HEALTH AND SAFETY FOR WORKERS IN THE BANANA EXPORT INDUSTRY

A MANUAL FOR WORKERS

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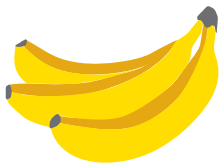


ACRONYMS

BOHESI	Banana Occupational Health and Safety Initiative
COLSIBA	Coordinating Body of Latin American Banana and Agro-industrial Unions
FAO	Food and Agriculture Organisation of the United Nations
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
GMO	Genetically Modified Organism
ICT	Information and Communication Technology
ILO	International Labour Organisation (United Nations)
IPM	Integrated Pest Management
MSD	Musculoskeletal Disorder
PPE	Personal Protective Equipment
SDS	Safety Data Sheet
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WBF	World Banana Forum
WHO	World Health Organisation (United Nations)

OBJECTIVES

To help banana plantation workers and their trade unions to improve health and safety conditions, risk management and risk assessment in the export banana industry and to ensure resilient food supply chains.

To provide information and training materials on workplace health and safety risk assessment as part of risk management for

- workers in the export banana industry;
- their health and safety representatives;
- their representatives on workplace health and safety committees, and
- their trade unions.

CHAPTER 1.

WORKERS IN THE BANANA EXPORT INDUSTRY

1.1 Bananas: trading the world's favourite fruit

Bananas – dessert and cooking – are one of the world's top ten food crops. They are grown almost exclusively in the wet tropics and sub-tropics, but are consumed in nearly every country as the world's most popular fruit.

The banana supply chain is local and global. About 85% of worldwide banana production is consumed in producer countries, where they are a staple food, a source of nutrition and food security for more than 400 million people. About 15% of global production is exported as dessert bananas, making bananas the world's most consumed tropical fresh fruit, and the most popular and internationally traded fruit.

Bananas are the leading fruit exported in terms of volume, and are second only to citrus fruit in terms of value.[1] In 2017 alone, 22.7 million tonnes of bananas were traded, representing almost 20% of global production that year. The value of this trade was worth USD 11 billion, which is higher than the export value of any other exported fruit, providing livelihoods to millions of smallholder farmers and plantation workers around the world.[2]

1 A United Voice for Banana Workers in Africa. Smith, A. (Banana Link) and Tossa, G.F. (IUF), March 2020; https://www.bananalink.org.uk/resources/

2 Bananas. IISD, May 2020; https://www.iisd.org/sites/default/files/publications/ssi-global-market-report-banana.pdf

In addition, the banana industry employs thousands of people in distribution networks and supermarkets worldwide. An export dessert banana can pass through the hands of more than fifty people before reaching the consumer.[3]

Depending on the region of the world, production varies from large-scale monoculture plantations, to medium-scale plantations, and small family-owned farms using more sustainable production methods. Plantations are managed on two clear criteria: yield per hectare, and the percentage of 'extra' grade bananas: the top grade for the largest bananas, which fetch the highest prices.[4]

Bananas consumed in developed market economies are grown in Latin America and a few Asian and African countries. Ecuador, Colombia, Guatemala, Costa Rica, and the Philippines account for more than 80% of global exports.[5] Export production in Africa is increasing. Côte d'Ivoire is currently in eighth place in global export rankings, Cameroon is tenth and Ghana fourteenth.[6] The Caribbean is also a banana exporting region.

The main banana importing countries, which account for more than 70% of the bananas traded internationally, are the European Union, USA, Russia, China and Japan.

Growing bananas is, in general, labour intensive. It involves clearing jungle growth, propping of the plants to counter bending from the weight of the growing fruit, and irrigation in some regions. In conventional production systems, pesticides, especially fungicides, are regularly and intensively used. Some twelve weeks before harvest, the developing fruits are covered with plastic sheaths/bags, often containing insecticides, to protect them from wind, insect and bird attacks, and to maintain optimum temperatures and humidity. After nine months, the bananas are harvested while still green and the stems transported to the packhouse. They are then washed, including use of chemical latex dispersants, classified, sprayed with a post harvest fungicide, and selected and sorted for export, packed in boxes, and loaded onto pallets for transport.[7]

Each banana plant will usually produce between three to four crops every nine months before replacement. So, on plantations, planting and replanting are routine activities, involving the use of powerful earth moving equipment. Bananas react quickly to drought and so require a reliable source of water for irrigation and a consistent electricity supply for pumping the water. Maintenance of irrigation systems, drainage ditches, drainage bridges and roadways are routine activities.

Corporate Power

Just a handful of multinational fruit companies dominate the international banana trade. In 2019, Chiquita, Del Monte, Dole and Fyffes, the four biggest companies, controlled a little over 40% of world banana trade (although in North America they remain very dominant). These companies control entire supply chains and have little need for advertising, making price the main competitive factor for capturing market share.

3 The Delicacy of Bananas. Compagnie Fruitière; https://www.compagniefruitiere.fr/la-delicatesse-de-la-banane/

4 West Africa Fruit - Scoping Study. Netherlands Enterprise Agency, 2016; https://www.academia.edu/67542546/West_Africa_fruit_Scoping_study

5 The Problem with Bananas. Banana Link. Undated; https://www.bananalink.org.uk/the-problem-with-bananas/

6 Africa Must Work Towards a United Voice for Banana Workers. Lievens, P., Banana Link, 4 June 2020. Opinion; https://www.freshfruitportal.com/news/2020/06/04/opinion-africa-must-work-towards-a-united-voice-for-banana-workers/

7 All About Bananas. Banana Link, Undated; https://www.bananalink.org.uk/all-about-bananas/

Other multinational companies like Compagnie Fruitière (French) or Agroamerica (Guatemalan) and a large handful of big national companies like Grupo Wong (Ecuador), Grupo Hame (Guatemala) and Grupo Acon (Costa Rica) now account for up to one-third of all exports. In West and Central Africa, Compagnie Fruitière controls approximately 80% of banana production/trade.[8]

In a negotiated agreement with IUF, "Chiquita acknowledges its responsibility to provide safe and healthy workplaces, and CHIQUITA and the IUF/COLSIBA agree to collaborate in efforts to further improve the health and safety of the Company's banana operations".[9]

Mega-supermarket chains, especially in Europe and North America, that are now the most powerful actors along the banana supply chain. Supermarkets are able to make substantial profits by paying unsustainably low prices to the fruit companies that market bananas and/or own plantations.[10]

Mega-supermarket chains in the USA and the European Union are extending their bargaining power in global trade as they are increasingly purchasing from smaller wholesalers or even directly from growers. In the United Kingdom, for example, supermarkets sell 80 per cent of the bananas available to consumers. This puts the leading British supermarket chains Tesco, Sainsbury's and Asda, which together account for some 60 per cent of banana sales in the retail sector, in a strong position to influence import prices.

Who makes the profits?

Banana production and distribution represent one of the world's oldest global supply chains. It has been built on a very long history of labour repression, low wages, trade union avoidance,[11] and poor health and safety. Banana workers around the world work in exploitative conditions where their human and labour rights are not respected, where health and safety conditions are poor, and they lack social protection.[12]

Bananas are emblematic of the growing power of mega-supermarkets along global supply chains and of the wide range of injustices present in international trade today, including unacceptable working and living conditions for many who grow and harvest the bananas, the suppression of independent trade unions and an unfair sharing of profits along the chain.[13]

On average, workers only earn between 4 – 9% of the total value of bananas. Meanwhile, retailers are able to earn up to 40% of the price paid by consumers, even more in some countries.[14]

8 FAO 2015. Cooper, A. Women in the Banana Export Industry. Regional Report on West and Central Africa. Working paper - Series for the World Banana Forum, p. 6. http://www.fao.org/3/bt422e/bt422e.pdf

9 IUF/COLSIBA and CHIQUITA Agreement on Freedom of Association, Minimum Labour Standards and Employment in Latin American banana operations, 2001.

10 Op cit 5.

11 Anner, M., 2020. What Difference Does a Union Make? Banana Plantations in the North and South of Guatemala., Center for Global Workers Rights, Pennsylvania State University, USA. Executive Summary; https://www.solidaritycenter.org/publication/what-difference-does-a-union-make-banana-plantations-in-the-north-and-south-of-guatemala/

12 Social protection is a human right. It ensures access to health care and income security for all. It provides for you and your family when you're sick or unemployed. ILO; https://www.ilo.org/100/en/story/protection/

13 Op cit 8.

14 Op cit 5.

1.2 Workers in the Export Banana Industry

Worldwide, an estimated 1.1 billion people work in agriculture, some 30-40 per cent of whom are waged agricultural workers, many of them employed on large-scale, monoculture plantations.

"*Waged agricultural workers are the women and men who labour in the crop fields, orchards, glasshouses, livestock units, and primary processing facilities to produce the world's food and fibres. They are employed on everything from small- and medium-sized farms to large industrialised farms and plantations. They are waged workers because they do not own or rent the land on which they work nor the tools and equipment they use and so are a group distinct from farmers.*"[15]

Plantation workers:[16]

- Do not own or rent the land they work on and typically do not own the tools and equipment they use;
- Work on every sort of plantation – from highly capitalised and mechanised to manual harvesting;
- Work for a wage, whether cash payment, in-kind payment, or a combination of both. Wages are usually very low, often below the poverty line;
- Are hired casually, part-time, seasonally, or full-time on plantations;
- May well be migrant workers from another country;
- Work within an 'employment relationship', a legal link between the employer-employee (though often without a formal or written contract), either directly with the plantation owner/company, or through a labour contractor or sub-contractor.

Plantations grow one main crop; require substantive capital investment; are larger than average sized holdings; rely on hired labour, often including migrant labour, and are centrally managed.

Bananas are harvested on plantations 52 weeks of the year (in contrast to other types of plantation crops where the fruiting period is seasonal). So the demand for labour on banana plantations is fairly constant. Hence plantations often directly employ the labour they use, even if it is casual labour. There is less use of contract labour than in other commercial plantation crops.

15 Hurst, P et al., 2007. Agricultural Workers and Their Contribution to Sustainable Agriculture and Rural Development. FAO, ILO, IUF; https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---actrav/documents/publication/wcms_113732.pdf

16 Harvesting Hunger: Plantation Workers and the Right to Food. IUF, MISEROR, FIAN, 2014; https://www.iuf.org/wp-content/uploads/2020/12/2014-Harvesting-Hunger.pdf

Precarious employment

Reports about problems in the banana industry often highlight the woefully poor situation of workers: low wages, precarious employment, restrictions on the right to organise themselves, poor health and safety conditions, and lack of social protection measures. These problems are referred to as "decent work deficits" in the language of the International Labour Organization (ILO).

Plantation workers' jobs and terms and conditions of employment vary tremendously, creating diverse and sometimes overlapping categories: full-time (permanent), temporary/casual or seasonal workers. Agricultural "jobs" are often difficult to categorise. Lack of accurate data, especially as national employment registration schemes for waged agricultural workers are often weak or absent, hinders efforts to raise the economic and social conditions of these workers.[17]

Based on their often non-standard employment status, which may involve third-party labour contractors, agricultural workers are frequently excluded from national labour laws, regulations and protections. When covered, many are poorly served due to the high costs and difficulty of monitoring agricultural work (e.g. contracted production, temporary workforces, remote locations, spread-out workplaces). In part because of this failure in effective governance, violence and harassment in all forms are some of many decent work deficits plaguing agricultural workers. As noted by the ILO's International Labour Conference in 2008, rural workers, especially in agriculture, face difficulties and gaps in protection with regard to their basic rights. Women are likely to experience these problems in more severe ways than men, but unfortunately statistics on coverage and enforcement remain sparse.[18]

"Non-standard forms of employment" is an umbrella term for different employment arrangements that deviate from standard employment. They include temporary employment; part-time and on-call work; temporary agency work and other multiparty employment relationships; as well as disguised employment and dependent self-employment.[19]

Women workers

It is estimated that women represent, on average, less than 20% of the workforce in the banana export industry.[20]

> Women workers in, for example, **Ecuador** and **Colombia** can represent as little as 5% of the workforce, because employers view women as 'high cost, high risk' employees, and women are often denied maternity benefits. They are often offered short-term contracts, and are at constant risk of losing their jobs.
>
> In some **Latin American** countries, women have to produce medical certificates proving that they are not pregnant, or submit pregnancy tests before they are offered jobs. Those with jobs can be the victims of sexual discrimination and harassment.
>
> The highest participation of women in the banana industry is in the **Caribbean** (excluding the Dominican Republic) where close to 40% of workers and small producers are women.

17 Ibid.

18 ILO 2008. Resolutions adopted by the International Labour Conference at its 97th Session 2008; https://ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_098017.pdf

19 ILO webpage. Non-standard forms of employment; https://www.ilo.org/global/topics/non-standard-employment/lang--en/index.htm

20 FAO/World Banana Forum, Undated. Women's Employment in the Banana Industry. http://www.fao.org/world-banana-forum/projects/good-practices/women-employment/en/

In the banana industry, there is a tendency for women to be more represented in smaller-scale production for domestic and regional markets, while men tend to be more present in large-scale banana production for the international export market.

In commercial agriculture, women tend to be concentrated in unskilled, labour-intensive tasks, with limited opportunities for skills upgrading. Women account for a large share of waged and contract workers in commercial agriculture, where they are hired to carry out any number of tasks in the production (e.g. planting, cultivation, and harvesting) of various agricultural products and crops.

Women's occupational health and safety is often not given enough attention or ignored completely, putting women workers at risk of injury, disease and ill-health. It is important to ensure that health and safety issues particularly affecting women at work (such as gender-related violence, pregnancy, menstruation and menopause) are adequately addressed.[21]

* (See more in Chapter 5.)

Migrant workers

Migrant workers are found in all types of employment relationships as casual, temporary, seasonal or even full-time workers. They may be workers from another country or migrant workers from a different part of a country. Wherever they come from, migrant workers are always heavily disadvantaged in terms of pay, social protection, housing and medical protection.[22]

In the banana industry, migrant workers are predominantly male. This is due to their relative ability to travel according to family responsibilities, and also because of gender discrimination in employment opportunities for women in the industry. Migrant workers are a particularly vulnerable population, especially when undocumented.

Challenges faced by migrant workers in the banana industry include:

- Employment insecurity, more likely to be on temporary, less competitive contracts (or informal/oral contracts) and through non-standard, including casual, work arrangements;
- Minimal bargaining power to improve their working conditions, particularly as migrant workers tend to be less likely to join a local trade union due to fear of discrimination, repression and deportation when undocumented;
- Legislative restrictions on the right of migrants or foreign workers to form or join trade unions, often based on residency requirements and principles of reciprocity, may prevent them from playing an active role in the defence of their interests. Language barriers can also greatly affect migrant workers' bargaining power;
- Temporary and sub-standard accommodation;
- Limited or no access to local healthcare and social security, constituting a particular issue in the banana industry due to the significant health and safety risks for workers.[23]

21 IUF. 2019. Making Women Visible in Occupational Health and Safety; https://www.iuf.org/wp-content/uploads/2020/12/3.-Making-women-visible-in-OHS-ENGLISH-def.pdf

22 Op cit 15.

23 FAO/World Banana Forum. Undated. Migrant Workers in the Banana Industry. http://www.fao.org/world-banana-forum/projects/good-practices/migrant-workers/en/

1.3 Health, Safety and Labour Issues Reported by Women Banana Workers

In a series of FAO/World Banana Forum (WBF) reports on *Women in the Banana Export Industry in Ghana, Côte d'Ivoire, and Cameroon*, women workers identified Occupational Health and Safety (OHS) as a key issue. The reports noted that whilst most of the banana companies have very detailed health and safety policies/initiatives, there seems to be virtually no consideration of the gender aspects of health and safety in any of their manuals/reports.[24] See also the *Banana Occupational Safety and Health Initiative's Guidelines on Healthy and Safe Employment of Women in the Ghanaian Banana Industry*.[25]

The key OHS/labour issues in all three of those countries were low wages, hours of work, health and safety (in particular for pregnant women and nursing mothers), sexual harassment and lack of childcare provision. Women experience a triple burden as plantation worker, domestic worker and child carer.

In **Cameroon** and **Ghana**, women reported earning less than men.

In **Cameroon**, women workers reported the following OSH issues:

- skin diseases;
- cardiovascular diseases;
- miscarriages;
- persistent abdominal pains;
- irregular menstruation;
- asthma; eye infections;
- nose bleeds,
- swollen feet and nail fungi.

* **These issues are discussed further in Chapter 5.**

24 Op cit 8.

25 https://www.bananalink.org.uk/wp-content/uploads/2020/03/ENG_Guidelines-on-healthy-and-safe-employment-of-women-in-the-ghanaian-banana-industry.pdf

Photo | Bananalink

CHAPTER 2.

LEGAL AND INSTITUTIONAL FRAMEWORKS ON HEALTH AND SAFETY IN THE BANANA EXPORT INDUSTRY

2.1 Laws on Health and Safety

In your country, it is important to identify the legal, institutional and organisational framework governing health and safety in the banana industry.

Which are the health and safety laws – Acts, Regulations, Orders, Decrees, etc. – regulating health and safety?

What are the legal rights, duties, responsibilities that apply to the various stakeholders - employers, workers, government?

Which are the main institutions/bodies with responsibility for managing the national health and safety system (e.g. the Ministry of Labour/Employment), and for the application of laws, including compliance and enforcement measures?

Check information on your country's laws and legal framework, from an international perspective, by looking at the following International Labour Organization (ILO) sources of information:

ILO Conventions. NORMLEX Information System on International Labour Standards.

This shows which ILO Conventions your country has ratified.[26]

ILO Country Profiles on occupational safety and health. Browse by country.[27]

ILO LEGOSH global database on health and safety legislation. Browse by country.[28]

ILO NATLEX Database of national labour, social security and related human rights legislation. Browse by country and by subject, e.g. health and safety.[29]

26 https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12000:0::NO:::

27 https://www.ilo.org/resource/national-profiles-occupational-safety-and-health

28 https://www.ilo.org/dyn/legosh/en/f?p=14100:1:::NO:::

29 https://www.ilo.org/dyn/natlex/natlex4.home?p_lang=en

2.2 Legal Rights, Duties and Responsibilities

Using ILO labour Conventions/Standards as the main reference:

2.2.1 Duties of employers in health and safety

As stated in ILO Convention No. 184 on Safety and Health on Agriculture, 2001,

Article 6:

1. In so far as is compatible with national laws and regulations, the **employer** shall have a duty to ensure the safety and health of workers in every aspect related to the work.
2. National laws and regulations or the competent authority shall provide that, whenever in an agricultural workplace two or more **employers** undertake activities, or whenever one or more employers and one or more self-employed persons undertake activities, they shall cooperate in applying the safety and health requirements. Where appropriate, the competent authority shall prescribe general procedures for this collaboration.

