

CURRICULUM VITAE



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1. Personal information

Name	Mohammad Akmal	Father's name	Sher Mohammad
Nationality	Pakistani	Date of birth	04.01.1962
Place of birth	NWFP, Nowshera	Religion	Islam
Family background	Farming		
Specialisation	Crop Production with special emphasis on forage and fodder crop production		
Experience	Twenty four years teaching, research and out-reach experience in the field of Crop Production (Agronomy)		
Languages	Read, write and speak fluently English, German (Deutsch), Urdu, Pushto and Punjabi.		
Present address			
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Marital status	Married		
Assignment	I can work and travel to any area in and out side the country		

2. Academic Record

2.1. School Education

1978	S.S.C. (Secondary School Certificate) studied in the Govt. High School No. 2 Nowshera Cantonment, Pakistan and passed from Board of Intermediate and Secondary Education Peshawar, Pakistan.	
1980	F.Sc. (Higher Secondary School) studied in Govt. Degree College Nowshera and passed from Board of Intermediate and Secondary Education Peshawar, Pakistan.	

2.2. University Education

1981-1985	B.Sc. (Hons.) Agronomy	NWFP Agricultural University Peshawar, Pakistan.
1985-86	M.Sc. (Hons.) Agronomy	NWFP Agricultural University Peshawar, Pakistan.
1992-94	MS Resource Management	University Bonn, Germany.
1994-97	Ph.D. Forage Grasses	University Bonn, Germany.
1999	Post doc. ¹⁵ N distribution	University Bonn, Germany.
2002-03	Post doc. Growth mechanism	Tokyo University of Agriculture and Technology, Japan.
2005	Post doc. C ₃ /C ₄ and CO ₂ increase	Technical University Munich Germany.
	Climate Change and crop growth	

3. Additional experience

1991	Completed Audio Video Course on setting of the Slides and Transparency at the NWFP Agricultural University Peshawar under US-AID Programme.
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1992	Completed six months German Language Course in Goethe Institute Freiburg as well as in the International Centre of the University Bonn, Germany and awarded with the proficiency certificates (PNdS).
1993/94	Worked as a guest student on remote sensing (rays effect on wheat and sugar-beet growth) in the Institute of plant Production, University Bonn, Germany.
1994	Completed an intensive postgraduate course organised by the University of Hohenheim, Stuttgart Germany, on "Legumes in the Cropping System of the Tropics and Subtropics" and awarded with a certificate.
2002	Participated in two weeks international course "International course on vocational education and teaching in Agriculture (CIEA)" in College of International Education in Agriculture, Switzerland.
2002	Invited as a Resource Person for the workshop on 'Knowledge Management in Development Intervention' organized for the national/international advisors working in various SDC-IC projects in Pakistan.
2002	Invited as consultant to talk on 'Rod-kohi farming system' in consultative workshop on concept and strategy planning for project for Livelihood Improvement (PLI) sponsored by Swiss Agency for International Development.
2007-09	Worked as consultant fodder production in SLSP; in EU-funded project in NWFP Livestock Department

4. Experience

Jul. 1987 to Oct. 88	Worked as Research Officer in Oil Seed Section, NWFP Agriculture Research System by NWFP Public Service Commission.
Oct. 1988 to Mar. 96	Worked as Lecturer to teach graduate and under graduate students of Agronomy, NWFP Agricultural University Peshawar.
Nov. 1994 to Nov. 97	Worked as Scientific Assistant in Pflanzenbau Institute of the University Bonn, Germany.
Mar. 1996 to Aug. 2000	Worked as Assistant Professor to deal with Teaching, Research and Outreach activities in Agronomy Department, NWFP Agricultural University Peshawar.
Sep. 2000 to Apr. 2003	Worked as Associate Professor for teaching both graduate and postgraduate courses in Agronomy, crop physiology in addition to thesis and dissertation research conducted faculty research work in the province.
Apr. 2003 to date	Working as Professor in Department of Agronomy, Agricultural University, Peshawar.
Feb. to Jun. 1995	Teaching Assistantship to prepare lectures material for Prof. Dr. P. Sculz-Lammers in Institute of Landtechnik, University Bonn, Germany.
Jun. Jul 1006	Assistantship for two months to compile experimental research data in logical presentation to Dr. J. Schellberg in the Institute of Pflanzenbau, University of Bonn, Germany.
Jan. to Oct. 1997	Assistantship to help under graduate students in research conducting and data collection on experiments under guidance of Prof. Dr. Marc J. Janssens in Institute of Obst- und Gemüsebau, University of Bonn, Germany.
Jan. to Sep. 2003	Conducted lectures to postgraduate students in Tokyo University of Agricultural and Technology, Japan.

