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Ad Hoc Monitoring Report

Claims of (non-)adherence by Bayer CropScience and Syngenta to the Code of Conduct Provisions on Labeling, Personal Protective Equipment, Training, and Monitoring

Submitting organizations:

European Center for Constitutional and Human Rights

Kheti Virasat Mission

Pesticides Action Network Asia Pacific

Bread for the World

Berne Declaration

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Ad Hoc Monitoring Report

Executive Summary

Introduction

Part I: Report on good labelling practice

Part II: Report on training and personal protective equipment

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Interviewer: *What color is this?*

Farmer 28: *Yellow*

Interviewer: *What does it indicate?*

Farmer 28: *It means it kills everything*

Interviewer: *And this blue sign?*

Farmer 28: *It makes insects blue*

Interviewer: *What does this green color mean?*

Farmer 28: *It means you are supposed to spray it on green crops. It is for weeds.*

18 out of 32 farmers said they did not understand the color code at all. Even sales professionals we interviewed did not have a correct understanding of the code.

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Executive Summary

Claims of (non-)adherence by Bayer CropScience and Syngenta to the Code of Conduct Provisions on Labeling, Personal Protective Equipment, Training, and Monitoring

This Ad Hoc Monitoring Report addresses claims of (non-)adherence to the International Code of Conduct on Pesticide Management by two major European pesticides manufacturers, Bayer CropScience AG and Syngenta AG, as well as their relevant subsidiaries, Bayer CropScience Ltd. and Syngenta India Ltd., their sales representatives, and distributors. The two companies were selected because of the dominant position they hold in the Indian and world markets. This Report is submitted for the purpose of monitoring compliance of the Code of Conduct, and improving information on and understanding of observance of the Code of Conduct.

The attached Report addresses two main aspects of alleged (non-)adherence: (i) the labeling of pesticides (relating to Articles 3.5, 3.6, 7.4, 10.1 and 10.2 of the Code of Conduct); and (ii) training and protective personal equipment (relating to Articles 3.7, 3.11, 5.3 and 8.2.7 of the Code of Conduct). In addition, attention has been paid to efforts by the companies in question to monitor pesticide use and the health and environmental effects in the area studied (as outlined in Articles 4.5 and 5.2 of the Code of Conduct).

“The label for Nativo 75WG sold in the United Kingdom explicitly states that the product is *“suspected of damaging the unborn child”* however, this statement is missing from the label of the same product sold in Punjab.”

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Information on the claims of (non-)adherence of the two companies in question was gathered in the Malwa Region of Punjab, India, during a pilot visit in September 2014 and a more detailed survey in March 2015. Punjab, India, was selected after health impacts and poor conditions of use relating to pesticides in the area were brought to the attention of the submitting organisations by widespread media and academic reports. This report focused on six pesticides in particular: Nativo (Bayer), Confidor (Bayer), Regent (Bayer), Larvin (Bayer), Gramoxone (Syngenta), and Matador (Syngenta). All of the pesticides selected for analysis are widely available and frequently used in the study area, and classified as moderately or highly hazardous according to the definition of the Joint Meeting on Pesticides Management (JMPM).

The labels and leaflets of the pesticides were analysed in comparison with the requirements in the relevant sections of the Code of Conduct as well as the FAO Guidelines on Good Labelling Practice for Pesticides. The labels of all six products appear to be lacking in various essential aspects of clarity as well as missing required information.

During the survey conducted for this Monitoring Report, 32 farmers in nine villages across the Malwa region of Punjab were interviewed about their understanding of the pictograms and safety information on the labels, their access to and use of personal protective equipment (PPE)

and any training they had undergone. The survey results suggested that: 1.) the labels lack essential information to be provided according to the Code of Conduct and the Labelling Guidelines 2.) adequate training of company representatives and users, as well as access to PPE in local markets is still lacking and the use of PPE was witnessed in only two instances. The interviews further indicated that company representatives at various levels are aware of these apparent violations ongoing in the Punjab.

It is the view of the submitting organizations that the labels of the pesticides in question are in violation of the Code of Conduct, Guidelines on Good Labelling, various commitments made by the industry, as well as Indian law. The companies in question also appear to be violating the Code of Conduct, FAO Guidelines for Personal Protection when using Pesticides in Tropical Climates, and industry commitments to promotion of PPE and training. Based on the above findings, recommendations are made to the JMPM to ensure adherence to the Code of Conduct.

In addition, submitting organisations considered that even where companies applied the recommendations of the Code of Conduct and the Guidelines on Good Labelling on various issues such as font size, pictograms, and colour codes, farmers were in large part still unable to read and understand these labels. This is not in itself an outright violation by the companies of specific recommendations of the Code of Conduct but rather a contradiction of the recommendations of the Guidelines to its self-proclaimed objective to only advocate for labels that fulfil the requirement of clarity. Submitting organizations deemed it appropriate to bring these instances, where the Code in itself seems to be inadequate, to the knowledge of the JMPM. Assuming that even labels in compliance with the Code of Conduct and the Guidelines do not convey their important message to end-users, other elements of pesticides management such as on provision of personal protective equipment and adequate training turn out to be truly indispensable.



Bayer Vapi “Product Stewardship”¹



Pesticide sprayer in the Malwa region²

¹ Available at: http://vapi.bayer.in/product_stewardship.php, last updated 12 May 2014 [Accessed 10 July 2015]. Bayer Vapi is a core manufacturing site for Bayer CropScience globally.

² Picture made during monitoring in the Malwa region in Punjab, India, on file with the authors

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List of Abbreviations

Environmental Protection Agency – EPA

European Center for Constitutional and Human Rights – ECCHR

Food and Agricultural Organisation – FAO

Globally Harmonized System – GHS

International Code of Conduct on Pesticide Management – CoC

Joint Meeting on Pesticides Management – JMPM

Kheti Virasat Mission – KVM

Personal protective equipment – PPE

Pesticides Action Network – PAN

Public Interest Litigation - PIL

United Nations – UN

United Nations Environment Programme – UNEP

World Health Organisation – WHO

Introduction

“Foreign companies come with their drugs [= pesticides]. And say that we will double the production and farmers sow more than three crops in one year. They do not think about the harms to human beings and to the country.”³

42-year old Punjabi farmer with 16 acres from village Guru Ki Dhab

1. FAO / WHO Monitoring Mechanism

The alliance of stakeholders files this report by virtue of the monitoring role ascribed to civil society organizations in the International Code of Conduct on Pesticide Management (*hereinafter* CoC). Art. 12.9 of the Code of Conduct invites NGOs to monitor activities related to its implementation and submit reports with their observations to the Director-General of the Food and Agricultural Organisation (*hereinafter* FAO) and World Health Organisation (*hereinafter* WHO) and the Executive Director of United Nations Environment Programme (*hereinafter* UNEP). The Guidelines on Monitoring and Observance of the Code of Conduct (2006) specifically point out in Art. 5.2.1 that monitoring encompasses the full spectrum of activities covered by the Code of Conduct, including those under the responsibility of the pesticide industry. Furthermore, the pesticides industry has accepted that the manufacture and distribution of pesticides comes with the obligation to ensure the use of the chemicals that does not result in unacceptable consequences, and have committed to complying with the International Code of Conduct on Pesticides Management in their business operations.⁴ In 2008, the FAO issued its third regular monitoring report. However, India did not participate in the questionnaire.⁵ Ad hoc monitoring from stakeholders is therefore necessary to inform the FAO about the distribution and use of pesticides in India.

³ Interview by authors with Farmer 1; 12 March 2015 (AM); Guru Ki Dhab.

⁴ CropLife International have designed a guide to assist the pesticide industry in the implementation of the Code of Conduct: CropLife International, “Guide for Industry on the Implementation of the FAO Code of Conduct on the Distribution and Use of Pesticides”, February 2004; As described by Peter Ohs, Senior Global Stewardship Manager Bayer SeedGrowth at Bayer CropScience, the company’s stewardship policy is “The responsible and ethical management of a product throughout its lifecycle, the maximization of the benefits derived from the use of our products, and the minimizing of potential risks to human health and the environment.” Accordingly, Bayer CropScience’s Product Stewardship Policy and Principles are based on the FAO Code of Conduct and are regularly updated to take into account amendments or additions to the Conduct, in: Europeanseed, “Bayer CropScience knows that Stewardship makes a Significant Contribution to Sustainable Agriculture”, (no date), available at <http://european-seed.com/bayer-cropscience-knows-that-stewardship-makes-a-significant-contribution-to-sustainable-agriculture/> [last accessed 30 June 2015]; Syngenta has also affirmed their commitment to the adherence with the Code of Conduct, “Syngenta conducts its advertising, sales and marketing activities ethically and in compliance with all applicable laws and codes on advertising practices, in particular the Food and Agriculture Organization of the United Nations Code of Conduct on the Distribution & Use of Pesticides”, in: Syngenta, “The Syngenta Code of Conduct”, 2009, p. 14.

⁵ FAO, Regular Monitoring Report 2008, Rome, June 2010, Annex 1.

This Ad Hoc Monitoring Report is written for submission to the FAO/ WHO Joint Meeting on Pesticides Management (JMPM). This mechanism involves that the FAO and WHO seek official comments from the relevant stakeholders in order to prepare a report to be discussed at the JMPM.

1.1 Submitting organizations

This report is submitted by a coalition of organizations concerned with the proper monitoring and observance of the Code of Conduct.

The **European Center for Constitutional and Human Rights** (ECCHR) is an independent, non-profit legal organization dedicated to protecting human rights. ECCHR also works to ensure that transnational companies are held to account for their operations in other countries where their operations lead to or are complicit in gross human rights violations, including violations of the right to health and the right to a healthy environment. Given the potential impact of pesticides on these rights, ECCHR is committed to monitoring the adherence of the European pesticides industry to international standards on pesticides management and distribution. ECCHR has consultative status at the Economic and Social Council of the United Nations (ECOSOC).

The **Kheti Virasat Mission** (KVM) is a non-profit civil-society organization, established in March 2005 and registered as a trust with the head office at Jaitu town of district Faridkot. KVM works directly with the farmers of Punjab, a region known throughout the world as the pride of the Green Revolution. KVM works to address the destruction caused by the Green Revolution's chemical and hybrid agriculture, promoting sustainable, ecological farming practices as well as the conservation and regeneration of natural water resources, to re-establish the traditional wisdom and practices related to water. KVM works for awareness of environmental health issues and eco-sustainable rural development.

The **Pesticides Action Network Asia Pacific** (PAN AP) is part of a global network dedicated to the elimination of pesticide use with a focus on promoting sustainable biodiversity-based ecologically sound agriculture. PANAP concretizes this vision through its role in helping strengthen people's movements in their assertion of rights to land and livelihood; protecting people and the environment from highly hazardous pesticides; and empowering rural communities, especially rural women. As a network, PANAP is currently comprised of 103 partner organizations from the Asia-Pacific region and has links with about 400 other regional and global civil society and grassroots organizations.

Bread for the World – Protestant Development Service is the development agency of the Protestant Churches in Germany. Bread for the World supports non-governmental organizations in more than 90 countries. Central to this work is the empowerment of the poor and marginalized in their struggle for fair and equal living conditions and political participation. Key issues are food security, the right to health and education, social security and access to water. To ensure the primacy of these human rights above global economic interests,

Bread for the World advocates in Germany, Europe and at the UN for human rights accountability of states and business throughout their global relations.

The **Berne Declaration** (BD) is a not-for-profit, independent organization with about 23,500 members, which has been campaigning for more equitable relations between Switzerland and developing countries for more than forty years. Among its most important concerns are the global safeguarding of human rights, socially and ecologically responsible conduct of business enterprises and the promotion of fair economic relations.

1.2 Structure of the Ad Hoc Monitoring Report

This introductory section of the report explains the methodology of the survey carried out, the focus on Punjab for this monitoring effort, the selection of the pesticides chosen for scrutiny and the legislative and regulatory background related to pesticides against which companies are operating in Punjab. After the introduction, two parts address two areas in which alleged non-adherence of the pesticides industry was analyzed: (I) adequate labeling in accordance with the Guidelines on Good Labelling Practice for Pesticides; (II) training and personal protective equipment. There then follows an overview of the obligations on the pesticides industry and the indications of non-adherence uncovered as part of the monitoring survey (III). The report concludes with a series of requests and recommendations aimed at remedying the concerns highlighted (IV). Finally, a range of Annexes provide detailed insight into the basis of our findings and conclusions.

2. Ad Hoc Monitoring: Methodology of the survey and interviews conducted in Punjab

In order to verify reports of the unprotected and uninformed use of pesticides in Punjab, the European Center for Constitutional and Human Rights (*hereinafter* ECCHR) conducted a pilot monitoring survey from 21 to 31 September 2014 through its Indian partner the Human Rights Law Network (*hereinafter* HRLN). The monitoring effort sought to examine the use of pesticides, in particular the use of protective measures for its application, as well as the trainings and warnings given by pesticides companies and their suppliers. During the pilot visit to Delhi, Chandigarh, and the Faridkot and Bathinda districts in Punjab, interviews were conducted with different actors affected by, or engaged in, the pesticides industry. In total, 11 farmers, 4 distributors/dealers, and a former sales manager were interviewed, as well as 2 medical doctors, 2 scientists and 2 government agents. Contacts to farmers were established through the Kheti Virasat Mission (*hereinafter* KVM). Farmers working with KVM arranged meetings with neighboring farmers from their villages. Two focus groups were organized in two different villages (overview of the interviews in Annex 3). Care was taken to ensure a relatively diverse selection of farmers, both within and across villages. The dealers were interviewed in small towns close to the villages where the farmers were interviewed. The majority of interviews were conducted in Hindi and Punjabi with translation to English, otherwise interviews were held in English. In addition, pictures were taken to document observations.

The pilot monitoring revealed that farmers' understanding of labels is extremely low, that few farmers possess or use personal protective equipment (PPE), that PPE is not available in the towns near the villages, that there is little awareness of the longer-term toxicity of pesticides, that there are no systematic attempts either from the government or the pesticides industry to monitor the conditions of use of pesticides or the health and environmental impacts, and that at times even authorized distributors lack understanding of the relevant hazard color codes or full knowledge of the necessary safety precautions.

A decision was taken to conduct further monitoring in order to prepare an Ad Hoc Monitoring Report to bring information on the non-adherence by the pesticides industry to the International Code of Conduct on Pesticide Management to the attention of the FAO and the WHO. After reviewing the results of the pilot monitoring, it was decided that the focus of the second monitoring visit would be on industry adherence to standards on labeling, PPE and training as well as the industry monitoring of the sales practices and use of pesticides.

The second monitoring was conducted from 11 to 16 March 2015. Survey questions were developed based on the relevant topics determined after the pilot monitoring. At the beginning of the survey, a small sample of pesticides manufactured by Bayer CropScience and Syngenta was selected, purchased and subsequently assessed regarding the industry adherence to the standards on labeling. Further, a brief survey among a small sample of farmers and dealers was conducted to assess on the one hand their understanding of the labels and leaflets and on the other hand the industry adherence to the relevant provisions on training, personal protective equipment and monitoring. For a detailed overview of the questions asked, the survey is added in the annexure to this report (Annex 1 and 2). The monitoring took place in the Faridkot and Bathinda districts in Punjab.

A total of 32 farmers from 9 different villages participated in the March survey. The farmers were either interviewed in focus groups – 7 focus groups with 3 to 7 farmers each – or in single interviews, of which there were 4. The majority of the pesticide users were land-owning farmers, however, 2 labourers were also included in the survey. Again, the contacts were established through the KVM. Farmers from each group were asked about the application of pesticides, their understanding of the labels on products, safety information, the use of PPE and any incidences of acute symptoms or disease. The farmers and workers were all male, between 23 and 65 years old, and they owned between 2 and 40 acres used for growing wheat, rice, cotton and vegetables. While some had no schooling at all, others had completed their secondary education. In addition to the survey with farmers, six interviews were carried out with distributors, dealers, and sales representatives from Syngenta and Bayer and two interviews with dealers for other manufacturers. They were asked about their understanding of the labels, their sales practices and communication with the representatives of the pesticides companies. Again, during the survey pictures were taken to document observations. All pictures included in this report were taken by the authors.

To gather further information regarding pesticide management in Punjab, Right to Information Requests (*hereinafter* RTI) were submitted to relevant ministries in Delhi and Punjab. Requests

for information were submitted on the subjects of government-run training, disposal systems, poisonings statistics and the testing of pesticide residues in soil. Included in the present report are the replies received from the Ministry of Agriculture on the guidelines for the safe disposal of empty pesticide containers issued by the Central Insecticides Board and the District Agricultural Training Officer in Bathinda District on government training on pesticide use (See Annex 5 and 6).

The monitoring effort in March 2015 was filmed to document the interviews and observations in shops and fields regarding the availability and use of personal protective equipment. The video documentation supports and illustrates the findings presented in this report. A selection of the footage will be ready in advance of the Joint Meeting on Pesticides Management in October 2015 to accompany the presentation of this report.

This Ad Hoc Monitoring Report is based on the findings from both monitoring surveys in Punjab, the interviews conducted with pesticides users and company representatives (including dealers and distributors), as well as the RTI replies received. Due to limited resources, the monitoring effort comprised a small sample of respondents, a small sample of pesticides, and documented only two brief time periods of observation. It thus can only uncover indications of non-adherence and cannot yet serve as conclusive evidence for broader generalization. Submitting organizations are thus perfectly aware that the sample of farmers cannot compete with large scale testing of label elements such as pictograms by the industry and international organizations. However, the findings of the survey are corroborated by scientific and governmental studies as well as newspaper reports from and in Punjab, which will be explained in the next section. In our view, the results of the present monitoring effort therefore do warrant further investigation and immediate measures for increased and closer scrutiny of industry practices in Punjab.

3. Concerns about pesticide use in Punjab, India

Pesticides in Punjab, particularly in the Malwa region or “cotton belt” where there is high use of chemical pesticides, have attracted significant attention over the years. In the mid-1960s Punjab became one of the global testing sites for an agricultural transformation known as the Green Revolution.⁶ Hybrid seeds, artificial fertilizers, large machinery, and, most significantly, a whole range of pesticides entered the agricultural practice in the fields of Punjab. Despite covering only 1.5% of India’s land, Punjab is the second highest consumer of pesticides in the country and consumed 5,810 megatons of chemical pesticides in 2010 alone.⁷

According to newspaper reports, scientific studies and government reports, pesticides residues have contributed to the contamination of the environment in Punjab. When fertilizers,

⁶ Kaur, Mallika, “The Paradox of India’s Bread Basket: Farmer Suicides in Punjab”, *PRAXIS The Fletcher Journal of Human Security*, 2010, Vol. XXV, p. 42-44; Meriel Watts, *Pesticides: Sowing Poison, Growing Hunger, Reaping Sorrow*, 2nd edition, Penang: Jutaprint, 2010, p.15.

⁷ Directorate of Plant Protection, Quarantine & Storage, “Consumption of Pesticides in Various States During the Last Five Years”, 2010, available at <http://ppqs.gov.in/IpmPesticides.htm> [last accessed 30 June 2015].

herbicides, insecticides, and fungicides are applied to cropland, some residues remain in the soil after plant uptake and may leach into subsurface waters through rain or irrigation or the residues may move to surface water by dissolving in runoff or adsorbing to sediment.⁸ At least 143 different pesticides have been found in the ground water, including pesticides from every major chemical class, in India as a whole.⁹ Pesticides are also documented to have seeped into the groundwater in many districts of Punjab.¹⁰ This means that it is not only farmers who are exposed to pesticides, as residues found in foods, soil and water can also have adverse health effects on local communities and consumers. High residues of pesticides were also found in soil and water primarily in those villages in which there was a high production of cotton in Punjab.¹¹ Furthermore, residues of between 6 and 13 pesticides were found in blood samples of villagers from Mahi Nangal, Jajjal and Balloh villages in Bathinda district of Punjab.¹² The residues of the compounds DDE and DDT in the samples that were taken in the villages were between 35 times and 188 times higher than in samples collected in the US by the Centre for Disease Control and Prevention.

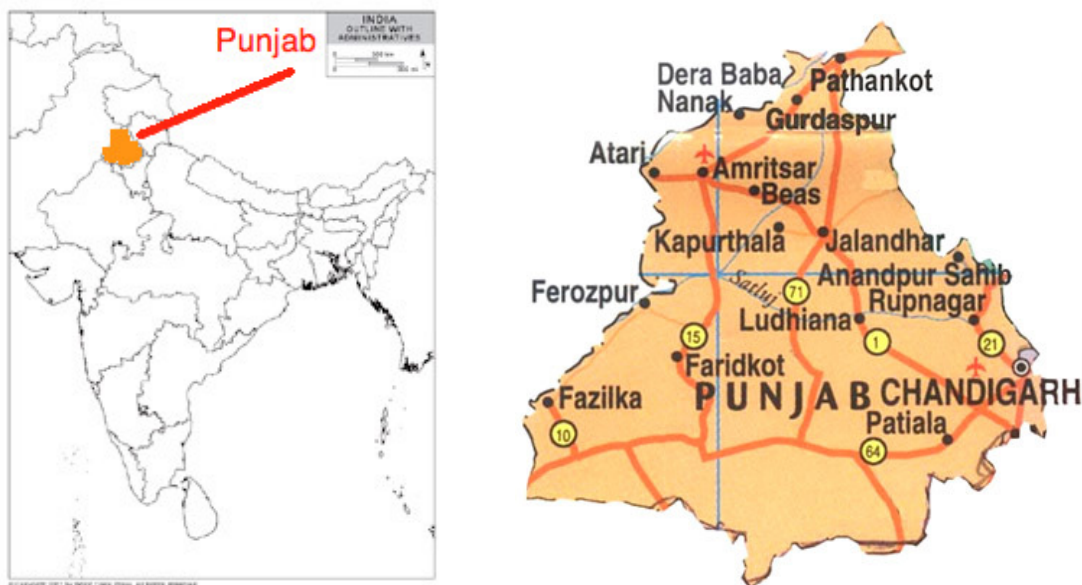
⁸ Agrawal, Anju et al, "Water Pollution with Special Reference to Pesticide Contamination in India", *Journal of Water Resource and Protection*, 2010, Vol. 2, p. 439.

⁹ Aktar, W and Paramasivam, M, "Impact of Pesticide Use in Indian Agriculture - Their Benefits and Hazards", Op Cit., p. 6.

¹⁰ Aktar, W and Paramasivam, M, "Impact of Pesticide Use in Indian Agriculture - Their Benefits and Hazards", Pesticide Residue Laboratory, Department of Agricultural Chemicals, West Bengal, India, 2008, p. 6, available at http://www.shamskm.com/files/IMPACT_OF_PESTICIDE_USE_IN_INDIAN_AGRICULTURE_-THEIR_BENEFITS_AND_HAZARDS2.pdf [last accessed 30 June 2015].

¹¹ Singh, Madhur, "India's Daily Chemical Addiction", *Time*, 10 June 2008, available at <http://content.time.com/time/world/article/0,8599,1813081,00.html#ixzz2qeQOukWY> [last accessed 30 June 2015].

¹² Singh, Madhur, "India's Daily Chemical Addiction", *Time*, 10 June 2008, available at <http://content.time.com/time/world/article/0,8599,1813081,00.html#ixzz2qeQOukWY> [last accessed 30 June 2015].



Picture 1: Location of monitoring¹³

Other reports called attention to the fact that farmers in Punjab frequently mix pesticides and commonly spray more than the recommended rate per day.¹⁴ Further, many farmers were observed to not wear protective clothing, or pay attention to the direction of the wind.¹⁵ Many families were observed to use the attractive plastic containers of pesticide to store foodstuffs once the spray is finished, as well as to repurpose buckets used to mix pesticides to store drinking water.¹⁶

¹³ Map of India, available at <https://files.nyu.edu/ssg289/public/understanding.html> [last accessed 2 November 2014]; Map of Punjab, available at <http://www.indianetzone.com/states/> [last accessed 30 June 2015].

¹⁴ Menon, Ramesh, "The Slow Poisoning of Punjab", *India Together*, 1 February 2004, available at <http://www.indiatogether.org/2004/feb/hlt-poison.htm> [last accessed 30 June 2015].

¹⁵ Singh, Anjali et al, "A Health Surveillance of Pesticide Sprayers in Talwandi Sabo Area of Punjab, North-West India", *Journal of Human Ecology*, Vol. 37(2), 2012, p. 134-135, available at <http://www.krepublishers.com/02-Journals/JHE/JHE-37-0-000-12-Web/JHE-37-2-000-12-Abst-PDF/JHE-37-2-133-12-2171-Singh-Anjali-PR/JHE-37-2-133-12-2171-Singh-Anjali-PR-Tt.pdf> [last accessed 30 June 2015].

¹⁶ Grover, Kumar, "Changes in Agricultural Landscape: Some Ecological Implications for Sustainable Agriculture in Indian Punjab" (343-355), in Behnassi, Mohamed et al (eds), *Global Food Insecurity: Rethinking Agricultural and Rural Development Paradigm and Policy*, Springer, 2011, p. 350. Menon, Ramesh, "The Slow Poisoning of Punjab", Op Cit.

Academic research indicates that Punjabi pesticides sprayers experience a variety of symptoms that coincide with the acute toxic effects of pesticides. For example, a health survey of pesticide spraying farmers in Punjab shows that 94.4% of the interviewees experienced skin rashes and itchiness, followed by nails dropping off (93.5%), discolored nails (92.6%), nausea and eye itchiness (88.9%), excessive sweating (87.9%), blurred vision (77.8%), dizziness (72.2%), sleeplessness (67.6%), headache and chest tightness (63.9%), excessive salivation (58.3%), pain while urinating (49%), swollen fingers (41.7%), breathing difficulty (39.8%), muscular cramps / pain (36.1%), joint pain (33.3%), muscular twitching (30.6%), lower abdominal pain (26.9%), white/red patches on skin (19.4%), backache (12.9%), body tremor and swollen knees (12%).¹⁷

Art. 5.2.5 Code of Conduct: [Pesticide industry should:] halt sale and recall products as soon as possible when handling or use pose an unacceptable risk under any use directions or restrictions and notify the government.

The high prevalence of cancer in Punjab has also attracted significant media, scientific and government attention in recent years. In 2008, an epidemiological study conducted in Talwandi Sabo Block in Bathinda District reported a possible link between the high prevalence of cancer rates in Talwandi Sabo and exposure to chemical pesticides.¹⁸ Talwandi Sabo is in the cotton belt of Punjab, and the study found that pesticide use, participation in spraying, the storage of pesticides in homes and farms may have contributed to the higher rate of cancer in the area.¹⁹ In 2013 the Government of Punjab undertook a door-to-door survey to assess the situation and raise awareness.²⁰ The study revealed that there are 90 cancer patients for every 100,000 people in Punjab, which is above the national average, and cancer prevalence is highest in the Malwa region.²¹ The high cancer rates in Punjab have been documented in the national²² and international²³ media, as has the emergence of the “cancer train” that runs between Bathinda

¹⁷ Singh, Anjali et al, “A Health Surveillance of Pesticide Sprayers in Talwandi Sabo Area of Punjab, North–West India”, Op Cit., p. 134.

¹⁸ Thakur, JS, et al, “Epidemiological Study of High Cancer among Rural Agricultural Community of Punjab in Northern India”, *International Journal of Environmental Research and Public Health*, 2008, Vol. 5(5).