Article 7:

In order to comply with the national policy referred to in Article 4 of the Convention, national laws and regulations or the competent authority shall provide, taking into account the size of the undertaking and the nature of its activity, that the **employer** shall:

(a) carry out appropriate **risk assessments** in relation to the safety and health of workers and, on the basis of these results, adopt preventive and protective measures to ensure that under all conditions of their intended use, all agricultural activities, workplaces, machinery, equipment, chemicals, tools and processes under the control of the employer are safe and comply with prescribed safety and health standards;

(b) ensure that adequate and appropriate **training** and comprehensible **instructions** on safety and health and any necessary guidance or supervision are provided to workers in agriculture, including information on the hazards and risks associated with their work and the action to be taken for their protection, taking into account their level of education and differences in language; and

(c) take immediate steps to stop any operation where there is an **imminent and serious** danger to safety and health and to evacuate workers as appropriate.

In their businesses, employers are often required to set up and operate workplace Health and Safety Committees with particpation of their workers.

In your own country, check which law(s) — Acts, Regulations, Orders, Decrees, etc. — regulate the duties of employers to provide decent health and safety conditions for the workers they employ. What are the specific requirements?

Where workers are employed through labour contractors[30] or provided through labour supply agents, these contractor/agents should:

a. Be registered or hold licences where required by national laws or regulations or subscribe to recognised voluntary schemes where they exist; and

b. Make themselves aware of and operate according to the commissioning party's policies and strategies for the promotion of OSH, and should comply and cooperate with related measures and requirements.

2.2.2 Employment relationships in the banana industry

An employment relationship exists when labour services are performed under certain conditions in return for remuneration. It is the legal link between an employer and an employee which triggers many of the reciprocal rights and obligations contained in labour law in numerous countries — with, however, variations.[31]

The nature and extent of protection given to workers in an employment relationship should be defined by national law or practice, or both, taking into account relevant international labour standards. Such law or practice, including those elements pertaining to scope, coverage and responsibility for implementation, should be clear and adequate to ensure effective protection for workers in an employment relationship.[32]

However, there are often difficulties in establishing whether or not an employment relationship exists in situations where the respective rights and obligations of the parties concerned are not clear, where there has been an attempt to disguise the employment relationship, or where inadequacies or limitations exist in the legal framework, or in its interpretation or application.

2.2.3 Controller of premises

Health and safety laws may impose on persons duties in relation to those who:

a. are not their employees; but

b. use non-domestic premises made available to them as a place of work (i.e. a plantation) or as a place where they may use plant or substances provided for their use there.

In the situation where contract labour is being used on the plantation and where the employer of this labour is the contractor, the plantation should have a legal responsibility as a "controller of premises" to ensure the health and safety of any worker (or visitor) on that plantation.

30 **Contractor**: "Person or an enterprise providing services to an employer at the workplace in accordance with national laws and regulations, or with agreed specifications, terms and conditions". **Labour supply agent** is a "Supplier or provider of workers". ILO Code of Practice on Safety and Health in Agriculture, Section 3.7.

31 Conclusions concerning the employment relationship. International Labour Conference 91st session, 2003.

32 ILO Recommendation No. 198: Employment Relationship, 2006, Article 1.2; https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312535

2.2.4 Worker and trade union organisation on health and safety in the workplace

We need first to identify and discuss the main ways in which workers and trade unions in your country organise to improve workplace health and safety conditions and standards, and what legal rights and powers they have. Two main types of Worker Representatives are the basis of worker and trade union organisation on workplace health and safety:

- Worker Health and Safety Representatives; and
- Worker Representatives on Workplace Health and Safety Committees

2.2.5 Workers' rights and responsibilities on health and safety

As per ILO Convention No. 184 on safety and health in agriculture:

Article 8

1. Workers in agriculture shall have the right:
   (a) to be informed and consulted on safety and health matters including risks from new technologies;
   (b) to participate in the application and review of safety and health measures and, in accordance with national law and practice, **to select safety and health representatives and representatives in safety and health committees**; and
   (c) to remove themselves from danger resulting from their work activity when they have reasonable justification to believe there is an imminent and serious risk to their safety and health and so inform their supervisor immediately. They shall not be placed at any disadvantage as a result of these actions.
2. Workers in agriculture and their representatives shall have the duty to comply with the prescribed safety and health measures and to cooperate with employers in order for the latter to comply with their own duties and responsibilities.
3. The procedures for the exercise of the rights and duties referred to in paragraphs 1 and 2 shall be established by national laws and regulations, the competent authority, collective agreements or other appropriate means.
4. Where the provisions of this Convention are implemented as provided for by paragraph 3, there shall be prior consultation with the representative organisations of employers and workers concerned.

2.2.6 Worker health and safety representatives

For trade unions, workplace organisation and representation are the keys to maintaining and improving health, safety and environmental conditions in the workplace. Legally appointed and empowered worker health and safety representatives are the backbone of trade union organisation on health and safety at work. They are the eyes and the ears of trade unions on workplace occupational health and safety problems and play crucial roles on a daily basis in reducing fatalities, injuries and disease at work. Many deal with workplace environmental issues as well. These health and safety representatives help protect workers, the public, and the general environment, and ensure food safety.

Worker health and safety representatives are the best option for trade unions as — **on a day-to-day basis** — they deal directly with the employer/management on OHS issues. They do *not* have to operate through a workplace occupational health and safety (OHS) committee — where they are usually outnumbered by management and other persons from outside.

Accepting OHS Committees as the main body dealing with health and safety potentially undermines arguments for promoting systems of worker health and safety representatives in agricultural workplaces.

Check if your national laws allow for any form of legally empowered worker representatives? If so, do these worker representatives have any legal rights and powers to deal with health and safety in the workplace? If so, what are these rights and powers? Do you have any examples of these representatives protecting workers by improving their health and safety conditions?

2.2.7 Training Exercise 1

HEALTH AND SAFETY REPRESENTATIVES

Topic: Worker health and safety representatives are sometimes a legal requirement on plantations and large farms; and sometimes they are the result of a (Collective) Agreement between the employer and workers/their trade union.

These representatives deal on a daily basis with health and safety issues with the employer/management, acting on problems as they arise and coming up with solutions.

Task: How can you make best use of the rights and powers of worker representative(s) on your plantation to improve workplace health and safety conditions and standards?

Resources: Check the rights, powers and functions of health and safety representatives in your country at the ILO LEGOSH H&S database:

https://www.ilo.org/dyn/legosh/en/f?p=14100:1:::NO:::

Workers' health and safety representatives at the workplace may/should have:

- Right to inspect the workplace and to participate in risk assessments
- Right to access occupational health and safety (OHS) information
- Right to be present at interviews
- Right to receive professional assistance from OHS experts
- Right to accompany labour inspectors and to receive reports from them
- Right to use facilities
- Right to have time off work with pay to perform duties
- Right to issue remedial notices
- Right to resolve OHS issues in consultation with employers
- Right to direct that dangerous work cease

Workers' representatives from outside the undertaking may have rights to address OHS issues at the workplace:

- Right to enter the workplace
- Right to investigate suspected non-compliance with OHS legislation
- Right to consult with workers
- Right to advise workers
- Right to initiate enforcement action

Worker representatives must also have the right to protection from dismissal while exercising their OHS functions,[33] the right to reasonable time during paid working hours to exercise their OHS functions, and the right to receive training related to these functions.

33 ILO 2011. Code of Practice on Safety and Health in Agriculture. Glossary, pp 177-181. https://normlex.ilo.org/dyn/nrmlx_fr/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID%2CP12100_LANG_CODE:312502%2Cen

2.2.8 Worker representatives on workplace Health and Safety Committees

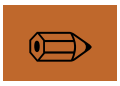
A workplace Health and Safety Committee is defined as, "A committee with representation of workers' safety and health representatives and employers' representatives established and functioning at organisation level according to national laws, regulations and practice."[34]

Employers should provide for the establishment and efficient functioning of OHS committees, recognising workers' elected OHS representatives. OHS committees should include workers or their representatives and employers' representatives who are competent in OHS matters - with appropriate knowledge, experience and skills. Participation of women on these committees should be encouraged.

Such committees are an important mechanism of consultation, collaboration and cooperation between employers and workers and their representatives. Such a committee is a way for workers to act in cooperation with the employer on a problem solving basis.

However, as previously mentioned, it is also important that health and safety activities in the workplace are not just restricted to the committee and that health and safety representatives also play an active role, as well as the company safety and health officer.[35]

Check if your national laws have any provision for employers to set up and run Health and Safety Committees in their businesses. If so, are worker representatives members of these committees, and what legal rights and powers do they have on them? Do you have any examples of how these committees and their worker reps protect workers by improving their health and safety conditions?



2.2.9 Training Exercise 2

WORKER REPRESENTATIVES ON HEALTH AND SAFETY COMMITTEES

Topic: Workplace Health and Safety Committees, as required by national law, are sometimes found on plantations and larger farms. The composition and decision making processes should normally be jointly agreed when the committee is established.

Task: As worker representative(s) on the Health and Safety Committee on your plantation, how can you use it most effectively to ensure workers' rights and to improve health and safety conditions?

Resources: Check your country information on the ILO LEGOSH global database on health and safety legislation:

https://www.ilo.org/dyn/legosh/en/f?p=14100:1:::NO:::

34 Ibid.

35 Series of Training Manuals on Health, Safety and Environment for Agricultural Workers. ILO ACTRAV, IUF, ILO Geneva, 2005, Manual 3, pp. 76-78. https://www.iuf.org/wp-content/uploads/2004-Health-Safety-and-Environment-Manuals-for-Agricultural-Workers.pdf

Health and Safety Committees should:[36]

Be able to contribute to negotiations and the decision-making process at the level of the company regarding OHS matters;

Develop workplace health and safety risk assessment procedures with the active participation of the workforce;

Review risk assessment reports, and reports of checks on the effective implementation of risk control measures between assessments;

Use the results of risk assessment to develop new policies and safe systems of working;

Check on the implementation of the OHS clauses of collective bargaining agreements;

Be consulted in planning alterations of work processes, work content or organisation of work, new plans for buildings, equipment and processes, with a view to determining what new risk prevention/control measures may be needed;

Be consulted when major new health and safety measures are envisaged and before they are carried out, and seek to obtain the support of the workers for such measures;

Review injury and disease/ill health reports in order to come up with proposals on future accident/disease prevention;

Ensure liaison with the local labour inspector or local labour officer as well as reviewing reports from labour inspectors; (the labour inspector is sometimes a member of the workplace OHS committee);

Review health and safety information, training and communication with workers, based on the committee itself being given adequate information on OHS matters to enable members to examine factors affecting OHS, and with a view to proposing risk control measures;

Develop policies to ensure that contractors and sub contractors working for the employer/company follow correct health and safety procedures;

Develop policies to link into the local communities, and to ensure that hazardous company operations, e.g. pesticide spraying, do not harm local residents or pollute soil and water;

Develop environmental policies;

Develop policies to ensure that the company/employer prevents the use of child labour at any point along the company's supply chain;

Have recourse to specialists to advise on particular OHS problems.

36 Op cit 33.

2.2.10 Government and health and safety in agriculture

Competent Persons on health and safety

Those persons who deal with occupational health and safety must be competent. A **competent person** is defined as, "a person with suitable training and sufficient knowledge, experience and skill for the safe performance of the work in question.[37] The government competent authority for health and safety may define appropriate criteria for designating such persons and may determine the duties to be assigned to them". Competency applies to the employer, management personnel, worker representatives, or personnel from any outside service brought in to assist.

2.2.11 Government Competent Authority on health and safety

A "**competent authority**" is defined as, "A minister, government department or other public authority with the power to issue regulations, orders or other instructions having the force of law. Under national laws or regulations, competent authorities may be appointed with responsibilities for specific activities, such as for the implementation of national policy and procedures for the protection of agricultural workers". For example, the term *regulations* covers all provisions given force of law by the competent authority or authorities.

Nationally, there may be more than one government competent authority with responsibility for Health and Safety in Agriculture. If this is the case, what is the division of responsibilities and powers between these competent authorities? Are there any coordination mechanisms between these competent authorities? If so, do workers and trade union interact with them and, if so, how?

The **Ministry of Labour** deals with health and safety for workers in industry and commerce. Does it deal with waged agricultural workers, including migrant workers? Do the Labour Inspectors it employs, organises and trains, carry out routine inspections on farms and plantations?

The **Ministry of Agriculture** has the primary responsibility for agricultural affairs, dealing especially with farmers. Does it also have any responsibility for ensuring decent working and living conditions for waged agricultural workers, including migrant labour?

In the case of agricultural health, safety and environment, the **Ministries/Departments of Health and Environment** may also have responsibilities and powers.

National pesticide management, control and registration system. Which government ministry is in charge of this function? (It is often the **Ministry of Agriculture or Environment**.) Are the Ministry of Labour and national trade unions represented on the inter-ministerial Pesticide Technical Committee?

Are there any **coordination mechanisms** for cooperation on agricultural health and safety between Ministries/Departments? If so, do workers and their trade unions have any rights of participation in these coordinating bodies.

37 Op cit 33.

2.2.12 Labour inspection (Government)

ILO Convention No. 184 on Safety and Health in Agriculture, 2001

Article 5:

1. Members shall ensure that an **adequate and appropriate system of inspection for agricultural workplaces** is in place and is provided with adequate means.

2. In accordance with national legislation, the **competent authority** may entrust certain inspection functions at the regional or local level, on an auxiliary basis, to appropriate government services, public institutions, or private institutions under government control, or may associate these services/institutions with the exercise of such functions.

Labour inspection is a function of government and should not be confused with private/company certification/checking/verification schemes. The government **Labour Inspectorate** is, "The competent authority established by national legislation to secure the enforcement of the legal provisions relating to the conditions of work and the protection of workers while engaged in their work".

The term also encompasses specialist OSH inspectorate and likewise the term "labour inspector" includes OSH inspectors, OSH officers and similar designations.[38]

Labour Inspectorates and their labour inspectors enforce provisions relating to hours, wages, weekly rest and holidays, safety, health and welfare, the employment of women, children and young persons, and other connected matters. In practice, labour inspection services and their labour inspectors give much information and advice to employers, workers, cooperatives and others, through workplace visits, a function that is vital to the effective working of the organisation. Where necessary, and frequently as a last resort, inspectors may take formal enforcement action in order to achieve compliance with the law.[39]

The ILO has concluded that labour inspection in agriculture is generally either weak or non-existent. Only a small proportion of agricultural and other rural enterprises worldwide are legally covered by labour inspection. In many countries, rural enterprises are rarely visited due to lack of human and financial resources allocated to labour inspectorates. For the IUF and its affiliates, a key challenge is to build modern, efficient labour inspection services to ensure that rural workers have equivalent levels of labour protection to those provided for urban workers in industry and commerce. Regular inspection visits by government labour inspectors on banana plantations is an essential element in ensuring the implementation and maintenance of good health and safety conditions and standards.[40]

38 Op cit 33.

39 ILO ITC, 2011. Managing labour inspection in rural areas Curriculum on Building Modern and Effective Labour Inspection Systems, Module 14: Managing labour inspection in rural areas; https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-port_of_spain/documents/genericdocument/wcms_633613.pdf

40 ILO ITC, 2011. Field labour inspection services in rural areas. ITC-ILO Curriculum on Building Modern and Effective Labour Inspection Systems, Module 15; https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-port_of_spain/documents/genericdocument/wcms_633614.pdf

2.2.13 International Conventions

It is important for trainers to check which ILO Conventions your country has ratified, and which can also serve as a legal framework or guidelines for improving and enforcing health and safety conditions and standards — and to discuss this topic with participants.[41]

Relevant Conventions include:

No. 184 Safety and Health in Agriculture, 2001

No. 155 Occupational Safety and Health, 1981

No. 187 Promotional Framework for Occupational Safety and Health, 2006

No. 81 Labour Inspection (Industry and Commerce), 1947

No. 110 Plantations, 1958

No. 129 Labour Inspection (Agriculture), 1969

No. 135 Workers' Representatives, 1971

No. 144 on Tripartite Consultation (International Labour Standards), 1976

No. 190 on Violence and Harassment, 2019

Toxic substances

The UN Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes believes that every worker has an inherent right not to be exposed to toxic substances without their prior informed consent.

In a 2018 report, the Special Rapporteur offers 15 principles to help States, business enterprises and other stakeholders protect, respect and fulfil the human rights of workers that have been infringed by their occupational exposures to toxic and otherwise hazardous substances. They are grounded in international human rights law and build upon the Guiding Principles on Business and Human Rights, ILO instruments and international agreements on toxic chemicals and wastes, among others.[42]

41 ILO NORMLEX. https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12000:0::NO:::

42 Report of the Special Rapporteur. United Nations Human Rights Council 39th session, 2018, Agenda item 3, A/HRC/39/48; http://www.srtoxics.org/wp-content/uploads/2018/09/2018-HRC-report-on-Workers-Rights-EN.pdf

CHAPTER 3.

WORKPLACE HEALTH AND SAFETY RISK ASSESSMENT BY THE EMPLOYER WITH THE ACTIVE PARTICIPATION OF THE WORKFORCE

This Chapter is based on ILO SAFEWORK 2013 Training Package on Workplace Risk Assessment and Risk Management for Small and Medium-Sized Enterprises.[43]

43 https://labordoc.ilo.org/permalink/41ILO_INST/1s2ok2m/alma994817203402676 ISBN 978-92-2-120764-5 (print); ISBN 978-2-127065-2 (web pdf)

3.1 What is risk assessment and why is it important?

Workplace Health and Safety Risk Assessment, which is the duty of the **employer** to carry out — with the **active participation of the workforce** — is at the centre of risk management.

An **occupational health and safety risk management system** is defined as, "A set of interrelated or interacting elements to establish occupational health and safety policy and objectives, and to achieve those objectives". Risk management and risk assessment are integral parts of a company's occupational health and safety management system.[44]

The aim of workplace health and safety risk assessment is to prevent and reduce fatal accidents, injuries and disease/ill health at work.

