FIELD SURVEY:

Pesticide Use and Impacts in Yavatmal, India

PAN INDIA

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Community action monitoring and reporting conducted by:
Pesticide Action Network India (PAN India)

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FIELD SURVEY

Pesticide Use and Impacts in Yavatmal, India

Introduction

Yavatmal district (earlier known as the cotton city of India), has been plagued by excessive pesticide usage and GM cotton cultivation for a few decades. The entire Vidarbha region of Maharashtra (which includes Yavatmal as well) suffers the same situation. Predominantly, it has been the cotton belt in the Western India, and known for agriculture distress and indebtedness for a long time. In 2017 and 2018, thousands of cotton farmers and farm workers in this region were affected by inhalational and occupational pesticide poisoning, with Yavatmal district reporting the highest number of poisoning and death. PAN India started to work among the farming community, women and children in situations where poisoning incidents happen. The farming community has not been aware of the fact that the health impacts they suffer are due to exposure to pesticides. CPAM survey helped PAN India to reach the farming community creating awareness through the CPAM survey, helping to understand pesticides being used in the area, and the various factors contributing to exposure and intoxication. This gave PAN India an insight on the need to work with these communities to enable gradual shift from pesticide dependent farming to agroecology practices. PAN India started CPAM survey in 2022 in six villages. Over the three years CPAM survey has been conducted in 45 villages with 2845 surveys in Yavatmal district. Through the CPAM, 1,485 surveys were focused on Pesticide Use and Effects (PUE).

Methodology

Pesticide Action Network India (PAN India) collected data on pesticide use and effects, utilizing the Community-based Pesticide Action Monitoring (CPAM) methodology developed by PAN Asia Pacific (PANAP). CPAM is a participatory action research framework designed to document and raise awareness about the hazards of pesticide use and its impacts on human health and the environment. This approach actively involves community

members in the monitoring process, fostering collective organization and action. To enhance accessibility, the CPAM questionnaire was meticulously translated into the local language, Marathi, for the interviewees, ensuring clear communication and accurate data capture. The research team employed the CPAM web-based application to systematically record and digitize the data. The information obtained through the interviews was subsequently submitted online via the CPAM web application by PAN India. A total of 1,485 farmers participated in this comprehensive survey.

PAN India started CPAM survey in 2022 in six villages. Over the three years CPAM survey has been conducted in 45 villages in Yavatmal district, Maharashtra. Main crop in the villages of Yavatmal district is cotton and other crops are soyabean, Red gram, Chickpea etc. The use of pesticides in cotton is very high and in 2017 occupational poisoning of thousands of farmers and workers was reported from Yavatmal. The CPAM monitoring was done in Tehsils like Arni, Babulgaon, Dhamangaon, Ghatanji, Kalamb, Maregaon, Ner, Panderkauda, Ralegaon and Yavatmal etc.

1. DEMOGRAPHIC PROFILE

The survey was conducted among 1,485 farmers. Of the respondents, 1,356 (91.31 %) were male farmers and only 101 (6.80 %) were female. The participation of women respondents in this survey is small. The limited representation of women farmers in this survey reflects the prevailing gender dynamics of the region, where agricultural responsibilities are predominantly undertaken by men. 28 respondents did not specify their gender and 23 respondents did not specify their age. Most respondents fell under 30–60 years (men: 1,030, Women: 78). The pivot table containing age distribution and gender is in Table 1.

Table 1: Age and gender

Age and gender (N=1462)				
Respondents	Below 30	30–60	Above 60 years	Total
	No. / %	No. / %	No. / %	No. / %
Men	186 (12.72 %)	1,030 (70.45 %)	130 (8.90 %)	1,346 (92.07 %)
Women	2 (0.14 %)	78 (5.34 %)	19 (1.29 %)	99 (6.77 %)
Unknown	0	13 (0.89 %)	4 (0.27 %)	17 (1.16 %)

More than half of the respondents [1,295, 88.51 %; 1,193 men (81.54 %), 86 women (5.88 %); 16 unknown gender (1.09 %)] were married and 145, 9.92%; all men were single. The respondents included separated [six; 0.41 %; three women (0.21 %), two men (0.14 %) and one unknown gender (0.06 %)], and widowed [17; 1.16 %; 11 women (0.751 %) and six men (0.41 %)] individuals. No response was obtained from 22 participants. None of the woman respondents were pregnant and breast feeding.

1.1. Household information: From the survey data of 1,483 respondents, three or more people live in the households of 1,355 [91.37 %; 77 women (5.20 %), 1,252 men (84.42 %) and 26 unknown (1.75 %)]. 128 [8.63 %; 24 women (1.62 %), 102 men (6.88 %) and two unknown (0.13 %)] respondents have less than three members in their household. No response was obtained from two participants.

828 respondents provided information regarding the children in the family less than 18 years old. The distribution is as follows:

- None: 131 [15.82 %; five women (0.60 %), 124 men (14.98 %) and two unknown (0.24 %)].
- One child: 261 [31.52 %; 16 women (1.93 %), 244 men (29.47 %) and one unknown (0.12 %)].
- Two children: 339 [40.94 %; 21 women (2.54 %), 316 men (38.16 %) and two unknown (0.24 %)].
- Three children: 59 [7.13 %; six women (10.73 %), 52 men (6.28 %) and one unknown (0.12 %)].
- Four or more children: 38 [4.59 %; two women (0.24 %), 35 men (4.23 %) and one unknown (0.12 %)].

1.1.1. Spouse Occupation: The survey data of 1006 respondents concerning the occupations of their spouses are provided below. No responses were obtained from 479 survey participants.

Table 2: Spouse occupation					
Spouse occupation	No. of respondents	Women	Men	Unknown gender	Percentage
Civil servant	2	0 (0.00 %)	2 (0.19 %)	0 (0.00 %)	0.19 %
Commercial farmer	41	0 (0.00 %)	41 (4.08 %)	0 (0.00 %)	4.08 %
Housewife/husband	867	12 (1.20 %)	839 (83.39 %)	16 (1.60 %)	86.19 %
Private sector worker	3	2 (0.19 %)	1 (1.01 %)	0 (0.00 %)	0.29 %
Small scale farmer	55	1 (0.10 %)	54 (5.37%)	0 (0.00 %)	5.48 %
Small business owner	33	3 (0.30 %)	30 (2.80 %)	0 (0.00 %)	3.28 %
Unemployed	5	1 (0.10 %)	4 (0.40 %)	0 (0.00 %)	0.50 %
Total	**1,006**	**19**	**971**	**16**	**100 %**

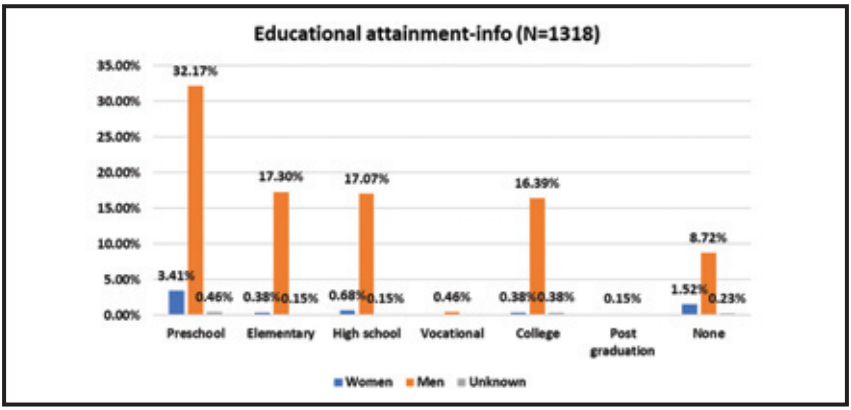
1.1.2. Household income (N=1091). No responses were obtained from 394 survey participants.

Table 3: Household income					
Annual household income	No. of respondents	Women	Men	Unknown gender	Percentage
Less than $500	63	5 (0.45 %)	57 (5.22 %)	1 (0.10 %)	5.77 %
$1,000–$2,000	289	28 (2.57 %)	255 (23.37 %)	6 (0.55 %)	26.49 %
$2,000–$3,000	57	3 (0.27 %)	53 (4.86 %)	1 (0.10 %)	5.23 %
$3,000–$4,000	117	3 (0.27 %)	114 (10.45 %)	0 (0.00 %)	10.72 %
$4,000–$5,000	222	27 (2.47 %)	191 (17.51 %)	4 (0.37 %)	20.35 %
More than $5,000	343	12 (1.10 %)	326 (29.88 %)	5 (0.46 %)	31.44 %
Total	**1,091**	**78**	**996**	**17**	**100 %**

1.2. Educational attainment-information: 1,180 participants provided the information. 236 respondents [20.00 %; 26 women (2.20 %), 202 men (17.12 %) and eight unknown gender (0.68 %)] possess high-school-level education, while 235 [19.92 %; 17 women (1.44 %), 214 men (18.14 %)and four unknown (0.34 %)] farmers have elementary school-level education. Additionally, 226 [19.16 %; seven women (0.60 %), 215 men (18.22 %) and for unknown (0.34 %)] farmers have college-level education and six [0.51 %; six men (0.51 %)] have vocational education. 475 [36.04 %; 45 women (3.41 %), 424 men (32.17 %) and six unknown (0.46 %)] have studied up to pre-school. Two

[0.16 %; two men] of the respondents are post-graduates. No response was obtained from 305 participants.

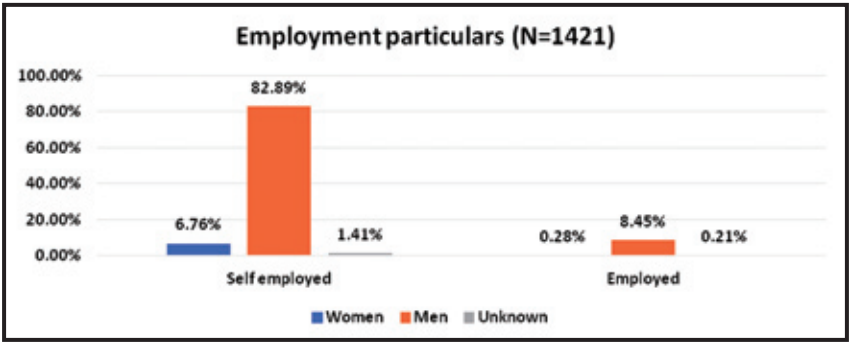
Figure: 1 Educational attainment of respondents



2. EMPLOYMENT PARTICULARS

The survey data show that, out of 1421 respondents, 91.06 % [1,294; 96 women (6.76 %), 1178 men (82.89 %) and 20 unknown (1.41 %)] are self-employed and 8.9 % [127; four women (0.28 %), 120 men (8.45 %) and three unknown (0.21 %)] are employed. No response was obtained from the remaining 64 participants. With regard to employment characteristics, the survey primarily engaged participants involved in small-scale farming and agricultural labor.