¹⁹ Thakur, JS, et al, 2008, Op Cit.

²⁰ Government of Punjab, “State Wide Door to Door Campaign – Cancer Awareness & Symptom Based Early Detection”, 5 February 2013, State Health Systems Resource Centre; Interview by authors with government official health department Punjab, who was the director of the door-to-door survey carried out on cancer in Punjab, Chandigarh, September 2014.

²¹ --, “Punjab’s Cancer Cases Exceed National Average”, *Times of India*, 29 January 2013, available in <http://timesofindia.indiatimes.com/city/chandigarh/Punjabs-cancer-cases-exceed-national-average/articleshow/18232958.cms> [last accessed 1 July 2015].

²² Sharma, Vrinda, “Cancer Bathinda’s Dubious Distinction”, *The Hindu*, 6 September 2011, available at <http://www.thehindu.com/todays-paper/tp-national/cancer-bathindas-dubious-distinction/article2427870.ece> [last accessed 1 July 2015].

²³ Lakshmi, Rama, “Passengers on India’s ‘Cancer Train’ Share Stories of Hope and Pain”, *The Washington Post*, 2 January 2013, available at http://www.washingtonpost.com/world/asia_pacific/passengers-on-indias-cancer-train-share-stories-of-pain-and-hope/2013/01/02/66ac593c-4e02-11e2-835b-02f92c0daa43_story.html [last accessed 1 July 2015].

and Bikaner in the neighbouring state of Rajasthan, where cancer patients can access free cancer treatment.²⁴

It is clear that the acute as well as long-term health and environmental effects of pesticides are a serious concern for the Government of Punjab as well as residents, activists, scientists and academics.

4. Pesticides selected for ad hoc monitoring: focus on Bayer CropScience and Syngenta

In order to evaluate the adherence of labels and leaflets to the relevant provisions in the Code of Conduct and the Guidelines on Good Labelling Practices for Pesticides, a small sample of pesticides was purchased in Punjab. In the interviews with farmers, these pesticides bottles were used to gauge the farmer's understanding of the labels and leaflets, after verifying that the farmers had actually used these pesticides in the past.

Based on public information that indicated the dominant position that Bayer CropScience and Syngenta hold in the Indian and world pesticide market,²⁵ it was decided that the present monitoring effort would focus on these two major European pesticides companies. Bayer CropScience is the subgroup of Bayer AG responsible for the agricultural business. An investment analyst estimated that Bayer is the largest agrochemical player in India.²⁶ In a survey of the Indian pesticide industry from 2013, it was reported that Bayer holds approximately a 15% share of the pesticide market, whereas Syngenta holds 12%.²⁷

It was further decided to restrict the sample to those pesticides that are classified as “moderately hazardous” by the WHO (classification II), which are widely sold in Punjab. The selected pesticides were available in shops in Bathinda and other towns in Bathinda and Faridkot districts, and dealers and distributors confirmed that these pesticides sold well. For example, Bayer regards Confidor, one of the pesticides selected for this monitoring, as one of its “principal products” in India²⁸ and Nativo is reported to be selling very well across the region.²⁹ Moreover, as Nativo was developed through an expensive research process, sales

²⁴ Pandey, Sanjay, “On the ‘Cancer Train’ of India’s Pesticides”, *Aljazeera*, 9 January 2015, available at <http://www.aljazeera.com/indepth/features/2015/01/cancer-train-india-pesticides-20151411811508148.html> [last accessed 1 July 2015].

²⁵ Meriel Watts, *Pesticides*, 2010, Op Cit., p. 15; --, “India Pesticide Market to Reach INR 229,800 million by FY 2018”, *AgroNews*, 21 November 2013, available at <http://news.agropages.com/News/NewsDetail---11037.htm> [last accessed 30 June 2015].

²⁶ Edelweiss, “Bayer Cropscience: Seeding Growth”, 21 October 2013, p. 16, available at <http://bsmedia.business-standard.com/media/bs/data/market-reports/equity-brokertips/2013-10/13827739740.50836000.pdf> [last accessed 30 June 2015].

²⁷ Edelweiss, “Bayer Cropscience: Seeding Growth”, 21 October 2013, p. 2, 8, available at <http://bsmedia.business-standard.com/media/bs/data/market-reports/equity-brokertips/2013-10/13827739740.50836000.pdf> [last accessed 30 June 2015].

²⁸ Bayer CropScience Limited, “Crop Protection”, (no date), available at http://www.bayergroupindia.com/crop_protec.html [last accessed 30 June 2015].

²⁹ Interview with Former Bayer and Syngenta sales representative in Punjab; 22 May 2015; Chandigarh; India.

representatives are currently under pressure to obtain high sales targets to return the investment.³⁰

The active ingredients of all the pesticide products selected for analysis have been categorised by the WHO as “moderately hazardous” (see Table 2 below). Some of the pesticides selected for examination can even be categorized as “highly hazardous” based upon the recommendation by the Joint Meeting on Pesticides Management (*hereinafter* JMPM) to include pesticide active ingredients and formulations that have shown a high incidence of severe or irreversible adverse effects on human health or the environment.³¹ The Pesticides Action Network classifies 5 of the 6 selected pesticides’ active ingredients as highly hazardous (see Table 2 below). Some ingredients are classified as likely carcinogens, according to the Environmental Protection Agency (*hereinafter* EPA) in the United States. The safety data sheets of these pesticides reveal that among the acute effects is irritation to the skin or eyes; some pesticides are indicated to be harmful to the eyes or upon inhalation; other pesticides are indicated to be toxic for bees (see Table 3 below).

As an illustration of the relevance of these companies to the Indian pesticides market and the Indian farmer, Bayer CropScience in India is reported to have the widest distribution network in India, with 40,000 dealers and reaching about 3 million farmers in India.³² It has 3,500 sales managers and field advisors.³³ Bayer AG has been progressively extending its activities over the Asian market especially in India, and in 2014 Bayer CropScience reported profits of 2,823 million rupees in India, a 12% increase of sales from the previous year.³⁴ The company has constantly reiterated its commitment to India. Stephan Gerlich, previous head of the Bayer Group in India, said: “We want all of our subgroups in India to continue above their market growth.”³⁵ On 30 July 2013, Bayer CropScience reported on its Indian website that it “plans to further extend its business in the growing Indian market by the introduction of customized

³⁰ Ibid.

³¹ This was recommended in their 2nd session in October 2008; Highly Hazardous Pesticides, FAO Website, available at: <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/code/hhp/en/> [Accessed 9 July 2015]. It has been argued that paraquat can be categorized as a highly hazardous pesticide on the basis of this criterion. Berne Declaration, PAN AP, PAN UK, *Paraquat. Unacceptable health risks for users*. 3rd edition, March 2011, p. 40

³² Edelweiss, “Bayer CropScience: Seeding Growth”, 21 October 2013, Op Cit., p.1.

³³ Edelweiss, “Bayer CropScience: Seeding Growth”, 21 October 2013, Op Cit., p.2.; see also Manoharlal Bundhel et al, *Sales and Distribution Management of Bayer Crop Science Limited*, Group work, Powai and Juhu, Mumbai, Post graduate certificate in Management August 16, 2009, available at <http://de.slideshare.net/asokendu/sales-and-distribution-management-of-bayer-crop-science-limited> [accessed 25 February 2014].

³⁴ Bayer CropScience Limited, “Investor Presentation”, 12 September 2014, available at www.bayer.co.in/pdf/Bayer%20CropScience%20Ltd%20Investor%20Meeting%20September%202014_1.pdf [last accessed 30 June 2015].

³⁵ Nandakumar, Namrata et al, “Bayer to take India Revenue to €1 billion by 2015, says Chairman”, *Live Mint*, 17 November 2011, available at <http://www.livemint.com/Companies/99KvwZqagcrsILq0TwnLVP/Bayer-to-take-India-revenue-to-1-billion-by-2015-says-chai.html> [last accessed 30 June 2015].



Picture 2: Pesticides packages from Bayer on sale in Punjab

solutions from seed to shelf to boost productivity, e.g. innovative crop protection products and improved commercial seeds.”³⁶

Similarly, Syngenta is expecting continuing growth of its revenue from the Indian market. In 2011, Syngenta intended to boost their crop protection sales to \$25 billion by 2020.³⁷ In February 2015, the Chief Operating Officer of Syngenta AG reported that their operations in India, which constitute 2% of the company’s total sales, are growing faster than their global revenues.³⁸

For the purposes of the monitoring, a selection was thus made of those Bayer CropScience and Syngenta pesticides classified as moderately hazardous by the WHO and that were easily available in the pesticides shops in Bathinda and Faridkot districts in Punjab. The interviewed farmers stated that they knew and used these pesticides or had used them in the past.³⁹ Most of these pesticides are manufactured in India, although the product Nativo is imported from Germany.⁴⁰ Table 1 provides an overview of the selected pesticides, their active ingredients, and their manufacturers.

Company	Brand name	Active ingredients	Type of pesticide
Bayer	Nativo	Tebuconazole 50% + Trifloxystrobin 25%	Fungicide
Bayer	Confidor	Imidacloprid 70%	Insecticide

³⁶ Bayer CropScience Limited, “Bayer Reiterates its Commitment to Growth Plans in India”, 30 July 2013, available at http://www.bayer.co.in/BCS_growth_july31_2013.html [last accessed 1 July 2015].

³⁷ --, “Syngenta eyes \$25 billion Sales by 2020”, *The Economic Times*, 7 November 2012, available at http://articles.economictimes.indiatimes.com/2012-11-07/news/34971197_1_syngenta-india-field-trials-trials-of-gm-crop [last accessed 1 July 2015].

³⁸ Mukherjee, Sanjeeb, “Syngenta Hopes to Maintain 20% Revenue Growth from India in 2015”, *Business Standard*, 13 February 2015, available at http://www.business-standard.com/article/companies/syngenta-hopes-to-maintain-20-revenue-growth-from-india-in-2015-115021300632_1.html [last accessed 1 July 2015]; <http://www.syngenta.com/global/corporate/de/about-syngenta/governance/management-and-board/Seiten/executive-committee.aspx> [Accessed 9 July 2015].

³⁹ Although not each farmer had used each of these pesticides, all selected pesticides were at some point recognized by the farmers as one that they (had) used. In some cases, farmers said that they used these products from Syngenta and Bayer because they expected a certain quality from these brands. In other instances, farmers knew the products, but stated that they preferred to buy the cheaper alternatives from other manufacturers.

⁴⁰ The Central Insecticides Board and Registration Committee provides a list dated August 2014 with all sources of import and indigenous manufacturers. It lists that the “approved source for import” of the product formulation Tebuconazole 50% + Trifloxystrobin 25WG is Bayer Crop Science AG, Germany (Number 246), available at <http://www.cibrc.nic.in/> [Accessed 9 July 2015]. In addition, the Nativo package purchased in Punjab refers to Bayer CropScience AG in Germany as the manufacturer.

Bayer	Regent GR	Fipronil, 0.3%	Insecticide
Bayer	Larvin	Thiodicarb 34%	Insecticide
Syngenta	Gramoxone	Paraquat dichloride 24 %	Herbicide
Syngenta	Matador	Lambda cyhalothrin 4.9%	Insecticide

Table 1: Selected pesticides and the active ingredients

4.1 Toxicity of the products and active ingredients

Table 2 provides a brief overview of the toxic effects of the active ingredients based on the lists of the WHO, Globally Harmonized System (GHS)⁴¹, and Pesticides Action Network (PAN) International.

Active ingredient	WHO toxicity classification 2009 ⁴²	GHS 2009 ⁴³	PAN List of Highly Hazardous Pesticides 2015 ⁴⁴
Tebuconazole (Nativo/ Bayer)	II, moderately hazardous ⁴⁵	4	Not on the PAN list of highly hazardous pesticides
Imidacloprid (Confidor/ Bayer)	II, moderately hazardous	4	Highly hazardous, because highly toxic to bees
Fipronil (Regent/ Bayer)	II, moderately hazardous	3	Highly hazardous, because highly toxic to bees
Thiodicarb (Larvin/ Bayer)	II, moderately hazardous	3	Highly hazardous, because probable/ Likely carcinogen according to EPA Highly toxic to bees
Paraquat dichloride (Gramoxone/ Syngenta)	II, moderately hazardous	3	Highly hazardous, because fatal if inhaled ⁴⁶
Lambda cyhalothrin (Matador/ Syngenta)	II, moderately hazardous	3	Highly hazardous, because fatal if inhaled, ⁴⁷ EU EDC (1) or C2 & R2 GHS ⁴⁸ and highly toxic to bees

⁴¹ The Globally Harmonized System on Classification and Labelling of Chemicals (GHS) was first adopted in December 2002 by the United Nations, and provides a standardized system for the classification and labelling of chemicals to be applied by all member states.

⁴² WHO, "The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification: 2009", 2010.

⁴³ The Acute Toxic Hazard Category according to the GHS criteria, in which Category 1 means fatal if swallowed or in skin contact, and Category 5 means that a chemical may be harmful if swallowed or in skin contact, in: WHO, "The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification: 2009", 2010, p.10.

⁴⁴ Pesticide Action Network International, "PAN International List of Highly Hazardous Pesticides", June 2015.

⁴⁵ PAN lists it as Category III, in: PAN Pesticide Database, "Tebuconazole", 2014, available at http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC35028#Toxicity [last accessed 1 July 2015]; since November 2013 Tebuconazole was deleted from the PAN list of Highly Hazardous Pesticides, in: Pesticide Action Network International, "PAN International List of Highly Hazardous Pesticides", June 2015, p.19.

⁴⁶ 'Fatal if inhaled' (H330) according to the Globally Harmonized System (GHS).

⁴⁷ 'Fatal if inhaled' (H330) according to the Globally Harmonized System (GHS).

⁴⁸ Endocrine disruptor or potential endocrine disruptor according to EU Category 1 or pesticides classified GHS Carcinogen Category 2 and EU Reproductive Category 2.

Table 2: Active ingredients and their toxicity

In addition, several of these pesticides are classified as restricted use products in other countries, which means that they can only be sold to trained or licensed pesticides users.⁴⁹

Table 3 provides a brief summary of main effects of these pesticides. These provide indications, as the analysis is based on the available safety data sheets from products with the same brand name sold in Australia, Canada, Great Britain, the USA, Germany or Switzerland.⁵⁰ It should be noted, however, that for Gramoxone and Matador the percentage of the active ingredient for which the safety data sheet was available online was higher than the percentage of the bottle purchased in Punjab.⁵¹

Pesticide product	Acute toxic effects for health	Effects on the environment
Nativo/ Bayer ⁵²	Possible risk of harm to the unborn child (R63) Risk of serious damage to eyes (R41).	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (R50/53).
Confidor/ Bayer ⁵³	Harmful if swallowed (R22); Irritating to eyes and skin (R36/38).	Toxic to bees. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (R50/53).
Regent GR/ Bayer ⁵⁴	Harmful by inhalation and if swallowed (R20/22); Irritating to skin (R38).	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (R50/53).
Larvin/ Bayer ⁵⁵	Harmful if inhaled. Harmful if absorbed through skin; moderate eye irritation.	Toxic to fish and aquatic invertebrates. Toxic to mammals. Toxic to bees.
Gramoxone/	Harmful in contact with skin and if swallowed (R21/22); Very toxic by inhalation (R26); Irritating to eyes, respiratory system	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (R50/53).

⁴⁹ For example, the active ingredient Thiodicarb of Larvin (Bayer) is listed as a restricted use product (RUP) by the environmental protection agency (EPA), <http://www.epa.gov/opp00001/reregistration/REDs/factsheets/2675fact.pdf> [accessed 8 July 2015].

In the EU, the use of Imidacloprid (Confidor/Bayer) was restricted for two years starting December 2013, http://ec.europa.eu/food/archive/animal/liveanimals/bees/neonicotinoids_en.htm [Accessed 9 July 2015].

Also, Paraquat, the active ingredient in Gramoxone (Syngenta), is considered for “limited use” in Indonesia (Berne Declaration et al, Ad Hoc Monitoring Report “Pesticides Users at Risk”, 2007, p.6).

⁵⁰ Where available, the EU-based warning classification known as “R-phrases” was included.

⁵¹ For Confidor, different safety data sheets were available, one with a higher percentage, another with a lower percentage than the Punjabi bottle.

⁵² Safety Data Sheet, Bayer CropScience Limited, 230 Cambridge Science Park, Milton Road Cambridge, Cambridgeshire CB4 0WB, Great Britain, Revision Date: 30.03.2009, Version 3.

⁵³ Safety Data Sheet, Bayer CropScience Pty Ltd, –ABN 87 000 226 022, 391-393 Tooronga Road, East Hawthorn, Victoria 3123, Australia, Version 2; Sicherheitsdatenblatt gemäß Verordnung (EG) Nr. 1907/2006, Bayer CropScience AG, Alfred-Nobel-Straße 50, 40789 Monheim am Rhein, Deutschland, 9 December 2014.

⁵⁴ No Safety Data Sheets of Regent Granules could be found. These safety warnings are based on the Safety Data Sheet of Regent SC, 20%, BASF Australia Limited (ABN 62 008 437 867), Level 12, 28 Freshwater Place Southbank, Victoria 3006, AUSTRALIA, Telephone: +61 3 8855-6600, Revised: 19.12.2013, Version 2.1.

⁵⁵ Material Safety Data Sheet, Larvin Brand 3.2; Bayer CropScience 2 T.W., Alexander Drive; Research Triangle PK, NC 27709, USA, Revision date 24 February 2011, Version 2.0.

Syngenta ⁵⁶	and skin (R36/37/38).	
Matador/ Syngenta ⁵⁷	Fatal or poisonous if swallowed. Harmful if inhaled. Irritating to eyes and skin. Vapour may cause drowsiness and dizziness. May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.	Slightly toxic to birds, highly toxic to fish and aquatic invertebrates (water flea).

Table 3: Selected pesticides and their toxic effects

4.2 Acute effects experienced by the farmers in the survey

The survey was limited to farmer's understanding of the labels and their use of personal protective equipment. It was not within the scope of this monitoring to collect systematic data on health or environmental impacts of the users of pesticides or the larger public. Still, as farmers were asked more generally about their personal experiences with the pesticides under scrutiny in this monitoring effort, most of the farmers mentioned the acute toxic effects of the chemicals and their use of mustard oil to counter skin irritation. Several interviewees addressed the problem of skin burning after applying Matador (Syngenta). Some farmers said they had stopped using Matador because of the severe skin irritation. Other symptoms frequently experienced after the usage of pesticides such as Confidor and Nativo were headaches, weakness, and vomiting. Notably, many farmers were not conscious of possible long-term or chronic effects.

5. Parallel responsibility of the government and the pesticides industry

The Code of Conduct establishes a common standard for all public and private entities engaged in or associated with the management of pesticides, in particular for governments as well as the pesticide industry.⁵⁸ It is governments who have the overall responsibility for regulating the availability, distribution and use of pesticides in their countries pursuant to Art. 3.1 of the Code.

However, and no less important, the pesticides industry should adhere to the provisions of the Code as a standard for the manufacture, distribution, sale and advertising of pesticides. The Code adds in Art. 3.2 that industry's adherence is particularly important in those countries that have not yet established or are unable to effectively operate adequate regulatory schemes and advisory services.

In India, the management of pesticides is based on the Insecticides Act (1968) and its executive companion the Insecticides Rules (1971). Having been targeted as outdated, a new bill was introduced in 2008, the so-called Bill on Pesticides Management.⁵⁹ Even though this bill is not

⁵⁶ Safety Data Sheet, Syngenta Crop Protection AG, Postfach CH-4002 Basel, Switzerland, Revision Date 07.04.2009, Version 1, Paraquat dichloride 25.7 %.

⁵⁷ Material Safety Data Sheet, Syngenta Canada Inc., 140 Research Lane, Research Park, Guelph, ON N1G 4Z3, Date of MSDS Preparation (Y/M/D): 2014-12-31; Lambda-Cyhalothrin Technical Insecticide (13.2 %).

⁵⁸ Art. 1.1 & 1.2 CoC.

⁵⁹ The Pesticides Management Bill, Bill XLVIII of 2008, introduced into Rajya Sabha on 21st October 2008.

free from criticism,⁶⁰ it would have significantly improved the existing legislation. It has, however, been pending since its introduction in the federal institutions of India without a clear prospect of being adopted. A major hope for the new pesticides bill was to shift the regulatory competences from the Ministry of Agriculture to the Ministry of Health or the Environment. Past implementation of the existing legislation was highly inefficient due to the conflict of interest in the Ministry of Agriculture that is at the same time promoter of pesticides and its regulator.⁶¹ Since the new bill stalled in the Indian legislative institutions, this conflict of interest continues to exist and implementation of pesticides legislation remains very weak.

Attempts to change this poor legislative and executive record can be witnessed on the judicial level through several Public Interest Litigations (PIL) submitted to the Indian Supreme Court.⁶² These PILs focus on banning the most dangerous pesticides as well as implementing necessary safeguards to end exposure to pesticides by consuming contaminated food and drinks. Even though these judicial decisions can be significant, such as the decision that banned the production, use and import of Endosulfan, these judicial interventions remain limited in scope.⁶³

Given this national background it is clear that the adherence of the pesticides industry to the International Code of Conduct on Pesticides Management is particularly important since the Indian state does not sufficiently fulfill its role as general regulator and implementer of a pesticides management system that does not produce unacceptable risks to human health or the environment (Art. 3.2 Code of Conduct).

⁶⁰ Center for Science and Environment, Recommendations on pesticides management bill (2008), 2011.

⁶¹ Center for Science and Environment, Recommendations on pesticides management bill (2008), 2011, p. 1-2.

⁶² Supreme Court of India, *Centre for Public Interest Litigation V. Union of India & ors*, Judgment of 22.10.2013; See interim order of the court that made reference to the precautionary principle: Supreme Court of India, Petition No. 213 of 2011, *Democratic Youth Federation of India V. Union of India & Ors*, Order of 13.05.2011; *Shrishti Vs Union of India & Ors*, see summary of petition on the following website: <http://www.hrln.org/hrln/environmental-justice/pils-a-cases/183-shrishti-vs-union-of-india-a-others.html>.

⁶³ See interim order of the court that made reference to the precautionary principle: Supreme Court of India, Petition No. 213 of 2011, *Democratic Youth Federation of India V. Union of India & Ors*, Order of 13.05.2011. See also the following case in which the precautionary principle was explicitly recognized as being part of the law of India: Supreme Court of India, *Vellore Citizens Welfare Forum V. Union of India & Ors* [1996] RD-SC 1027 of 28.08.1996.

Part I – Good Labelling Practice

Violations of the International Code of Conduct by Bayer CropScience and Syngenta

1. Introduction

Part I of the Ad Hoc Monitoring Report addresses the potential non-adherence of the industry to the Code of Conduct and the Guidelines on Good Labelling Practice for Pesticides (*hereafter* Guidelines on Good Labelling Practice). According to the Code of Conduct a “label” means the written, printed or graphic matter on, or attached to, the pesticide.⁶⁴ A label is thus distinct from the separate instruction leaflet. The Guidelines on Good Labelling Practice include recommendations and the minimum requirements for both labels and the leaflet.⁶⁵

1.1 Promises and pitfalls of labels

The Guidelines on Good Labelling Practice emphasize the importance of labels by stating that they are the principal, and sometimes only, contact between the manufacturer and the end user of the product. In addition, in many countries labels are legal documents that convey essential safety information and use recommendations.⁶⁶ As CropLife International has emphasized, the goal of a good label is to “ensure safe and effective use.”⁶⁷ Similarly, Syngenta AG’s Code of Conduct promises that its products carry “clear end user instructions concerning safe storage, use and disposal.”⁶⁸ It is thus evident that labels are important to warn farmers regarding the toxicity of the chemicals, the need for protective clothing, and to provide other recommendations for use, such as waiting periods before re-entering a field that has been sprayed. This has been recognized by regulatory agencies around the world that have fined industry actors for misbranding their pesticides. For example, last year Syngenta had to pay a penalty to the EPA in the United States for an incorrect label. An EPA officer affirmed that “Mislabelled pesticides are dangerous because they may display incorrect warnings and application instructions.”⁶⁹

⁶⁴ The Code of Conduct also includes the written matter on the direct container of the pesticide and also the outside container or wrapper of the retail package of the pesticide, Art. 2 CoC.

⁶⁵ Art. 7.4 of the CoC obliges pesticide industry to ensure that all pesticides are labeled in accordance with the Guidelines on Good Labelling Practice for Pesticides.

⁶⁶ FAO, “Guidelines on Good Labelling Practice for Pesticides”, 1995, p. 1, (*hereinafter* Guidelines on Good Labelling Practice). Submitting organizations are aware that as of August 2015 new Guidelines for Good Labelling Practice are in place. However, as the present report is based on findings prior to this time, the old standard was used as the benchmark of the analysis. At some points this report will however refer to the new Guidelines wherever they provide additional information or useful tools to overcome some of the problems identified in the present monitoring effort.

⁶⁷ CropLife International, “Guide for Industry on the Implementation of the FAO Code of Conduct on the Distribution and Use of Pesticides”, Op Cit., Commentary to Article 3 CoC. Note the position of the organizations submitting this report on the concept of “safe use” as the industry employs it, section 1.1 in Part II of this report.

⁶⁸ “We will carefully identify hazards, assess risks associated with the use and alert users of consequences from misuse of a product on the product package, leaflet and label. Products carry clear end user instructions concerning safe storage, use and disposal”, in: Syngenta, “The Syngenta Code of Conduct”, Op Cit., No 19.

⁶⁹ EPA, “EPA Requires Syngenta to Label Pesticides Accurately”, 8 May 2014, available at <http://yosemite.epa.gov/opa/admpress.nsf/8b770facf5edf6f185257359003fb69e/a1bd726f96e6963985257cd2006308b0!OpenDocument> [last accessed 2 July 2015].

Still, it would be misguided to put too much confidence in the accuracy and adequacy of labels. While they are necessary, the survey carried out provides clear indications that good labels are not enough to communicate all essential safety information to farmers. A sales manager for Syngenta India in Bathinda reported that he knows that 30-40% of the farmers do not understand the labels due to language problems or other issues. According to him there is, however, no policy or strategy within the company to change that or address the lack of understanding through any other initiative.⁷⁰ The responses of farmers interviewed for this Monitoring Report confirmed this assessment. For example, one farmer indicated that all pesticides are equally dangerous to the human health and that therefore it is not necessary to read the instruction leaflets.⁷¹ Other farmers simply admitted that they had never read the instruction leaflet of a particular pesticide.⁷² If this is true, then any improvements of pesticide labels is only one way that Bayer and Syngenta can warn farmers of the specific risks of pesticides. In order to ensure that users are sufficiently protected, the industry must also endeavor to fulfill the requirements of the Code of Conduct, by for example, providing training for distributors and all sales personnel and promoting personal protective equipment.