Health and safety risk assessment is a key tool for employers, enabling them to identify hazards at work and who is at risk of harm, then to assess the degree of risk arising from each hazard, and to implement effective health and safety improvements (following the Hierarchy of Risk Control Measures), to protect workers, other persons affected by their work activities, neighbouring communities, and the environment.

3.2 The duty of the employer to carry out risk assessment

It is the duty of the employer to carry out risk assessment (something they are often required by law to carry out):

> **Before** exposing workers or other persons to danger from their work activities; and
>
> To implement the risk control measures identified in the assessment, following the **Hierarchy of Risk Control Measures** **(see Section 3.6)**.

Risk assessments should NOT be carried out by the employer or the employer's representative working in isolation. They should involve workers and/or the worker representatives. Workers should be consulted as part of the assessment process itself and given information on any conclusions reached, as well as on the risk control measures to be taken.

As clearly identified in ILO Convention No. 184 on Safety and Health in Agriculture, Article 7:

> "In order to comply with the national policy referred to in Article 4 of the Convention (Members shall formulate, carry out and periodically review a coherent national policy on safety and health in agriculture), national laws and regulations or the competent authority shall provide, taking into account the size of the undertaking and the nature of its activity, that the employer shall:
>
> (a) carry out appropriate risk assessments in relation to the safety and health of workers and, on the basis of these results, adopt preventive and protective measures to ensure that under all conditions of their intended use, all agricultural activities, workplaces, machinery, equipment, chemicals, tools and processes under the control of the employer are safe and comply with prescribed safety and health standards."

44 ILO 2012. Integrating Health Promotion into Workplace OSH Policies. Trainers Guide, p. 54; https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/instructionalmaterial/wcms_178397.pdf

3.3 The employer cannot transfer legal responsibility for risk assessment to a third party

The employer cannot try and shift responsibility onto the workers to carry out risk assessments, though this regularly happens.

Employers may use another person or body (e.g. an outside service) as the "competent person/body" to carry out the risk assessment. Whilst the employer can seek their assistance, and work with them, **the legal responsibility to improve workplace health and safety conditions through implementing risk control measures as identified in the risk assessment rests with the employer**. The employer cannot transfer her/his legal duty regarding health and safety to another person or body (e.g. one of her/his workers or an outside service). The employer can seek their assistance, work with them, but the legal responsibility to improve workplace health and safety conditions through implementing risk control measures as identified in the risk assessment rests with the employer.

This is an important point, as many businesses are now erroneously promoting **Behaviour Based Safety (BBS) Programmes**[45] which are based on the premise that it is the workers' behaviour and 'unsafe acts' that are responsible for injuries, illnesses, and fatalities. If the behaviour of workers can be changed, and workers work more 'carefully' then, according to BBS, occupational injuries, illnesses and fatalities will be prevented and workplaces will be safe. Using BBS, some companies will claim that it is the workers' responsibility to carry out risk assessment and to take corrective actions by changing their behaviour. This is a **FALSE ARGUMENT** which workers and their representatives must strongly reject and report to their trade union when this occurs.

3.4 Why training on risk assessment is important for workers

It is **NOT** the responsibility of the workers to carry out a risk assessment: this is the responsibility of the employer. But their active involvement will make for a better risk assessment and more accurate and cost-effective risk controls.

It is important that workers receive training on workplace health and safety risk assessment for the following reasons. To:

> Enable workers to fully understand the purpose of workplace health and safety risk assessment and their role in ensuring risk assessments are fully and properly carried out. Workers know the risks that are likely to kill or harm them. Workers also have practical ideas and knowledge on risk control measures which can prevent or reduce the risk of harm from the hazards they face on a daily basis.
>
> Allow workers to assess whether the employer's risk assessment has been properly carried out and has identified health and safety improvements which are realistic and will effectively protect workers.

45 IUF 2019. Behaviour Based Safety Programs. IUF Policy Paper; https://www.iuf.org/wp-content/uploads/2019-Behaviour-based-safety-programs.pdf

3.5 Carrying out a Workplace Risk Assessment: a five-step process

There are no set ways of carrying out a risk assessment, and there is a wide variety of information and methodologies on the subject, which can sometimes be confusing.

The *ILO's Training Package on Workplace Risk Assessment and Risk Management for Small and Medium-Sized Enterprises*[46], after looking at risk assessment methodologies/systems around the world in a wide range of enterprises of all sizes, adopted a five step approach to risk assessment, which is the one used in this Manual.

Step 1. Identify the hazards, who is at risk, and how.

Step 2. Evaluating the degree of risk they face from each hazard, and prioritising risks for action.

Step 3. Identify and decide on the safety and health risk control measures according to the **Hierarchy of Risk Control Measures** **(see Section 3.6)**.

Step 4. Take action: implement the health and safety risk controls following the order in the list/hierarchy in Step 3.

Step 5. Record your findings, monitor and review your risk assessment. Update when necessary.

Based on these five steps, **Training Exercise 5: Carry out a risk assessment and fill in the form:** **Chapter 4, Section 4.27**, contains a blank MODEL RISK ASSESSMENT FORM for you to fill in and complete. (Take some photocopies first of the blank form which you can then use to do more risk assessments.)

3.6 Hierarchy of Risk Control Measures[47]

In small, medium or large enterprises/companies, a workplace health and safety risk assessment is essentially a careful examination by the employer (as the "competent person") - with the active participation of the workforce - of any work activities that could kill, injure, or cause disease or ill health to her/his workers, and even members of the public in certain cases, especially in neighbouring communities, or even damage the environment.

It is important that the employer or representative carefully assesses the degree of risk arising from each problem (hazard) and then decides on and implements the necessary risk control measures, following the order in the Hierarchy of Risk Control Measures **(see Step 3 of the risk assessment above)**.

The employer should take into account existing health and safety measures that already provide protection, and then decide what further improvements (risk control measures) need to be implemented to further reduce risks of injury or disease/ill health, with a focus on controlling risks at source.

Risk control measures at source which provide collective protection for all workers in the workplace are of higher quality than measures providing only individual protection.

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46 ILO SAFEWORK 2013 Training Package on Workplace Risk Assessment and Risk Management for Small and Medium-Sized Enterprises. ISBN 978-92-2-120764-5 (print); ISBN 978-2-127065-2 (web pdf); https://labordoc.ilo.org/permalink/41ILO_INST/1s2ok2m/alma994817203402676

47 Ibid.

Commercially, proof that risk assessment(s) have been carried out and appropriate risk control measures implemented is also increasingly a factor required by buyers in determining market access, and in ensuring participation in product certification schemes.

Hierarchy of Risk Control Measures

Risk Control Measure 1.	Elimination or substitution of hazards
Risk Control Measure 2.	Tools, equipment, technical and engineering controls
Risk Control Measure 3.	Safe work organisation, systems, practices, information and training
Risk Control Measure 4.	Water, sanitation, hygiene, welfare, and first aid
Risk Control Measure 5.	Personal Protective Equipment
Risk Control Measure 6.	Health/medical surveillance (by qualified persons)

3.7 Hazard and risk

'Hazard' and 'risk' are used interchangeably in everyday speech. Consequently, to avoid confusion when carrying out a risk assessment, both terms need to be clearly defined and differentiated. In this manual:

A **HAZARD** is anything that has the potential to cause harm, whether to the detriment of the health or safety of a person, or damage to property, equipment or the environment. The potential for harm is inherent in the substance or machine or poor work practice, etc. A hazard is "The inherent potential to cause physical or psychological harm to the health of people".

A hazard can, therefore, be anything – work materials, machinery, equipment, chemicals, pesticides, tools, dust, disease-causing micro-organisms, extreme temperatures, electricity, noise, vibration, transport, poor workplace layout, poor work organisation, methods or practices, systems of work, attitudes – that has the potential to injure people and/or damage their health. There are an unlimited number of hazards that can be found in almost any workplace.

RISK is the chance or probability (likelihood) that a hazard will actually result in injury or disease/illness or damage to property, equipment or the environment, together with an indication of how serious the harm could be, including any long-term consequences.

Risk = probability of harm x severity of harm

When deciding on the acceptability of risk, it is important to take into account the gender, age and health of the workers for whom the assessment is being conducted and also to bear in mind their input to the process.

While hazards are intrinsic to a given substance or process, risks are not and so risk levels will vary depending on the levels of risk control measures applied. See the Example in Section 3.15.

3.8 Degree of risk: Setting priorities for action

For each hazard, the employer must assess the degree of risk, based on likelihood × severity of harm, as this will determine what corrective risk control measures are needed and in which order they should be implemented (high risk first).

Probability of harm

1. **Rare** — has rarely if ever happened.
2. **Unlikely** — is possible, but is not expected to happen.
3. **Possible** — could be expected to happen once a year.
4. **Likely** — will probably occur, but is not persistent.
5. **Almost certain** — occurs regularly.

Severity of harm

1. **Insignificant** — no injury or ill health.
2. **Minor** — short-term impact.
3. **Moderate** — semi-permanent injury or ill health.
4. **Major** — disabling injury or ill health.
5. **Catastrophic** — potentially fatal.

By determining the level of risk associated with each hazard identified in the working environment, employers in cooperation with workers and their representatives can identify areas for priority action. For example, a risk that rarely arises (1) and has insignificant consequences (1) would have the lowest priority (1) (i.e. 1 × 1 = 1), whereas a hazardous event that occurs regularly (5) and has potentially fatal consequences (5) would have the highest priority for action (25) (i.e. 5 × 5 = 25).

The higher the level of risk, the more important it is to apply risk controls that eliminate, reduce or minimise exposure to the hazard.

While hazards are intrinsic to a given substance or process, risks are not and so will vary depending on the levels of risk control measures applied. For example, pesticides are intrinsically hazardous and spraying them may pose serious health risks. But where the risks from these hazards are properly controlled, the risks can be reduced to acceptable levels.[48]

48 Op cit 46.

3.9 Assessing the actual risk of harm from direct exposure to the hazard

Spray Operator 1, applying Insecticide A: Highly Hazardous, is potentially at greater risk of pesticide poisoning than Spray Operator 2, applying Insecticide B: Moderately Hazardous, as insecticide A is intrinsically more toxic than insecticide B.

Spray Operator 1, using the Highly Hazardous Insecticide A, is well trained in correct application techniques (with a safe system of work), is using well maintained and calibrated spray equipment, has proper information having read the insecticide label and product safety data sheet (on precautionary measures), quickly washes off any pesticide contaminating the skin, has the recommended Personal Protective Equipment (PPE), and once the job is finished, washes thoroughly and changes into clean clothing.

Spray Operator 2, using the Moderately Hazardous insecticide B, is not well trained in correct application techniques (with no safe system of work), uses poorly maintained and calibrated spray equipment, has not properly read the label or safety data sheet, is casual about washing off any pesticide contaminating the skin, uses PPE of variable quality, does not thoroughly wash after the job is finished, nor rapidly change out of the pesticide-contaminated clothing.

Spray Operator 2 gets more of insecticide on his/her skin and clothing, and potentially breathes in more pesticide droplets than Spray Operator 1.

In the **actual situation of use** of the insecticides, Spray Operator 2, using a less toxic substance, has a **HIGHER DEGREE OF RISK** of pesticide poisoning than the Spray Operator using a more toxic insecticide.

So, in order to reduce the risk of pesticide poisoning, the employer of Spray Operator 2 will need to apply a wider range, and stricter, risk control measures than the employer of Spray Operator 1.

3.10 Collective protection measures versus individual protection

In preventing and controlling risks, Collective Protection risk control measures always take priority — are of higher value than — Individual Protection measures. Collective Protection measures such as, for example, soundproofing noisy machinery (engineering control), protect the hearing of all workers exposed to noisy machines and avoid them having to wear individual ear plugs/defenders for long periods.

Personal Protective Equipment (PPE) should mainly be used if necessary to boost the levels of control provided by collective protection risk control measures (with some exceptions, e.g. chainsaw use).

Unfortunately, PPE is often the first and only risk control measure considered and provided by the employer. Much of it does not provide adequate safety and health protection. It is uncomfortable to wear or use for long periods and often does not fit the user well. People are of different shapes, sizes and genders – one size does not fit all.

PPE should be suitable for women's bodies and not be unisex.

> In **Ghana**, the Golden Exotics Banana Company (GEL) is apparently now providing equipment that is gender sensitive.[49]

In the employer's risk assessment, if it is judged that PPE is needed, the assessment should include details of the types of PPE **to be provided and the protection factor for each item provided**. The risk assessment should indicate how the PPE will be cleaned and maintained, and how often it should be replaced. **Remember that any PPE required should be provided at no cost to the worker.**

Personal Protective Equipment includes:

- coveralls
- eye protection
- footwear
- gloves
- hearing protection
- disposable dust masks, dust/chemical respirators
- safety helmets
- wet/cold-weather clothing.

> A study of **Ecuadorian** banana workers found that, "Employers seldom provide protective equipment and clothing. When they do, workers often have to pay for it themselves. One women worker stated, "They sell gloves at the plantation, but they get worn out very quickly — after 15 days they're damaged. We're obliged to wear gloves because, without them, we might damage the bananas with our nails."[50]

3.11 Engineering controls provide collective protection

The term 'Engineering Controls' covers a broad spectrum of possible interventions that are intended to reduce worker exposure to chemical, physical and biological agents[51]. Engineering Controls provide collective means of protection for workers, and identifying and implementing them must always come before consideration of individual means of protection (PPE).

An Engineering Control is a physical modification to a process, or process equipment, or the installation of further equipment with the goal of preventing the release of contaminants into the workplace (chemicals, dust, noise, micro-organisms, etc.). There are a wide range of engineering controls which could be applied. The control selected will depend upon the type of process, the nature of the contaminant source (its toxicity and release mechanism), and the route of exposure (inhalation, dermal, and ingestion). However, the reality is that no single engineering control in isolation will be successful; control is always a mixture of equipment and ways of working.

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49 Power Point presentation. GEL Representative, WBF webinar on Women OHS, 23 July 2020; http://www.iuf.org/w/?q=node/7199

50 The Slow Death of Ecuadorian Banana Workers. Marega M., and Vervecken, J., Global Labour University, 2017; http://column.global-labour-university.org/2017/12/the-slow-death-of-ecuadorian-banana.html

51 Saunders, J. Engineering controls. OSH Wiki; https://oshwiki.eu/wiki/Engineering_controls

3.12 Information and communication technologies in agriculture

The employer could consider the role of information and communication technologies in helping improve workplace health and safety conditions, including providing access to electronic health and safety information and guidance for management and workers and their representatives.

Information and Communication Technology (ICT) is defined by the World Bank as "... any device, tool, or application that permits the exchange or collection of data through interaction or transmission". It "includes anything ranging from radio to satellite imagery to mobile phones or electronic money transfers".[52] The application of ICTs in agriculture is often referred to as e-agriculture.[53] ICT is the integration of information technology and communication technology, or the merging of fixed and mobile telephone networks with computer networks.

ICTs such as Geographical Information Systems (GIS) and Global Positioning Systems (GPS) are being increasingly used to:

> Make pesticide application more efficient. For example, variable rate pesticide application technologies, using ICTs, enable changes in the application rate to match actual or potential pest stress in the field and avoid application to undesired areas of the field/plant canopies;[54]
>
> Monitor pesticide exposure;[55]
>
> Monitor, analyse and model pesticide migration in the environment.[56]

ICT can also be very helpful in promoting integrated pest management. ICT has proved to be a powerful tool in pest forecasting as a prop to giving priority to prevention, as pest forecasting involves data acquisition, processing and information dissemination. The application of a wireless sensor network in field monitoring and early warning of invasive alien weeds, and of remote sensing and radar monitoring in Integrated Pest Management is discussed in a CABI report.[57]

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52 World Bank (2011). E-sourcebook. ICT in Agriculture: Connecting Smallholders to Knowledge, Networks, and Institutions. Report Number 64605. P. 3. https://openknowledge.worldbank.org/handle/10986/12613

53 FAO (2017). Information and Communication Technology (ICT) in Agriculture; https://www.fao.org/family-farming/detail/en/c/1200067/

54 Precision Agriculture Technologies Positively Contributing to GHG Emissions Mitigation, Farm Productivity and Economics 2017. Balafoutis, A., et al. Sustainability 2017, 9, 1339; doi:10.3390/su9081339, sustainability-09-01339-v3.pdf; https://www.mdpi.com/2071-1050/9/8/1339

55 Linking Pesticides and Human Health: a geographic information system (GIS) and Landsat remote sensing method to estimate agricultural pesticide exposure. VoPham, T., et al. Appl Geogr. 2015 Aug: 171-181.; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5580968/

56 Geographical Information System as a Tool for Monitoring and Analysing Pesticide Pollution and its Impact on Public Health. Kamińska, A., et al, Annals of Agricultural and Environmental Medicine. 2004;11(2):181–184, http://www.aaem.pl/Geographical-Information-System-GIS-as-a-tool-for-monitoring-and-analysing-pesticide,72879,0,2.html

57 CABI (2012). Integrated Pest Management: Principles and Practice. ISBN 9781845938086; https://www.cabidigitallibrary.org/doi/book/10.1079/9781845938086.0000

3.13 Thinking through risk control measures: an example of pesticide spraying on a banana plantation

The plantation manager, as a representative of the employer, is carrying out a risk assessment in cooperation with the workers to help find solutions to pesticide poisoning problems on the banana plantation. Workers are exposed to pesticides from spray drift (very fine pesticide droplets drifting in the wind away from the target area) and from failure to respect pesticide re-entry time intervals for sprayed areas as per the manufacturer's label instructions.

There have been several recent incidents of mild poisoning symptoms of field workers. These incidents have been reported to the government authorities (Labour Inspectorate), and the plantation manager and owner realise that pesticide spraying health and safety practices need to be improved.

STEP 1: IDENTIFYING THE HAZARD

The hazard is identified as the spraying of toxic insecticides using motorised air blower equipment, which is currently resulting in excessive spray drift.

A second hazard is non-respect of re-entry intervals (the time that must elapse before workers can re-enter a pesticide treated area) by field gang workers.

STEP 2: WHO IS AT RISK AND HOW?

Twenty-eight field workers are at risk of exposure to the toxic insecticide(s) during spraying (risk of breathing in the contaminated air) and when they re-enter the sprayed fields (risk of absorbing the pesticide through the skin).

STEP 3: EVALUATING THE RISK – WHAT ACTION IS NECESSARY TO REDUCE THE RISK?

3.a: What is being done now?