Figure 2: Employment status of respondents



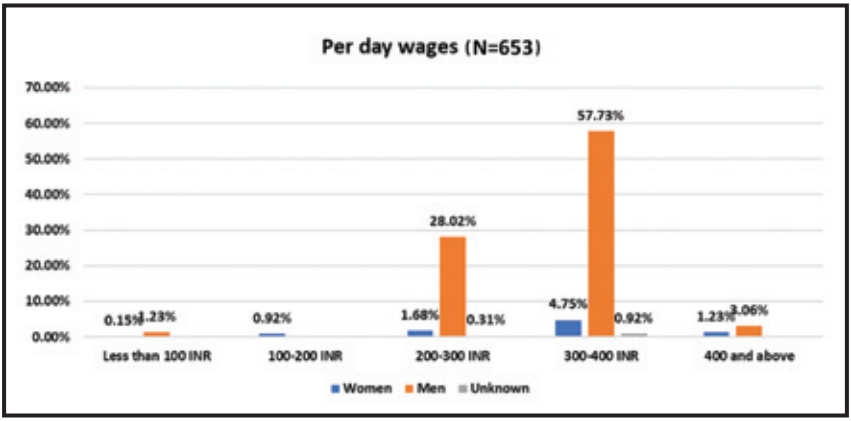
2.1. Hours of work: (N=861; No responses were obtained from 624 participants)

Table 4: Hours of work					
Working hours	**No. of respondents**	**Women**	**Men**	**Unknown**	**Percentage**
Less than 10 hrs	129	8 (0.93 %)	120 (13.94 %)	1 (0.12 %)	14.99 %
10-20 hrs	193	15 (1.74 %)	171 (19.86 %)	7 (0.81 %)	22.41 %
20-30 hrs	4	0 (0.00 %)	4 (0.46 %)	0 (0.00 %)	0.46 %
30-40 hrs	96	3 (0.35 %)	89 (10.34 %)	4 (0.46 %)	11.15 %
40-50 hrs	156	23 (2.76 %)	130 (15.10 %)	3 (0.35 %)	18.12 %
More than 50 hrs	283	8 (0.93 %)	271 (31.48 %)	4 (0.46 %)	32.87 %
Total	**861**	**57**	**785**	**19**	**100.00 %**

2.2. Salary particulars: From the responses from 949 respondents, 662 [69.76 %; 44 women (4.64 %), 603 men (63.54 %) and 15 unknown (1.58 %)] revealed that their salary per hour does not comply with the minimum wage in India. For 287 [30.24 %; 28 women (2.95 %), 254 men (26.77 %), and five unknown (0.52 %)] it does. No responses were obtained from 536 participants. Some workers may find employment for two to three days a week, increasing to five or six days during peak farming seasons. However, the availability of work throughout the year is uncertain.

2.2.1. Per day wages: The responses regarding the per day wages obtained from 653 respondents are depicted in Figure 3.

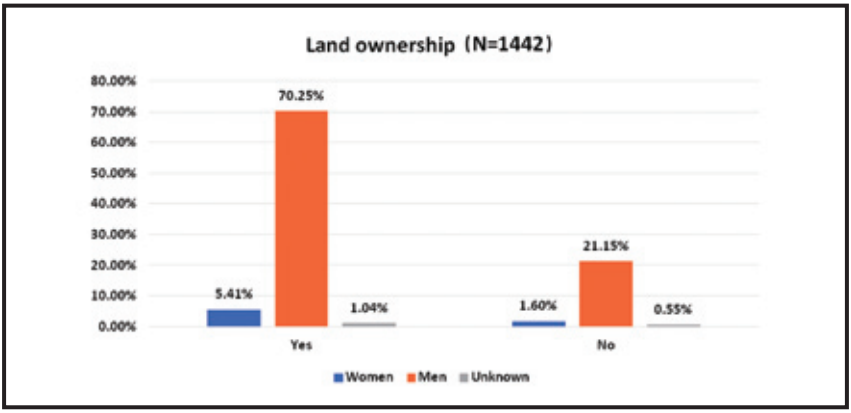
Figure 3: Per day wages of respondents



3. FARMING PARTICULARS

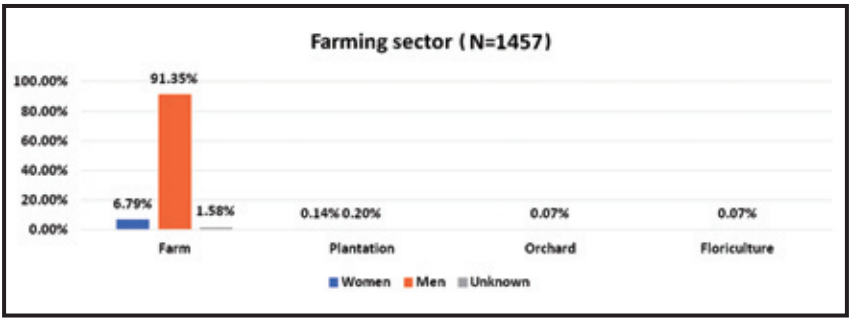
3.1. Land ownership: From the survey data of 1,442 respondents, 1,106 [76.70 %; 78 women (5.41 %), 1,013 men (70.25 %) and 15 unknown (1.04 %)] own the land they are working on. 336 [23.01 %; 23 women (1.60 %, 305 men (21.15 %) and eight unknown (0.55 %)] are not. No responses were obtained from 43 participants.

Figure 4: Land ownership of respondents



3.2. Farming type: Out of 1,445 respondents, 726 [43 women (2.98 %), 674 men (46.64 %) and nine unknown (0.62 %)] respondents revealed farm-producing for their consumption, while 1,197 [88 women (6.09 %), 1,088 men (75.29 %) and 21 unknown (1.45 %)] are for commercial use. 453 [30 women (2.07 %), 416 men (28.78 %) and seven unknown (0.48 %)] hire workers to farm produce for commercial purposes. Nine (0.4 %; all men) are involved in contract farming among these respondents. Furthermore, the responses from survey data regarding the farming sector from 1,457 participants are depicted below.

Figure 5: Farming sectors of respondents



* N does not equal to 100 % due to multiple responses

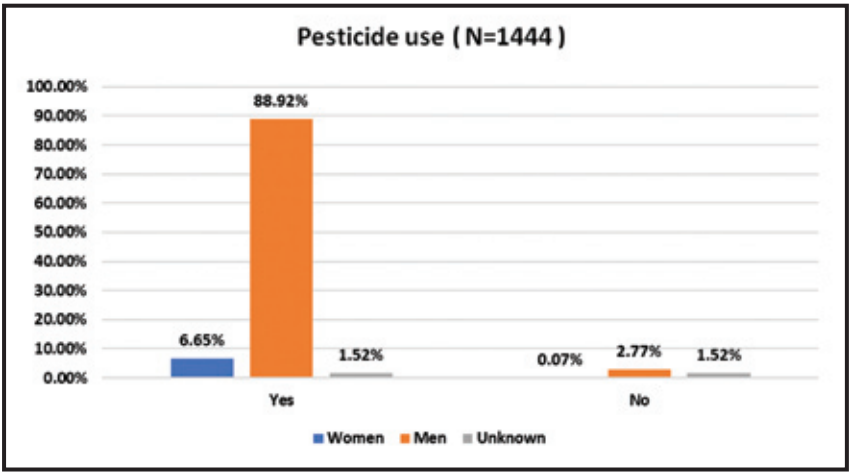
3.3. Motive for farming: Diverse responses were reported from 1,344 participants. Most respondents were involved in farming because of their keen interest [606; 45.09 %; 67 women (4.99 %), 528 men (39.29 %) and 11 unknown (0.81 %)]. A percentile of 396 [29.46 %; seven women (0.52 %), 384 men (28.57 %) and five unknown (0.37 %)] are doing generational farming following their parents. 342 [25.45 %; seven women (0.52 %), 331 men (24.63 %) and four unknown (0.30 %)] respondents are in this sector because of unemployment. No response was obtained from 141 survey participants.

4. PESTICIDE USE

Among 1,444 survey respondents, 1,402 [97.09 %; 96 women (6.65 %), 1,284 men (88.92 %) and 22 unknown (1.52 %)] disclosed that they do use pesticide products. Only, 42 [2.91 %; one woman (0.07 %), 40 men (2.77 %) and one unknown (0.07 %)] do not. No response was obtained from the rest of the 41 participants.

Figure 6. Karate-Lambda cyhalothrin stored in household premises

Figure 7: Pesticide use of respondents



The survey data of 1,463 respondents on where these pesticide products are applied show the following distribution of responses: 1,441 [98.49 %;101 women (6.90 %), 1317 men (90.02 %) and 23 unknown (1.57 %)] respondents are using them on farms, 46 [3.14 %, 45 men (3.08 %) and one unknown (0.06 %)] in homes and eight [0.54 %, all men] in the workplace.

4.1. History of pesticide use: The use of pesticides for more than ten years has been reported by 656 [47.82 %; 54 women (3.94 %), 586 men (42.71 %) and 16 unknown (1.17 %)] out of a total of 1,372 respondents. Of those surveyed, 58 [4.23 %; six women (0.44 %) and 52 men (3.79 %)] said they had been using it for no more than five years. 658 [47.95 %; 36 women (2.62 %) and 614 men (44.75 %)] and eight unknown (0.58 %) of the respondents indicated that they had been utilizing pesticides for five to 10 years. No responses were obtained from 113 participants.

4.2. Target pests

Table 5: Target pests (N=1042)

Target pests	Responses	Percentage
Rice bugs	6	0.57 %
Stem borer	4	0.38 %
Leaf roller	1	0.09 %
Pests	999	95.87 %
Weeds	75	7.19 %
Diseases	219	21.01 %

4.3. Pesticide storage: The survey data generated from the responses of 1,115 respondents on pesticide storage shows the following distribution. No responses were obtained from 370 participants:

- Sheds: 617 [55.33 %; 39 women (3.50 %), 571 men (51.21 %) and seven unknown (0.62 %)].
- Fields: 558 [50.04 %; 37 women (3.32 %), 516 men (46.28 %) and five unknown (0.44 %)].
- Garden: nine [0.80 %; all men].
- Storeroom: one [0.08 %; male].
- Homes: 369 [33.09 %; 15 women (1.35 %), 349 men (31.30 %) and five unknown (0.44 %)]. This is concerning as storing pesticides in households can lead to issues like accidental ingestion, inhalation, spills and leakages raising exposure risks in the family. Children and pets are especially vulnerable to exposure. Pesticides can spill or leak, contaminating surfaces, food items, or household products, leading to unintentional exposure over time.

Figure 8. Improper storage of pesticides in homes

- Furthermore, among 1,049 respondents, 988 [94.19 %; 61 women (5.82 %), 916 men (87.32 %) and 11 unknown (1.05 %)] are ensured keeping the pesticides locked away from children to reduce exposure risks. However, 61 [5.81 %; four women (0.38 %) and 57 men (5.43 %)] do not follow this. This is concerning and needs to be further addressed, and awareness must be given. No responses were obtained from 436 participants

- 956 [91.48 %; 63 women (6.03 %), 884 men (84.59 %) and nine unknown (0.86 %)] out of 1,045 have kept the pesticides separately from other items, whereas 89 [8.52 %; three women (0.29 %), 85 men (8.13 %) and one unknown (0.10 %)] have not.

4.4. Decanting of pesticides: Out of 1,020 respondents who provided information on this, 798 [78.24 %; 56 women (5.50 %), 732 men (71.76 %) and 10 unknown (0.98 %)] are not involved in the practice of decanting, while 222 [21.76 %; nine women (0.88 %) and 213 men (20.88 %)] are. This is a discouraged practice as transferring pesticides from their original containers is dangerous because of exposure and spillage risks.

4.5. Reuse of pesticide containers: Shockingly, out of 1,035 respondents, 130 [12.56 %; six women (0.58 %) and 124 men (11.98 %)] revealed reusing pesticide containers for water and food storage, and other household items, while 905 [87.44 %; 58 women (5.60 %), 837 men (80.87 %) and 10 unknown (0.97 %)] are not.