5. Research Supervised

Major Advisor of the B.Sc (Hons); M.Sc (Hons) thesis and PhD Dissertation in Agronomy Department, AUP since 1998 to date

6. Participation in National/International Seminars/conferences/workshops

- i. Participated in five days National Oilseed travelling seminar in Punjab, PARC Islamabad (1987).
- ii. Participated in five days National travelling seminar on Groundnut in Pakistan, PARC Islamabad (1987).
- iii. Participated in two days planning and development meeting on ground cultivation in Pakistan, PARC Islamabad (1988).
- iv. Participated in one week Basic course in teacher development under TIPAN, NWFP Agricultural University, Peshawar (1988).
- v. Participated in five days National travelling seminar on Groundnut in Pakistan, PARC Islamabad, Pakistan (1989).
- vi. Attended computer research methodology workshop (July 7-19, 1990) at NWFP Agricultural Univ. Peshawar (1990).
- vii. Attended course on International agricultural research in the Univ. of Bonn, Germany and prepared a special paper on ICARDA (1993).
- viii. Participated in four days planning meeting on forage production and scope in Pakistan, NARC Islamabad, Pakistan (1996).A
- ix. Attended weekend seminars on different aspects of the developing countries held in Goettingen, Germany (1996-1997).
- x. Participated in three days International conference for food, industry and livestock on sustainable agriculture in Brown-schweig, Germany (1997).
- xi. Participated in a three days International conference on tropical fruit production in the Institute of Tropical Plant Production, University of Bonn, Germany (1999).
- xii. Organised one week course on forage production for the training of trainers in NWFP Agric. University, Peshawar (1999).
- xiii. Field day/workshop on winter forage crops in Abbottabad, Pakistan arranged by National Resource Conservation Project and the Word Conservation Union (2000).
- xiv. Participated in two days workshop on "Sustainable Livestock Development in NWFP" organised by the Directorate of Livestock and Dairy Development in collaboration with IUCN in Peshawar (2000).
- xv. Organized workshop on forage and fodder situation in NWFP at Agricultural University, Peshawar. Organised by the world conservation union (IUCN) Peshawar (2001).
- xvi. Arranged and presented two field/farmers' gathering day one in Abbottabad and other in Mansehra on the demonstration plots planted under a demo project funded by the Govt. of NWFP (2001).
- xvii. Organised one presented in a day workshop on rainfed agriculture in NWFP sponsored by the Swiss Development for Inter co-operation (SDC-IC) in Peshawar (2002).
- xviii. Attended two days workshop on natural resource management arid zone agriculture replicable model in Pearl Continental, Peshawar by UNDP (2002).
- xix. Managed and conducted orientation briefing to growers on summer crops cultivation under rainfed conditions in Rod-kohi, D.I. Khan. Accompanied and sponsoring by natural Resource Management Team, SDC-IC, Peshawar (2002).
- xx. Organised and attended 03 days workshop on 'Poverty alleviation through sustainable agriculture development, July 25-27 at Bara Gali, Abbottabad (2002).
- xxi. Visiting scientist invited to Institute of National Research in Agronomy (INRA), France, department of Eco-physiology, meeting with Director and staff, discussed and briefed on current projects on drought stress. Back stopping visits to different herbal field and factories in Switzerland and France funded by SDC-IC (2002).
- xxii. Attended 215th two days Crop Science Society Conference at Chiba University, Japan (2003).
- xxiii. Delivered lectures on Pakistan Agriculture to the graduate and post-graduate students in TUAT, Japan (2003).
- xxiv. Attended and participated in 216th 2 days Crop Science Society Conference at Matsue University, Japan (2003).
- xxv. Attended a national workshop on 'Wealth generation through research' organised by the Pakistan Science Foundation, Islamabad on Jan 3, 2004.
- xxvi. Attended a national workshop on 'Emerging challenges of food security and open market' organized by AUTA, NWFP Agric. Univ. at Baragali, Abbottabad (Jul. 23- 26, 2004).