Farmers (n=32 in survey March 2015)	Yes	No	No answer ⁷³
Did you <u>ever</u> read a label and/or leaflet?	10	16	6
Can you read Hindi or Punjabi?	16	8	8

Table 4: Relevance and sufficiency of the label to communicate safety precautions

While recognizing the inherent limits of labels and instruction leaflets to convey essential safety information, Part I documents the lack of clarity of the labels and the lack of complete information, which may constitute violations of the Code of Conduct and the Guidelines Good Labelling Practice.⁷⁴ To assess the effectiveness of the labels in transmitting relevant safety information, the labels and instruction leaflets of the selected pesticides were analyzed in comparison to the standards provided in the Code of Conduct and the Guidelines on Good Labelling Practice. In order to assess the clarity of the labels and leaflets, in-depth interviews were carried out with 32 farmers during the March survey in Punjab. Interviewees were shown the packages of the pesticides and asked questions concerning their comprehension of the safety information, the pictograms and diamond color symbol. The survey results indicated that farmers were generally not sufficiently aware of the potentially long-term adverse effects of exposure and the need for caution when handling the pesticides. Generally, the interviewees

⁷⁰ Interview with Syngenta Sales Manager; 11 March 2015; Bathinda.

⁷¹ Interview with Farmer 20; 13 March 2015 (PM); Baja Kana.

⁷² For example, one farmer had been using Confidor (Bayer) for 10 years and never read the instruction leaflet, interview with Farmer 4; 14 March 2015 (PM); Bhotna.

⁷³ Note: the information in the tables printed red indicates a potential violation of the Code of Conduct or the Guidelines on Good Labelling Practice.

⁷⁴ As recommended by the FAO, the four principles to adhere to in designing a label are: clarity, completeness, conformity and consistency, in: Guidelines on Good Labelling Practice, §1.4.

were more concerned with avoiding the acute effects. Several of the farmers believed pesticides are safe to use without proper protective equipment, and were not aware of any need for concern at all. When labels are not understood or important safety information is missing, they do not fulfill the function ascribed to them and rather contribute to increasing health and environmental risks instead of mitigating them.

Articles in the Code of Conduct on labeling that appear to have been violated by Bayer CropScience and Syngenta

Art. 3.5: [Pesticide industry and traders should:]

Article 3.5.1: supply only pesticides of adequate quality, packaged and labelled as appropriate for each specific market.

Article 3.5.3: pay special attention to the choice of pesticides formulations and to presentation, packaging and labeling in order to minimize risks to users, the public and the environment.

Article 3.5.4: provide, with each package of pesticide, information and instructions in one or more of the official languages of the country and in a form adequate to ensure effective use, and minimize risks to users, the public and the environment.

Art. 10.2.2: [Pesticide Industry should use labels that:] include appropriate symbols and pictograms whenever possible, with their signal words or hazard and risk phrases, in addition to written instructions, warnings and precautions in the appropriate language or languages.

Article 10.2.3: comply with national labelling requirements or, in the absence of more detailed national standards, with the GHS, the FAO/WHO guidance on pesticide labelling, and other relevant international labelling requirements.

Article 10.2.4: include, in the appropriate language or languages, a warning against the reuse of containers and instructions for decontamination and the safe disposal of used containers.

1.1 Apparent violations of the Code of Conduct by Bayer CropScience and Syngenta

The Code of Conduct calls on the pesticide industry to supply only pesticides appropriately labeled for each specific market⁷⁵ and stipulates that adherence to the Code requires the pesticide industry to constantly review their labeling practice and determine the need for changes.⁷⁶

This monitoring report provides strong indications that the pesticides under scrutiny were not appropriately labeled, particularly not for the local Punjabi market where they were sold. Furthermore, based on the indications that company staff of both Bayer CropScience Ltd and Syngenta India regularly visits the area and the farmers,⁷⁷ it is called into question whether the pesticides companies have made a real effort to review the labeling practice in the light of the actual understanding of the farmers of the product labels.

Text Box 1: Articles in the CoC related to labeling that appear to have been violated by Bayer CropScience and Syngenta

⁷⁵ Art. 3.5.1 CoC.

⁷⁶ Art. 3.6 CoC.

⁷⁷ Interview with former sales manager for Syngenta and Bayer; 27 September 2014; Chandigarh; Interview with Bayer Distributor; 14 March 2015; Bathinda;

Based on the findings explained in more detail in the following sections, the labels on the pesticides bottles that were examined for the survey appear to violate in particular Arts. 3.5.1, 3.5.3, and 3.5.4 as well as 10.2.2, 10.2.3, and 10.2.4 of the Code of Conduct. In particular, the following aspects deserve the highest attention by all the stakeholders of the Code of Conduct:

- Leaflets containing additional safety information were not always firmly attached to the bottles
- The size of the script on the label is in many instances smaller than recommended in the Guidelines on good labeling
- Labels and leaflets often lack sufficient and detailed information on PPE
- Labels and leaflets often lack sufficient and detailed information on safety precautions
- Labels and leaflets often lack appropriate instructions of use
- Labels and leaflets often lack appropriate hazard phrases and symptoms of exposure
- Labels and leaflets often lack adequate information on proper disposal of empty containers

In addition, further aspects were witnessed during the survey that do not present outright violations of the Code of Conduct but do conflict with the principle of clarity emphasized in the Good Labelling Guidelines. In particular:

- Many of the interviewed farmers were unable to understand the meaning of a large number of the pictograms used on the basis of the Good Labelling Guidelines
- Many farmers as well as authorized dealers and distributors were unable to put the diamond color code in the correct order or to understand the meaning of the colors
- Even the font size recommended by the Good Labelling Guidelines was in some instances too small for the farmers to actually read the label

Table 5 provides an overview of the labeling practices of Bayer and Syngenta that appear to violate the Code of Conduct and Guidelines of Good Labelling Practice.

Adherence to the Code of Conduct and the Guidelines on Good Labelling Practice.		Bayer	Syngenta
Clarity			
Information on label in	Art. 3.5.4, 10.2.2, 10.2.4 CoC; §1.4	No	No

appropriate language	Guidelines on Good Labelling Practices		
Safety text in at least 8-point in size	Art. 3.5.3 CoC; §3.2.1 Guidelines on Good Labelling Practices	No	Yes
Pictograms at least 7mm x 7mm in size	Art. 3.5.3 CoC; §3.4.1 Guidelines on Good Labelling Practices	No	Yes
Completeness			
Information leaflet attached to pesticide product.	Art. 3.5.1 CoC; §3.1.3 Guidelines on Good Labelling Practices	No	Yes
Appropriate information on antidotes and remediation measures	Art. 5.2.3 CoC and §3.1.3 and Annex A.3.2 Guidelines on Good Labelling Practices	No	No
Complete description of relevant protective clothing	§2.2.a Guidelines on Good Labelling Practices	No	No
Complete safety precautions included on the label ⁷⁸	§3.5.4 Guidelines on Good Labelling Practices	No	No
Complete instructions of use on the label ⁷⁹	§2.3.b. Guidelines on Good Labelling Practices	No	No
Information on compatibility with other products	§2.3.e Guidelines on Good Labelling Practices	No	No
Appropriate hazard phrases	Art. 10.2.2 CoC	No	No
Appropriate warning against the reuse of containers and instructions for decontamination and safe disposal in the label	Art. 10.2.4 CoC and § 2.2.a Guidelines on Good Labelling Practices	No	No
Appropriate warning against the reuse of containers and instructions for decontamination and safe disposal in the leaflet	Art. 10.2.4 CoC and § 2.2.a Guidelines on Good Labelling Practices	No	No
Compliance with Indian domestic legislation on labeling	Art. 7.4 CoC	No	No

Table 5: Adherence to the Code of Conduct and Guidelines on Good Labelling Practice by Bayer CropScience and Syngenta AG

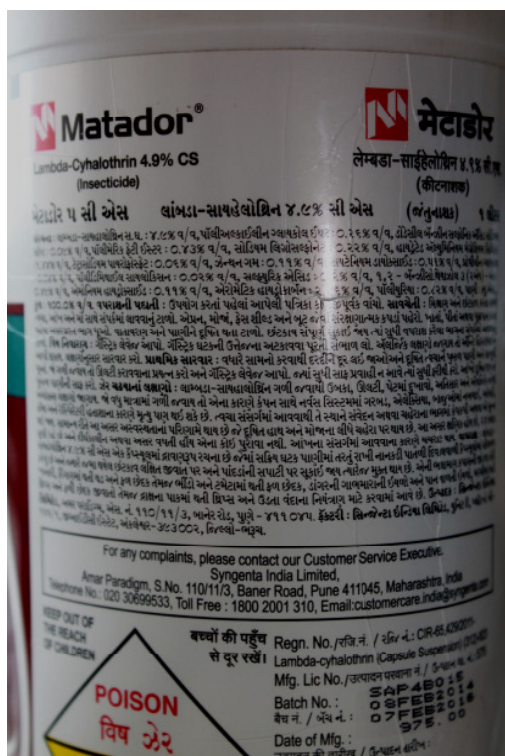
⁷⁸ Safety precautions include for example, product specific advice and precautions during and after spraying.

⁷⁹ Instructions of use include for example, number of applications and re-entry period.

2. Lack of attached instruction leaflets

A serious violation was signaled by some of the farmers interviewed: that pesticide products are not always sold with an accompanying instruction leaflet. The manufacturer's failure to provide an instruction leaflet means that farmers are unable to obtain the relevant recommendations on precautionary measures during and after spraying or what to do in case of emergency. Survey results suggest that instruction leaflets are not always provided by manufacturers, and that products do not always come with the instruction leaflet attached.⁸⁰ This was the case, for example, with the Nativo package. Rather than products being delivered to distributors and dealers with the instruction leaflets already attached, sometimes they come separately and sellers are relied upon to attach each leaflet individually. However, as the conversations with dealers and distributors revealed, this procedure is not always carried out.

Relevant instruction leaflets could be automatically attached to a bottle or package on the assembly line. However, by failing to attach instruction leaflets during the manufacturing process, companies accept the risk that their product may be sold without an accompanying leaflet and therefore without sufficient safety information. The omission to attach instruction leaflets would seem to infringe Art. 3.5.1 of the Code of Conduct, which calls on the pesticide industry to supply only pesticides appropriately labeled for each specific market. In addition,



Picture 3: Matador (Syngenta) without Punjabi – 1st panel

the Code of Conduct clearly makes the pesticide industry responsible for ensuring that persons involved in the sale of pesticides are trained adequately to provide buyers with advice on risk reduction and judicious and efficient use of pesticides.⁸¹ Manufacturers should therefore ensure that all relevant safety information, such as that contained in information leaflets, is passed onto the consumer at the point of sale.

3. Lack of Punjabi on labels

The official language of the state is Punjabi, written in the Gurmukhi script.⁸² Hindi is only spoken by approximately 8% of the population.⁸³ This notwithstanding, of the examined pesticides only Regent (Bayer) had Punjabi on the label. **Out of the 6 pesticide products analyzed, 5 did not include safety instructions on the label written in Punjabi.** The 5 products without Punjabi instructions included

⁸⁰ When asked, only one farmer that we interviewed provided us with the instruction leaflet.

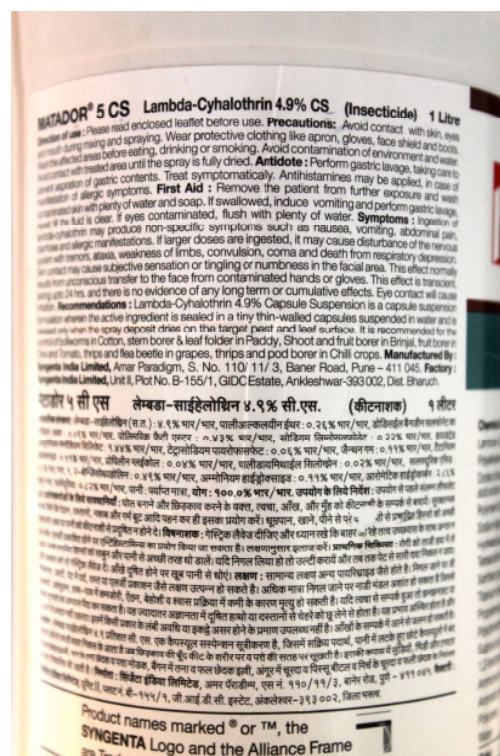
⁸¹ Art. 8.2.7 CoC.

⁸² Punjab Official Language (Amendment) Bill, 2008; Encyclopaedia Britannica, "Punjabi Language", (no date), available at <http://www.britannica.com/topic/Punjabi-language> [last accessed 2 July 2015].

⁸³ Census of India, 2001, available at <http://censusindia.gov.in/> [last accessed 9 July 2015].

Hindi and English on their labels, while Punjabi was only included in the instruction leaflet. This would seem to violate Art. 3.5.1 of the Code of Conduct, which calls on the pesticide industry to supply only pesticides appropriately labeled for each specific market.

It also appears to violate Art. 3.5.4 of the Code of Conduct, which calls on the pesticide industry to provide, with each package of pesticide, information and instructions in one or more of the official languages of the country and in a form adequate to ensure effective use, and minimize risks to users, the public and the environment. The Code of Conduct recognizes that in some cases using just one official language will not be sufficient to ensure effective use and minimize risks, and to that end, manufacturers must ensure that the language on the label is adequate for the likely users.⁸⁴ The lack of Punjabi on the labels also appears to be in violation of Arts. 10.2.2 and 10.2.4 of the Code of Conduct, which stipulate that warnings and instructions must be provided in the “appropriate language or languages.” The importance of including instructions for use in a “locally understood language” on labels has also been emphasized by CropLife International, which has recognized that it is critical that a pesticide label be understood wherever it is sold.⁸⁵



Picture 4: Matador (Syngenta) without Punjabi – 2nd panel

The Guidelines on Good Labelling Practice recognize that having the primary language on the container label and any other languages in an attached leaflet can solve the problem of shortage of space. It is, however, emphasized that, if possible, key safety information in all required languages should be on the label firmly attached to the container.⁸⁶ Surely, if around only 8% of the population understands Hindi, and given that Punjabi is the only official language in Punjab, it is neither adequate nor appropriate to sell pesticides without even the key safety information in Punjabi on the label. In those instances that the instruction leaflet did not come with the purchased package or bottle, the farmer was thus left without any accessible information at all. In our view, this clearly fails to ensure effective use and minimize risks.

⁸⁴ In designing the label, the Guidelines on Good Labelling Practice directs the pesticide industry to consider whether: “all likely users understand the language/message” in: Guidelines on Good Labelling Practice, §3.6. Therefore consideration should be taken of the languages spoken in different states and not only different countries,

⁸⁵ CropLife International, “Guidelines for the Safe and Effective use of Crop Protection Products”, 2006, p.21.

⁸⁶ Guidelines on Good Labelling Practice, § 3.1.5.

4. Font size too small

Highly problematic is the small font of the text on several of the bottles, especially Confidor (Bayer). Interviewed farmers said they had great difficulty deciphering the text, and many were not able to read it at all.⁸⁷ The possible adverse impact of using a small font size on label is compounded by socio-economic factors in Punjab that must be taken into account when assessing the clarity of a pesticide label. First, some farmers might actually require glasses to read clearly, however, they may have never had the opportunity to have an eye test. Second, many farmers, even if literate, have only studied for a few years, and in general will be less fluent readers.

The small font on the Confidor (Bayer) bottles would seem to violate section 3.2.1 of the Guidelines on Good Labelling Practice, which recommend that all safety text should be at least 8-point, and that all other text should be at least 6-point. The preferred size is actually 11-point. The font of Confidor 100ml for its entire label, however, is 4-point.⁸⁸ Also problematic are the pictograms on the Nativo (Bayer) package, which is 5 mm.⁸⁹ This is contrary to the recommendations in the Guidelines that prescribe that pictograms should be a minimum of 7 mm x 7 mm. The preferred size for pictograms is 15 x 15 mm.

⁸⁷ For example, “No, not getting these small characters due to poor vision”, Interview with Farmer 3; 14 March 2015 (PM); Bhotna; The farmers interviewed in Baja Kana village were also unable to read the Confidor (Bayer) bottle, Interview with Farmers 28, 29, 30, 31 and 32; 13 March 2015; Baja Kana.

⁸⁸ The measurement of the font size is an approximate measurement of the text on the package and could not be verified in any scientific way.

⁸⁹ The measurement of the pictogram size is an approximate measurement of the picture on the package and could not be verified in any scientific way.



Picture 5: Small text size of Confidor (Bayer)

It should be noted that **out of the 14 farmers who responded to the question related to clarity of the font size on all the labels, 10 were unable to decipher the text on the Confidor bottle at all.** A further 2 farmers responded that they were able to read the text but experienced difficulty as a result of the small size of the font.⁹⁰ In the September 2014 focus group, farmers also expressed difficulty with reading the 8-point texts⁹¹.

The impact of the small font size was revealed in the course of the September 2014 survey. For example, one elderly farmer was unable to read the text on the Confidor label in normal daylight.⁹² Consequently, crucial information contained on the label is lost and the risk of exposure to the toxicity of the pesticides is greatly increased. This would seem to violate Art. 3.5.3 of the Code of Conduct, which emphasizes that the choice of labeling should be informed by the concern to minimize risks to users, the public and the environment.

Company	Brand name	Punjabi on the label	Text size ⁹³	Size of the pictograms
Bayer	Nativo	No	6 point	4 mm x 4 mm

⁹⁰ Interview with Farmer 4; 14 March 2015 (PM); Bhotna; Interview with Farmer 27; 13 March 2015 (AM); Laleana.

⁹¹ Interview with Second Focus Group; 26 September 2014; Bathinda.

⁹² Interview with Second Focus Group; 26 September 2014; Bathinda.

⁹³ The measurement of the font and pictogram size is an approximate measurement of the text and pictures on the package and could not be verified in any scientific way.

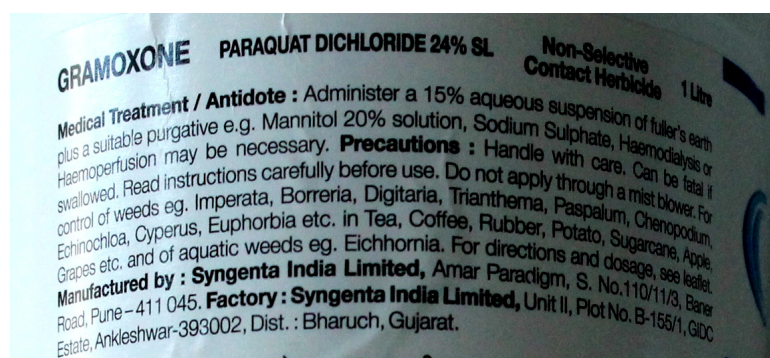
Bayer	Confidor 500ml	No	4 point	3 mm x 3 mm
	250ml	No	4 point	2.5mm x 2.5mm
	100ml	No	4 point	1.5mm x 1.5mm
Bayer	Regent GR	Yes	8 point	5 mm x 5 mm
Bayer	Larvin	No	11 point	9 mm x 9mm
Syngenta	Gramoxone	No	6 point	7 mm x 7 mm
Syngenta	Matador	No	5 point	7 mm x 7 mm

Table 6: Violations of the Code of Conduct in the text size and language

5. Incomplete information on the label and in the leaflet

According to the Guidelines on Good Labelling Practice, completeness is a principle to determine the suitability of each and every label.⁹⁴ Using a checklist of all essential information ensures completeness, so that no important information or advice is omitted.⁹⁵

When it comes to the concrete information to be included in a label, the Guidelines require that the following information is provided: the content of a container; the hazards it represents and



Picture 6: Label of Gramoxone (Syngenta) lacking information on personal protective equipment

associated safety information as well as instructions for use.⁹⁶ Safety information which should be addressed on the label includes product specific advice, appropriate good agricultural practice, relevant protective clothing, precautions when handling the concentrate, precautions during and after application, environmental safety during and after application, safe storage, safe disposal of the product and used container as well as how to clean equipment.⁹⁷ The Guidelines on Good Labelling Practice further emphasize that essential instructions must always be displayed on the label including information on: how to mix and apply the product, dosage, timing and

⁹⁴ Guidelines on Good Labelling Practice' §1.4.

⁹⁵ Ibid.

⁹⁶ Ibid., § 2.2, 2.3.

⁹⁷ Ibid., § 2.2.a.

frequency (including maximum number of applications per season), when not to use the product, and compatibility with other products, where appropriate.⁹⁸

The systematic analysis of the labels in comparison with the checklist of the Guidelines on Good Labeling Practice uncovered several instances of incomplete information. **Out of the 6 products analyzed, 4 of the labels lacked recommendations on protective clothing and none included a warning against re-use and instructions for decontamination or the re-entry period.** (See Tables 8, 9 and 10). The lack of information on PPE is problematic as the survey interviews indicate that in general the farmers in Punjab take very few protective measures. This makes it even more necessary that protective clothing and instructions of use are part of the key safety information printed on the label. As Part II of the Monitoring Report highlights, the survey found that farmers were frequently unaware of the toxic – especially longer-term – effects of spraying pesticides and the need to protect themselves accordingly. Hardly any of the interviewed farmers had ever used full personal protective equipment, if at all. Rarely are any boots, gloves or respiratory protection used when spraying pesticides. In the focus groups conducted in September 2014, one farmer reported wearing only underwear when spraying pesticides to avoid his normal clothes being soaked with the pesticides, which is perceived as being impractical.⁹⁹ Hence, the labels and leaflets in their present form do not convey essential information on the necessity of protection.

5.1 Incomplete safety information

Unclear information on all relevant protective clothing on the label and in the leaflet

From the Report of the 2013 FAO/WHO Joint Meeting on Pesticides Management it is clear that key safety information on the label should at the very least include information on personal protective equipment. During that meeting in 2013, a recommendation was made to update the existing Guidelines on Good Labelling Practice and to include the insertion of clear advice on appropriate personal protective equipment.¹⁰⁰ In the context of Punjab where the problem of unprotected use of pesticides is publically known to be widespread, the importance of information on protective clothing only becomes more evident (see Part II of this report). According to the current Guidelines on Good Labelling Practice, the safety text on the label should include information of all “relevant protective clothing”.¹⁰¹ In the case of multi-language labels, where possible, all key safety information should be in all required languages on the label firmly attached to the container.¹⁰² Indeed, all the sample labels provided by the Guidelines include information on personal protective clothing as part of key safety information.

⁹⁸ Ibid., § 2.3.

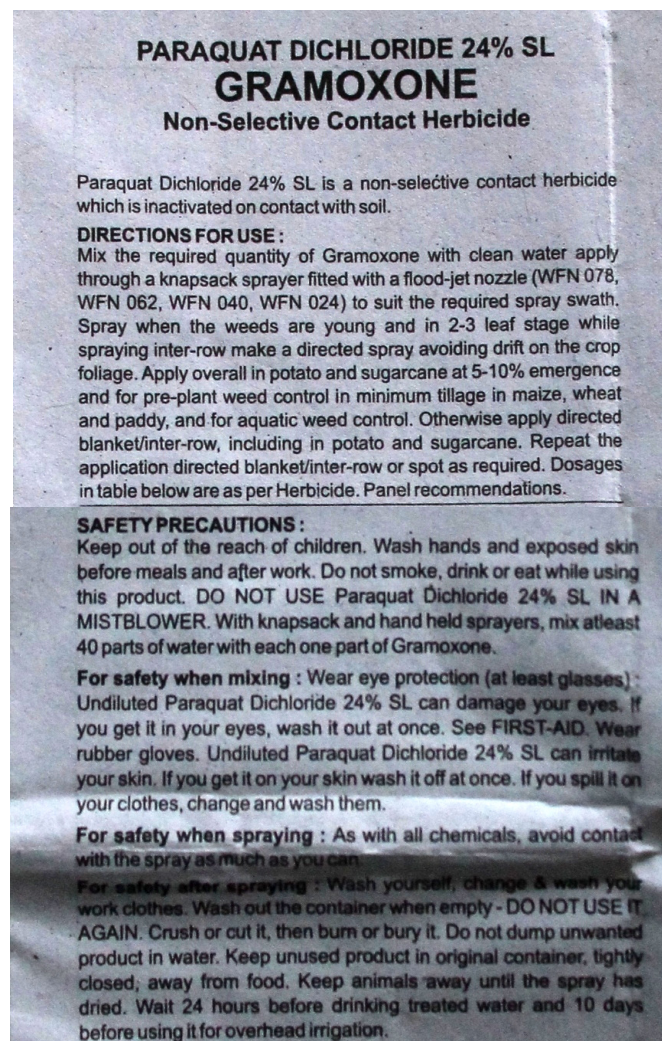
⁹⁹ Interview with Second Focus Group; 26 September 2014; Bathinda.

¹⁰⁰ FAO/WHO, “7th FAO/WHO Joint Meeting on Pesticide Management and 9th Session of the FAO Panel of Experts on Pesticide Management”, 15-18 October 2013, Geneva, p. 23.

¹⁰¹ Guidelines on Good Labelling Practice, §2.2.a. The Guidelines also distinguish between one panel and two panel labels. In case of a two panel label it is explicitly stated to have safety information in an ancillary panel and on the leaflet. In case of a one panel label all the safety information must be included in the label itself, in: Guidelines on Good Labelling Practice, Appendix A.7.1.

¹⁰² Guidelines on Good Labelling Practice, § 3.1.5.

Despite the importance of including clear instructions of all relevant protective clothing in the safety text on labels, the text on the labels for Confidor (Bayer), Nativo (Bayer), Larvin (Bayer), and Gramoxone (Syngenta) do not include any advice on protective equipment. Indeed, what emerges from the analysis of the labels is that information regarding PPE is often unclear and inconsistent. In some cases written recommendations on PPE seems to be missing



Picture 7: Leaflet of Gramoxone (Syngenta) without appropriate information on protective clothing (note that some parts of the leaflet have been cut for visibility)

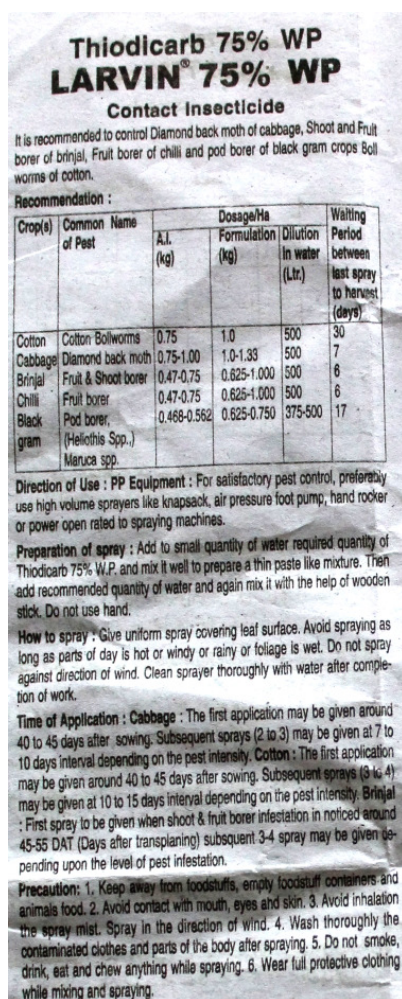
from the label, while the pictograms recommend the use of specific equipment. This is the case for example in the Gramoxone (Syngenta) label, which recommends boots and an apron in the pictograms but does not provide equivalent instructions in the safety text. The Guidelines on Good Labelling Practice specify that a pictogram should never be used if the safety text does not carry a corresponding message, as pictograms are intended to relate to the text and should never contradict or make instructions less clear.¹⁰³

The possibility for confusion, and therefore of using unsuitable PPE, is compounded by the fact that instruction leaflets which accompanied the pesticide products analyzed did not always include advice on relevant equipment or information was incomplete. For example, the leaflets for Nativo (Bayer) and Gramoxone (Syngenta) do not address sufficiently what protective clothing to wear when handling the product,¹⁰⁴ and the leaflets for Regent (Bayer)¹⁰⁵ and Larvin (Bayer) seem to provide incomplete information.