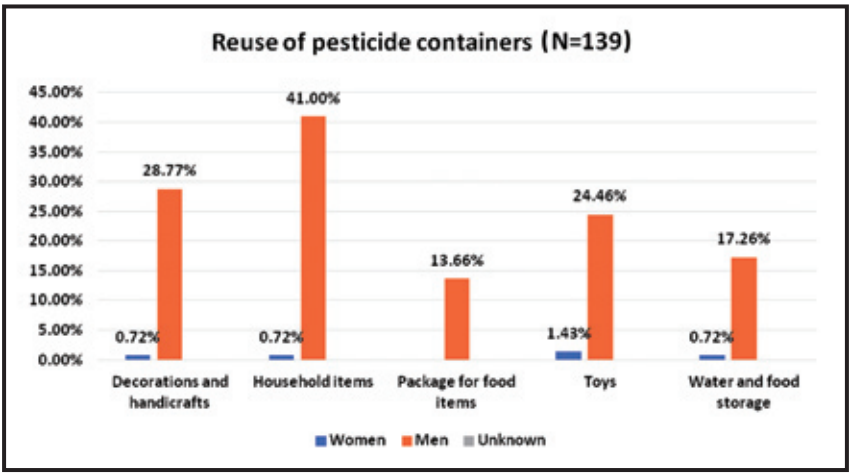
- 139 respondents specified the purposes where reused pesticide containers were used. The responses are provided below.

Table 6: Reuse purposes

Reuse purposes	No. of responses	Women	Men	Unknown	Percentage
Decorations and handicrafts	41	1 (0.72 %)	40 (28.77 %)	0 (0.00 %)	29.49 %
Household items	58	1 (0.72 %)	57 (41.00 %)	0 (0.00 %)	41.72 %
Package for food items	19	0 (0.00 %)	19 (13.66 %)	0 (0.00 %)	13.66 %
Toys	36	2 (1.43 %)	34 (24.46 %)	0 (0.00 %)	25.89 %
Water and food storage	25	1 (0.72 %)	24 (17.26 %)	0 (0.00 %)	17.98 %

* N does not equal to 100% due to multiple responses

Figure 9: Reuse of pesticide containers by respondents



* N does not equal to 100 % due to multiple responses

4.6. Pesticide container disposal: The major disposal practices reported by 1,012 respondents include:

- Burning [611 (60.37 %); 23 women (2.27 %), 582 men (57.51 %) and six unknown (0.59 %)].
- Burying [350 (34.58 %); 19 women (1.88 %), 327 men (32.31 %) and four unknown (0.39 %)].
- Putting in rubbish [87 (8.59 %); four women (0.39 %) and 83 men (8.20 %)].
- Throwing in open fields [62 (6.12 %); five women (0.49 %) and 57 men (5.63 %)].
- Returning to the distributor [42 (4.15 %); one woman (0.10 %) and 41 men (4.05 %)].
- Selling to scrapers [173 (17.09 %); 26 women (2.75 %), 144 men (14.23 %) and three unknown (0.29 %)].

The data reveals a considerable dependence on disposal methods that may be harmful to both the environment and human health. Burning pesticide containers is a practice that poses significant risks by releasing toxic fumes and pollutants into the air, which can harm humans, animals, and the surrounding environment. This suggests a gap in awareness or a lack of access to safer disposal alternatives. Some respondents sell these containers to waste collectors, but it's unclear whether the containers are adequately cleaned beforehand. Additionally, disposal of used containers directly in the fields potentially leads to soil contamination and the leaching of chemicals into groundwater. These findings underscore the need for greater awareness within the farming community about safe pesticide container disposal methods.

4.6.1. Leftover pesticide disposal: Given below are the responses provided by 1,357 participants regarding the disposal practices followed for leftover or unwanted pesticides. No responses were obtained from 128 participants.

Table 7: Pesticide leftover disposal practices					
Disposal practices	No. of respondents	Women	Men	Unknown	Percentage
Burning	984	80 (5.89 %)	885 (65.22 %)	19 (1.40 %)	72.51 %
Burying	425	15 (1.10 %)	404 (29.77 %)	6 (0.44 %)	31.31 %
Kept in grain store	12	0 (0.00 %)	12 (0.88 %)	0 (0.00 %)	0.88 %
Kept in home	36	4 (0.29 %)	32 (2.36 %)	0 (0.00 %)	2.65 %
Thrown in the field	48	7 (0.52 %)	41 (3.02 %)	0 (0.00 %)	3.53 %
Thrown randomly	1	1 (0.07 %)	0 (0.00 %)	0 (0.00 %)	0.07 %
Used until finished	150	3 (0.22 %)	147 (10.83 %)	0 (0.00 %)	11.05 %

* N does not equal to 100 % due to multiple responses

5. ALTERNATE PESTICIDE PRACTICES – SURVEY DATA

The survey data regarding the alternate pesticide practices followed by the participants shows the following responses: Seven respondents were following alternate pesticide practices in their farmlands and only one was following the same in their households. Rodent traps and organic pest repellents were reported by two respondents each.

Table 8: Non-pesticide practices			
Alternate practices	FARM	HOME	GARDEN
	Responses	Responses	Responses
Organic fertilizers	1	–	–
Rodent trap	2	–	–
Mechanical weeding	1	–	–
Washing soap	1	–	–
Organic insect repellent	2	–	–
Nothing	–	1	–
Total	**7**	**1**	**0**

6. PESTICIDE PRACTICES AND EXPOSURE

The survey data of 1,204 respondents on the pesticide-use practices is provided in the table below. Higher responses (92.69 %) are reported for applying and spraying pesticides. The other responses obtained are tabulated below. No responses were obtained from 281 survey participants.

Table 9: Pesticide-use practices

Pesticide-use practices	No. of respondents	Women	Men	Unknown	Percentage
Apply/spray in the field	1116	59 (4.90 %)	1,041 (86.46 %)	16 (1.33 %)	92.69 %
Household application	60	1 (0.08 %)	58 (4.82 %)	1 (0.08 %)	4.98 %
Human Therapy	5	0 (0.00 %)	5 (0.41 %)	0 (0.00 %)	0.41 %
Mixing/loading/decanting/ cleaning	762	46 (3.82 %)	707 (58.72 %)	9 (0.74 %)	63.28 %
Purchasing or transporting	499	37 (3.07 %)	456 (37.87 %)	6 (0.50 %)	41.44 %
Vector control application	37	0 (0.00 %)	36 (2.99 %)	1 (0.08 %)	3.07 %
Veterinary therapy [for eg use for foot and mouth disease]	57	0 (0.00 %)	56 (4.65 %)	1 (0.08 %)	4.73 %
Washing the clothes used when spraying or mixing pesticides	610	42 (3.50 %)	562 (46.67 %)	6 (0.49 %)	50.66 %
Washing the equipment used in spraying or mixing pesticides	527	42 (3.50 %)	479 (39.78 %)	6 (0.49 %)	43.77 %
Working in fields where pesticides are being used or have been used	507	38 (3.16 %)	463 (38.45 %)	6 (0.49 %)	42.10 %

* N does not equal to 100 % due to multiple responses

6.1. Pesticide application-schedule: Regarding the application schedule of pesticides, among 1,426 respondents, 758; [53.15 %; 45 women (3.16 %), 704 men (49.36 %) and nine unknown (0.63 %)] gave a response to the monthly application. Weekly applications were reported by 672; [47.12 %; 56 women (3.92 %), 602 men (42.22 %) and 14 unknown (0.98 %)] respondents. Concerningly, 12 respondents [0.84 %; one woman (8.0.07 %) and 11 men

(0.77 %)] were involved in the daily application of pesticides. Nine; [0.63 %; three women (0.21 %) and six men (0.42 %)] of respondents reported yearly applications. No responses were obtained from 59 survey participants.

6.2. Spraying equipment: (N=973; no responses were obtained from 512 participants)

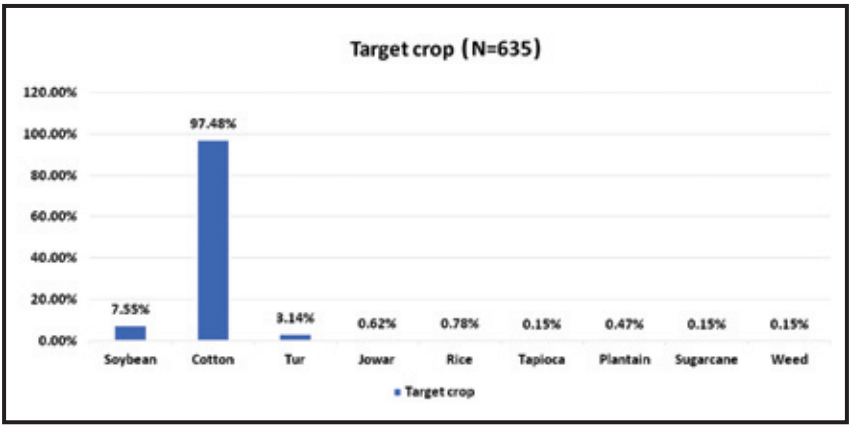
From the survey data, Farmers mainly sprayed using hand pumps [621, 58.68 % men, 4.21 % women and 0.93 % unknown gender].

Table 10: Pesticide spraying equipment

Spraying equipment	No. of respondents	Women	Men	Unknown	Percentage
Hand pump	621	41 (4.21 %)	571 (58.68 %)	9 (0.93 %)	63.82 %
Battery pump	309	34 (3.50 %)	265 (27.24 %)	10 (1.02 %)	31.76 %
Knapsack sprayer	7	1 (0.10 %)	6 (0.62 %)	0 (0.00 %)	0.72 %
Spray pump	36	8 (0.82 %)	28 (2.88 %)	0 (0.00 %)	3.70 %
Total	**973**	**84**	**870**	**19**	**100 %**

6.3. Target crop: (N=635)

Figure 10: Target crop for pesticide application



* N does not equal to 100 % due to multiple responses

6.4. Pesticide exposure – stages of exposure: When surveyed, 629 respondents revealed exposure to pesticides. The responses obtained are tabulated below. The highest responses were obtained from respondents who were exposed to pesticides during the ground spraying, followed by those exposed to pesticide-contaminated water.

Table 11: Pesticide exposure stages

Exposure stages	No. of respondents	Women	Men	Unknown	Percentage
Applied from the air	61	4 (0.64 %)	56 (8.90%)	1 (0.15 %)	9.69 %
During application	12	3 (0.47 %)	9 (1.43 %)	0 (0.00 %)	1.90 %
Eating contaminated food	34	0 (0.00 %)	34 (5.40 %)	0 (0.00 %)	5.40 %
Eating food after spraying	69	2 (0.32 %)	32 (5.09 %)	1 (0.15 %)	5.67 %
Government spraying for public health purposes	23	0 (0.00 %)	23 (3.65 %)	0 (0.00 %)	3.65 %
Ground spraying (Backpack)	445	20 (3.18 %)	417 (66.29 %)	8 (1.27 %)	70.74 %
Neighbour's use of pesticides	21	1 (0.15 %)	20 (3.18 %)	0 (0.00 %)	3.33 %
Private companies spraying for public health	3	1 (0.15 %)	2 (0.32 %)	0 (0.00 %)	0.47 %
Water contamination	131	1 (0.15 %)	130 (20.67 %)	0 (0.00 %)	20.82 %

* N does not equal to 100 % due to multiple responses

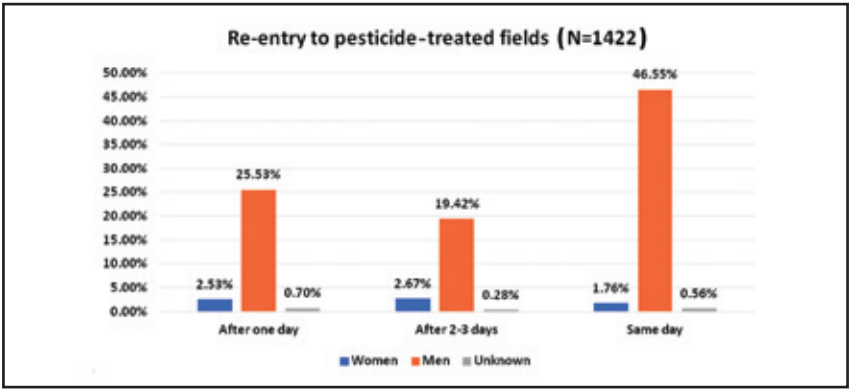
The survey data regarding the exposure interval from 1,179 respondents are provided below.

