Invasive Species Programme

Report of Survey for Evaluation of Parthenium Awareness Campaign & Baseline Information Gathering for Parthenium Evidence Note in District Sheikhupura

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Acknowledgement

We would like to thank to all respondents who took the time to answer the questions which enabled us to form an insight into situation about Parthenium in the district. Also wish special thanks to Deputy Director, Assistant Directors and field staff of Agriculture Extension Department who facilitated the whole survey process on ground.

Objective of the survey

To collect information about Parthenium for Evaluation of Parthenium Awareness Campaign & Baseline Information Gathering for Parthenium Evidence Note through structured questionnaire (Annex 1) by individual interviews in district Sheikhupura.

Methodology

Agriculture extension department was consulted for identification of suitable respondents in five tehsils of district Sheikhupura. Agriculture field staff accompanied CABI team in the field for interviews. Three teams were formed including female staff for field visits. Each team visited one tehsil on one day. Two to Three villages is all union councils in all five tehsils (tehsil Sharaqpur, tehsil Sheikhupura, tehsil Safdarabad, tehsil Muridke and tehsil Ferozwala) were visited.

Responses of respondents were uploaded on google form. Survey data was analysed and compiled by Dr. Kauser Khan and his team. . Please see annex 2 for all locations visited. Overall 186 males and females' respondents were interviewed in district Sheikhupura.

Survey findings

Socio-economic attributes of respondents

- Most number of respondents were from Tehsil Sheikhupura - 40% (74 No.) Others belonged to Safdarabad 13%, Muridke 22%, Ferozwala 13%, and Sharaqpur 12% respectively. See fig 1.
- 77% respondents (142 No.) interviewed were male and rest 23% (43 No.) were female. See Fig 2.
- Majority of the respondents had age of 50+ years (63 No). Others belonged to 40-51 (51 No.) and 20-30 years respectively (31 No.) See fig 3.
- 98% of the respondents belonged to Rural while the rest 2% were from Peri-Urban areas. See fig 4.
- Average No. of household members is 6 people. Minimum number of household is two persons and maximum as sixteen people.
- 80% (125 No.) respondents were head of the household while the rest 20% were members of the family i.e. spouse, sister, daughter, son etc. See fig 5.
- 94% (163 No.) of the respondents were married while the rest 6% were single (13 No). See fig 6
- Most 39% (52 No.) had primary level education. 24% (32 No.) had secondary level education. 37% had tertiary or illiterate. See Fig 7.
- Farming was the most common primary activity. 67% (41No.), 16% were jobless, 4% off farm labours, 4% were employed and rest 2% business. See Fig 8.
- Average Land holding size is 26.88 Acres
- Farming was the most common source of income for 94% respondents. Rest 6% accounted for labour, job, business. See Fig 09.

Knowledge and information about Parthenium received through the campaign

No. of respondents

- A great majority of people knew about Parthenium plant. 83% (151 No.) See Fig. 10
- All the respondents believe that it is a ‘Booti’. Majority of the people called it ‘Gajjar Booti’, (105 No), other names are Gandi Booti (Dirty plant), Sufaid Booti (White plant), Korr Booti (Bitter plant). See fig 11.
- Majority of the people had seen Parthenium themselves in the fields (93 No.) while others had known it from Extension staff (19 No.) and CABI (2 No.) See Fig 12.
- Parthenium has been mostly / frequently noticed at fields (53 No.), around water channels (10 no.) and urban areas (47 No.) See fig 13.
- It was seen already by the respondents in the years of 2008 and 2013 mostly. (26 No. and 28 No. respectively). See fig 14.

- Majority of the respondents agreed that the Parthenium is harmful for crops and humans. (62 No.) Other views were that Parthenium is just a weed, it can be used as anti-diabetic, goof for injuries, causes allergy and is used for animals' medicine. See fig 15.
- 84% stated that Parthenium has covered a very minor part of land (<10%). Rest 16% stated that it has covered 'A minor part (10% to 40%)' of their land while no one said that Parthenium has covered majority of the land. See Fig. 16
- A great majority of 69% (105 No.) has seen the Parthenium increased in last 5 years. While 20% (31 No.) believe that it has stayed at the same level. See fig 17.
- It has increased gradually (105 No.) While some believe that it has increased or spread rapidly (31 No.) See fig 18.
- It has grown mostly at the roadsides (113 No.) and outside the crop fields (110 No.) Also Parthenium has been seen around water channels (68 No.) and barren lands (83 no.) as well. See fig 19.
- Mostly grown crop was Wheat (127 No.) and rice (110 No.) Other crops grown are vegetables, fodder and sugarcane. See fig 20.
- Mostly, Parthenium was seen in edges of the crop fields (82 No.), also in the centre of the crop fields (33 No.) Fallow fields (21 No.) and unused land (18 No.). See fig 21.
- If Parthenium seen in crops, Wheat and rice were the most effected crops, majority 87% (14 No.) stated that the area effected was a very minor part <10%. While the rest 13% chose the option of a minor part (10-40%) See. Fig 22.
- Majority 62% (96 No.) of the people have the information regarding Parthenium while the rest 38% (59 No.) haven't received any information yet. See fig 23.
- Around 75% (83 No.) of the people received the information from the extension staff, while 22% (24 No.) had seen on TV. Other sources were CABI and other farmers. See fig 24.
- Most people (79%) shared the information with more than 5 persons, while 21% of the respondents shared the information with 1-3 people. See fig 25.
- 98% (100 No.) respondents think the Parthenium had negative effects, while the rest 2% (4 No.) think that Parthenium has positive effects. See fig 26.
- 50% respondents think that Parthenium is a harmful weed, while the 25% each think that it should be rooted out and it is being used to treat animal injuries. See fig 27.
- 74% (64 No.) respondents know a method of controlling Parthenium. While the rest 26% (23 No.) do not know any method of controlling it. See fig 28.
- Nearly all the respondents 98% (146 No.) don't use Parthenium for household for any reason, while the rest 1.5% (3 No.) use it. See fig 29.
- A majority of 47% (81 No.) respondents think that Parthenium affects the crops, while 34% (58 No.) consider it as harmful for human health. They also consider it as threat to animals and environment. See. Fig 30.

Wheat production

For farmers who grew wheat:

- For 2018/19: Average area used to grow wheat was 24.85 acres. Maximum area used was 200 Acres while minimum 1 acre. Majority area used to grow wheat was 1-10 acres. (47 No.) See fig 31.
- For 2017/18: Average area used to grow wheat was 25.2 acres Maximum area used was 200 Acres while minimum 1 acre. Majority area used to grow wheat was 1-10 acres. (57 No.) See fig 36.
- For 2016/2017: Average area used to grow wheat was 27 acres Maximum area used was 200 Acres while minimum 1 acre. Majority area used to grow wheat was 1-20 acres. (53 No.) See fig 42.
- For 2018: Average harvested quantity was 44 maund per acre, while maximum quantity harvested was 60-62 maunds per acre. Mostly the quantity harvested was averaged between 30-50 maunds per acre (114 No.) See fig 32.
- For 2017/18: Average harvested quantity was 41 maund per acre. Mostly the quantity harvested was between 31-40 maunds per acre (40 No.) See fig 43.
- For 2018/19: Rs 1200-1300 were the most common rate. See fig 33.
- For 2017/18: Rs 1100-1200 were the most common rate. See fig 39.
- For 2016/17: Rs 1000-1200 were the most common rate. See Fig 44.
- For 2018/2019: Most, 32% (12 No.) Consumed 41-60 maunds at home. See fig 34.
- For 2017/2018: Most, 46% (38 No.) consumed 41-60 maunds at home. See fig 40.
- For 2016/2017: Most, 37% (26 No.) consumed 41-60-50 maunds at home. See fig 45.
- During all 3 years, amount consumed at home was same, 41-60 maunds.
- For 2018/19: 25% respondents were left with 0-20 maunds. 25% were left with 20-40 maunds while, 40-60 maunds were left with 50% of the respondents.
- For 2017/18 and 2016/17: Houses kept 0-100 maunds most at home. See Fig 41.

Inputs per acre (RUPEES PER ACRE)	
Urea	Rs 1560/-
DAP	Rs 2660/-
Other	Rs 2530/-
Organic fertilizers	Rs 1260/-
Insecticides /Pesticides	Rs 950/-
Fungicides	Rs 1170/-
Seeds	Free

- 62% (79 No.) thought that Parthenium has not affected their fields while the other 38% (49 No.) that Parthenium had no effect on their fields. If yes, Parthenium had reduced wheat crop by a major part 16%-30%. See fig 48.
- 45% (12 No.) respondents think that the yield could have increased by 4-6 maunds. If Parthenium was not present on farm See fig 49.

- 26% (7 No.) respondents think that the yield could have increased by 1-3 maunds. Hence, a meagre effect.
- A great majority 63% (12 No.), think Parthenium had no effect on the wheat field. 37% (7 No.) think that Parthenium resulted in yield reduction and faced difficulties while walking on edges of field. See Fig 50.
- 90% have stated that there has been no health effect on the family members due to Parthenium.
- While the rest of the 10% have told that have faced the health effects. See Fig 51
- 44% (7 No.) of the respondents who feel they have got affected have faced skin allergy.
- While 50% (8 No.) have felt skin irritation and/or itching. See fig 52
- Mostly, (46%) the respondent himself/herself had experienced the symptoms. Other effected people were either from the family or other farmers. See fig 53

Economic Analysis of wheat crop production for years 2017/18 and 2016/17

	Year 2016/16	Year 2017/18	Decreased by
Total Income per acre	48,380	45,150	7.15 %
Total Profit per acre	38,000	35,000	8.60 %

Parthenium control methods

- Hand weeding (68 No.) and chemical spray (66 No.) were the popular choice to control Parthenium. See fig 54.
- Hand pulling / weeding was the most successful method considered than any other followed by chemical spraying. See fig 55.
- 81% (50 No.) of the respondents think that yes, a certain combination of methods was successful. See fig 56.
- Not any method was mostly answered, which accounted for 56%. While 22% preferred not to use hand weeding method again. See fig 57.
- Hand pulling (40 No.) and spraying (38 No) was intended not to be used again. See fig 58.
- Mostly, control method heard was from either from ancestors, other farmers and the extension staff. See fig 59.
- 100% (23 No.) are not aware of any control method. See fig 60.
- 42% (80 No.) used facemasks, 23% (44 No.) used gloves. 23% (44 No.) didn't make use of any gear. See fig 61.
- 58% (63 No.) didn't notice any side effects. 13% faced headache. See fig 62
- 95% (132 No.) did not observe any effect on other pests and animals. See fig 63.
- 75% (3 No.) observed milk souring while the rest 25% observed stomach aches. See fig 64

- No environment/plants/food safety etc. effects were seen by anyone. See fig 65
- Mostly, (75%) 0-1 days later the respondents re-entered the field. See fig 66.

Biological control

- Majority didn't know about biological control term, 76% (119 No.). Rest 24% (37 No.) knew about this term. See fig 67.
- 17% (20 No.) think that this term means "Beneficial insects". See fig 68.
- Majority 79% (109 No.) are willing to use any such approach. While the rest 21% (29 No.) are not willing to. See fig 69.

Willingness to pay

- A great majority 83% (103 No.) are willing to use an alternative to a chemical if it worked while the rest 17% (21 No.) are not willing to. See fig 70.
- 79% (95 no.) are willing to pay while the rest 21% (25 No.) are not willing to pay. See fig 71.
- Great number of people are willing to pay either none (40 No.) or willing to pay 1 to 5 percent above current expenditure (45 No.) See fig 72.
- 81% (42 no.) are willing to use an alternative to a chemical if it works while the rest 19% (10 No.) are not willing. See fig 73
- 76% (38 No.) are willing to pay for a non-chemical control while the rest 24% (12 No.) are not willing to. See Fig 74.
- Most of the respondents are willing to pay 01 -100 rupees per product purchase. 77% (27 No.) are willing to pay as such. See fig 75.

Annex 1. Questionnaire for survey

Good morning/afternoon. We are coming from CABI with permission from the government. We are conducting a survey looking knowledge on a particular plant. We would like to ask you some questions that should take between half an hour and an hour of your time. We would like to share some of this information widely in order that more people understand what practices farmers implement and the way they implement them. Your name will not appear in any data that is made publicly available. The information you provide will be used purely for research purposes; your answers will not affect any benefits or subsidies you may receive now or in the future. Do you consent to be part of this study?

YES		NO	

Date of interview:

Name of interviewer:

GPS location of interview:

Distance from the interview location to the farm (m):

County:

Province:

District:

Tehsil:

Union Council:

Village:

Interview code generated by ODK application

Objective 1: Socio-economic attributes of respondents

Name of respondent (Optional)				**Phone number**						
Gender	Male	Female		Age		Under 20	20-30	30-40	40-50	50+
Where do you live?	Rural	Peri urban	Urban	How many members in the household? (Including yourself and household head)		0-5yrs	6-17yrs	18-25yrs	26-35yrs	36-55yrs	>55yrs
Role in the household head/member	Head of	Member of [spouse (1); parent (2); child (3)]	Other (specify, family member, unrelated etc.)	Marital status		single	married	widowed	Other (specify)		
If not household head provide the following detail about the household head:	Name	Household head primary activity*	Gender	Age	Education	Primary	Secondary	Tertiary	None		
Respondent primary activity*	*1=farming, 2=salaried employment, 3=business, 4=off farm laborer, 5= other specify			Ownership status of your land (owner, worker, renter, short-term long-term tenancy, parent-owned)							

Household land holding (number of acres)				Education	Primary	Secondary	Tertiary	None
Monthly income range (in Pakistani rupees)	0-50,000	50,000-100,000	100,000 +	What languages can you read?	First	Second	Third	Fourth
				What languages can you speak?	First	Second	Third	Fourth
Source(s) of income				Social Status	Nazim	Counsellor	Numberdar	Ordinary person/farmer

Objective 2: Knowledge and information about Parthenium received through the campaign, wheat production and Parthenium control

Do you know this plant? (Show pictures or actual specimen) Make sure you dispose of physical specimen properly	**Yes**	**No**	**What name do you have for it?**					
If no, ask whether they know it by any of these names: Booti, gajjar Booti, Gandi Booti								
Where did you first hear about it? (First hand seen in area; heard about on radio etc.…)			Where did you first notice it? (in your field; in your neighbourhood; in your village/town)	In your field	On your land	In your neighbourhood common land	In urban areas (streets pavement…)	Other (specify)
When did you first notice it? (year)			What do you know about the plant?					

How much of your land is covered with Parthenium? (%)	A very minor part (<10%)	A minor part (10% to 40%)	About a half (40% to 60%)	A major part (60% to 90%)	The entire area (>90%)	Comments

Has the cover of Parthenium	Increased	Decreased	Stayed the	Other (detail)	How quickly has it spread?	Gradually	Rapidly	Other (detail)

changed in the last 5 years?			same		Only ask this question if the subject of spread' has been mentioned in previous question				
Where have you seen Parthenium growing this year?	In crops	Outside crops field	Road sides	Barren lands	Around water channel	Parks	Flower shops	Any other……	
For farmer only: which crops do you grow?	1st	2nd	3rd	Which areas of your crop fields have Parthenium in:	In centre of crop field	In edges of crop field	In fallow fields	In unused land	Other (specify)
If Parthenium seen in crops, which crops were most affected last season?	Crop	Variety		What area of this crop was affected with Parthenium last season?	A very minor part (<10%)	A minor part (10% to 40%)	About a half (40% to 60%)	A major part (60% to 90%)	The entire area (>90%)
During this season (since	Yes	No		If Yes, from where did	Extension field staff	Fellow farmer	TV	Radio	Printed material	Any other…

April this year) have you received any information messages about Parthenium?			you get the information from? (Tick all of those that apply)						……
Note any details of the communication e.g. radio station, format of printed material here….									
If you received information this year, how many people did you share this information with?	0	1-3	3-5	6-10	11-15	More than 15			
If you received information this year… Do you think Parthenium has:	Positive effects	Negative effects	If you **did not received** information this year… Do you think Parthenium has:		Positive effects	Negative effects			
If Parthenium has positive effects, then why do you think this and what are they?	Provide detail:								
If you received information this year… Can you remember one method of controlling it?	No	Yes – please describe……							
Do you or anyone in your household use Parthenium for any particular reason?	Yes	No	If yes,	Who uses it? (Gender, age etc.)		What is it used for?		When is it used? (i.e. seasonal)	
If Parthenium has negative effects, then why do you think this and what are they?	Provide detail:								
Answers to above question –	Poisonous for animals	Harmful for human health	Affects crops	Problem for environment	Any other……				

do not prompt response					

Wheat production

For farmers who grew **wheat:**

Plot season	What proportion of total farm area was used to grow wheat? (%)	Quantity harvested (state unit of measurement)	Quantity sold (state unit of measurement)	Price / unit (state unit of measurement)	Amount consumed at home + given away to relatives (state unit of measurement)	Remaining (store) (state unit of measurement)
2018/2019 (expected)						
2017/2018 (recall)						
2016/2017 (recall)						

External inputs purchased in the LAST season for wheat production:				
Input	Sold in which units (convert to kg or litre)	Number of units bought (per season)	Price per unit of input	Do you usually use this input? 1= yes some times 2= yes, very often 3= no it was my first time
Inorganic fertilizers				
Organic fertilizers				
Insecticides /pesticides				

Herbicides											
Fungicides											
Seeds											
Do you think Parthenium affected your wheat yields in any way?	Yes	No	If **yes**, by how much did Parthenium reduce wheat yield?	<5%	5-15%	16-30%	31-45%	46-60%	61-75%	76-80%	>80%

If Parthenium was not present on your farm how many extra units of wheat do you think it would have been possible to harvest?	Extra harvest (State unit)		Was there any other problem/s with having Parthenium in your wheat field?	Provide details:	
Have you or any of your family members experienced any health effects due to contact with Parthenium?	Yes	No	If yes provide details of who in your family experienced them and the symptoms:	Who	Detail of symptoms

Parthenium control methods

What control methods, if any, did you use to manage Parthenium? (do not prompt)	**Hand weeding/ pulling**	**Slashing /cutting**	**Burning**	**Ploughing**	**Chemical / herbicide**	**Biological**	**Do not control**	**Any other……**