The manager acknowledges that the spray team is applying the pesticide too close to where the field workers are working. This is due to poor work organisation and procedures on the plantation, including the lack of any form of warning before spraying activities.

The manager also acknowledges that re-entry intervals are not respected – she/he wrongly allows workers back into treated areas before it is safe to do so according to the instructions on the pesticide label.

3.b: What further action is necessary – risk control measures?

The manager now works systematically through the possible risk control measures. Where a particular risk control measure is not chosen or is not considered applicable for the particular problem, a short explanation is offered.

Risk Control Measure 1: Eliminating the hazard. This is always the best solution, but in this particular case the plantation owner does not use organic farming methods or Integrated Pest Management techniques. The risk assessment concludes that total elimination of the insecticide is not an option, and other risk control measures must be used.

Substitution. Not applicable as the plantation owner decides, based on discussion with his agricultural extension adviser, that chemical insecticides must continue to be used.

Risk Control Measure 2: Tools, equipment, technical and engineering controls. The motorised air blower pesticide sprayers are in good condition and are not the cause of the spray drift problem. Spray drift is a problem in windy conditions and spraying should take place as far as possible when there is no, or little, wind.

Risk Control Measure 3: Safe work organisation, systems, practices, information and training. The manager, in consultation with the spray workers and field workers, determines that the key elements in preventing exposure to contamination from spray drift are work organisation to ensure safer work practices, coupled with appropriate information and training. The following measures are identified for implementation:

The spray team supervisor will regularly inform the field gang supervisor(s) when and where spraying is due to take place. She/he will also submit written copies for the plantation owner and the manager. This will allow the field gang supervisor(s) to ensure that her/his workers are well out of range of any danger of pesticide spray drift contamination. There will be no spraying in windy conditions.

The spray team supervisor will inform his spray team members that, if they see field workers nearby during spraying operations, they are to stop spraying immediately and inform her/him of the situation. The supervisor will ensure that the field workers are removed to a safe distance. This safety element will be incorporated into the training programme of the spray team.

The field workers will be informed that, if they see the spray team working close by, they are to immediately inform their own supervisor. They will then be removed to a safe distance from the spraying operations.

Both the spray team and the field workers and their supervisors will receive extra training on the importance of respecting pesticide re-entry intervals based on information from pesticide manufacturers. A written copy of the safe re-entry times for treated areas will be submitted to the plantation manager's office. Simple warning signs, such as skull and crossbones, will be placed at appropriate distances around the treated area.

Any possible work-related ill health is noted in the plantation's accident & disease recording book.

Risk Control Measure 4: Water, Sanitation, Hygiene, Welfare and First Aid. Wash rooms and lockers to store workers' personal belongings and food are provided near the main office, well away from the spraying areas. No further action is necessary in this respect.

Risk Control Measure 5: Personal Protective Equipment. The new working procedures should ensure that field workers are not exposed to pesticide spray drift, and that they do not re-enter treated areas before it is authorised to do so. PPE should therefore not be necessary.

Risk Control Measure 6: Health/medical surveillance. In this case, for the insecticide being used, no health/medical surveillance measures are recommended by the pesticide manufacturer.

3.14 Training Exercise 3

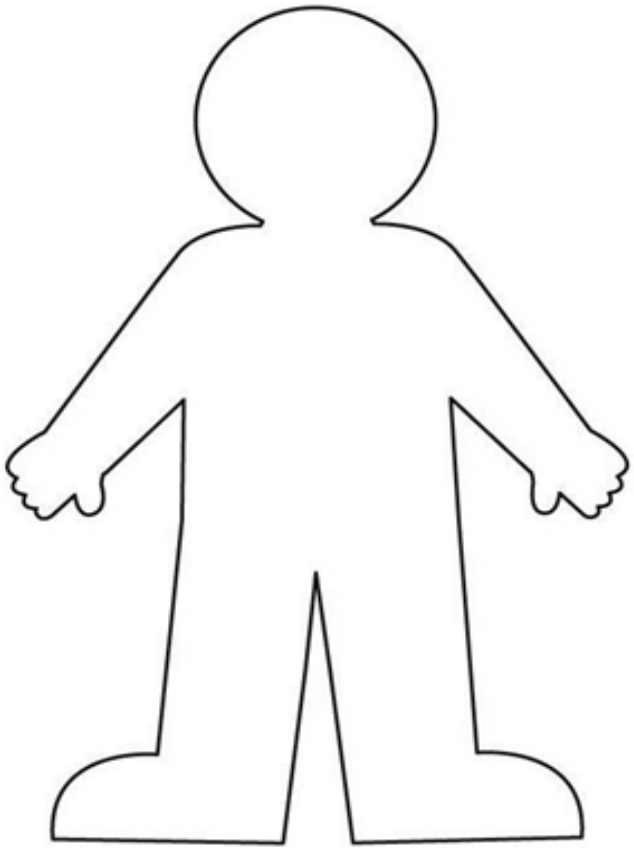
USING THE BODY MAPPING TRAINING TOOL TO IDENTIFY THE HAZARDS, WHO IS AT RISK, AND HOW

AIMS: To help workers to:

- use body mapping to identify injuries, occupational diseases and ill health in banana production
- identify common health and safety problems, and types and levels of risk in banana production.

TASK: Your trainer will draw several body maps on posters, and will arrange for small groups of participants, who do similar work or have knowledge of similar agricultural workplaces, to be formed. Each group will fill in the body maps, based on the instructions below and report back.

RESOURCES: Body Mapping training tool



In your small group:

1. Each participant places marks (X or ●) on to the body map to show any injuries and/or symptoms of disease that you or others have at work. Use different colours to identify different symptoms. For example:

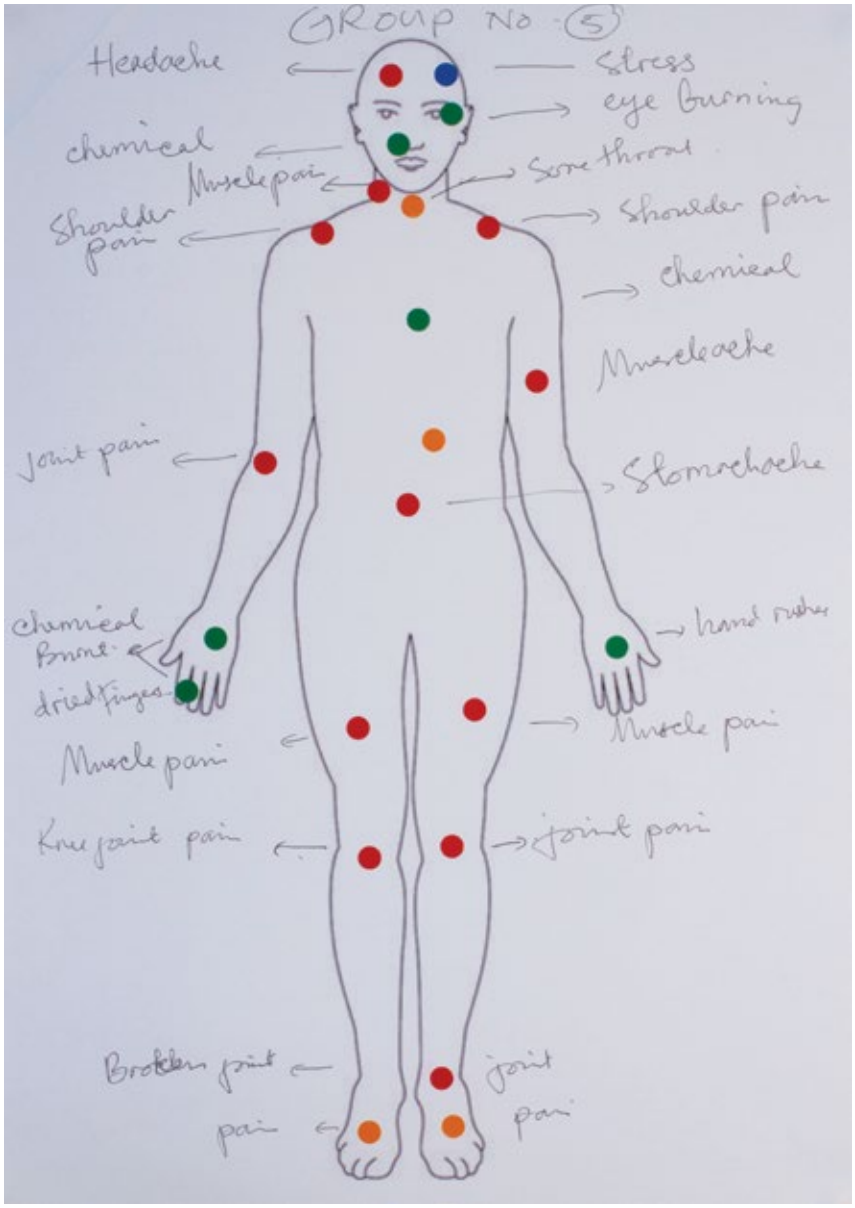
   aches and pains: **blue X or** ●

   breathing difficulties, coughing: **black X or** ●

   stress related disorders: **green X or** ●

   other problems such as skin rashes, runny eyes and nose, dizziness, reproductive disorders and so on: **red X or** ●

2. As you apply the X or ●, explain briefly why you placed that mark in that particular place.
3. Make sure that there is someone in your small group who notes down what is said about the body map and can report back your views.



Cableway worker (see the cord going from around his waist to the cableway) pulling a heavy load of bagged, cut bananas to the packhouse. Photo | Bananlink

CHAPTER 4.

HAZARDS AND RISK CONTROL MEASURES FOR WORK TASKS ON EXPORT BANANA PLANTATIONS

4.1 List of field work and packhouse work tasks

Tasks routinely carried out on export banana plantations include:[58]

Field Tasks

- Soil preparation
- Planting and replanting
- Pesticide application: ground spraying — fungicides, insecticides, nematicides, herbicides; and aerial spraying — fungicides
- Fertiliser application
- Cleaning/weeding
- Pruning
- Staking and tying/twining
- Fruit care
- Nursery plant care
- Sucker selection
- Ribbon counting
- Material preparation
- Harvesting and Transport
- Maintenance

Packhouse Tasks

- Washing of fruit (chemical latex dispersants/biocides)
- Post harvest fungicide application
- De-flowering
- Sorting onto trays
- Selection and division into clusters
- De-handing
- Cardboard box assembly
- Classification
- Weighing trays
- Post-harvest pesticide spraying
- Applying labels/stickers
- Packing fruit in boxes
- Removing and washing pads/cushions
- Collecting and washing bags
- Stacking boxes on pallets and loading into container
- Cleaning packing plant machinery/equipment
- Waste disposal — plant material and non-organic waste

58 Compiled from FAO 2015. Women in the Banana Export Industry. Regional Reports 2015: Latin America; Caribbean; West and Central Africa: http://www.fao.org/3/a-bt419e.pdf

For **EACH** Field and Packhouse Work Task, the plantation management, as the employer, carried out a health and safety risk assessment. The degree of risk arising from each hazard were assessed. The risk control measures for each hazard were then identified and implemented as per the **Hierarchy of Risk Control Measures below** **(see also Section 3.6)**. The risk assessments were carried out **with the active participation of the workforce**.

Risk Control Measure 1: **Elimination or substitution of hazards**

Risk Control Measure 2: **Tools, equipment, technical and engineering controls**

Risk Control Measure 3: **Safe work organisation, systems of work, practices, information and training**

Risk Control Measure 4: **Water, sanitation, hygiene, welfare and first aid**

Risk Control Measure 5: **Personal Protective Equipment**

Risk Control Measure 6: **Health/medical surveillance**

For Field Tasks involving **Pesticide Application** — **by way of example** — all 5 steps of risk assessment are illustrated in the example.

For all other Field and Packhouse Tasks — **for the sake of brevity** — only the risk control measures specific to the hazard(s) identified have been illustrated.

4.2 Pesticide use and management

In the employer's risk assessment, **Field Tasks** involving high risk of serious harm from pesticide exposure, and risks of environmental damage, were identified as:

- Pesticide application — fungicides, herbicides, nematicides/insecticides
- Use of insecticides in plastic covers/sheaths and impregnated strips and recycling/disposing of used covers and strips
- Use of fungicides in crown inspection
- Contamination from aerial spraying of fungicides.

Plus post-harvest fungicide treatments in the packhouse.

Explanatory note: "**Pesticide** means any substance, or mixture of substances of chemical or biological ingredients intended for repelling, destroying or controlling any pest, or regulating plant growth".[59]

"**Pest** means any species, strain or bio type of plant, animal or pathogenic agent injurious to plants and plant products, materials or environments and includes vectors of parasites or pathogens of human and animal disease and animals causing public health nuisance".[60]

59 FAO/WHO, 2014. International Code of Conduct on Pesticide Management; http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/CODE_2014Sep_ENG.pdf

60 Ibid.

Many leaflets and books talk of fungicides, herbicides, insecticides, nematicides and the other classes of pesticides[61] as though they were separate categories of chemicals when, in fact, they are all types of pesticides. Pesticides are often referred to by other names such as agrochemicals, crop protection products, plant protection products, or phytosanitary products.[62]

Pesticides are routinely used in banana plantations. Diseases are the major constraint to banana production worldwide, hence the frequent use of chemical fungicides in export production.[63] Poor resistance to diseases is worsened by the poor genetic diversity in banana crops, and it also results from the pure stand cropping methods.[64] Fungicide applications to control black sigatoka disease, for example, can average 40-60 sprays per year.

Plant-parasitic nematodes are tiny worms that live mainly in soil and roots. In the case of banana plants, the most damaging species spend most of their life cycle in root and corm tissues where communities of millions of individuals can develop disrupting nutrient and water uptake, delaying growth and causing banana plants to topple over.[65]

Around the sixth month, the ripening banana clusters are protected with a plastic sheath/bag (Bagging) to prevent insect damage to fruit skin. Insecticide-impregnated strips are inserted inside the sheaths, using low concentrations of chlorpyrifos (1%) or bifenthrin (0.1%) to act against aphids, thrips, moths and beetles.[66] This protective bag also creates a micro-climate conducive to fruit growth.

During selection and classification in the packhouse, a fungicide is applied to the cut bunches of bananas to prevent crown end rot.

Working with pesticides is dangerous. The chemicals chosen to kill “pests” are selected because their toxic properties make them efficient at poisoning “pests”. These same properties make them potentially harmful to humans as we share many of the same chemical/biological pathways as other natural organisms. All chemicals can be poisonous and cause injury or death - there are no safe substances. Although employers, pesticide industry sellers and advisors, and even government advisors, may tell you the opposite, in practice, there will always be a degree of risk attached to the use of, or exposure to, pesticides.

Spray operators, and any other workers assisting them, are at risk of harm when mixing the pesticide and filling back sprayers, applying the pesticide(s), washing out and cleaning the backsprayer equipment after use, washing and cleaning reusable items of Personal Protective Equipment, and rinsing out and disposing of empty pesticide containers. When applying pesticides using some type of backpack sprayers, operators often walk through the area they have just sprayed, and so inevitably their footwear and clothing becomes contaminated with chemical. Pesticides are also applied using tractor mounted or tractor towed sprayers.

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61 WHO 2019. Recommended Classification of Pesticides by Hazard. https://www.who.int/publications/i/item/9789240005662

62 Op cit 35.

63 Fusarium wilt tropical race 4 (TR4), black Sigatoka, banana bunchy top disease and banana Xanthomonas wilt. Modifying Bananas: From Transgenics to Organics? Dale, J., et al. Brisbane, Australia, 2017; https://core.ac.uk/works/42607315/?t=ca02a566004d99e432333940879063fb-42607315

64 Challenging short and mid-term strategies to reduce the use of pesticides in banana production. ENDURE, the European Network for the Durable Exploitation of Crop Protection Strategies. Sheet 1:, 2017; https://www.fruitrop.com/en/media/Publications/Other-publications/Innovation-in-banana-cropping-systems-ENDURE-case-studies

65 Agritrop. Sheet 4: Integrated Management of Banana Nematodes: Lessons from a case study in the French West Indies; https://agritrop.cirad.fr/553878/1/document_553878.pdf

66 Bagging. Promusa; http://www.promusa.org/Bagging

Other plantation workers are at risk if the pesticide application is not carried out correctly, from a) pesticide spray drift contamination, and/or b) contamination due to re-entering sprayed areas before it is safe to do so, as per the manufacturer's instructions on the pesticide label (re-entry intervals).

Always remember to look first for **alternatives** to pesticide use to prevent risk of harm. **(See Section 4.3.)**

Aerial spraying with fungicides is a regular activity on the large-scale monoculture plantations where there are no natural factors to mitigate the spread of plant diseases. While the number of spraying cycles varies according to the producer and country, it is common in Latin America for a company to spray the fields on a weekly basis. It is estimated that up to 85% of pesticides sprayed by plane fail to land on the crop, instead saturating the whole area, including workers, their homes and food.[67] To ensure more precise application, aircraft equipped with Global navigation satellite systems (GNSS) and self-closing nozzles are often used.[68]

Laws prohibiting workers from being in the fields when spraying takes place are routinely violated in some countries. FAO/WBF research found that:

- In **Colombia**, workers are withdrawn from fieldwork during the aerial application of pesticides and for two subsequent hours.[69]
- Approximately 50% of the workers interviewed in research in **Ecuador** described how their employers conduct aerial spraying unannounced directly onto workers.[70]
- In **Cameroon**, workers reported that they continued working in the field whilst aerial spraying took place and simply sheltered under banana leaves.[71]

In various places in the world, aerial spraying of pesticides has met with resistance from local communities potentially endangered by toxic pesticide drift. The sprayed pesticides contaminate houses and roads, exposing not only workers, but also others, including children who walk to school. Social movements, and the counter-expertise that they mobilise, often trigger changes in state regulations of the practice.

