ACKNOWLEDGEMENT

I consider it my privilege in expressing deep admiration and immense gratitude to Dr. (Capt.) G.K. Shrivastava, Senior Scientist, Department of Agronomy and supervisor for his meticulous guidance, calm endurance, constant encouragement and sustained support on each and every aspect of this investigation.

I am equally grateful to the co-supervisor Dr. M.L. Naik, Professor and former, Head of the Department of Bio-science, Pt. R.S.U., Raipur and Ex-Director General of C.G. Council of Science & Technology for his full-fledged co-operation, able guidance and valuable suggestion.

I gratefully acknowledge the constant encouragement and unending benevolence of Dr. R. Lakpale, Scientist, Department of Agronomy, whose diligent support could lead to timely completion of this work.

I am thankful to Dr. B.P. Chandra, Hon'ble Vice Chancellor, Pt. R.S.U., Raipur and Dr. C.R. Hajra, Hon'ble Vice Chancellor, Indira Gandhi Agricultural university, Raipur, Dr. M.N. Shrivastava, Director of Research, Dr. R.B. Sharma, Director of Extension, Dr. Sunil Puri, Director of Instruction, Dr. R.S. Tripathi, Ex-Director of Research, Dr. A.S.R.A.S. Shastry, Dean, College of Agriculture, Raipur and Shri K.C. Paikra, Registrar, IGAU, Raipur, Dr. K.K. Chandrakar, Registrar, Dr. B.P. Sahu and Shri Victor Ekka, Deputy Registrars, Pt. R.S.U., Raipur for providing necessary facilities during the course of investigation.

My special thanks to all the distinguished faculty members of Bio-Science Department of Pt. R.S.U., Raipur namely Dr. V. Rai, Professor and Head, Dr. S.K. Mishra, Dr. A.K. Pati, Professors; Dr. A.K. Gupta, Dr. (Smt.) A. Poddar, Dr. S.C. Naithani and Dr. (Smt.) V. Koche, Dr. (Smt.) R.K. Pradhan and Dr. S.K. Jadhav, Readers; Dr. (Smt.) A. Parganiha, Dr. K.K. Sahu and Dr. (Ku.) A. Tirkey, Lecturers and Dr. Arvind Agrawal and Dr. (Smt.) Sanju Sinha, Research Associate for their encouragement, timely advice and full fledged cooperation at all the stages of Ph.D. programme.

I take this privilege to express my sincere thanks to Dr. B.L. Chandrakar, Professor & Head, Department of Agronomy, Dr. B.S. Joshi, Ex Professor and Head, Agronomy, Dr. J.S. Urkurkar, Chief Scientist, CSR Project; Professors Dr. R.L. Pandey, Dr. S.S. Kolhe, Dr. O.P. Tiwari, Dr. S.K. Taunk, Dr. S.R. Patel, Dr. V.K. Gupta; Soil Scientists Dr. R.K. Bajpai and Dr. Anurag; Senior Scientists Dr. N. Pandey, Dr. N.K. Choubey, Dr. A.P. Singh, Dr. S.K. Sarawgi, Shri P. Dubey, Shri Ramagya Singh, Shri S.K. Shrivastava, Dr. M.L. Sharma, Dr. G.P. Pali,
Dr. A.L. Rathore, Dr. R.N. Sharma, Dr. H.C. Nanda, Dr. N. Khare, Dr. T.D. Pandey, Dr. K.L. Nandeha, Dr. K.K. Purohit, Dr. G.S. Tomar, Dr. S.N. Khajanji, Dr. G.K. Das; Scientists Dr. S.S. Tuteja, Dr. V. Tripathi, Dr. H.G. Sharma, Shri Geet Sharma, Shri Anil Kumar Verma and Dr. Alok Tiwari; Meteorologists Shri Diwakar Naidu and Shri Somnath for their co-operation, valuable suggestions and encouragement during the course of study. Thank’s are also to my Ph.D. mates Shriyut Shrikant Chitale, Rambir Singh Rajput, Praveen Mishra and Dinesh Pandey, who have helped me a lot for field and laboratory work and extended their support as and when I needed. I am thankful to all the other staff members of Department of Agronomy especially to Mr. J.P. Verma, Mr. R.P. Pal, Mr. G.P. Verma, Mr. Khelawan Patel for their help and co-operation in field, office and laboratory work.

I am extremely indebted to Late Dr. R.K. Mishra, Ex. Registrar, IGAU, Raipur, who is not with me in this world. But his blessing always remains with me. I pay homage to him. I feel pleasure to complete his dream by this endeavor.

I am also thankful to Mr. P.L. Patle and Mr. M.P. Sahu for his painstaking efforts in typing the manuscript magnificently. His patience and efficiency deserve encomiums.

I am thankful to all those, whose name is not mentioned here but they are attached to me directly or indirectly and extended their co-operation and help.

I am highly indebted to my mother, Smt. Shyamadevi Upadhyay, father Shri Harshvardhan Prasad Upadhyay and father & mother-in-law Shri Jagdish Prasad Pidiha & Smt. Krishna Pidiha, whose filial affection, encouragement, sincere prayer, timely query about progress of work, sacrifices and blessings have always been a source of inspiration during the course of investigation.

The completion of this work is impossible without family support and I am lucky to enjoy this at all stages. I have no words to express my heartfelt gratitude to my wife Vibha and beloved sons Praveen and daughter Shrishti for their love, patience, obstinate sacrifices, support and understanding me a lot to complete this endeavor.

Above all, my humble and devoted prostration to God Almighty with soulful respect I bow my head to him, who enlighten and lead me in right way, with his blessing I reach at this stage.

Place: Raipur
Date: 14/12/1989

(Sudhish Kumar Upadhyay)