Annex: Use of Pesticides in PHC Plantations

The nine pesticides PHC uses on its three plantations have a total of six active ingredients, according to the company's social environmental impact reports that the Congolese Agency for the Environment (ACE) approved in November 2017 and that are valid for five years.[316] Of these nine, the report provides brand names for eight, and for the remaining one only the active ingredient is listed: glyphosate. Human Rights Watch researchers also photographed the original containers or labels of four brand-name pesticides in Lokutu and Yaligimba plantation, which were consistent with the pesticides listed in the social and environmental impact assessment. Half of the active ingredients in pesticides used in PHC plantations are considered hazardous by the WHO.[317]

	Brand-name pesticides used in PHC plantations, according to social-environmental impact reports submitted to the Congolese Environment Agency (ACE)	Active ingredient
1.	BAOBAB 80 WP	Mancozeb
2.	CLINIC ACE	Glyphosate
3.	FINISH 360 SL	
4.	MALIK 108 EC	Haloxyfop-methyl
5.	NUGGET 20WG	Metsulfuron-methyl
6.	PYRIGA 480 EC	Chlorpyrifos-ethyl
7.	VERSO 480 EC	
8.	WETTER 90	Polyethoxylated Nonylphenol

[316] Human Rights Watch obtained copies of the social-environmental impact reports submitted by PHC for each of their three plantations to the ACE; on file with Human Rights Watch. Human Rights Watch researchers also photographed the labels of four of the pesticides' containers or labels on the plantations–Baobab 80 WP, Finish 360 SL, Nugget 20 WG and Verso 480 EC–and were shown a list of the pesticides used on Lokutu plantation by their environment manager; Human Rights Watch interview with Aimee Motondo, Lokutu plantation environment manager, Lokutu, January 24, 2019. In their response to a Human Rights Watch information request, Feronia said, "the company no longer uses pesticides in the plantations but currently uses herbicides." However," however herbicides are simply the specific kind of pesticides that are used to kill weeds; see for example National Pesticide Information Center, "Types of Pesticides," November 2, 2018, http://npic.orst.edu/ingred/ptype/index.html (accessed May 7, 2019). We have retained the more generic term of pesticides for this report as it is the one commonly used in scientific and academic literature that analyzes the risks associated with these chemical compounds.

[317] Glyphosate, haloxyfop methyl and chlorpyrifos are listed as hazardous in the WHO's recommended classification of pesticides by hazard; see International Programme on Chemical Safety (IPCS) and Inter-Organization Programme for the Sounds Management of Chemicals (IOMC), The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification 2009, pp. 24-25 and p. 36, https://apps.who.int/iris/bitstream/handle/10665/44271/9789241547963_eng.pdf?sequence=1&isAllowed=y&ua=1 (accessed August 26, 2019).

Mancozeb

Mancozeb is the active ingredient in one of the pesticides applied by PHC workers: BAOBAB 80 WP. Human Rights Watch researchers obtained the original label.

Regarding human health, EU regulations state that mancozeb "may cause an allergic skin reaction," and is "suspected of damaging the unborn child." In terms of its environmental impact, mancozeb is "very toxic to aquatic life."[318] The US EPA found that mancozeb may also cause irritation of the skin, respiratory tract and eyes.[319] The WHO has equally found mancozeb may be an irritant to skin upon multiple exposure.[320]

BAOBAB 80 WP's original label indicates that workers who mix the pesticide, fill containers with the pesticide or use a backpack sprayer to apply the pesticide should use a face mask that protects the eyes, nose and mouth, rubber gloves, protective footwear and clothing that covers arms and legs. The label also indicates that workers should wash their bodies and work clothing after spraying the pesticide.[321]

Glyphosate

Glyphosate is the active ingredient in two of the brand-name pesticides applied by PHC workers: CLINIC ACE and FINISH 360 SL. Human Rights Watch obtained the labels for both of these pesticides.

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[318] See EU Pesticides database classification, https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/public/?event=activesubstance.detail&language=EN&selectedID=1531 (accessed August 23, 2019); and, Regulation (EC) No. 1272/2008 of the European Parliament and of the Council, December 16, 2008, on classification, labelling and packaging of substances and mixtures, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R1272&from=EN (accessed August 23, 2019).

[319] US Environmental Protection Agency/Office of Prevention, Pesticides, and Toxic Substances. Roberts, J.R., Reigart, J.R. Recognition and Management of Pesticide Poisonings. 6th ed. 2013. EPA Document No. EPA 735K13001, https://www.epa.gov/sites/production/files/2015-01/documents/rmpp_6thed_final_lowresopt.pdf (accessed August 26, 2019).

[320] International Programme on Chemical Safety (IPCS) and Inter-Organization Programme for the Sounds Management of Chemicals (IOMC), The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification 2009, p. 44 https://apps.who.int/iris/bitstream/handle/10665/44271/9789241547963_eng.pdf?sequence=1&isAllowed=y&ua=1 (accessed August 26, 2019).

[321] Human Rights Watch photographed the original packaging of this pesticide at the Yaligimba plantation on February 1, 2019.

