CHAPTER-6

Result and Discussion

The chapter deals with the result of the study discussed about it. At the end of this chapter interpretation has been made, explanation has been tried to put down and an attempt has been done to reveal the cause behind it.

Table-3 Distribution of variables in terms of Mean, Standard Deviation

Variables	Mean	Std Deviation	CV
Age	**50.12**	**9.07**	**18.09**
Education	**6.07**	**3.15**	**51.89**
Exposure Unit	**2.58**	**0.65**	**25.20**
Family Members	**5.30**	**1.45**	**27.35**
Family Labour	**5.52**	**0.68**	**12.95**
Size of holding	**5.97**	**1.48**	**24.79**
No of Fragments	**3.38**	**1.22**	**36.09**
Cropping Intensity	**182.45**	**21.20**	**11.62**
Homested Land	**0.24**	**0.06**	**25**
Marketable Surplus	**32.28**	**8.77**	**27.17**
Marketed Surplus	**137.80**	**15.80**	**11.46**
Distance From Market	**4.55**	**1.37**	**30.99**
Cost of fuel	**205.95**	**81.42**	**39.53**

Family Expenditure	**243.32**	**95.87**	**34.40**
NRM Motivation	**8.07**	**0.78**	**9.66**

Coefficient of Corelation:

Table 4: Coefficient of correlation between crop diversity (Y_{cd}) and 15 exogenous variable (x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.1	
Education(x2)	-0.044	
Exposure Unit(x3)	0.073	
Family Members(x4)	0.05	
Family Labour(x5)	0.079	
Size of holding(x6)	0.052	
No of Fragments(x7)	0.109	
Cropping Intensity(x8)	0.220	
Home-stead Land(x9)	0.051	
Marketable Surplus(x10)	0.139	
Marketed Surplus(x11)	0.056	
Distance From Market(x12)	-0.241	*
Cost of fuel(x13)	0.003	
Family Expenditure(x14)	0.013	
NRM Motivation(x15)	-0.038	

Result: Table shows that co-efficient of correlation between Crop diversity (Y_{cd}) and Distance from market (X_{12}). They have been found that 5% level of significance.

Revelation: Distance from market co related with crop diversity.

Table 5: Coefficient of correlation between Disease Pest Incidentin Pulse (Y_{p1}) and 15 exogenous variable(x1-x15)

Independent Variable	r Value		Remarks
Age(x1)	-0.011		
Education(x2)	0.101		
Exposure Unit(x3)	-0.165		
Family Members(x4)	0.088		
Family Labour(x5)	0.157		
Size of holding(x6)	0.025		
No of Fragments(x7)	0.207		10%
Cropping Intensity(x8)	0.081		
Home-stead Land(x9)	0.098		
Marketable Surplus(x10)	-0.057		
Marketed Surplus(x11)	-0.045		
Distance From Market(x12)	0.085		
Cost of fuel(x13)	0.066		
Family Expenditure(x14)	0.007		
NRM Motivation(x15)	-0.026		

Result: Table shows that co-efficient of correlation between Disease pest incident in pulse (Y_{p1}) and No of fragments (X_7). They have been found that 10% level of significance.

Revelation: The more the number of fragments, it has been difficult to manage. Fragmentation has been found a character to disease pest incident.

Table 6: Coefficient of correlation between Disease Pest Management (Y_{p2}) and 15 exogenous variable(X1-X15)

Independent Variable	r Value	Remarks
Age(x1)	-0.128	
Education(x2)	0.263	*
Exposure Unit(x3)	-0.044	
Family Members(x4)	0.052	
Family Labour(x5)	0.006	
Size of holding(x6)	0.268	*
No of Fragments(x7)	0.142	
Cropping Intensity(x8)	0.088	
Home-stead Land(x9)	-0.210	
Marketable Surplus(x10)	0.228	
Marketed Surplus(x11)	-0.022	
Distance From Market(x12)	-0.287	*
Cost of fuel(x13)	0.123	
Family Expenditure(x14)	0.081	
NRM Motivation(x15)	-0.174	

Result: Table shows that co-efficient of correlation between Disease pest management in pulse (Y_{p2}) and Education (X2), Size of holding(X6) and Distance from market (X_{12}). They have been found that 5% level of significance.

Revelation: The higher size of holding, higher resource backup and when its supported by education and market, the better has been disease pest management.

Table 7: Coefficient of correlation between Soil health in pulse (Y_{p3}) and 15 exogenous variable(X1-X15)

Independent Variable	r Value	Remarks
Age(x1)	0.005	
Education(x2)	0.007	
Exposure Unit(x3)	-0.071	
Family Members(x4)	0.096	
Family Labour(x5)	0.179	
Size of holding(x6)	-0.090	
No of Fragments(x7)	0.108	
Cropping Intensity(x8)	-0.137	
Home-stead Land(x9)	0.129	
Marketable Surplus(x10)	0.181	
Marketed Surplus(x11)	0.305	*
Distance From Market(x12)	-0.033	
Cost of fuel(x13)	0.298	*
Family Expenditure(x14)	0.257	*
NRM Motivation(x15)	0.028	

Result: Table shows that co-efficient of correlation between Soil health maintained in pulse(Y_{p3}) and Marketed surplus(X_{11}), Cost of fuel (X_{13}), Family expenditure(X_{14}). They have been found that 5% level of significance.

Revelation: Soil health maintained in pulse cultivation has invited three causal support, better market price, family expenditure and better mobility. It has natural property to improve soil health.

Table 8 Coefficient of correlation between No. of irrigation in pulse(Y_{p4}) and 15 exogenous variable(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.059	
Education(x2)	0.134	
Exposure Unit(x3)	-0.138	
Family Members(x4)	-0.068	
Family Labour(x5)	-0.070	
Size of holding(x6)	0.005	
No of Fragments(x7)	0.034	
Cropping Intensity(x8)	0.096	
Home-stead Land(x9)	-0.160	
Marketable Surplus(x10)	-0.325	*
Marketed Surplus(x11)	0.045	
Distance From Market(x12)	0.066	
Cost of fuel(x13)	-0.116	
Family Expenditure(x14)	-0.218	
NRM Motivation(x15)	-0.057	

Result: Table shows that co-efficient of correlation between No of Irrigation in pulse (Y_{p4}) and Marketed Surplus (X_{10}). They have been found that 5% level of significance.