Table 12: Pesticide exposure interval

Pesticide exposure Interval	No. of respondents	Women	Men	Unknown	Percentage
Daily	20	3 (0.25 %)	17 (1.44 %)	0 (0.00 %)	1.69 %
15–25 days	10	0 (0.00 %)	10 (0.84 %)	0 (0.00 %)	0.84 %
Weekly	671	50 (4.24 %)	608 (51.57 %)	13 (1.10 %)	56.91 %
Monthly	462	18 (1.53 %)	441 (37.40 %)	3 (0.25 %)	39.18 %
Yearly	1	1 (0.08 %)	0 (0.00 %)	0 (0.00 %)	0.08 %
When applying	8	2 (0.17 %)	6 (0.50 %)	0 (0.00 %)	0.67 %
Other	5	1 (0.08 %)	3 (0.26 %)	1 (0.08 %)	0.42 %

6.5. Re-entry to treated farms: Re-entering the pesticide-treated area soon after application can cause pesticide exposure risks in individuals. Ideally, one is recommended to enter such fields only after 5–7 days to avoid such risks. From the responses of 1,422 respondents, 409; [28.76 %; 36 women (2.53 %), 363 men (25.53 %) and 10 unknown (0.70 %)], re-entered the treated area after one day. Shockingly, 695; [48.87 %; 25 women (1.76 %), 662 men (46.55 %) and eight unknown (0.56 %)], enter immediately after spraying. They are at high risk of exposure. This is something that needs to be addressed and given awareness. 318; [22.37 %; 38 women (2.67 %), 276 men (19.42 %) and four unknown (0.28 %)], enter into treated farms after 2–3 days. No responses were obtained from 63 participants.

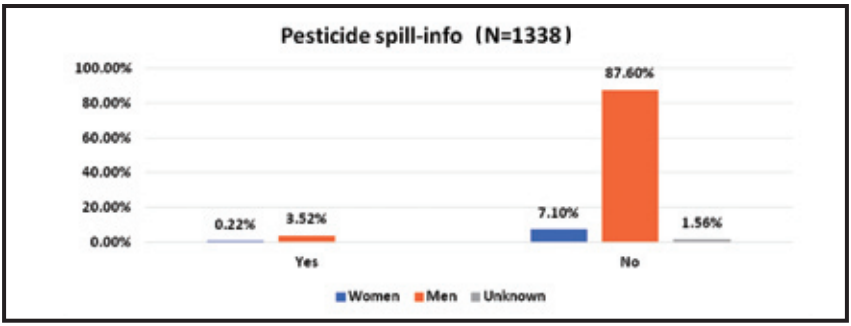
Figure 11: Re-entry to pesticide-treated field



6.6. The direction of application: Considering the direction of the wind while applying pesticides is crucial for minimizing pesticide drifts and exposure risks. The survey data of 1,399 respondents shows that a majority of 766; [54.75 %; 22 women (1.57 %), 732 men (52.32 %) and 12 unknown (0.86 %)], are randomly applying pesticides without considering the wind direction. This is concerning as this can cause the aforementioned issues among these respondents. 523; [37.39 %; 67 women (4.79 %), 445 men (31.81 %) and 11 unknown (0.79 %)], are applying along the wind direction and 110 respondents [7.86 %; six women (0.43 %) and 104 men (7.43 %)], are spraying against the wind direction. No response was obtained from the rest of the 86 participants.

6.7. Pesticide spills: From the survey data of 1,338 respondents, 50 [3.74 %; three women (0.22 %) and 47 men (3.52 %)] have experienced pesticides being spilled on their bodies during the handling. A majority of 1,288 [96.26 %; 95 women (7.10 %), 1,172 men (87.60 %) and 21 unknown (1.56 %)] have not.

Figure 12: Exposure to pesticide spills



44 respondents provided further information regarding the stages of occurrence. The highest responses were obtained from respondents who experienced spills during the spraying of pesticides [33; 75.00 %; two women (4.55 %) and 31 men (70.45 %)]. Other than this, respondents reported spills during the mixing [19; 43.18 %; all men] and loading [16; 36.36 %; one woman (2.27 %) and 15 men (34.09 %)] of pesticides. The responses obtained for the primary reason for pesticide spills from 110 respondents are tabulated below.

Table 13: Pesticide spill

Reason for spill	No. of responses	Women	Men	Unknown	Percentage
Spilled while spraying	19	0.00 %	19 (17.27 %)	0.00 %	17.27 %
Spilled while decanting/mixing	11	0.00 %	11 (10.00 %)	0.00 %	10.00 %
Faulty spray equipment	79	11 (10.00 %)	66 (60.00 %)	2 (1.81 %)	71.81 %
Change in wind direction	14	0.00 %	14 (12.72 %)	0.00 %	12.72 %
Bottle cap is loose	4	1 (0.90 %)	3 (2.73 %)	0.00 %	3.63 %
Children playing with pesticide containers	6	1 (0.90 %)	5 (4.55 %)	0.00 %	5.45 %

* N does not equal to 100 % due to multiple responses

6.8. Affected body part: 43 respondents provided information regarding body parts affected by pesticide spills, with the highest on hands (36; 76.74 % men and 6.98 % women) followed by eyes, mouth, face, feet, back of the body, upper body and lower body. The responses are provided in the following.

Table 14: Pesticide spill-affected body part

Body part affected	No. of responses	Women	Men	Unknown	Percentage
Back of the body	7	0 (0.00 %)	7 (16.27 %)	0 (0.00 %)	16.27 %
Eyes	19	1 (2.32 %)	18 (41.86 %)	0 (0.00 %)	44.18 %
Face	14	0 (0.00 %)	14 (32.55 %)	0 (0.00 %)	32.55 %
Feet	14	0 (0.00 %)	14 (32.55 %)	0 (0.00 %)	32.55 %
Hands	36	3 (6.98 %)	33 (76.74 %)	0 (0.00 %)	83.72 %
Lower body	2	0 (0.00 %)	2 (4.65 %)	0 (0.00 %)	4.65 %
Mouth	16	0 (0.00 %)	16 (37.20 %)	0 (0.00 %)	37.20 %
Upper body	4	0 (0.00 %)	4 (9.30 %)	0 (0.00 %)	9.30 %

* N does not equal to 100 % due to multiple responses

6.9. Management of pesticide spill: The data generated from the responses of 75 participants [five women (6.67 %), 69 men (92.00 %) and one unknown (1.33 %)] are provided below. According to the data, only two respondents sought medical attention following a pesticide spill.

Table 15: Pesticide spill management

Remedial measures followed	No. of responses	Women	Men	Unknown	Percentage
Applied home remedy	6	0 (0.00 %)	6 (8.00 %)	0 (0.00 %)	8.00 %
Changed the clothes	12	0 (0.00 %)	12 (16.00 %)	0 (0.00 %)	16.00 %
Sought medical attention	2	0 (0.00 %)	2 (2.66 %)	0 (0.00 %)	2.66 %
Took a bath	21	1 (1.33 %)	20 (26.67 %)	0 (0.00 %)	28.00 %
Washed hands or areas affected	38	4 (5.33 %)	33 (44.00 %)	1 (1.33 %)	50.66 %
Washed the clothes	27	2 (2.67 %)	25 (33.33 %)	0 (0.00 %)	36.00 %
Wiped off with a cloth	4	0 (0.00 %)	4 (5.33 %)	0 (0.00 %)	5.33 %

* N does not equal to 100 % due to multiple responses

6.10. Washing facilities: From the responses of 1,149 respondents, 829; [72.15 %; 57 women (4.96 %), 758 men (65.97 %) and 14 unknown (1.22 %)] have facilities where they apply pesticides for cleaning and washing body, hands, etc, while 320; [27.85 %; 17 women (1.48 %), 298 men (25.94 %) and five unknown (0.43 %)] have not. No responses were obtained from 336 participants. The further data regarding existing washing facilities generated from 1,214 respondents are provided below. 72.89 % depends on nearby wells for this purpose.

Table 16: Washing facilities for body

Washing facilities	No. of respondents	Women	Men	Unknown	Percentage
Ponds	33	4 (0.33 %)	29 (2.38 %)	0 (0.00 %)	2.71 %
River	296	16 (1.32 %)	276 22.73 %)	4 (0.33 %)	24.38 %
Taps	53	3 (0.25 %)	50 (4.11 %)	0 (0.00 %)	4.36 %
Water containers	209	4 (0.33 %)	202 (16.63 %)	3 (.025 %)	17.21 %
Watercourse / irrigation drains	108	6 (0.49 %)	99 (8.15 %)	3 (0.25 %)	8.89 %
Wells	885	56 (4.61 %)	814 (67.05 %)	15 (1.23 %)	72.89 %
No facilities	1	0 (0.00 %)	1 (0.08 %)	0 (0.00 %)	0.08 %

* N does not equal to 100 % due to multiple responses

6.10.1. Equipment washing-information

Table 17: Washing facilities for pesticide equipment

Source	Respondents	Women	Men	Unknown	Percentage
Cement kilt	5	0 (0.00 %)	5 (0.38 %)	0 (0.00 %)	0.38 %
Farm	618	39 (2.96 %)	573 (43.57 %)	6 (0.46 %)	46.99 %
Home	79	5 (0.38 %)	73 (5.55 %)	1 (0.07 %)	6.00 %
pond/lake	30	2 (0.15 %)	27 (2.05 %)	1 (0.07 %)	2.27 %
Water course/ irrigation drain	162	10 (0.76 %)	149 (11.33%)	3 (0.23 %)	12.32 %
Well	894	72 (5.48 %)	806 (61.29 %)	16 (1.21 %)	67.98 %

N=1315; No response was obtained from 170 survey participants

6.11. Residential particulars: According to the responses provided by 1,375 participants, 161 [11.71 %; 12 women (0.87 %), 147 % men (10.69 %) and two unknown (0.15 %)] respondents live more than 2 km away from the field/ plantation where pesticide spraying takes place, whereas 1,214 [88.29 %; 89 women (6.47 %), 1,105 men (80.36 % %) and 20 unknown (1.46 %)] respondents live 2 km or less.

6.12. Pesticide seller particulars: According to the survey data, out of 940 respondents, 359 [38.19; 37 women (3.94 %), 317 men (33.72 %) and five unknown (0.53 %)] are aware of who provides the pesticides to their employer. But, 581; 61.81; [27 women (2.87 %), 547 men (58.20 %) and seven unknown (0.74 %)] do not.

Table 18: Pesticide procuring source

Source of pesticides	No. of respondents	Women	Men	Unknown	Percentage
Across the border	2	0 (0.00 %)	2 (0.20 %)	0 (0.00 %)	0.20 %
Farm supply store	362	5 (1.38 %)	353 (97.52 %)	4 (1.10 %)	36.34 %
In home store	22	0 (0.00 %)	22 (2.20 %)	0 (0.00 %)	2.20 %
Market stall	238	28 (11.77 %)	207 (86.97 %)	3 (1.26 %)	23.89 %
Retail shop	664	22 (3.31 %)	637 (95.94 %)	5 (0.75 %)	66.66 %
Roadside stall	10	0 (0.00 %)	9 (90.00 %)	1 (10.00 %)	1.00 %
Supermarket outlet	8	0 (0.00 %)	8 (0.80 %)	0 (0.00 %)	0.80 %
Supply agent	44	0 (0.00 %)	44 (4.41 %)	0 (0.00 %)	4.41 %

* N does not equal to 100 % due to multiple responses

Furthermore, 1,066 respondents provided information on the person buying pesticides at their workplace. According to the data, 1,028 (96.43 %) respondents procure these by themselves [57 women (5.54 %), 960 men (93.39 %) and 11 unknown (1.07)]. 27; [2.53 % (4 women (14.81 %) and 23 men (85.19 %)] revealed their employer/management procuring pesticides. 25 respondents (all men; 2.34 %) said that their parents procure these at their workplace. For two (all men; 0.18 %), their friends buy these for them. Two female (0.18 %) respondents addressed their husbands in charge.