- xxvii. Participated in HEC national symposium on awareness of Parthenium weed' University of Punjab, Lahore (Aug. 6-7, 2004).
- xxviii. Delivered a seminar on growth mechanism to faculty staff of Botany Department, Balochistan University, Quetta (2005).
- xxix. Participated and presented a paper in international conference on biotechnology for salinity and drought tolerance in plants, Pakistan Academy of Sciences, Islamabad March 28-31, 2005.
- xxx. Participated in a national workshop on 'Sharing experiences on dry-land management and rehabilitation in Pakistan'. Pearl Continental Hotel, Peshawar. Organized by Swiss Development cooperation and inter-cooperation (SDC-IC). Jun 21 – 23, 2005.
- xxxi. Invited for a lecture to University Bonn, Germany to present a lecture on growth mechanism and current status of C₃-C₄ plants in grassland of Pakistan, August 17-20, 2005.
- xxxii. Invited resource person for lecture in young professional training workshops "Agriculture in FATA" Mar. 04-05, 2006; April 20, 2006; Aug. 03, 2006.
- xxxiii. Invited for lecture to Rural Academy of Peshawar for lectures on in-service training workshops on climate change and crop productivity (2006).
- xxxiv. Invited as Expert in National Fodder Planning Workshop held at NWFP AUP on Sep. 18-20, 2006.
- xxxv. Invited for Oral Presentation to Nutrition Conference at University of Agriculture Faisalabad, organized by NAP on Feb. 22-24, 2007.
- xxxvi. Travelled as local consultant with EU consultant Dr. V Borozom from France to Punjab fodder production regions for technical know how, Sponsored by European Union SLSP-NWFP. March 18-22, 2007.
- xxxvii. Educate growers of NWFP by travelling them to Punjab fodder production regions for technical know how, Sponsored by European Union SLSP-NWFP. May 13-18, 2007.
- xxxviii. Invited resource person for lectures to young professional & growers training workshops "Fodder production in NWFP" Jun. 05-10, 2007.
- xxxix. Invited resource person to present paper on fodder production an status in relation to Rangeland improvement. National workshop on sheep and goats organized by Jaba Sheep farm Abbottabad. Jun 19-21, 2007.
- xl. Invited resource person to organized and conduct training of potential growers in different areas in Chitral. The funds released by SLSP under Pak-EU project. Three demonstration were held in Bamboriyat, Garam Chishma and Chitral from July 23 to July., 26, 2007.
- xli. Invited as resource person to organized and conduct training of fodder growers in Nowshera and Mardan. The funds released by SLSP under Pak-EU project. Sep. 2007.
- xlii. Worked as consultant to organized and conduct training of Trainers in Mansehra and AJK in November 2007. The funds released by Relief International, CNFA-US-AID under earth quake rehabilitation program.
- xliii. Nine lectures on fodder production aspects e.g. opportunities, productions, improvement and calendar etc. to growers of FTA in AUP during Feb. to Aug. Sponsored by FATA Secretariat NWFP.
- xliv. Three growers workshops in 3 locations in Chitral from 1.04.2008 to 10.04.2008 on feed and fodder production for the training of growers. Sponsored by SLSP-EU-funded project.
- xlv. Three growers workshops in 3 locations in Chitral from 1.04.2008 to 10.04.2008 on feed and fodder production for the training of growers. Sponsored by SLSP-EU-funded project.
- xlvi. Organized workshops for restoration of students Union in Pakistani Universities in Dec. 2008. Sponsored by Action Aid, Islamabad.
- xlvii. Two days consultancy meeting with local growers in Abbottabad and Mansehra on fodder situation and cropping pattern. Schedule on March 26-27, 2009 in Abbottabad. Organized by SANGI Development Organization and sponsored by SLSP, EU.

7. Additional Academic Tasks

- Member of IUCN committee for Fodder and Forage Development for the Sustainable Livestock in NWFP, Pakistan.
- Convenor of time-table, curriculum and scheme of studies, NWFP Agricultural University, Peshawar.
- Worked as Additional Director Teaching of NWFP Agricultural University Peshawar (1999-2002).
- Worked as Associate Editor in 'Sarhad Journal of Agriculture' of NWFP Agric. University, Peshawar since 1999 to 2004.