Revelation: Irrigation has become important to augment the productivity per unit are beyond the optimal. Hence it contributes to generate marketable surplus.

Table 9: Coefficient of correlation between Pollution due to agro-chemicals in pulse crop cultivation(Y_{p5}) and 15 exogenous variable(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.151	
Education(x2)	0.106	
Exposure Unit(x3)	-0.311	*
Family Members(x4)	0.154	
Family Labour(x5)	0.104	
Size of holding(x6)	-0.148	
No of Fragments(x7)	-0.162	
Cropping Intensity(x8)	-0.204	
Home-stead Land(x9)	-0.063	
Marketable Surplus(x10)	0.045	
Marketed Surplus(x11)	0.176	
Distance From Market(x12)	0.076	
Cost of fuel(x13)	-0.026	
Family Expenditure(x14)	-0.037	
NRM Motivation(x15)	-0.084	

Result: Table shows that co-efficient of correlation between Pollution due to agro-chemical in pulse crop cultivation (Y_{p5}) and Exposure unit (X_3). They have been found that 5% level of significance.

Revelation: Pulse is most ecological tuned requires less fertilizer, management and irrigation. So, for the farmers they need better exposure in terms of environmental education make the crop economic viable and ecological suitable crop enterprise.

Table 10: Coefficient of correlation between combating climate change (Y_{p6}) and 15 exogenous variables(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.262	*
Education(x2)	0.075	
Exposure Unit(x3)	-0.052	
Family Members(x4)	-0.052	
Family Labour(x5)	-0.068	
Size of holding(x6)	0.119	
No of Fragments(x7)	0.058	
Cropping Intensity(x8)	0.045	
Home-stead Land(x9)	-0.162	
Marketable Surplus(x10)	0.126	
Marketed Surplus(x11)	0.109	
Distance From Market(x12)	0.001	
Cost of fuel(x13)	0.040	
Family Expenditure(x14)	0.044	
NRM Motivation(x15)	-0.022	

Result: Table shows that co-efficient of correlation between Combating climate change (Y_{p6}) and Age (X_1). They have been found that 5% level of significance.

Revelation: Combating climate change has been related to the age character of respondent. Ecological education has got categorical responses to the target groups persuading pulse as the defeating crop enterprises having ruthless conformation with ecological function.

Table 11: Coefficient of correlation between Return from pulse (Y_{7p}) and 15 exogenous variable (x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	0.278	
Education(x2)	-0.154	
Exposure Unit(x3)	-0.234	
Family Members(x4)	0.108	
Family Labour(x5)	0.117	
Size of holding(x6)	-0.232	
No of Fragments(x7)	-0.114	
Cropping Intensity(x8)	-0.325	
Home-stead Land(x9)	0.119	
Marketable Surplus(x10)	-0.133	
Marketed Surplus(x11)	0.588	**
Distance From Market(x12)	0.010	
Cost of fuel(x13)	0.179	
Family Expenditure(x14)	0.108	
NRM Motivation(x15)	-0.079	

Result: Table shows that co-efficient of correlation between return from pulse (Y_{p7}) and marketed surplus (X_{11}). They have been found that 1% level of significance.

Revelation: It has the age dimension and better marketability produced maximum return from the pulse crop cultivation.

Table 12: Coefficient of correlation between Marketability in pulse (Y_{8p}) and 15 exogenous variable (x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.132	
Education(x2)	0.227	10%
Exposure Unit(x3)	0.128	
Family Members(x4)	0.039	
Family Labour(x5)	0.005	
Size of holding(x6)	0.059	
No of Fragments(x7)	-0.056	
Cropping Intensity(x8)	-0.169	
Home-stead Land(x9)	-0.106	
Marketable Surplus(x10)	0.148	
Marketed Surplus(x11)	0.088	
Distance From Market(x12)	0.178	
Cost of fuel(x13)	0.138	
Family Expenditure(x14)	0.123	
NRM Motivation(x15)	-0.225	

Result: Table shows that co-efficient of correlation between Marketability in pulse(Y_{p8}) and Education(X_2). They have been found that 5% level of significance.

Revelation: value added agriculture needs educational intervention from the practicing farmers in the form of verified skill, rejuvenated knowledge and reinforce practices. It's more relevant for pulse crop.

Table 13: Coefficient of correlation between Disease pest incident in rice (Y_{r1}) and 15 exogenous variables(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.179	
Education(x2)	0.063	
Exposure Unit(x3)	-0.219	
Family Members(x4)	0.107	
Family Labour(x5)	0.083	
Size of holding(x6)	0.059	
No of Fragments(x7)	-0.075	
Cropping Intensity(x8)	-0.026	
Home-stead Land(x9)	0.020	
Marketable Surplus(x10)	0.106	
Marketed Surplus(x11)	-0.119	
Distance From Market(x12)	0.270	*
Cost of fuel(x13)	0.061	
Family Expenditure(x14)	0.071	
NRM Motivation(x15)	0.321	*

Result: Table shows that co-efficient of correlation between Disease pest incident in rice crop (Y_{1R}) and Distance from market (X_{12}), Natural resource management motivation(X_{15}). They have been found that 5% level of significance.

Revelation: Distance from market play a vital role in disease pest incident in rice. Increasing the distance of market from the field produces difficulty to the farmer to buy the pesticide within time and increasing the pesticide. NRM motivation is important in disease pest incident in rice.