The information procured from the responses of 1,056 participants regarding the method of choosing pesticides for the workplace is provided in Table 21.

Table 19: Method of choosing a pesticide					
Method of choosing	No. of respondents	Women	Men	Unknown	Percentage
Own experience	590	27 (4.58 %)	560 (94.92 %)	3 (0.50 %)	55.87 %
Pesticide labels	19	0 (0.00 %)	18 (94.74 %)	1 (5.26 %)	1.79 %
Other's recommendation	293	12 (4.09 %)	277 (94.54 %)	4 (1.37 %)	27.74 %
Suggestion from pesticide sellers	211	7 (3.32 %)	201 (95.26 %)	3 (1.42 %)	19.98 %
Pest observation	44	11 (25.00 %)	32 (72.73 %))	1 (2.27 %)	4.16

* N does not equal to 100 % due to multiple responses

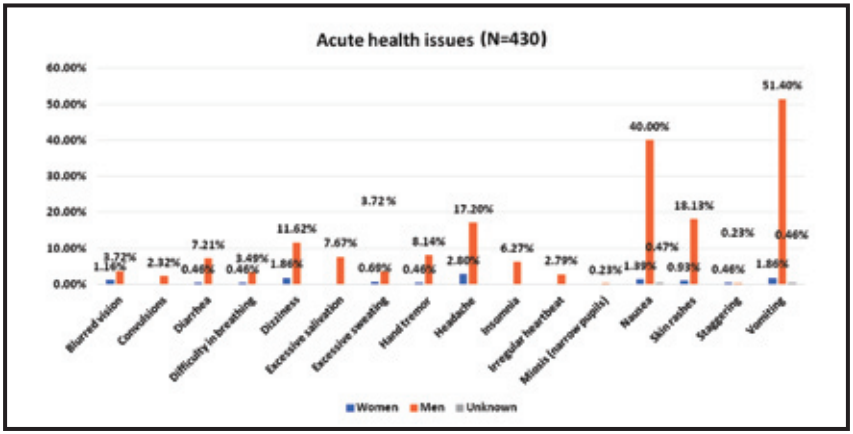
7. HEALTH ISSUES

7.1. Acute health issues: From the data of 430 respondents, a high incidence among respondents was noted for health issues like vomiting [53.72 %; 51.40 % men, 1.86 % women and 0.46 % unknown] followed by nausea (41.86 %). No responses were obtained from the rest of the 1,055 participants.

Table 20: Acute health issues					
Health issues reported	No. of responses	Women	Men	Unknown	Percentage
Blurred vision	21	5 (1.16 %)	16 (3.72 %)	0 (0.00 %)	4.88 %
Convulsions	10	0 (0.00 %)	10 (2.32 %)	0 (0.00 %)	2.32 %
Diarrhea	33	2 (0.46 %)	31 (7.21 %)	0 (0.00 %)	7.67 %
Difficulty in breathing	17	2 (0.46 %)	15 (3.49 %)	0 (0.00 %)	3.95 %
Dizziness	58	8 (1.86 %)	50 (11.62 %)	0 (0.00 %)	13.48 %
Excessive salivation	33	0 (0.00 %)	33 (7.67 %)	0 (0.00 %)	7.67 %
Excessive sweating	19	3 (0.69 %)	16 (3.72 %)	0 (0.00 %)	4.41 %
Hand tremor	37	2 (0.46%)	35 (8.14 %)	0 (0.00 %)	8.60 %
Headache	86	12 (2.80 %)	74 (17.20 %)	0 (0.00 %)	20.00 %
Insomnia	27	0 (0.00 %)	27 (6.27 %)	0 (0.00 %)	6.27 %
Irregular heartbeat	12	0 (0.00 %)	12 (2.79 %)	0 (0.00 %)	2.79 %
Miosis (narrow pupils)	1	0 (0.00 %)	1 (0.23 %)	0 (0.00 %)	0.23 %
Nausea	180	6 (1.39 %)	172 (40.00 %)	2 (0.47 %)	41.86 %
Skin rashes	82	4 (0.93 %)	78 (18.13 %)	0 (0.00 %)	19.06 %
Staggering	3	2 (0.46 %)	1 (0.23 %)	0 (0.00 %)	0.69 %
Vomiting	231	8 (1.86 %)	221 (51.40 %)	2 (0.46 %)	53.72 %

* N does not equal to 100 % due to multiple responses

Figure 13: Acute health issues reported



* N does not equal to 100 % due to multiple responses

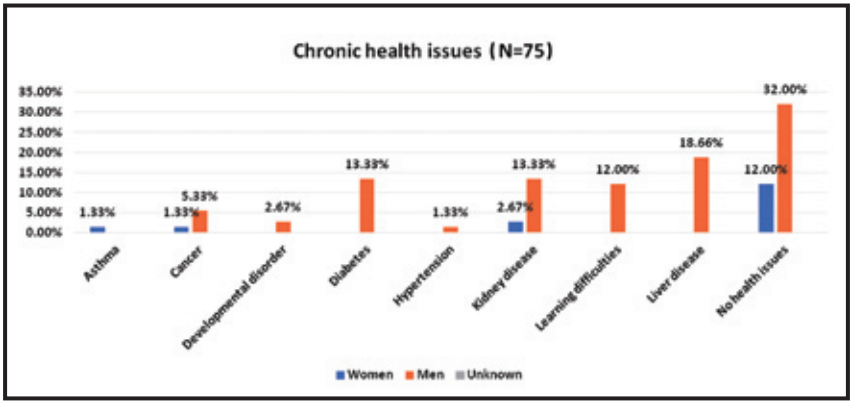
7.2. Chronic health issues: From the data of 75 respondents (12 women (16.00 %), 63 men (84.00 %), 42 had chronic health issues, while 33 had not. A high incidence among respondents was noted for health issues like liver diseases (18.66 %) followed by kidney disease (16.00 %). No responses were obtained from the rest of the 1,410 participants.

Table 21: Chronic health issues

Health issues reported	No. of responses	Women	Men	Unknown	Percentage
Asthma	1	1 (1.33 %)	0 (0.00 %)	0 (0.00 %)	1.33 %
Cancer	5	1 (1.33 %)	4 (5.33 %)	0 (0.00 %)	6.66 %
Developmental disorder	2	0 (0.00 %)	2 (2.67 %)	0 (0.00 %)	2.66 %
Diabetes	10	0 (0.00 %)	10 (13.33 %)	0 (0.00 %)	13.33 %
Hypertension	1	0 (0.00 %)	1 (1.33 %)	0 (0.00 %)	1.33 %
Kidney disease	12	2 (2.67 %)	10 (13.33 %)	0 (0.00 %)	16.00 %
Learning difficulties	9	0 (0.00 %)	9 (12.00 %)	0 (0.00 %)	12.00 %
Liver disease	14	0 (0.00 %)	14 (18.66 %)	0 (0.00 %)	18.66 %
No health issues	33	9 (12.00 %)	24 (32.00 %)	0 (0.00 %)	44.00 %

* N does not equal to 100 % due to multiple responses

Figure 14: Chronic health issues among respondents



* N does not equal to 100% due to multiple responses

8. PESTICIDE RETAILER INFORMATION

The survey data of 996 respondents regarding the source of procuring pesticides shows the following distribution. Higher responses were obtained for retail shops (66.66 %), followed by farm supply stores (36.34 %). No responses were obtained from the rest of the 489 participants.

Table 22: Pesticide procuring source

Source of pesticides	No. of respondents	Women	Men	Unknown	Percentage
Across the border	2	0 (0.00 %)	2 (0.20 %)	0 (0.00 %)	0.20 %
Farm supply store	362	5 (0.50 %)	353 (35.44 %)	4 (0.40 %)	36.34 %
In home store	22	0 (0.00 %)	22 (2.20 %)	0 (0.00 %)	2.20 %
Market stall	238	28 (2.81 %)	207 (20.78 %)	3 (0.30 %)	23.89 %
Retail shop	664	22 (2.21 %)	637 (63.95 %)	5 (0.50 %)	66.66 %
Roadside stall	10	0 (0.00 %)	9 (0.90 %)	1 (0.10 %)	1.00 %
Supermarket outlet	8	0 (0.00 %)	8 (0.80 %)	0 (0.00 %)	0.80 %
Supply agent	44	0 (0.00 %)	44 (4.41 %)	0 (0.00 %)	4.41 %

* N does not equal to 100 % due to multiple responses

Furthermore, 1,066 respondents provided information on the person buying pesticides at their workplace. According to the data, 1,028 (96.43 %) respondents procure these by themselves [57 women (5.34 %), 960 men (90.06 %) and 11 unknown (1.03 %)]. 27; [2.53 %; four women (0.38 %) and 23 men (2.15 %)] revealed their employer/management procuring pesticides. 25 respondents (all men; 2.34 %) said that their parents procure these at their workplace. For two (all men; 0.18 %), their friends buy these for them. Two female (0.18 %) respondents addressed their husbands in charge.

The information procured from the responses of 1,056 participants regarding the method of choosing pesticides for the workplace is provided in the table.

Table 23: Method of choosing a pesticide

Method of choosing	No. of respondents	Women	Men	Unknown	Percentage
Own experience	590	27 (2.56 %)	560 (53.03 %)	3 (0.28 %)	55.87 %
Pesticide labels	19	0 (0.00 %)	18 (1.70 %)	1 (0.09 %)	1.79 %
Other's recommendation	293	12 (1.14 %)	277 (26.23 %)	4 (0.37 %)	27.74 %
Suggestion from pesticide sellers	211	7 (0.66 %)	201 (19.03 %)	3 (0.28 %)	19.98 %
Pest observation	44	11 (25.00 %)	32 (72.73 %)	1 (2.27 %)	4.16 %

* N does not equal to 100 % due to multiple responses

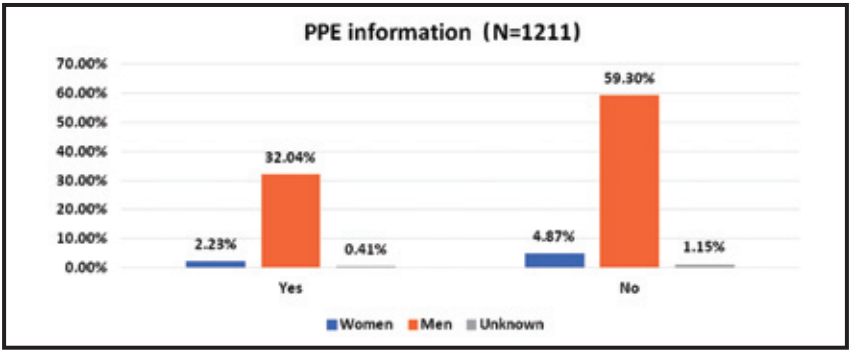
9. PERSONAL PROTECTION PARTICULARS

The survey data of respondents following protective clothing while handling pesticides is below. No responses were obtained from 274 participants.

Table 24: PPE use

Category	No. of respondents	Percentage
Yes	420 (27 women (2.23 %), 388 men (32.04 %), 5 unknown (0.41 %)	34.68 %
No	791 (59 women (4.87 %), 718 men (59.30 %), 14 unknown (1.15 %)	65.32 %
Total	**1,211**	**100 %**

Figure 15: PPE usage by respondents



A high proportion (65.32 %) of respondents are not using PPE while handling pesticides, while only 34.68 % are. No response was obtained from the rest of the participants.

