Appendix - 4

Meteorological information for the year 1998 to 2000 at Matar tahsil.

Month	Temperature (° C)			Rain fall (mm)	Relative humidity (%)
	Max.	Min.	Mean		
1998					
January	26 00	10.37	18.22	0 00	63.98
February	29.10	12 47	20 79	0.00	60 42
March	36 44	13.23	24 84	0.00	42.97
April	41 37	22.14	31.16	0.00	41 03
May	41.59	25.56	33 58	0.00	53 59
June	40 14	27.60	33.87	7 67	72 34
July	31.47	26.40	28 94	114 10	82 78
August	30.91	26 07	28.49	263.20	88 32
September	33.60	24 87	29.24	149.40	86.78
October	35.49	24.91	30.20	12.60	58 26
November	31.21	21.04	27.72	11.00	61.96
December	28 90	10.58	19.74	0 00	67 95
1999					
January	27.10	10.70	18.90	0.00	63.98
February	28 80	12.50	20.65	0.00	60 42
March	37.40	12.35	24.87	0.00	42 97
April	41.70	22 64	32 17	0 00	41 03
May	41 90	24 96	33.43	0.00	53.59
June	40.60	28.60	34 60	8.67	72.34
July	31 50	27 40	29 45	101.40	82 78
August	29 90	27.00	28.45	362.30	88 32
September	32.60	24 87	28.73	132.30	86 78
October	34 90	23 81	29.35	33.30	58 26
November	32 00	21 14	26.57	11.00	61 96
December	28.90	10.48	19.69	0.00	67.95
2000					
January	28 90	11.40	20.20	0.00	57 60
February	29.30	11.90	20.60	0.00	49 40
March	34.70	15.30	25.00	0.00	44.10
April	39.30	21.60	30.50	0.00	52 30
May	36.80	25.60	31.20	65.80	63.80
June	36.90	27.40	32 10	49.50	64.40
July	32 00	25.70	28.90	222.20	78.80
August	32.90	25.50	29.20	80.90	78.20
September	34.20	24.20	29.20	9.00	68.90
October	37.40	21.00	29.20	0.00	59.10
November	34.30	15 90	25.10	0.00	53.30
December	30 90	10 90	20.90	4.30	55.20

Appendix – 1.1

QUESTIONAIRE

Interview Schedule No Date of Interview

Name of the Village Taluka

Respondents Name·

PART I

Respondent' s Information

1 Age
2 Education
3 Total land holding (ha)
4 Area under Kharif Paddy (ha)
5. Production (kg/ha)
6 Pesticide use

Crop		Pesticide		
Name	Stage	Specification	Quantity (kg or l/ha)	Method of application

7 Occupation
(a) Farming (b) Animal Husbandry (c) Agricultural Labour Work
(d) Service (e) Business (f) Others.

8. Social Participation

Sr No.	Organization	Member	Position Holder
1	Gram Panchayat		
2	Taluka Panchayat		
3	Service Co-Operative Society		
4	Milk Producers Co-operative Society		
5	Others		

9 Extension Contact

Sr No	Organization	Knowledge about Ext workers				Frequency of Contact to Ext. Workers		
		Name		Head Quarter		Fortni-ghtly	Mon-thly	Occas-ionally
		Yes	No	Yes	No			
1	Village Level Worker							
2	Agril. Extn Officer							
3	Assit. Director of Agril (Extn)							
4	Dy. Director of Agril (Ext)							
5	University Scientist							
6	Others							

10. Scientific orientation

The following are some statements representing the scientific orientation of Kharif paddy growers Please state the degree of agreement by putting tick mark (✓) against each of them on five points continuum.

Sr No	Statement	SA	A	UD	DA	SD
1	2	3	4	5	6	7
1	New methods of farming gives better results to a paddy growers than the old methods					
2	Even a paddy growers with lot of experience should use new methods of farming					
3	Though it takes time for a paddy growers to learn new methods of farming it is worth the efforts					
4	A paddy growers should experiment with new ideas in farming					
5	Traditional method of farming need to be changed in order to raise the level of living					
6	The way a paddy grower for father cultivated is still a best way of framing?					

