalyptus grown for fuelwood on a sandy soil. Soil Conservation Newsletter 4(2): 7-8.
4. Grewal, S.S. 1985. Parchh -a pioneering project of watershed management in Punjab. Soil Conservation Newsletter 4(3): 9-10.
5. Grewal, S.S. 1988. Co-operative efforts of Sukhomajri people in protecting forest catchments bring many benefits. Soil Conservation Newsletter 7(1): 9-10.
6. Grewal, S.S. and Dhar, S.K., 2004. Ground water recharge by rainwater management in north India – an over view. SLUB NEWS – Punjab State Land use Board, Department of Soil & Water Conservation Punjab. pp 6-7.

Annexure II

I LIST OF BOOKS

1. Singh, Gurmel; Arora, Y.K; Pratap Natian and Grewal, S.S. 1990. Agroforestry Research in India and other Countries. Surya Publishers, 4-b Nasville Road, Dehradun, India. pp 1 – 189.

II Book Chapters

2. Grewal, S.S. and Dhillon, G.P.S. 1994. Traditional agroforestry in Punjab and Haryana states. In Agroforestry Traditions and Innovations (Eds.),. Narain, P; Dadwal, K.S and Singh, R.K. Central Soil and Water Conservation Research and Training Institute, Dehradun pp 24-30.

3. Grewal S.S. 2000. Capacity building in technical aspects of Integrated Watershed Development Project (Hills). In. Mittal, S.P; Aggarwal, R.K. and Samra, J.S. Fifty Years of Research on Sustainable Resource Management in Shivaliks. Publication of the Central Soil and Water Conservation Research and Training Institute Research Centre Chandigarh. Pp 199-208.
4. Agnihotri, Y; Mittal, S.P. and Grewal, S.S. 1986. Socio economics of soil conservation in India. In. Soil Conservation in India. (Ed.) R.K. Gupta and M.L. Khybri, Jugal Kishore & Sons, Dehradun, pp 323-329.
5. Grewal, S.S.1995 Hoshiarpur torrents – their extent, causes, characteristics and control measures. In Sastry, G; Sharda, V.N; Jugal, G.P and Samra, J.S.(Eds.) Torrent Menace; Challenges and opportunities; Publication of Central Soil and Water Conservation Research and Training Institute, Dehradun (India). pp 46-47.
6. Grewal, S.S.1995. Central Training Facility for IWDP (Hills): Highlights and future strategy. Proceedings of the Workshop on “Implementation Strategies to Improve Sustainability and Replicability of Integrated Watershed Development Project (Hills), held at Chandigarh from Dec. 6-8, 1995; A Publication of the Directorate of Extension Education, Punjab Agricultural University Ludhiana pp.55-58.
7. Sur,H.s., Grewal,S.S andHanda,M.s.2002. Biodiversity andenvironment conservation. In. Singh,G Kolar,J.S.and Sekhon,H.S(EDS). Recent advances in Agronomy. Indian Society of Agronomy,IARI,New Delhi.
8. Grewal, S.S. 2007, Water resource development and their utilization in Shivalik foothills. In Arora, Sanjay; Kukal, S.S. and Sharma V.9Eds). Natural Resources Management for Sustainable Hill Agriculture Soil Conservation Society of India Jammu Chapter pp. 192- 195. University of Agricultural Sciences and Technology – Jammu.

Dr. S.S. Grewal