

TABLE OF CONTENTS

Sr. No.	Particulars	Page No.
I	Certificate	I
II	Declaration	II
III	Acknowledgement	III
IV	Abstract	V
V	List of Cases	XI
VI	List of Abbreviations	XIV
Chapter 1- Introduction of Rights of Farmers with Reference to IPR and Laws Relating to the Seed in India		
1.1	Introduction	03
1.2	Rationale of the study	08
1.3	Object of the Study	09
1.4	Scope and Delimitation of the study	10
1.5	Hypothesis/Research Questions formulated to conduct the research	10
1.6	Research Methodology	11
1.7	Review of Related Literature	11
1.8	Implication of the Reviewed Literature for the Present Study	21
1.9	Chapter Structure	21
Chapter 2- Genesis of Genetically Modified Crops and Traditional Knowledge: International Perspective		
2.1	Introduction	27
2.2	Agricultural World before Genetic Engineering	30
2.3	Traditional Knowledge	33
2.3.1	Meaning and Definition of Traditional Knowledge	34
2.3.2	Features of Traditional Knowledge	37
2.3.3	Significance And Scope	39
2.4	Genetic Modification	41
2.4.1	Genetic Modified Organisms	45

2.4.2	Genetically Modified crops	45
2.4.3	Genetically Modified Seeds	49
2.4.3.1	Process of Genetic Modification	49
2.5	GM Debate	50
2.6	Position on TK and GM: USA	51
2.6.1	GMO problems in the U.S.	55
2.7	Position on TK and GM: CANADA	58
2.7.1	Relevant Legislation	59
2.7.2	Condition pertaining to Research, Marketing and production	61
2.7.3	Condition pertaining to release of organism in Environment	61
2.7.4	Labelling	61
2.8	Position on TK and GM: EUROPE	62
2.8.3	European Food Safety Authority EFSA	66
2.8.3.1	Regulating Legislation	66
2.8.3.2	Condition pertaining to Research, Marketing and production	67
2.8.3.3	Condition for releasing GMO in Environment	68
2.8.3.4	Condition on GMOs in food	69
2.8.4	Genetically Modified Food and Feed	71
2.9	Conclusion	72
Chapter 3- Laws of the Seed: An Analysis		
3.1	Introduction	78
3.2	Laws of Seed	79
3.2.1	The Seed Act, 1966	79
3.2.1.1	Salient Features of Seed Act 1966	85
3.2.2	The Seed Rules, 1968	89
3.2.3	The Seeds (Amendment) Act, 1972	91
3.2.4	The Seeds (Amendment) Rules:	93
3.2.4.1	The Seeds (amendment) Rules, 1972	93
3.2.4.2	The Seeds (amendment) Rules, 1973	93

3.2.4.3	The Seeds (amendment) Rules, 1974	94
3.2.4.4	The Seeds (amendment) Rules, 1981	94
3.2.4.5	Plants, Fruits and Seeds Order (Regulation of Import into India order), 1989	94
3.2.5	The Seeds (Control) Order, 1983	96
3.2.5.1	Section 3 of the Essential Commodities Act, 1955	99
3.2.6	Seed Control Order (Amendment) 2006	100
3.3	Essential Commodities Act, 1955	100
3.4	Policies on Seed	101
3.4.1	Policy on Seed Development, 1988	101
3.4.2	Plants, Fruits and Seeds Order (Regulation of Import into India order), 1989	102
3.4.3	National seed policy 2002	103
3.5	Seed Bills: Issues and Concerns	105
3.5.1	The Seeds Bill, 2004	105
3.5.1.1	Rationale for the Seed Bill	105
3.5.1.2	Key Features of Seed Bill, 2004	105
3.5.1.3	Seed Bill 2004 – Changes Proposed by Standing Committee on Agriculture	107
3.5.1.4	Issues in Seed Bill, 2004	109
3.5.2	The Seed Bill 2010	110
3.5.3	The Seeds Bill 2011	110
3.5.4	Seed Amendments Bill 2014: Overview	111
Chapter 4- Rights of Farmers		
4.1	Introduction	115
4.2	Concept of Farmers’ Rights: Evolution	117
4.2.1	Farmers’ Rights: International Perspective	118
4.2.1.1	The International Convention for the Protection of New Varieties of Plants (UPOV)	120
4.2.1.2	Convention on Bio-Diversity	126
4.2.1.2.1	Cartagena Protocol	129
4.2.1.2.2	Nagoya Protocol	129

4.2.1.3	International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)	131
4.2.1.4	Trade-Related Aspects of Intellectual Property Rights (TRIPS) and Plant varieties protection	135
4.2.2	Farmers' Rights: Indian Perspective	136
4.2.2.1	Protection of Plant Varieties & Farmers Right (PPVFR) Act, 2001	140
4.2.2.1.1	Salient features of PPVFR Act, 2001	141
4.2.2.2	Bio-diversity Act, 2002	147
4.2.2.2.1	The features of The Biological Diversity Act, 2002	147
4.2.2.3	Seeds and GMO: Indian Legal Position (3j Patent)	152
4.3	Analysis of Farmers' rights	155
Chapter 5- Judicial Approach		
5.1	Introduction	164
5.2	India, TRIPs Agreement and Supreme Court	164
5.2.1	Vandana Shiva and Ors. v. Union of India and Ors	166
5.2.1.1	Background of the Case	166
5.2.1.2	Issue	167
5.2.1.3	Decision	167
5.2.1.4	Analysis	167
5.3	Plants, GM Crops and Patentability	167
5.3.1	J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc	167
5.3.1.1	Background of the Case	168
5.3.1.2	Issues	168
5.2.1.3	Decision	168
5.3.1.3.1	Lower Court	168
5.3.1.3.2	Supreme Court	169
5.3.1.4	Analysis	169
5.3.2	Monsanto Technology LLC v Cefetra BV and Others	170
5.3.2.1	Background of the Case	170
5.3.2.2	Issues	171