For all control methods used	Cost of purchase	Number of times	Dosage per	Cost of labour (rupees per	Number of	Number of times	If you or other family members	How much of your own,	How successful

provide details: **Control method (if product trade name)**	(rupees) Indicate '0' if given free or no cost associated	purchased /applied (per season)	applicati on (state units)	unit i.e. day/week/seas on) Indicate "0" if no hired labour was used	labourers hired (per season)	hired labour (state unit i.e. days per week/se ason)	completed this task? **Who** i.e. myself, spouse, other family members (state)	or your family's time used? (state unit of time i.e. per season)	was the method? 1:very successful; 2: somewhat successful; 3: not successful
E.G. hand weeding	0	0	0	xx rupees/day/week 2 labourers	2	twice a season 2 days each time	Myself , wife and daughter	5 days each per season (=10 days total)	3 as had to keep repeating
2.									
3.									
4.									
5.									
6.									
7.									
8.									
Was one method more successful than any other?					Do you think any combination of methods was successful?				
Which method would you definitely not use again?					Which method would you definitely use again?				
Where did you heard about this control method?					Are you aware of any control method that was not available to you? If				

				yes, provide detail			
If you used chemicals did you use protective gear?	None used	Face mask	Overall	Helmet	Gloves	Gum boots	Other (specify)
Did you notice any side-effects after using chemicals?	None noticed	Headache	Stomach ache	Dizziness	Skin itching	Bad smell	Other (specify)
Did you observe any effects on other pests or animals	Yes	No	Details:				
Did you observe any other effects? (E.g. on environment/plants/food safety etc.)	Yes	No	Details:				
After you sprayed, how many days later did you wait before re-entering the field?	# days	State procedure:					

Biological control

Have you heard of the term biological control?	**Yes**	**Describe what the term means to you:**	**No**	**Definition: Biological control is a method of controlling pests (insects, mites, weeds and plant diseases) using other organisms**
If a biological control option was available for Parthenium would you be willing to use such an approach?	Yes		No, provide reason	

Willingness to pay

For those who currently **use chemicals**:

Would you be willing to use an alternative to a chemical if it worked?	**Yes**	**No, provide reason**	**Would you be willing to pay for an alternative to a chemical just as effective as the one(s) you use now if it had less health implications?**	**Yes**	**No, provide reason**

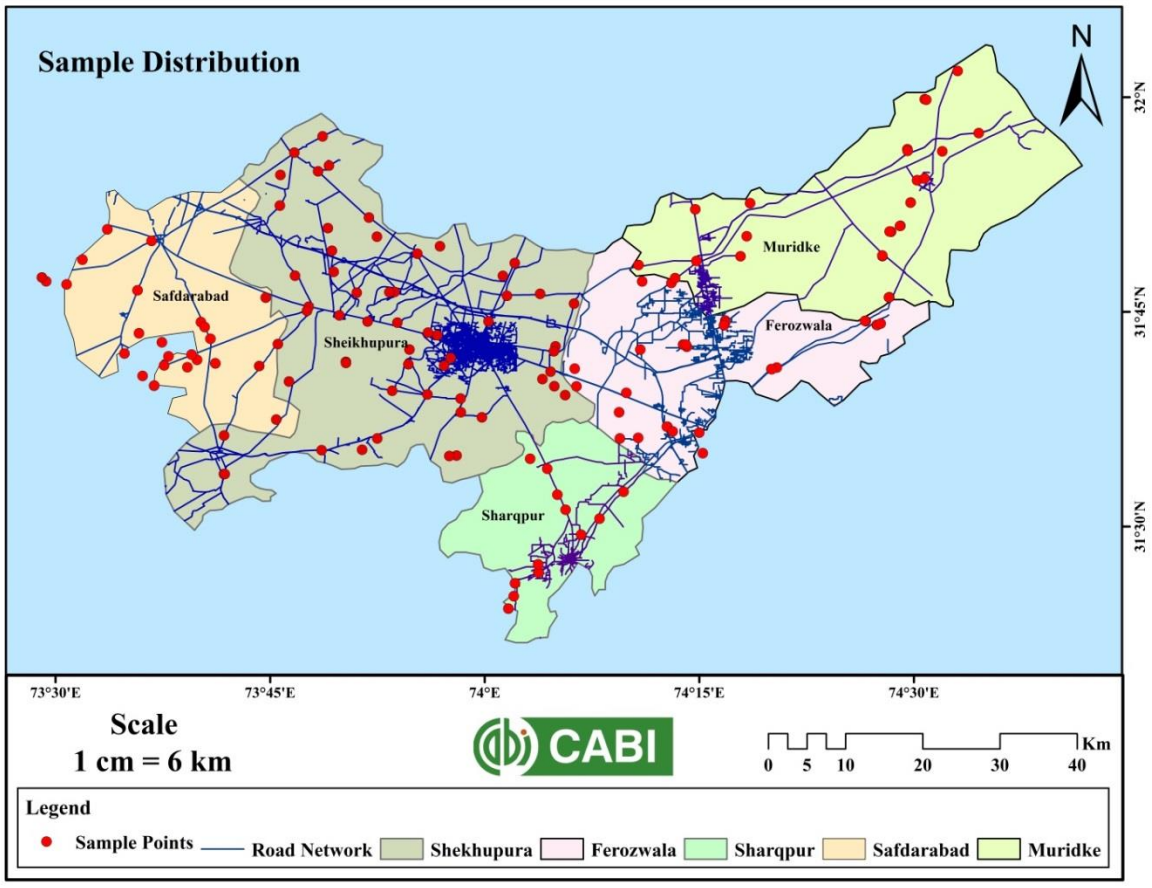
How much would you be willing to pay?	Not willing to pay	Willing to pay 1 to 5 percent above current expenditure	Willing to pay 6 to 10 percent above current expenditure	Willing to pay 11 to 15 percent above current expenditure	Willing to pay 16 to 20 percent above current expenditure	Willing to pay more than 20 percent above current expenditure

For those who **do not use chemicals**:

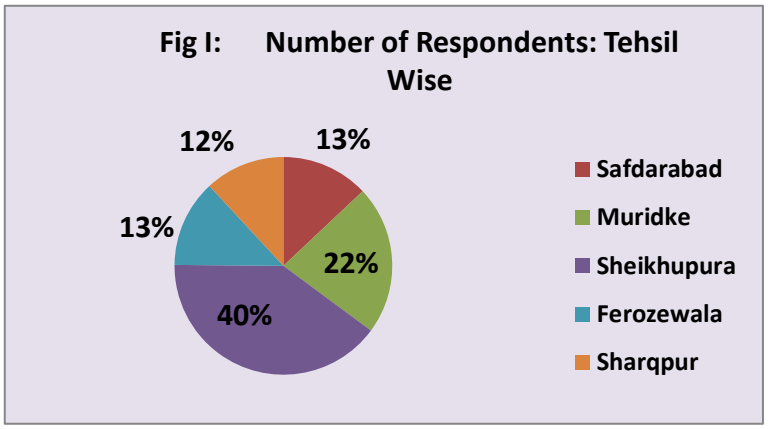
Would you be willing to use an alternative to a chemical if it works?	**Yes**	**No, provide reason**	**Would you be willing to pay for a non-chemical control?**	**Yes**	**No, provide reason**

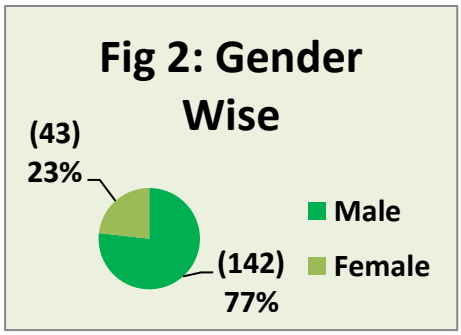
What is the maximum amount you would be willing to pay for a non-chemical control option? For one acre.	Willing to pay 01 - 100 rupees per product purchase	Willing to pay 101 -500 rupees per product purchase	Willing to pay 501 -1000 rupees per product purchase	Willing to pay 1001 -1500 rupees per product purchase	Willing to pay 1501 - 2000 rupees per product purchase

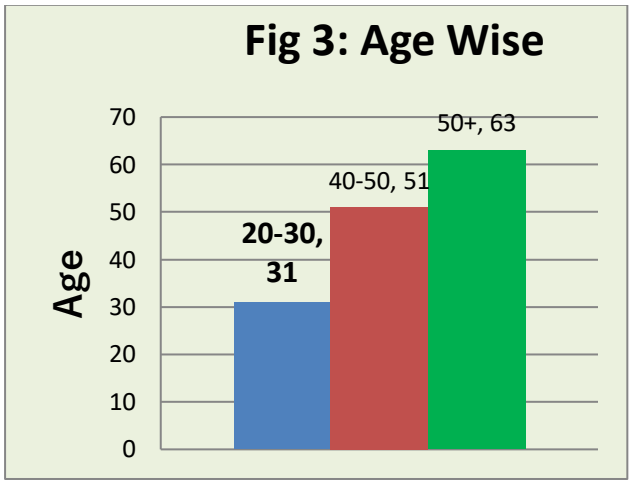
Annex 2; Sample distribution Map



Annex 3: Graphs







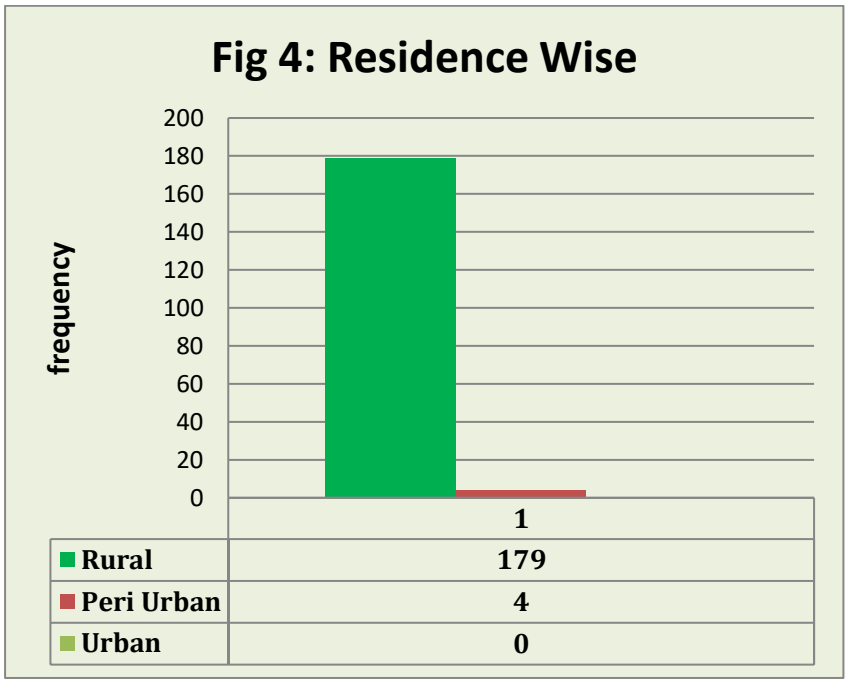


Fig 4: Residence Wise
frequency
200
180
160
140
120
100
80
60
40
20
0
1
Rural 179
Peri Urban 4
Urban 0

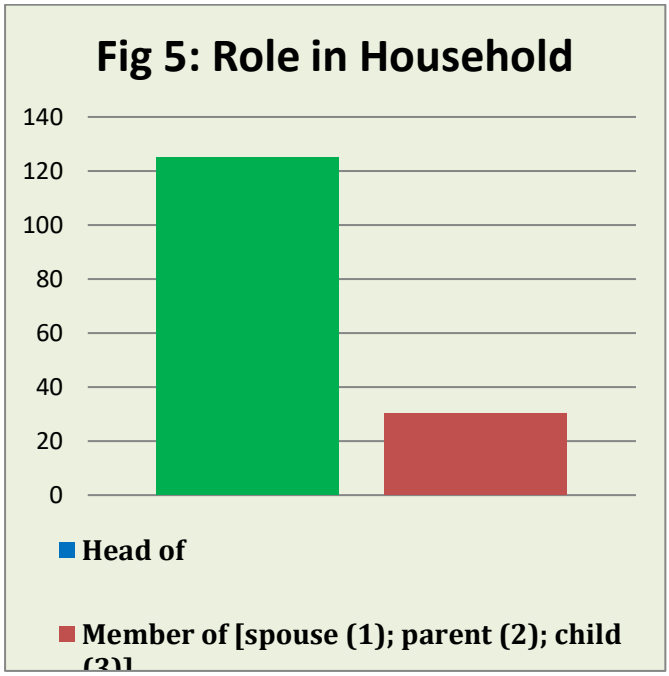


Fig 5: Role in Household
140
120
100
80
60
40
20
0
Head of
Member of [spouse (1); parent (2); child (3)]

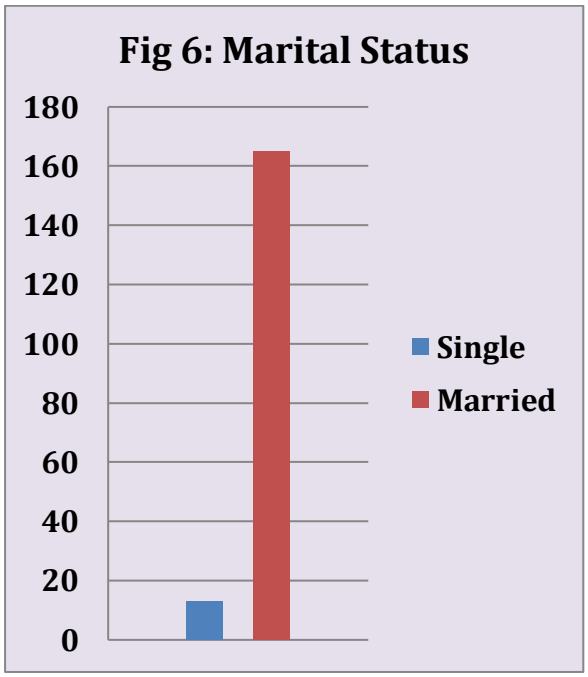


Fig 6: Marital Status
180
160
140
120
100
80
60
40
20
0
Single
Married

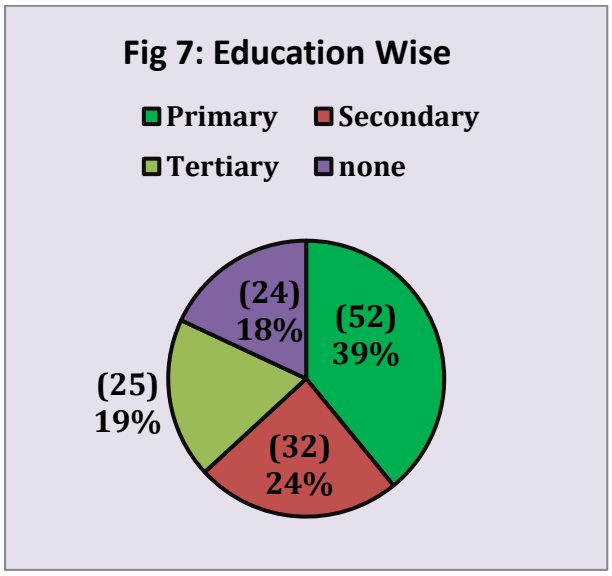


Fig 7: Education Wise
Primary
Secondary
Tertiary
none
(24)
18%
(52)
39%
(25)
19%
(32)
24%

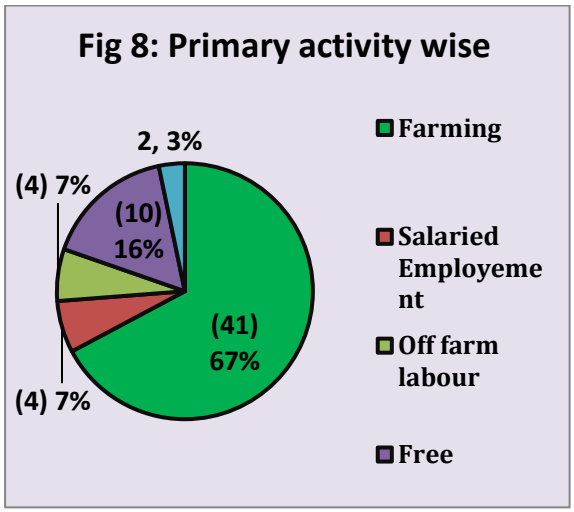


Fig 8: Primary activity wise
2, 3%
(4) 7%
(10) 16%
(41) 67%
(4) 7%
Farming
Salaried Employement
Off farm labour
Free

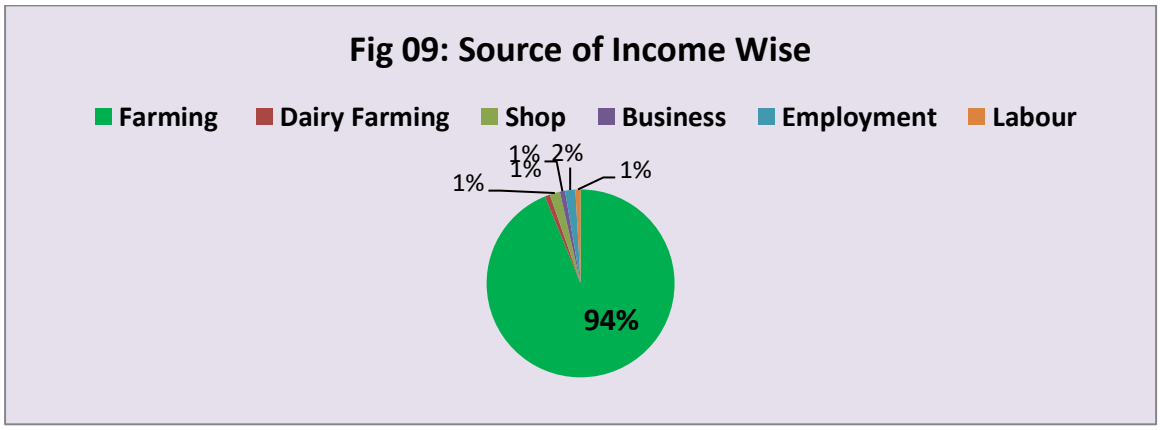


Fig 09: Source of Income Wise
Farming
Dairy Farming
Shop
Business
Employment
Labour
1%
1%
1%
2%
1%
94%