- Member of the prospectus editing and review committee, NWFP Agricultural University, Peshawar 2002-3 & 2006-07.
- Member of the National Curriculum Review Committee (NCRC) for Agronomy. Higher Education Commission, Islamabad 2000 & 2005.
- Member Crop Science Society of Japan 2002-2004
- Member Agronomy and Crop Science Society of USA 2004-todate
- Working as Focal Person Higher Education Commission (HEC) for Sponsored students in Agric. Univ. Peshawar since 1996.
- Working as Additional Director Advanced Studies and Research w.e.f. 30.05.2010.

8. Other task

- Warden in hostels of the NWFP Agricultural Universities Peshawar (1989-1092)
- Secretary for the Teacher Foundation in the NWFP Agricultural University Peshawar (1999-2000)
- Consultant for IUCN to develop status paper on scope of forage and fodder in NWFP(2001)
- Consultant on 'Rainfed Agriculture in D.I. Khan' for Swiss Agency for Development and Co-operation (SDC) 2002.
- Member advisory committee (PLI-AUP) for Swiss Development Cooperation from 2003 to 2005.
- Working as consultant for "Strengthening livestock services program" sponsored by Pak-EU, Government of NWFP (2007-09).

9. Research projects

- Complete a research project funded under OSPACS-IUCN program of PE&DD Govt. of NWFP under the title "Demonstration of production technology of summer grass-legumes mixture at Mansehra and Chitral (1999-2000).
- Complete research project funded by OSPACS-IUCN program of PE&D Department, Government of NWFP under the title "Sustainable yield increase of cereal through production management" in Hazara Division (2000-2001).
- Complete independent research project funded by the Swiss Agency for Development and Co-operation, Peshawar under the subject "Action Research in rainfed Agriculture' in D.I. Khan" (2001-2002).
- Complete a project funded by the Pakistan Science Foundation under the title 'Evaluation of morphological and physiological plant traits adopting as forage under stresses'. Final report has been evaluated and accepted (2001-2004).
- Complete a project funded by Higher Education Commission on 'On farm water budget evaluation of forage under cultivation in the region' (2003-2005).
- Complete a project on varieties screening and evaluation under drought stress in Rod Kohi area, funded by Swiss Development Cooperation-Inter cooperation (PLI) 2004-2005.
- Complete a project funded by Higher Education Commission on 'Potential species identification and evaluation as efficient resource capture and utilization for forage in remote sectors of NWFP'. Final report submitted and approved (2004-2007).
- Complete a project funded by Higher Education Commission on 'Radiation interception and use efficiency of spring and summer maize under N applications and plant population'. Final report submitted and approved (2005-2006).
- In progress a project funded by Higher Education Commission on 'Corn yield improvement through nutrient and resource capturing in NWFP' (2007- 2010).
- Complete a project funded by Higher Education Commission on 'Computer Lab establishment for graduate and post graduate students in Agronomy" (2007-2009).