9.1. Reasons for not using PPE: When exploring possible reasons for not using PPE, mixed responses were obtained from 512 respondents. For 472 [92.19 %; 42 women (8.20 %), 417 men (81.45 %) and 13 unknown (2.54 %)] of the respondents, the PPE was not available. For 17 [3.32 %; two women (0.39 %) and 15 men (2.93 %)], the major issue was uncomfortability. Some respondents revealed PPE was expensive [25; 4.88 %; two women (0.39 %), 23 men (4.49 %)]. Two [0.39 %; one woman (0.19 %) and one man (0.20 %)] respondents said they were not using PPE because hired workers are spraying. From the responses provided by 728 participants, 678 [93.13 %; 38 women (5.22 %), 630 men (86.54 %) and 10 unknown (1.37 %)] are not facing any PPE-related issues, except for 50 (6.87 %; 49 men (6.73 %), one woman (0.14 %). Furthermore, 183 [31.18 %; eight women (1.37 %), 172 men (29.30 %) and three unknown (0.51 %)] out of a total of 587 respondents have revealed to inform their employers of PPE-related difficulties, while 404 [68.82 %; 24 women (4.09 %), 376 men (64.05 %) and four unknown (0.68 %] have not.

- 988 participants responded regarding employer supervision of PPE use and personal protection. Except for 53 [5.36 %; three women (0.30 %) and 50 men (5.06 %)], 935 respondents [94.64 %; 53 women (5.37 %), 871 men (88.16 %) and 11 unknown (1.11 %)] ensured that their employer was unaware that they were not using PPE.

- According to the survey outcomes of 995 respondents, only 176 [17.68 %; eight women (0.80 %), 164 men (16.48 %) and four unknown (0.40 %)] ensured their employers offered to supply PPE. This is not the case for 819 [82.32 %; 50 women (5.03 %), 756 men (75.98 %) and 13 unknown (1.31 %]. Additionally, 800 [80.16 %; 49 women (4.91 %), 737 men (73.85 %) and 14 unknown (1.40 %)] out of 998 respondents admitted that their job contracts did not mention PPE. Only 198 [19.84 %; nine women (0.90 %), 186 men (18.64 %) and three unknown (0.30 %)] have PPE-inclusive contracts.
- 248 respondents [28.74 %; 23 women (2.67 %), 222 men (25.72 %) and three unknown (0.35 %)] out of 863 admitted wearing protective clothing to avoid contacting pesticide containers while purchasing pesticides, while, 615 [71.26 %; 37 women (4.29 %), 571 men (66.16 %) and seven unknown (0.81 %)] are not.

9.2. PPE Training: From the responses of 991 respondents, it was noted that only 259 [26.14 %; 18 women (1.82 %), 238 men (24.02 %) and three unknown (0.30 %)] have received instructions or training on PPE use. A majority of 732 [73.86 %; 49 women (4.95 %), 670 men (67.60 %) and 13 unknown (1.31 %)] have not. No response was obtained from the rest of the 494 participants. Only 120 respondents revealed the instruction sources, of which the distribution is provided below. No responses were obtained from the rest of the participants. Among these, the highest responses were noted for manufacturers and friends' advice as major sources of PPE information.

Table 25: Source of PPE instruction

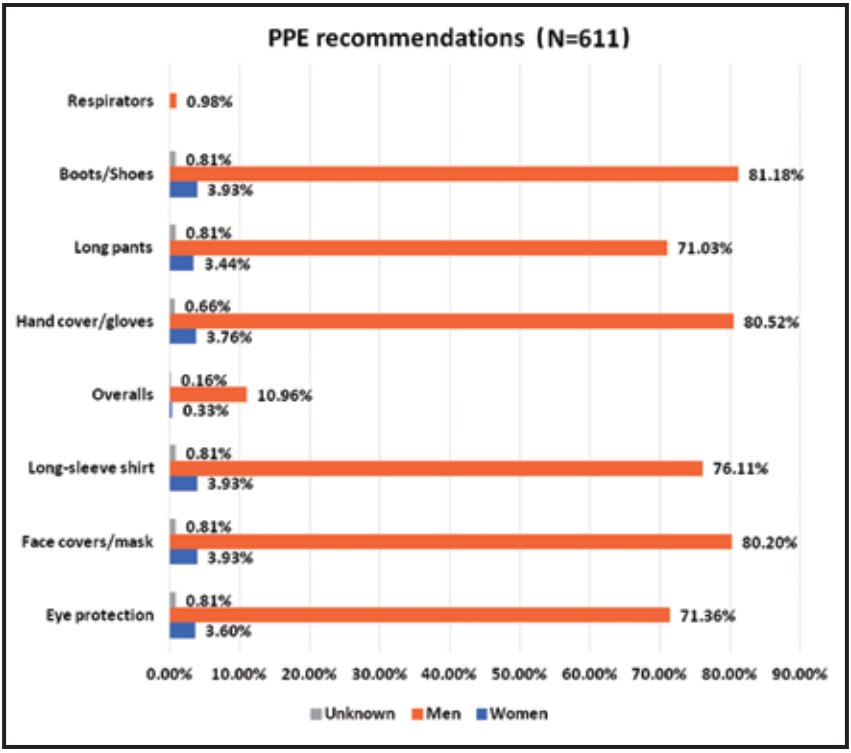
Source of PPE instructions	No. of responses	Women	Men	Unknown	Percentage
Employer	17	0 (0.00 %)	17 (14.16 %)	0 (0.00 %)	14.16 %
Friend	46	1 (0.83 %)	45 (37.50 %)	0 (0.00 %)	38.33 %
Leaflets	7	0 (0.00 %)	7 (5.83 %)	0 (0.00 %)	5.83 %
Manufacturer	60	2 (1.67 %)	58 (48.33 %)	0 (0.00 %)	50.00 %
Self-exploring	4	2 (1.67 %)	2 (1.66 %)	0 (0.00 %)	3.33 %

* N does not equal to 100 % due to multiple responses

9.3. PPE recommendations from training: 611 survey participants provided information regarding the PPEs recommended from training they attended. Boots/shoes were the highly recommended item from training for 85.92 % of respondents.

Table 26: Recommended PPE from training					
Category	No. of responses	Women	Men	Unknown	Percentage
Eye protection	463	22 (3.60 %)	436 (71.36 %)	5 (0.81 %)	75.77 %
Face covers/mask	519	24 (3.93 %)	490 (80.20 %)	5 (0.81 %)	84.94 %
Long-sleeve shirt	494	24 (3.93 %)	465 (76.11 %)	5 (0.81 %)	80.85 %
Overalls	70	2 (0.33%)	67 (10.96 %)	1 (0.16 %)	11.45 %
Hand cover/gloves	519	23 (3.76%)	492 (80352 %)	4 (0.66 %)	84.94 %
Long pants	460	21 (3.44 %)	434 (71.03 %)	5 (0.81 %)	75.28 %
Boots/Shoes	525	24 (3.93 %)	496 (81.18 %)	5 (0.81 %)	85.92 %
Respirators	6	0 (0.00 %)	6 (0.98 %)	0 (0.00 %)	0.98 %

* N does not equal to 100 % due to multiple responses



* N does not equal to 100 % due to multiple responses

9.4. PPE procurement: From the survey outcomes of 1169 respondents, 498 [42.60 %; 14 women (1.19 %), 479 men (40.98 %) and five unknown (0.43 %)] are using self-bought PPE, while 671 [57.40 %; 49 women (4.19 %), 608 men (52.01 %) and 14 unknown (1.20 %)] are not. The responses obtained from 527 respondents for the PPE items procured are provided in the table below.

PPE items procured: 527 respondents (15 women, 507 men, 5 unknown)

Table 27: PPE items procured					
Category	No. of responses	Women	Men	Unknown	Percentage
Facemask	481	15 (2.85 %)	461 (87.47 %)	5 (0.95 %)	91.27 %
Gloves	479	12 (2.28 %)	462 (87.66 %)	5 (0.95 %)	90.89 %
Long-sleeve shirt	440	14 (2.66 %)	421 (78.88 %)	5 (0.95 %)	83.49 %
Overalls	52	0 (0.00 %)	52 (9.86 %)	0 (0.00 %)	9.86 %
Boots/shoes	454	15 (2.85 %)	434 (82.35 %)	5 (0.95 %)	86.14 %
Long pants	425	12 (2.28 %)	408 (77.41 %)	5 (0.95 %)	80.64 %
Eyeglasses	436	13 (2.47 %)	419 (79.50 %)	4 (0.76 %)	82.73 %
Respirators	25	0 (0.00 %)	25 (4.74 %)	0 (0.00 %)	4.74 %

* N does not equal to 100 % due to multiple responses

10. LABEL/LEAFLETS

10.1. Access to the label/leaflet for the pesticides

Table 28: Leaflet information					
Category	No. of respondents	Women	Men	Unknown	Percentage
Total	**987**	**46**	**929**	**12**	**100 %**
Yes	437	19 (1.93 %)	413 (41.84 %)	5 (0.51 %)	44.28 %
No	550	27 (2.74 %)	516 (52.27 %)	7 (0.71 %)	55.72 %

All the necessary information regarding its toxicity, ingredients, type, and warning and precautionary statements are provided in a pesticide label and hence is crucial for avoiding risks. From the above responses, only 44.28 % of respondents have access to pesticide labels. But 55.72 % do not. No responses were obtained from 498 participants.

From the survey data of 1,055 respondents on reading pesticide label information, positive responses were obtained only from 262; [24.83 %; nine women (0.85 %), 248 men (23.51 %) and five unknown (0.47 %)]. 397; [37.63 %; 14 women (1.33 %), 379 men (35.92 %) and four unknown (0.38 %)] occasionally explore label information while a percentile of 396; [37.54 %; 23 women (2.18 %), 369 men (34.98 %) and four unknown (0.38 %)] does not. No responses were obtained from 430 participants.

10.1.1. Label Language: The survey data was generated from 1034 respondents. Only 328 [31.72 %; 17 women (1.64 %), 305 men (29.50 %) and six unknown (0.58 %)] respondents to the survey acknowledged that the labels for pesticides are written in the local language. 360 [34.82 %; 15 women (1.45 %), 342 men (33.08 %) and three unknown (0.29 %)] say that it is not. For 346; [33.46 %; 14 women (1.35 %), 327 men (31.63 %) and five unknown (0.48 %)] of those surveyed, the languages vary. No responses were obtained from 451 participants.

10.1.2. Label font size: From the survey data of 1,027 respondents, it is clear that for 518; [50.44 %; 18 women (1.76 %), 494 men (48.10 %) and six unknown (0.58 %)], information is not big enough to read. For 174; [16.94 %; 11 women (1.07 %), 162 men (15.77 %) and one unknown (0.10 %)], the font sizes are sometimes larger, but not always. Only, 335; [32.62 %; 17 women (1.66 %), 311 men (30.28 %) and seven unknown (0.68 %)] confidently responded on labels having a readable font size. No responses were obtained from 458 participants.

10.2. Leaflet information: 838 respondents among 1485 survey participants provided information regarding access to pesticide leaflets. Among them, 347; [41.41 %; 14 women (1.67 %), 328 men (39.14 %) and five unknown (0.60 %)] have access, while 491; [58.59 %; 15 women (1.79 %); 469 men (55.97 %) and seven unknown (0.83 %)] have not. No responses were obtained from 647 participants.

- 717 respondents shared their opinions on leaflet information. 383; [53.42 %; 22 women (3.07 %), 356 men (49.65 %) and five unknown (0.70 %)] found the information provided useful. 334; [46.58 %; 14 women (1.95 %), 317 men (44.21 %) and three unknown (0.42 %)] do not. No responses were obtained from 768 participants.
- When exploring the difficulties in accessing, various responses were obtained. These responses were collected from 442 respondents. No responses were obtained from 1,043 participants.