Table 14: Coefficient of correlation between Disease pest management in rice(Y_{r2}) and 15 exogenous variable(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.172	
Education(x2)	-0.041	
Exposure Unit(x3)	-0.092	
Family Members(x4)	0.086	
Family Labour(x5)	0.065	
Size of holding(x6)	0.113	
No of Fragments(x7)	0.062	
Cropping Intensity(x8)	0.201	
Home-stead Land(x9)	0.09	
Marketable Surplus(x10)	-0.161	
Marketed Surplus(x11)	-0.218	10%
Distance From Market(x12)	0.040	
Cost of fuel(x13)	-0.037	
Family Expenditure(x14)	-0.117	
NRM Motivation(x15)	0.028	

Result: Table shows that co-efficient of correlation between Disease pest management (Y_{R2}) and Marketed surplus (X_{11}). They have been found that 5% level of significance.

Revelation: Disease pest management in rice has been related to marketed surplus. So, increasing marketed surplus helps in better disease pest management in rice crop cultivation.

Table 15: Coefficient of correlation between Soil Health maintained in rice (Y_{r3}) and 15 exogenous variable(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	0.170	
Education(x2)	0.067	
Exposure Unit(x3)	-0.061	
Family Members(x4)	0.008	
Family Labour(x5)	0.112	
Size of holding(x6)	-0.055	
No of Fragments(x7)	-0.014	
Cropping Intensity(x8)	-0.141	
Home-stead Land(x9)	-0.137	
Marketable Surplus(x10)	0.063	
Marketed Surplus(x11)	0.087	
Distance From Market(x12)	0.183	
Cost of fuel(x13)	0.178	
Family Expenditure(x14)	0.214	10%
NRM Motivation(x15)	0.120	

Result: Table shows that co-efficient of correlation between soil health maintained in rice (Y_{3R}) and Family expenditure (X_{12}). They have been found that 10% level of significance.

Revelation: Family expenditure has been related to soil health maintained in rice crop.

Table 16: Coefficient of correlation between No of irrigation in rice(Y_{r4}) and 15 exogenous variable(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	0.0127	
Education(x2)	0.014	
Exposure Unit(x3)	0.052	
Family Members(x4)	0.090	
Family Labour(x5)	0.068	
Size of holding(x6)	-0.006	
No of Fragments(x7)	0.148	
Cropping Intensity(x8)	-0.181	
Home-stead Land(x9)	-0.130	
Marketable Surplus(x10)	0.088	
Marketed Surplus(x11)	0.091	
Distance From Market(x12)	0.183	
Cost of fuel(x13)	0.179	
Family Expenditure(x14)	0.163	
NRM Motivation(x15)	-0.194	

Result: Table shows that none of the variable has been found significant.

Table 17: Coefficient of correlation between Pollution due to agro chemical in rice (Y_{r5}) and 15 exogenous variable(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	0.074	
Education(x2)	0.099	
Exposure Unit(x3)	0.045	
Family Members(x4)	-0.086	
Family Labour(x5)	-0.030	
Size of holding(x6)	-0.008	
No of Fragments(x7)	0.051	
Cropping Intensity(x8)	-0.059	
Home-stead Land(x9)	-0.002	
Marketable Surplus(x10)	0.075	

Marketed Surplus(x11)	-0.195	
Distance From Market(x12)	0.109	
Cost of fuel(x13)	0.120	
Family Expenditure(x14)	0.246	*
NRM Motivation(x15)	0.132	

Result: Table shows that co-efficient of correlation between Pollution due to agrochemical in rice (Y_{R4}) and Family expenditure (X_{12}). They have been found that 5% level of significance.

Revelation: Irrigation in rice is cost effective. So increasing the irrigation cost also increased the family expenditure.

Table 18: Coefficient of correlation between combating climate change in rice crop cultivation (Y_{r6}) and 15 exogenous variable(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.061	
Education(x2)	0.057	
Exposure Unit(x3)	-0.095	
Family Members(x4)	-0.058	
Family Labour(x5)	-0.050	
Size of holding(x6)	-0.072	
No of Fragments(x7)	-0.121	
Cropping Intensity(x8)	0.054	
Home-stead Land(x9)	-0.009	
Marketable Surplus(x10)	-0.049	
Marketed Surplus(x11)	0.063	
Distance From Market(x12)	-0.048	
Cost of fuel(x13)	0.018	
Family Expenditure(x14)	-0.032	
NRM Motivation(x15)	-0.039	

Result: Table shows that none of the variable has been found significant.

Table 19: Coefficient of correlation between Return from rice crop (Yr7) and 15 exogenous variables(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.467	
Education(x2)	0.442	**
Exposure Unit(x3)	-0.292	
Family Members(x4)	0.114	
Family Labour(x5)	0.048	
Size of holding(x6)	0.335	**
No of Fragments(x7)	0.372	**
Cropping Intensity(x8)	0.136	
Home-stead Land(x9)	-0.073	
Marketable Surplus(x10)	0.173	
Marketed Surplus(x11)	-0.176	
Distance From Market(x12)	0.033	
Cost of fuel(x13)	0.026	
Family Expenditure(x14)	0.041	
NRM Motivation(x15)	0.097	

Result: Table shows that co-efficient of correlation between Return from rice (Y_{r7}) and Education(X2), Size of holding, No of fragments(C7) . They have been found that 1% level of significance.

Revelation: Return has been related to education, size of holding and no of fragmented land. The higher the size of holding, higher the fragmented land and when it's supported by education, the better has been the return from that crop.

Table 20: Coefficient of correlation between Marketability in rice (Y_{r8}) and 15 exogenous variables(x1-x15)

Independent Variable	r Value	Remarks
Age(x1)	-0.085	
Education(x2)	-0.217	
Exposure Unit(x3)	0.311	*
Family Members(x4)	0.073	
Family Labour(x5)	0.026	
Size of holding(x6)	-0.044	
No of Fragments(x7)	-0.027	
Cropping Intensity(x8)	0.036	
Home-stead Land(x9)	-0.020	
Marketable Surplus(x10)	-0.157	
Marketed Surplus(x11)	-0.055	
Distance From Market(x12)	-0.116	
Cost of fuel(x13)	-0.333	
Family Expenditure(x14)	-0.313	
NRM Motivation(x15)	-0.065	

Result: Table shows that co-efficient of correlation between Marketability in Rice(Y_{R8}) and Exposure unit (X_3). They have been found that 5% level of significance.