10. Reviewed Publications

a. Impact Factor Journals

1. Hatam, M., M. Akmal and G.H. Jamro. 1993. Seasonal pattern of nodal and diurnal reproductive abscission in three soybean cultivars. *Pak. J. Bot.* 25 (2):167-174.
2. Akmal, M. and Tadashi Hirasawa. 2003. Growth response of the seminal roots of wheat seedling to reduction in water potentials of vermiculite. *Japanese J. Crop Sci.* 72: 260-261.
3. Akmal, M and M.J.J. Janssens. 2004. Productivity and light use efficiency of perennial ryegrass under contrasting water and N supplies. *Field Crops Research* 88: 143-153.
4. Akmal, M and T. Hirasawa. 2004. Growth response of seminal roots of wheat seedlings to a reduction in the water potential of vermiculite. *Plant and Soil* 267: 319-328.
5. Raziuddin, J. Bakht., Z.A. Swati, M. Shafi, Farhatullah and M. Akmal. 2010. Effect of cultivars and culture medium on callus formation and plant regeneration from mature embryo of wheat (*Triticum aestivum* L.). *Pak. J. Bot.* 42(1): 639-652.
6. Farhatullah, R.W. Goose, Raziuddin, N.U. Khan, M. Akmal and M. Inayatullah. 2010. Increase in frequency of the RPG_4 locus in Soybean cultivars. *Pak. J. Bot.* 42(2): 997-1002.
7. Akmal, M., Hameed-ur-Rehman, Farhatullah, M. Asim and H. Akbar. 2010. Response of maize varieties to nitrogen application for leaf area profile, crop growth and yield components. *Pak. J. Bot.* 42(3): 1941-1947.
8. Akmal, M. J. Schellberg, and R.A. Khattak. 2010. Biomass allocation and Nitrogen distribution in plant of ryegrass under water and Nitrogen supplies. *J. Plant Nutrition* 33 (12):1177-1188.
9. Farhatullah, R.W. Goose, Raziuddin, N.U. Khan, M. Akmal and M. Inayatullah. 2010. Mapping gene for bacterial blight (RPG_4 locus) in Soybean. *Pak. J. Bot.* 42(3): 2145-2149.
10. Naushad, A.T., Farhatullah, M. A. Rabbani, N. U. Khan, M. Akmal, Z. H. Pervaiz and M. U. Aslam. 2010. Study of total seed storage protein in indigenous *Brassica* species based on sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE). *African J. Biotechnology* 9(45): 7595-7602.
11. Khalid, M., Farhatullah, Naqibullah Khan, Raziuddin, M. Yasir Khan, M. Akmal and Nasir Ali. 2010. Linkages of Morphological Markers in *Brassica*. *Pak. J. Bot.*, 42(5): 2995-3000.
12. Raziudin, Z. A. Swati, J. Bakht, Farhatullah, Naqibullah, M. Shafi, M. Akmal and G. Hassan. 2010. *In Situ* Assisment of Morpho-physiological response of wheat (*T. aestivum* L.) genotypes to drought. *Pak. J. Bot.*, 42(5): 3183-3195.
13. Raziuddin, Farhatullah, G. Hassan, M. Akmal, S. S. Shah, Naqibullah, F. Mohammad, M. Shafi, J. Bakht and W. Zhou. 2011. Effects of Cadmium and salinity on growth and photosynthesis parameters of *Brassica species*. *Pak. J. Bot.* 43(1):333-340.

14. Akmal, M., U. Farid, M. Asim and Farhatullah. 2011. Crop growth in early spring and radiation use efficiency in alfalfa. Pak. J. Bot. 43(1): 635-641.
15. Habib, G., M.F. Hassan, M. Akmal, S. Ahmad, and Ghufranuallah. 2011. Maize response in cereal based rotation with legume as catch crop. Pak. J. Bot. 43(1): **in press**.
16. Naushad, A.T., Raziuddin, Farhatuallah, N.U. Khan., G. Hassan, M. Akmal, J. Bakht and S. Khan. 2011. Combining ability for yield related traits in *Brassica juncea*. Pak. J. Bot., 43 (1): **In ress**
17. Akmal, M., S.M. Shah, M. Asim and M. Arif. 2011. Causes of yield reduction by delay planting in Hexaploid wheat. Pak. J. Bot. 43(3): **in press**
18. Akmal, M. Uzma, F., M. Asim, Raziuddin and Farhatullah. 2011. Growth comparison of the exotic species for green forage yield. Accepted in Pak. J. Bot. 10-072.
19. Asim, M., M. Akmal, A. Khan, Farhatullah and Razziuddin. 2010. Rate of nitrogen application influence yield of maize at low and high populations in North-west, Pakistan. Accepted in Pak. J. Bot. Ref. 10-121.
20. Asad Shah, R. Gohar, and M. Akmal. 2010. Seminal root of maize varieties in relation to reduction in the substrates moisture content. Accepted in Pak. J. Bot. Ref. 10-071.
21. Akmal, M. Anwar M., A. Shah, M. Asim, R. Gohar and Raziuddin. 2010. Growth and yield comparison of perennial grasses as rainfed fodder on marginal lands. Accepted in Pak. J. Bot.
22. Akmal, M., M. Asim and R.A. Khattak. 2010. Maize response to yield and yield traits with different N and density under the climate variability. Under review in J. Plant Nutrition.
23. Akmal, M., R. Schaeufele, and H. Schnyder. 2011. C₃ plant expansion in grasslands of Pakistan: estimated from ¹³C signature of the local wool products. Under review in European J. Agronomy.
24. Asim, M., M. Akmal, Farhatuallah and Raziuddin. 2011. Crop growth and Radiation Use Efficiency of spring and summer maize planted with different Plant population and Nitrogen rates. Under Consideration in Field Crops Research.