Table 29: Leaflet-related difficulties					
Leaflet-related difficulties	No. of responses	Women	Men	Unknown	Percentage
Can't read	99	11 (2.49 %)	86 (19.45 %)	2 (0.45 %)	22.39 %
No time	259	7 (1.58 %)	249 (56.34 %)	3 (0.67 %)	58.95 %
Not in the local language	46	2 (0.45 %)	44 (9.95 %)	0 (0.00 %)	10.40 %
Read sometimes	67	1 (0.22 %)	66 (14.93 %)	0 (0.00 %)	15.15 %
Text too small	41	2 (0.45 %)	39 (8.82 %)	0 (0.00 %)	9.27 %

* N does not equal to 100 % due to multiple responses

11. PESTICIDE-RELATED TRAINING

1,028 respondents gave responses regarding the training received on pesticide use. Among them, only 163 [15.86 %; 11 women (1.07 %), 149 men (14.49%) and three unknown (0.30 %)] received training, while 865 [84.14 %; 39 women (3.79 %), 816 men (79.38 %) and 10 unknown (0.97 %)] have not. No responses were obtained from 457 participants. Furthermore, the distribution of the mode of training received, from the responses of 156 respondents is provided below.

Table 30: Mode of pesticide-related training		
Mode of training	No of respondents	Percentage
Sales information	2 (2 men)	1.28 %
Seminar	154 [8 women (5.13 %), 143 men (91.67 %), 3 unknown (1.92 %)]	98.72 %
Total	**156**	**100.00 %**

12. EMERGENCY SUPPORT

The responses obtained regarding the emergency medical support opted by 810 respondents are given. Higher responses were obtained from those consulting local doctors (66.91 %) for emergencies. 45.06 % seek professional help from hospitals. However, 3.33 % of respondents opt for local remedies in such scenarios. An in-depth analysis is required on this. 48.51 % and 42.09

% of respondents seek the support of family members and trusted friends, respectively, and very few seek company support (0.98 %). Only 0.37 %, consult with poison centers.

Table 31: Emergency support (poisoning)					
Emergency support	No. of respondents	Women	Men	Unknown	Percentage
Company	8	0 (0.00 %)	8 (0.98 %)	0 (0.00 %)	0.98 %
Family member	393	22 (2.27 %)	369 (45.55 %)	2 (0.24 %)	48.51 %
Friend	341	12 (1.48 %)	327 (40.37 %)	2 (0.24 %)	42.09 %
Hospital	365	34 (4.19 %)	326 (40.25 %)	5 (0.62 %)	45.06 %
Local doctor	542	44 (5.43 %)	493 (60.86 %)	5 (0.62 %)	66.91 %
Local remedies	27	2 (0.24 %)	25 (3.09 %)	0 (0.00 %)	3.33 %
Poison centre	3	0 (0.00 %)	3 (0.37 %)	0 (0.00 %)	0.37 %

* N does not equal to 100 % due to multiple responses

13. PESTICIDE MANUFACTURING COMPANIES

From the responses from 775 respondents, the data obtained regarding the manufacturing companies of the products they are using is provided here. 18 manufacturing companies were reported by the respondents.

Table 32: Pesticide manufacturing companies			
	Pesticide manufacturing companies	No. of responses	Percentage
1.	Angur Agro	1	0.12 %
2.	Bayer	217	28.00 %
3.	Crystal	36	4.64 %
4.	D. Nocil crop protection	134	17.29 %
5.	Gharda chemicals	6	0.77 %
6.	Godrej	33	4.25 %
7.	HIL	2	0.25 %
8.	Insecticide India ltd	17	2.19 %
9.	Matrix India corporation	3	0.38 %
10.	Montari	1	0.12 %

11.	PI industries	1	0.12 %
12.	Rallis India	80	10.32 %
13.	Rythu agro	4	0.51 %
14.	Syngenta	50	6.45 %
15.	Tata	239	30.83 %
16.	Tracter	233	30.06 %
17.	UPL	245	31.61 %
18.	VPL	20	2.58 %

* N does not equal to 100 % due to multiple responses

14. PESTICIDE DATA

1,165 respondents have provided the information regarding the pesticide products. Among them, 26 active ingredients (18 insecticides, five herbicides, two Plant Growth Regulators and onw fungicide) and 10 active ingredient in combinations have been identified. 19 of the active ingredients are HHPs. Among the 10 combination products, nine of them consist of HHPs. Pesticide product with high frequency of use is Monocil (Monocrotophos). 564 respondents are using this Insecticide. Monocrotophos is the most used active ingredient among the respondents (48.84 %).

Table 33: Pesticides data

	Name of the pesticide	Frequency	Chemical name	Active ingredient	Pesticide type
1.	Actara	23	Thiamethoxam,	Thiamethoxam,	I
2.	Agas	3	Diafenthiuron	Diafenthiuron 50 % WP	I
3.	Agromax	2	Carbofuran	Carbofuran	I
4.	Ampligo	1	Chlorantraniliprole Lambda Cyhalothrin	Chlorantraniliprole: 100 grams per liter Lambda-cyhalothrin: 50 grams per liter	I
5.	Asataf	140	Acephate	Acephate 75 % sp	I
6.	Confidor	157	Imidacloprid	Imidacloprid 17.8 % SL	I

7.	Coragen	14	Chlorantraniliprole	Chlorantraniliprole 18.5 % w/w	I
8.	G 11 Killer	1	Glyphosate	Glyphosate	H
9.	Gayatri	5	Acetamiprid	Acetamiprid 20 %	I
10.	Glycil	14	Glyphosate	Glyphosate	H
11.	Hercules	20	Acetamiprid Diafenthiuron	Diafenthiuron: 40.1 % , acetamiprid: 3.9 % wp	I
12.	Hitweed	27	Pyrithiobac sodium	Pyrithiobac sodium 10 EC	H
13.	Karate	4	Lambda Cyhalothrin	Lambda Cyhalothrin 5 % EC	I
14.	Quinalphos	1	Quinalphos	Quinalphos	I
15.	Lancer gold	60	Acephate	Acephate: 50 %, Imidacloprid: 1.8 %	I
16.	Malathion	1	Malathion	Diethyl 2-[(dimethoxyphosphorothioyl) sulfanyl] butanedioate	I
17.	Macoban	1	Carbendazim + Mancozeb	Carbendazim 12 % + Mancozeb 63 % WP	F
18.	Master plus	1	Hexaconazole	Hexaconazole 5 % SC	F
19.	Mera	1	Glyphosate	71 % SG Ammonium Salt of Glyphosate.	H
20.	Missile	33	Emamectin Benzoate	Emamectin Benzoate 5 % SG	I
21.	Monocil	564	Monocrotophos	Monocrotophos	I
22.	Monocrotophos	5	Monocrotophos	Monocrotophos	I
23.	Nominee Gold	1	Bispyribac sodium	Bispyribac sodium 10 % SC	H
24.	Odyssey	3	Imazethapyr	Imazethapyr and imazamox:	H
25.	Parachut	3	Paraquat dichloride	Paraquat dichloride:	H
26.	Planofix	1	Alpha-naphthyl acetic acid	Alpha-naphthyl acetic acid 4.5 % w/w	PGR
27.	Police	21	Oxyfluorfen	Oxyfluorfen	H
28.	Polo	3	Diafenthiuron	Diafenthiuron	I
29.	Profenofos	1	Profenofos	Profenofos	I

30.	Profex super	13	Profenofos	Profenofos 40 % and Cypermethrin 4 % EC	I
31.	Rogor	4	Dimethoate	Dimethoate 30 % EC	I
32.	Regent	65	Fipronil	Fipronil	I
33.	Roundup	18	Glyphosate	Glyphosate 41 % SL	H
34.	SLR	11	Pyriproxifen and Difenthuron	Pyriproxifen 5 % and Difenthuron 25 %.	I
35.	Sarpanch	32	Profenofos and cypermethrin	Profenofos and cypermethrin	I
36.	Super	28	Profenofos and cypermethrin	Profenofos and cypermethrin	I
37.	Tata mida	1	Imidacloprid	Imidacloprid, neonicotinoid	I
38.	Tejas	1	Imidacloprid	Imidacloprid	I
39.	Ulala	174	Flonicamid	Flonicamid 50 % WG	I
40.	Alika	4	Thiamethoxam	Thiamethoxam lambda-cyhalothrin	I
41.	Chamatkar	1	Mepiquate chloride – PGR		
42.	Chlorosil	1	Chlorpyrifos	Chlorpyrifos 20% EC	I
43.	Roundup	1	Glyphosate		H
44.	Tapuz	3	Buprofezin	Buprofezin and acephate	I
45.	Token	1	Dinotefuran	Dinotefuran 20 % SG	I
46.	Cruiser	1	Thiamethoxam	Thiamethoxam	I
47.	Perfect	1	Emamectin Benzoate	Emamectin Benzoate	I
48.	Silencer	4	Lambda Cyhalothrin	Lambda Cyhalothrin 5 % EC	I
49.	Tata bahar	1	Amino acids	Amino acids	PGR
50.	Rubi	1	Alpha-cypermethrin	Alpha-cypermethrin, Imidacloprid	I

Table 34: List of pesticides used by the respondents (N=1165)							
	Active ingredients	Frequency	Target crops	Pan HHP status[1]	WHO classification	Type	No of banned countries
1.	Acephate	140 (12.01 %)	Soybean, cotton, jowar, tur	✓	II (Moderately hazardous)	I	43
2.	Acetamiprid	5 (0.42 %)	Cotton	–	II (Moderately hazardous)	I	Not known to be banned
3.	Alpha-naphthyl acetic acid	1 (0.08 %)	Cotton, soybean	–	III (Slightly hazardous)	PGR	Not known to be banned
4.	Bispyribac sodium	1 (0.08 %)	Rice	–	III (Slightly hazardous)	H	Not known to be banned
5.	Carbofuran	2 (0.17 %)	–	✓	Ib (Highly hazardous)	I	106
6.	Chlorantraniliprole	14 (1.20 %)	Cotton, soybean	✓	U (Unlikely to present an acute hazard)	I	Not known to be banned
7.	Chlorpyrifos	1 (0.08 %)	Cotton	✓	II (Moderately hazardous)	I	44
8.	Diafenthiuron	6 (0.51 %)	Cotton, toor, soybean	✓	III (Slightly hazardous)	I	32
9.	Dimethoate	1 (0.08 %)	Cotton, soybean	✓	II (Moderately hazardous)	I	38
10.	Dinotefuran	1 (0.08 %)	Cotton	✓	III (Slightly hazardous)	I	28
11.	Emamectin benzoate	34 (2.91 %)	Cotton, soybean, tur	✓	II (Moderately hazardous)	I	Not known to be banned
12.	Fipronil	65 (5.57 %)	Cotton, soybean	✓	II (Moderately hazardous)	I	49
13.	Flonicamid	174 (14.93 %)	Cotton, soybean, Tur, jowar	–	II (Moderately hazardous)	I	Not known to be banned
14.	Glyphosate	33 (2.83 %)	Toor, cotton, jowar, chana	✓	III (Slightly hazardous)	H	12
15.	Hexaconazole	1 (0.08 %)	–	–	III (Slightly hazardous)	F	41