¹⁰³ Guidelines on Good Labelling Practice, § 3.4.1.

¹⁰⁴ The Nativo leaflet advises to “wear protective clothing”, it does not, however, give any specifications. This is surprising as the pictograms on the Nativo package indicate that a face mask, gloves and boots are needed. The Gramoxone leaflet does give instructions to wear eye protection (at least glasses) and rubber gloves during mixing, but for during spraying just writes “As with all chemicals, avoid contact with the spray as much as you can.”

¹⁰⁵ Even though in the leaflet it says “wear protective clothing”, it does not give any specifications. This is surprising as the pictograms on the label indicate that a face mask, gloves and apron are needed. The label text even mentions goggles.



Picture 8: Indian leaflet of Larvin (Bayer) with unclear information on personal protective equipment

Particularly troubling are the differences between the recommendations for protective equipment in the Indian leaflets and labels when compared with the Safety Data Sheets from other countries where these pesticides are sold. For example, an examination of the Safety Data Sheet from the USA for Larvin (Bayer) recommends the use of rubber gloves, safety goggles and a respirator when handling the product.¹⁰⁶ However, the label for Larvin sold in India does not provide any written clarification of the PPE to be worn and the leaflet only recommends users to “wear full protective clothing while mixing and spraying”, without any further explanation of what “full” equipment constitutes.¹⁰⁷ It would seem that the failure to provide clear and consistent information of all relevant PPE across safety material provided by the manufacturer could lead to the user using unsuitable protections.

As per the Code of Conduct, the pesticide industry is required to use labels that include all appropriate precautions,¹⁰⁸ which the Guidelines on Good Labelling Practice recommend should include all relevant personal protection equipment.¹⁰⁹ Moreover, information on the label is required to adhere to the principle of clarity that tells the user what they need to know in brief and precise terms.¹¹⁰ However, some of the pesticide products that have been analyzed (see Table 5) appear to violate the Code of Conduct and the Guidelines by presenting inconsistent information on labels and leaflets.

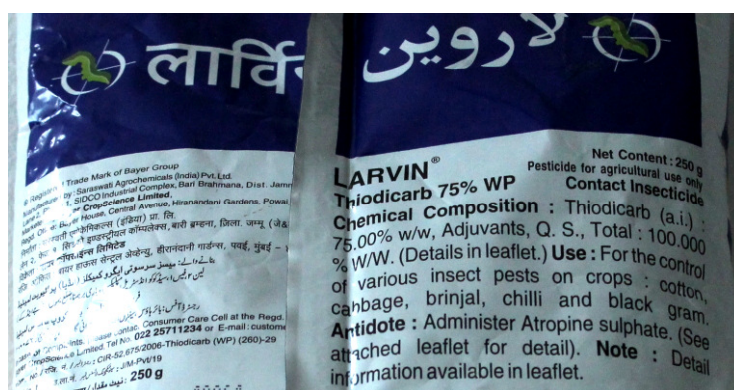
¹⁰⁶ Material Safety Data Sheet, Larvin Brand 3.2; Bayer CropScience 2 T.W., Alexander Drive; Research Triangle PK, NC 27709, USA, Revision date 24 February 2011, Version 2.0. It cannot be assumed that the highest recommendations indicated on the safety data sheet for Larvin is necessarily the PPE required for the application of the product in Punjab, as climatic conditions and local conditions can mean a modification of the equipment is required. However, such differences do not seem compatible with the emphasis of the Code of Conduct, which calls upon stakeholders to share information between countries, (for example, Art. 4.1.3, 6.2.1, 6.2.2 and 9.4.1 CoC). Even if, though, the discrepancy between the UK recommendations and the recommendations on the Punjabi leaflet may not mean that the Punjabi user was not provided with the correct or sufficient information, recommendations must be complete and clear in order to ensure users can protect themselves adequately.

¹⁰⁷ The lack of comprehensive instructions on all relevant PPE in the Larvin leaflet is of particular concern as Thiodicarb, the active ingredient in Larvin, has been classified by EPA as a Group B2 (probable human carcinogen). Though the classification is based on a high dose rate on mice and rats, and the manufacturer claims that at low doses the product would not be expected to cause these tumors in humans, users must be able to rely on the label for information of how to protect themselves from exposure. See, Material Safety Data Sheet, Larvin Brand 3.2; Bayer CropScience 2 T.W., Alexander Drive; Research Triangle PK, NC 27709, USA, Revision date 24 February 2011, Version 2.0, p. 7.

¹⁰⁸ Art. 10.2.2 CoC.

¹⁰⁹ Guidelines on Good Labelling Practice, § 2.2.a.

¹¹⁰ Guidelines on Good Labelling Practice, § 1.4.



Picture 9: Indian label of Larvin (Bayer) without information on Personal Protective Equipment

Lack of safety precautions on the label

In the Guidelines on Good Labelling Practice, the FAO have specified the necessary safety precautions to be included on pesticide labels, such as: precautions when handling the concentrate, precautions during and after application, environmental safety during and after application, safe storage and safe disposal of the product.¹¹¹

However, the labels of Confidor (Bayer), Nativo (Bayer), Larvin (Bayer), Gramoxone (Syngenta) and Matador (Syngenta) fail to provide important safety precautions. For example, the only precautions the Confidor (Bayer) label provides are “Poisonous. Handle with care.” This does not give any further information as to how to safely mix the pesticide or apply it. Neither the Nativo label nor leaflet provides any kind of instructions on how to mix the pesticide properly. This is in apparent violation of section 2.2.a of the Guidelines. In our view, it is also contrary to Art. 3.5.4 of the Code of Conduct that requires information and instructions to be provided in a form “adequate to ensure effective use, and minimize risks to users, the public and the environment.” Clearly, without proper instructions, users, the public and the environment are exposed to the risks posed by the hazardous pesticides. Table 5 provides a detailed overview of the safety precautions omitted from each pesticide product analyzed.

	Confidor Super/ Bayer	Nativo/ Bayer	Regent granules/ Bayer	Larvin/ Bayer	Gramoxone/ Syngenta	Matador/ Syngenta
Precautions (Art. 10.2.2 CoC, Sec. 2.2.a & 2.3 Guidelines and Appendix A.7.1 and A.7.3).						
Relevant protective clothing on the label	No	No	Yes	No	No	Yes
Relevant protective clothing in the leaflet	Yes	No	Incomplete	Incomplete	No	Yes

¹¹¹ Guidelines on Good Labelling Practice, § 2.2.a.

Instruction to read safety advice before opening pack – on label	Yes	Incomplete ¹¹²	Yes	Incomplete ¹¹³	Yes	Yes
Precautions when handling the concentrate – on label ¹¹⁴	Incomplete	No ¹¹⁵	Yes	No	No	Yes
Precautions during and after application – on label	Incomplete	No	Yes	No	No	Yes
“Use only as directed” statement – on label	No ¹¹⁶	Yes ¹¹⁷	Yes ¹¹⁸	No ¹¹⁹	No	No
Instruction on how to mix – in the leaflet	Yes	Yes	Yes	Yes	Yes	Yes

Table 7: Lack of safety precautions in violation of Guidelines on Good Labelling Practice

Lack of complete information on first aid on the label

The Guidelines on Good Labelling Practice state that labels should include appropriate first aid instructions and advice to doctors.¹²⁰ They further instruct that pesticides labels should include a statement informing users and doctors about where to access further information in cases of emergency. This information, however, is lacking on all pesticides labels and leaflets examined for this Ad Hoc Monitoring Report. In addition, in the case of Confidor (Bayer), Nativo (Bayer), and Regent (Bayer) the only information on antidotes is that an antidote is not known. This is an apparent violation of Art. 5.2.3 of the Code of Conduct, which stipulates that the pesticide industry should provide users and environmental authorities with information on appropriate remediation measures in case of spills and accidents.

Lack of other instructions of use

Pesticide labels are also required to include other relevant instructions of use, such as the timing and frequency of applications, including maximum number of applications.¹²¹ However, such information was entirely absent from both the label and the leaflet for Confidor (Bayer),

¹¹² The label merely states: “for details, see leaflet”.

¹¹³ The label merely states: “for details, see leaflet”.

¹¹⁴ For example, instructions to avoid contact with mouth, skin and eyes.

¹¹⁵ Information on relevant precautions when handling the concentrate are also not in the leaflet.

¹¹⁶ Information only in the leaflet.

¹¹⁷ Information also in the leaflet.

¹¹⁸ Information also in the leaflet.

¹¹⁹ Information only in the leaflet.

¹²⁰ Guidelines on Good Labelling Practice, §3.1.3 and Annex A.3.2.

¹²¹ Guidelines on Good Labelling Practice, § 2.3.b.

Nativo (Bayer), Gramoxone (Syngenta) and Matador (Syngenta). Worryingly, while all the examined pesticides mentioned the pre-harvest interval, none of them specified the re-entry period.¹²² The relevance of such information is highlighted by the fact that some farmers interviewed in the September 2014 survey had demonstrated a lack of knowledge about the quantity of pesticide to be applied to the crop and the recommended frequency of application.¹²³

Labels and leaflets also lack information on the compatibility of the product with other products.¹²⁴ This is especially relevant in Punjab, where the practice of mixing pesticides is widespread.¹²⁵ Failure to provide this information may not only be in violation of the Guidelines on Good Labelling Practice but may also be contrary to the Guidelines on Ground Application of Pesticides that explicitly reiterates that it is the responsibility of the company to include advice on suitable tank mix partners and the correct sequence of their introduction into the spray tank.¹²⁶ However, the label and leaflet for all the pesticides analyzed: Confidor (Bayer), Nativo (Bayer), Regent (Bayer), Larvin (Bayer), Gramoxone (Syngenta) and Matador (Syngenta), omit information on the compatibility of these products with other chemical pesticides.¹²⁷

The survey conducted in September 2014, highlighted the relevance of including instructions of use on the label and in the leaflet. Farmers were asked in the interviews how they assess suitability of pesticides mixtures. They responded that they usually take two or more pesticides, fill them in concentrated form in a small cap, usually of the bottle itself. If they witness a chemical reaction they do not mix the pesticides. If they do not observe any reaction, they go ahead with creating a new mixture.¹²⁸ This illustrates the lack of knowledge that users have in how to mix and apply hazardous pesticide products, and therefore the necessity of appropriate labels and training.

	Confidor Super/ Bayer	Nativo/ Bayer	Regent granules/ Bayer	Larvin/ Bayer	Gramoxone/ Syngenta	Matador/ Syngenta
Instructions of use in label or leaflet (Art. 10.2.2. CoC and Sec. 2.3 Guidelines)						
Timing and frequency of applications in label or leaflet ¹²⁹	No	No	Yes	Yes	No	No

¹²² For example, the leaflet of Confidor (Bayer) mentions the “waiting period”, but does not specify if this is re-entry or pre-harvest. Given the time for grapes noted as 34 days, it is assumed that relates to the pre-harvest time.

¹²³ Interview with First and Second Focus Group; 26 September 2014; Bathinda.

¹²⁴ Guidelines on Good Labelling Practice, § 2.3.e.

¹²⁵ Interview with First and Second Focus Group; 26 September 2014; Bathinda.

¹²⁶ FAO, “Guidelines on Good Practice for Ground Application of Pesticides”, 2001, p. 7.

¹²⁷ See Table 6.

¹²⁸ Interview with First and Second Focus Group; 26 September 2014; Bathinda.

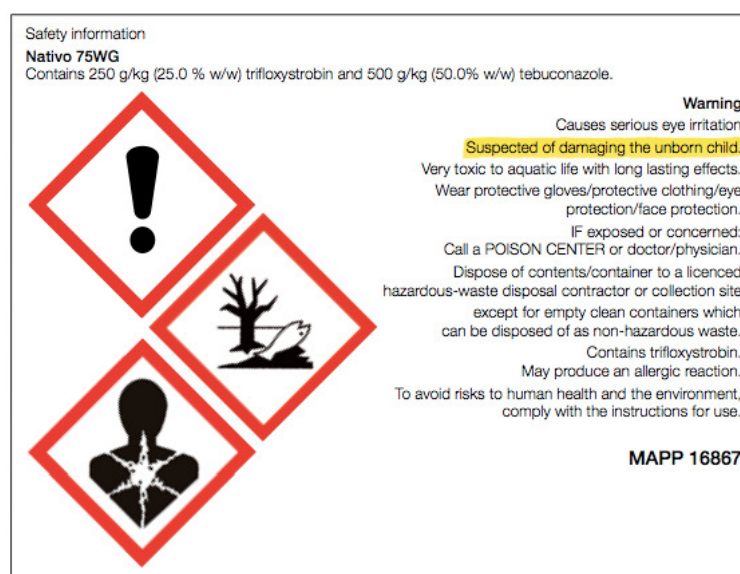
¹²⁹ Information including maximum number of applications.

Re-entry period	No	No	No	No	No	No
Pre-harvest interval	Yes	Yes	Yes	Yes	Yes	Yes
Compatibility with other products	No	No	No	No	No	No

Table 8: Lack of instructions in violation of the Guidelines

5.2 Lack of appropriate hazard phrases and symptoms of exposure

Pursuant to Art. 10.2.2 of the Code of Conduct, pesticide labels shall include appropriate hazard phrases. According to section 4.4 of the Guidelines on Good Labelling Practice, the determination of warning phrases shall take into account existing labels for similar products to ensure consistency. However, it appears that Bayer has not included all relevant hazard phrases in the Nativo 75WG label designed for the Indian market. For example, the label for Nativo 75WG sold in the United Kingdom explicitly states that the product is “*suspected of damaging the unborn child*,”¹³⁰ however, this statement is missing from the label of the same product sold in Punjab. Worryingly, the warning is also not given in the leaflet.



Picture 10: Extract from the Nativo 75WG label authorized for sale in the UK¹³¹

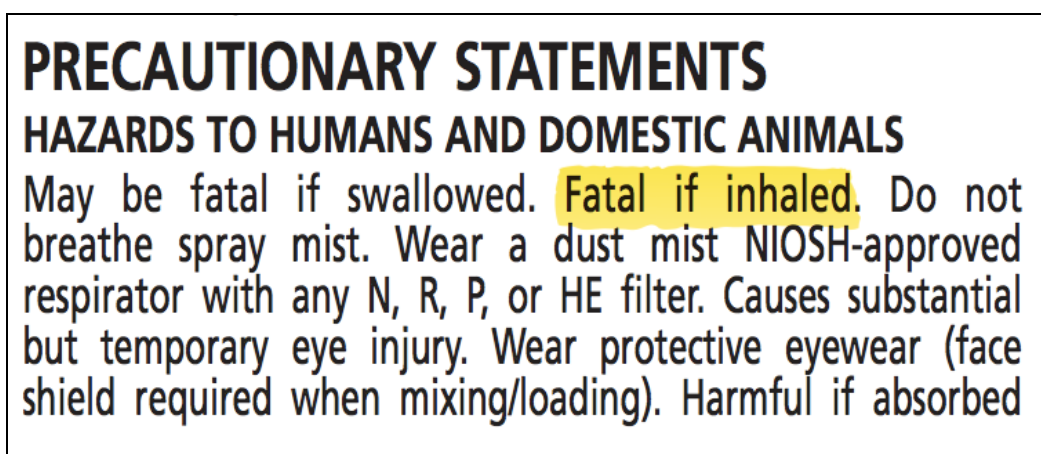
¹³⁰ Label, Bayer CropScience, Nativo 75WG, Bayer CropScience Limited, 230 Cambridge Science Park, Milton Road, Cambridge, Cambridgeshire CB4 0WB, 2015, available at <http://www.bayercropscience.co.uk/our-products/fungicides/nativo-75wg/> [last accessed 2 July 2015]. The Nativo label for the UK market has been designed in accordance with the classification system laid out in Regulation (EC) No 1272/2008 that regulates the pesticide market in the European Union. Though this Regulation is applicable to products marketed in the EU, there is nothing to suggest that the identical Nativo formula sold in the UK could cause more harm than the same product sold in Punjab and therefore the package in Punjab requires the same hazard phrases in order to ensure the user is adequately protected.

¹³¹ Extract from Label, Bayer CropScience, Nativo 75WG, Op Cit.



Picture 11: Photographs of Nativio 75WG package bought in Punjab, with no hazard phrase indicating possible damage to the unborn child

An analysis of the labels used in the US and India for Gramoxone (Syngenta), reveals the apparent omission of the hazard phrase: “*fatal if inhaled*” on the label of the product sold in India.¹³² The Guidelines for the Safe and Effective use of Crop Protection Products issued by CropLife International emphasize that users must be informed and trained to understand the potential hazards of products.¹³³ Again, this important information is not only missing from the label, but also not in the leaflet. The failure to include all relevant hazard phrases on product labels wherever they are sold means that some users may not know of all the risks associated with a formulation and use the product inappropriately.¹³⁴



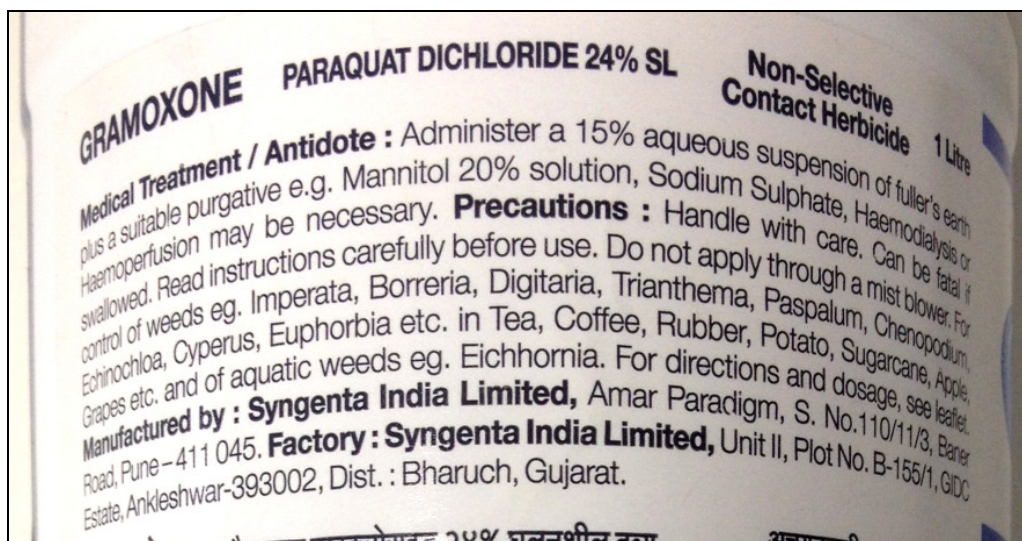
Picture 12: Excerpt from Gramoxone label authorised for sale in the USA¹³⁵

¹³² Label, Syngenta Crop Protection, Gramoxone SL, 2011 available at: <http://www.syngentacropprotection.com/labels/labelresult.aspx> [last accessed 10 July 2015].

¹³³ CropLife International, “Guidelines for the Safe and Effective Use of Crop Protection Products”, Op. Cit., p.38

¹³⁴ The concentration of Paraquat Dichloride of Gramoxone sold in the USA is 30.1% and the concentration of Paraquat in the Indian product is 24%, which may affect the hazardous effect.

¹³⁵ Extract from label, Syngenta Crop Protection, Gramoxone SL, 2011, Op Cit.



Picture 13: Photograph of hazard warning on Gramaxone label bought in India, without hazard phrase indicating that the product could be fatal if inhaled

The irregularity between the hazard phrases used on labels in India and other countries appears to go against the spirit of Art. 3.2 of the Code of Conduct, which explicitly requires that standards for manufacturing, advertisement, distribution and sale should be consistently followed across different regions, and particularly in countries that do not have adequate domestic regulatory schemes. The sections in the Code that emphasize the need for the sharing of accurate information to enable optimal and regular risk assessment reinforce this further.¹³⁶ The lack of warning for Nativo regarding suspected damage to the unborn child is also at odds with the Code of Conduct's concern to create equal standards for pesticides sold in different countries. For example, Art. 8.2.2 of the Code of Conduct obliges the pesticide industry to ensure that pesticides manufactured for export are subject to the same quality requirements and standards as those applied to comparable domestic products. This is especially relevant as Nativo 75WG is manufactured by Bayer CropScience AG in Germany, exported to India and repackaged by their subsidiary Bayer CropScience Ltd. According to the Code of Conduct even when a pesticide product is manufactured¹³⁷ or formulated by a subsidiary company, the pesticide industry has an obligation to ensure that their product meets appropriate quality requirements, and standards that are consistent with the requirements of the host country and of the parent company.¹³⁸ Therefore, regardless of the where Nativo 75WG or any other product is sold, in order to comply with the Code of Conduct, it is submitted that Bayer should ensure that the product meet the same safety requirements as established in Europe.

¹³⁶ For example, Arts. 4.1.3; 6.2.1; 6.2.2; 9.4.1 CoC.

¹³⁷ Under Indian law the manufacture, in relation to any insecticide, includes: "any process or part of a process for making, altering, finishing, packing labelling, breaking up or otherwise treating or adopting any insecticide with a view to its sale, distribution or use but does not include the packing or breaking up of any insecticide in the ordinary course of retail business", Insecticides Act, 1968, section 3j(i). Therefore, if the product was finished and labelled in India, the label should be consistent with the labelling requirements in Germany.

¹³⁸ Art. 8.2.3 CoC.

5.3 Lack of full information on proper disposal of empty containers

According to domestic law, it is the manufacturer's obligation to dispose of empty pesticide containers in a safe manner so as to prevent environmental or water pollution.¹³⁹ An RTI request submitted to the Ministry of Agriculture revealed that the Indian Government does not have an established disposal system and confirmed that it was the manufacturer's responsibility under Indian law. Moreover, the RTI request also revealed that the Central Insecticides Board has not issued any guidelines concerning the return of crop protection products.¹⁴⁰ In the absence of adequate national legislation, the Code of Conduct specifies that the pesticide industry must adhere to the Code and its accompanying guidelines¹⁴¹ and as a result Bayer CropScience and Syngenta AG have a duty to ensure that labels adhere to the FAO's recommendations.

The Code of Conduct clearly states that the pesticide industry should include on its labels a warning against the reuse of containers and instructions for decontamination and the safe disposal of used containers.¹⁴² The importance of such warnings is widely recognized. For example, the US-based Pesticide Stewardship Alliance, sponsored by Bayer and Syngenta, acknowledges that clear instructions for pesticide product disposal and container management should be included on labels.¹⁴³ In addition to the Code of Conduct, the FAO has developed the Guidelines on Management Options for Empty Pesticide Containers, (*hereafter* Guidelines for Empty Pesticide Containers), to address the specificities of this subject.¹⁴⁴

Failure to include suitable information on the decontamination and safe disposal of empty containers on the leaflet would also appear to violate both Art. 10.2.4 of the Code of Conduct as well as the Guidelines for Empty Pesticide Containers. The Guidelines stress that if a container is not properly rinsed it should remain classified as hazardous, and section 1.6.2 recommends cleaning a container before it is buried. Moreover, according to Section 1.6.1, burning of containers is prohibited and the Guidelines recommend that containers be destroyed in a high temperature incineration process.

¹³⁹ Insecticides Rules, 1971, section 44(1).

¹⁴⁰ Annex 5, "Right to Information Request I."

¹⁴¹ Art. 1.1 CoC. "The objectives of this Code are to establish voluntary standards of conduct for all public and private entities engaged in or associated with the management of pesticides, particularly where there is inadequate or no national legislation to regulate pesticides."

¹⁴² Art. 10.2.4 CoC.

¹⁴³ Pesticide Stewardship Alliance, "Pesticide Environmental Stewardship Program", 2009, available at <http://www.tpsalliance.org/PESP-strategy.html> [last accessed 2 July 2015].

¹⁴⁴ FAO, "Guidelines on Management Options for Empty Pesticide Containers", 2008.



Picture 14: Photograph of an empty pesticide container being burnt in a regular household fire where otherwise food is cooked.¹⁴⁵

Out of the 6 products analyzed, none included a warning against the re-use of empty containers and information on decontamination on the label. Moreover, the labels and leaflets of Nativo (Bayer), Matador (Syngenta) and Gramoxone (Syngenta)¹⁴⁶ lack proper information on cleaning used containers or specific explanations of safe incineration methods. In the case of Nativo (Bayer), for example, the information on the label and leaflet are inconsistent. While the label states: “*dispose of ... surplus material*”, the leaflet does not clarify that the correct mode of disposal is incineration through a high temperature process, which could lead to the instruction being misunderstood. Similarly, the leaflet for Matador (Syngenta) only advises users to “*dispose of ... surplus material*”, without further clarification that burning an empty container is only safe if it is done in a high temperature incineration process.

	Confidor Super/ Bayer	Nativo/ Bayer	Regent granules/ Bayer	Larvin/ Bayer	Gramoxone/ Syngenta	Matador/ Syngenta
Safe Disposal (Art. 10.2.4. CoC and Sec. 2.2.a Guidelines on Labeling and Sec. 1.6.2 Guidelines on Management Options for Empty Pesticide Containers, 2008)						
Warning against re-use and instructions for decontamination on label	No	No	No	No	No	No

¹⁴⁵ This image does not include a product from Syngenta or Bayer, but is an illustration of the hazardous manner in which empty containers can be disposed of in Punjab.

¹⁴⁶ The Matador leaflet does mention to “dispose of ... surplus material”, but it does not say that incineration should be done in a high temperature process.

Safe disposal of product and used container on the label	No	No	Yes	No	No	No
Safe disposal of product and used container in the leaflet	Incomplete	Incomplete	Incomplete ¹⁴⁷	Yes	Incomplete/ misleading	Incomplete

Table 9: Violations of the standards on safe disposal

It is also important to raise concerns regarding the grammar and wording of the instructions, which in some cases are so vague that users may possibly misunderstand how to safely dispose of empty containers. Moreover, due to the lack of suitably detailed instructions, farmers could easily misinterpret how to dispose of a container. For example, the recommendation on the Nativo (Bayer) label does not differentiate between normal burning and high temperature incineration, and may wrongly encourage farmers to burn the empty container. In addition, the inconsistency between English and Punjabi instructions in the leaflet raises serious concerns of whether Bayer has discharged its duty under the Code of Conduct and provided adequate instructions regarding disposal. The two passages from the Nativo leaflet concerning safe disposal are reproduced below:

English wording: “(1) Destroy empty containers far away from animal or human habitation and bury underground or burn in an incinerator.”

Punjabi wording: “(1) Break empty containers and bury away from habitation”

As is clearly demonstrated, there is no mention of incinerating the empty pesticide package in the Punjabi instructions, which could lead to the unsafe disposal of a pesticide container. Moreover, according to the Guidelines on Good Labelling Practice, all translations must convey the same meaning in each language.¹⁴⁸ In our view, the leaflet for Nativo is failing in this respect.