b. Other Journals

HEC Approved Journals

25. Akmal, M. J. Schellberg and W.Kuehbauch. 1999. Production and Quality of Forage Grasses under Two N-levels and Water Regimes. Sarhad J. of Agric. 15(2): 93-101.
26. Shah, S.M. and M. Akmal. 2002. Effect of different sowing date on yield and yield components of wheat varieties. Sarhad J. Agric. 18(2): 143-149.
27. Akmal, M. Fazle-Subahan and M. Sajjad. 2002. Clovers' forage production as sole and in mixture with cereals in different combination under partial drought. Sarhad J. Agric. 18(2): 151-159.

28. Habib, G., M. Akmal, Z. Luqman and N. Ahmad. 2007. Biomass production and feed quality of three summer fodder species planted under two nitrogen levels. *Sarhad J. Agric.* 23(4):1145-1149.
29. Habib, G., A. Hameed and M. Akmal. 2007. Current feeding management of peri-urban dairy buffaloes and scope for improvement. *Pak. Vet. J.* 27:35-41.
30. Sikandar Azam. M. Akmal, M. Amjad and wasiullah. 2008. Extension of green forage supply duration of cereal-legume in combination of different seeding rates. *Sarhad J. Agric.* 24:415-422.
31. Jalil, A, S. Ahmad, G. Habib, and M. Akmal. 2009. Kutta Sheep an endangered breed in northern Pakistan. *Sarhad J. Agric.* 25(2): 278-284.
32. Wasiullah, A.U. Bhatti, F. Khan and M. Akmal.2010. Spatial variability and geo-statistics application for mapping of soil properties and nutrients in semi arid district Kohat of Khyber Pakhtunkhwa (Pakistan). *Soil & Environ.* 29(2): 159-166 .
33. Akmal, M., N. Kausar, G. Habib, M. Asim, S. Ahmad, and N. H. Shah. 2011. Yield comparison of forage legumes under partial stress and normal irrigation. *Sarhad J. Agric.* 26(4):507-513.

Other Journals and Conferences

34. Akmal, M., J. Schellberg, and M. Janssens. 1999. Influence of Water and Nitrogen Supply on Leaf Growth and Development at Different Nodal Position of Ryegrass. *Pak. J. of Biol. Sci.* 2 (1): 121-123.
35. Akmal M., S. Mumtaz Shah and M. Asim. 2000. Yield performance in three commercial wheat varieties due to flag leaf area. *Pakistan J. of Biol. Sci.* 3(12): 2722-24.
36. Akmal, M. and Zulfiqar. 2002. Production and quality of millet (*Pennisetum typhoidum* L.) germplasms for fodder. *Pak. J. of Biol. Sci.* 5(5):539-542.
37. Akmal, M. Zulfiqar and M. Asim. 2002. Forage yield and quality evaluation of the sorghum varieties. *Paki. J. Agron.* 1(2-3): 60-63.
38. Azam, S., M. Akmal and M. Amjad. 2004. Forage productivity and supply season of grass-legume mixture with different seed rates in partial drought. Considered for presentation to Animal Nutrition Conference to be held at PC Lahore on Dec. 01-3, 2004.
39. Akmal M., M. Asim and Gul Daraz Khan. 2006. Root length to weight ratio and water use efficiency of perennial ryegrass in contrasting water and nitrogen supply. *The Nucleus* 42(3-4):207-211.
40. Schellberg, J., M. Akmal und W. Kuehbauch. 1994. Trockenmass-produktion, Blattflaeschchenentwicklung und Lichtaus-nutzung in Rainsaat und Gemenge von *Lolium multiflorum* Lam. und *Trifolium resupinatum* L. bei frueher und spaeter saat. (Dry matter production, leaf area development and radiation use efficiency in pure and mixture of *Lolium mltiflorum* Lam. and *Trifolium resupinatum* L. as influenced by early and late sowing date). Forage Society Conference in Tuingen, Germany. p. 182-185.
41. Akmal, M., J. Juergen, und W. Kuehbauch. 1995. Trockenmass-bildung und N-aufnahme

von Deutsch Weidel-grass unter wasserstress. (Dry matter development and N-uptake in english ryegrass under drought stress). Arbeit-gemeinschaft Gruenland und Fuetterbau in der Gesellschaft von Pflanzenbauwissenschaften. 39. Jahrestagung von 31st Aug.-2nd Sep. in TU-Munich, Germany. p. 169-173.