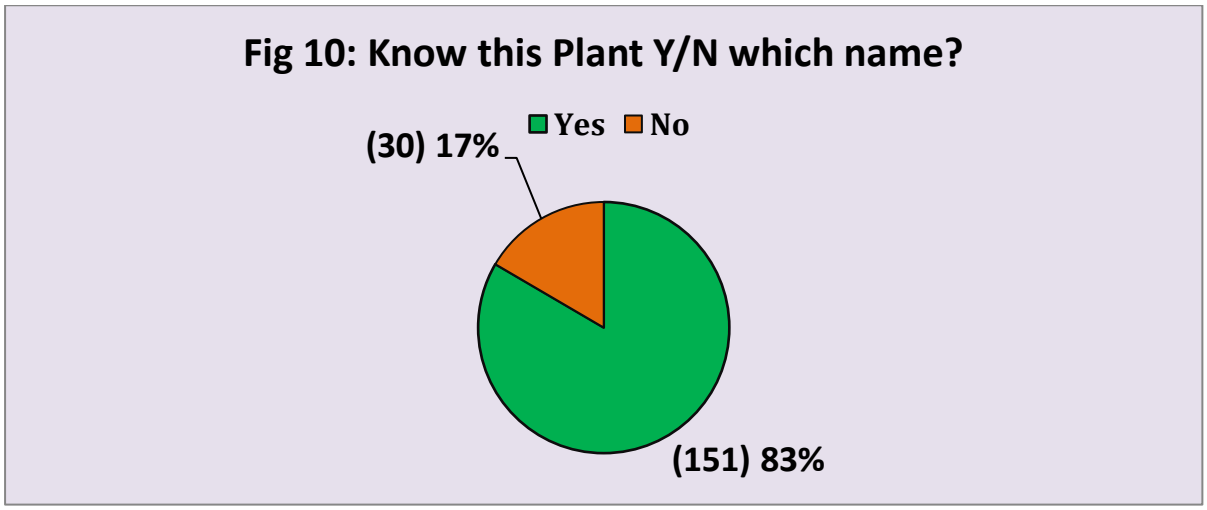


Fig 10: Know this Plant Y/N which name?
Yes
No
(30) 17%
(151) 83%

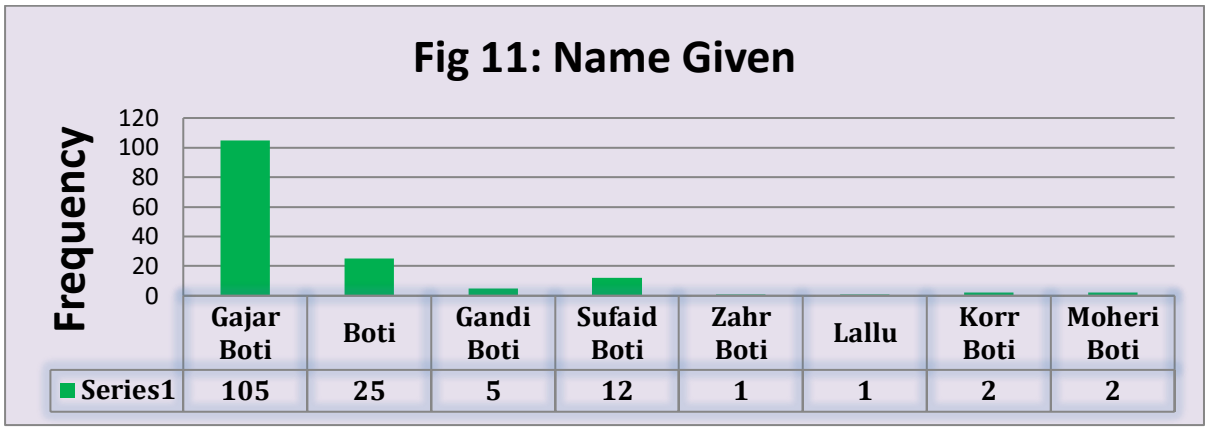


Fig 11: Name Given
Frequency
120
100
80
60
40
20
0
Gajar Boti
Boti
Gandi Boti
Sufaid Boti
Zahr Boti
Lallu
Korr Boti
Moheri Boti
Series1
105
25
5
12
1
1
2
2

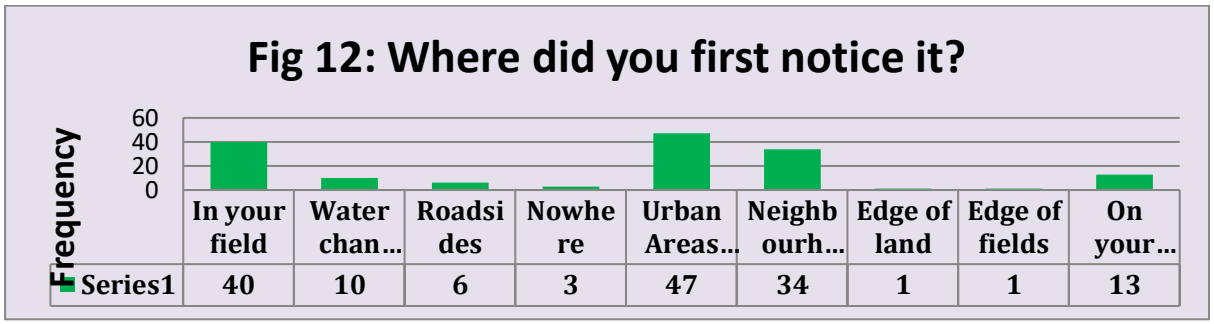


Fig 12: Where did you first notice it?
Frequency
60
40
20
0
In your field
Water chan...
Roadsi des
Nowhe re
Urban Areas...
Neighb ourh...
Edge of land
Edge of fields
On your...
Series1
40
10
6
3
47
34
1
1
13

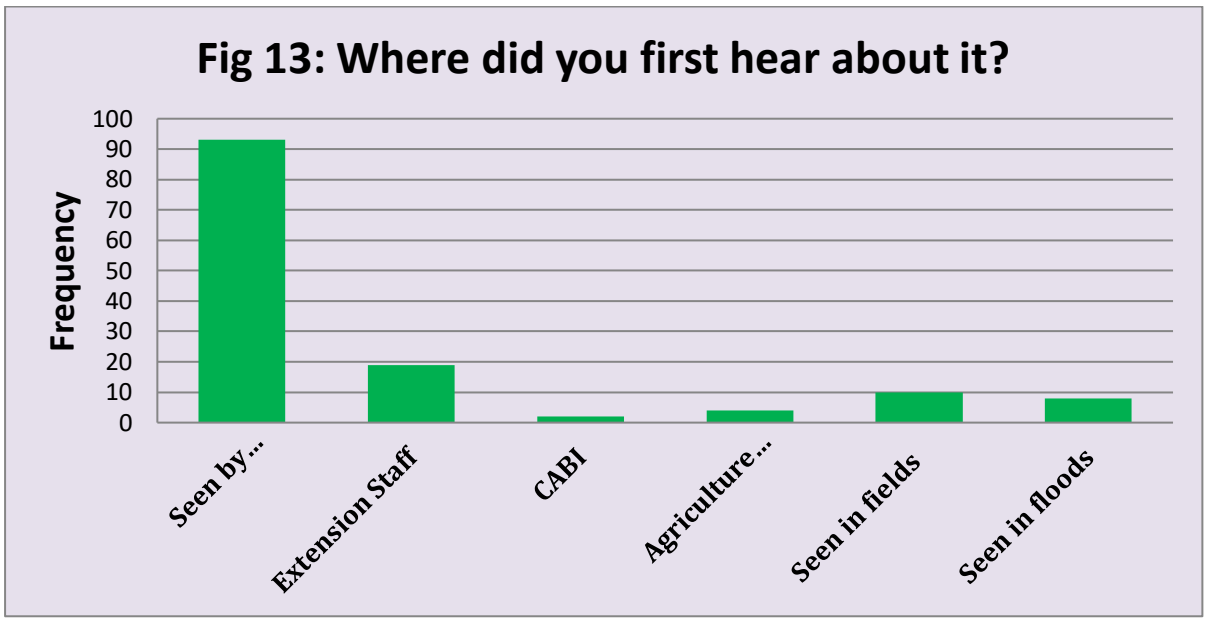


Fig 13: Where did you first hear about it?
Frequency
100
90
80
70
60
50
40
30
20
10
0
Seen by...
Extension Staff
CABI
Agriculture...
Seen in fields
Seen in floods

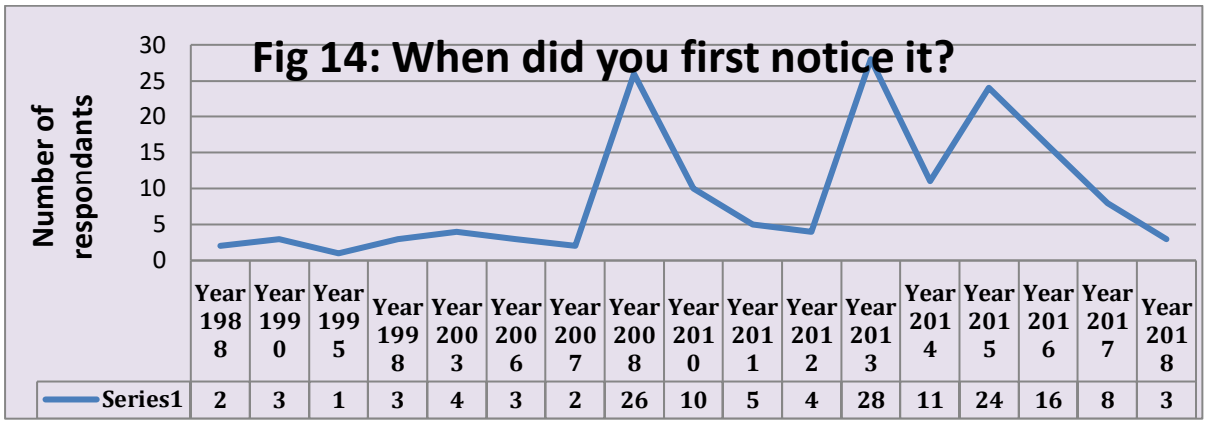


Fig 14: When did you first notice it?
Number of respondants
30
25
20
15
10
5
0
Year 1988
Year 1990
Year 1995
Year 1998
Year 2003
Year 2006
Year 2007
Year 2008
Year 2010
Year 2011
Year 2012
Year 2013
Year 2014
Year 2015
Year 2016
Year 2017
Year 2018
Series1
2
3
1
3
4
3
2
26
10
5
4
28
11
24
16
8
3

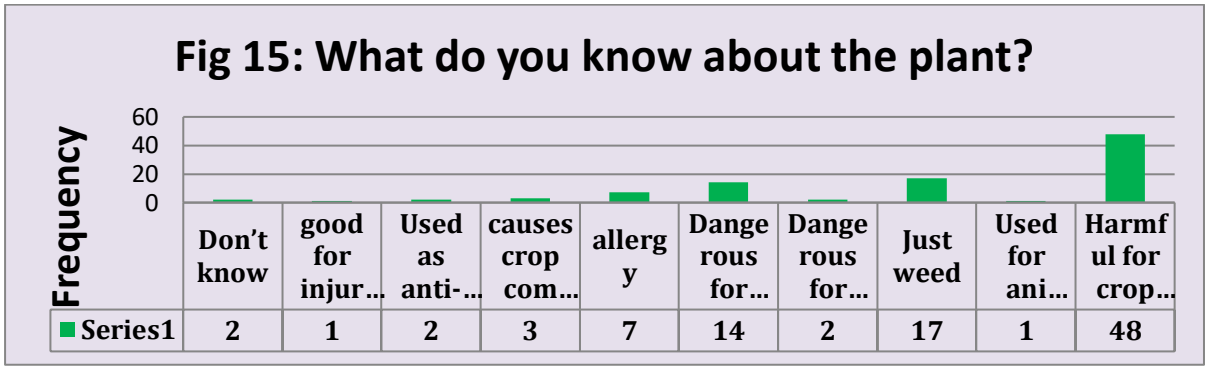


Fig 15: What do you know about the plant?
Frequency
60
40
20
0
Don't know
good for injur...
Used as anti-...
causes crop com...
allergy
Dangerous for...
Dangerous for...
Just weed
Used for ani...
Harmful for crop...
Series1
2
1
2
3
7
14
2
17
1
48

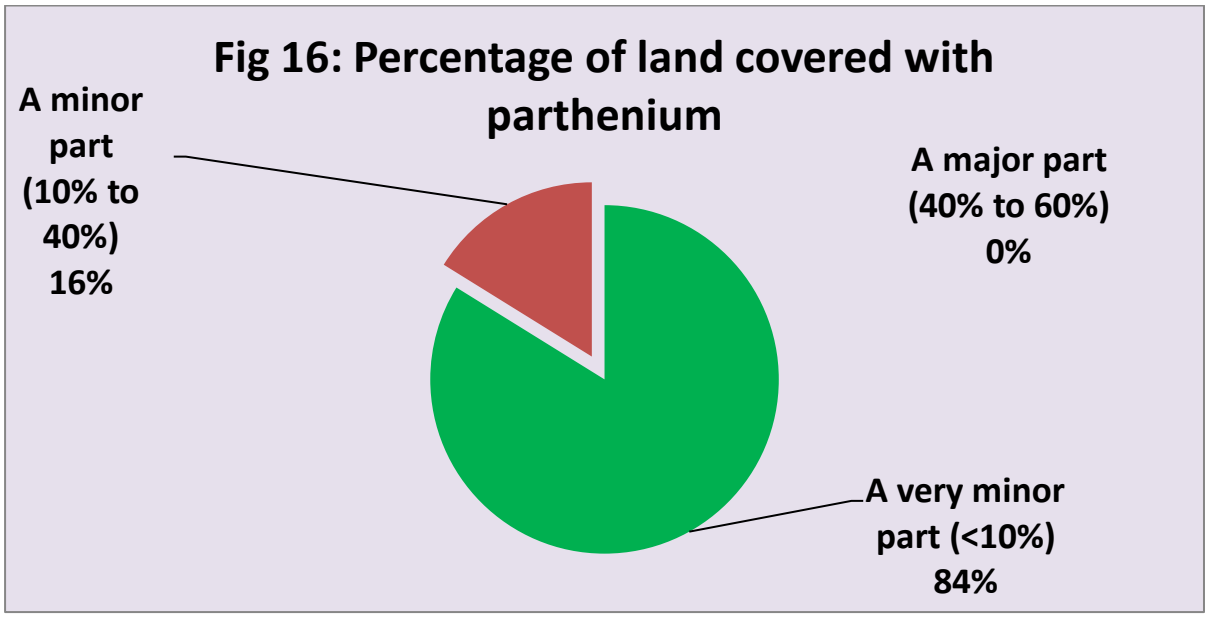


Fig 16: Percentage of land covered with parthenium
A minor part (10% to 40%) 16%
A major part (40% to 60%) 0%
A very minor part (<10%) 84%

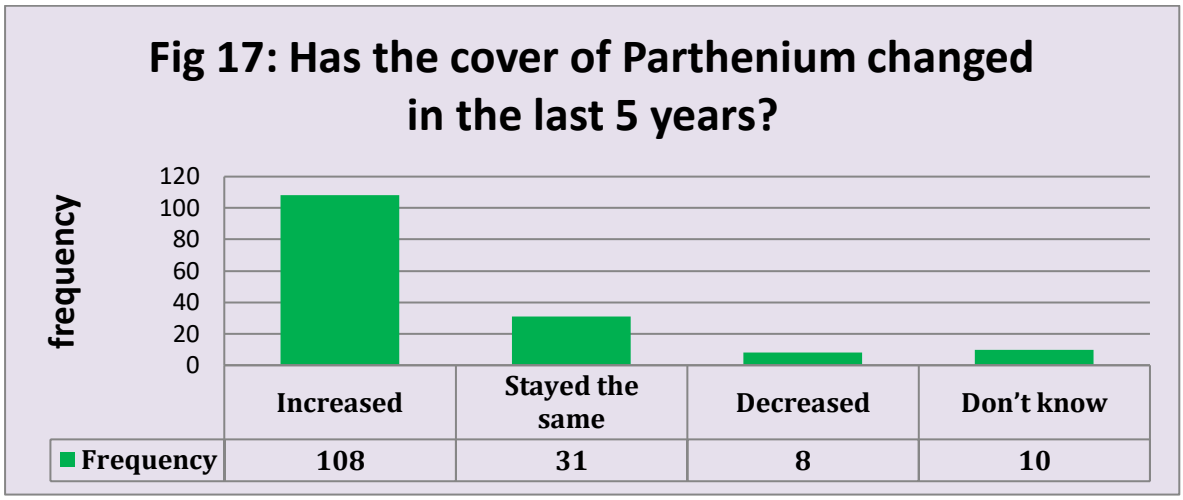


Fig 17: Has the cover of Parthenium changed in the last 5 years?
frequency
120
100
80
60
40
20
0
Increased
Stayed the same
Decreased
Don't know
Frequency
108
31
8
10

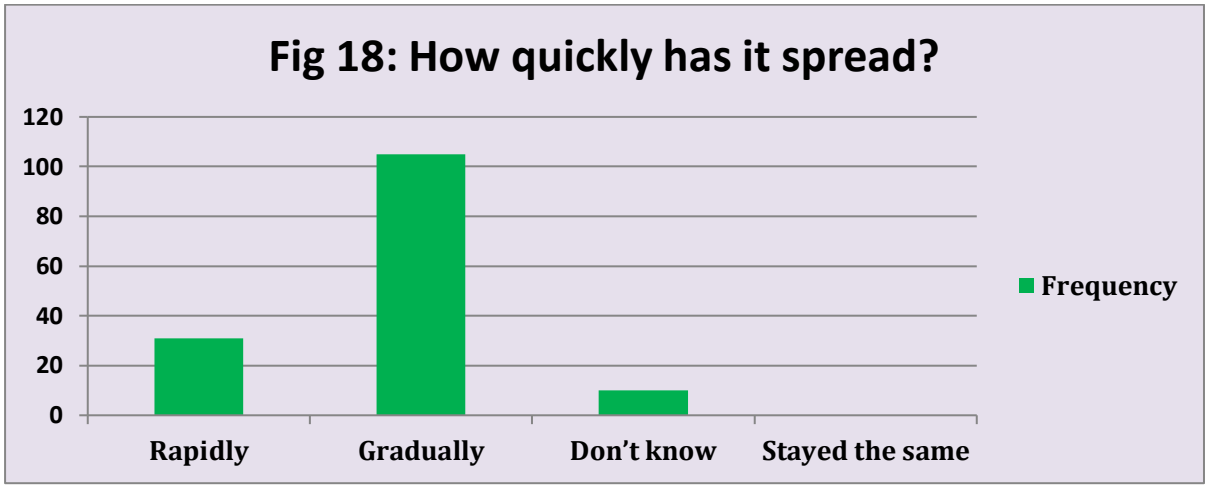


Fig 18: How quickly has it spread?
120
100
80
60
40
20
0
Rapidly
Gradually
Don't know
Stayed the same
Frequency