The farmers interviewed demonstrated a widespread lack of awareness of the risks of re-using bottles. Virtually all of those interviewed during the September 2014 and March 2015 survey said that they reuse empty pesticide bottles for further agricultural purposes. Many farmers also use the containers for various household purposes, including as drinking containers for the family including children,¹⁴⁹ to hold water for bathing and to wash intimate body parts after defecation and urination. Discarded pesticide bottles are a common sight in Punjabi fields, as is the sight of used packages being burnt in the household stove where cooking takes place. This

¹⁴⁷ The leaflet for Regent states that “1. It shall be the duty of manufacturers, formulators and operator to dispose packages or surplus materials and washings from the machine and container shall be disposed off in a safe manner so as to prevent environmental and water pollution. 2. The used packages shall not be left outside to prevent their re-use. 3. Packages shall be broken and buried away from habitation.” It is not clear what exactly the duty of manufacturers and formulators is. It does not say that incineration should be done in a high temperature process.

¹⁴⁸ Good Labelling Practices, § 3.1.5.

¹⁴⁹ For example, interviews with Farmers 22, 23 and 24; 13 March (AM); Kotkapura.

demonstrates the risk that the information provided on the labels and the leaflets do not convey the dangers of empty pesticide containers.

The information on safe disposal provided in the leaflet does in our view violate the Code of Conduct and the Guidelines on Management Options for Empty Pesticide Containers, and does not provide all necessary information for users to dispose of empty containers safely.

6. Lack of conformity with Indian legislation on labeling

According to the Guidelines on Good Labelling Practice, conformity is a further principle that determines the suitability of each and every label.¹⁵⁰ Conformity can be achieved by following existing regulations and guidelines, both national and regional/international. Any pesticide must be labeled in accordance with national labeling requirements or, in the absence of detailed national standards,¹⁵¹ with the GHS,¹⁵² the Code of Conduct and the Guidelines on Good Labelling Practice.

The survey shows, however, that the examined pesticides do not comply with this principle of conformity. Not only do the labels in our opinion fail to comply with the International Code of Conduct and Guidelines on Good Labeling Practice, they also fail to satisfy the requirements of the Indian Insecticides Act (1968) and Insecticides Rules (1971). Art. 7.4 of the Code requires the pesticide industry to ensure that all pesticides should be labeled in accordance with “appropriate national or regional regulations.” The Indian legislation recognizes the severity of mislabeling as it makes it a criminal offence to import, manufacture, sell, stock or exhibit for sale or distribute any insecticide deemed to be misbranded under section 3(k)(i)(iii)(viii).¹⁵³ A pesticide will be deemed misbranded “if its label does not contain a warning or caution which may be necessary and sufficient, if complied with to prevent risk to human beings or animals.”¹⁵⁴ Section 18(1) of the Insecticides Rules specifies the required instructions on a label, which should include “particulars regarding chemicals harmful to human beings, animals and wild life, warning and cautionary statements including the symptoms of poisoning suitable and adequate safety measures and emergency first-aid treatment where necessary.”¹⁵⁵ In addition, the label needs to include “instructions concerning the decontamination or safe disposal of used containers.”¹⁵⁶ From the above analysis of the incomplete instructions on the labels of the examined pesticides, we consider that the Indian regulation is not adhered to. One example for this type of misbranding seems to be the omission of the phrase “*suspected of damaging the unborn child*” used on the label of Bayer’s pesticide Nativo in the United Kingdom but not in India.

¹⁵⁰ Guidelines on Good Labelling Practice, § 1.4.

¹⁵¹ See Art. 1.1 CoC.

¹⁵² UN, “Globally Harmonised System for the Classification and Labelling of Chemicals (GHS)”, 2011, 4th revised edn.

¹⁵³ Insecticides Act, 1968, section 29(1)(a).

¹⁵⁴ Ibid., section 3(k)(iii).

¹⁵⁵ Insecticides Rules, 1971, section 18(1)(b).

¹⁵⁶ Insecticides Rules, section 18(1)(d).

Such regulation is to be adhered to even if the government fails to strictly enforce it. Art. 12.3 of the Code of Conduct makes it explicit that the pesticides industry should adhere to the Code even if governments do not observe it. A violation of the Code of Conduct can thus never be justified by pointing to the Indian government's lack of capacity to regulate the distribution and management of pesticides.¹⁵⁷ The Guidelines on Good Labelling Practices acknowledge that the requirements regarding the wording of a label formulated by regulatory authorities do not necessarily reflect the end-user's need for clear and complete labels in conformity and consistence with the Code of Conduct.¹⁵⁸ It is therefore important to emphasize that while the approval of the product label is a decisive part of the registering of a pesticide product, companies cannot use the Indian Central Insecticides Registration Board approval process to avoid their own responsibility.¹⁵⁹

From the above analysis of the information on the labels of the selected pesticides, it appears that a number of the labels and leaflets may not be compliant with all the Indian regulations. One such example is the absence of information relating safety precautions or safe disposal on leaflets, as required under section 18(1) of the Insecticides Rules. These Rules specify the required instructions on a label and the leaflet, stating that the leaflet should include "particulars regarding chemicals harmful to human beings, animals and wild life, warning and cautionary statements including the symptoms of poisoning suitable and adequate safety measures and emergency first-aid treatment where necessary."¹⁶⁰ In addition, the leaflet needs to include "instructions concerning the decontamination or safe disposal of used containers."¹⁶¹

7. Lack of clarity of the labels

According to the Guidelines on Good Labelling Practice for Pesticides, clarity is a further principle that determines the suitability of each and every label.¹⁶² Clarity is achieved by avoiding complex or excessively technical explanations and by using a clear layout with a prominent display of key words, phrases and symbols, and pictograms. Thus it is important to attract the user's attention, to tell the user what he or she needs to know in brief and precise terms, to use familiar expressions and symbols and avoid ambiguous statements.¹⁶³ The Guidelines clearly state that the user "must be able to read and understand the label."¹⁶⁴

The requirement of clarity presents one overarching principle and determines one general objective of the Code of Conduct in relation to labels. According to the organizations submitting this report, the principle of clarity must act as a benchmark for the assessment of the adequacy of various detailed requirements in the Guidelines. For example, although the recommendations on font size, pictograms and color codes underwent various trials by different public and private institutions among multiple test-persons and are therefore presented as the

¹⁵⁷ In this regard, see also Art. 3.2 CoC.

¹⁵⁸ Guidelines on Good Labelling Practices, § 1.4.

¹⁵⁹ Insecticides Act available at http://cibrc.nic.in/insecticides_act.htm [last accessed 2 July 2015].

¹⁶⁰ Insecticides Rules, section 18(1)(b).

¹⁶¹ Insecticides Rules, section 18(1)(d).

¹⁶² Guidelines on Good Labelling Practice, §1.4.

¹⁶³ Ibid.

¹⁶⁴ Ibid.

adequate global standard to be applied by the pesticides industry¹⁶⁵, the present report highlights the fact that many of the interviewees were unable to understand the color codes and pictograms

The survey thus indicates that in practice some of Bayer CropScience and Syngenta's labels are not clear at all. Of the interviewed farmers several had never read an instruction leaflet and several others were illiterate. All farmers had enormous trouble reading the small font of the label of the Confidor (Bayer) bottle. Those farmers who were only able to read Punjabi were lost without any information for all those labels that only information in Hindi or English. Few of the farmers understood the logic of the diamond color code and even of the few that understood the system, hardly anyone got all of the colors in the right order. Similarly, very few understood all of the pictograms. Worryingly, even two of the dealers (of Syngenta and Bayer) and one sales representative (of Bayer) were not able to get the colors in the right order.

The information that the labels intend to convey, may thus be lost on a large percentage of its actual users. Companies are aware of this lack of clarity of labels due to regular field visits by their local and regional staff. The survey did not, however, reveal any attempts by the company staff to address the lack of understanding by making sure that personal protective equipment is worn and training is adequate. It is only as of 2015 that the new Guidelines on Good Labelling Practice introduce the new principle of comprehensiveness. This principle suggests that training and information should be provided to explain what pictograms and color codes mean as well as how to read a label. In addition, the new Guidelines suggest to conduct user surveys which may result in label improvements.¹⁶⁶ It seems that pesticides companies have to go a long way in order to adapt to this principle which is the applicable standard from now on.

The subsequent section sheds light on the possible inadequacy of the pictograms and the diamond color code due to their lack of clarity.

7.1 Lack of understanding of the diamond color code

According to the 2011 census, the literacy rate in Punjab is 75%, male literacy being 80.23% and female literacy 68.36%.¹⁶⁷ However among the rural/agricultural population this is likely to be lower. For example, the census found that in the districts of Bhatinda, the male rural literacy rate was 69.44%, compared with 85.78% in urban areas.¹⁶⁸ The low level of literacy in the region indicates the importance of the international color code for hazards and pictograms to provide safety warnings and recommendations for protective equipment. The survey confirmed that illiteracy is a real problem. At least 4 of the people taking part in the survey were illiterate. Therefore they were not able to understand the written instructions on the labels of the pesticides bottles or the instruction leaflet and had to rely on the color code and the pictograms

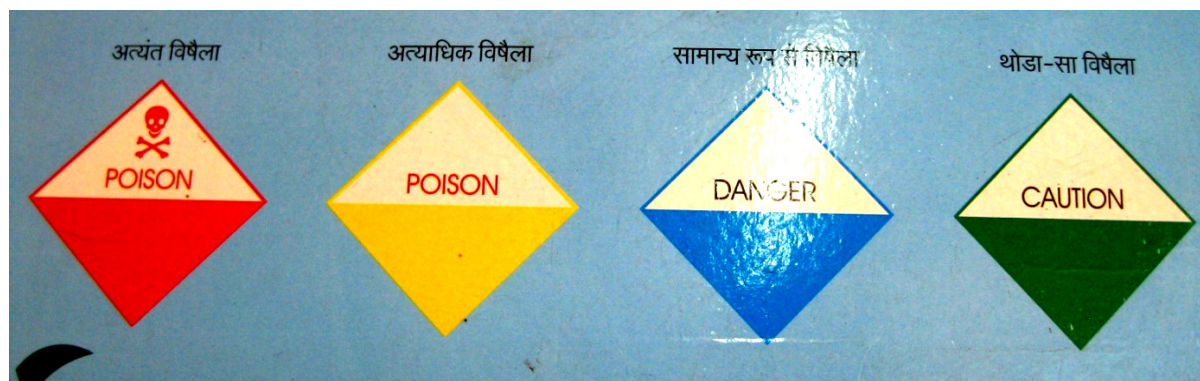
¹⁶⁵ See Introduction to Guidelines on Good Labeling Practices for Pesticides (2015), p. 1 including references.

¹⁶⁶ Guidelines on Good Labelling Practice, August 2015, §1.7.

¹⁶⁷ Census India, "Punjab Population Data at a Glance: 2011", available at http://www.censusindia.gov.in/2011-prov-results/data_files/punjab/Provisional%20Populatin%20Result%20Punjab1.pdf [last accessed 2 July 2015].

¹⁶⁸ Census India, "Census of India 2011: Rural – Urban Population", 2011, available at www.censusindia.gov.in/2011-prov-results/data_files/punjab/Provisional%20Populatin%20Result%20Punjab1.pdf [last accessed 2 July].

to understand the toxicity of the particular pesticides and the specific use recommendations. The survey indicates, thus, that the color code and the pictograms, presented as the adequate international standard for the pesticides industry, in large part do not fulfill the role ascribed to them. This increases the importance of other aspects of pesticides management such as adequate training and the provision of personal protective equipment.



Picture 15: Explanation of the color code, picture taken in the shop of a distributor for Syngenta and Bayer in Bathinda, September 2014 in Punjab.

All the interviewees were asked about their understanding of the diamond shaped color codes – beginning with the most dangerous: red, yellow, blue and green. **Out of 32 farmers interviewed in March 2015, only 9 could understand the meaning of at least two of the colors and the logic that the system represents the order of toxicity** (5 did not answer). Among all farmers interviewed both in September and in March, just a handful knew exactly what the different codes meant, while many did not understand the correct degree of toxicity and a significant and worrying number gave creative but wholly inaccurate interpretations of what the colors could mean.¹⁶⁹ Farmers confused the degree of toxicity attached to the colors and sometimes completely misunderstood their informational value by explaining that yellow means that you should spray the pesticides and blue means it has to be applied in water.¹⁷⁰ One farmer thought that the yellow color meant that the pesticide belonged to a genuine or good company.¹⁷¹ Other interpretations of the meaning of color codes were that “*Yellow is the most dangerous, it works from outside. Red works from inside*” and “*green signifies increasing the yield.*”¹⁷²

When the packet of Nativo (Bayer) was shown to the interviewees pictured below and they were asked what they understood by the color code, the interviewee on the left offered explanations that cause considerable concern.

¹⁶⁹ For example, “I have not taken any training for this but as per my mind green one is not good, it is more bad, yellow one is less bad, blue one is also less bad”, Interview with Farmer 2; 12 March 2015 (PM); Guru Gutav.

¹⁷⁰ Interview with Second Focus Group; 26 September 2014; Bathinda.

¹⁷¹ Interview with Farmer 5; 14 March 2015 (PM); Bhotna.

¹⁷² Interview with Farmer 4; 14 March 2015 (PM); Bhotna.



Picture 16: Two farmers studying the label of Nativo (Bayer)

Interviewer: *What color is this?*

Farmer 28 (standing on the left in Picture 16 on this page): *Yellow*

Interviewer: *What does it does it indicate?*

Farmer 28: *It means it kills everything*

Interviewer: *And this blue sign?*

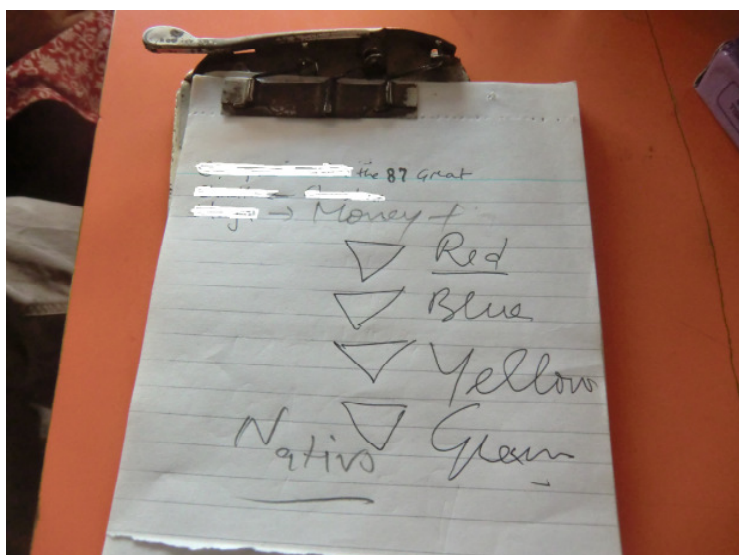
Farmer 28: *It makes insects blue*

Interviewer: *What does this green color mean?*

Farmer 28: *It means you are supposed to spray it on green crops. It is for weeds.*¹⁷³

The responses that were provided by the interviewees when they were asked about their comprehension of the color code indicate that they often have no idea what the real meaning of the color codes is. In our view this shows that the warning system is unclear and therefore ineffective. Equally shocking is that more than one dealer was not able to put the color codes in the correct order according to the degree of danger, including a Syngenta dealer, a Syngenta and Bayer distributor, and a Bayer sales representative.

¹⁷³ Interview with Farmer 28; 13 March 2015 (PM); Baja Khana.



Picture 17: Drawing by Bayer dealer on his (mistaken) understanding

achieved by using the color codes in their present form.

This indicates that the color code is not an appropriate system for communicating the toxicity of pesticides and does not comply with the Guideline's clarity requirement.¹⁷⁴ The reliance on this misunderstood system of symbols would seem to be in contradiction to what is required by Art. 3.5.3 of the Code of Conduct which emphasizes that the choice of labeling should be informed by the concern to minimize risks to users, the public and the environment. We consider that this goal is not

7.2 Lack of understanding of various pictograms

The interviews conducted also indicated a significant and worrying lack of understanding in relation to the pictograms on the labels. Only some farmers understood some of the pictograms, such as the ones indicating the need to wear gloves and boots. As a principal source of confusion, none of the interviewed farmers understood the logic that some pictograms refer to precautions to be taken while spraying whereas other pictograms refer to mixing. This made the pictograms on, for example, the Gramoxone (Syngenta) bottle confusing for many of the farmers.

Several pictograms in particular caused significant problems: least understood were the warning to lock the pesticide away from children and the warning that a pesticide is particularly toxic to aquatic organisms. **Out of the 32 farmers interviewed, 20 said that they did not understand all of the pictograms.** In some cases they gave creative but wholly inaccurate interpretations; one interviewee thought that one of the pictograms signified an umbrella.¹⁷⁵ Pictograms of this type do not have any added value and in our opinion fail to meet the stated principle of clarity as well as section 1.4 of the Guidelines on Good Labelling Practice that requires that the user understand the label.¹⁷⁶



Picture 18: Example of pictograms on a pesticides bottle, Matador (Syngenta)

The limited survey thus indicates that the intended messages were not always sufficiently conveyed through the pictograms. The submitting organizations therefore consider that the pictograms fail to serve their purpose as per§ 3.4.1 of the Guidelines on Good Labelling Practice, which defines a pictogram as a symbol that conveys a message without the use of words. Even a Syngenta dealer was not able to correctly explain the meaning of five of the pictograms of the Gramoxone (Syngenta) label. Specifically, the dealer did not understand the two pictograms indicating “when mixing...; when spraying, ...” He also did not understand the pictogram “lock away from children.”¹⁷⁷

Clarity of the diamond color code and the pictograms	Farmers (n = 32)			Dealers, distributors, sales representatives (n = 8) ¹⁷⁸		
	Yes	No	No answer	Yes	No	No answer
Do you understand the color code at all? (i.e. Do you understand the meaning of at least two of the colors, and the <u>logic</u> that it represents the order of toxicity?)	9	18	5	2	4	2
Do you understand <u>all of the</u> pictograms?	4	20	8	1	2	5

Table 10: Answers of interviewees on clarity of the diamond color code and the pictograms

A supplementary information card on pictograms such as recommended in the Guidelines on Good Labelling Practice as of August 2015¹⁷⁹ offers a possibility to overcome the lack of understanding observed among the interviewed farmers in the context of Punjab. However, in several cases Bayer CropScience and Syngenta could not guarantee that leaflets reach the end-user of the product. Therefore, the submitting organisations caution against putting too much emphasis on this supplementary means of information as long as its automatic transmission to pesticides users is not achieved in practice.

¹⁷⁷ Interview with Syngenta Dealer; 11 March 2015; Bhatinda.

¹⁷⁸ Six of these sold Bayer and/or Syngenta products.

¹⁷⁹ Guidelines on Good Labelling Practice, Annex 5.

Part II – Personal Protective Equipment and Training

Violations of the International Code of Conduct by Bayer CropScience and Syngenta

We use oil because the insecticides react with the skin. We apply oil before it burns or rather we take some tablet from the medical. But we have to take avil 25 [medication] before we spray, then we feel it less.

46 year old male farmer with 20 acres in the Malwa region¹⁸⁰

1. Introduction

Part II of the Ad Hoc Monitoring Report addresses the alleged non-adherence of the pesticide industry to the FAO Code of Conduct on Pesticide Management and the FAO Guidelines for Personal Protection when using Pesticides in Tropical Climates (*hereinafter* Guidelines for Personal Protection) with regards to the promotion, the availability and use of personal protective equipment (*hereinafter* PPE) and training to farmers in Punjab.

According to the Code of Conduct, personal protective equipment is defined as “any clothes, materials or devices that provide protection from pesticide exposure during handling and application”.¹⁸¹ The importance of PPE is acknowledged in the Code of Conduct in Articles 3.11, 3.6 and 5.3.1 (See Text Box 2 on page 56). The Code of Conduct relies on the FAO Guidelines for Personal Protection when using Pesticides in Tropical Climates for more detailed guidance on this issue. According to the Guidelines for Personal Protection, “wherever and whenever pesticides are applied in agriculture there is the need to make sure that the applicator is able to protect himself adequately against contamination”.¹⁸² Appropriate PPE is important because it helps the user limit contact with hazardous substances, and the accompanying risks to the user’s health as a result of dermal, oral and respiratory exposure to pesticides.

The high consumption of pesticides in Punjab, as outlined in the introduction of this report, indicates a substantial need for PPE and training on safety measures. The conditions of use in Punjab, including climate, literacy rates, the economic situation and limited access to quality health care, further exacerbate existing risks, and therefore increase the need for safe practices. These conditions are further expanded on below. Moreover, some of the labels analyzed, based on the findings of Part. I of this report appear to be in violation of the Code of Conduct and some of the provisions for appropriate pictograms and hazard warnings in the Guidelines on Good Labeling Practice contradict its own principle of clarity. Thus implementation of safe practices through training and provision of personal protective equipment must be considered imperative to reduce risks to human health and the environment.

¹⁸⁰ Interview with farmer 4; 14 March 2015 (PM); Bhotna.

¹⁸¹ Article 1.6, CoC.

¹⁸² FAO, “Guidelines for Personal Protection when using Pesticides in Tropical Climates”, 1990, p. 1 (*hereinafter* Guidelines for Personal Protection).

The Guidelines for Personal Protection outline the added risks of using pesticides in tropical climates. High temperatures and humidity mean that wearing the appropriate PPE “may cause severe discomfort and even physical distress due to heat stress if they are made of inappropriate materials. Alternatively, because of the discomfort, operators may dispense with protective apparel and become subject to greater exposure and possible contamination.”¹⁸³ Interviews with farmers in Punjab conducted for this Monitoring Report indicated that many users did indeed find that climatic factors influenced their choice of work clothing and whether they would wear PPE, if they had access to it.

The Guidelines for Personal Protection outline several Principles of Personal Protection that should always be followed when applying pesticides. The first of these is to “always read and follow the label recommendations.”¹⁸⁴ The relatively low levels of literacy in Punjab and shortcomings regarding good labeling practice indicated in Part I explain why many farmers are not able to abide by this first principle. The second principle is to make every effort to avoid contamination of the skin, nose, mouth or eyes with any pesticide product.¹⁸⁵ The survey indicated that farmers were generally not sufficiently aware of the potentially long-term adverse effects of exposure and the need for caution when handling the pesticides, thus limiting adherence to this principle also. Moreover, due to the difficult economic situation of many farmers,

equipment may often be of a lower quality, be less frequently serviced and/or repaired in a makeshift manner. This may expose users to a higher risk of leakage or spills from clogged or



Picture 19: Poorly maintained, low-quality or otherwise faulty equipment exposes users to a greater risk of dermal contact. Lack of access to gloves exacerbates this contamination risk.

¹⁸³ Guidelines for Personal Protection, p.5.

¹⁸⁴ P. 3, *Ibid.*

¹⁸⁵ P. 4, *Ibid.*

otherwise faulty equipment (see Picture 1).¹⁸⁶ It appears that most farmers in Punjab apply pesticides using knapsack sprayers,¹⁸⁷ which expose the user to a greater degree than, for example, tractor cabs, which are more prevalent in developed countries.

1.1 “Safe use”

In recognition of the potentially severe consequences of exposure to pesticides, Art. 5.2.5 of the Code of Conduct requires that the pesticide industry halt the sale of pesticides if directions for use or restrictions fail to adequately protect users. In addition, Art. 7.5 requires highly hazardous pesticides to be prohibited if risk mitigation measures and good marketing practices are insufficient to ensure that the product can be handled without unacceptable risk to humans and the environment. The Code of Conduct and the supporting guidelines provide some guidance on the content of use directions, risk mitigation measures and good marketing practices necessary to protect users.

In turn, the pesticide industry has developed the concept of “safe use”: which stands for the belief that pesticides are “safe” when certain precautions for their use are met. These precautions include, following directions on the labels, wearing appropriate PPE, careful storage, responsible disposal, and following good agricultural practices for mixing, loading and application.¹⁸⁸ However, even if companies were to give full effect to their commitments to promote training and PPE, in our view “safe use” would still not be guaranteed for the farmer, their family, the community or the environment, for it seems to rely on several assumptions and it is difficult to ensure that these assumptions are valid.¹⁸⁹

First, “safe use” guidelines seem to assume that users have access to information, whether through labels and/or training. Second, they apparently assume that the retailers, through whom most users obtain their safety information, are also adequately trained. Third, they assume that farmers are able to put into practice such “safe use” measures, which necessitates access, resources, literacy and other factors that are unlikely to be present in every situation. However, even if PPE were available for purchase in Punjab, farmers might find the cost of such equipment prohibitive.¹⁹⁰ Further, even if every user had the appropriate PPE, some may choose not to use it due to discomfort, particularly in the hot and humid climate of Punjab.¹⁹¹ Lastly,

¹⁸⁶ CropLife Guidelines for the Safe and Effective Use of Crop Protection Products p. 33-35, 41.

¹⁸⁷ All of our interviewees, except one, used knapsack sprayers. This is also the main form of equipment sold in all the markets we visited.

¹⁸⁸ Guidelines for the Safe and Effective Use of Crop Protection Products, CropLife International.

¹⁸⁹ Pesticides Action Network International, “Eliminating Hazardous Pesticides: advancing agroecology for harm prevention”, September 2012.

¹⁹⁰ Several of the respondents in our survey said that they would not purchase PPE if it was costly, and they believed it should be available free of charge. The Berne Declaration documented similar views on PPE costs in their September 2007 Ad-Hoc Monitoring Report entitled “Pesticide users at risk.”

¹⁹¹ A Government of Punjab website describes Punjab’s climate as “tropical, semi arid, hot and subtropical monsoon.” The hot summer from April to June is “dry and uncomfortable” with a maximum mean temperature of 41C, and from July to September the weather is humid, averaging about 73% humidity. The website can be accessed at punjabrevenue.nic.in/for_website/Climate_of_Punjab.htm. Many of our interviewees expressed

even if farmers bought and used it, its effectiveness in reducing exposure would be limited depending on the quality, the material, and its maintenance.¹⁹² It is particularly important that all of this is considered within the context of rural Punjab where the capacity of the medical system to deal with health effects may be limited, compared to more developed countries where such products are sold.¹⁹³

All of the pesticides examined in this report are considered moderately or highly hazardous, which means that “safe use” does not protect the user from all danger.¹⁹⁴ In our view it is unlikely that users will be able to completely avoid exposure to pesticides that they work with. Recent research has demonstrated that many of the acute and chronic health effects of pesticide exposure can be triggered even at low doses, especially if this low exposure is long-term.¹⁹⁵

While thus rejecting the concept of “safe use”, this Ad Hoc Monitoring Report uses the term “safe use,” as laid out in CropLife International’s Guidelines for the Safe and Effective Use of Crop Protection Products, to highlight that the companies do not even seem to adhere to their own commitments on “safe use” and the industry’s interpretation of the International Code of Conduct and FAO Guidelines.

1.2 Personal Protective Equipment in the Guidelines

The most likely forms of exposure to pesticides during use are through dermal and, to a lesser extent, inhalation, exposure.¹⁹⁶ Dermal exposure occurs through direct contact with the skin, for example by spillage during mixing or pouring or contamination of skin or clothing during spraying. Inhalation exposure can occur when application results in airborne liquid or solid particles that are fine enough that they may be inhaled through the nose or mouth.¹⁹⁷ Appropriate PPE is necessary to protect the user from these risks.

unwillingness to wear PPE like long heavy garments and gloves due to concerns over the likely discomfort, especially in the hot and humid monsoon season when pesticide spraying is at its heaviest.