16.	Imidacloprid	159 (13.64 %)	Cotton	✓	II (Moderately hazardous)	I	29
17.	Lambda cyhalothrin	8 (0.68 %)	Plantain, rice, tapioca, cotton	✓	II (Moderately hazardous)	I	
18.	Mepiquat chloride	1 (0.08 %)	Cotton	–	II (Moderately hazardous)	PGR	1
19.	Malathion	1 (0.08 %)	Plantain, paddy, weeds	✓	III (Slightly hazardous)	I	40
20.	Monocrotophos	569 (48.84 %)	Cotton, soybean, tur, Jowar	✓	Ib (Highly hazardous)	I	137
21.	Oxyfluorfen	21 (1.80 %)	Cotton, tur, soybean	✓	U (Unlikely to present an acute hazard)	H	9
22.	Paraquat dichloride	2 (0.17 %)	Cotton, soybean	✓	II (Moderately hazardous)	H	72
23.	Profenofos	1 (0.08 %)	Cotton, soybean	✓	II (Moderately hazardous)	I	39
24.	Pyrithiobac sodium	27 (2.31 %)	Cotton	–	III (Slightly hazardous)	H	29
25.	Quinalphos	1 (0.08 %)	Cotton, soybean, tur, jowar, chana	✓	II (Moderately hazardous)	I	32
26.	Thiamethoxam	24 (2.06 %)	Cotton, soybean	✓	II (Moderately hazardous)	I	28

* N does not equal to 100 % due to multiple responses

Table 35: Active ingredients in combinations in pesticide products

	Active ingredients		Frequency	Crops	PAN HHP status	WHO status	Type	No of banned countries
1.	Acephate: 50.00 %, Imidacloprid: 1.80 %	Acephate	60 (5.15 %)	Soybean, cotton	✓	II (Moderately hazardous)	I	43
		Imidacloprid			✓	II (Moderately hazardous)	I	29
2.	Alpha-cypermethrin, Imidacloprid	Alpha-cypermethrin	1 (0.08 %)	Cotton	✓	II (Moderately hazardous)	I	29
		Imidacloprid			✓	II (Moderately hazardous)	I	29
3.	Buprofezin and acephate	Buprofezin	3 (0.25 %)	Cotton	✓	III (Slightly hazardous)	I	
		Acephate			✓	II (Moderately hazardous)	I	43
4.	Chlorantraniliprole (10.00 %) + Lambda cyhalothrin (5.00 %) ZC	Chloranthraniliprole	1 (0.08 %)	Cotton, soybean	✓	U (Unlikely to present an acute hazard)	I	Not known to be banned
		Lambda-cyhalothrin			✓	II (Moderately hazardous)	I	
5.	Carbendazim 12.00 % + Mancozeb 63.00 % WP	Carbendazim	1 (0.08 %)	–	✓	U (Unlikely to present an acute hazard)	F	41
		Mancozeb			–			37
6.	Diafenthiuron: 40.10 %, acetamiprid: 3.90 % WP	Diafenthiuron	20 (1.71 %)	Cotton, tur, jowar, chana	✓	III (Slightly hazardous)	I	32
		Acetamiprid			–	II (Moderately hazardous)	I	Not known to be banned
7.	Imazethapyr and imazamox	Imazethapyr	3 (0.25 %)	–	–	U (Unlikely to present an acute hazard)	H	29
		Imazamox			–	Not listed	H	Not known to be banned
8.	Profenofos 40.00 % and Cypermethrin 4.00 % EC	Profenofos	73 (6.26 %)	Cotton, soybean, sugarcane	✓	II (Moderately hazardous)	I	39
		Cypermethrin			✓	II (Moderately hazardous)	I	1

9.	Pyriproxifen 5.00 % and Difenthuron 25.00 %	Pyriproxifen	11 (0.94 %)	Cotton	–	U (Unlikely to present an acute hazard)	I	1
		Diafenthiuron			✓	III (Slightly hazardous)	I	32
10.	Thiamethoxam lambda-cyhalothrin	Thiamethoxam	4 (0.34 %)	Cotton	✓	II (Moderately hazardous)	I	28
		Lamda Cyhalothrin			✓	II (Moderately hazardous)	I	

* N does not equal to 100 % due to multiple responses

Table 36: Pesticides and health issues

Chemical name	Health issues
Acephate	Endocrine issues – disruption of hormone expression in the hypothalamus
Acetamiprid	There is some evidence that acetamiprid is linked to human infertility
Alpha-cypermethrin	Highly toxic by ingestion
Alpha-naphthyl acetic acid	Possible blood toxicant
Bispyribac sodium	Possible liver toxicant
Buprofezin	Possible liver and thyroid toxicant
Carbofuran	May cause testicular degeneration; may be fatal if swallowed, inhaled, or absorbed through skin; may be fatal if swallowed, inhaled, or absorbed through skin
Chlorantraniliprole	Possible liver toxicant
Cypermethrin	Endocrine issues – estrogenic effect; possible liver and kidney toxicant
Diafenthiuron	Toxic if swallowed or inhaled, probable kidney toxicant
Dimethoate	Highly toxic, harmful if swallowed; endocrine issues – disruption of thyroid hormones action; possible liver toxican
Dinotefuran	Eye irritant

Emamectin benzoate	Eye irritant, may cause clinical tremors
Fipronil	Thyroid, kidney and liver toxicant
Flonicamid	Possible liver and kidney toxicant
Glyphosate	Possible bladder and liver toxicant, May cause serious eye damage, Endocrine issues – Disruption of aromatase activity, May cause gastrointestinal disturbances, carcinogen.
Hexaconazole	Endocrine issues – Inhibition of aromatase activity, decrease of the estrogens production
Imazethapyr	No further information available
Imidacloprid	Potential liver, kidney, thyroid, heart and spleen toxicant
Lambda cyhalothrin	Harmful if swallowed, inhaled or in contact with skin, possible immune system and thyroid toxicant in susceptable individuals
Malathion	Possible adrenal gland, thyroid and liver toxicant,Acetylc holinesterase inhibition,Endocrine issues – Inhibition of catecholamine secretion
Monocrotophos	May cause genetic defects
Oxyfluorfen	Liver and spleen toxicant
Paraquat dichloride	Potential liver, kidney, stomach, intestine and respiratory system toxicant, May damage lungs if inhaled
Profenofos	Harmful by inhalation
Quinalphos	Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin
Thiamethoxam	Increased incidence of liver cell adenoma and adenocarcinoma in mice

Conclusion

The CPAM survey conducted among 1,485 farmers provides critical insights into pesticide usage and handling practices. A significant majority of respondents were male (91.31 %), with women constituting 7.7 % of participants.

Of 1,444 respondents, 97.09 % reported using pesticides, with nearly half (47.84 %) using them for more than ten years. This indicates a deep-rooted dependence on chemical pesticides in farming practices. About one-third (33.09 %) of respondents store pesticides in their homes, posing significant health and safety risks, particularly to children and pets. While 94.18 % ensure pesticides are locked away from children, a small but concerning proportion (5.82 %) do not follow this practice. Burning (60.37 %) and burying (34.58 %) pesticide containers are the most common disposal methods. These practices risk air pollution, soil contamination, and groundwater leaching.

A notable proportion (21.76 %) engages in decanting pesticides, which increases exposure and spill risks. Alarmingly, 12.56 % reuse pesticide containers for domestic usage such as storing food or water, a practice that potentially can contribute to exposure and severe health implications.

Hazardous practices such as storing pesticides in homes, improper disposal, and reuse of containers suggest a lack of awareness. The major acute health issues reported by 430 respondents (28.95 %) out of 1,485 survey participants include vomiting, nausea, eye problems, headache, skin issues, excessive sweating & salivation, and respiratory issues. Chronic health issues reported by 75 participants (0.05 %) are diabetes, hypertension, developmental disorders, learning difficulties, and liver and kidney diseases.

The survey reveals significant insights into unsafe pesticide usage and handling practices, highlighting urgent interventions. A vast majority (97.09%) of respondents use pesticides, with nearly half having relied on them for over a decade. However, unsafe storage and disposal practices are widespread. About one-third of farmers store pesticides in their homes, exposing families, especially children and pets, to health risks. While most ensure pesticides are locked away, a small percentage (5.82 %) neglect this crucial safety measure. Farmers are further exposed to pesticides under conditions of not using adequate PPE. Farmers report uncomfortability, non-

availability, and non-affordability as hindrances for PPE use. Additionally, improper disposal methods, such as burning and burying containers, risk environmental contamination through air pollution, soil degradation, and groundwater leaching. Alarmingly, some farmers engage in hazardous practices like decanting pesticides and reusing containers for storing food or water, which pose severe health threats.

The survey has identified 32 active ingredients of which 22 are insecticides, six are herbicides, three are fungicides and one PGR (plant growth regulators). 23 of the active ingredients are HHPs, raising significant concerns about their potential risks to health and the environment. Among these, Monocil (Monocrotophos) emerged as the most frequently used pesticide, with 564 respondents reporting its application. This high dependency on Monocrotophos, a HHP, underscores the urgent need for awareness, safer alternatives, and sustainable pest management practices to mitigate its adverse impacts.

Addressing these issues requires urgent interventions. Farmers need awareness programs to educate them about the dangers of pesticides and improper pesticide storage, handling, and disposal. Promoting safer alternatives, and providing designated collection points for used containers, can help reduce harmful practices. Training on non-chemical pest control methods based on agroecological principles is essential to build the capacity of farmers to gradually reduce pesticide usage. Gender inclusion in these initiatives is critical, as women play vital roles in farming yet are underrepresented.

Local, state, and national governments, policymakers and community-led groups must work together to enforce regulations, offer support systems, and encourage sustainable agricultural practices based on agroecology. By taking these steps, farmers can safeguard their health, protect the environment, and promote long-term agricultural sustainability.

Recommendations

The Community Pesticide Action Monitoring conducted in Yavatmal District in Maharashtra gives insights into the usage of toxic pesticides, especially HHPs and various unsafe practices. There is a constant risk of exposure and poisoning associated with storing pesticides in households, their application, the lack of recommended personal protective equipment (PPE), re-entering treated fields, and the improper disposal of containers. The results highlight the need for ongoing support to help farmers phase out toxic pesticides, as the proposed risk mitigation measures are not scientifically grounded and may be ineffective. Therefore, the following recommendations are given to safeguard farming communities.

- Ban the use of pesticides that are recognized as highly hazardous pesticides urgently, 72 % of reported pesticide active ingredients are highly hazardous.
- Eliminate usage of other potentially harmful chemicals by gradually building the capacity of the farming community to manage farms without toxic pesticides and agrochemicals.
- Organize awareness creation and training programs for the farming community to sensitize them about the potential adverse effects on health and the environment, while educating them about non-chemical farming practices.
- Continuous hand-holding and capacity-building of farming communities is needed to enable a progressive shift from pesticide-dependent farming into agroecological practices. This requires an enabling policy framework as well as implementation mechanisms at the field level.
- The current agriculture extension system promoted by the government and agrochemical companies recommends usage of toxic pesticides without properly advising about the potential dangers.
- Lack of extension systems that adequately support non-chemical, less expensive practices and inputs has to be addressed in agriculture development programs.
- Provide monetary incentives or subsidies to farmers who are adopting non-chemical farming practices.

PAN Asia Pacific (PANAP) is one of the five regional centres of Pesticide Action Network (PAN). PANAP works for the elimination of harm caused by pesticides on human health and the environment. PANAP also promotes agroecology, helps strengthen people's movements in their assertion of rights to land and livelihood, and advances food sovereignty and gender justice.

Pesticide Action Network (PAN) India, established in 2013 as a non-profit organisation, and collaborates with the PAN International community to reduce the harmful impact of chemical pesticides on humans and the environment. The organisation promotes sustainable farming practices based on agroecology, advocating for alternatives to toxic chemicals and supporting farmers in conserving traditional knowledge and agro-biodiversity. PAN India focuses on research, capacity building, and awareness creation to encourage governments and farming communities to adopt ecological agriculture, sustainable food systems, and a toxic-free lifestyle, while ensuring social and environmental justice.

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