Glyphosate is considered "probably carcinogenic to humans" by the International Agency for Research on Cancer (IARC)–the branch of the WHO that classifies carcinogens.[322]

European regulations state glyphosate may "cause serious eye damage" and is "toxic to aquatic life with long-lasting effects."[323] In September 2019, the German government announced it would completely phase out glyphosate-based pesticides by 2023, and would oppose the EU renewal of this pesticide's license in 2022. [324] In 2017, the European Parliament approved a nonbinding resolution to ban glyphosate by 2022.[325]

FINISH 360 SL original label indicates that workers should wear gloves, "face and eyes protection," and "appropriate protective clothing" while handling the concentrated or diluted version of the pesticide. It further indicates that care should be taken to avoid any contact with the eyes or skin, or to "breathe the product." Workers are to change clothes and wash their bodies after spraying the pesticide. [326]

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[322] See IARC Monograph on Glyphosate, December 21, 2015, https://www.iarc.fr/featured-news/media-centre-iarc-news-glyphosate/ (accessed April 3, 2019). The carcinogenic quality of glyphosate has elicited controversy. The pesticide Roundup, whose active ingredient is glyphosate, has been the subject of thousands of lawsuits in US courts; U.S. Right to Know, a non-profit investigative research group focused on the food industry, tracks Roundup lawsuits; see "Monsanto Roundup Trial Tracker," https://usrtk.org/monsanto-roundup-trial-tracker-index/ (accessed August 23, 2019). Most recently, in May 2019, a California judge ordered Bayer AG, the manufacturer of Roundup, to compensate a couple who both developed cancer after decades of using the pesticide to kill weeds; Taylor Telford, "Judge to slash US$2 billion award for couple with cancer in Roundup lawsuit," Washington Post, July 19, 2019, https://www.washingtonpost.com/business/2019/07/19/judge-slash-billion-award-couple-with-cancer-roundup-lawsuit/?noredirect=on (accessed August 23, 2019). The US Environmental Protection Agency (EPA), however, maintains glyphosate is not a carcinogen; see US EPA, "EPA Takes Next Step in Review Process for Herbicide Glyphosate, Reaffirms No Risk to Public Health," April 30, 2019, https://www.epa.gov/newsreleases/epa-takes-next-step-review-process-herbicide-glyphosate-reaffirms-no-risk-public-health (accessed August 23, 2019). The EPA's classification has been the subject of criticism by scientists, including peer-reviewed studies that exposed evidence the EPA relied heavily on studies commissioned by pesticide manufacturers and did not give appropriate consideration to the carcinogenic risk posed by occupational exposure; see C. M. Benbrook, "How did the US EPA and IARC reach diametrically opposed conclusions on the genotoxicity of glyphosate-based herbicides?" Environmental Sciences Europe, December 2019 31:2, https://link.springer.com/article/10.1186/s12302-018-0184-7 (accessed August 26, 2019). We have retained the classification of the WHO's IARC, as it is the global authority on cancer.

[323] See EU Pesticides database classification, https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/public/?event=activesubstance.detail&language=EN&selectedID=1438 (accessed August 23, 2019); and, Regulation (EC) No. 1272/2008 of the European Parliament and of the Council, December 16, 2008, on classification, labelling and packaging of substances and mixtures, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R1272&from=EN (accessed August 23, 2019).

[324] DW, "Germany set to ban glyphosate from end of 2023," September 4, 2019, https://www.dw.com/en/germany-set-to-ban-glyphosate-from-end-of-2023/a-50282891 (accessed September 24, 2019). Birgit Jennen, "Germany Aims to Ban Glyphosate Weedkillers," Bloomberg, September 4, 2019, https://www.bloomberg.com/news/articles/2019-09-04/germany-cabinet-aims-to-reduce-glyphosate-usage-in-coming-years (accessed September 24, 2019).

[325] DW, "EU lawmakers vote to ban glyphosate weed killer by 2022," October 24, 2017, https://www.dw.com/en/eu-lawmakers-vote-to-ban-glyphosate-weed-killer-by-2022/a-41093018 (accessed September 24, 2019).

[326] Human Rights Watch also photographed the original packaging of this pesticide at the Lokutu plantation on January 27, 2019.

The safety data sheet associated to CLINIC ACE, which Human Rights Watch obtained through its manufacturer's website, states the substance poses a "risk of serious damage to eyes" and may "cause serious eye irritation." It also indicates that workers should wear "protective gloves/protective clothing/eye protection/face protection." It also instructs that "contaminated clothing and gloves, including the inside," should be removed and washed before re-use. [327]

Haloxyfop-methyl

Haloxyfop-methyl is the active ingredient in one of the pesticides sprayed by PHC workers: MALIK 108 EC. Human Rights Watch could not obtain the original label of this pesticide. The US EPA considers haloxyfop-methyl a "probable human carcinogen."[328] The WHO's IARC has not yet assessed whether haloxyfop-methyl is a carcinogen. The European Union has not yet provided a classification for haloxyfop-methyl, nor haloxyfop, with the latter not being authorized in any EU member state.[329]

Metsulfuron-methyl

Metsulfuron-methyl is the active ingredient in one of the pesticides applied by PHC workers: NUGGET 20WG. [330] Human Rights Watch obtained the original packaging of this pesticide, which only specified the active ingredient. Human Rights Watch could not obtain the safety datasheet for this pesticide on the manufacturer's website.