¹⁹² P. 5-6 of the Guidelines on Personal Protection outline the importance of quality, material selection and maintenance on the efficacy of PPE.

¹⁹³ Savvy Soumya Misra, “Healthcare in Malwa in Shambles”, Down to Earth, Nov 15, 2007.

¹⁹⁴ See Table 2 in the Introduction to this Monitoring Report.

¹⁹⁵ Laura N. Vandenberg, et. al, “Hormones and Endocrine-Disrupting Chemicals: Low-Dose Effects and Nonmonotonic Dose Responses,” Endocrine Reviews, 2012 33:3, 378-455. See also <http://www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/code/hhp/en/>.

¹⁹⁶ P. 2, Guidelines for Personal Protection.

¹⁹⁷ Ibid.

According to the Guidelines for Personal Protection the minimum requirements for all types of pesticide application are long-sleeved clothing that covers the arms and legs, boots or covered shoes, and if spraying high crops, a hat (see Picture 2). Shorts and short-sleeved shirts are not considered adequate protection.¹⁹⁸ During mixing and loading of pesticides gloves and eye protection, either tight-fitting goggles or face shields, **must** be worn.¹⁹⁹ Depending on the product and application method, gloves and eye protection may often also be necessary during application. For example, gloves are absolutely necessary during any application of granules,²⁰⁰ such as the product Regent (Bayer) analyzed in this report. Finally, impermeable aprons and filters or respiratory masks can also be important for limiting risk.²⁰¹



Picture 20: Various farmers in the Malwa region mixing and loading pesticides without gloves or eye protection.

¹⁹⁸ P. 6, Guidelines for Personal Protection.

¹⁹⁹ P. 26, Guidelines for the Safe and Effective Use of Crop Protection Products.

²⁰⁰ On p.23 of CropLife International's edition of the Guidelines for Personal Protection (October 2004), this sentence is included, "[Gloves] must be worn when applying dusts or granules by hand." This precaution is not included in the FAO Guidelines for Personal Protection (1990), however.

²⁰¹ P. 12-15, Guidelines for Personal Protection.

The Guidelines for Personal Protection also discuss the suitability of different kinds of materials for PPE to be made out of.²⁰² They state that to protect against pesticide penetration, “it is recommended that the material should be as thick or as heavy as can be worn with comfort during work.”²⁰³ This can be contrasted with the clothing worn by farmers observed in this survey which usually consisted of thin, short-sleeved cotton garments to ensure the user stays cool and dries quickly.²⁰⁴

1.3 Apparent violations of the Code of Conduct by Bayer CropScience and Syngenta

It is thus evident that access to PPE, training, and users’ awareness of their importance, are all necessary.

The responses of users and company representatives²⁰⁵ interviewed for this Monitoring Report were analyzed in comparison to the standards provided in the

Articles in the Code of Conduct on PPE and training that appear to have been violated by Bayer CropScience and Syngenta

Article 1.6 The Code recognizes that relevant training at all appropriate levels is an essential requirement in implementing and observing its provisions. Therefore, entities addressed by the Code should give high priority to relevant training and capacity building activities related to each Article of the Code.

Article 3.6 Pesticides whose handling and application require the use of personal protective equipment that is uncomfortable, expensive or not readily available should be avoided, especially in the case of small-scale users in tropical climates. Preference should be given to pesticides that require inexpensive personal protective and application equipment and to procedures appropriate to the conditions under which the pesticides are to be handled and used.

Article 3.11 Governments, pesticide industry and the application equipment industry should develop and promote the use of pesticide application methods and equipment that minimize the risks from pesticides to human and animal health and/or the environment and that optimize efficiency and cost-effectiveness, and should conduct periodic practical training in such activities.

Article 5.3.1 [Government and industry should cooperate in further reducing risks by:] promoting the use of personal protective equipment which is suitable for the tasks to be carried out, appropriate to the prevailing climatic conditions and affordable.

Article 8.2.7 [Pesticide industry should] ensure that persons involved in the sale of pesticides are trained adequately, hold appropriate government permits or licences (where they exist) and have access to sufficient information, such as safety data sheets, so that they are capable of providing buyers with advice on risk reduction as well as judicious and efficient use;

Text Box 2: Articles in the Code of Conduct on PPE and training that appear to have been violated by Bayer CropScience and Syngenta

Code of Conduct and the Guidelines on Personal Protection.

²⁰² The recommendation in the Guidelines for Personal Protection of heavy cotton for PPE is arguably problematic given its absorbent qualities. Once soaked, heavy cotton will stay wet for many hours, extending the extent of exposure

²⁰³ P. 5, Guidelines for Personal Protection.

²⁰⁴ The usual garment worn by Punjabi farmers and agricultural laborers is made out of thin cotton that soaks through easily but dries quickly, compared to heavier cottons (such as canvas or denim) that may provide more initial protection but then once soaked, take a long time to dry. See Picture 3.

²⁰⁵ The term “company representatives” includes company dealers, distributors and sales representatives as listed in Annexure 3.

Industry and Governments should cooperate in promoting the use of personal protective equipment suitable to the tasks carried out and appropriate in the prevailing climatic conditions.²⁰⁶ In addition the Code of Conduct calls on the industry to periodically review their practice and determine whether changes are required.²⁰⁷ The Code of Conduct adds that pesticides, whose handling and application require the use of personal protective equipment that is uncomfortable, expensive or not readily available, should be avoided, especially in the case of small-scale users and farm workers in hot climates.²⁰⁸

The interviews with farmers, dealers and sales representatives provided strong indications of several serious violations of the obligations of the Code of Conduct and Guidelines for Personal Protection referred to above. The survey in this report strongly suggests that currently most farmers do not even have access to PPE, and thus hardly ever wear it, and are consequently not protected at all. Based on indications that company staff regularly visits the area and witness farmers conducting pesticide application, we are also of the opinion that the companies knowingly continue to sell moderately or highly hazardous products under conditions of use that would be considered unsafe by their own standards as well as the Code of Conduct.

The current situation regarding use and access of PPE and training thus appears to violate Articles 1.6, 3.6, 3.11, 5.3.1 and 8.2.7 of the Code of Conduct (see Text Box 2). The following aspects deserve the utmost attention of all the stakeholders of the Code of Conduct including the JMPM:

- No promotion of personal protective equipment among farmers and retailers
- Lack of access to PPE in local markets
- The PPE that is at times available is of the poorest quality
- Dealers and distributors do not provide information to the farmers on PPE
- No adequate training neither for farmers nor for dealers and distributors

The subsequent sections deal with these issues in more detail beginning with the lack of promotion efforts for personal protective equipment and followed by a separate section on making adequate training a priority in the business activities of the companies.

²⁰⁶ Art. 5.3.1 CoC.

²⁰⁷ Art. 1.7.5, Art. 3.5.6 and Art. 4.5, CoC. In addition, Art. 5.2.5, CoC calls upon companies to halt sale and recall a product if the company is unable to guarantee its handling or use without unacceptable risk under any use directions or restrictions and notify the government.

²⁰⁸ Art. 3.6. CoC.

2. No promotion of adequate personal protective equipment

2.1 No promotion efforts in general

Most significantly, the survey showed that the majority of pesticide sprayers do not use any form of PPE. This indicates that the pesticides industry may not be adhering to its obligation under the Code of Conduct to develop and promote the use of PPE, or that the impact of these programs is severely limited. **Of the 32 users interviewed in March 2015 only one farmer and his assistant said that they use the complete, necessary PPE.**²⁰⁹ The farmer in question owned 28 acres, and leased another 28. He was one of the wealthiest and most educated farmers interviewed during the course of the survey. He was also unusual in Punjab, as he applies pesticides using a relatively expensive drum applicator that requires 4 people to operate, as opposed to the usual knapsack operators that most use.²¹⁰ For these reasons, it is apparent that the farmer in question, and his laborers, was relatively exceptional by Punjabi standards.



Wear clothing to cover as much of the body as possible

Picture 21: Picture from p. 20 of CropLife's Guidelines for Personal Protection illustrating appropriate PPE.

²⁰⁹ During our focus groups in September with 12 farmers, none of them used complete PPE.

²¹⁰ Interview with Farmer 7; 15 March 2015 (AM); Chungan Kothe. The farmer in question purchased this equipment in a shop outside Bathinda, the largest city in the region. He said that such equipment is not available in Barnala (the closest town to him, and where he usually purchases his pesticides).



Picture 22: Farmers wearing short-sleeved and thin cotton garments spraying pesticides in a wheat field in the Malwa Region. They have no eye protection or gloves. They also are spraying in different directions, which appears hazardous to the person spraying at the back.

The Guidelines for Personal Protection require at the very minimum that long-sleeved clothing and boots are worn during any kind of pesticide application. While many interviewed farmers and farmworkers in Punjab may wear a long sleeved tunic and loose-fitting pajama trousers while doing farm work, such garments are usually made of lightweight cotton to keep the wearer cool in hot, humid weather (For example, see Picture 22). This provides little help in preventing dermal contact with pesticides. Some others may wear shorts, short-sleeved shirts and/or vests during agricultural labor, especially during the rice season, as wearing long-sleeved garments is cumbersome when wading through paddy fields. The clothes worn during pesticide application are “usual clothes” that after being washed are also worn at home or while doing other chores.²¹¹ Both distributors and users acknowledged that it is common practice for users to rub mustard oil over their skin as a substitute for PPE to protect their skin from contact with pesticides.



Picture 23: Farmers in the Malwa Region using old sacks to protect their body and turbans across their face as make-shift PPE. Their bare feet are also clearly visible.

Only 3 out of the 32 users said that they wear any kind of covered shoe during pesticide application (1 interviewee did not answer this question), and none of them wore boots similar to those prescribed by the Guidelines for Personal Protection. Most of the interviewed farmers

²¹¹ Focus group; 14 March 2015 (PM); Bhotna.

are usually barefoot during application. The only users who said that they ever wear gloves during pesticide application were the abovementioned farmer and his laborer.²¹² This is despite the fact that many users reported using Regent (Bayer), which requires spreading the granules by hand; a process that must be done with gloves according to the Guidelines for Personal Protection.²¹³



Picture 24: Farmer in Malwa region spraying pesticides, using his turban to protect himself from inhalation exposure, and an old sack as makeshift PPE

While no farmer in the survey used any kind of mask or eye protection, some farmers did try to protect themselves from inhalation exposure by using a scarf or end of a turban to cover their mouth and nose whilst spraying (See Pictures 23 and 24). Some farmers also try to fabricate some makeshift PPE by using old sacks (See Picture 23). This shows that farmers recognize the need for protection but do not have access to it.

All of the Bayer and Syngenta distributors and dealers interviewed acknowledged the failure of users to wear the complete necessary PPE. One distributor estimated that less than 2% of users in Punjab use any kind of PPE.²¹⁴ While this may not be an accurate estimate, it does show that it is common knowledge that PPE is hardly used.

In our view, the lack of awareness amongst the interviewed pesticide users of the importance of wearing appropriate PPE when handling pesticides, including those products manufactured by

²¹² Interview with Farmer 7; 15 March 2015 (AM); Chungan Kothe.

²¹³ CropLife International Edition of the Guidelines for Personal Protection (October 2014), p. 23.

²¹⁴ Interview with Company Representative 7; 11 March 2015; Bathinda.

Bayer CropScience AG and Syngenta AG, is an indication that the companies may be failing to meet their obligations under Articles 3.1.1 and 5.3.1 of the Code of Conduct.

2.2 Lack of access to PPE in local markets

The main reason for the marked absence of PPE use amongst the farmers interviewed is that it is not available in local markets; **28 out of the 32 farmers who responded to the question reported that PPE was not available in local markets** (2 interviewees did not answer this question). The two who thought that PPE was available locally were not able to say where they thought one might obtain it. **None of the 9 pesticide retail outlets that were visited stocked any kind of PPE.**²¹⁵ Even distributors themselves were unaware of where to purchase such items.



Picture 25: Farmers discuss Bayer sample PPE kit in focus groups

Most farmers surveyed were not even aware of what PPE is or that it is necessary. When shown a photograph of Bayer's recommended full PPE, farmers expressed shock, amusement and/or curiosity. The very few farmers who were aware that PPE is recommended expressed frustration that they were not able to obtain the necessary items. As one farmer said:

*“Some time ago some people from either Bayer or Syngenta Company brought this [PPE] to our village. But when we tried to ask for some, they said that they only had five sets. They did not have enough for every farmer. They told us that they are so expensive they could not give them to every farmer.”*²¹⁶

Other distributors also corroborated this fact that on the rare occasions that Bayer or Syngenta distribute any PPE items, they usually only bring a few samples. For example, a former Bayer employee said that when he organized a safety training for the annual Bayer Product

²¹⁵ 3 pesticide retail outlets were visited during the pilot, and 6 pesticide retail outlets were visited during the actual survey.

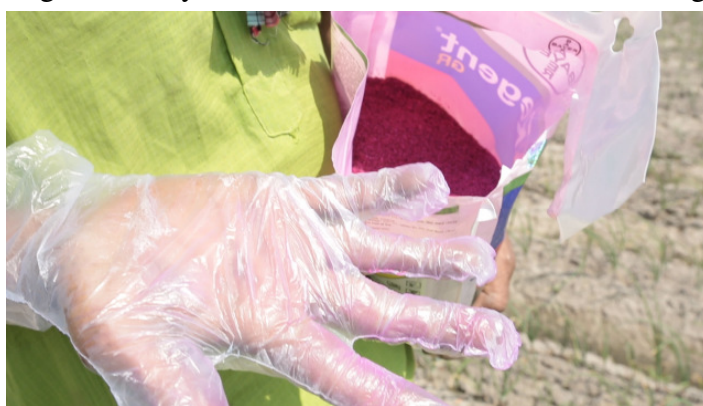
²¹⁶ Interview with Farmer 16; 16 March 2016; Deepghar.

Stewardship Day he was only given 30 PPE sets for a district-wide event.²¹⁷ A Bayer sales representative who was interviewed said that about 50 farmers usually attend his annual Bayer Product Stewardship Days, where at most 15 PPE kits might be given out.²¹⁸ Given that such events are supposed to cater for an entire district, where sales for one company might amount to almost \$1 million,²¹⁹ this appears to be a negligible number of kits.

By failing to ensure access to PPE in areas where their pesticides are widely available, it appears that Bayer CropScience and Syngenta may be acting in violation of Art. 3.11 of the Code of Conduct.

2.3 Poor quality of PPE

While hardly any of the users interviewed wear any kind of PPE, and no PPE is available in local markets in the villages visited in during the survey, the few items of PPE identified during this survey were found to be of substandard quality. It is our opinion that these PPE items were contrary to the recommendations of the Guidelines for Personal Protection as well as Article 5.3.1 of the Code of Conduct.



Picture 26: Farmworker demonstrating poor quality free Bayer gloves whilst applying Regent granules

Users and distributors who deal with Regent (Bayer) corroborated that the product comes with polythene gloves when sent from the manufacturer. One distributor had large piles of the gloves in one of his drawers, so it is unclear whether the gloves always reach the intended user. The same distributor said that he knows farmers rarely use the gloves to disperse granules, which he felt was dangerous, but not his responsibility to change.²²⁰

During the survey, farmers were asked to demonstrate the way they use the gloves that come with Regent. The process was filmed in order to document the quality of the gloves. These demonstrations showed that the gloves are of poor quality, such that completing simple agricultural undertakings is not possible. The loose fitting and slippery material makes it difficult to perform tasks that require gripping things. All of the gloves tore during the demonstration when participants did little more than flex their fingers. The gloves also do not allow for any breathability, becoming extremely hot, sweaty, and therefore uncomfortable and slippery, within just a few minutes of wear (See Picture 26).²²¹

²¹⁷ Interview with former sales manager Bayer and Syngenta; 27 September 2014; Chandigarh.

²¹⁸ Interview with Company Representative 6; 11 March 2015; Bathinda.

²¹⁹ Interview with former sales manager Bayer and Syngenta; 27 September 2014; Chandigarh.

²²⁰ Interview with Company Representative 8; 14 March 2015; Town X, Barnala District.

²²¹ Focus group; 15 March 2015 (PM); Chaina. Focus group; 16 March (PM); Deepghar.

The only other PPE that was observed during the survey was a sample kit that a distributor had kept in his storeroom for two years, unused and unopened. The distributor said that the kit had been from a Bayer Product Stewardship Day, and was kind enough to gift it to us. During subsequent interviews farmers were asked to try on the kit. It was further inquired how practical it would be in the field. The PPE consisted of a cotton apron, rubber gloves, a filter mask, a visor, and a cotton cap (See Picture 25).

Respondents generally said that the rubber gloves were more durable and fitted them better, allowing them to perform a greater variety of tasks. Whilst still hot inside, the texture of the rubber was such that it did not get slippery. Most said that they would use the gloves if they had them, and would purchase them if they were available. However, the rest of Bayer's PPE was considered less practical. The cotton apron was considered to be sufficiently porous for liquid pesticide to soak through it easily should it be spilled on it. It also left the arms and neck exposed; parts of the body that the respondents said often suffer from burns.²²² The other problem respondents had with the long apron is that it would drag through the water if used in a paddy field, making movement through the water difficult. They said that tighter trousers are necessary when wading through a paddy field.²²³ This is pertinent as the rice season is the most important time of year for pesticide use.

Interviewees also felt that the Bayer PPE did not seem to be sufficiently durable for heavy agricultural use. Given that they would need to use it at least once a week, they did not think it would last more than a few weeks. The straps on the filter mask broke the first time a farmer tried it on. Respondents were also critical of the visor provided. They said that if worn whilst spraying it would quickly become foggy from sweat condensation, humidity from the paddy field, and mist from the spray. It would then be necessary to keep removing the visor to wipe the condensation away, which would require bringing contaminated hands close to their face.²²⁴ They also felt it would lead to greater inhalation exposure and resultant respiratory irritation.²²⁵

The apparent failure of Bayer CropScience AG and Syngenta to promote affordable PPE that is suitable to climatic conditions in Punjab appears to violate both Article 5.3.1 of the Code of Conduct and the Guidelines for Personal Protection.

2.4 Lack of effort by manufacturers to inform users about the importance of PPE and the health impacts of using pesticides

Another significant reason for the absence of PPE use amongst users interviewed is a lack of awareness of its necessity and/or the potential health impacts of pesticides. **Only 2 out of 32 respondents said that they had ever been told about the potential health impacts of**

²²² Ibid.

²²³ Focus group; 16 March (PM); Deepghar.

²²⁴ This is something explicitly warned against in p. 10 of the Guidelines for Personal Protection.

²²⁵ Focus group; 14 March 2015 (PM); Bhotna. Focus group; 15 March 2015 (PM); Chaina. Focus group; 16 March (PM); Deepghar.

pesticides from a shopkeeper or company representative (4 interviewees did not answer this question). Many users did not understand that they are dealing with moderately or highly hazardous substances and therefore need to take precautions to protect themselves, their families and their surrounding environment. For example, when asked whether a shopkeeper had ever given him warnings about pesticide use and his health, one farmer said, “No, he has told me nothing. They are just interested in selling their products.”²²⁶

A few farmers are more aware of the potential hazards of using pesticides. The few that are aware of the risks they are taking by using pesticides without PPE feel helpless given that they cannot access necessary protection.²²⁷ In the words of one farmer, after he was asked about the meaning of various pictograms:

“But not everyone can understand these signs [pictograms]. The problem is that we are illiterate, our resources are limited. So because of these challenges we are not able to follow these [instructions from the labels]. Even if we tried to follow these instructions, we do not have gloves, nor do we have masks, nor do we have these kinds of clothes. Nor can you find them in our shops, nor do we have them. These things they have shown, you cannot buy here. All of these instructions are like a big show by the company. They only publish them because the government requires it. They do not actually care about it.”²²⁸

2.5 Indications that company representatives as well as dealers know that farmers do not wear PPE and provide improper advice

Interviews with users and company personnel indicate that Bayer and Syngenta are aware of these apparent violations to the Code of Conduct and Guidelines for Personal Protection, yet have made few changes. Several distributors reported that Bayer and Syngenta managers from Chandigarh and even Bombay had visited their area, and were fully aware that farmers do not use the complete and necessary PPE.²²⁹

30 out of 32 respondents said that they have suffered acute health effects as a result of pesticide application (1 interviewee did not answer this question). These included itchiness, numbness, skin burns, dizziness, headache, respiratory irritation and fatigue. **Over half of the respondents said that they had made a complaint to either a shopkeeper or company representative in the past about the acute health effects of a pesticide.** This indicates that personnel at various levels within the company are aware that users are suffering negative impacts of pesticides, in part, it is implied, through improper use.

²²⁶ Interview with Farmer 17; 16 March 2016; Deepghar.

²²⁷ Interview with Farmer 16; 16 March 2016; Deepghar.

²²⁸ Interview with Farmer 3; 14 March 2016 (PM); Bhotna.

²²⁹ Interview with Company Representative 8; 14 March 2015; Barnala District.

For example, every interviewed farmer who uses Matador (Syngenta) reported burning sensations that can last up to a week after application. Most of these users had reported this discomfort to their dealers. In response, they were told that there is nothing they can do about the discomfort, it is unavoidable with this product, but the product is necessary. Over half reported that their dealer advised them to spread mustard oil over exposed body parts to protect themselves or take antihistamine pills like Cetirizine to lessen acute effects. No one was told, after making their complaints, that they need to wear full PPE. Neither were they told to stop using the pesticide if they did not have appropriate protective clothing.²³⁰

More than half of users reported that Bayer or Syngenta personnel of various levels of seniority have visited their villages in the past and confirmed that such personnel must have seen farmers spraying moderately or highly hazardous pesticides without any PPE. One farmer gave the information that at a Syngenta sales camp in his village in December 2014, a Syngenta representative showed the attendees a picture of full PPE kits. When the farmer asked where he could get one, the representative told him he would bring him a PPE kit shortly, but he never heard back from him.²³¹

Company Commitments on PPE

Bayer Product Stewardship Policy

[Bayer CropScience will d]evelop and sell products that do not pose an unacceptable risk to human and environmental safety when applied in the appropriate manner and for the intended uses. (P. 7)

It is the responsibility of all Bayer CropScience employees to promote the correct use of our products. Bayer CropScience will ask all employees to follow the Product Stewardship Policy and Key Requirements and to promote them. Individual responsibility for specific aspects of Product Stewardship is clearly required by management. (P. 9)

Bayer CropScience must make every reasonable effort to develop/support introduction of application methods and equipment that minimize user and environmental exposure to crop protection and Environmental Science products. (P. 19)

Preference must be given to products whose use requires personal protective and application equipment that are more easily available and affordable and to procedures that are well matched with user education and abilities. (P. 19)

Sales must be stopped and products have to be recalled when handling or use pose an unacceptable risk for the environment or human health. (P. 29)

Syngenta Code of Conduct

Number 5: “Health, Safety and the Environment: We aim to protect the environment and to ensure the health and safety of our employees and others potentially affected by our activities”

Number 14: “Environmental Impact: We take all reasonable steps to preserve the quality and quantity of natural resources including water, land and air through responsible scientific, environmental, agricultural, economic, social and commercial practices. We aim to minimize the environmental impact of our operations by complying with all applicable laws, international guidelines and industry standards. We actively support the efforts of our customers and other partners in the safe and environmentally sound handling of the products they

Text Box 3: Company Commitments on PPE

²³⁰ Interview with Farmer 2; 12 March 2015 (PM); Guru Gutav.

²³¹ Interview with Farmer 16; 16 March 2016; Deepghar.

Such anecdotes demonstrate that companies do visit the field periodically, and are aware of the conditions of use under which they continue to sell hazardous chemicals in Punjab. It would be difficult to fail to notice the fact that a large number of users in Punjab do not use PPE. During the course of the pilot and survey conducted for this Monitoring Report many instances of farmers spraying their fields without any PPE could be witnessed while driving past fields going from village to village.

The interviewees included both Syngenta and Bayer customers as well as representatives of both companies. The findings described above provide strong indications that both Bayer and Syngenta seem to fail to fulfill their obligations under Article 3.11 and Article 5.3.1 of the Code of Conduct to promote the use of personal protective equipment which is suitable for the relevant tasks, appropriate to the prevailing climatic conditions and affordable. In addition, there were no indications that the companies were effectively encouraging their customers to get trained in Integrated Pest Management and/or use less toxic pesticides in order to comply with Article 3.6 of the Code, which suggests that pesticides whose handling and application require the use of personal protective equipment that is uncomfortable, expensive or not readily available should be avoided, especially in the case of small-scale users in tropical climates.

It is pertinent to note that these findings suggest that the companies are also apparently failing to meet their own policies, as set out in the Bayer Product Stewardship Policy and Syngenta Code of Conduct (See Text Box 3: Company Commitments on PPE). Supporting customers and partners in the proper and safe handling of the products is described as a focus of product stewardship at Bayer CropScience. Bayer's Product Stewardship Policy, signed by the company's CEO and COO, says that the company fully endorses the Code of Conduct. Syngenta has developed a resource called 'Dress for Success', a resource for farm employers and employees regarding basic PPE principles and practices to protect the health and safety of everyone involved in handling a pesticide. In this resource, Syngenta recommends the use of chemical resistant aprons, coveralls, eye-protection, footwear, gloves, headgear and a respirator when handling or applying pesticides.

3. No priority of conducting adequate training

3.1 Significance of adequate training in the context of Punjab

The lack of awareness amongst the interviewed farmers of many aspects of "safe use" demonstrates the need for good training and access to reliable information. Training is one of the main objectives of the Code of Conduct, as outlined in Article 1.6, "The Code recognizes that relevant training at all appropriate levels is an essential requirement in implementing and observing its provisions. Therefore, entities addressed by the Code should give high priority to relevant training and capacity building activities related to each Article of the Code." However, very few farmers interviewed for this survey had ever received training by Bayer CropScience or Syngenta on pesticide use. Of the few who had, they did not recall significant coverage of PPE, precautions or "safe use" in such training.

A reply to a Right to Information request dated 24th April 2015 from the District Agricultural Training Officer in Bathinda District, where this survey was conducted, demonstrated that current government efforts to provide training on pesticide use in the area are extremely limited. The government supposedly conducts one “Harvest and Display Camp” per village per month in the district. A few of the farmers interviewed reported attending one of these camps in the past, but said that they never received any instruction on safety or warnings on the dangers of pesticides. The Right to Information reply also included the guidelines of Punjab Agriculture University, Ludhiana, on safety measures for pesticide use. These, if given to users, are the extent of government training on how to mix and apply pesticide products at such camps, and they rely extensively on the farmer reading and understanding the label. The problem with this assumption is outlined in Part I of this report. The most that these guidelines say about PPE is, “Whilst using dangerous pesticides, for your safety, you should wear the necessary clothing and follow the recommended technique.”²³² They do not elaborate on what constitutes “necessary clothing”, how it should be used and maintained or where to obtain it.