5.3.2.3	Decision	171
5.3.2.3	Analysis	172
5.3.3	Sungro Seeds Ltd v. Union of India and Anr	172
5.3.3.1	Background of the Case	172
5.3.3.2	Issue	172
5.3.3.3	Contentions	172
5.3.3.3.1	Contention of the petitioners	173
5.3.3.3.1	Contention of the Respondents	173
5.3.3.4	Decision of the Court	174
5.3.4	Nuziveedu seeds ltd. and ors. v. Monsanto Technology Llc and Ors.	174
5.3.4.1	Background of the case	174
5.3.4.2	Issues	175
5.3.4.1.1.	Patent cannot be granted- Section 3(j) of Patent Act, 1970 attracted	176
5.3.4.1.2.	Protection of Plant Varieties and Farmers' Rights Act, 2001	177
5.3.4.1.3.	Sub licensing issues and violation of Trade Mark	178
5.3.4.3	Supreme Court Decision	179
5.3.4.4	Analysis	180
5.3.5	Maharashtra Hybrid Seeds Co Ltd Vs. UOI and ors	180
5.3.5.1	Background of the case	181
5.3.5.2	Issues	181
5.3.5.3	Decision	181
5.4	Patent Exhaustion	181
5.4.1	Vernon Hugh Bowman v. Monsanto Company, et al.	182
5.4.2	Background of the case	182
5.4.3	Issue under Challenge in District Court	183
5.4.3.1	Contention of Respondent	183
5.4.3.2	Decision of Lower Court	183
5.4.4	Appeal to Federal Court	183
5.4.4.1	Contention of Appellant	183

5.4.4.2	Contention of Respondents	184
5.4.4.3	Decision of Federal Court	184
5.4.5	Second Appeal to Supreme Court	184
5.4.5.1	Argument of the Appellant	184
5.4.5.2	Decision of Supreme Court	184
5.4.6	Analysis	185
5.5	Definition of Seed	187
5.5.1	Satyapal Anand vs. State of M.P.	187
5.5.1.1	Background of the Case	187
5.5.1.2	Under Challenge	187
5.5.1.3	Issue	187
5.5.1.4	Contention of the Parties.	187
5.5.1.4.1	Contention of the Petitioner	187
5.5.1.4.2	Contention of the Respondents	188
5.5.1.5	Decision	189
5.5.1.6	Analysis	191
5.6	Liability of failure of Seeds: Is the Consumer Court Competent Redressal Authority?	192
5.6.1	National Seeds Corporation. Ltd. v. M. Madhusudhan Reddy and anr	192
5.6.1.1	Background of the Case	192
5.6.1.2	Issue	192
5.6.1.3	Law Suit	193
5.6.1.3.1	Decision of District Forum	193
5.6.1.3.2	Appeal to National Commission	193
5.6.1.3.2.1	Contention of Appellants	193
5.6.1.3.2.2	Contention of Respondents	193
5.6.1.3.2.3	Decision of National Commission	193
5.6.1.4	Appeal to Supreme Court	194
5.6.1.5	Decision of the Supreme Court	194
5.6.1.6	Analysis	194
5.7	Sale of GM Seeds	196

5.7.1	Monsanto Co. v. Geertson	196
5.7.1.1	Background of the Case	196
5.7.1.2	Issues	196
5.7.1.3	Decision	197
5.8	Farmers Rights	197
5.8.1	Monsanto Canada Inc. v. Schmeiser	197
5.8.1.1	Background of the Case	197
5.8.1.2	Issues	197
5.8.1.3	Federal Court Decision	197
5.8.1.4	Supreme Court Decision	198
5.8.1.5	Analysis	198
5.8.2	Organic Seed Growers and Trade Association (OSGATA) et al v. Monsanto	198
5.8.2.1	Background of the Case	198
5.8.2.2	Issues	199
5.8.2.3	Contention of Petitioner	199
5.8.2.4	Contention of Respondent	199
5.8.2.5	Decision District court	200
5.8.2.6	Appeal in Federal Court	200
5.8.2.7	Decision of Federal Court	200
5.8.2.7	Analysis	200
5.9	Analysis of the above cases	201
Chapter 6- Data Analysis		
6.1	Introduction	204
6.2	Methodology	204
6.3	Population	204
6.4	Sampling Techniques	204
6.5	Sample Size And Nature	205
6.6	Data Collection Method	205
6.7	Research Ethics	205
6.8	Analysis of Data	205
6.8.1	Part-A	206

6.8.1.1	Personal Details	206
6.8.2	Part-B	211
6.8.2.1	Farming	211
6.8.2.2	Saved Seeds	218
6.8.2.3	Genetically Modified Seeds	224
6.8.2.4	Effect on Soil	227
6.8.2.5	Yields	229
6.8.2.6	Fertilizers	231
6.8.2.7	Training	234
6.8.2.8	Subsidy	235
6.8.2.9	Experience with GM Seed	236
6.8.2.10	Opinion	240
Chapter 7- Conclusion and Suggestions		
7.1	Conclusion	244
7.1.1	Conclusions drawn on the Hypothesis	251
7.2	Suggestions	252
	Bibliography	256
	Webliography	260
Appendix	Questionnaire	