Revelation: Exposure unit has been related to Marketability in rice. For the farmer the need better exposure in terms of enterprise education make the crop economic viable and ecological suitable.

Stepwise Regression Analysis:

Table- 21 Stepwise regression analysis between crop diversity (Y_{cd}) and 15 exogenous variable(x1-x15)

Retention of significant causal variable step-14

Variable	**R^2%**	**Adjusted R^2 %**	**Std. Error of the estimate**
x8 x10	8.1	4.9	7.367

Revelation: It's estimated that the two causal variable Cropping intensity(x8) and Marketable surplus(x10) have exerted the heights functional impact on crop diversity (Y_{cd}). These two variables together have explained 8.1% of variance in Crop Diversity.

Table- 22 Stepwise regression analysis between Disease Pest Incident in Pulse (Y_{p1}) and 15 exogenous variable(x1-x15)

Retention of significant causal variablesStep-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x7 x6	5.3	2.00	.6425

Revelation: It is estimated that the two causal variable No. of fragments(x7) and Size of Holding(x6) have exerted the heights functional impact on Disease Pest Incident in pulse (Y_{P1}). These two variables together have explained 5.3% of variance in Disease pest incident.

Table- 23 Stepwise regression analysis between Disease Pest Management (Y_{p2}) and 15 exogenous variable(X1-X15)

Retention of significant causal variables at the last Step-12

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x2 x12 x9 x10	31.5	26.6	.573

Revelation: Its estimated that the four causal variables education(x2) ,Distance from Market(x12), Home stead land(x9) and Marketable surplus(x10) have exerted the heights functional impact on Disease Pest Management in Pulse crop(Y_{p2}) . These two variables together have explained 31.5 percent of variance in Disease pest management.

Table- 24 Stepwise regression analysis betweenSoil health in pulse (Y_{p3}) and 15 exogenous variable(X1-X15)

Retention of significant causal variables at the last Step-12

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x11 x7 x13 x6	25.50	20.1	.556

Revelation: Its estimated that the four causal variables Marketed surplus(x11), No of fragments(x7), Cost of fuel(x13) and Size of holding(x6) have exerted the heights functional impact on Soil health

maintained in pulse crop(Y_{p3}).These four variables together have explained 25.5 percent of variance in Soil health maintained in pulse crop.

Table- 25 Stepwise regression analysis between No. of irrigation in pulse (Y_{p4}) and 15 exogenous variable(x1-x15)

Retention of significant causal variables at the last Step-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x2 x10	13.6	10.6	.549

Revelation: Its estimated that the two causal variable Education(x2) and Marketable Surplus(x10) have exerted the heights functional impact on Irrigation in Pulse crop(X_{p4}). These two variables together have explained 13.6 percent of variance in irrigation in pulse.

Table- 26 Stepwise regression analysis between Pollution due to agro-chemicals in pulse crop cultivation(Y_{p5}) and 15 exogenous variable(x1-x15)

Retention of significant causal variables at the last step-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x3 x8	14.9	11.9	.5979

Revelation: It's estimated that the two causal variables exposure unit(x3) and cropping intensity(x8) have exerted the heights functional impact on pollution due to agro-chemical in pulse. These two variables together have explained 14.9 percent of variance in pollution due to agro-chemical in pulse.

Table- 27 Stepwise regression analysis between combating climate change (Y_{p6}) and 15 exogenous variable (x1-x15)

Retention of significant causal variables at the last step-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x1 x10	8.2	5	.5905

Revelation: It's estimated that the two causal variables age(x1) and marketable surplus(x10) have exerted the heights functional impact on combating climate change in pulse cultivation. These two variables together have explained 8.2 percent of variance in combating climate change in pulse cultivation.

Table- 28 Stepwise regression analysis between Return from pulse (Y_{7p}) and 15 exogenous variable (x1-x15)

Retention of significant causal variables at the last Step-12

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x3 x11 x1 x8	47.5	43.6	563.702

Revelation: It's estimated that the four causal variables exposure unit(x3), Marketed surplus(x11), age(x1), cropping intensity(x8) have exerted the heights functional impact on return from pulse crop(X_{p7}). These two variables together have explained 47.2 percent of variance in return from pulse crop.

Table- 29 Stepwise regression analysis betweenMarketability in pulse (Y_{8p}) and 15 exogenous variable(x1-x15)

Retention of significant causal variables at the last Step-15

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x8 x6	10.1	7	.698

Revelation: Its estimated that the two causal variables Cropping intensity(x8) and size of holding(x6) have exerted the heights functional impact on marketability in pulse crop(X_{p8}). These two variables together have explained 10.1 percent of variance in marketability in pulse crop.

Table- 30 Stepwise regression analysis between Disease pest incident in rice (Y_{r1}) and 15 exogenous variable(x1-x15)

Retention of significant causal variables at the last step-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x15 x3	16.50	13.50	.625

Revelation: Its estimated that the two causal variables importance of natural resource management motivation(x15) and exposure unit(x3) have exerted the heights functional impact on disease pest incident in rice(Y_{r1}). Thses two variables together have explained 16.5 percent of variance in disease pest incident in rice.

Table- 31 Stepwise regression analysis between Disease pest management in rice (Y_{r2}) and 15 exogenous variable(x1-x15)

Retention of significant causal variables at the last Step

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x11 x10	7.30	4.10	.653

Revelation: Its estimated that the two causal variables marketed surplus(x11) and marketable surplus(x10) have exerted the heights functional impact on disease pest management in rice(Y_{r2}). These two variables together have explained 7.3 percent of variance in disease pest management in rice.

Table- 32 Stepwise regression analysis betweenSoil Health maintained in rice (Yr3) and 15 exogenous variable(x1-x15)

Retention of significant causal variables Step-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
X9 X1	5.60	2.30	.7193

Revelation: Its estimated that the two causal variables home stead land(x9) and age(x1) have exerted the heights functional impact on soil health maintained in rice(Y_{r3}).These two variables together have explained 5.6 percent of variance in DPM in rice.