In the absence of access to good training or reliable information obtained from an adequate understanding of label content, interviews with the farmers indicate that they rely on distributors and/or other company representatives for information on how to use a product and how to protect themselves from adverse effects. Unfortunately, the findings below illustrate the shortcomings of relying on these personnel for such vital information. Many have never undergone such training themselves and often lack the capacity to adequately advise pesticide product users. For example, many farmers reported that company distributors recommend rubbing mustard oil on their skin to prevent irritation without mentioning the need for long-sleeved or other protective clothing.

Company Commitments on Training

Bayer CropScience will ensure that appropriate programs are implemented in order to train, instruct and, as necessary, update our own staff and customers in all aspects of the responsible management of our products during their entire life-cycle from research to product discontinuation. (P. 10)

We aim to raise awareness of the risks associated with agricultural work, and share knowledge of how these can be effectively managed and prevented. Each year we train as many farmers as possible through partnerships with local organizations and product retailers. To reach 20 million farm workers by 2020, we will partner with even more organizations. Training will be done by Syngenta staff or partners. We will ensure that training is high-quality and leads to measurable impacts on attitudes, knowledge and behaviors. (**Syngenta**, 2014)

CropLife Guidelines for Safe Use

Such training **must** essentially cover the topics listed above, emphasizing their practical operation by the ultimate users, and should take into account their educational level. (P. 9)

Suppliers also have a responsibility to ensure that their sales staff and retailers are adequately informed and trained to demonstrate and give advice on the safe use and handling procedures of crop protection products. (P. 9)

Text Box 4: Company Commitments on Training

²³² See Annexure 6, “Right to Information Request II.”

3.2 Lack of adequate training for both farmers and industry representatives

One of the most vital and effective ways of increasing awareness amongst farmers and company representatives about the dangers of using pesticides and the importance of PPE is through adequate training. This is also stipulated in Articles 1.6 and 8.2.7 of the Code of Conduct. However, this survey indicates that neither users nor company personnel are currently adequately informed about the various dimensions of “safe use”, as promoted by the companies themselves.

One Bayer distributor who was interviewed had only ever been to one training session, which was held by an Indian company over 25 years ago. He also confirmed that farmers rarely attend such training or any other events where they are informed about “safe use”, in particular PPE.²³³ Another distributor claimed that there is no harm in using Blue or Green labeled pesticides without PPE.²³⁴ This clearly indicates his inadequate understanding of the dangers of all pesticides, and the need for PPE.

Only 5 out of 32 users said that a retailer or company representative had ever informed them that they should use PPE (4 interviewees did not answer this question). When asked about whether farmers use PPE, a Bayer distributor’s response was, “whether they use it or not, it’s their problem, not ours”.²³⁵ This indicates that distributors are not aware of their position as representatives of the companies and do not see themselves as partly responsible for ensuring farmers are aware of the importance of risk reduction or judicious and efficient use. This lack of awareness among both the interviewed farmers and dealers seems to indicate a failure on behalf of both the government and companies to make it a priority that sales personnel, and consequently farmers, are well informed in the “safe use” of their products. In our opinion this is in violation of Articles 1.6 and 8.2.7 of the Code of Conduct.

The apparent carelessness of Bayer CropScience AG in executing their responsibilities under the Code of Conduct was made clear by a former sales representative who told us:

*“Once a year we got guidelines from Germany and with the help of the Agricultural Department we did trainings on safety and wearing equipment, clothing etc. This was something no one was serious about, it was just something we had to do and get over with.”*²³⁶

Only 2 out of 32 respondents said that they had ever attended an event that might entail any kind of training on pesticide use (3 interviewees did not answer this question). These events include agricultural fairs at Punjab Agricultural University, district-level government camps (mentioned above) or events hosted by various companies. When one farmer was asked if training ever occurred in his village he said, “no, that’s hogwash, no trainings happen here.”

²³³ Interview with Company Representative 8; 14 March 2015; Barnala District.

²³⁴ Interview with Company Representative 6; 11 March 2015; Bathinda.

²³⁵ Interview with Company Representative 8; 14 March 2015; Barnala District.

²³⁶ Interview with former Bayer and Syngenta sales representative in Punjab; September 2014; Chandigarh; India.

Being subsequently asked if he has ever attended training at the University, he replied, “they don’t tell us about such events. Such events are in Ludhiana, what farmer has the money for the fare to get there?”

A few farmers had attended village events organized by Bayer and Syngenta in the past. However, there did not seem to be extensive quality training occurring at such events. One interviewee remembered about one such event, “The companies are only interested in selling their products. No advice on safety is offered to farmers there.”²³⁷ Several other farmers who had attended such events also agreed that such fairs and camps do not provide any safety information, but are only used as opportunities for promoting new products.²³⁸

3.3 Other aspects of “safe use”

This Monitoring Report identified several other dimensions of “safe use” that pesticide users in Punjab currently fail to observe. For example, farmers frequently reported mixing two or more pesticides together and then spraying them. According to Bayer’s website on PPE, www.dresscode.bayer.com, “In case of two or more Bayer CropScience products used in mixture the user has to use the highest protection given for each product. Mixing with third party products is not covered.” This indicates that mixing different products can be a risky activity, and should only be done if recommended by a knowledgeable source. However, users reported that they frequently mix different products from different companies together.

Another aspect of “safe use” is “re-entry” or the waiting period before any human enters a field after it has been sprayed. The farmers interviewed were not aware of this concept and regularly re-enter fields regardless of whether spraying has recently taken place. Without adequate training, they are unaware of the appropriate re-entry time for different products. Part I of this report already signaled that the re-entry time is not addressed in the leaflets. Farmers documented a growing resistance to pesticides which requires many more additional sprays in a season, sometimes up to 10 times.²³⁹ They say that often a spray needs to be repeated two or three times to take effect. This requires a farmer to re-enter a field several times to re-spray within the same week, thereby violating re-entry guidelines.

Finally, one danger that was highlighted in a number of interviews was that of changes in wind direction whilst spraying. Most farmers know to spray in the same direction as the wind, to prevent spray falling back into their face. However, farmers say that there is always a risk that the wind suddenly changes direction, and immediately blows the spray into their face. In a number of the villages visited several cases in the last 10 years had been reported of someone who had died or become extremely ill due to pesticide poisoning after the wind changed direction. As one farmer said “If the wind changes direction we also change our direction. If the wind is very strong then we try and wait for some time until it dies down. But sometimes it falls

²³⁷ Interview with Farmer 6; 11 March 2015 (AM); Chungan Kother.

²³⁸ Focus group; 14 March 2015 (PM); Bhotna.

²³⁹ Focus group; 14 March 2015 (PM); Bhotna.

on our face or we inhale it, which causes itching. If it goes in our eyes it causes a burning feeling.”²⁴⁰

The findings described above provide strong indications that both Bayer and Syngenta appear to fail to fulfill their obligations under Article 1.6 and Article 3.11 of the Code of Conduct to prioritize and conduct trainings on “safe use” of their products. These results also seem to show that the companies are failing to stand by their own commitments to training provision (See Text Box 4: Company Commitments on Training).

²⁴⁰ Focus group, 16 March 2015 (PM); Deepghar.

Part III – Responsibility of Bayer CropScience and Syngenta

It is a must for a Territory in Charge to achieve at least 70% of his targets. Otherwise he won't receive the yearly incentives. [...] And the German guys used to give annual targets to India, Sri Lanka, Bangladesh, Pakistan, etc.

Former Bayer and Syngenta sales representative in Punjab²⁴¹

1. Responsibility of Bayer CropScience AG in Germany and Syngenta AG in Switzerland

Bayer and Syngenta are responsible for the research and development, formulation, manufacture, distribution and sale of the pesticides examined in this report. These corporations have their headquarters in Germany and Switzerland, respectively, and own subsidiaries in India that work with a network of authorized distributors, who reported to receive weekly visits from the sales managers. The parent and subsidiary companies are in all relevant aspects the same: they are both involved in the manufacture, supply, distribution and sale of pesticide products. Distributors are authorized by the companies to sell their products. This requires a certificate from the company in addition to a license from the government.²⁴² The responsibility for the products, the accompanying instruction leaflets and the sales practices, therefore, ultimately lies with the management and directors that control and direct the organization. Bayer CropScience AG and Syngenta AG appear to control and monitor both the health and safety and product stewardship policies. It may be assumed, therefore, that the parent companies have the knowledge and the capacity to intervene in situations where the products distributed and sold fail to meet the requirements of the Code of Conduct.

Bayer AG, Bayer CropScience AG and Bayer CropScience Ltd

The company Bayer AG has its headquarter in Leverkusen, Germany, and operates worldwide. It has three branches of business, of which Bayer CropScience AG, a wholly owned subsidiary with headquarters in Monheim, Germany, is dedicated to the design and production of pesticides. Bayer's operations in India are carried out by Bayer CropScience Limited. Bayer (India) Ltd was founded on 3 September 1958; in 2004 the company changed its name to Bayer

²⁴¹ Interview with former Bayer and Syngenta sales representative in Punjab; September 2014; Chandigarh; India.

²⁴² Insecticides Rules 1971, Section 10(4A) under i and ii: "Every person shall along with his application for grant or renewal of a licence to undertake operation or sell, stock or exhibit for sale or distribute Insecticides, file a certificate from the principal whom he represents or desires to represent the Form VI-D. The certificate to be issued by the principal shall be addressed to the licensing officer of the concerned area and shall contain full particulars of the principal including their registration and manufacturing licence[sic] numbers, full name and address of the person proposed to be authorized and also the type of formulations to be used in commercial pest control operations, sold, stocked or exhibited, for sale or distribution." Principal is defined as the: "importer or manufacturer of insecticides, as the case may be" (Insecticides Act, section, 1(2)(k)).

CropScience Ltd (India) and it is currently headquartered in Mumbai. According to its 2012 Annual Report the three main shareholders of Bayer CropScience Ltd are Bayer CropScience AG and Bayer AG (both Germany) as well as Bayer SAS (France) who together hold a share of approximately 70%.²⁴³

Bayer AG, as the head of the Bayer Group, manages the conduct of all its businesses through the Corporate Compliance Policy, 2008. This policy establishes the Group's commitment to product stewardship. In order to promote the Compliance Policy, Bayer CropScience AG developed the 'Product Stewardship Policy and Key Requirements' in 2012. The Stewardship Policy sets out the company's commitment to responsible product management, including labelling, PPE, training and monitoring and establishes the minimum requirements for its subsidiary Bayer CropScience Ltd to follow.

Principle 11 of the Bayer Product Stewardship Policy, for example, focuses on the prevention and reporting of incidents related to Bayer products worldwide. Thus, all Bayer CropScience affiliate companies must have a procedure in place to report and promptly respond to external incidents such as fatalities, human over-exposure, or environmental impact. This includes reporting to regional functions and to global headquarters (Key Requirement 11.2). One could conclude therefore that the Bayer headquarters in Germany should be aware of any incident caused by the company products worldwide through this reporting and investigation mechanism.

Furthermore, Bayer has developed a product safety and information obligation that implies group-wide registration of product data (referred to as the Group Directive on Substance Information and Information Capability). This mechanism allows the entire Bayer group to compile information on each of their products, so that any group member can follow and monitor the use of a product wherever it is used.²⁴⁴ Further, as explained in Bayer AG's 2012 Sustainable Development Report, "Bayer CropScience uses the 'E-Label Server' to pool printing templates for all product packaging marketed in Europe and parts of Asia, South America and Africa. With the help of the External Adverse Incident Guideline, Bayer CropScience regulates the identification, processing, internal communication and, if necessary, implementation of correctional measures worldwide in the event of external incidents involving its products."²⁴⁵

²⁴³ Moreover various other smaller shareholders are in turn owned by further Bayer companies so that the controlling influence should be even deemed higher. Edelweiss, INITIATING COVERAGE, Bayer CropScience: Seeding Growth, in: India Equity Research| Agriculture, available at http://www.edelresearch.com/showreportpdf-24174/BAYER_CROPSCIENCE_-_INITIATING_COVERAGE-OCT-13-EDEL, [Accessed 11 July 2015] p. 16

²⁴⁴ Bayer, "Sustainable Development Report, online report in-depth information to supplement the printed report," 2012, p. 22.

²⁴⁵ Bayer AG, 'Sustainable Development Report', 2012, p.102.

In addition to such centralized oversight mechanisms, company staff on the ground in Punjab confirmed that they sometimes receive visits from company managers from Europe. They also regularly receive directions from the German headquarters, such as the request to organize a stewardship day or the setting of sales targets.²⁴⁶ Given these centralized policies, different levels of management within the company including the German headquarters appear to have the necessary knowledge and capacity to intervene in the distribution and labelling of their products, as well as sales practices of the examined pesticides on the ground.

Syngenta AG and Syngenta India Ltd

Syngenta AG is the Swiss holding corporation headquartered in Basel, Switzerland, and is the parent company of the Syngenta Group. The company is one of the world's leading "plant protection" (pesticide) companies, with 28,000 employees and operations across 90 affiliated companies. Syngenta India Limited was incorporated in India on 23 March 2000. Syngenta AG has designed the Group's Product Stewardship Policy and Code of Conduct. Every manager and employee must abide by the Code of Conduct and all of Syngenta's companies must ensure that their policies, guidelines and rules are in compliance with the Code.²⁴⁷ The Code of Conduct includes guidance on: compliance with the law, health, safety and the environment and product safety, quality and stewardship. Where there has been a breach of the Code, the company commits to investigate the violation and take action.²⁴⁸ It is therefore likely that both Syngenta AG and Syngenta India Ltd have had the necessary knowledge and capacity to intervene in the distribution, labelling, and sales of the examined pesticides.

"Everyone is trying to minimize the amount of work they actually do, but make it [safety training] seem like it is a lot. So they always want photographs so that they can make it seem like they have done something. Then they send these photos to Germany. All this was done because the German people are behind them asking them what they have done, if they have followed instructions."

Interview with former Bayer and Syngenta sales representative in Punjab; September 2014; Chandigarh

2. Bayer CropScience and Syngenta appear to violate the obligations of the pesticides industry under the International Code of Conduct on Pesticides Management

The International Code of Conduct is directed to all stakeholders involved in the management of pesticides. It lists the specific obligations not only of state governments but also of the pesticides industry. The obligations for industry address the full range of actors involved at different levels and locations in the formulation, manufacturing, sale and distribution of pesticides, including developing and promoting the use of protective equipment.²⁴⁹ The International Code of Conduct was adopted by CropLife International, which is a "global federation representing the plant science industry." Among its members are Bayer CropScience

²⁴⁶ Interview with former Bayer and Syngenta sales representative in Punjab; September 2014; Chandigarh; India.

²⁴⁷ Syngenta, "The Syngenta Code of Conduct", 2009, p. 32.

²⁴⁸ Syngenta, "The Syngenta Code of Conduct", 2009, p. 32.

²⁴⁹ See, Art. 1.2, 1.7.5 and 3.11 FAO and WHO, "The International Code of Conduct on Pesticide Management", 2014. (*hereinafter* CoC).

and Syngenta.²⁵⁰ CropLife International and its members explicitly committed to abide by the Code; it is even a precondition for membership.²⁵¹ In 2004, CropLife International published its “Guide for Industry” that explicitly confirms the obligations of the pesticide industry and strives to assist its members with the implementation of the Code of Conduct.²⁵²

This Monitoring Report provides strong prima facie evidence that both Bayer and Syngenta fail to adhere to the Code of Conduct. The findings suggest that both the subsidiary companies in India as well as the headquarters of the parent companies in Germany and Switzerland have failed to take the appropriate steps as per the Code of Conduct. They appear to have failed to comply with their duties to ensure that pesticides are adequately labeled, that pesticides are distributed in a context where proper training and personal equipment are guaranteed and that appropriate monitoring efforts are made in order to minimize risks to users, the public and the environment. The CropLife Guide for Industry explicitly recognizes that the Code has implications for the highest governance organs within the pesticides companies. For example, it specifically states that “Management has a clear responsibility to initiate appropriate actions to ensure that the Code is being followed within its own company.”²⁵³ The interviews and observations indicate that this responsibility is not fulfilled, even though central policies regarding, for example, marketing and sales targets are apparently designed by the parent companies in the home states.²⁵⁴

The Code of Conduct emphasizes its importance in relation to countries where regulation is not sufficient to protect the population and environment from the risks of pesticides use. The distribution of pesticides in such countries increases the responsibility of industry and other state governments to promote adherence to the Code of Conduct.²⁵⁵ Given the state of Indian legislation on pesticides management and its poor implementation record as described earlier in this report, the pesticides industry cannot merely rely on the registration and approval procedures in India to fulfill their responsibilities under the Code of Conduct.

While a range of industry obligations can be identified in the Code of Conduct, this Ad Hoc Monitoring Report focuses its analysis on the adherence of the pesticides industry to

²⁵⁰ CropLife International, “Members”, 2015, available at <https://croplife.org/about/members/> [last accessed 1 July 2015].

²⁵¹ “CropLife International and its member companies fully support the Code, adherence to which is a condition of membership of the federation”, CropLife International, “Stewardship”, 2015, available at <https://croplife.org/crop-protection/stewardship/> [last accessed 1 July 2015].

²⁵² The Guide recognizes for example the responsibility of the industry “that training at all appropriate levels is given high priority”, in Commentary to Art. 1 CoC; and that “each package of pesticide is provided with information and instruction in a form and language to ensure safe and effective use”, in Commentary to Art. 3 CoC; or the responsibility to ensure that “major uses and problems occurring from use are tracked to determine the need for changes in labeling, directions for use, packaging and formulation” in Commentary to Art. 3 CoC. It has to be noted however, that this Guide is applicable to the Code of Conduct as it was revised in 2002. The latest revision of the Code of Conduct took place in 2013. There is no updated Guide from CropLife International.

²⁵³ CropLife International, “Guide for Industry on the Implementation of the FAO Code of Conduct on the Distribution and Use of Pesticides”, Op. Cit., p. 5.

²⁵⁴ Interview with Former Bayer and Syngenta sales representative in Punjab; 22 May 2015; Chandigarh; India.

²⁵⁵ Chan Margaret, “Forward by the WHO Director-General”, CoC, p. viii.

obligations in relation to adequate labeling, the training of farmers, the promotion of the use of suitable protective equipment, and the industry monitoring of the use and impacts of pesticides.

2.1 Apparent violation of provisions on Good Labeling Practice

Art. 3.5.1. of the Code of Conduct calls on the pesticide industry to only supply pesticides that are appropriately labeled for each specific market. Adherence to the Code of Conduct requires pesticide industry actors to constantly review their labeling practice and determine whether changes are required (see Art. 3.5.6.).

Syngenta promises that its products will carry “clear end user instructions concerning safe storage, use and disposal,”²⁵⁶ however, the lack of complete information on safety precautions and disposal on the labels of both Gramoxone (Syngenta) and Matador (Syngenta) indicate that this is not the case. Similarly, the text size on the Confidor (Bayer) bottle and the missing leaflets on the Nativo packages, suggest that Bayer’s promise that “[s]afety is the top priority with products from CropScience”²⁵⁷ is not fulfilled. Bayer CropScience also appears to violate its own commitment in its Product Stewardship Policy that the “safety text [...] must cover relevant protective clothing” and that “product labels must be understandable to end users.”²⁵⁸

While the Indian subsidiary is responsible for drafting the labels according to the International Code of Conduct, Guidelines on Good Labelling Practice, as well as Indian legislation, the parent companies in Germany and Switzerland should have a supervising mechanism in place that ensures that their pesticides are appropriately labeled for the specific market in Punjab.²⁵⁹ In addition, the companies should verify whether their sales representatives and dealers, as well as end users, actually understand the labels. Such practices should have ensured that the labels comply with the Code of Conduct and the Guidelines on Good Labelling Practice.

Basing the analysis on these obligations, Part I of this Ad Hoc Monitoring Report suggests that the pesticides under scrutiny were not appropriately labeled, particularly not for the local Punjabi market where they were sold. Indeed, in more than one instance Bayer may even have violated its own key requirement to clarify the required protective clothing. The survey responses also indicate that the lack of understanding among farmers is widespread. A Syngenta sales manager confirmed that 30-40% of the farmers do not understand the labels due to language problems.²⁶⁰ Worryingly, in more than one case, even the authorized distributors and dealers of Bayer CropScience and Syngenta did not properly understand the color code and pictograms. Instead, dealers advise farmers to use mustard oil against skin

²⁵⁶ “We will carefully identify hazards, assess risks associated with the use and alert users of consequences from misuse of a product on the product package, leaflet and label. Products carry clear end user instructions concerning safe storage, use and disposal.” Syngenta, Code of Conduct, Op Cit., No 19.

²⁵⁷ Bayer, “Annual Report 2013”, 2013, p. 125.

²⁵⁸ Bayer CropScience, “Bayer Product Stewardship Policy and Key Requirements”, Op. Cit., Key Requirement 3.3 and 3.8.

²⁵⁹ Art. 3.5.3 CoC, Detailed information on what rules regarding labeling pesticide industry should adhere to are also contained in Art. 10 CoC.

²⁶⁰ Interview with Syngenta Sales Manager; 11 March 2015; Bathinda.

reactions to the products as the only protective measure.²⁶¹ Furthermore, interviews with dealers and farmers call into question whether the pesticides industry has made a concerted effort to review the labeling practice in light of the farmers' level of understanding. Given the frequent visits of company staff to the dealers and farmers in order to promote new products and oversee the sales, one would expect that Syngenta and Bayer are aware of the lack of adequate knowledge and understanding.

2.2 Apparent violation of provisions on PPE and training

The pesticides industry also has obligations in relation to the training of farmers on the use of pesticides and the promotion of suitable protective equipment. In this regard, the Code of Conduct calls on the industry to prioritize training²⁶² and promote the use of personal protective equipment which is suitable for the relevant tasks, appropriate to the prevailing climatic conditions and affordable.²⁶³ Furthermore, Art. 5.5.1 of the Code of Conduct requires industry actors to ensure the availability of appropriate protective equipment. In their Product Stewardship Policies, companies emphasize their adherence to these obligations.²⁶⁴ For example, Bayer CropScience AG states: “We don’t just supply products and leave farmers to it – that’s not our way.”²⁶⁵ The company promotes its global Product Stewardship Program, according to which training is provided to pesticide users and the “safe handling and application” of their products is promoted.²⁶⁶ Bayer also requires its distributors and other marketing staff involved in sales promotion to be adequately qualified to present accurate information on the products sold.²⁶⁷ Part II of this report, however, highlights that personal protective equipment is not available in the Bathinda and Faridkot districts in Punjab. Furthermore, conversations with dealers and farmers indicate that the use of such equipment is not promoted by the industry. Instead, dealers give advice such as the use of mustard oil against skin irritation.

²⁶¹ Interview with Farmer 2; 12 March 2015 (PM); Guru Gutav; Interviews with Farmers 22, 23 and 24; 13 March 2015 (AM); Kotkapura.

²⁶² Art. 1.6 CoC.

²⁶³ Art. 5.3.1 CoC.

²⁶⁴ See for example, “In 2003, the Food and Agriculture Organization (FAO) of the United Nations updated its 1985 Code of Conduct on the distribution and use of pesticides; Syngenta has committed to the code and continues to monitor performance and introduce improvements”, in: Syngenta, “Stewardship & Sustainable Agriculture”, 2006, p. 6; Syngenta, “The Syngenta Code of Conduct”, Op. Cit., No 6.

²⁶⁵ Bayer CropScience, “Answerable to Farmers in Every Way”, 29 August 2012, available at <http://www.cropscience.bayer.com/en/Commitment/Resource-efficiency/Stewardship.aspx> [last accessed 1 July 2015].

²⁶⁶ Ibid.; Bayer CropScience, “Bayer Product Stewardship Policy and Key Requirements”, Op. Cit., Key Requirement 5.5.

²⁶⁷ Bayer CropScience, “Bayer Product Stewardship Policy and Key Requirements”, Op. Cit., Key Requirement 5.6.

Similarly, Syngenta's Code of Conduct stipulates that it: "will work closely with customers, contractors, users and all other stakeholders to ensure proper and responsible use of our products and understanding of the precautions that apply throughout the product life cycle."²⁶⁸ The interviews with farmers, however, indicate that there are very low levels of understanding of the warning and precautions on the labels. Part II of this report further suggests that Bayer CropScience and Syngenta are not prioritizing training. Instead, a former sales representative for both Bayer and Syngenta in Punjab said: "The company wants to do all these safety nonsense just to keep away all these guys like you so that they can say, 'we are doing this, we have this proof, etc.' But down on the ground, nothing happens the way the company shows."²⁶⁹

2.3 Apparent violation of provisions on post registration surveillance and monitoring studies

Finally, this report addresses industry obligations on the monitoring of the actual conditions of use and the health and environmental effects of their products in line with the provisions on product stewardship and life-cycle management contained in the Code of Conduct (See Text

Box 5: Provisions Code of Conduct on monitoring of pesticides use and effects).²⁷⁰ In collaboration with the government, industry should ensure that independent post-registration surveillance and monitoring studies are conducted to determine the fate of pesticides and their health and environmental effects under operational conditions (Art. 4.5 CoC). As a final consequence of the product stewardship approach, Art. 5.2.5 of the Code of Conduct calls upon companies to take a product off the market if the company concerned is unable to guarantee that use of its products does not result in unacceptable consequences. A similar measure is also a requirement for Bayer operations: in its Stewardship Policy, Bayer CropScience announces that "[s]ales must be stopped and products have to be recalled when handling or use pose an unacceptable risk for the environment or human health."²⁷¹ Parts I and II of this Ad Hoc Monitoring Report, however, suggest that systematic monitoring of the actual practice of

Articles in the Code of Conduct on monitoring that appear to have been violated by Bayer CropScience and Syngenta

Article 3.5.6 [Pesticide industry and traders should:] retain an active interest in following their products through their entire life-cycle, keeping track of major uses and the occurrence of any problems arising from the use of their products, as a basis for determining the need for changes in labelling, directions for use, packaging, formulation or product availability.

Article 4.5 Pesticide industry and governments should collaborate in post-registration surveillance and conducting monitoring studies to determine the fate of pesticides and their health and environmental effects under operational conditions.

Art. 5.2.5 [Pesticide industry should:] halt sale and recall products as soon as possible when handling or use pose an unacceptable risk under any use directions or restrictions and notify the government.

Text Box 5: Provisions Code of Conduct on monitoring of pesticides use and effects

²⁶⁸ Syngenta, "The Syngenta Code of Conduct", 2009, No 19.

²⁶⁹ Interview with former Bayer and Syngenta sales representative in Punjab; September 2015; Chandigarh; India.

²⁷⁰ For example, Art. 3.5.6 CoC.

²⁷¹ Key Requirement 8.16, in: Bayer CropScience, "Bayer Product Stewardship Policy and Key Requirements", Op. Cit.

farmers in Punjab and the health and environmental impacts of their products is lacking or incomplete. Indeed, sales representatives and distributors seem to know about the situation on the ground but the knowledge gathered by them also on behalf of the companies does not translate into necessary measures to effectively rectify the identified problems.