> In the **Philippines**, where aerial spraying is common in large monoculture banana plantations, it has provoked local activism over risk regulation, contesting the socio-economic power of landed and business elites, and has challenged the Government's approach to managing pesticide risks.[72]

67 Op cit 8.

68 The Fruit of our Engagement, GEL, Ghana Sustainable Development Report 2017; https://www.compagniefruitiere.fr/wp-content/uploads/2023/10/CIE-FRUITIERE_RAPPORT_2023_FR_WEB_V2.pdf

69 FAO 2015. Cooper, A. Women in the Banana Export Industry Regional Report on Latin America, 2015. Working paper - Series for the World Banana Forum Section 2.2; https://www.bananalink.org.uk/wp-content/uploads/2019/04/ENG_Latin-America-report_FAO-Gender-research-2015.pdf

70 Ibid.

71 Sustainability Issues in the Cameroon Banana Supply Chain. Kingsly Awang Ollong. Brazilian Journal of African Studies e-ISSN 2448-3923 | ISSN 2448-3915 | v.1, n.2, Jul./Dec. 2016 | p.211-242, pp. 230-231; https://pdfs.semanticscholar.org/b31f/6920dc041224b695b7258ee1fb32c55b932a.pdf

72 Lisette J. Nikol & Kees Jansen (2020) The Politics of Counter-Expertise on Aerial Spraying: Social Movements Denouncing Pesticide Risk Governance in the Philippines, Journal of Contemporary Asia, 50:1, 99-124, DOI: 10.1080/00472336.2018.1551962. https://www.tandfonline.com/doi/full/10.1080/00472336.2018.1551962

Health and safety impacts:

Immediate (acute) health effects

Pesticide poisoning is the main health risk for workers. Poisoning results in a wide range of reactions, from minor effects such as eye or local skin irritations, to more severe effects such as headaches, nausea, tiredness, dizzy spells, vomiting, and breathing difficulties, which can lead to death. Symptoms usually develop within minutes to hours after exposure to a single dose of a pesticide (in some cases, some days after). Given prompt treatment, acute poisoning is generally "curable" ("reversible").

Irritant contact dermatitis and allergic contact dermatitis are inflammations of the skin caused by coming into contact with certain substances in the workplace including pesticides. Irritation is analogous to a chemical burn. Developing an allergic reaction to a substance occurs some time after initial contact.[73] Symptoms of inflammation include itching, pain, redness, swelling, and the formation of small blisters or wheals (itchy, red circles with a white centre) on the skin.[74] Pesticide patch test trays should be used in assessing skin diseases in highly exposed workers.[75] Women workers in the packhouse of a plantation in Ghana reported skin irritation and related health issues due to oversised gloves that allow water contaminated with chemicals to run down their arms.

Delayed (chronic) health effects

Pesticides may cause chronic or delayed health effects, with the onset of illness occurring many years after the original exposure. Chronic, longer-term health effects are not curable. The victim will suffer permanent ill health and may even die.

The victim may not in fact even be the one who was exposed to the pesticide(s). In the case of reproductive health, the victim may be the baby, born with birth defects due to the exposure of the mother or father to the pesticide(s).

Chronic health effects include:

Cancers: Pesticides causing cancers are termed carcinogens (cancer-causing substances) — **see Appendix 2**. Gender-specific impacts are reported. For example, increasing evidence points to an association between breast cancer and occupational exposures to various pesticides, industrial chemicals and metals.[76]

Check also Chapter 5 on Women Workers' Health and Safety.

73 Occupational Dermatitis. Health & Safety Authority, Ireland, Undated; https://www.hsa.ie/eng/Workplace_Health/Occupational_Asthma_and_Dermatitis/Occupational_Dermatitis_Frequently_Asked_Questions/

74 Occupational Dermatitis. Canadian Centre for Occupational Health and Safety; https://www.ccohs.ca/oshanswers/diseases/allergic_derm.html

75 Pesticide Patch Test Series for the Assessment of Allergic Contact Dermatitis among Banana Plantation Workers in Panama. Penagos, H., et al. Dermatitis, 2004 Sep;15(3):137-45. doi: 10.2310/6620.2004.04014; https://pubmed.ncbi.nlm.nih.gov/15724348/

76 Concetta Fenga, "Occupational exposure and risk of breast cancer", Biomedical Reports, 21 January 2016.

Reproductive effects:

- **Women:** Pesticide exposure has been linked to birth defects, infertility, spontaneous abortions, stillbirths, lower birth weights and early neonatal deaths. **See also Section 5.7**
- **Men:** During the 1970s, the nematicide, Dibromochloropropane (DCBP), was used extensively on banana and pineapple plantations all over the world.[77] Sterility is the only impact scientifically proven. Tens of thousands of male workers left sterile by the use of DBCP in Nicaragua and Costa Rica, for example, are still seeking justice in the US courts from the multinationals involved.[78]

  In **Cameroon**, female banana workers in particular complain of being ignorant in the handling, storage and application of pesticides, despite chemical application being a key role for women (and pregnant women) workers. This is often done by hand with limited protective equipment or using alternative inappropriate tools (such as washing soap and fresh pasteurised milk). There are cases reported of female workers applying toxic pesticides such as nematicides collapsing in the fields. Workers who carry out chemical applications on a regular basis reported that they do not have thorough medical examinations for purposes of detecting work-related diseases. Women workers also reported sorting ribbons and other materials that are impregnated with pesticides by hand, without protection.[79]

Neuro-toxicological and neuro-behavioural effects: Impaired development of the nervous system can cause lowered intelligence and behavioural abnormalities. Neurotoxicity is a form of toxicity in which, in this case, a chemical, agent produces an adverse effect on the structure or function of the central and/or peripheral nervous system. It occurs when exposure to a substance – specifically, a neurotoxin or neurotoxicant - alters the normal activity of the nervous system in such a way as to cause permanent or reversible damage to nervous tissue.[80]

Immunological effects: A weakened immune system exacerbates the risk of infectious disease and cancer, thus increasing mortality rates. There is evidence from experimental and epidemiological studies to indicate that pesticide exposure may affect the immune system through disturbances of the cytokine balance.[81]

Developmental effects: Endocrine disruption effects: The endocrine system and the hormones it generates and controls is critical to healthy growth and development, especially sexual differentiation, in humans and animals. Many currently used pesticides, at very low concentrations, are able to mimic or block hormones or trigger inappropriate hormonal activity. Health effects include: increased risk of breast, testicular and prostate cancers; decreases in sperm counts and quality; increased incidence of defects in the male reproductive tract; changes in sex ratio (declining proportion of boys); neurological and behavioural disorders in children; and impaired immune function.[82]

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77 Farmworkers Poisoned by DBCP, Philippines. Environmental Justice Atlas; https://ejatlas.org/print/philippine-farmworkers-poisoned-by-dbcp-pesticide

78 Op cit 5.

79 Op cit 5.

80 Wikipaedia https://en.wikipedia.org/wiki/Neurotoxicity

81 Occupational and Environmental Exposure to Pesticides and Cytokine Pathways in Chronic Diseases (Review). Gangemi, S., et al. International Journal of Molecular Medicine, Volume 38, Issue 4, 2016; https://www.spandidos-publications.com/10.3892/ijmm.2016.2728

82 United Nations Development Programme. 2011. Chemicals and Gender. https://www.undp.org/sites/g/files/zskgke326/files/publications/2011%20Chemical&Gender.pdf

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Using chemical fungicides as the example, the employer first considered:

Elimination or substitution of hazards

Step 3, Risk Control Measure 1:

The employer's risk assessment first considered non-chemical means of fungal disease control **(See Alternatives to Pesticides, Section 4.3)**. Based on advice from the local government agricultural extension officer, the employer concluded a) that non-chemical disease control methods would not be effective, and so a chemical fungicide would have to be used, and b) that it was not possible to substitute a lower toxicity pesticide for the more toxic substance being used.

Regarding substitution, the employer can seek advice from "competent persons" on less toxic pesticides. However, the employer should take into account that pesticides with lower human acute toxicity, such as pyrethroid insecticides (e.g. Bifenthrin), are highly toxic to beneficial insects such as bees and to aquatic organisms.

Having decided elimination was not possible, the employer's risk assessment then moved on to consider:

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

The spray team operators and supervisor checked that their spraying equipment was in good working order - properly calibrated (delivering the correct amount of pesticide required per hectare), with worn nozzles (which can cause spray drift) replaced, and not leaking.

Lever and pivot points on lever-operated backpack sprayers must be checked for wear and lubricated. Trigger mechanisms must move freely and give a positive "shut off". Air inlet valves within the filler caps must also be clean and free to move. Shoulder straps must be in good condition.[83]

Leakage from back sprayers onto the back, neck and shoulders of the operator is also an extra risk. So, whenever backpack pesticide sprayer is used, a backrest made out of waterproof fabric is used.

The supervisor also decided to explore the use of a closed transfer systems to allow pesticides to be transferred directly from the container into the sprayer via a closed route (Engineering Controls), so avoiding operator exposure.[84]

83 FAO (2001). Guidelines on Good Practice for Ground Application of Pesticides; https://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Old_guidelines/Ground_application.pdf

84 Coman, C., et al, Iowa State University, 2009. Use of Engineering Controls and Personal Protective Equipment by Certified Pesticide Applicators. Agricultural and Biosystems Engineering Publications; https://lib.dr.iastate.edu/abe_eng_pubs/111/

The employer's risk assessment then moved on to consider:

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

The employer must ensure that the spray operators and supervisor are **competent**, meaning they have received training from a qualified, competent person(s) on pesticide application, and have experience of pesticide spraying.

The supervisor rechecked that the spray operators were well organised, and had read the product label and safety data sheet[85] for the pesticide(s) they were to apply. The supervisor also informed the plantation office and the supervisors of the field gangs where and when spraying was to take place on that particular day, and rechecked the weather conditions to see if they were suitable for spraying. Pesticide application should be carried out in the early hours of the morning whenever possible. Ideally at: ambient temperature: 31°C or below; relative humidity: 60%;wind speed: 3.5 - 6.5 kilometres per hour.

Spray operators also need to (i) minimise spray drift, and (ii) mark treated areas with warning signs/written notes, which also state the recommended safe re-entry interval before anyone can go back into the sprayed area.

The employer's risk assessment then moved on to consider:

Water, sanitation, hygiene, welfare and first aid

Step 3, Risk Control Measure 4:

The spray team had sufficient water with them:

a. for drinking purposes to avoid the risk of dehydration, especially as they are wearing PPE which can increase body temperature and the rate of water loss;

b. to wash pesticide off contaminated skin or splashes in the eye.

Spray team operators and the supervisor are trained first aiders, competent to apply initial first aid in the case of pesticide poisoning.

85 Each pesticide product should be accompanied by a Safety Data Sheet, written by the pesticide manufacturer, which gives much more detailed information on the product, including precautionary information. Ask your employer to obtain a Safety Data Sheet for each pesticide.

The employer's risk assessment then moved on to consider:

Personal Protective Equipment (PPE)

Step 3, Risk Control Measure 5:

Consulting the manufacturer's pesticide label and safety data sheet, the following types of PPE for the pesticide being applied were decided on:

Air-tight safety goggles to prevent splashes.

Chemical-resistant gloves - polyethylene, polyvinyl chloride (PVC or vinyl), neoprene, nitrile/butadiene rubber (nitrile or NBR). Gloves must be replaced if they show any sign of wear-and-tear or are visibly torn.

Depending on the toxicity and length of exposure to the pesticide, the operator should wear

a. a coverall (with a hood), or

b. a long-sleeved shirt with long trousers that are waterproof or made of cotton and a waterproof hood, or

c. chemical-resistant clothes. Trousers must hang outside the rubber boots.

The operator should wear a protective respirator with an approved chemical filter (containing activated carbon to absorb the chemical droplets). Filters must be replaced according to the expiry date (printed on the filter cartridge), or earlier if breathing becomes difficult or when the smell of the chemical is detected during use.

The employer's risk assessment then moved on to consider:

Health/medical surveillance

Step 3, Risk Control Measure 6:

Based on advice from the pesticide supplier, the employer's risk assessment determined that health/medical surveillance controls were **not** available for the fungicide(s) being used.

The right to health and safety information: Finding out about pesticides

Workers and their representatives often have difficulty in finding out about the pesticides and industrial chemicals they use or are exposed to, and the risk prevention and control measures needed to protect themselves, others and the environment. The range of pesticide and chemical products and their brand/trade names can be bewildering and the same chemical is often referred to by a variety of terms which can be very confusing. The two principal sources of information are product labels and product safety data sheets, in the local language(s):

Product labels for pesticides

The first piece of information available to employers and workers on the chemical substances they use, or are exposed to, is the manufacturer's Product Label, as approved by the national pesticide registration authority. Sometimes it is the only piece of information available and so it is important to read it thoroughly.[86]

According to the UN Globally Harmonised System of Classification and Labelling of Chemicals (GHS), the information categories which must be on the product labels are:[87]

1. Product identifier – the brand name, chemical name, common name, generic name or trade name of the hazardous product.
2. Supplier identifier – the name, address and telephone number of either the manufacturer or the importer.
3. GHS Hazard pictogram(s) – hazard symbol within a red "square set on one of its points"; 9 pictograms are available.
4. Signal word – a word used to alert the reader to a potential hazard and to indicate the severity of the risk.
5. GHS Hazard statement(s) – standardised phrases which describe the nature of the hazard posed by a hazardous product.
6. GHS Precautionary statement(s) – standardised phrases that describe measures to minimise or prevent adverse effects
7. Supplementary label information.

Furthermore, according to the GHS, product labels must be in the language(s) of the destination country. Providing a product label in a foreign language, or in only one of the languages of the destination country, or in a language that migrant workers cannot understand, would not be considered to be in compliance with international standards.[88]

86 FAO International Code of Conduct on Pesticide Management, 2014. Guidelines on Good Labelling Practice for Pesticides (revised), August 2015; http://www.fao.org/3/a-i4854e.pdf

87 Globally Harmonised System of Classification and Labelling, 7th revised edition, 2017; https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev07/English/ST_SG_AC10_30_Rev7e.pdf

88 Canadian Centre for Occupational Health and Safety; https://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/labels.html

Safety Data Sheets

A **Safety Data Sheet (SDS)** for a pesticide/chemical product — produced by the product manufacturer, in the appropriate national language(s), and often now available electronically — gives more detailed information on the toxic effects of the substance, the risks resulting from its use, and on health and safety risk control measures.

The UN GHS system has standardised the format and content of SDSs:[89]

- Identification
- Hazard identification
- Composition/information on ingredients
- First aid measures
- Fire fighting measures
- Accidental release measures
- Handling and storage
- Exposure controls/personal protection
- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Transport information

Employers should make sure that all hazardous products have up-to-date SDSs with them when they enter the plantation. The SDSs must be readily available to the workers, or representative, who are exposed to the hazardous product, and to the Health and Safety Committee. Employers may computerise the SDS information as long as: a) all employees have access to and b) are trained on how to use the computer or device; c) the computers/devices are kept in working order; and d) the employer makes a hard copy of the SDS available to the employee, worker representative or Health and Safety Committee upon request.[90]

A supplier will provide the SDS — in the appropriate national language(s), including in a language(s) migrant workers can understand — to the purchaser of the hazardous product either in hard copy (e.g. by mail, hand delivered, etc.) or by electronic means. Acceptable electronic delivery methods include an e-mail from the supplier to the purchaser with the SDS attached, or a USB or disc on which the SDS is saved and given to the purchaser.

Workers and their representatives must be provided with a **hard copy** of the SDS. It is ***not*** acceptable to provide an SDS by only providing the purchaser of the hazardous product with a website address or hyperlink from which the purchaser may download the SDS for the hazardous product that they purchased.[91]

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89 Globally Harmonised System of Classification and Labelling, 7th revised edition, 2017; https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev07/English/ST_SG_AC10_30_Rev7e.pdf

90 Op cit 88.

91 Op cit 88.

Pesticide storage

For safe pesticide storage, the following precautions must be taken:

- Pesticides should be kept in a locked store with adequate ventilation and lighting, emergency exits, non-combustible walls, a non-absorbent floor, presence of a siphon or flow path, shelves or counters in good, tidy, clean condition, and availability or proximity of elements required in the case of an emergency (extinguishers, sinks, showers, kits in the event of spillage);
- The store should have a warning sign on the door;
- Up-to-date inventory of all chemicals in storage. This document must always be both in the store and at a separate location (so that a copy is available elsewhere in case of fire in the pesticide store);
- Consult the product safety data sheets to check if there are special storage requirements for the products you are storing. Products in the same risk category must be stored together.

Genetically modified pesticides

Pesticides based on genetically modifying natural micro-organisms (GMOs) are now being rapidly developed, along with genetically modified crops and animals. Genetically modified foods are foods produced from organisms that have had changes introduced into their DNA using the methods of genetic engineering as opposed to traditional cross breeding. In this IUF Manual, GMO pesticides are not treated as a safer alternative to chemical pesticides.

Nanopesticides and nanotechnology

Nano scale technology is a suite of techniques used to manipulate matter at the scale of molecules or atoms. A nanometre (nm) equals one billionth of a metre. At the nanoscale (below about 100 nanometres), a material's properties can change dramatically. Materials can exhibit new properties such as electrical conductivity, elasticity, greater strength, different colour, greater reactivity — characteristics that the very same materials do not exhibit at the micro or macro scales.[92]

Nanoparticles of a size lower than 50 nanometres usually adversely affect human health, and the potential routing could be through inhalation, ingestion or dermal exposure.

Though nanotechnology has already found industrial applications, its use in agriculture is much more recent.[93] The proposed use of nanopesticides is based on a number of expected benefits, such as an increase in pesticide efficacy against pests, which allows for the application of lower amounts of pesticides. However, such products are not currently on the market and are being researched extensively for their benefits and for their potential human and environmental risks.[94]

92 Nanotechnologies. ETC Group; https://www.etcgroup.org/issues/nanotechnology

93 https://www.researchgate.net/publication/314093416_Nanofertilisers_Nanopesticides_Nanosensors_of_Pest_and_Nanotoxicity_in_Agriculture

94 https://www.nanopartikel.info/en/nanoinfo/cross-cutting/2614-nanopesticides-nano-in-plant-protection-products

4.3 Alternatives to pesticides

Following Step 3, Risk Control Measure 1. **Elimination or substitution of hazards**, the employer — based on taking informed advice — should consider first of all whether non-chemical means of pest control could be used. Alternatives to pesticides include:

Organic farming of bananas

Organic agriculture is "a holistic system of production which promotes and improves the agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, taking into account that regional conditions require locally adapted systems, which is achieved by using, when possible, cultural, biological and mechanical methods as opposed to synthetic inputs".[95]

Organic farming is on the rise and bananas are following the trend. Compagnie Fruitière estimates that only 1% of the 118 million tonnes of export bananas produced each year are organic.[96]

Banana diseases are a limiting factor in organic production. Black sigatoka disease, a fungal disease for which no natural treatment exists, can decimate half a banana plantation in a few days. Location of plantations can be a factor in determining whether banana production is organic.