11 Awareness regarding IPM programs.

a) In which year the IPM started by Govt, of India ?
b) How many hectares are being covered under a block demonstration of IPM for paddy crop?
c) How many farmers are being trained by a block demonstration of IPM for paddy crop?
d) How many days of interval training is being given to the farmers in a block demonstration of IPM for paddy crop?
e) Which are the organisations other than State Argil. Department involved during IPM training program?
f) What benefits are given to the framers during the IPM program?
g) State the four major component of IPM strategy?

Part II

12. Knowledge test Battery with respect to IPM strategy of Kharif paddy crop

A Knowledge with respect to identification of pest/ diseases/ weeds etc

1 Which of the following pest do you identify?

a Brown Hopper

b. Leaf folder

c Stem borer

d Armyworm

2 Do you know at which stage of paddy crop the following pests cause damage?

a Brown Hopper

b Leaf folder

c Stem borer

d Armyworm

3 Do you know the symptom of this pest damage?

a. Brown Hopper

b Leaf folder

c. Stem borer

d Armyworm

4 Can you identify the following beneficial insects.

a Spiders

b Lady Bird Beetle

c Dragon Fly

d Grass hopper

e Predatory bugs

5 State any two predators.

a -------

b -------

6 State the major symptoms of the following diseases of paddy

a BLB

b Blast

c Deficiency of Fe (Kolat)

d. Deficiency of Zn (Trambio)

7 State three weeds that mostly causes yield loss in paddy

B. Resistant Varieties

8 State recommended and resistant variety of paddy to BLB.

a ---- b ------ c -------

9 State recommended and resistant variety of paddy to Blast

a. ---- b ------ c -------

10 State recommended and tolerant variety of paddy to Hoppers.

a ---- b ------ c -------

C Cultural Practices

11 Why deep ploughing in summer season is recommended for kharif paddy cultivation

a. ---- b ------ c.-------

12 Why it is recommended to burn and destroy stubbles and roots of previous crops?

13. Which disease can prevent by treating the seeds with bactericides?

14 States the name of recommended chemicals for seed treatment t prevent bacterial leaf blight of paddy?

15. State the appropriate recommended time for raising the paddy seedlings

16 State the appropriate recommended time for transplantation of paddy.

17 State the appropriate recommended transplanting distance for paddy.

18 State the appropriate recommended dose of chemical fertilizers for kharif paddy

a N_2---- kg/ha b P_2O_5 ------ kg/ha

19 How many split of nitrogen are recommended for kharif paddy?

20 State the appropriate recommended quantity of Zinc Sulphate per ha in paddy.

21. State the appropriate recommended quantity of Ferus Sulphate per ha in paddy.

22. What is the recommended level of water to maintain the kharif paddy?

23 What will be the impact of stagnant water in building pest and diseases to paddy crop?

D Mechanical Practices

24 State the mechanical method which is recommended to prevent the pest on paddy

25. Light traps are used for which pests

26 Pheromone traps are used for which pests

E Biological Control

27. Why bird perches are recommended for paddy

28 Following beneficiaries are used for which pests

a Spider b Ladybird beetle c Dragonfly d Grasshopper e Predatory bugs

F Chemical methods

29 State the recommended quantity of insecticides needed per ha for controlling the following pests?

a Brown hopper b Leafhopper c Stem borer d Armyworm

30 State the recommended quantity of fungicides needed per ha for controlling the following diseases.

a BLB b Blast c Fe deficiency d Zn deficiency

31 How many days after transplantation spraying of weedicide is recommended?

32 Which method is economically cheaper?

a Hand weeding b weedicide

33 State the recommended quantity of weedicides needed per ha for controlling the weeds

a Butachlore b Anilophos c Benthiocarb

34 State name of at least one neem based botanical, recommended in the IPM strategy

35 State two safer but effective pesticides recommended for IPM strategy

36 State the appropriate plant protection appliances suggested in IPM strategy

Part III

The key to verify the extent of adoption\n of IPM strategy by Kharif paddy growers