Table- 33 Stepwise regression analysis between No of irrigation in rice(Y_{r4}) and 15 exogenous variable(x1-x15)

Retention of significant causal variablesStep-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
X7 X6	6.50	3.20	.596

Revelation: Its estimated that the two causal variables no. of fragments(x7) and size of holding(x6) have exerted the heights functional impact on irrigation in rice(Y_{r4}) . These two variables together have explained 6.5 percent of variance in irrigation in rice.

Table- 34 Stepwise regression analysis betweenPollution due to agro chemical in rice (Y_{r5}) and 15 exogenous variable(x1-x15)

Retention of significant causal variablesStep-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
X11 X14	11.50	8.40	.619

Revelation: Its estimated that the two causal variables marketed surplus(x11) and family expenditure(x14) have exerted the heights functional impact on pollution due to rice cultivation(Y_{r5}) . These two variables together have explained 11.5 percent of variance in pollution due to rice cultivation.

Table- 35 Stepwise regression analysis between combating climate change in rice crop cultivation (Y_{r6}) and 15 exogenous variable (x1-x15)

Retention of significant causal variables at the Step-14

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x7 x8	3.30	-0.1	.486

Revelation: Its estimated that the two causal variable Cropping intensity(x8) and no. of fragments(x7) have exerted the heights functional impact on combating climate chang in rice cultivation(Y_{r6}) . These two variables together have explained 3.3 percent of variance in combating climate chang in rice cultivation.

Table- 36 Stepwise regression analysis between Return from rice crop (Y_{r7}) and 15 exogenous variable(x1-x15)

Retention of significant causal variables at the Step-13

Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x3 x7,x1	37.50	34.20	485.15

Revelation: Its estimated that the three causal variables exposure unit(x3) , no. of fragments(x7) and age(x1) have exerted the heights functional impact on return from rice cultivation(X_{r7}) . These two variables together have explained 37.5 percent of variance in return from rice cultivation.

Table- 37 Stepwise regression analysis between Marketability in rice (Y_{r8}) and 15 exogenous variable (x1-x15)

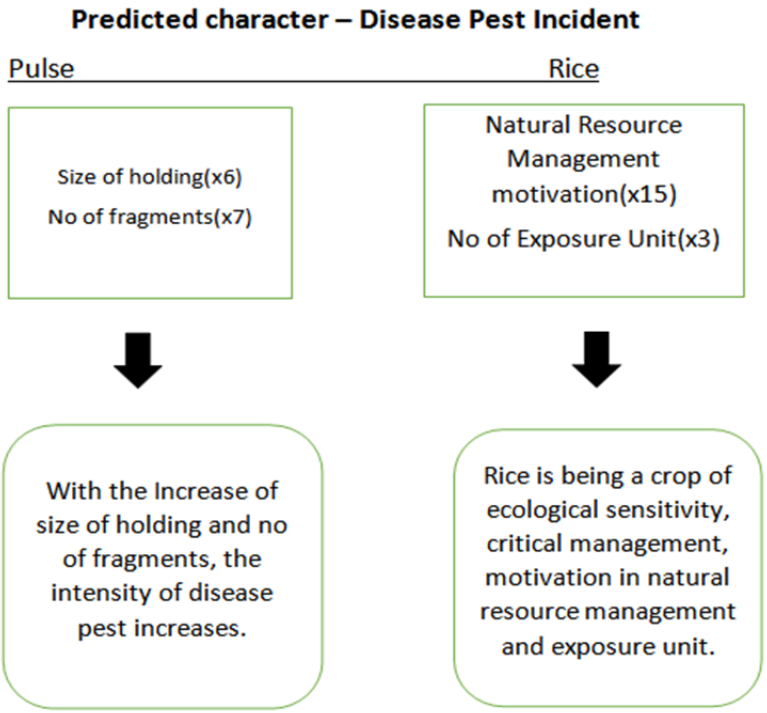
Retention of significant causal variables at the Step-14

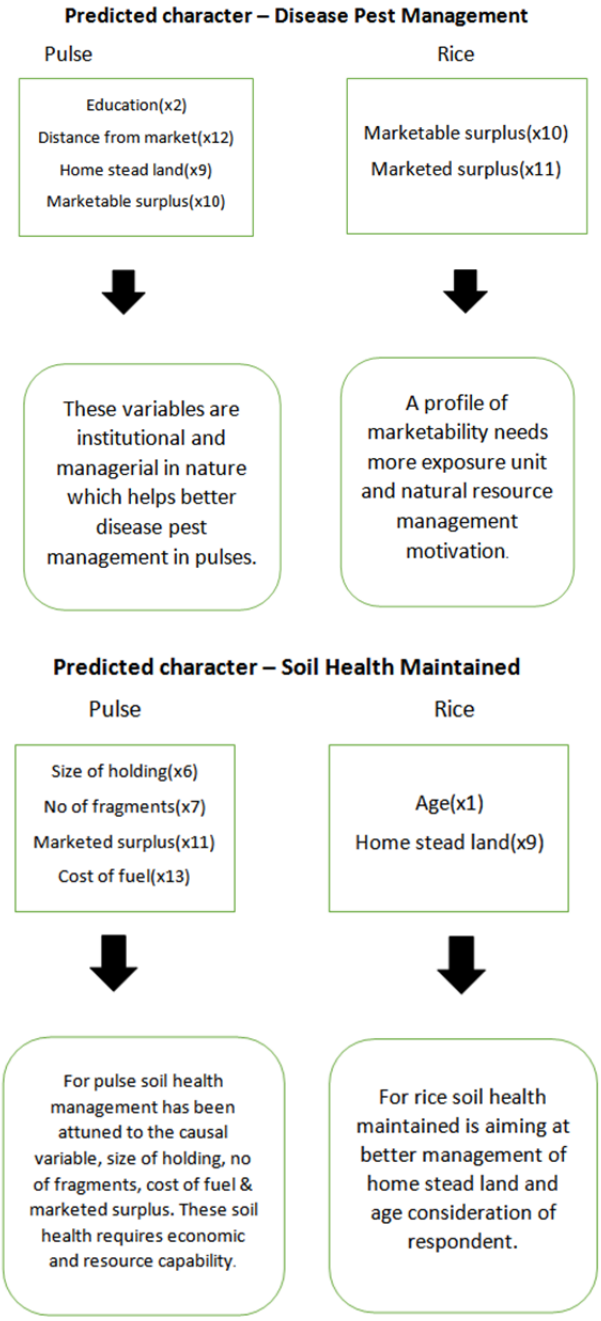
Variable	R^2%	Adjusted R^2 %	Std. Error of the estimate
x3 x13	19.10	16.20	.513