3. Bayer CropScience and Syngenta appear to fail to respect human rights

In addition to the specific responsibilities on pesticides management laid down in the International Code of Conduct, pesticide companies also have responsibilities to respect human rights. Such responsibilities are specified in the United Nations (*hereinafter* UN) Global Compact, the UN Guiding Principles, and the Guidelines for Multinational Enterprises for the Organization for Economic Cooperation and Development.²⁷² It has been argued elsewhere that the distribution of Paraquat by Syngenta is not in line with its responsibilities under the United Nations Guiding Principles.²⁷³

Bayer and Syngenta have committed to upholding human rights as active participants in the UN Global Compact, which recognizes that business should respect human rights and ensure that they are not complicit in human rights abuses. Pesticides companies thus have an obligation to respect the right to life, health, food, water, and a healthy environment. To avoid complicity in the violation of such rights, the UN Global Compact emphasizes the importance of due diligence. This includes, for example, establishing a “monitoring/tracking system” to ensure that human rights policies are being implemented.²⁷⁴

The expectations that must be met by Bayer and Syngenta are further shaped by the UN Guiding Principles on Business and Human Rights (*hereinafter* UN Guiding Principles), which were endorsed by the United Nations Human Rights Council on 16 June 2011.²⁷⁵ The Guiding Principles provide an authoritative global standard for addressing adverse impacts on human rights linked to business activity, wherever such impacts occur. The “corporate responsibility to respect” exists independently of States’ abilities or willingness to fulfill their human rights obligations. The UN Guiding Principles require that companies proactively take steps to prevent adverse human rights impacts.

²⁷² The Guidelines are recommendations from governments to multinational enterprises operating in or from countries that are signatories of the Declaration on International Investment and Multinational Enterprises. The Guidelines include relevant guidance on human rights, environment, consumer interest and science and technology.

²⁷³ Grabosch, Robert, “The Distribution of Paraquat: Does Syngenta Respect Human Rights?”, published by Berne Declaration and ECCHR, 2011, available at https://www.bernedeclaration.ch/fileadmin/files/documents/Paraquat_Distribution_Legal_Opinion_02.pdf [Accessed 9 July 2015].

²⁷⁴ UN Global Compact, “Principle Two: Human Rights”, (no date), available at <https://www.unglobalcompact.org/AboutTheGC/TheTenPrinciples/Principle2.html> [last accessed 1 July 2015].

²⁷⁵ Human Rights Council, Human Rights and Transnational Corporations and other Business Enterprises, Resolution 17/4, UN Doc A/HRC/RES/17/4, 6 July 2011, endorsing the Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework, Report of the Special Representative of the Secretary-General on the issue of Human Rights and Transnational Corporations and Business Enterprises, John Ruggie, UN Doc A/HRC/17/31, 21 March 2011, (*hereinafter* Guiding Principles).

Like the UN Global Compact, the UN Guiding Principles emphasize that corporations have an obligation to prevent, mitigate and remediate human rights impacts and to conduct due diligence. This specifically includes the possible impacts that may be linked to business relationships such as suppliers and distributors.²⁷⁶ It is through human rights due diligence that a company can identify the information it requires in order to understand its specific human rights risks, as well as the actions it needs to take to prevent and mitigate them.²⁷⁷ The focus of due diligence is on identifying and addressing the relevant impact on human rights.²⁷⁸ In the context of pesticide manufacturers this could be done through active engagement with end-users and the problems they face. Such an approach should be based on an on-going or iterative process, rather than a one-off undertaking,²⁷⁹ and would enable both companies to maintain a true picture of their human rights impacts.

In remediating the human rights impact of corporate activity, the UN Guiding Principles also specify that “[b]usiness enterprises should make particular efforts to track the effectiveness of their responses to impacts on individuals from groups or populations that may be at heightened risk of vulnerability or marginalization.”²⁸⁰ Measures to assess whether a company is abiding by their responsibilities include the assignment of the task to address human rights impacts to the relevant person, as well as budget allocations and existing oversight processes.²⁸¹ The interviews with dealers, distributors, and sales managers suggest that Bayer and Syngenta fail to take the monitoring of health and environmental impacts seriously. Given their close ties to their distributors, including weekly visits by sales representatives and even occasional visits from staff from the parent company headquarters,²⁸² the companies seem to be in a position to influence the sales practices. According to Guiding Principle 19, the companies have the responsibility to exert this influence.²⁸³ However, there are indications that the companies are failing to do so.

In relation to the environment, the UN Global Compact asserts that businesses should support a precautionary approach to environmental challenges and undertake initiatives to promote greater environmental responsibility. Principle 7 of the UN Global Compact is based on the precautionary approach, as defined in the 1992 Rio Declaration,²⁸⁴ explaining that operating on the logic of the precautionary approach means, for example, that companies support

²⁷⁶ Guiding Principles, Principle 13.

²⁷⁷ UN Office of the Higher Commissioner for Human Rights, “The Corporate Responsibility to Respect Human Rights: An Interpretative Guide”, 2012, p. 31, available at http://www.ohchr.org/Documents/Publications/HR.PUB.12.2_En.pdf [last accessed 1 July 2015].

²⁷⁸ Ibid., p. 32.

²⁷⁹ Ibid., p. 33.

²⁸⁰ Guiding Principles, Commentary to Principle 20.

²⁸¹ Guiding Principles, Principle 19.

²⁸² Interview with Former Bayer and Syngenta sales representative in Punjab; 22 May 2015; Chandigarh; India; Interview with Syngenta Dealer; 11 March 2015; Bhatinda.

²⁸³ Guiding Principles, Commentary to Principle 19.

²⁸⁴ Art. 15 Rio Declaration on Environment and Development, 1992: “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.

independent research and “establish two-way communication with stakeholders, in a pro-active, early stage and transparent manner.”²⁸⁵

In their Product Stewardship Policy (Bayer, 2012) and Health, Safety and Environment Policy and Standards (Syngenta, 2008), the pesticides companies proclaim their commitment at the highest levels of corporate governance to upholding the relevant standards and implementing the necessary mechanisms. For example, Syngenta recognizes that it has “a responsibility to protect the environment, and to ensure the health and safety of our employees, customers and the communities in which we operate.”²⁸⁶ Thus, the Syngenta Executive Committee “has the overall responsibility for ensuring HSE performance across the entire company.”²⁸⁷

This Ad Hoc Monitoring Report, however, provides indications that in the cotton belt of Punjab Bayer and Syngenta are not complying with these obligations of due diligence and tracking of the human rights impacts of their products. In particular, the interviews with distributors and sales managers indicate that existing reporting structures through regional executives would enable monitoring to be conducted if the higher-level managers including the companies’ headquarters were to make it a priority. Instead, even according to their own distributors, companies seem to prioritize the promotion of (new) products.²⁸⁸

²⁸⁵ UN Global Compact, “Principle Seven: Environment”, (no date), available at <https://www.unglobalcompact.org/what-is-gc/mission/principles/principle-7> [last accessed 1 July 2015].

²⁸⁶ Syngenta, “Health, Safety and Environment Policy and Standards”, December 2008, p. 4.

²⁸⁷ Ibid., p. 5.

²⁸⁸ Bayer Distributor; 14 March 2015; Malwa region.

Part IV – Requests to the FAO/WHO Joint Meeting on Pesticides Management

“In my opinion the chemical should be banned. Because spray also kills the necessary insects. So such a chemical should not be manufactured.”²⁸⁹

A 46-year old Punjabi farmer with 20 acres

The FAO/WHO Joint Meeting on Pesticides Management plays an important role as a reference framework for countries, the industry and NGOs. It produces and updates the Code of Conduct on pesticides management and guides its implementation in the form of accompanying Guidelines. In line with the general policy objectives of the FAO and the WHO its work serves the purpose of supporting sustainable agricultural production, while protecting human and animal health and the environment from the harmful effects of pesticides.²⁹⁰ The new Code of Conduct places emphasis on minimizing the use of pesticides and, if necessary, removing highly hazardous pesticides from use, according to WHO Director-General Margaret Chan.²⁹¹

The CoC invites NGOs as per its Art. 12.9 to monitor activities related to the implementation of the Code of Conduct and to report these to Directors General of FAO and WHO and the Executive Director of UNEP. The organizations submitting this report have observed several hurdles to optimal implementation of the Code of Conduct and therefore decided to prepare this report in order to document instances that appear to be violations of the Code of Conduct. It is their strong belief that the JMPM will use the opportunity presented by this report to issue a response to the revealed problems. Submitting organizations base their requests on the procedural guidance provided for monitoring activities in the Guidelines on Monitoring and Observance of the Code of Conduct. As the Guidelines on Monitoring and Observance of the Code of Conduct set out, the FAO Panel of Experts may recommend follow-up actions, as appropriate. Subsequently, consistent with Article 12 and other provisions of the Code of Conduct, the Guidelines stipulate that governments and other identified stakeholders, including companies, should take effective actions to implement recommendations, in support of improved observance of the Code of Conduct.²⁹²

Submitting organizations suggest several recommendations for effective follow-up actions addressed to the stakeholders identified to play a contributory role in the violations of the Code of Conduct revealed in the present report. In addition the stakeholder alliance preparing this report also offers some suggestions on how to better incorporate those affected by unregulated and unprotected pesticides use in the monitoring efforts envisaged by the CoC.

²⁸⁹ Farmer 3; 14 March 2015 (PM); Bhotna.

²⁹⁰ Foreword to the new Code of Conduct in 2013 by Margaret Chan, p. vii.

²⁹¹ Foreword to the new Code of Conduct in 2013 by Margaret Chan, p. vii.

²⁹² The Guidelines on Monitoring and Observance of the Code of Conduct (2006), §5.1.4.

All requests are submitted in the respectful belief that if violations of the CoC are not addressed it may eventually be rendered meaningless.

1. Request for effective follow up actions by the companies in response to alleged violations in Punjab

It is requested that the Panel of Experts issues clear recommendations addressed to Bayer CropScience and Syngenta to prevent possible further violations of the International Code of Conduct. The following recommendations are suggested.

1.1 That Bayer CropScience and Syngenta withdraw all pesticides products with inadequate labels from the Punjabi market (Art. 3.5.1 and 3.5.6 CoC)

In accordance with Art. 5.3.1 of the Code of Conduct, pesticide industry and traders should supply only pesticides of adequate quality, packaged and labeled as appropriate for each specific market. As has been suggested in this Report, however, the directions for use on a number of product labels may not meet the minimum clarity and content requirements as set out in the Code of Conduct or the Guidelines on Good Labelling Practice. The pesticide industry and traders should keep track of major uses and the occurrence of any problems as a basis for determining the need for changes in labeling or product availability (Art. 3.5.6 CoC). Therefore, if labels are found to be inappropriate for the Punjabi market, as is suggested in this report, it is requested that effective steps are taken to ensure that pesticides with inappropriate labels are taken off the market in order to prevent possible negative health and environmental impacts.

1.2 That Bayer CropScience and Syngenta refrain from selling pesticides if the availability of adequate protective equipment cannot be guaranteed

This report has documented that only a few of the farmers interviewed use or have access to appropriate personal protective equipment, such as gloves, goggles, face masks, and boots. Therefore, and in line with Art. 3.6 and Art. 5.2.5 of the Code of Conduct, it is suggested that all pesticides that require specific and extensive PPE are withdrawn from the market in Punjab. This should at least be recommended for such pesticides which also have higher requirements for PPE in industrialized countries (as for example Paraquat²⁹³) or for which special precautionary measures exist, for example when they have been classified to be for “restricted

“It should not have any side effect and for every [plant] disease there should be only one chemical. There should not be different chemicals so that the farmers do not get confused about their use. [...]

The chemicals were not required in the past, as before 10-12 years there was no attack of insects on wheat.”

Interview with Farmer 4; 14 March 2015 (PM); Bhotna.

²⁹³ Berne Declaration et al, Ad Hoc Monitoring Report “Pesticides Users at Risk”, 2007, Annex 2, available at https://www.evb.ch/fileadmin/files/documents/Syngenta/Paraquat/2007_Paraquat_PesticideUsersatRisk.pdf [accessed 8 July 2015].

use” or “limited use” elsewhere.²⁹⁴ Art. 3.6 of the Code of Conduct particularly draws attention to the special care taken in the case of small-scale users.

1.3 That Bayer CropScience and Syngenta enable adequate training of farmers and dealers (Art. 1.6 CoC)

Many countries require pesticides users to have a license or certificate before using certain pesticides.²⁹⁵ As this Ad Hoc Monitoring Report has indicated, as long as training on pesticides use is mixed with the promotion of sales and the presentation of new pesticides, it seems farmers are unlikely to receive adequate training. As per Article 1.6 of the Code of Conduct, entities addressed by the Code should prioritise training and capacity building to ensure its provisions are implemented and observed. It is therefore requested that a separation of marketing and training is ensured; that companies do not conduct the training, but instead provide financial support to the government or other independent bodies such as universities to enable the provision of adequate training.

“Some time ago some people from either Bayer or Syngenta Company brought this [PPE] to our village. But when we tried to ask for some, they said that they only had five sets. They did not have enough for every farmer. They told us that they are so expensive they could not give them to every farmer.”

Interview with Farmer 16;
16 March 2016; Deepghar.

1.4 That Bayer CropScience and Syngenta offer disposal schemes at local dealers and distributors (Art. 1.7.3 and 5.3.3 CoC)

This Ad Hoc Monitoring Report highlighted the apparent lack of a disposal scheme and the fact that the government expects the manufacturers to enable safe disposal of empty pesticides containers. It also provided indications that farmers use inappropriate methods of disposal leading to the possible leaking of pesticides into the environment and indirect exposure to pesticides. It is thus requested that effective steps are taken to ensure that the companies comply with their obligation under Art. 1.7.3 and 5.3.3 of the Code of Conduct. This could be achieved by companies and dealers instructing farmers to bring empty containers back to the dealers where they purchased the pesticides. The company could then ensure the proper decontamination and disposal or reuse.

²⁹⁴ For example, the active ingredient Thiodicarb of Larvin (Bayer) is listed as a restricted use product (RUP) by the environmental protection agency (EPA), <http://www.epa.gov/opp00001/reregistration/REDs/factsheets/2675fact.pdf> [accessed 8 July 2015] and the ingredient Lambda-Cyhalothrin of Matador (Syngenta) is considered a restricted use product in the USA, “Summary Report, restricted use products,” available at: <http://www.epa.gov/opp00001/rup/> [accessed 8 July 2015]. Further, Paraquat, the active ingredient in Gramoxone (Syngenta) is considered for “limited use” in Indonesia, which requires it to be sold only to trained users (Berne Declaration et al, Ad Hoc Monitoring Report “Pesticides Users at Risk”, 2007, p.6). It is also considered restricted use in the United States, “Summary Report, restricted use products,” available at: <http://www.epa.gov/opp00001/rup/> [Accessed 9 July 2015].

²⁹⁵ The EU Directive 2009/128/EC of 21 October 2009, establishing a framework for Community action to achieve the sustainable use of pesticides, states in Art. 6, §2 that “Member States shall take necessary measures to restrict sales of pesticides authorised for professional use to persons holding a certificate.”

1.5 Monitoring report by the pesticides companies for subsequent JMPM

In order to guarantee that pesticide companies take the concerns raised in this report seriously and that the appropriate and effective steps are indeed taken and executed by the identified stakeholders, it is further suggested that the pesticide companies should submit reports in advance to the subsequent meeting of the Panel of Experts documenting the steps taken to address the concerns raised in this Ad Hoc Monitoring Report.

2. Request for follow-up actions by the Panel of Experts

2.1 Recommendation for a prohibition of the importation, distribution, sale and purchase of highly hazardous pesticides (Art. 7.5 CoC)

Given the widespread lack of protective equipment, the frequent lack of understanding of the toxicity of the pesticides, and the known adverse effects of these pesticides, the findings in this report suggest that risk mitigation measures and marketing practices in Punjab are insufficient to ensure that the product can be handled without unacceptable risk to humans and the environment. It is therefore requested that the Panel of Experts recommend their prohibition according to Art. 7.5 of the Code of Conduct.

2.2 Access to the Panel of Experts and transparency of the monitoring process

Art. 1.2 of the Code of Conduct explicitly includes pesticides users among the entities addressed by the Code. However, none of the farmers or even civil society organizations in Punjab interviewed during the monitoring process was aware of the monitoring mechanism foreseen in the Code of Conduct, even though some of the organizations have been engaged in epidemiological research highly relevant to monitoring efforts.²⁹⁶ The submitting organizations find it important, therefore, to bring the voices of those pesticides users to the Panel in the accompanying witness statements that were documented on video. It is requested that this video be screened during the JMPM in October 2016.

It is further requested that the Panel of Experts make the monitoring proceedings available to the wider public, and particularly to the pesticide users and wider population of Punjab. This should include this Ad Hoc Monitoring Report as well as the stakeholder responses and the report drafted by the Secretariat that will be presented to the Panel of Experts in October 2016. In addition, it is suggested that the protocol of the Joint Meeting on Pesticides Management should be made public as well as the recommendations given by the Panel of Experts.

²⁹⁶ See, for example, Kheti Virasat Mission, Centre for Environmental Health Research & Action, “Environmental Health Crisis in Malwa further intensifies. On-the-spot report from village Mari Mustafa” December 2014, on file with author.

Annexes

1. Survey Questions to Farmers

Farmers were asked the following questions:

Personal Details

- Name, age, village, number of acres, crops grown, number of persons working on the land, number of years as a farmer, number of years using pesticides

Pesticides Selected for Examination

- Do you recognize any of these pesticides? Have you used any of these pesticides in the past or are you using any at this moment?

Questions on Labeling

- Do you understand and read any of the languages on this warning label? If yes, which do you understand?
- Do you have any difficulty reading the print based on how large it is?
- When you bought this pesticide in the past, did you receive a warning leaflet that explained the protective clothing you should wear? If yes, where did you receive it?
- What protective clothing do you understand should be worn while spraying this pesticide?
- Do you know what these [color] symbols mean? Based on these [color] symbols, what is the ranking system for most dangerous?
- What is each pictogram specifically warning against? Please go through each.
- On this label on the bottle, do you see any precautions to take during and after spraying?
- (If the respondent has received a warning leaflet at a shop) Did the leaflet include precautions you should take during spraying and afterwards? If yes, please indicate exactly what.

Questions on Personal Protective Equipment

- What kinds of protective equipment are available in pesticide shops? How often do you see safety equipment and clothing in the shops?
- If there is safety clothing and equipment available, how expensive is it? Could you afford to purchase the protective clothing or equipment available in each shop?
- Is the protective clothing and equipment appropriate for the climate you work in? Would the clothing and equipment available in the shops be practical to use?
- If you have never seen protective clothing and equipment for sale in the pesticide shops, have you ever asked the dealer or field assistants to provide you with these?
- Do you use any form of protective clothing or equipment? Please say exactly what you wear from head to toe: Face covering? Goggles? Gloves? Boots?

Questions on Training

- Does the pesticide dealer or distributor give you any advice or any kind of training about how to safely use pesticides when you purchase them? If yes, please say exactly what is covered in the training or advice.
- Have you received trainings from the manufacturer of the pesticide about how to safely use this product? If yes, please say exactly what is covered in the trainings. Do they cover wearing protective clothing or equipment, the safe number of applications per day, safe mixing practices, etc.
- Have you received training by government agencies about how to safely use pesticides? If yes, please say exactly what the trainings covered.

Questions on Monitoring

- Has a dealer or company representative informed you about the possible acute or longer-term effects of this or any other pesticide if it is not used appropriately?
- Has a dealer or company representative ever asked about possible health impacts you may have suffered after using a pesticide?
- Have you ever told a dealer or company representative about any health impacts you have suffered after using their pesticide?
- Are you aware of where to go if you have a health issue?
- In case you experience certain health effects, have you ever heard of an Emergency system established by the company to deal with them?

2. Survey Questions to Dealers

Dealers were asked the following questions:

- Do you receive warning leaflets with pesticides? Are they passed on to the farmers? If yes, how are they passed on? If no, why not?
- Please demonstrate the personal protective equipment you carry. How often do farmers buy PPE?
- For the selected pesticides please explain the [color] symbols and pictograms.
- Who are the suppliers of the products?
- Have you received training on how to safely use pesticides? Do you give trainings to farmers on safety? Please specify exactly what you do and what is involved in the trainings.
- Do you offer the safe disposal of pesticides? If yes, how do you dispose of them and how often do farmers utilize this service? Are they aware it exists? If you do not offer disposal services, do you train farmers in how to safely dispose of containers?
- In case of accidents, do you know where antidotes are kept or can be obtained? Do you instruct farmers on what to do and how to access antidotes?
- Are you required to report directly to your sales manager about health and environmental issues if you learn farmers are experiencing these? If so, what are the details of how you report this information to the sales manager?

3. List of Respondents

Interviews during the pilot monitoring in September 2014

Respondent	Date	Location
Scientist at agricultural and environmental advocacy organization	22 September 2014	New Delhi
Distributor Bayer and Syngenta	26 September 2014	Malwa region
First Focus Group farmers (5 farmers present)	26 September 2014	Malwa region
Single farmer while spraying his paddy field	26 September 2014	Malwa region
Second Focus Group farmers (6 farmers present and the wife of one of the farmers)	26 September 2014	Malwa region
Dealer Bayer	26 September 2014	Malwa region
Dealer Syngenta	26 September 2014	Malwa region
Area sales manager Bayer	26 September 2014	Malwa region
Primary health center doctor	26 September 2014	Malwa region
Medical doctor at a hospital	27 September 2014	Patiala
Former sales manager Bayer and Syngenta	27 September 2014	Chandigarh
Government Official from Health Department of Punjab, Director of the door-to-door survey carried out on cancer in Punjab in 2013	28 September 2014	Chandigarh
Scientist at environmental research organization	29 September 2014	New Delhi
Director of the National Center for Integrated Pest Management	30 September 2014	New Delhi

Interviews with pesticides users during the monitoring in March 2015

Farmer	Date	Sex (M/F)	Village
1	12 March 2015 (AM)	M	Guru Ki Dhab
2	12 March 2015 (PM)	M	Guru Gutav
3	14 March 2015 (PM) (focus group)	M	Bhotna
4		M	
5		M	
6	15 March 2015 (AM)	M	Chungan Kothe
7	15 March 2015 (AM)	M	Chungan Kothe
8	15 March 2015 (PM) (focus group)	M	Chaina
9		M	
10		M	
11		M	
12		M	
13		M	
14		M	
15	16 March 2015 (PM) (focus group)	M	Deepghar
16		M	
17		M	
18		M	
19		M	
20	13 March 2015 (PM) (focus group)	M	Baja Khana
21		M	
22	13 March 2015 (AM) (focus group)	M	Kotkapura
23		M	
24		M	
25	13 March 2015 (AM) (focus group)	M	Kotkapura
26		M	Laleana
27		M	Laleana
28	13 March 2015 (PM) (focus group)	M	Baja Khana
29		M	
30		M	
31		M	
32		M	

Interviews with dealers, distributors and sales representatives during the monitoring in March 2015

Dealer/ distributor/ sales representative	Company affiliation	Date	Location
1	Dealer Syngenta	11 March 2015	Malwa region
2	Distributor	11 March 2015	Malwa region
3	Distributor Syngenta & Bayer	11 March 2015	Malwa region
4	Sales person Syngenta	11 March 2015	Malwa region
5	Distributor Bayer	11 March 2015	Malwa region
6	Sales representative Bayer	11 March 2015	Malwa region
7	Dealer	11 March 2015	Malwa region
8	Distributor Bayer	14 March 2015	Malwa region

4. Video Observation and Testimonies

The monitoring visit in March 2015 was filmed to document the interview responses and the observations in shops and in the fields regarding the availability and use of personal protective equipment. The video documentation supports and illustrates the findings presented in this report. A selection of the footage will be ready in advance of the Joint Meeting on Pesticides Management in October 2016.

5. Right to Information Request I

Copy of Right to Information request submitted to the Ministry of Agriculture including reply regarding the disposal mechanism for empty pesticide containers in India.

Gram: PROTECTION

SPEED POST

Tel. & Fax: 0129-2413002

FAX: 0129-2412125

F.No. **21-28/2015-CIR-I**

Government of India

Ministry of Agriculture

(Department of Agriculture & Cooperation)

Directorate of Plant Protection, Quarantine & Storage

SECRETARIAT OF CENTRAL INSECTICIDES BOARD & REGISTRATION COMMITTEE

N.H.-IV, Faridabad-121001

To,

Date: April 20, 2015

Subject: **Information under the RTI Act, 2005 – regarding.**

Sir,

This has the reference to your letter on the subject cited above. The point-wise replies to your query are as under:

Sr. No.	Query	Reply
a.	What are the various guidelines, instructions, protocols followed by the Registration Committee when analysing insecticides submitted for registration, as per section 9(3) of the Insecticides Act, 1968.	Relevant information is available in public domain. (www.cibrc.nic.in).
b.	The Central Insecticides Board's guidelines for the return of crop protection product packaging, as per section 44(1) of the Insecticides Act, 1968.	<p>Section 44 (1) of the Insecticides Rules, 1971 reads as under:</p> <p>“44. Disposal of used packages, surplus materials and washings of insecticides</p> <p>1. It shall be the duty of manufacturers, formulators of insecticides and operators to dispose packages or surplus materials and washing in a safe manner so as to prevent environmental or water pollution.”</p> <p>As it is the duty of the manufacturer, formulators of insecticides and operators, there is no guideline of the Central Insecticides Board for the return of crop protection product packaging, as per section 44(1) of the</p>

		Insecticides Rules, 1971.
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(B.S. Phogat)

APPA(CIB&RC) & CPI

6. Right to Information Request II

Copy of Page 63 of the Right to Information reply from the District Agricultural Training Officer in Bathinda District on government training on pesticide use, dated April 24th, 2015.

The following explanation was provided:

Farmers are advised for the safe handling of respective pesticides as per the package of practice (Kharif and Rabi) Punjab Agricultural University Ludhiana (enclosed page-63).

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Information about safe use of pesticides and protection

1. Read the label carefully and follow the instructions.
2. Since it is a pesticide, only keep it in its bottle or container with its label.
3. Keep it under lock and key so that it is out of the reach for children, irresponsible persons and pet animals.
4. These poisonous pesticides should never be kept close to any eatables and other poisonous substances.
5. Whilst using dangerous pesticides recommended/requisite clothing should be worn and other suitable methods and techniques to be put in use.
6. Pesticides sacks should not be torn but carefully cut with a knife.
7. While preparing poisonous solution a long stick should be used for mixing the material so that drops do not fall on the person mixing it.
8. Wash your hands carefully after every use. Wash hands carefully before eating or drinking anything, and also before sleeping. Hands should be properly rubbed with soap and washed carefully. This method should be followed after every spray. Hands should also be washed properly before eating anything and also after getting free from day's work.
9. After washing the drum and pump, water should be either discarded in barren land or a hole should be dug and covered with soil.
10. Clogged nozzles should not be unblocked with mouth.
11. The person who is responsible for spraying pesticides should not work for more than 8 hours a day and should regularly visit the doctor.
12. While spraying pesticides separate clothes to be used. This should be washed and changed regularly.
13. Empty pesticide containers should not be used for any other purpose and should be punctured and buried in ground.

14. Pesticides container should be buried and never burnt.
15. The person spraying pesticides should not eat or smoke or chew anything in the spraying area at that particular time.
16. Whosoever sprays pesticides in the field should not be suffering from cold, cough or fever.
17. Spray should be done keeping in mind the wind direction so that it may not fall upon the person or inhaled by him.