S. No	IPM strategy	Degree of adoption (comparison to recommendation)				
		Recommended	As per	Above	Below	No
1	Blight resistant	Jaya, Narmada, Masuri, IR-22, GR 101, GR 102, GR 103				
2	Blast resistant	Jaya, Masuri, IR-28, Nawagam -9, GR 102				
Cultural practices						
3	Deep ploughing in summer					
4	Destroying crop residues					
5	Seed treatment	Soaking of seeds in				
		1. 3 % salt solution				
		2. 6gm Streptocyclene + 10g Cereson solution for 25 kg seeds for 8h				
6	Nursery raising	1-15 June				
7	Transplantation	1-15 July				
8	Transplanting distance	20 X15 cm				
9	Fertilizers (Kg/ha)	N_2 - 120 for late variety, 100 for medium and 80 for early variety				

S No	IPM strategy	Degree of adoption (comparison to recommendation)				
		Recommended	As per	Above	Below	No
		P_2O_5 30 middle zone of Gujarat				
10	Micronutrient (Kg/ha)	$ZnSO_4$ - 20 -25				
		$FeSO_4$ 20 -25				
Mechanical Practices						
11	Removal of damaged plant part caused by insect or diseases					
12	Light Tarp	1/ha				
13	Pheromone Trap	5/ ha				
Biological Practices						
14	Release of Trochograma	50,000/ha				
15	Bird Perch	10/ha				
Chemical Control						
Insects						
16	Brown Hopper	Chloropyriphos 20 EC				
		2 % Methyl parathion dust 25 kg/ha				
		0.04 %Monochrotophos 36 SL				
17	Leaf Folder	0 04 %Monochrotophos 36 SL				
18	Stem Borrer	0.07 % Endosulphan 35 EC				
19	Army worm	0 05 % Quinalphos 20 EC				

S. No	IPM strategy	Degree of adoption (comparison to recommendation)				
		Recommended	As per	Above	Below	No
Diseases						
20	BLB	15 gm streptocyclene + 150g Cu-Oxychlonde/ 300 L water				
21	Blast	0 05 % Carbondazim				
22	Fe Deficiency	40 g $FeSO_4$ + 20 g Lime/ 10 L water				
23	Zn Deficiency	40 g $ZnSO_4$ + 20 g Lime/ 10 L water				
Weed Control						
24	Hand Weeding					
25	Weedicides	Butachlore				
		Anilophos				
		Benthiocarb				

Appendix – 1.2

Weightage assigned to different agricultural practices for measuring adoption rate for IPM

Sr. No.	Name of Practices	Weightage
1	Selection of Bacterial Leaf Blight Resistant Variety	12
2	Selection of Blast Blight Resistant Variety	07
3	Selection of Hopper Resistant Variety	18
4	Deep ploughing in summer	03
5	Destruction of crop residues	02
6	Seed treatment	03
7	Raising of healthy nursery	03
8	Time of transplanting	03
9	Use of balance fertilizers	03
10	Use of balance micronutrients	01
11	Removal and destruction of pest infected plant parts	03
12	Use of light trap	01
13	Use of pheromone trap	03
14	Use of bird purchasers	01
15	Conservation of predators and parasites	10
16	Chemical control of hoppers	06
17	Chemical control of Leaf borer	02
18	Chemical control of Stem borer	03
19	Chemical control of Army worm	02
20	Management of Bacterial Leaf Blight	04
21	Management of Blast	01
22	Spray for correction of Fe+ deficiency (*kolat*)	01
23	Spray for correction of Zn+ deficiency (*Trambio*)	01
24	Hand weeding	02
25	Chemical weed control	03