> For example, as a leading producer of fair trade and organic bananas, Compagnie Fruitière's organic banana plantations in Africa are established in drier environments close to healthy watercourses in northern **Côte d'Ivoire** and **Ghana**, the drier environment reducing the incidence of black sigatoka (which likes more humid conditions). The banana trees are evenly coated with organic paraffin oil, which is able to keep parasites away in these latitudes. Farmers use essential oils to fight fungal diseases during the post-harvest period. During growth, compost made from cocoa dehulling waste (the thin bark that surrounds the bean) acts as a natural fertiliser rich in organic minerals. Weeds are controlled by hand weeding or by using a legume cover crop. This permaculture enables the suppression of weeds, reduction of evaporation, provision of more nutrients to banana trees and aeration of the soil, thanks to the deep roots of legumes.

However, according to a recent report by the International Trade Center (ITC), the demand for bananas that comply with Voluntary Sustainability Standards (VSS) has been increasing, especially in traditional markets, such as Europe and North America. In fact, according to the data provided, the consumption of organic and fair trade bananas has grown considerably over the last two decades, capturing around 10% of the market in these two regions.[97]

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95 FAO/World Banana Forum, Undated. Organic Agriculture. http://www.fao.org/world-banana-forum/projects/good-practices/organic-farming/en/

96 The Fast Growing Organic Bananas Sector. Compagnie Fruitière, Undated; https://www.compagniefruitiere.fr/la-pleine-croissance-desbananes-bio/

97 Organic and Fairtrade banana consumption amounts to 10% in Europe and North America. opportimes.com, 12 October 2020. Posted on Freshplaza webpage; https://www.freshplaza.com/article/9257774/organic-and-fairtrade-banana-consumption-amounts-to-10-in-europe-and-north-america/

Integrated Pest Management in banana growing

Integrated Pest Management (IPM) is,

> "The careful consideration of all available pest control techniques and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimise risks to human health and the environment. IPM emphasises the growth of a healthy crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms".[98]

IPM is a key part of Pesticide Reduction programmes.

IPM involves the following practices:[99]

- Crop rotation;
- Use of pest resistant/tolerant cultivars and certified planting material;
- Planting of species that prevent the occurrence of specific pests and diseases;
- Water management;
- Organic fertilisation;
- Field sanitation and hygiene measures;
- Protection of beneficial organisms.

Workers and their trade unions can be advocates of IPM in their workplaces through collective bargaining with their employers. Given appropriate information, training and technical support, workers can become IPM practitioners.

Foliar diseases: Black Sigatoka Disease (BSD, also called Black Leaf Streak) caused by the fungus mycosphaerella fijiensis, threatens export dessert banana production worldwide;[100] so to a lesser degree does Yellow Sigatoka Disease (mycosphaerella musicola). Cavendish cultivars are highly susceptible to BSD. Affected plants produce smaller bunches and underweight fruit, which ripen prematurely, and unevenly, and have a creamy pulp.[101] These fruits are rejected by importers on arrival at their destination, resulting in further losses.

In the absence of commercial resistant varieties for BSD, in most countries, fungicides are applied systematically following a fixed-schedule treatment programme (40-60 applications/year) to protect the young leaves against infection.

98 International Code of Conduct on Pesticide Management. Food and Agriculture Organisation, World Health Organisation, 2014, Article 2 Terms and definitions; https://www.fao.org/3/I3604E/i3604e.pdf

99 FAO/World Banana Forum. Pesticide Management in the Banana Industry. Good Practices Collection; http://www.fao.org/world-banana-forum/projects/good-practices/pesticide-management/en/

100 FAO 2012. A Holistic Integrated Management Approach to Control Black Sigatoka Disease of Banana. Luis Pérez-Vicente. tcp/slc/3402 technical manual; http://www.fao.org/3/as177e/as177e.pdf

101 Battling Black Sigatoka Disease in the Banana Industry. FAO Subregional Office for the Caribbean Issue Brief, July 2013; http://www.fao.org/3/a-as087e.pdf

In addition to the high cost, the high frequency of sprayings is a constant worry because of the development of fungicide resistance,[102] and also because of the potential effects on both the environment and workers. This situation represents a technical, economical and environmental impasse. Hence, alternatives to chemical control are urgently required to provide sustainable solutions for the management of Mycosphaerella foliar diseases.[103]

> Following the banning of toxic or highly toxic synthetic carbamate and organophosphate nematicides, alternative integrated plant-parasitic nematode management has consequently been developed in banana cropping systems in the **French West Indies**, with the support of different stakeholders (growers, researchers, extension officers, etc.).[104]

The black weevil (Cosmopolites sordidus Germar) is a major pest of bananas and plantains in most production areas. Female C. sordidus lay eggs in the corm of banana plants. After egg hatching, larvae bore inside, which damages the points of insertion of primary roots and leads to plant snapping and toppling. Yield losses are important both in industrial plantations for export and in traditional smallholder farms: 25% corm infestation reduces the yield by 30%.

> New IPM strategies, including the combined use of pheromone-pitfall traps and fallows, reduce the number of black weevil adults in the field and have significantly reduced insecticide use in the **French West Indies** and in the **Canary Islands**.[105]

> A variety of products replacing conventional synthetic pesticides are currently used in IPM programmes for organic banana production in the **Canary Islands**, including Azadirachtin (an antifeedant and growth disrupting natural chemical found in the seeds of the neem tree), *Bacillus thuringiensis* (microbial bio-insecticide), oils, sulphur, potassium salts of fatty acids from plants, and microorganisms from soil microbial flora which are antagonists of plant parasitic nematodes. Releases of natural enemies and protection of the native auxiliary fauna are helpful for managing banana pests in the Canary Islands. For example, biological control of the spider mite *Tetranychus urticae* (Koch) is successfully achieved by releases of the predatory mite *Phytoseiulus persimilis.*[106]

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102 Manual On Fungicides And Fungicide Resistance Monitoring In Banana. Luis Pérez-Vicente. FAO, Regional Workshop on Fungicides and Fungicide Resistance in Banana, 2013. https://agritrop.cirad.fr/561146/1/document_561146.pdf

103 Sheet 2: Mycosphaerella foliar diseases of bananas: towards an integrated protection; https://agritrop.cirad.fr/553857/1/document_553857.pdf; Innovation in banana cropping systems. ENDURE case studies, 2010; https://www.fruitrop.com/en/media/Publications/Other-publications/Innovation-in-banana-cropping-systems-ENDURE-case-studies

104 ENDURE 2010. Sheet 4: Integrated management of banana nematodes: Lessons from a case study in the French West Indies; https://agritrop.cirad.fr/553878/1/document_553878.pdf; Innovation in banana cropping systems. https://www.fruitrop.com/en/media/Publications/Other-publications/Innovation-in-banana-cropping-systems-ENDURE-case-studies

105 ENDURE 2010. Sheet 3: Integrated Pest Management of black weevil in banana cropping systems. Case studies. https://agritrop.cirad.fr/553877/1/document_553877.pdf; Innovation in banana cropping systems.

106 Banana production under Integrated Pest Management and Organic Production Criteria: the Canary Islands case study. Cabrera, J., Instituto Canario de Investigaciones Agrarias, Spain. Innovation in banana cropping systems: ENDURE (European Network for the Durable Exploitation of Crop Protection Strategies). Case studies, Sheet 5; ENDURE Canary Isles Banana Case Study Guide Number 5.pdf

Pesticide reduction in banana growing

Pesticide reduction programmes involve the following steps:[107]

- Reduce reliance on pesticides through Integrated Pest Management
- Select pesticides with the lowest risk
- Ensure proper use of the selected product
- Implement proper management of waste.

One of the major insect pests in banana in the **Philippines** is the flower thrips (thrips hawaiiensis), which causes a corky scabbing of fruit. This minute insect has rasping-sucking mouthpart. Thrips enter in the developing bud at shooting, and damage the developing fruit by rasping the surface of the banana finger and sucking the fluids that come out. **Matrine**, a natural derivative extracted from the leaves and roots of Shrubby sophora (sophora flavescens), has been developed as a new broad spectrum biological insecticide, and trials have demonstrated its effectiveness against flower thrips on Cavendish bananas.[108]

Agroecology and the banana industry

Worldwide, there is growing pressure to change monocultural agricultural systems to more "agroecological" production methods due to harmful impacts such as soil degradation/loss, chemical fertiliser/pesticide use, water/energy use, loss of biodiversity, and climate change impacts.

The agroecological consequences of intensive banana monoculture, the total alteration of the biological properties of the soil, and the effects of pesticides on the natural enemies of the pests carry a high price both in terms of regeneration of the soil and appearance of secondary pests.[109]

There is no fixed definition of "agroecology". Systems variously described as "agroecological" include: Agroecology,[110] organic agriculture, regenerative agriculture, agroforestry, permaculture, byodynamic, food sovereignty, sustainable intensification, climate smart agriculture, nutrition sensitive agriculture, and sustainable value chains.[111]

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107 FAO/World Banana Forum. Undated. Pesticide management in the banana industry. http://www.fao.org/world-banana-forum/activities/good-practices/pesticide-management/ar/

108 Insecticidal Effects of Matrine against Flower Thrips, Thrips hawaiiensis Morgan on 'Cavendish' banana. Ubuab, L., January 2018; https://www.researchgate.net/publication/333204644_Insecticidal_effects_of_Matrine_against_flower_thrips_Thrips_hawaiiensis_Morgan_on_%27Cavendish%27_banana

109 Assessing Benefits and Costs of Commercial Banana Production in the Philippines. Working Paper No. 03-03. Calderon et al, undated; https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.558.4758&rep=rep1&type=pdf

110 FAO. 2019. The Ten Elements of Agroecology (document CL 163/13 Rev. 1; https://openknowledge.fao.org/server/api/core/bitstreams/3d7778b3-8fba-4a32-8d13-f21dd5ef31cf/content

111 High Level Panel of Experts. 2019 (UN Committee on World Food Security). Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition; http://www.fao.org/3/ca5602en/ca5602en.pdf

Whilst agroecological systems take a variety of forms (agroforestry, polycultures, mixed crop-livestock systems) and are called by a variety of names, what they have in common is diversity. Agroecology builds resilience by combining different plants and animals, and uses natural synergies – not synthetic chemicals – to regenerate soils, fertilise crops, and fight pests.[112]

However, much of the current discussion and examples of agroecology relate to smaller scale production. So there is a need for research on how can agroecology be applied to large scale intensive agricultural production.

4.4 Chemical fertilisers

Field Tasks involving Chemical (artificial) fertiliser application were identified in the employer's risk assessment as potential sources of harm, and environmental damage.

Explanatory note: Chemical fertilisers such as nitrates, phosphates and potassium are regularly used on banana plantations.

Chemical fertilisers are the largest single source (38%) of greenhouse gas (GHG) emissions from agriculture. For example, nitrous oxide - released when fertilisers containing nitrogen are applied to the soil - is 296 times more potent a GHG than carbon dioxide.

Runoff from nitrogen fertilisers is one of the driving forces of the algae-promoting eutrophication which depletes water of oxygen and kills plant and animal species in fresh waters and coastal areas; and in turn it contributes to global warming.

Banana peels, which can form up to 33% of the mass of the fruit, can be used as a feedstock to make **nanofertiliser**. This could result in a commercial use for hundreds of thousands of tonnes of banana skins that are currently discarded at great expense to landfill.[113]

Health and safety impacts: Chemical fertilisers draw out moisture from the skin and cause burns, irritation of the mouth, nose and eyes, and dermatitis. Liquid fertilisers also need careful handling as these are in a highly concentrated form.

> Women banana workers in **Cameroon**, reported applying fertiliser and other chemical products by hand without protection. In reply, their plantation company clarified that, "Fertiliser applicators wear PPE consisting of gloves (PVC or Nitrile), boots and aprons".[114]

112 Op-Ed: The 2021 Food Systems Summit Has Started on the Wrong Foot – But it Could Still Be Transformational. The Think Tank for Food, March 2020; https://foodtank.com/news/2020/03/2021-food-systems-summit-started-on-wrong-foot-it-could-still-be-transformational/¨

113 Banana-skins-used-as-nanofertilizer-feedstock. TeamTrade, 10 May, 2019; https://blog.teamtrade.cz/banana-skins-used-as-nanofertilizer-feedstock/

114 Plantations de Haut Penja feedback, Women in the Banana Export Industry. Regional Report on West & Central Africa. Working paper - Series for the World Banana Forum. Anna Cooper, FAO 2015, p. 19; http://www.fao.org/3/bt422e/bt422e.pdf

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Provide information and basic training, by a competent person(s), for workers and supervisors on correct chemical fertiliser application techniques by hand.

Water, sanitation, hygiene, welfare and first aid

Step 3, Risk Control Measure 4:

Provide water in the field so that workers can wash chemical fertiliser off contaminated skin before it causes burns/dermatitis, or before eating/drinking. Also ensure workers wash their hands and arms thoroughly once back in the main plantation yard.

Personal Protective Equipment (PPE)

Step 3, Risk Control Measure 5:

Chemical-resistant gloves - polyethylene, polyvinyl chloride (PVC or vinyl), neoprene, nitrile/ butadiene rubber (nitrile or NBR) - must be replaced if they show any sign of wear and-tear or are visibly torn.

4.5 Commodity chemicals

Field and Packhouse Tasks involving use of hazardous, caustic or corrosive Commodity Chemicals were identified in the employer's risk assessment as potential sources of harm.

Explanatory note: Commodity chemicals used on banana plantations, often in bulk containers and containing caustic or corrosive materials, include powerful disinfectants, acids and solvents used for cleaning floors, work surfaces, washing/sanitary facilities, canteens/kitchens, equipment, and machinery.

Disinfectants are biocidal chemicals[115] used to control food contamination by micro-organisms, and are classified as hazardous substances. Although disinfectants used in the agriculture, food and drink industries are especially selected so that potential residues left on surfaces, etc., do not taint the food nor are harmful to the consumer, many affect the skin, eyes or respiratory system and can be harmful if ingested in sufficient quantity.[116] Examples of biocides include disinfectants, preservatives, antiseptics, and pesticides.[117]

115 Biocidal products are, "Active substances and preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to destroy, deter, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chemical or biological means". EU Directive (98/8/EC) concerning the Placing of Biocidal Products on the Market, Article 2.1(a); https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31998L0008

116 Controlling exposure to disinfectants used in the food and drink industries; Health & Safety Executive UK, Undated; http://www.hse.gov.uk/food/disinfectants.htm

117 GreenFacts based on Biocides Directive; https://ec.europa.eu/health/scientific_committees/opinions_layman/en/biocides-antibiotic-resistance/glossary/abc/biocide.htm

Banana latex dispersants

Bananas produce banana latex, which is a natural complex mixture of tannins, gums, carbohydrates and salts that flows out of the crown of banana clusters when they are cut from the bunch. Banana latex is like chewing-gum – it sticks to anything with which it comes into contact, injuring eyes and skin, and adhering to gloves, aprons, surfaces and equipment.

Traditionally, the latex is removed by floating the clusters in a large tank of water where the latex can flow away from the fruit, but this method requires litres/gallons of water that must be changed daily. The latex also sticks to the water cleaning tank itself making the weekly deep cleans of the packing station a strenuous job for workers. To combat this, chemical latex dispersants are added to the water to break up and remove the latex.

Once at the packing station, bananas are cut into bunches, soaked and rubbed in an **aluminium sulphate** bath[118] to remove any latex residue or stubborn insects.

> On one plantation in **Cameroon**, the cleaning water contained a weak concentration of **calcium hypochlorite** as a disinfectant and a neutral type of **bacterol** used to disperse latex. Women workers on the plantation complained of skin problems caused by spending long hours with hands in the chemical-treated water when washing bananas in the pack house.

Aluminium sulphate (alum) is a chemical compound mainly used as a coagulating agent in the purification of drinking water and waste water treatment plants. It is a skin and eye irritant. So, if you are working with it, you should wear gloves and eye protection.[119]

Calcium hypochlorite is used primarily as a bleaching agent or disinfectant, based on releasing chlorine. Calcium hypochlorite (hypochlorous acid, calcium salt, losantin, oxychloride, chlorinated lime, bleaching powder, or chlorine powder) is a white, crystal and oxidising solid material, with a faint odour of chlorine. It is toxic by ingestion, skin contact and inhalation.[120] Contact can severely irritate and burn the eyes and skin. Breathing in the chemical can irritate the nose and throat.[121]

Bacterol is a biocide that works by eliminating the bacteria that cause many kinds of infections, and it may contain different active ingredients according to the formulation being used.[122]

As many chemical latex dispersants are apparently not particularly effective, a new class of biological latex dispersants, which are a proprietary blend of generally recognised as safe (GRAS) bacteria, have been developed. The new dispersants also help reduce the time and effort required to clean tanks and equipment. The natural products are gentler for the environment, reduce water usage and improve working conditions for the packing station workers using them. Now workers refill the water tanks once per week rather than once per day — a boon for the workers and for the environment.

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118 Aluminium sulphate (alum) is a chemical compound mainly used as a coagulating agent in the purification of drinking water and waste water treatment plants. It is a skin and eye irritant and so, if you are working with it, you should wear gloves and eye protection

119 Aluminium sulphate: Uses and Toxicity. https://study.com/academy/lesson/aluminum-sulfate-uses-toxicity.html

120 Calcium Hypochlorite. U.S. Occupational Safety and Health Administration Hazard Information Bulletins; https://reptox.cnesst.gouv.qc.ca/pages/fiche-complete.aspx?no_produit=6387

121 ILO Safety Data Sheet; https://www.ilo.org/dyn/icsc/showcard.display?p_lang=en&p_card_id=0638&p_version=2

122 Bacterol. More: https://www.ndrugs.com/?s=bacterol

Chemicals are also used during long distance transport to the customer. **Potassium permanganate**, a chemical compound, oxides the ethylene gas produced by the banana fruit, delaying fruit ripening during transport and so extending shelf life. The chemical can be added as part of sealed film liner or in the granular form during transport. It is a highly corrosive chemical, and tissue contact produces coagulation necrosis. So PPE needs to be used.