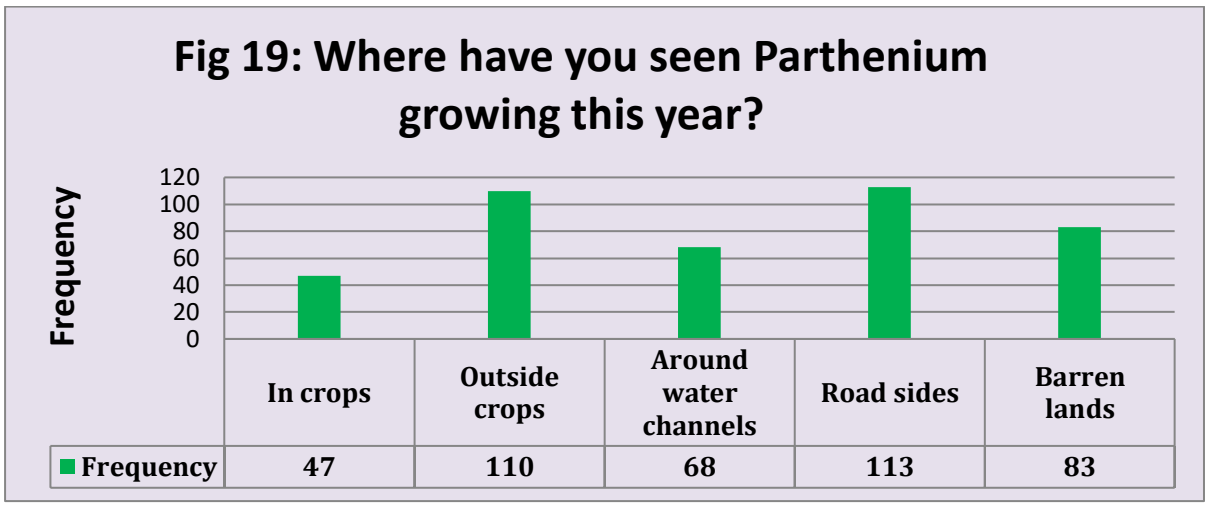


Fig 19: Where have you seen Parthenium growing this year?
Frequency
120
100
80
60
40
20
0
In crops
Outside crops
Around water channels
Road sides
Barren lands
Frequency
47
110
68
113
83

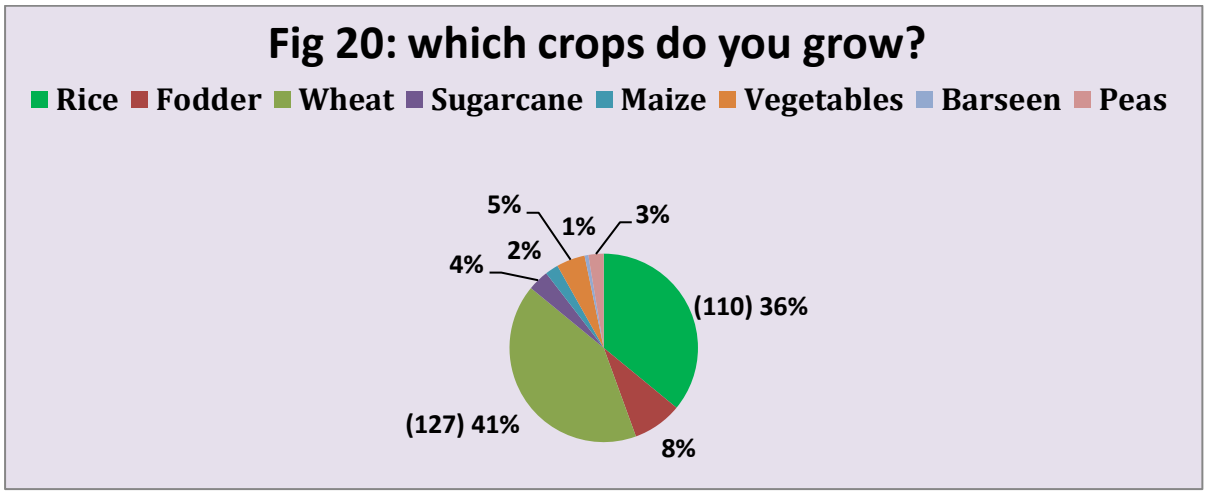


Fig 20: which crops do you grow?
Rice
Fodder
Wheat
Sugarcane
Maize
Vegetables
Barseen
Peas
5%
1%
3%
2%
4%
(110) 36%
(127) 41%
8%

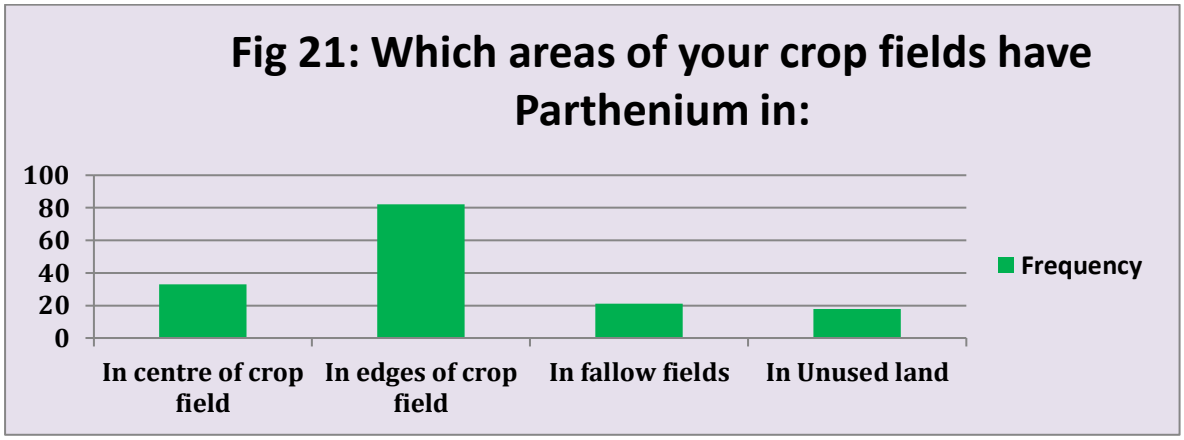


Fig 21: Which areas of your crop fields have Parthenium in:
100
80
60
40
20
0
In centre of crop field
In edges of crop field
In fallow fields
In Unused land
Frequency

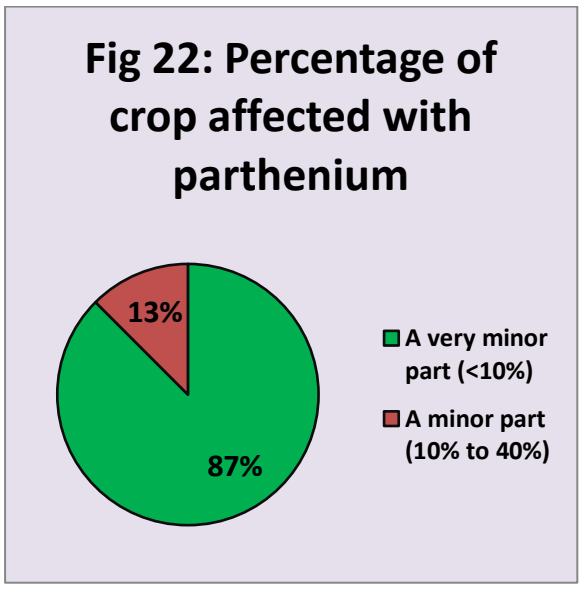


Fig 22: Percentage of crop affected with parthenium
13%
87%
A very minor part (<10%)
A minor part (10% to 40%)

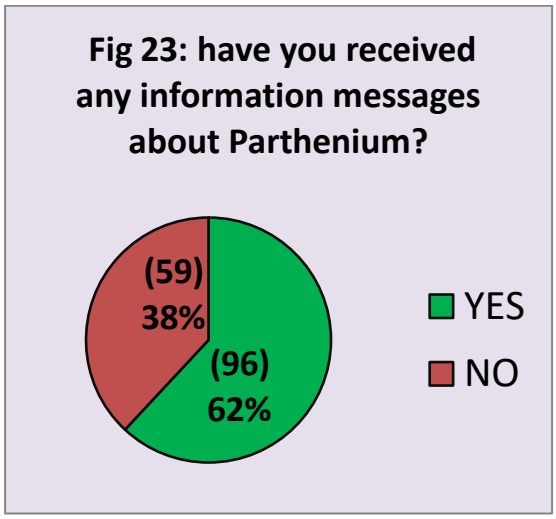


Fig 23: have you received any information messages about Parthenium?
(59) 38%
(96) 62%
YES
NO

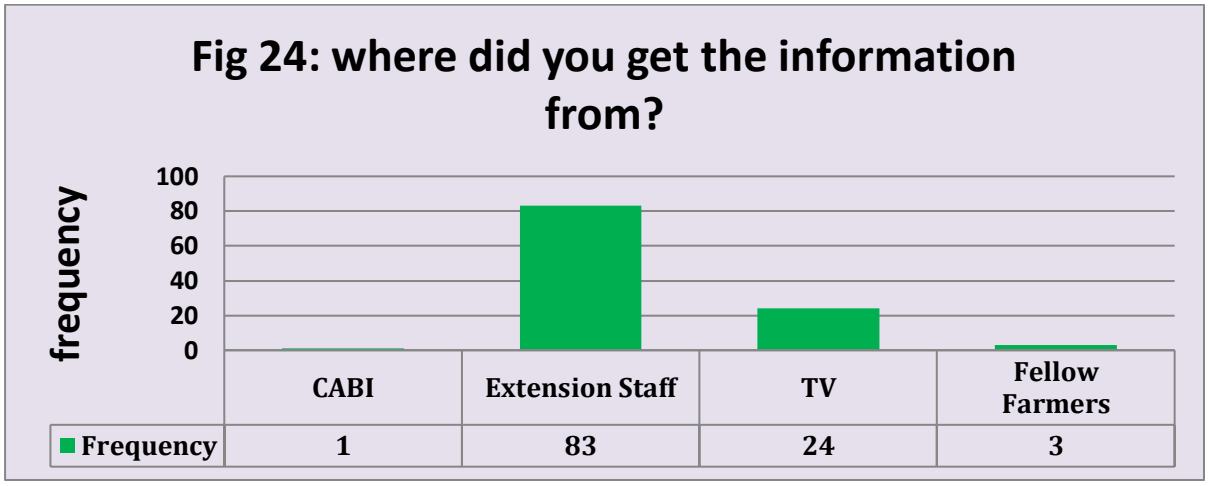


Fig 24: where did you get the information from?
frequency
100
80
60
40
20
0
CABI
Extension Staff
TV
Fellow Farmers
Frequency
1
83
24
3

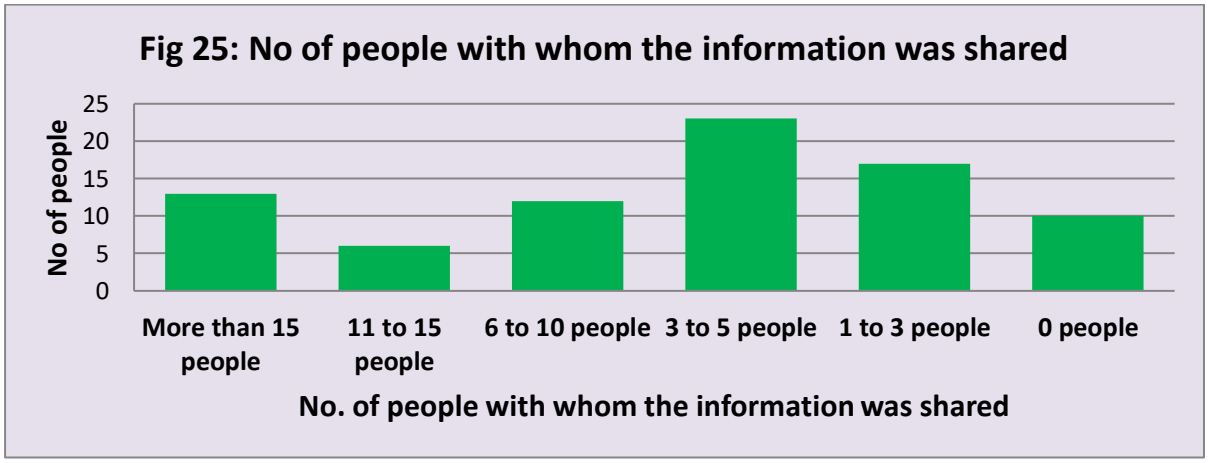


Fig 25: No of people with whom the information was shared
No of people
25
20
15
10
5
0
More than 15 people
11 to 15 people
6 to 10 people
3 to 5 people
1 to 3 people
0 people
No. of people with whom the information was shared

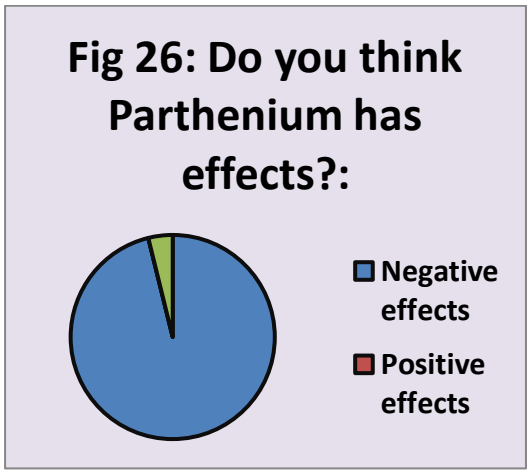


Fig 26: Do you think Parthenium has effects?:
Negative effects
Positive effects

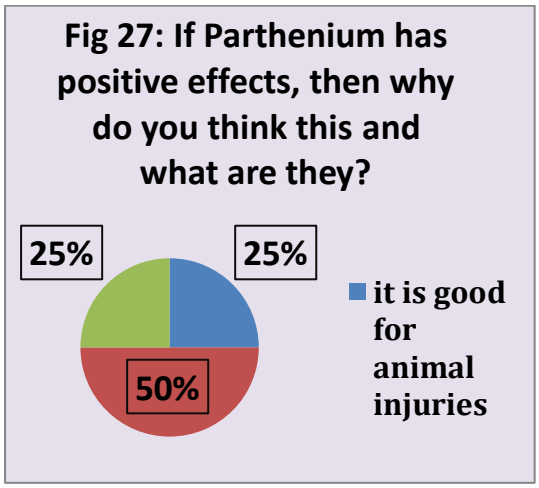


Fig 27: If Parthenium has positive effects, then why do you think this and what are they?
25%
25%
50%
it is good for animal injuries

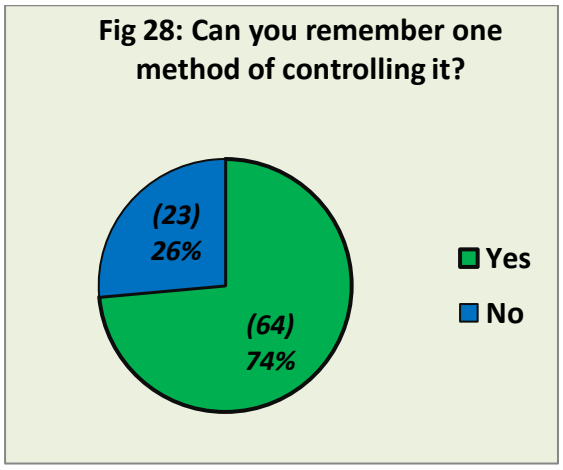


Fig 28: Can you remember one method of controlling it?
(23) 26%
(64) 74%
Yes
No

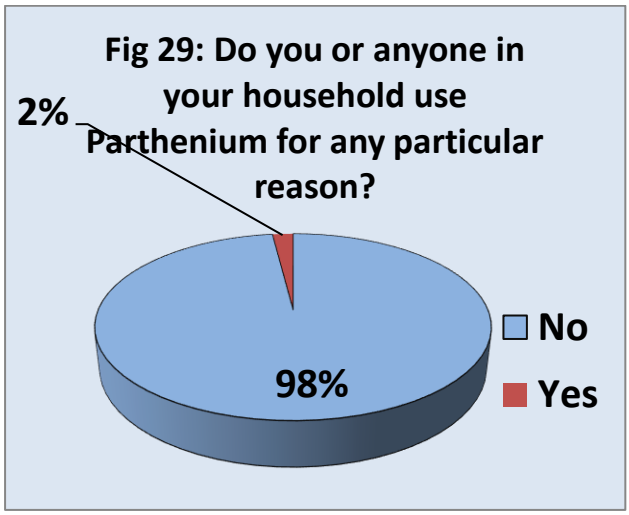
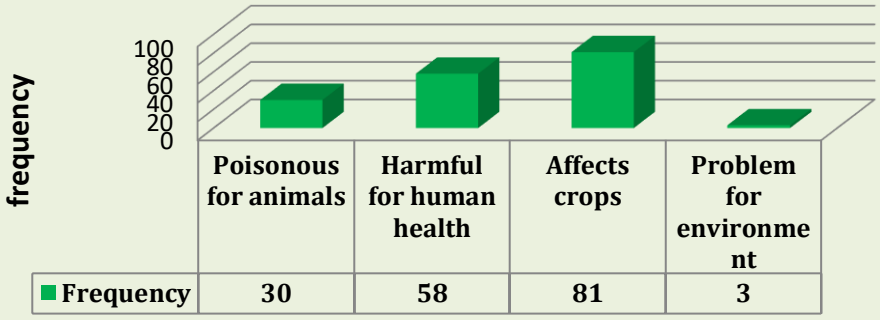
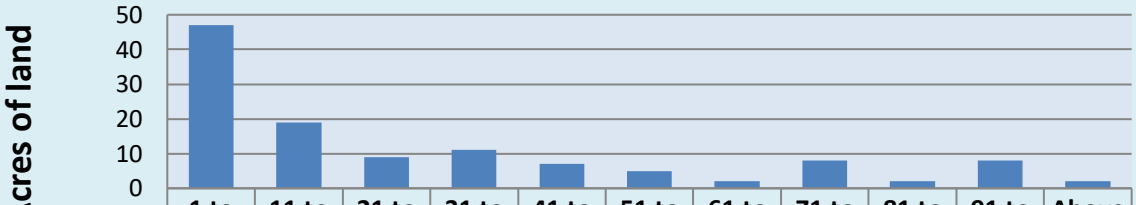


Fig 30: If Parthenium has negative effects, then why do you think this and what are they?