Chlorpyrifos

Chlorpyrifos is the active ingredient in two of the pesticides applied by PHC workers: VERSO 480 EC and PYRIGA 480 EC. Human Rights Watch researchers could only obtain the label for the first.

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[327] Human Rights Watch obtained a photograph of this pesticide's label and its safety data sheet via their manufacturer website. See Nufarm, Clinic Ace, https://cdn.nufarm.com/wp-content/uploads/sites/30/2018/10/16132941/Clinic_ACE_labelinfo_ie.pdf.pdf and https://cdn.nufarm.com/wp-content/uploads/sites/30/2018/10/16132913/Clinic-Ace_IRL.pdf (accessed August 26, 2019).

[328] US EPA Agency Office of Pesticide Programs, "Chemicals Evaluated for Carcinogenic, Potential Annual Cancer Report 2018," p. 21, http://npic.orst.edu/chemicals_evaluated.pdf (accessed August 23, 2019).

[329] See EU Pesticides database, Haloxyfop-P (Haloxyfop-R) https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/public/?event=activesubstance.detail&language=EN&selectedID=1444 (accessed August 26, 2019); Haloxyfop https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/public/?event=activesubstance.detail&language=EN&selectedID=1443 (accessed August 26, 2019).

[330] Human Rights Watch researchers also photographed a part of the original packaging of this pesticide at the Lokutu plantation on January 27, 2019.

The European Union considers chlorpyrifos "very toxic to aquatic life with long lasting effects."[331] Chlorpyrifos "affects the nervous system of people, pets, and other animals the same way it affects the target pest… leading to overstimulation of the nervous system causing nausea, dizziness, and confusion," according to the Toxicology Data Network.[332]

In August 2019, the European Food Safety Authority (EFSA) stated that chlorpyrifos does not meet the safety criteria for renewed approval by the European Union, as the pesticide's permit is set to expire in January 2020.[333]

Other recognized authorities have moved to ban the pesticide due to its health effects. On May 2019, the California Environmental Protection Agency announced that it was acting to ban the use of chlorpyrifos following recent findings that "the pesticide causes serious health effects in children and other sensitive populations at lower levels of exposure than previously understood," including "impaired brain and neurological development."[334]

VERSO 480 EC's original label indicates that workers who mix the pesticide, fill containers with the pesticide or use a backpack sprayer to apply the pesticide should use a face mask that protects the eyes, nose and mouth, rubber gloves, protective footwear and clothing that covers arms and legs. The label also indicates that workers should wash their bodies and the clothing they used during work after spraying the pesticide.[335]

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[331] See EU Pesticides database classification, https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/public/?event=activesubstance.detail&language=EN&selectedID=1130 (accessed August 23, 2019); and, Regulation (EC) No. 1272/2008 of the European Parliament and of the Council, December 16, 2008, on classification, labelling and packaging of substances and mixtures, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R1272&from=EN (accessed August 23, 2019).

[332] Toxicology Data Network, Hazardous Substances Data Bank (HSDB), Chlorpyrifoshttp://toxnet.nlm.nih.gov/cgi-bin/sis/search2/r?dbs+hsdb:@term+@DOCNO+389 (accessed November 1, 2019).

[333] European Food Safety Authority (EFSA), "Statement on the available outcomes of the human health assessment in the context of the pesticides peer review of the active substance chlorpyrifos," July 31, 2019, https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2019.5809 (accessed September 24, 2019).

[334] California Environmental Protection Agency and California Department of Pesticide Regulation, "California Acts to Prohibit Chlorpyrifos Pesticide," May 8, 2019, https://calepa.ca.gov/2019/05/08/california-acts-to-prohibit-chlorpyrifos-pesticide/ (accessed August 23, 2019).

[335] Human Rights Watch also inspected and photographed the original packaging of this pesticide at the Yaligimba plantation on February 1, 2019.

Polyethoxylated Nonylphenol

Polyethoxylated nonylphenol is the active ingredient of one the pesticides applied by PHC workers: WETTER 90. Human Rights Watch could not inspect the packaging nor obtain the manufacturer's safety data sheet online. This active ingredient does not appear to have been approved nor regulated by the European Union, as it is not listed in their pesticides database. A specific entry referring to polyethoxylated nonylphenol is not available on the Toxicology Data Network, but one on no

nylphenol, that also speaks to products containing nonylphenol, is. Direct contact with nonylphenol is, according to this database, "very irritating to the skin and eyes of humans."[336] Neither the US EPA nor the IARC have assessed the carcinogenic potential of nonylphenol.

[336] Toxicology Data Network, Hazardous Substances Data Bank (HSDB), Nonylphenol, http://toxnet.nlm.nih.gov/cgi-bin/sis/search2/r?dbs+hsdb:@term+@DOCNO+1032 (August 26, 2019).