Crown end rot control in the packhouse: In conjunction with chemical fungicides, **aluminium** and **ammonium sulphate** are used to seal the wound on the crown end of the banana hand, where it has been cut from the banana bunch.[123]

Health and safety impacts: Occupational dermatitis is a risk from contact with bare skin. Fumes released when mixing products, especially disinfectants, can cause respiratory problems (especially if used in confined/enclosed spaces). Flammable and toxic substances such as fuels and oils are also widely used on banana plantations and their correct use needs special attention, including disposal of waste oils.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Provide information and basic training, by a competent person(s), for workers and supervisors using caustic, corrosive or flammable materials on correct application/handling techniques, including proper washing and disposal of empty containers.

Personal Protective Equipment (PPE)

Step 3, Risk Control Measure 5:

Use of chemical-resistant gloves - polyethylene, polyvinyl chloride (PVC or vinyl), neoprene, nitrile/butadiene rubber (nitrile or NBR). Gloves must be replaced if they show any sign of wear-and-tear or are visibly torn.

123 Ecuador. Health and Safety Manual in the Banana Industry. FAO Rome, 2017, Section 1.6; http://www.fao.org/3/I8078ES/i8078es.pdf

4.6 Health and safety organisation

For all **Field and Packhouse Tasks**, risks from poor Workplace Health and Safety Organisation were identified in the employer's risk assessment as potential sources of harm, with varying degrees of risk.

Explanatory note: Poor health and safety organisation in the workplace is a common, but often under-recognised, cause of injuries, disease and ill health. Injuries and disease at work often occur simply because the employer has not organised the work in safe and healthy manner, with safe systems of work and practices. Managers, supervisors and workers are not well informed about, or properly trained to implement, correct health and safety risk controls.

Health and safety impacts: Risk of injuries and/or disease.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

One of the simplest and most cost-effective ways of preventing and reducing health and safety risks at work is for businesses to improve work organisation, and to provide:

- safe systems of work and practices
- good health and safety information, and
- regular training for workers, supervisors and managers, including refresher training.

4.7 Water, sanitation, hygiene, welfare and first aid

For all **Field and Packhouse Tasks**, risks from inadequate Water, Sanitation, Hygiene, Welfare, and First Aid services and facilities were identified as potential sources of harm, with varying degrees of risk.

Explanatory note: These services/facilities provide essential protection for workers from disease and infection, and they can make work more pleasant.

Health and safety impacts: Risk of disease, infections including COVID-19.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Water, sanitation, hygiene, welfare and first aid

Step 3, Risk Control Measure 4:

General facilities for drinking water, washing/showering, sanitation, changing rooms, and catering must be adequate, properly maintained and cleaned.

There must be a sufficient supply of **clean drinking water** for workers' consumption throughout the worksite or premises. Water sources should be adequate and be periodically tested for quality through bacteriological analysis.

Washrooms with **wash basins** with running water should available to all personnel. Separate showers for men and women should be provided where possible, with shower doors with an indoor locking system. Wash basins and showers must be equipped with suitable toiletries: soap, clean towels, brushes, etc., which are provided by the employer and frequently replenished.

> In a WBF report on women workers in the **Ghanaian** banana industry, health and safety related issues include inadequate facilities to cater for women's needs such as washrooms and changing rooms.[124]

Sanitary facilities: Separate facilities for women and men should be available, with provision of toilets with a seat, and urinals for men.

Changing rooms: must be equipped with a sufficient amount of seating and individual cabinets that can be locked with a key or padlock.

Catering: provision of canteens or kitchens on the plantation.

Water for washing clothes: to ensure workers have clean clothing, and to avoid them taking pesticide-contaminated clothing home to wash.

Provision of **First Aid Services and Trained Worker First Aiders** by the employer is essential. This is because injuries or poisonings may be all the more serious when they occur on a distant part of the plantation, or when working alone. So first aid treatment on the spot can be vital.

A First Aid Needs Assessment will help employers decide what first aid arrangements are appropriate for their workplace, and how many first-aiders are required. There are no hard and fast rules on exact numbers and the employer will need to take into account all the relevant circumstances of her/his particular workplace. First aiders must have attended and qualified from emergency first-aid training courses so that they are competent persons with suitable training, and sufficient knowledge, experience and skill, for the performance of the specific work.

Field workers

Field supervisors, including the spray team supervisor, must ensure that their workers have sufficient water with them in the field:

a. for drinking purposes to avoid the risk of dehydration, especially if they are wearing PPE which increases body temperature and the rate of water loss
b. to wash dirty hands before eating or drinking in the field
c. to wash pesticide off contaminated skin and out of eyes.

Field workers must include workers trained and competent in first aid.

124 FAO 2015. Cooper, A. Women in the Banana Export Industry. Regional Report on West and Central Africa. Working paper - Series for the World Banana Forum, p.6; http://www.fao.org/3/bt422e/bt422e.pdf

4.8 Physically demanding work: musculoskeletal injuries and disorders

As all **Field and Packhouse Tasks** involve physically demanding and/or repetitive work, the employer's risk assessment identified the risk of Musculoskeletal Injuries and Disorders (MSDs) as major issue of concern, with varying degrees of risk depending on the tasks, duration, frequency.

Explanatory note: Field work is very physically demanding, especially given the tropical conditions. In packhouses, repetitive actions cause strains and injuries. The term "**musculoskeletal disorder**" denotes health problems of the locomotor apparatus, i.e. muscles, tendons, the skeleton, cartilage, the vascular system, ligaments and nerves.[125] MSDs affect both upper and lower limbs, develop over time, and are rarely the result of a single stress or strain.

MSDs are sometimes referred to as "ergonomic risks".[126] Ergonomics is the science/study of fitting the job to suit the worker, and not trying to fit the worker to the job.

The causes of work-related MSDs are usually multifactorial, and well-established work-related risk factors for MSDs include:[127]

- Strenuous and heavy, often monotonous, work in awkward and uncomfortable positions for long periods - bending, stooping, squatting, kneeling, reaching, or twisting

125 World Health Organisation, Protecting Workers' Health Series No. 5, Preventing Musculoskeletal Disorders in the Workplace, 2003, Available at: https://iris.who.int/bitstream/handle/10665/42651/924159053X.pdf?sequence=1

126 Ergonomic Checkpoints in Agriculture. ILO SAFEWORK programme, International Ergonomics Association, 2012; http://www.ilo.org/global/publications/books/WCMS_168042/lang--en/index.htm

127 Work-related Musculoskeletal Disorders in the European Union - Facts and Figures. European Agency for Safety and Health at Work, 2010, p. 13; https://osha.europa.eu/en/themes/musculoskeletal-disorders

- Manual handling, lifting, carrying and moving of awkward and heavy loads involving lifting, putting down, pushing, pulling, carrying, moving or supporting a load by hand or bodily force. It is not just the weight of the load that can cause injury. The size and shape, the available grip, the way that the load is carried, where and how often it has to be carried, and over what distances, all play a part
- Repetitive, often forceful actions, in awkward or uncomfortable body postures
- Prolonged standing and walking, lack of seating at workstations, and exposure to vibrations.

Health impacts: MSDs result in many workers suffering ongoing acute pain and discomfort which, if untreated, can result in permanent disabilities, with workers at risk of no longer being able to work in the same job and so losing their employment and livelihoods. MSDs are one of the most common health impairments in agro-food industries.

Banana clusters which may produce up to 250 bananas and weigh up to 40-50 kgs or more are carried over the shoulder and placed in bins suspended from aerial cables (tramway) running through the plantation. One **Ecuadorian** worker commented, 'It takes an inhumane effort to carry the banana bunches. We have to pull up to twenty bunches at a time (on the aerial cable/tramway), and we do twenty transports a day.'[128]

> A study in **Ecuador** found that banana workers adopting awkward work postures, performing cyclical tasks and handling loads with a weight greater than 3kg were potential candidates to develop MSDs in the upper limbs and back in the medium and long term. Lifting and transporting the fruit posed the most critical risk of MSDs, with an unacceptable level in all tasks evaluated in the study.[129]

Packing station workers often spend 10 to 12 hours standing and engaged in repetitive movement. The FAO West/Central African banana report found that women associate abdominal pains and irregular menstruation with these packing plant working requirements. Regular breaks and rotation to a range of tasks are both relevant OSHE management strategies that are rarely employed in the banana industry.[130]

Once at the packing station, they are then cut into bunches, soaked and rubbed in an aluminium sulphate bath to remove any latex residue or stubborn insects.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Workers use lifting devices wherever possible, plus ergonomically designed tools (tools designed to fit the worker), in good condition and sharp.

128 Op cit 69.

129 Assessments of Ergonomic Risks in Banana Cultivation and Production, Jara et al; Conference Paper in Advances in Intelligent Systems and Computing, July 2018; https://www.researchgate.net/publication/318159025_Assessments_of_Ergonomic_Risks_in_Banana_Cultivation_and_Production

130 Op cit 8.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Organisational actions such as the redesign of jobs, training of workers and managers, and provision of adequate rest breaks.

Health/medical surveillance

Step 3, Risk Control Measure 6:

Implementation of a health surveillance programme that can detect at an early stage any musculoskeletal discomfort or damage.

4.9 Working in hot, extreme temperatures

As all **Field and Packhouse Tasks** involved working in high temperatures and humid conditions, the employer's risk assessment identified the risk of heat-related illnesses as habitual, high risk situations.

Explanatory note: The type, likelihood, and severity of health effects from heat increases with the temperature, humidity and duration of exposure.

Health impacts in order of increasing severity are: lassitude, irritability, discomfort; lowered work performance and lack of concentration; heat rash; heat stress/exhaustion; and heat stroke.[131] Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness.[132]

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Ensure that appropriate mechanical aids are available to reduce workloads and that tasks are well designed ergonomically to minimise physical stress.

Implement technical means to reduce air temperature, including ventilation or air cooling.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Work activities should be carried out in the early hours of the morning whenever possible. There must be: adequate supplies of drinking water; regular rest breaks; shelters with seating for shade and rest. Workers, supervisors and managers should be trained on heat stress prevention.

131 Occupational Health: A Manual for Primary Health Care Workers. World Health Organisation, Regional Office for the Eastern Mediterranean, 2001, 3.1, p. WHO-EM/OCH/85/E/L; https://www.ilo.org/media/578371/download

132 NIOSH Centers for Disease Control and Prevention, USA. Heat Stress, 2018; https://www.cdc.gov/niosh/docs/2010-114/default.html

4.10 Exposure to the sun

For **Field Task** workers, the employer's risk assessment identified the risk of excessive and prolonged sun exposure as a habitual, potentially High Risk.

Explanatory note: Field workers on banana plantations can be exposed to excessive and prolonged levels of sun; to ultra-violet radiation.

Health impacts: Exposure to the sun can cause burning, diffuse redness on the exposed parts of the skin, associated with cutaneous atrophy which may lead to localised thickenings after several years, and varying degrees of sunstroke. Long-term exposure to the sun can lead to premature ageing of the skin and increased likelihood of skin cancers. Heat stress/stroke are other risks.

RISKS CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER:

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Organising tasks to be carried out earlier in the morning; provision of regular rest breaks; shelters with seating for shade and rest. Plus training of managers, supervisors and workers on prevention of sun exposure.

Personal Protective Equipment

Step 3, Risk Control Measure 5:

Using appropriate clothing (canvas and cotton), particularly by covering heads with wide-brimmed hats that protect the face and the neck. Plus the application of sun cream and sunscreens.

4.11 Biological risks

As all **Field and Packhouse Tasks** involved risks of harm from Biological Agents, with varying degrees of risk (likelihood and severity of harm), according to the biological agent(s) involved, the nature, and length of exposure.

Explanatory note: Biological agents on banana plantations include:

> **Insect stings or bites** (spiders, scorpions, mosquitoes, etc.), or **snakebites**. Risks of discomfort, wounds, infection, diseases, and poisoning and even death from snakebites.
>
> **Micro-organism**s — fungi, bacteria, viruses, protozoa, parasites, and "germs" that can grow on the banana fruit or in the washing tanks, or bacteria in compost. Risks of microbial contamination and disease.
>
> **Plants** — thorns, pollen, etc. Risks of physical injury (thorns) and allergic reactions/occupational asthma (pollen).

Dust — breathing in organic dust when handling banana plant material or cleaning plant and equipment or sweeping floors. Risks of allergic respiratory disease, e.g. occupational asthma.

Zoonoses are diseases transmitted from animals to humans. Examples of zoonotic diseases on banana plantations include: Leptospirosis (Weil's disease), Tetanus (Parazoonosis), and now COVID-19 coronavirus.

Skin diseases — occupational irritant and allergic dermatitis from exposure to plant material, chemicals, immersion of hands in water over long periods, etc.

Health effects from biological risks vary. Spider and scorpion stings and snakebites, for example, pose immediate threats to life; others pose treatable disease risks. All biological risks require planned prevention programmes and risk control measures to prevent or minimise risk of harm.

Labouring in tropical conditions exposes workers to risk of infections such as leptospirosis which is one of the most widespread and pervasive zoonotic bacterial diseases worldwide. However, unfortunately current research into leptospirosis is fragmented, with little to no recent data available on human disease in many countries.[133]

In **Africa**, leptospirosis is a "hidden disease" — there is little clinician or veterinarian awareness.[134]

In **Australia**, leptospirosis has been reported as a rodent-transmitted disease occurring around banana packing sheds. The main occupational source of infection is water and soil contaminated with the urine of infected rodent animals.[135]

The disease is curable with antibiotics but, if untreated, the patient could develop: kidney damage, meningitis, liver failure, or respiratory distress; and in rare cases it causes death.

133 Raising the Profile of Leptospirosis in Africa. Samantha Warne, 6 October 2015, Royal Society of Tropical Medicine and Hygiene (RSTMH), UK; https://rstmh.org/news-blog/blog/raising-the-profile-of-leptospirosis-in-africa

134 Allan, K., et al. 2015. Epidemiology of Leptospirosis in Africa: A Systematic Review of a Neglected Zoonosis and a Paradigm for 'One Health' in Africa; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4569256/

135 Occupational Health and Safety for Banana Labourers. Government of Western Australia, Department of Primary Industries and Regional Development, February 2020; https://www.agric.wa.gov.au/bananas/occupational-health-and-safety-banana-labourers

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

The plantation and especially exposed work centres implemented a pest/rodent and disease control programme to prevent the incubation, entry and spread of biological agents; including rodent control in the packing shed area to prevent leptospirosis.

Waste deposit areas are located at a distance well away from centres of work activity to reduce the risk of contact with, and infection from, biological agents including snakes and rodents.

The grass/vegetation in and around buildings and fixed workplaces is regularly cut to reduce sources of potential infestation from snakes and rodents.

Workers, supervisors and managers receive regular information and training on safe work organisation, systems, and practices to prevent or reduce the likelihood and severity of harm from biological risks.

Covid-19 presents new challenges for workplace redesign/layout, safe work organisation, systems of work, information and training. (See below.)

Water, sanitation, hygiene, welfare and first aid

Step 3, Risk Control Measure 4:

Provision of adequate facilities for effective personal hygiene to be practised. Adequate washing facilities to allow regular hand washing, and proper attention to minor cuts and scratches, especially on the hands and forearms, are general preventative measures for diseases.

Drinking water sources should be periodically tested for quality through bacteriological analysis.

First aiders, and first aid materials, are available to treat minor cuts and scratches when they occur. Insect bites and stings, especially spider bites, may cause an immediate skin reaction, and are more likely to cause death due to poisoning than snake bites.

There are occupational health and medical services in operation (often as required by national legislation/Labour Code).

Personal Protective Equipment

Step 3, Risk Control Measure 5:

To reduce the risk of insect bites and stings, workers/supervisors should wear long-sleeved shirts and apply insect repellent before starting the day's work.

Snake bite prevention and bites from ground dwelling insects: provision and wearing of rubber boots.

Provision of gloves when working in rodent infested areas.

Covid-19 Prevention for Banana Workers

In common with other agricultural workers, banana workers have been classed as essential workers and so have had to continue to work, or risk losing their jobs, even in workplaces where their employers have failed to provide adequate health and safety protection measures against Covid-19. Agricultural workers and their families have paid, and continue to pay, a high price in providing essential food such as bananas to consumers. Globally, tens of thousands of workers on farms/plantations and in meat/food processing plants have been infected with the coronavirus. Many have died.

Prevention measures taken by trade unions in the banana industry include:

> On 25 March 2020, the IUF-affiliated SINTRAINAGRO in **Colombia** negotiated an agreement with the banana industry association AUGURA covering 22,000 banana workers on comprehensive measures to mitigate the risk of COVID-19 infection. The union has produced a series of short videos demonstrating the safety procedures, which are being implemented and monitored by union representatives together with the employers and public authorities.
>
> The Coordinating Body of Latin American Banana and Agro-Industrial Unions (COLSIBA), Banana Link (NGO), and French NGO, Mano Sana, have supported the design and production of videos and radio slots across **Latin America** to provide information to workers about how they can keep themselves safe at work during the pandemic; reaching over 50,000 plantation workers through social media and local radio stations.[136]
>
> In **Guatemala**, the Sitrabi trade union negotiated the shift distribution of workers in banana packing plants in order to respect physical distancing protocols while also ensuring no workers lost hours of work. At unionised workplaces, unions demanded special transportation to achieve physical distancing while travelling to work. Union representatives have also received additional training on proper hygiene to avoid the virus.[137]

136 Costa Rican Union Calls for Better Covid 19 Protection for Plantation Workers and Other Developments. Banana Link, 18 June, 2020; https://www.bananalink.org.uk/news/costa-rican-union-calls-for-better-covid-19-protection-for-plantation-workers-and-other-developments/

137 Ibid.

4.12 Dangerous machinery, equipment and transport

The employer's risk assessment identified that:

a. Workers carrying out **Field and Packhouse Tasks** involving dangerous machinery, equipment and transport were at direct risk of harm, and

b. Plantation workers were at risk of harm from being run over by poorly operated tractors or forklift trucks, or through extra rider accidents.

Explanatory note: The principal safety risks from machinery, equipment and tools include traumatic injuries including, but not limited to, cuts, burns, fractures and amputations caused by contact with cutters, gears, belts, shafts and other moving parts, and burst hydraulic hoses. Such injuries occur not only during the course of production but also during maintenance and repairs, cleaning, clearing blockages, etc. The effects of such injuries can be all the more serious because many agricultural workers work alone and first aid or medical help may be far away.

Self-propelled tractors and forklift trucks

Overturns (rollovers) and **run overs of persons** are the most serious risks associated with self-propelled machinery, and can result in fatal or serious injuries.