	Poisonous for animals	Harmful for human health	Affects crops	Problem for environment
Frequency	30	58	81	3

Fig 31: proportion of total farm area used to grow wheat: Year 2018



	1 to 10 acres	11 to 20 acres	21 to 30 acres	31 to 40 acres	41 to 50 acres	51 to 60 acres	61 to 70 acres	71 to 80 acres	81 to 90 acres	91 to 100 acres	Above 100 acres
Frequency	47	19	9	11	7	5	2	8	2	8	2

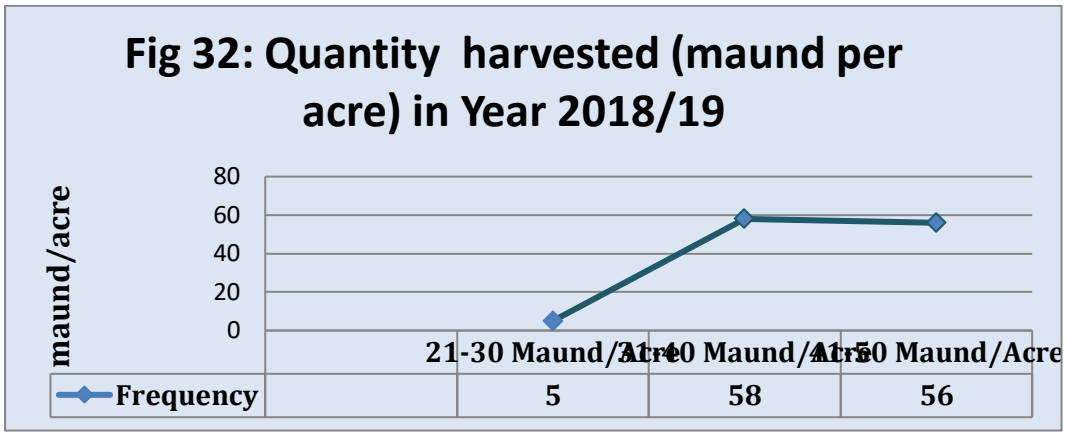


Fig 32: Quantity harvested (maund per acre) in Year 2018/19
maund/acre
80
60
40
20
0
21-30 Maund/Acre
31-40 Maund/Acre
41-50 Maund/Acre
Frequency
5
58
56

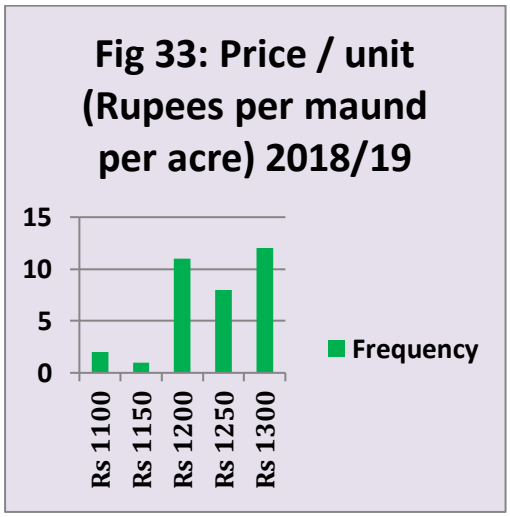


Fig 33: Price / unit (Rupees per maund per acre) 2018/19
15
10
5
0
Rs 1100
Rs 1150
Rs 1200
Rs 1250
Rs 1300
Frequency

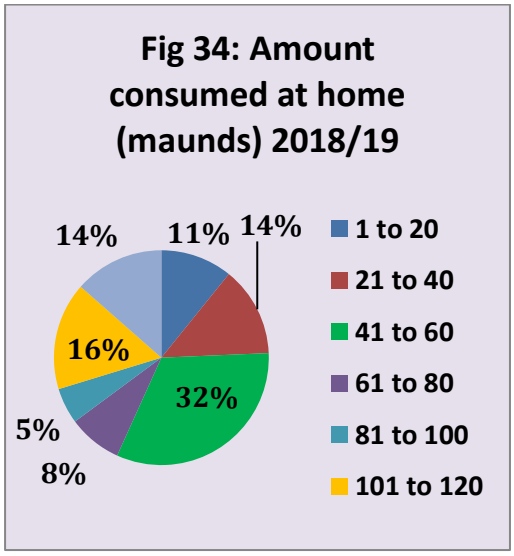


Fig 34: Amount consumed at home (maunds) 2018/19
14%
11%
14%
16%
32%
5%
8%
1 to 20
21 to 40
41 to 60
61 to 80
81 to 100
101 to 120

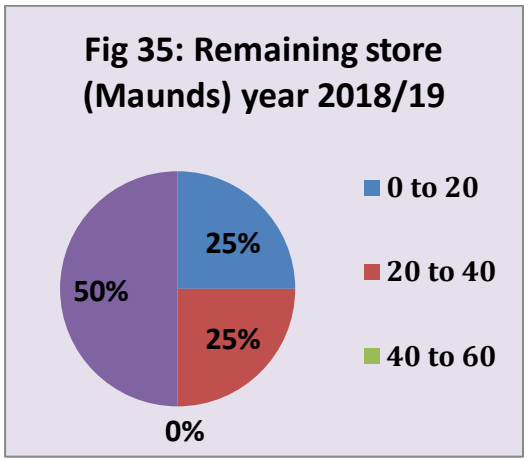


Fig 35: Remaining store (Maunds) year 2018/19
25%
25%
50%
0%
0 to 20
20 to 40
40 to 60

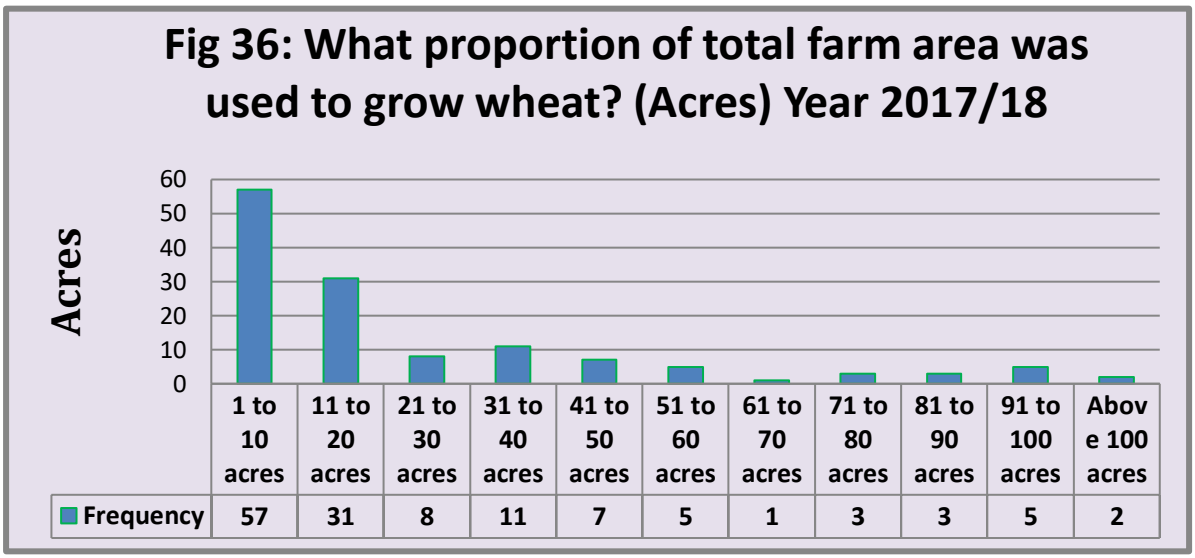


Fig 36: What proportion of total farm area was used to grow wheat? (Acres) Year 2017/18
Acres
60
50
40
30
20
10
0
1 to 10 acres
11 to 20 acres
21 to 30 acres
31 to 40 acres
41 to 50 acres
51 to 60 acres
61 to 70 acres
71 to 80 acres
81 to 90 acres
91 to 100 acres
Above 100 acres
Frequency
57
31
8
11
7
5
1
3
3
5
2

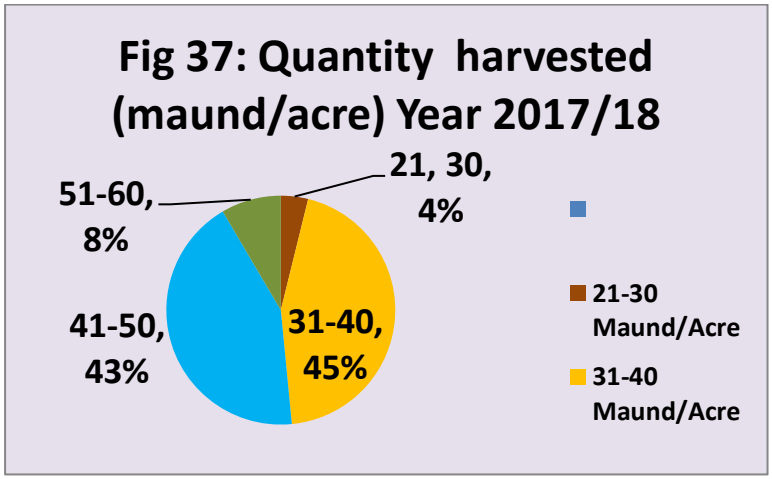


Fig 37: Quantity harvested (maund/acre) Year 2017/18
21, 30, 4%
51-60, 8%
41-50, 43%
31-40, 45%
21-30 Maund/Acre
31-40 Maund/Acre

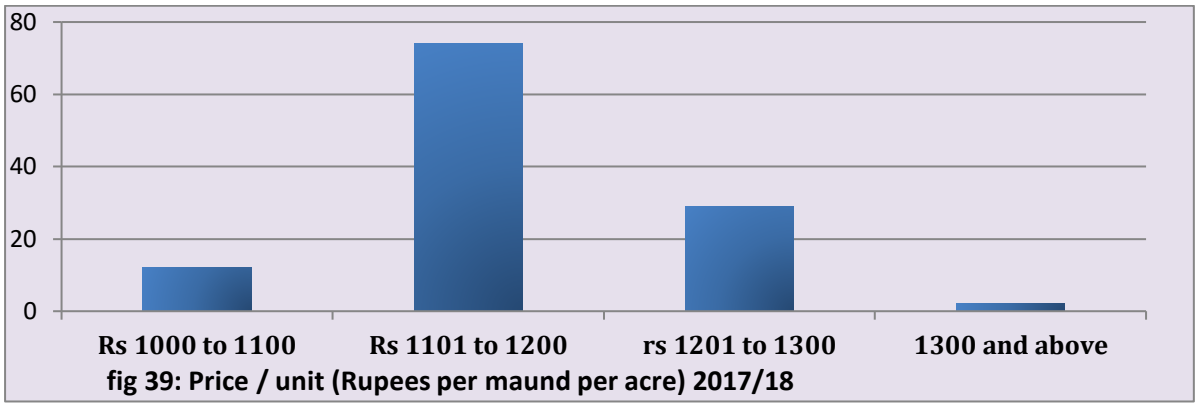


fig 39: Price / unit (Rupees per maund per acre) 2017/18

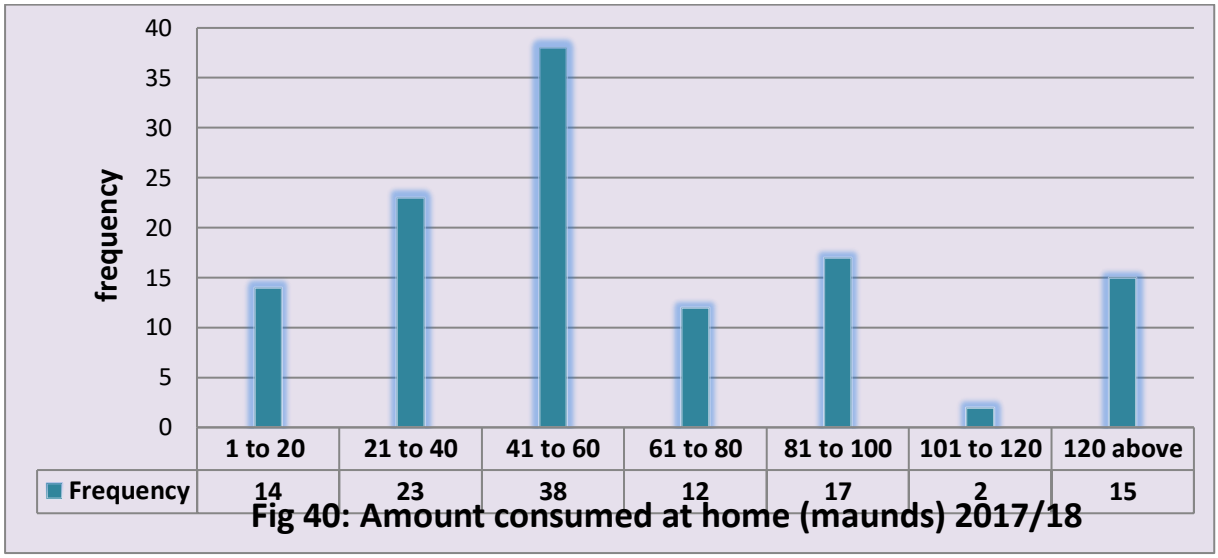


Fig 40: Amount consumed at home (maunds) 2017/18

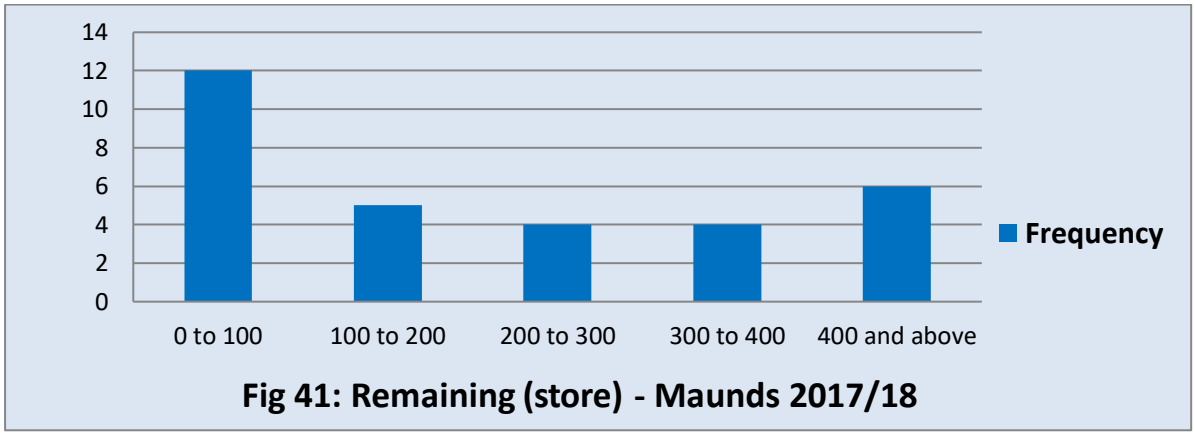


Fig 41: Remaining (store) - Maunds 2017/18

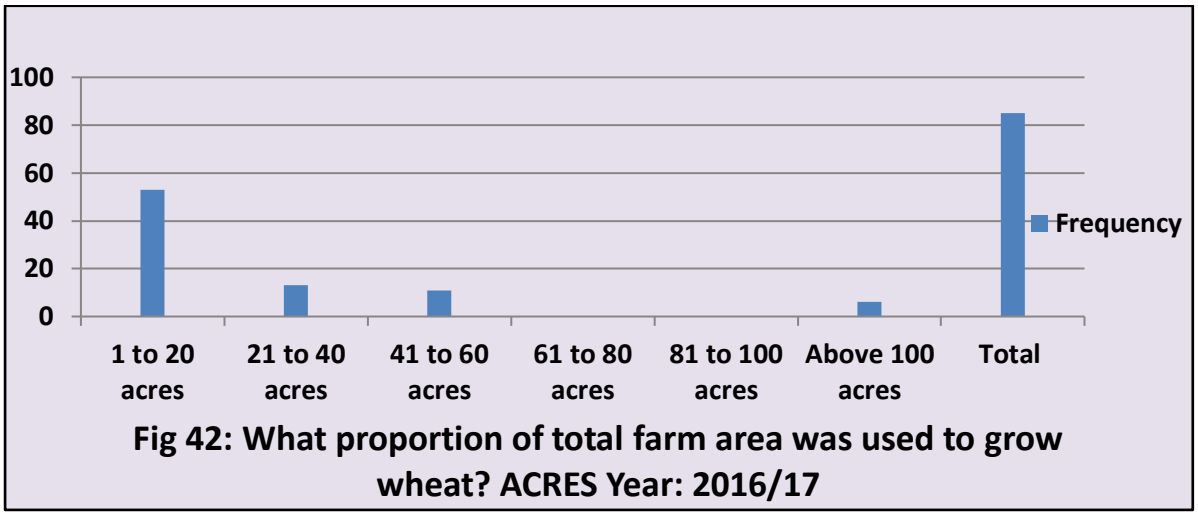


Fig 42: What proportion of total farm area was used to grow wheat? ACRES Year: 2016/17