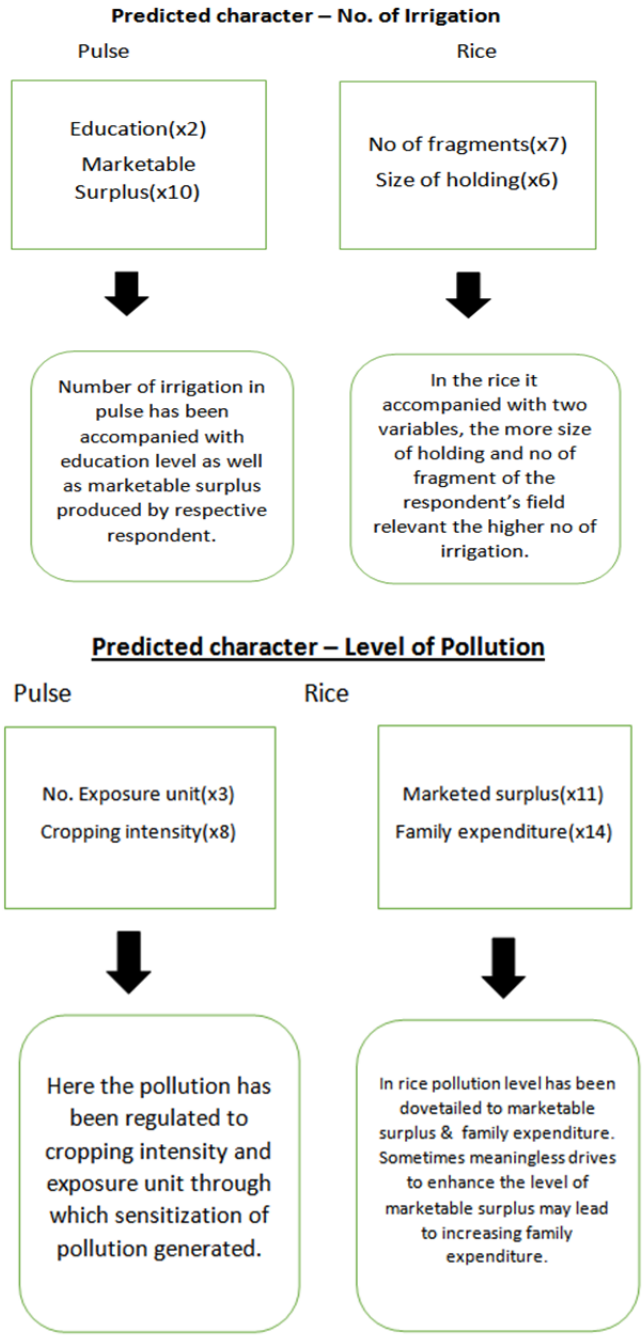
Revelation: Its estimated that the two causal variable exposure unit(x3) and cost of fuel(x13) have exerted the heights functional impact on marketability in rice(Y_{r8}). These two variables together have explained 19.2 percent of variance in marketability in rice.