42. Janssens, M., B. Nolden, A. Mierowska, M. Akmal, H. Obaid und Y. Quenum. 1997. Einsatz gartenbaulicher Methoden zur Adaptation subtropischer Gemuesearten. (Application of the garden methods in the adaptation of subtropical vegetables types). Poster AID Bonn, Feb. 1997.
43. Akmal, M. 1997. Growth of Forage Grasses under Different Water Regimes and Nitrogen Supply Levels. ISBN 3-8265-3148-5. Shaker verlag, Aachen Germany.
44. Hans Schnyder, Mohammad Akmal, Fernando A Lattanzi¹, Karl Auerswald¹, and Rudi Schäufele. 2006. ¹³C signature of old and modern carpets reveals expansion of C₃ plants in grasslands of Pakistan. Poster Presentation in BASIN-SIBAE conference held in Portugal, March 15, 2006.
45. Akmal, M. and T. Hirasawa. 2009. Root and shoot growth, branch system mechanism under water potentials of vermiculite in wheat. In process.

11. Reports submitted

1. Hatam M. and M. Akmal. 1999. Proceeding of training course in fodder production. September 13-18, Faculty of Crop Production Sciences, NWFP Agric. University, Peshawar and IUCN.
2. Hatam, M., G. Habib, M. Akmal and M. Siddique. 2001. Status paper on the establishment of fodder and forage discipline at NWFP Agric. Univ. Peshawar. 160 pp.
3. Akmal, M. and Farhatullah. 2002. Sustainable yield increase of cereals through production management. Project completion report submitted to OSPSCS, P. E. and D. Department, Govt. of NWFP, Peshawar.
4. Hatam, M and M. Akmal. 2002. Fodder production and performance report submitted to NARC, Islamabad.
5. Akmal, M. 2002. Evaluation of morphological and physiological plant traits adopting as forage under stresses. First annual report submitted to Pakistan Science Foundation.
6. Akmal, M and G. Habib. 2002. Facts and figures based on survey conducted on crop production and livestock management in Draban Zam, Rod-Kohi, D.I.Khan submitted to SDC-IC, Peshawar.
7. Nizami, A and M. Akmal. 2002. Visit of Switzerland and France: performance and achievement. Submitted to CIEA, Friburg and SDC-IC, Bern, Switzerland.
8. Akmal, M and G. Habib. 2003. Action Research in Rod-Kohi, D.I. Khan. Final report based on information collected from interview and practical research in the region. Submitted to SDC-IC, Peshawar.
9. Akmal, M. 2003. Evaluation of morphological and physiological plant traits adopting as forage under stresses. Second annual report submitted to Pakistan Science Foundation.
10. Akmal, M. and S. Azam. 2004. Evaluation of morphological and physiological plant traits adopting as forage under stresses. Final annual technical report submitted to Pakistan Science Foundation.
11. Akmal, M. 2005. Performance of summer cultivated crops in the project area. A report submitted to Project for Livelihood Improvement in D.I. Khan.
12. Akmal, M. and S. Azam. 2006. Potential species identification and evaluation as efficient resource capture and utilization for forage in remote sectors of NWFP. First

- annual report submitted to HEC, Islamabad.
13. Akmal, M. and S. Azam. 2006. On farm water budget and consumptive use of sole and mix forage production under different moisture regimes. Final report submitted to HEC, AUP.
 14. Akmal, M. and S. Azam. 2006. Potential species identification and evaluation as efficient resource capture and utilization for forage in remote sectors of NWFP. Second annual technical report of the project submitted to HEC, Islamabad.
 15. Akmal, M. and M. Anwar. 2008. Potential species identification and evaluation as efficient resource capture and utilization for forage in remote sectors of NWFP. Final Technical report submitted to HEC, Islamabad.
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21. Awards

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