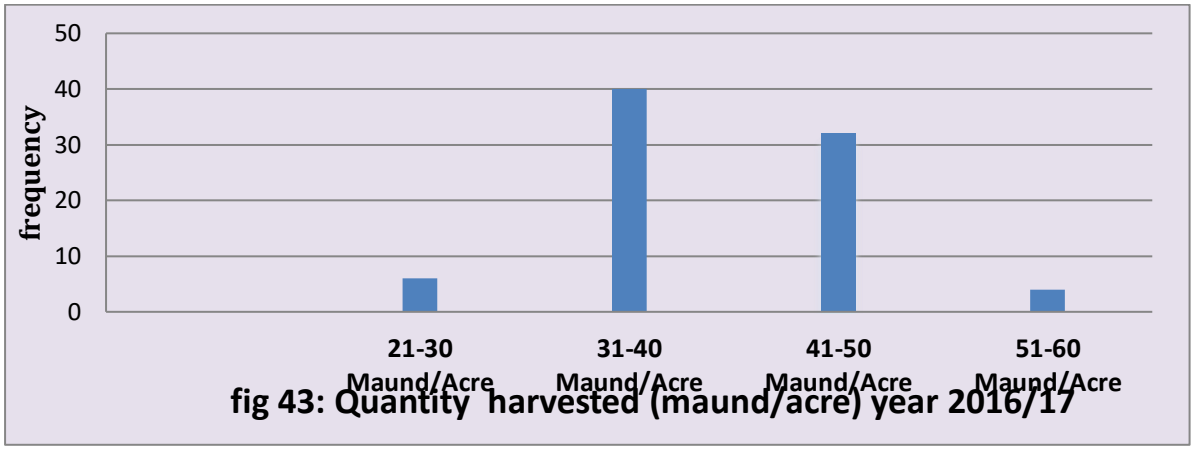


fig 43: Quantity harvested (maund/acre) year 2016/17

Fig 44: Price / unit (Rupees per maund per acre) Year 2016/17

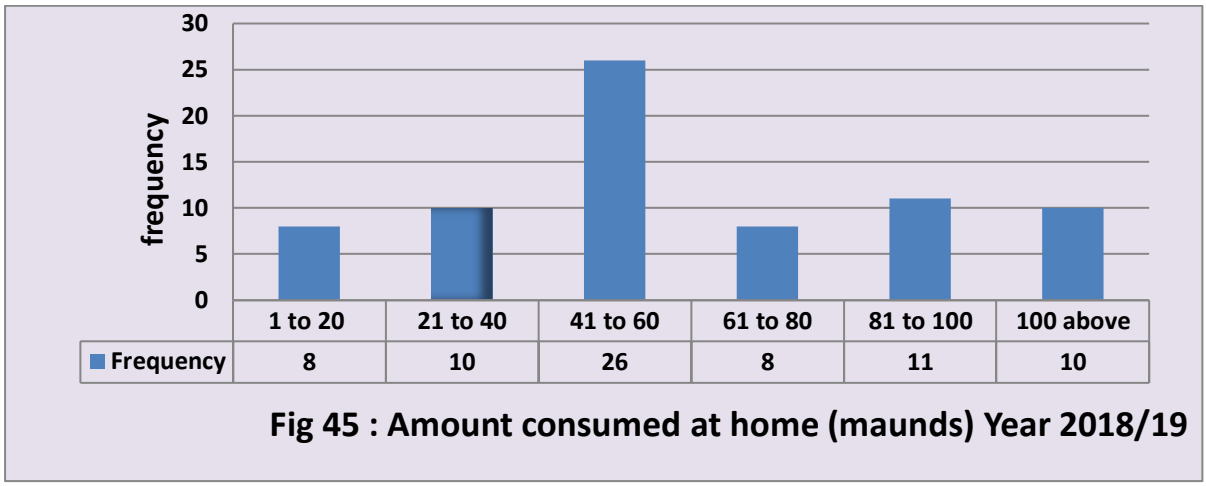


Fig 45 : Amount consumed at home (maunds) Year 2018/19

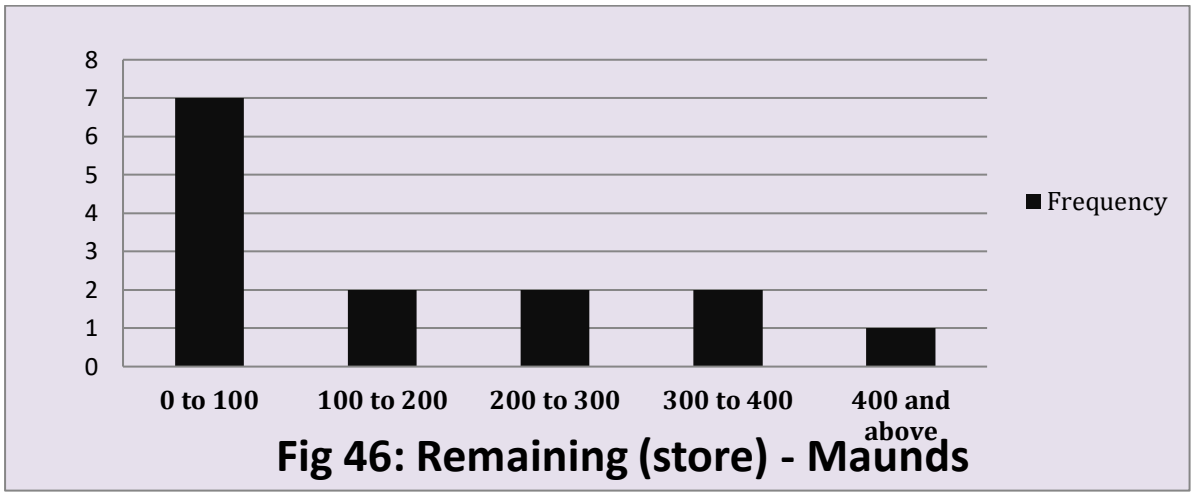
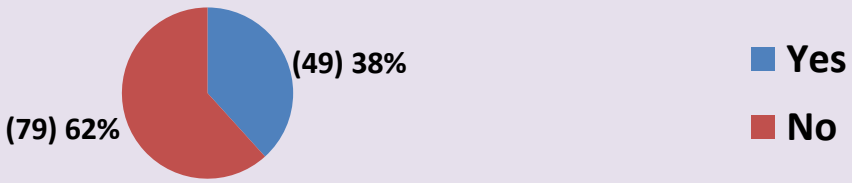
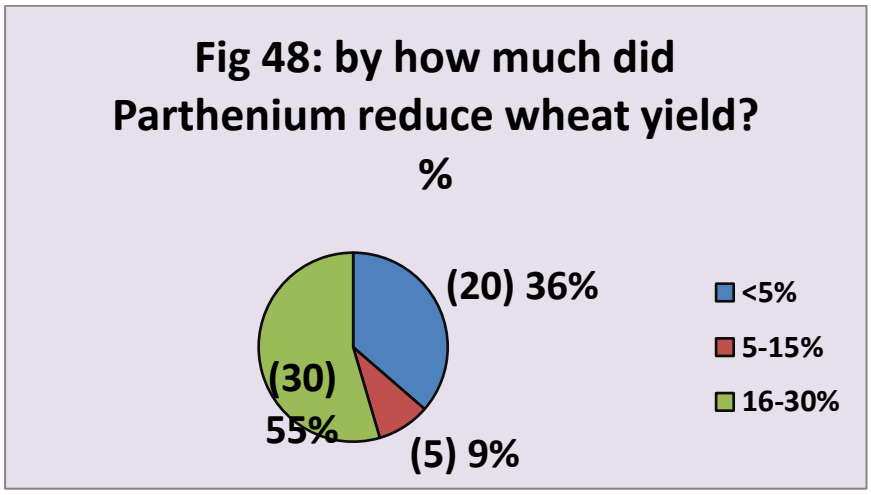


Fig 46: Remaining (store) - Maunds

Fig 47: Do you think Parthenium affected your wheat yields in any way?





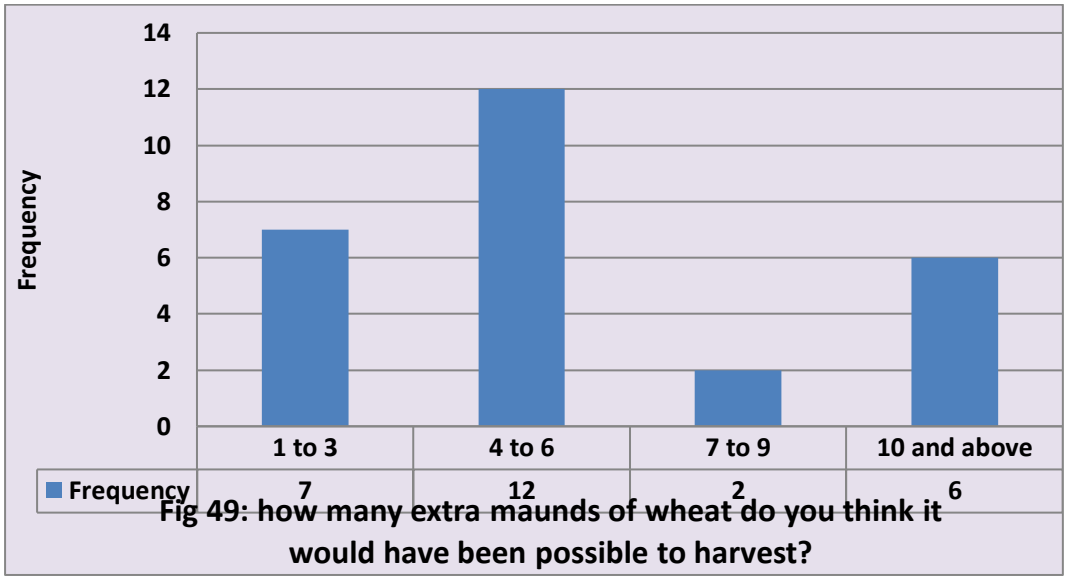


Fig 49: how many extra maunds of wheat do you think it would have been possible to harvest?

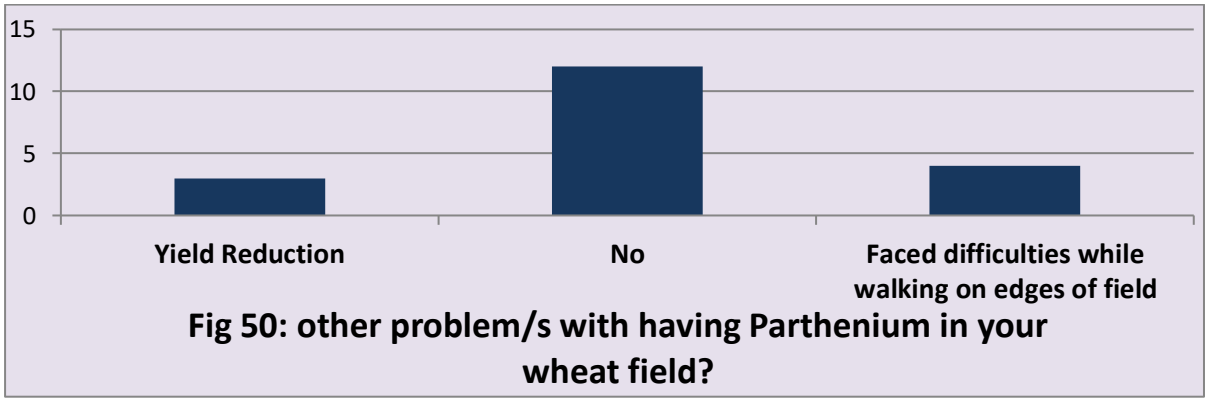


Fig 50: other problem/s with having Parthenium in your wheat field?

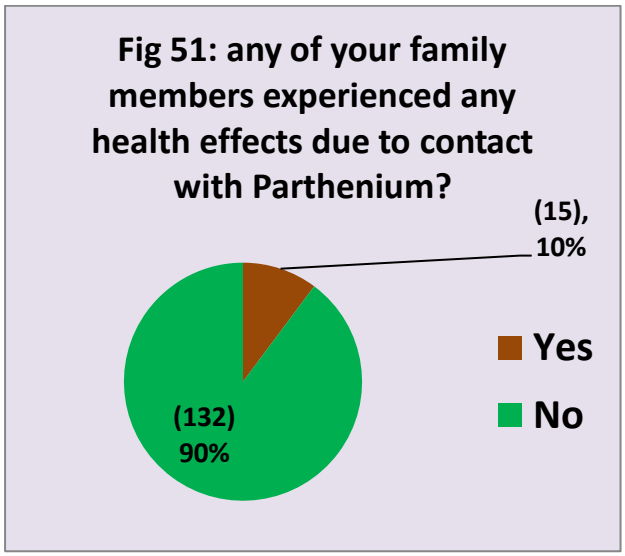


Fig 51: any of your family members experienced any health effects due to contact with Parthenium?
(15), 10%
(132) 90%
Yes
No

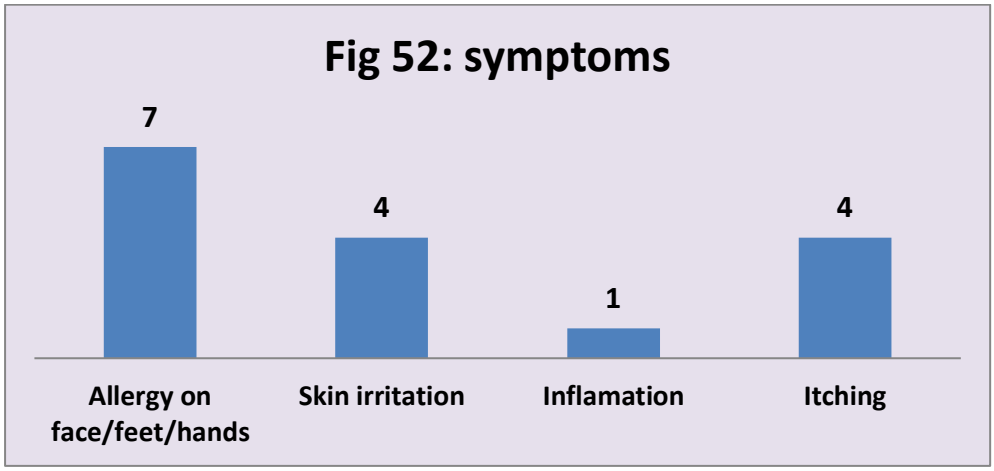


Fig 52: symptoms
7
4
1
4
Allergy on face/feet/hands
Skin irritation
Inflamation
Itching

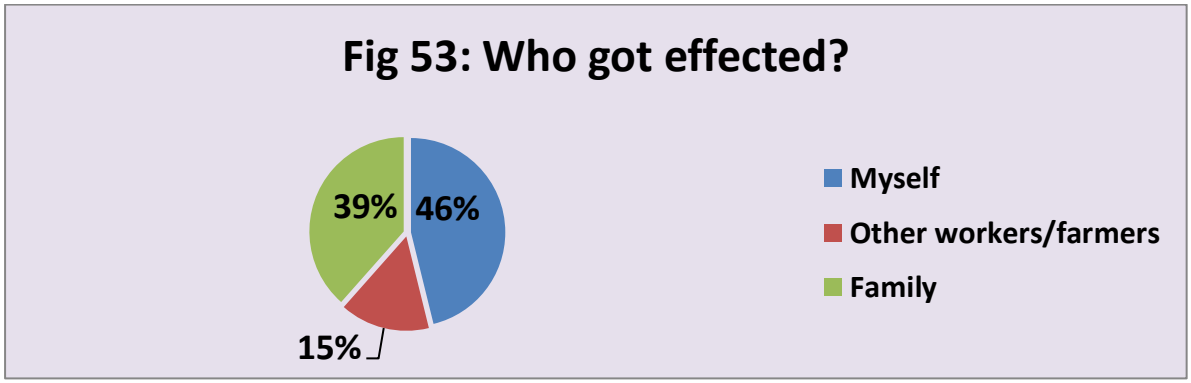


Fig 53: Who got effected?
39%
46%
15%
Myself
Other workers/farmers
Family

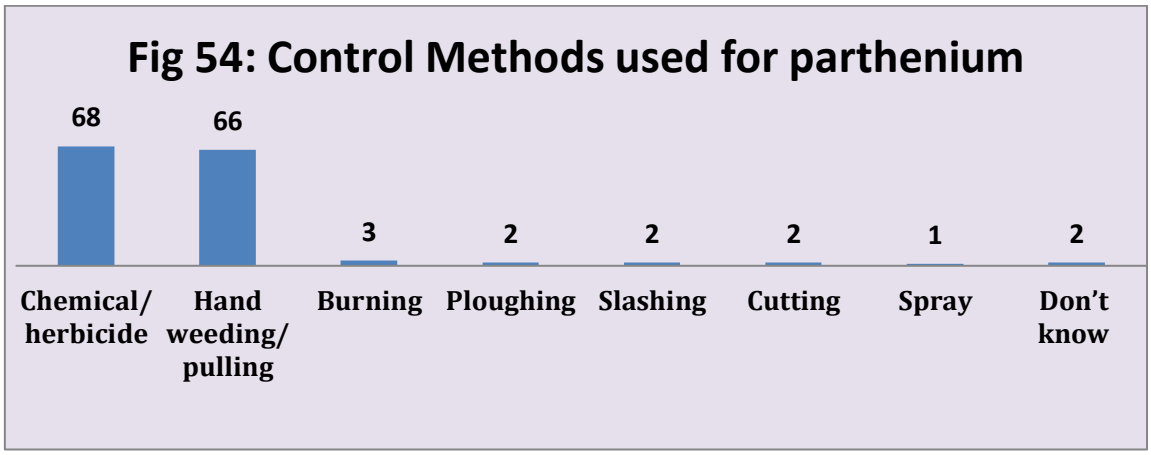


Fig 54: Control Methods used for parthenium
68
66
3
2
2
2
1
2
Chemical/ herbicide
Hand weeding/ pulling
Burning
Ploughing
Slashing
Cutting
Spray
Don't know

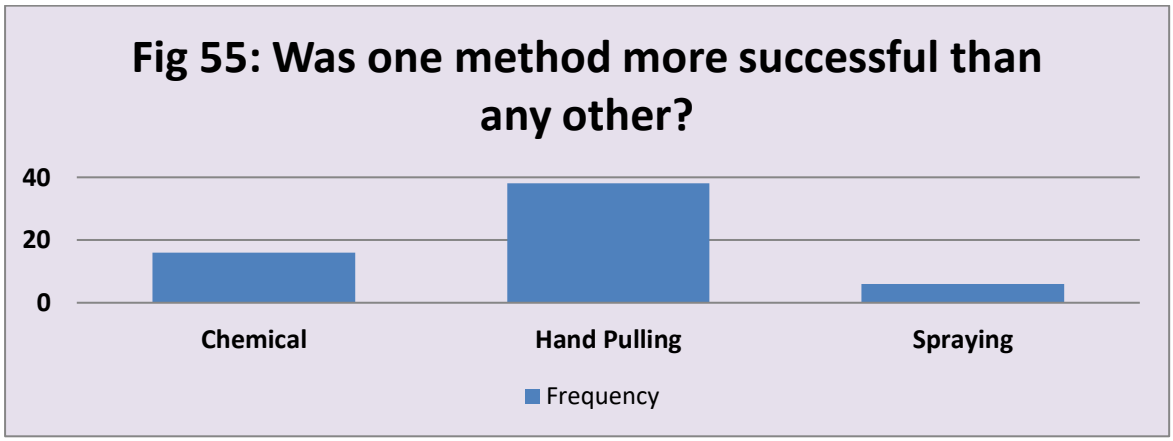


Fig 55: Was one method more successful than any other?
40
20
0
Chemical
Hand Pulling
Spraying
Frequency

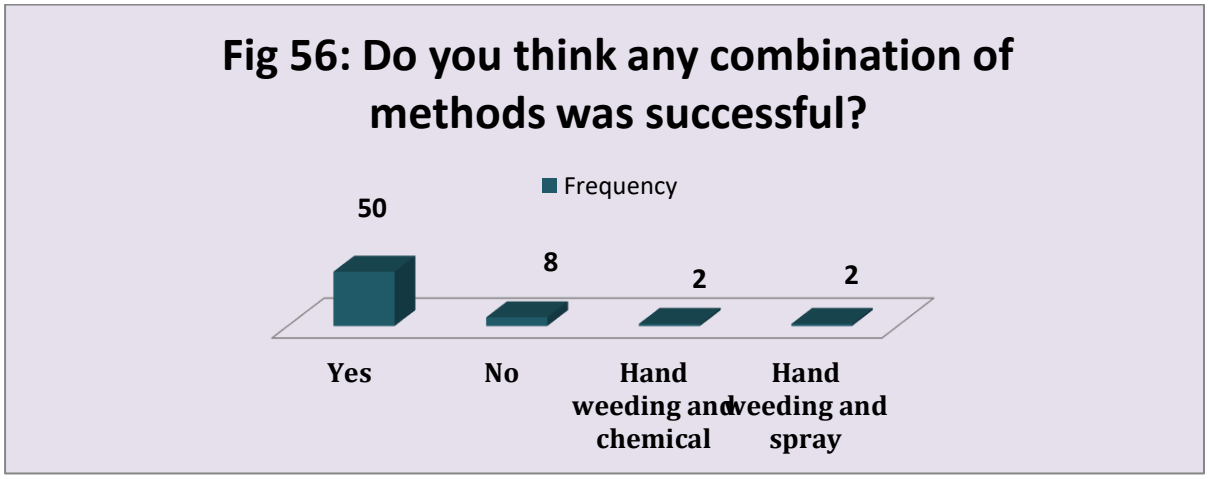


Fig 56: Do you think any combination of methods was successful?
Frequency
50
8
2
2
Yes
No
Hand weeding and chemical
Hand weeding and spray

Fig 57: Which method would you definitely not use again?