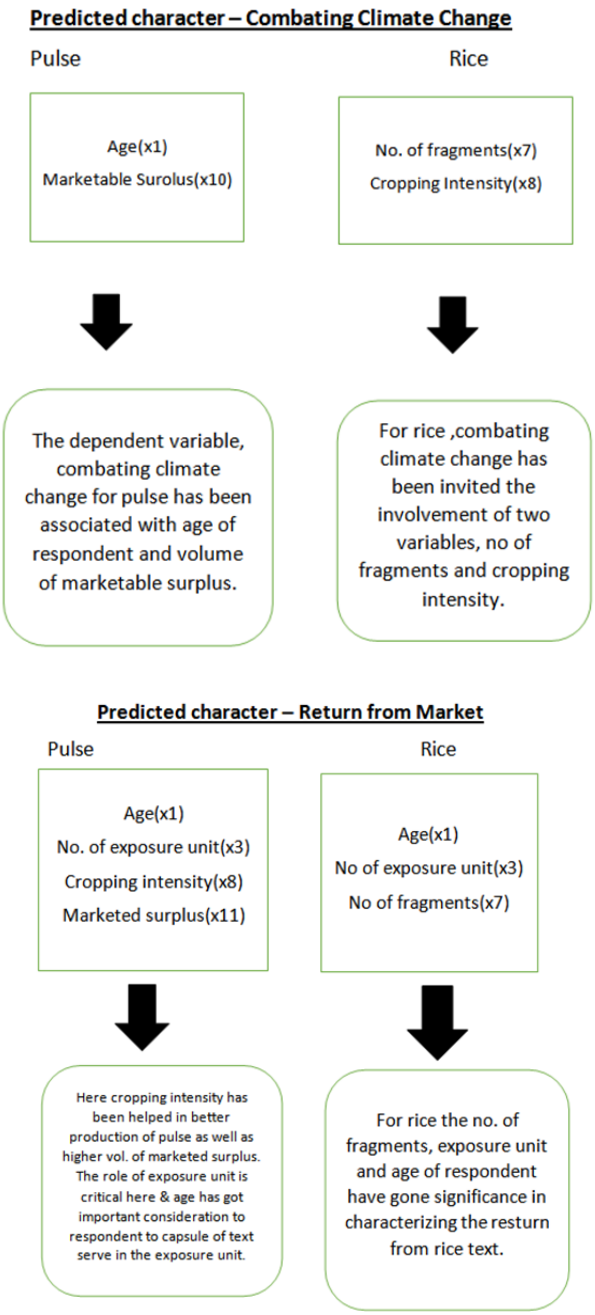
Summary of Comparison

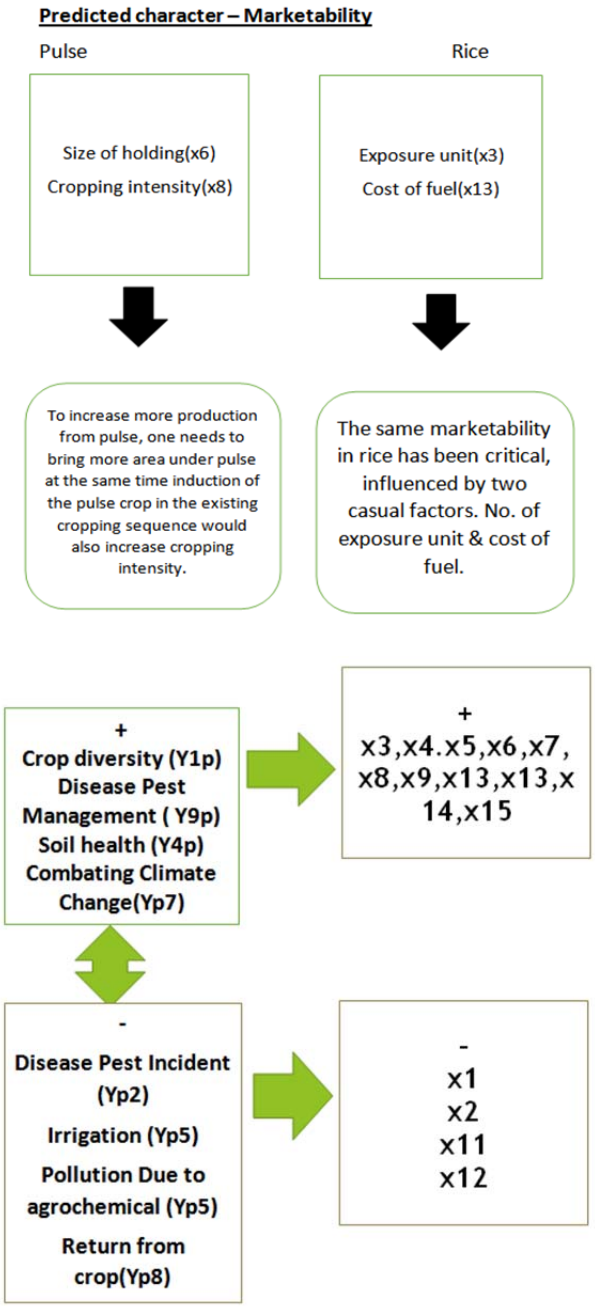
Predicted character – Disease Pest Incident




Predicted character – Disease Pest Management
Pulse
Rice
Education(x2)
Distance from market(x12)
Home stead land(x9)
Marketable surplus(x10)
Marketable surplus(x10)
Marketed surplus(x11)
These variables are institutional and managerial in nature which helps better disease pest management in pulses.
A profile of marketability needs more exposure unit and natural resource management motivation.
Predicted character – Soil Health Maintained
Pulse
Rice
Size of holding(x6)
No of fragments(x7)
Marketed surplus(x11)
Cost of fuel(x13)
Age(x1)
Home stead land(x9)
For pulse soil health management has been attuned to the causal variable, size of holding, no of fragments, cost of fuel & marketed surplus. These soil health requires economic and resource capability.
For rice soil health maintained is aiming at better management of home stead land and age consideration of respondent.


Predicted character – No. of Irrigation
Pulse
Rice
Education(x2)
Marketable Surplus(x10)
No of fragments(x7)
Size of holding(x6)
Number of irrigation in pulse has been accompanied with education level as well as marketable surplus produced by respective respondent.
In the rice it accompanied with two variables, the more size of holding and no of fragment of the respondent's field relevant the higher no of irrigation.
Predicted character – Level of Pollution
Pulse
Rice
No. Exposure unit(x3)
Cropping intensity(x8)
Marketed surplus(x11)
Family expenditure(x14)
Here the pollution has been regulated to cropping intensity and exposure unit through which sensitization of pollution generated.
In rice pollution level has been dovetailed to marketable surplus & family expenditure. Sometimes meaningless drives to enhance the level of marketable surplus may lead to increasing family expenditure.


Predicted character – Combating Climate Change
Pulse
Rice
Age(x1)
Marketable Surolus(x10)
No. of fragments(x7)
Cropping Intensity(x8)
The dependent variable, combating climate change for pulse has been associated with age of respondent and volume of marketable surplus.
For rice ,combating climate change has been invited the involvement of two variables, no of fragments and cropping intensity.
Predicted character – Return from Market
Pulse
Rice
Age(x1)
No. of exposure unit(x3)
Cropping intensity(x8)
Marketed surplus(x11)
Age(x1)
No of exposure unit(x3)
No of fragments(x7)
Here cropping intensity has been helped in better production of pulse as well as higher vol. of marketed surplus. The role of exposure unit is critical here & age has got important consideration to respondent to capsule of text serve in the exposure unit.
For rice the no. of fragments, exposure unit and age of respondent have gone significance in characterizing the resturn from rice text.