Fig 58: Which method would you definitely use again?

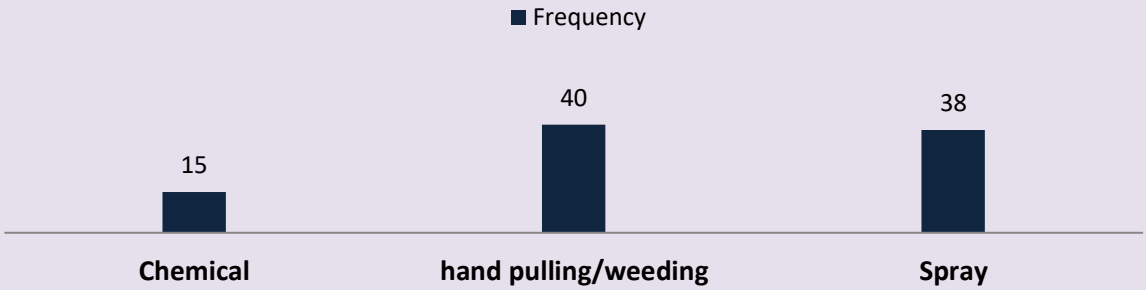


Fig 59: Where did you heard about this control method?

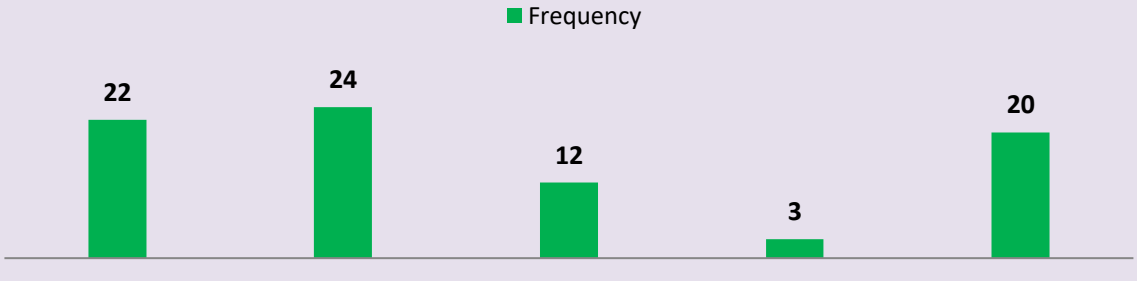



Fig 60: Are you aware of any control method that was not available to you?
No
Yes

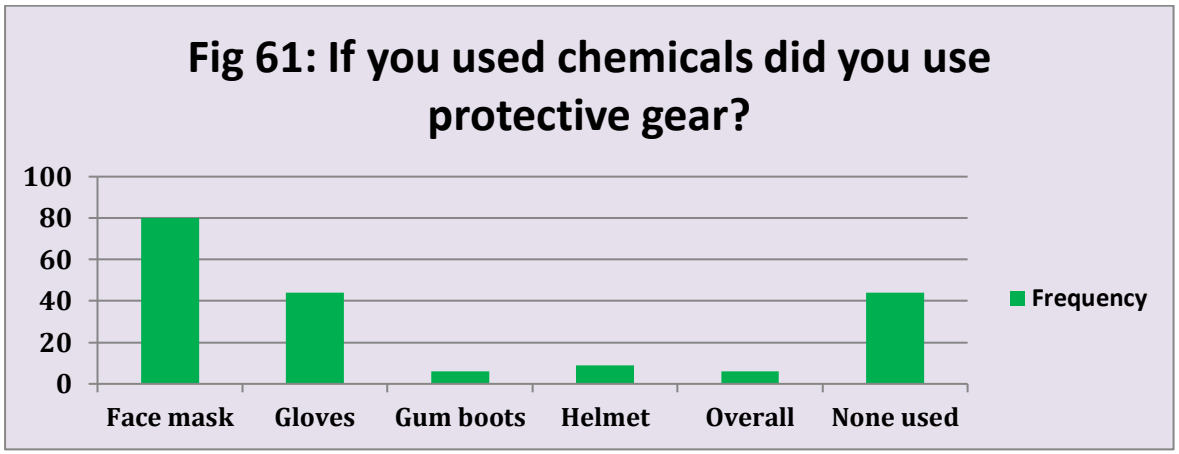


Fig 61: If you used chemicals did you use protective gear?
100
80
60
40
20
0
Face mask
Gloves
Gum boots
Helmet
Overall
None used
Frequency

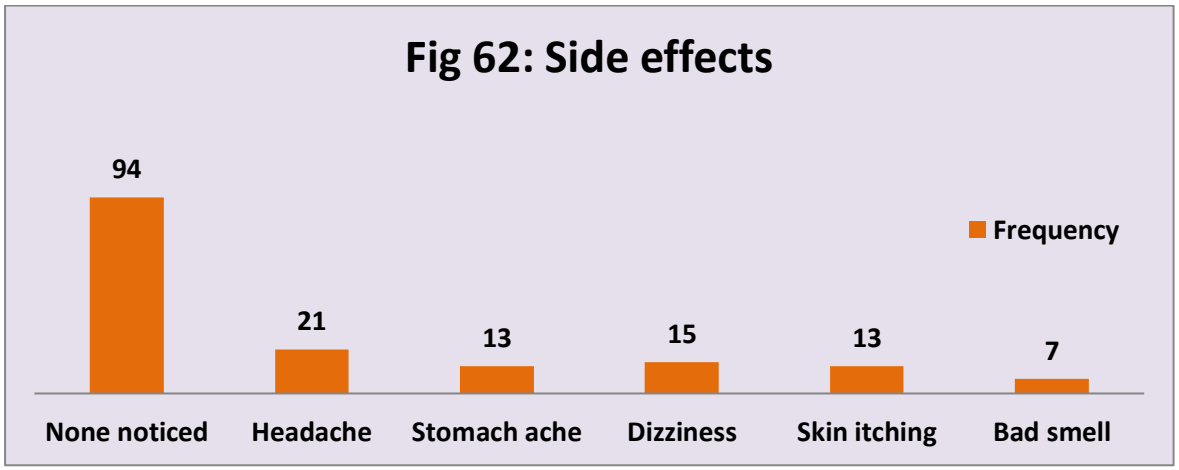


Fig 62: Side effects
94
21
13
15
13
7
Frequency
None noticed
Headache
Stomach ache
Dizziness
Skin itching
Bad smell

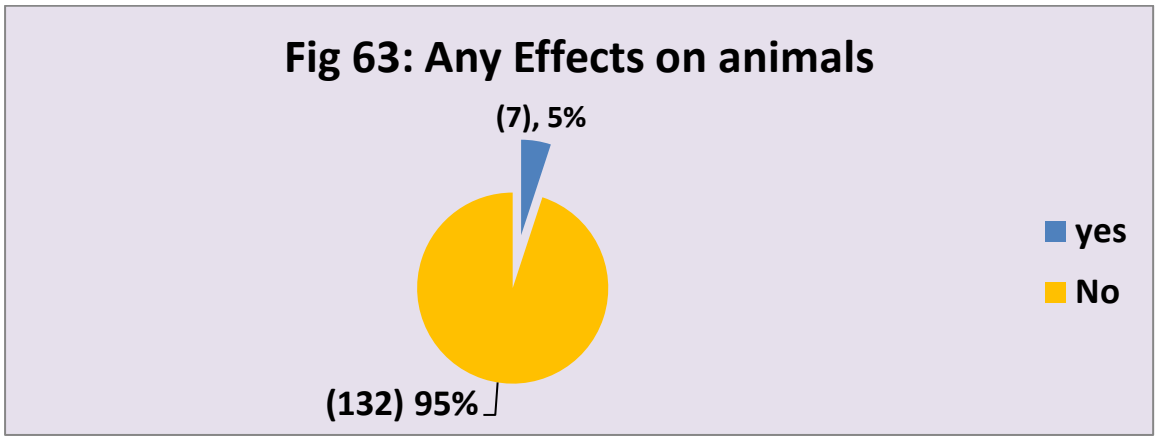


Fig 63: Any Effects on animals
(7), 5%
(132) 95%
yes
No

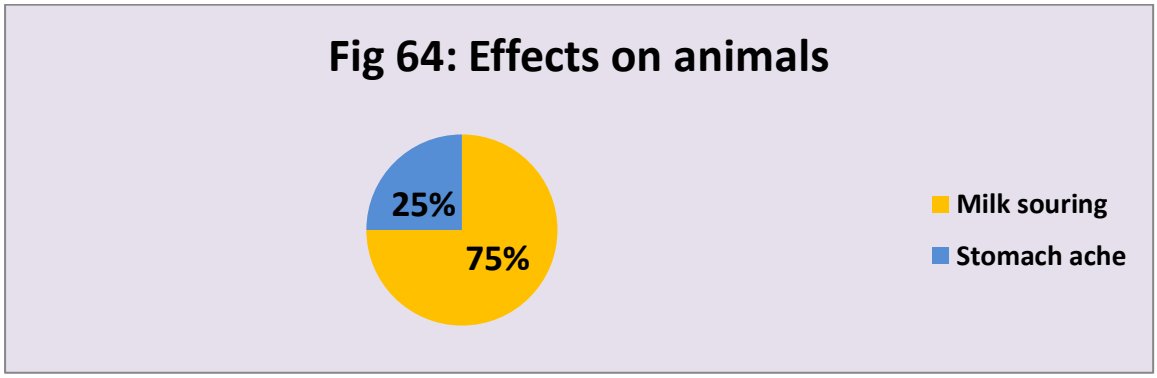


Fig 64: Effects on animals
25%
75%
Milk souring
Stomach ache

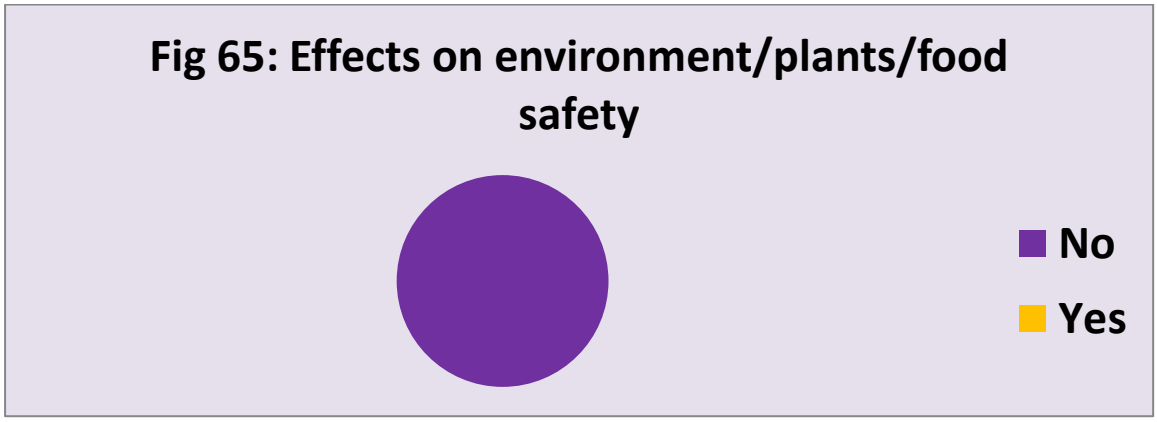


Fig 65: Effects on environment/plants/food safety
No
Yes

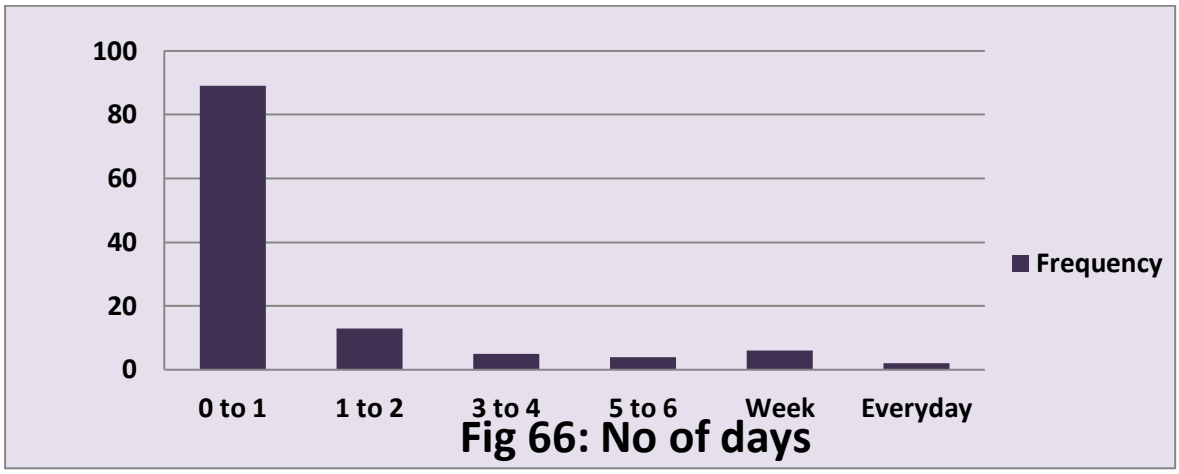
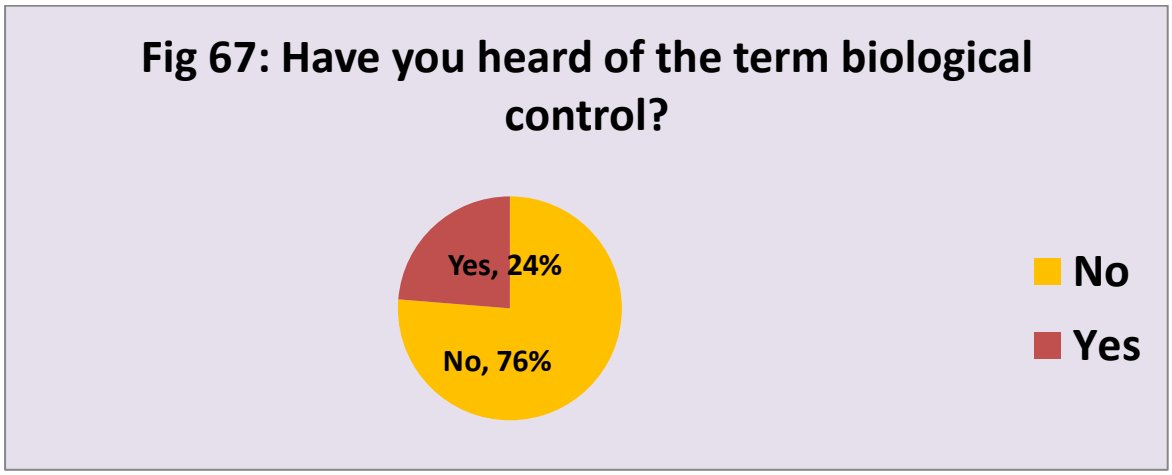
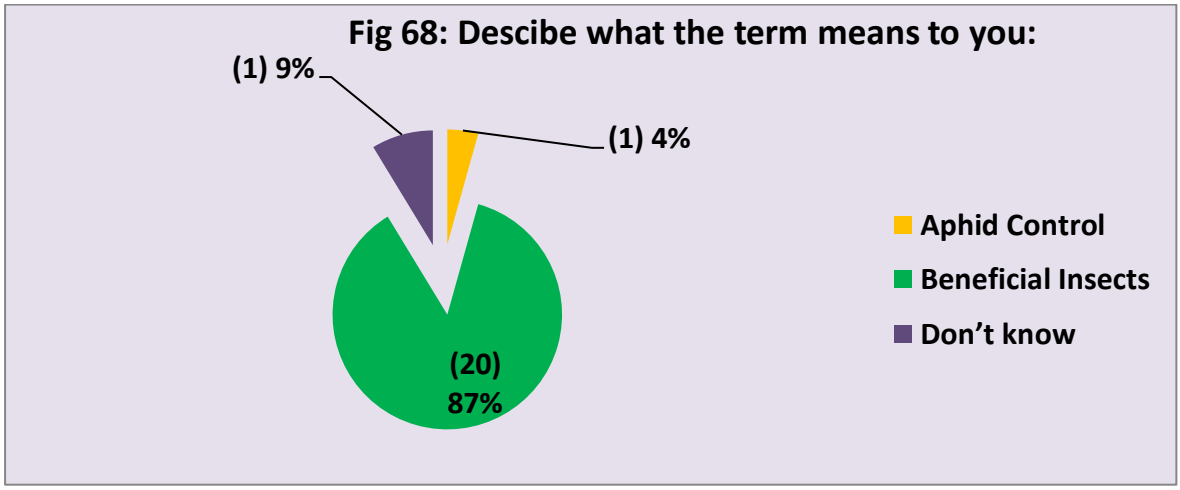


Fig 66: No of days





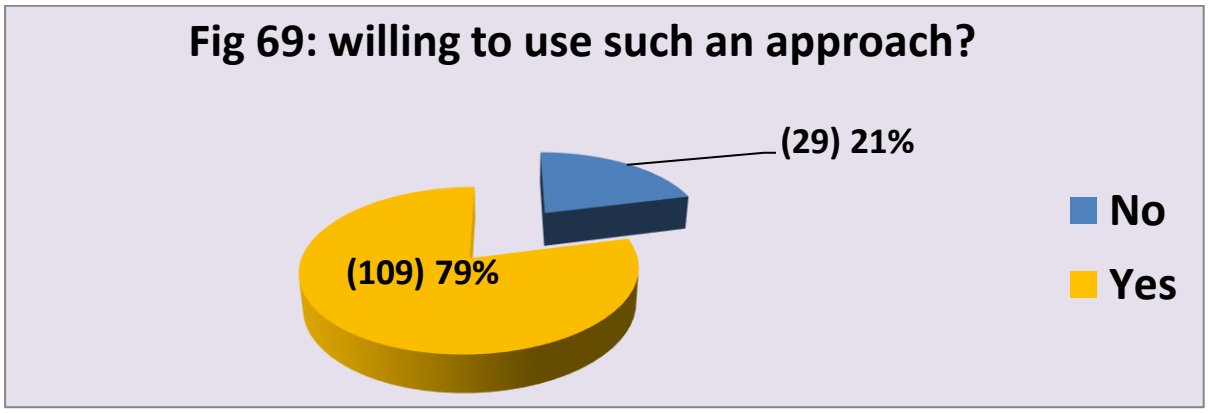


Fig 69: willing to use such an approach?
(29) 21%
(109) 79%
No
Yes

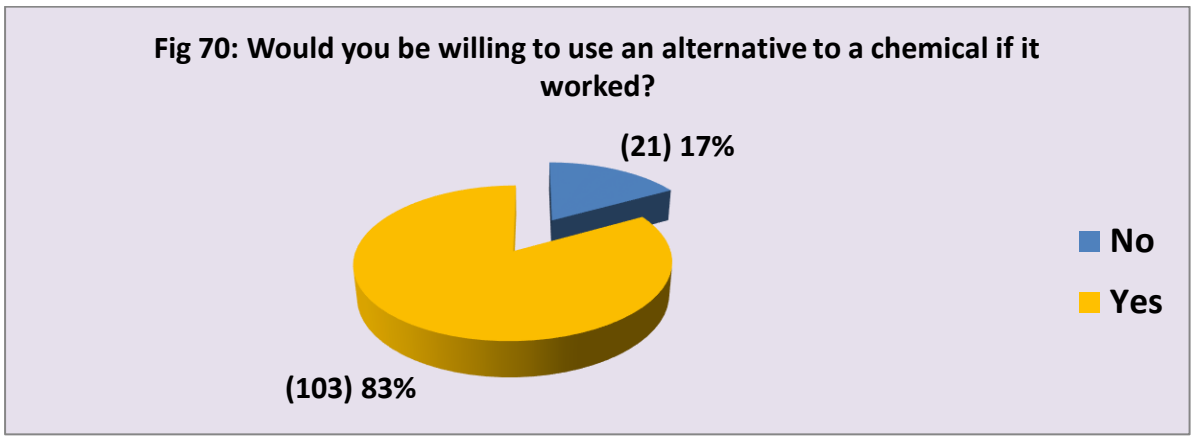


Fig 70: Would you be willing to use an alternative to a chemical if it worked?
(21) 17%
(103) 83%
No
Yes

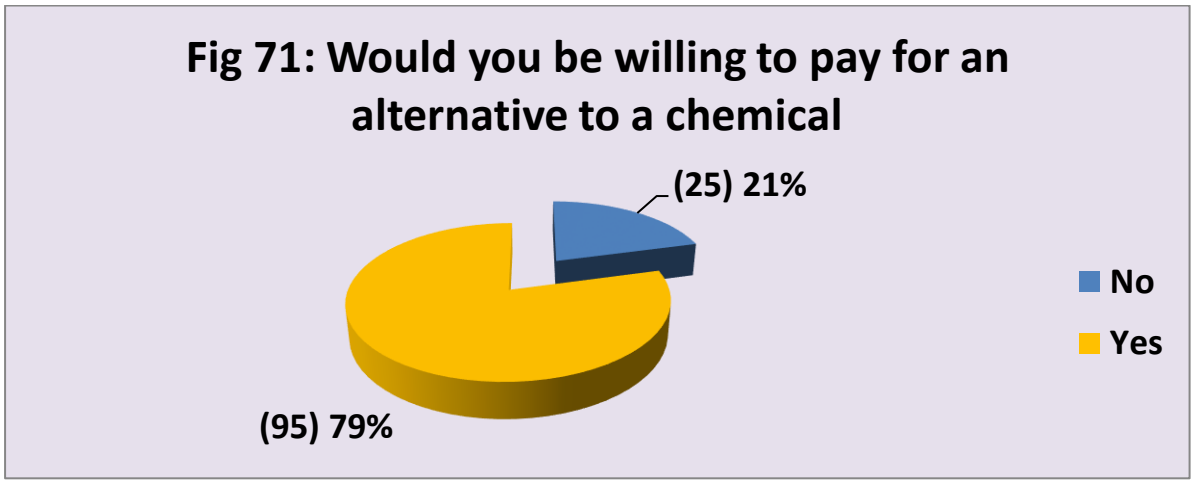


Fig 71: Would you be willing to pay for an alternative to a chemical
(25) 21%
(95) 79%
No
Yes

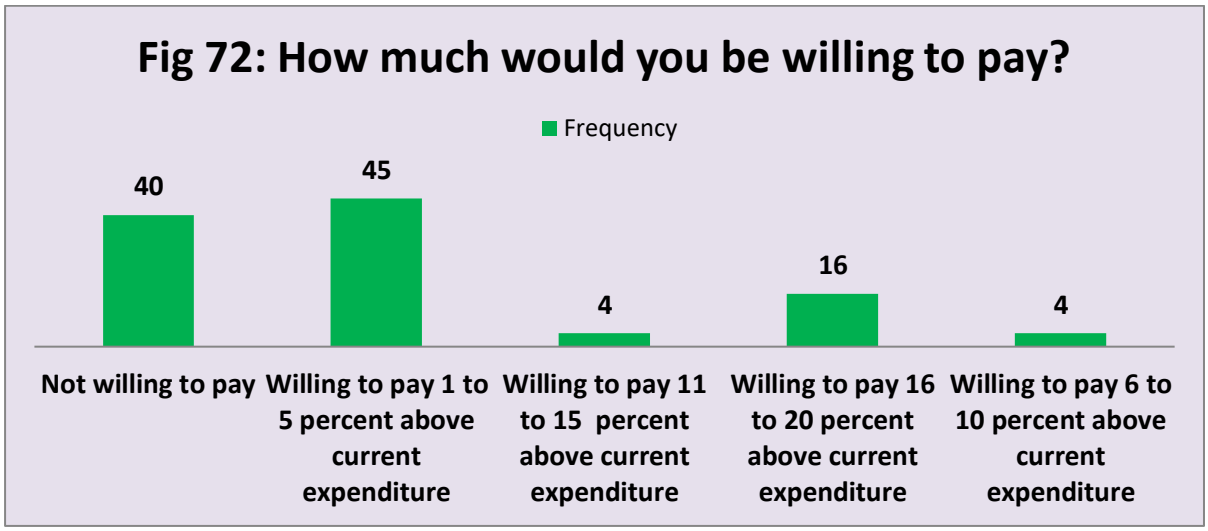


Fig 72: How much would you be willing to pay?
Frequency
40
45
4
16
4
Not willing to pay
Willing to pay 1 to 5 percent above current expenditure
Willing to pay 11 to 15 percent above current expenditure
Willing to pay 16 to 20 percent above current expenditure
Willing to pay 6 to 10 percent above current expenditure

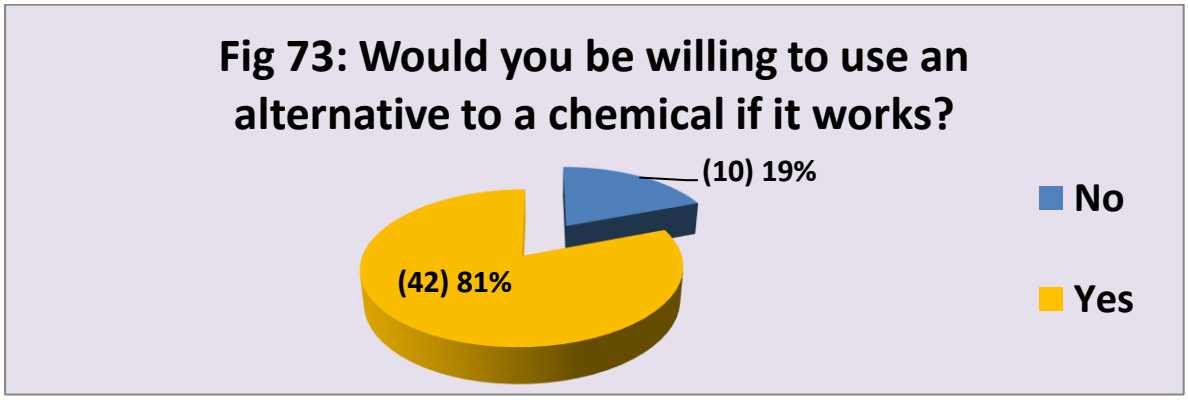


Fig 73: Would you be willing to use an alternative to a chemical if it works?
(10) 19%
(42) 81%
No
Yes

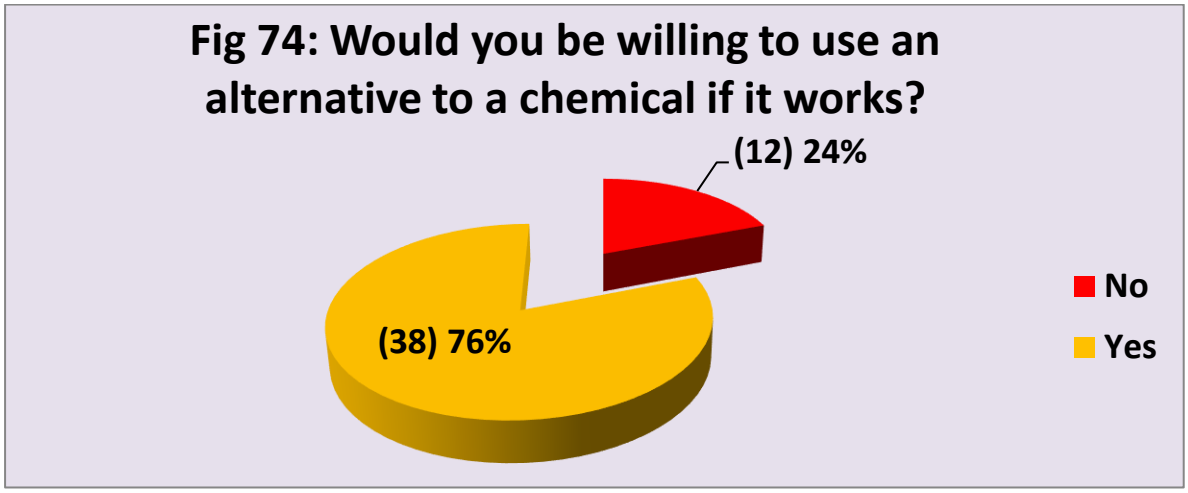


Fig 74: Would you be willing to use an alternative to a chemical if it works?
(12) 24%
(38) 76%
No
Yes

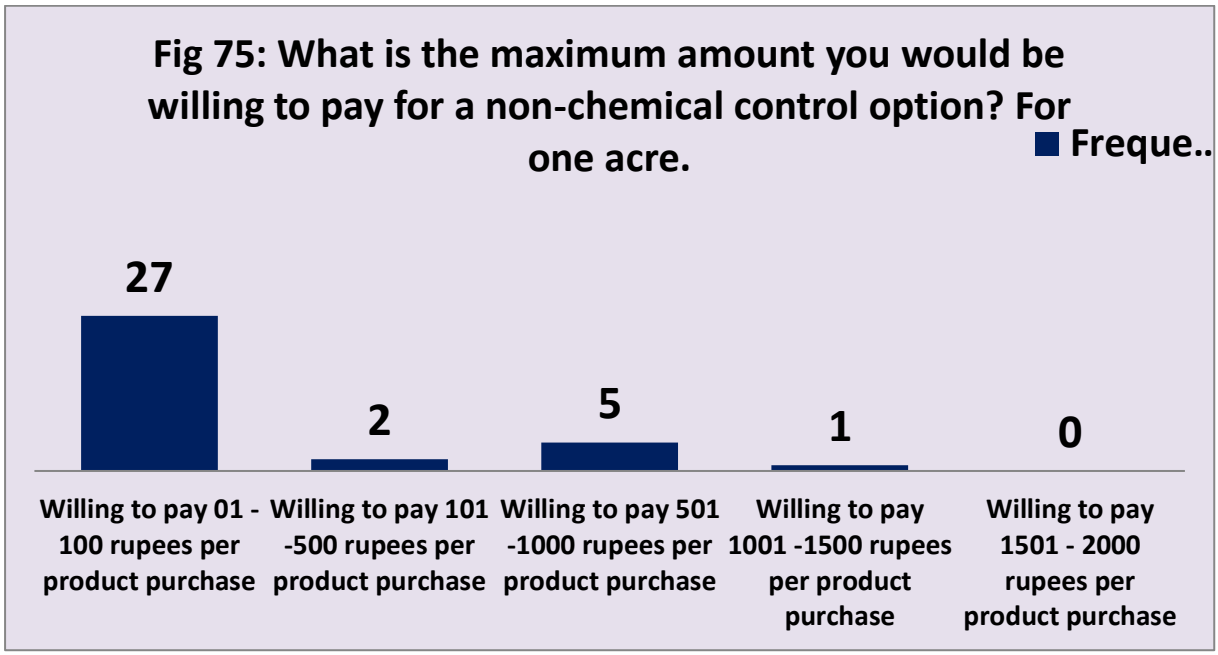


Fig 75: What is the maximum amount you would be willing to pay for a non-chemical control option? For one acre.
Freque..
27
2
5
1
0
Willing to pay 01 - 100 rupees per product purchase
Willing to pay 101 -500 rupees per product purchase
Willing to pay 501 -1000 rupees per product purchase
Willing to pay 1001 -1500 rupees per product purchase
Willing to pay 1501 - 2000 rupees per product purchase

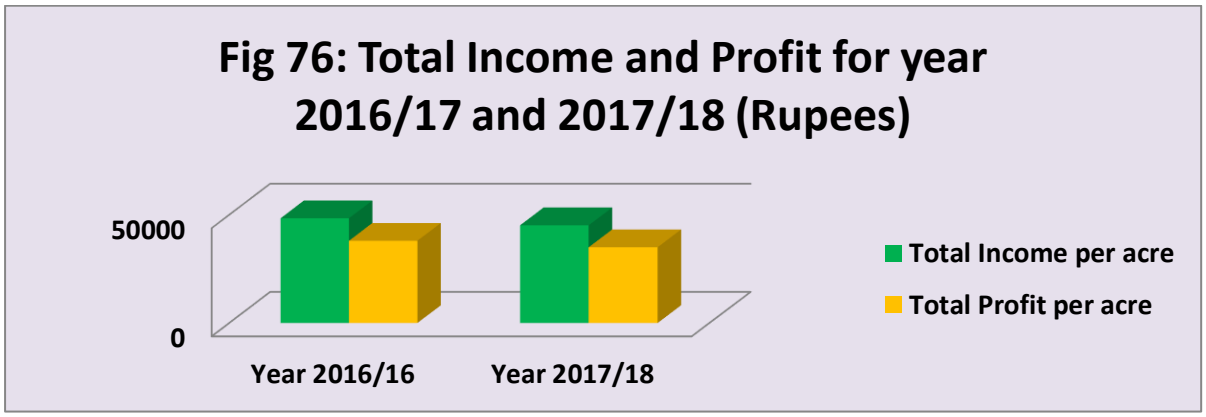


Fig 76: Total Income and Profit for year 2016/17 and 2017/18 (Rupees)
50000
0
Year 2016/16
Year 2017/18
Total Income per acre
Total Profit per acre

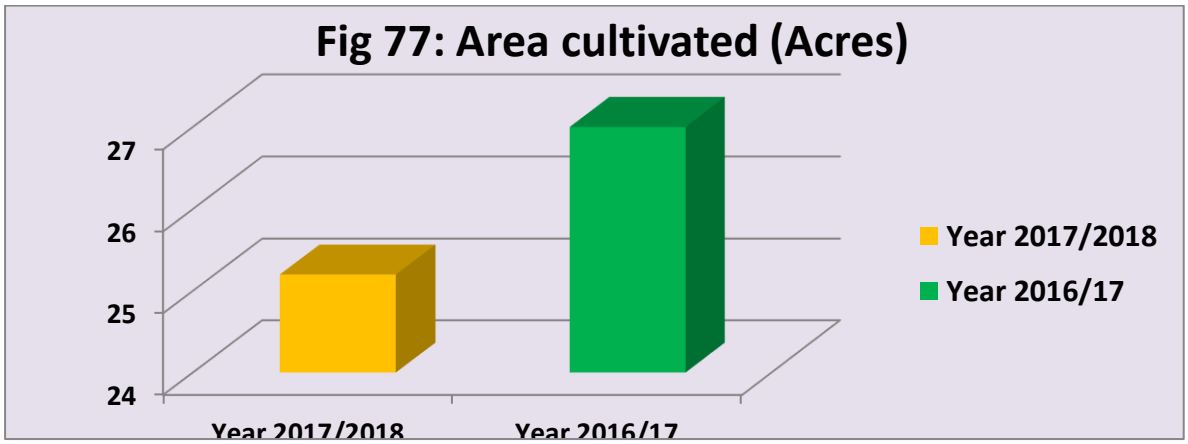


Fig 77: Area cultivated (Acres)
27
26
25
24
Year 2017/2018
Year 2016/17
Year 2017/2018
Year 2016/17

Annex 4: Photo evidence:





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