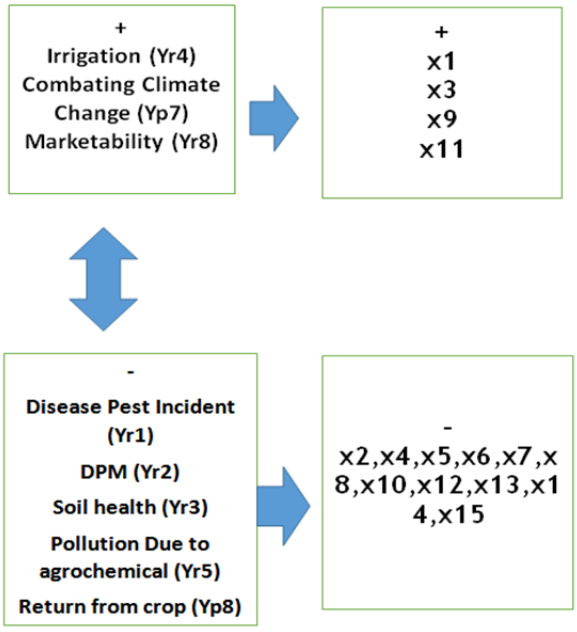

Predicted character – Marketability
Pulse
Rice
Size of holding(x6)
Cropping intensity(x8)
Exposure unit(x3)
Cost of fuel(x13)
To increase more production from pulse, one needs to bring more area under pulse at the same time induction of the pulse crop in the existing cropping sequence would also increase cropping intensity.
The same marketability in rice has been critical, influenced by two casual factors. No. of exposure unit & cost of fuel.
+
Crop diversity (Y1p)
Disease Pest Management (Y9p)
Soil health (Y4p)
Combating Climate Change(Yp7)
+
x3,x4.x5,x6,x7, x8,x9,x13,x13,x 14,x15
-
Disease Pest Incident (Yp2)
Irrigation (Yp5)
Pollution Due to agrochemical (Yp5)
Return from crop(Yp8)
-
x1
x2
x11
x12

Revelation: It's interesting to note that the following left side dependent variables viz. crop diversity (Y_{cd}), disease pest management in pulse(Y_{p3}), soil health maintained(Y_{p4}), Combating climate change(Y_{p7}) have formed a peer conglomeration with right side of independent variables viz. exposure unit(x3), family members(x4), family labor(x5), size of holding(x6), no of fragments(x7), cropping intensity(x8), home stead land(x9), marketable surplus(x10), cost of fuel(x13), family expenditure(x14), natural resource management(x15). This conglomeration can be renamed as strategic pulse enterprise for e.g. crop diversity has been increased with inclusion of pulse which intern to contribution to soil health, to reduce the need for disease pest management and at the same time has helped combating climate change. So this conglomeration can be renamed as strategic pulse enterprise.

The other conglomeration has been incorporated the following variables disease pest incident(Y_{p2}), no. of irrigation in pulse(Y_{p5}), pollution due to agrochemical in pulse($_{Yp6)}$, return from pulse(Y_{p8}), marketability in pulse(Y_{p9}) which rename as managing pulse enterprise, basically variables having short term managerial impact have been incorporated here and the independent variables are age(x1), education(x2), marketed surplus(x11) and distance from market(12).

CANONICAL COVARIATE ANALYSIS (RICE)

The strategic conglomeration of, left side (Y_r) and right side(X) variables with respective sub-grouping.



Revelation: It's interesting to note that the left side variables or dependent variables for rice enterprise formed tow subgroups. The first groups is comprised of no. of irrigation in rice(Y_{r4}), combating climate change(Y_{r6}) and marketability in rice(Y_{r8}). So these dependent variables have formed a strategic combination to ensure water supply to rice at the same time mitigating climate change fetching more return from rice by increasing marketability. These group of dependent variables accommodate and interacting with right side of variables age(x1), exposure unit(x3), home stead land(x9), marketed surplus(x11).. The second subgroup of dependent variables have been formed amongst disease pest incident in rice(Y_{r1}), disease pest management in rice(Yr2), soil health maintained in rice(Y_{r3}), pollution due to agrochemical in rice(Y_{r5}), return from rice(Y_{r7}). This

conglomeration of dependent variables basically management oriented while others are strategy oriented. The second group of dependent variables accommodate and interact with following independent at right side variables education(x2), family member(x4), family labour(x5), size of holding(x6), no of fragments(x7), cropping intensity(x8), marketed surplus(x10), distance from market(x12), cost of fuel(x13), family expenditure, natural resource management(x15).

Factor Analysis:

Table-38 Conglomeration of variables based on factor loading…

Factor	Re-naming	Variable Included	% of Variable	Cumulative %
Factor-1	Family labour	x5	22.87	22.87
Factor-2	Resource	x6,x7	18.35	41.22
Factor-3	Energy Expenditure Mode	x13,x14	19	60.22
Factor-4	Marketable surplus	x10	8.16	68.39
Factor-5	Geo-spatial	x3 , x12	5.90	74.29
Factor-6	Age	x1	5.632	80
Factor-7	Home Marketability	x2 , x9 , x11	5.57	85.50
Factor-8	Farm Capacity	x4 , x8 , x15	4.35	89.85

Revelation:

The factor analysis has been applied here to conglomerate the apparently different variables into homogeneous group called factor which has been

renamed here also. Here all together eight factors has been identified, isolated and along-side their respected variables has been given.

It has been found that factor-1 is conglomerated the solitary variables having 22.87 percent variance. So, it indicates that the variable family labor has been extremely important for better enterprise in pulse and rice.

Factor-2 has been accommodated with two variables, size of holding(x6) and no. of fragments(x7) and they are renamed as resource factor.

Factor-3 has been accommodated with two variables cost of fuel(x13) and family expenditure(x14) and they are renamed as Energy expenditure mode.

Factor-4 has been accommodated with only one variable and name as marketable surplus(x10).

Factor-5 has been accommodated with two variables, exposure unit(x3) and distance from market(x12).

Factor-6 has been accommodated with only one variable which is called as age(x1) factor.

Factor-7 has been accommodated with three variables, education(x2), home stead land(x9) and marketed surplus(x11). They are renamed as home marketability factor.

Factor-8 has been accommodating with three variables, family member(x4), cropping intensity(x8) and NRM motivation(x15). They are renamed as farm capacity factor.