Forklift trucks are powered trucks used to carry, lift, stack or tier materials. Many workplace accidents involve people being knocked down or run over, typically when the forklift is reversing, because the driver did not see them. Owing to their size and weight, and speed, injuries resulting from forklifts are generally very serious.

Tractors and forklift trucks running over other workers, with fatal or serious injuries, are often caused by poor workplace layout, poor workplace organisation, poor supervision and a lack of training.[138]

Extra rider accidents occur because there is no safe location for an extra person on a tractor. Yet the practice of taking extra riders is very common as a means of saving time, for convenience, or baby-sitting.

Climbing onto or off **farm trailers** whilst still in motion, and falling beneath the trailers wheels and being crushed, is another common type of run-over accident; and it is a practice which can prove difficult to control.

Dangerous Transport: In **Côte d'Ivoire**, women banana workers reported that company transport to work is overloaded, and this is a particular safety issue for pregnant women.[139]

Power take-off (PTO) entanglement is one of highest risk categories in agriculture. The power take off (PTO) shaft transfers power between the tractor (or other power unit) and the PTO-powered machinery. Unguarded or poorly guarded PTO shafts can be lethal. If an operator, or other worker, becomes entangled with unguarded PTO, she/he can be taken around the shaft in a matter of seconds and killed or very severely injured.

Chainsaw use can result in fatal or serious injuries, including amputations and facial injuries, and risk of hearing loss and vibration white finger.

138 Health and Safety Authority, Ireland; https://www.hsa.ie/eng/Publications_and_Forms/Publications/Information_Sheets/forklift-safety-tips.pdf

139 Op cit 8.

Health and safety impacts: Fatal or serious injuries (permanent disability) may be the result of accidents involving dangerous machinery/equipment and self-propelled machinery.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Fixed Machinery. Machinery safety is largely a matter of keeping the original guards and shields in place, and replacing them in position immediately after machinery repairs or maintenance, and promptly replacing damaged guards or shields, plus having trained, competent operators using the machinery. Fixed machinery must be fitted with an emergency stop button.

Tractors. The most important safety devices to protect against overturns/rollovers are provision of a tractor cab or protective, metal rollover bar.

Warning devices — visual and auditory — should be fitted to tractors and forklift trucks to indicate when reversing.

Power-take off shafts must be fitted with proper guards which are regularly maintained.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

For tractors and forklift trucks, employers must make sure that drivers are familiar with the vehicles they are driving. They must be given appropriate instruction, information and training to carry out required pre-checks and to use the vehicle in the correct and safe manner. The vehicles must be regularly and well maintained.

There must be written instructions on safe systems of work for:

- tractor drivers and field gang workers when working in proximity;
- tractor drivers when working near drainageditches or on particularly uneven, steep ground;
- tractor and forklift truck drivers in central and warehouse areas.

The employer must ensure there are walkways for pedestrians (workers and visitors), clearly marked, in areas where forklift trucks/tractors are operating.

Personal Protective Equipment

Step 3, Risk Control Measure 5:

Employers must ensure that chainsaw operators have been given appropriate information and training on their safe use, and are provided with the recommended PPE.[140]

140 Worksafe, New Zealand 2017. Safety with Chainsaws; https://worksafe.govt.nz/topic-and-industry/machinery/saws-and-shears/chainsaws/

4.13 Slips and tripping over

The employer's risk assessment identified all **Field and Packhouse Tasks** as involving potential risk of harm from slips and tripping over, with varying degrees of risk of harm depending on the task involved.

Explanatory note: Slips and tripping over account for a significant percentage of injuries, occurring on plantations, farm fields, buildings, structures and facilities. Risk factors include ground or walking surfaces made slippery from rain, mud, manure, chaff or other substances; uneven ground or walking surfaces; missing walkways; leaving materials in walking aisles; deteriorated steps and stairs and poorly maintained ladders; and unprotected openings. Inadequate lighting or poor visibility can also increase risks, e.g. entering poorly lit areas from well lit ones or vice versa. Workers carrying objects that block their view or are too heavy or awkward increase the risk of accidents.

Health and safety impacts. Injuries include strains, sprains, bruises to joints and muscles, ligaments, tendons and bones, and even broken bones.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Providing non-slip materials for floors, stairs and platforms, etc., in plantation workplaces and buildings, especially in high risk zones.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Order and Cleanliness. Avoiding accumulation of waste or other materials, including soil, manure and plant wastes, obstacles on floors, stairs and platforms to trip over, and slippy surfaces.

Safe systems for storing and stacking produce, materials, equipment, tools.

Regular washing and cleaning of floors, stairs and work platforms to avoid accumulation of waste/materials. Warning signs should be posted on washed areas until they are dry and safe to walk on.

Providing information and training for workers, supervisors and managers on preventive risk control measures for slips and trips.

Uneven, often slippy, ground. Workers, including contract workers from outside the plantation, should check out the terrain before working there, identifying dangerous spots, especially when carrying tools and equipment.

Water, sanitation, hygiene, welfare and first aid

Step 3, Risk Control Measure 4:

Trained worker first aiders are available to treat more minor injuries.

Personal Protective Equipment

Step 3, Risk Control Measure 5:

The employer should ensure workers and supervisors in areas where the risk of slips and trips is higher have suitable footwear with soles that grip.

4.14 Falling from height

The employer's risk assessment identified **Field and Packhouse Tasks** involving the risk of falling from a height as potentially High Risk Activities. Even where a particular task was only carried out infrequently, it could result in a serious or fatal injury.

Explanatory note: Work at height means work in any place where a person could fall a distance liable to cause personal injury. Falling from any height is hazardous and can be fatal. You are working at height if you:

- work above ground/floor level;
- could fall from an edge or through an opening or fragile surface;
- could fall from ground level into an opening in a floor or a hole in the ground.[141]

As a fall from height has to involve a fall from one level to a lower level, work at height does not include a slip or a trip on the level, nor does it include walking up and down a permanent staircase in a building.

Places where banana workers can fall from include: roofs of farm buildings, silos, ladders, work platforms, stairs, open edges, vehicles, scaffolding, or climbing trees to harvest fruit or to carry out pruning.

Workers use ladders for two tasks in particular:

- Working on ladders at heights of 2-4 metres when attaching ties (twining) to stop banana plants toppling over

141 Work at Height: Preventing Falls. Health and Safety Executive, UK; https://www.hse.gov.uk/agriculture/topics/falls.htm

- Working on shorter ladders when fixing protective plastic sheaths around the developing banana clusters on the plant stem.

In both cases workers are at risk of falling off the ladders or the ladders slipping from under them. When working on the ladders, reaching and stretching out in repetitive, awkward positions also poses risks of musculoskeletal injuries.

Banana plantations also have deep drainage ditches, 1-2 metres in depth, which workers can fall into and injure themselves.

Health and safety impacts: Falls from height can result in fatal or serious injuries including long term disability.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Collective protection is equipment that does not require the person working at height to act to be effective. Examples are permanent or temporary guardrails, and tower scaffolds.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Providing safe work organisation, systems, practices, combined with information and training for workers and supervisors carrying out tasks involving the risk of falls from height.

Personal Protective Equipment

Step 3, Risk Control Measure 5:

Personal protection is equipment that requires the individual to act to be effective. An example is putting on a safety harness correctly and connecting it, via an energy-absorbing lanyard, to a suitable anchor point.[142]

4.15 Falling objects

For certain **Field and Packhouse Tasks**, the employer's risk assessment identified being hit by falling objects as a potential risk.

Explanatory note. The danger of being hit by falling objects includes fruit or branches, especially when fruit is being cut standing under trees, or falling bales or containers in stacks, or even large tractor tyres stacked and unchained against a wall.

Health and safety impacts: The biggest concern with any falling object accident is head trauma or a concussion, requiring immediate medical attention. Concussion symptoms can develop over time. So, although the worker might feel fine, if his/her behaviour changes or abnormal sleepiness occurs, this could be a sign that it's likely to be more serious.

142 Work at Height. Health and Safety Executive, UK; https://www.hse.gov.uk/work-at-height/faqs.htm

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Falling fruit: The employer's risk assessment should ensure workers and supervisors are trained in correct harvesting techniques, and use safe systems of work when harvesting. Falling bales or containers should be correctly stacked and the height of the stack limited.

Large tractor tyres: these should be chained against a wall or supporting surface. Unchained tractor tyres are a major cause of accidents to children on plantations and farms who climb on them as play things. The unchained tyre can fall over and crush the child, often with fatal results.

4.16 Electricity

The employer's risk assessment identified **Field and Packhouse Tasks** associated with risk of harm from defective electrical installations, equipment and wiring, as potentially resulting in serious or even fatal harm.

Explanatory note: Contact with **electricity** can kill (electrocution), or cause serious burns and disabling injuries. There are many electrical incidents which damage equipment and thousands of 'near-misses', any of which could have had fatal consequences. Many accidents involve poorly maintained hand-held equipment, and electrical faults on machinery or extension cables. Working with power cleaning tools in wet environments can be especially dangerous.

Health impacts: Contact with mains or industrial voltage electricity can result in fatal electrocution, serious electrical shocks, burns, or dislocation of limbs.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Electrical safety devices which can be used include:

Circuit breakers which use the heat from an overload to trip a switch, and are therefore resettable.

Fuses which are simple devices designed to overheat and burn out extremely rapidly in overload situations. Fuses must be replaced each time they burn out.

A **residual current device** or residual current circuit breaker, also known as ground-fault circuit interrupters and appliance leakage current interrupters, are used to detect ground faults — leakage of current to somewhere other than the neutral and live wires (like the ground wire, or through a person, which could result in a lethal shock). When a ground fault is detected, the device very quickly cuts off the circuit. A residual current device can be used with either fixed electrical installations or portable electrical equipment and cables.

All portable electric tools must be fitted with a double insulation system, as well as with either a grounded power outlet or a malfunction detection device. Portable electric tools must have a valid certificate of compliance. Electric cables, both those which are attached to tools and loose cables, must be well insulated, with no peeled or protruding wiring. Electrical appliances and their corresponding parts must be free from grease, debris, etc.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Electrical equipment and installations must be safe, and properly maintained.

Work near electrical equipment, or conductors such as overhead power lines, should be carried out safely. The power supply should be isolated before carrying out any repair or maintenance work.[143]

Only qualified and trained personnel are permitted to use, repair, maintain, or install electrical equipment.

4.17 Cutting and sharp/pointed tools

The employer's risk assessment identified **Field and Packhouse Tasks** involving the risk of harm from Cutting and Sharp/Pointed Tools.

Explanatory note: Banana bunches are cut down while still green by workers using machetes. Machetes and knives are also used to cut leaves, e.g. deleafing. Scythes and sickles are regularly used on banana plantations to cut weeds, brushwood, etc. Workers who handle other sharp or pointed tools such as hammers, pliers, scissors, sharp knives, needles, brushes with metal bristles, etc., are at risk of sustaining cuts or other injuries.

Health impacts: Many injuries are machete-related, ranging from minor cuts to the severing of body parts. Repetitive and forceful actions associated with cutting can also result in musculoskeletal disorders.

> An **Ecuadorian** banana worker observed, "Cuts – a lot of workers cut themselves. I take down the banana bunch, and they have to cut stalks, and sometimes they lose control of the machete and cut their feet."

143 Health and Safety Executive, UK, Electricity; https://www.hse.gov.uk/agriculture/topics/electricity.htm

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

- Use the tool that is most suited to the task, and is in good condition;
- Only use tools for their intended purpose, what they were designed for, and do not exceed the tool's technical capacity;
- Prior to use, the tool has been inspected by the supervisor and worker using it to ensure it is in good condition. Handles must be smooth, free of splinters and firmly fixed; metal parts must not be oxidised, cracked or blunt. Keep all work tools and accessories clean;
- All tools and equipment must be regularly inspected and serviced. Only qualified personnel are permitted to refurbish tools and equipment;
- Workers have been instructed how to handle the tool correctly, and trained as appropriate, and they follow the directions provided by either the manufacturer or the plantation supervisor;
- Workers do not carry cutting tools and sharp tools without their sheaths;
- Where recommended by the manufacturer, the worker should wear the appropriate Personal Protective Equipment;
- In the work space, work tools, equipment and materials should be well stored in order to prevent any risk of tripping over them.

4.18 Noise[144]

The employer's risk assessment identified **Field and Packhouse Tasks** involving the risk of harm from noise as being associated with varying degrees of risk.

Explanatory note: Noise is a serious occupational hazard to those who work in agriculture, and in an occupational setting is most simply defined as unwanted sound.

Health impacts: The main health effect is **noise-induced hearing loss**, the onset of which is often gradual because of exposure to loud noise over time. The person affected is not totally deaf but cannot understand speech in normal conditions, especially in crowded situations. The damage is disabling as it can stop people being able to keep up with conversations, hear instructions at work, or use the telephone. The condition is not reversible. People may develop tinnitus (ringing, whistling, buzzing or humming in the ears), a distressing condition which can lead to stress and disturbed sleep. Noise can cause stress and interfere with concentration, thus affecting ability to work. This can be a contributory factor in workplace accidents as workers lose concentration and coordination.

144 Health and Safety Executive UK. Noise at Work. https://www.hse.gov.uk/pubns/indg362.pdf

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Elimination or substitution of hazards

Step 3, Risk Control Measure 1:

For machinery, the best option for reducing noise is to do so at source through good design. For example, many new tractors and other farm equipment have been designed so as to emit low levels of noise.

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

The second option is to reduce noise by installing sound-proofed enclosures, acoustic materials, or other engineering risk control measures.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

The amount of time spent in noisy environments should be limited, and workers kept away from noisy areas as much as possible.

Workers, supervisors and managers should receive information and training on noise prevention techniques.

Personal Protective Equipment

Step 3, Risk Control Measure 5:

If the above measures are insufficient, hearing protectors should be provided and the amount of time spent in noisy environments limited.

Drivers using tractors without cabs should wear ear protectors.Where the tractor has no cab, engine noise could cause noise induced hearing loss; whether temporary or permanent would depend on the noise level, (measured in A-weighted decibels, dBA), and length of exposure.

4.19 Vibration

The employer's risk assessment identified **Field Tasks** involving the risk of harm from vibration as being associated with varying degrees of risk.

Explanatory note: Vibration in the workplace is generally classified as:

a. Whole body vibration, which is transmitted by sitting or standing on vibrating surfaces, such as when driving tractors and other farm machinery, or

b. Hand–arm vibration, which comes from the use of hand-held powered equipment like chainsaws, brush cutters and hedge trimmers.

The main concerns with vibration are the magnitude of vibration transmitted and the duration of exposure.

Health impacts:

a. Whole-body vibration: prolonged exposure can lead to severe back pain and other musculoskeletal disorders. It can also cause fatigue, stomach problems, headache, loss of balance and "shakiness" shortly after or during exposure.[145]

b. Hand-arm vibration: prolonged exposure can cause painful and disabling disorders of the hand-arm muscles, blood vessels, nerves and joints.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Elimination or substitution of hazards

Step 3, Risk Control Measure 1:

Ask your employer if your job could be done in a different way, without using vibrating tools/ machines.[146]

If this cannot happen, next consider:

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Ask to use suitable low-vibration tools.

Check tools before using them to make sure they have been properly maintained and repaired to avoid increased vibration caused by faults or general wear.

Make sure cutting tools are kept sharp so that they remain efficient.

Employers should maintain machinery and equipment regularly, since worn components may increase vibration levels. Worn out equipment and tools should be removed from use and replaced with new technology.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Always use the right tool for each job (to do the job more quickly and expose you to less hand-arm vibration);

Reduce the amount of time you use a tool in one go, by doing other jobs in between;

Avoid gripping or forcing a tool or workpiece more than you have to;

Encourage good blood circulation by: keeping warm and dry; giving up or cutting down on smoking because smoking reduces blood flow; and massaging and exercising your fingers during work breaks.

145 Vibration - Health Effects. OSH Answers Fact Sheets. Canadian Centre for Occupational Health and Safety (CCOHS), February 2017; https://www.ccohs.ca/oshanswers/phys_agents/vibration/vibration_effects.html

146 Worried About Your Hands? Health and Safety Executive, UK leaflet; https://www.hse.gov.uk/vibration/hav/yourhands.htm

4.20 Lighting[147]

For **Packhouse Tasks**, the employer's risk assessment identified poor lighting as a potential risk.

Explanatory note: Lighting at work is very important to the health and safety of everyone using the workplace. The quicker and easier it is to see a hazard, the more easily it is avoided. The types of hazard(s) present at work therefore determine the lighting requirements for safe operation. Employers have a duty to ensure that lighting is safe and does not pose a health risk to employees and others who may use their premises.

Health and safety impacts: Poor lighting can be a factor in workplace accidents.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER[148]

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Different activities require different levels of light. In general, the more detailed the task, the greater the light requirement. A process control room should be lit at an illuminance of 300 lux, a corridor or walkway may only require 50 lux, whilst studying an engineering drawing may require 750 lux.

Sudden contrasts in light levels, e.g. coming out of a well-lit area into a dark area or vice versa, can be a problem because it takes the eye several seconds to adapt to new lighting conditions. Changes in lighting levels should be made gradual where possible.

Lighting should be installed and maintained by qualified electricians.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Where individuals are carrying out different activities, they will need control over their local lighting.

147 Health and Safety Executive UK. lighting at Work. https://www.hse.gov.uk/pubnS/priced/hsg38.pdf

148 Human Factors: Lighting, Thermal Comfort, Working Space, Noise and Vibration. HSE, UK, Undated; https://www.hse.gov.uk/humanfactors/topics/lighting.htm

4.21 Psychosocial risks

The employer's risk assessment identified all **Field and Packhouse Tasks** as potentially involving psychosocial risks, with varying degrees of risk of harm depending on the task involved, duration, frequency, etc. Psychosocial risks resulting from sexual harassment and violence are dealt with in **Chapter 5 on Women Worker's Health and Safety**.

Explanatory note: Psychosocial risks arise from poor work design, organisation, management, work speed, working conditions and labour relations, as well as a poor social context of work. They may result in negative psychological, physical and social outcomes such as work-related stress, burnout or depression; psychological and sexual harassment; third party violence; and they may even play a role in physical injuries such as musculoskeletal disorders.[149] The work-related stress they entail impacts significantly on the health of individuals, companies/organisations, and national economies.

Psychosocial hazards and the risks and work-related stress they entail are some of the most challenging obstacles to overcome when it comes to occupational health and safety.

Many jobs are not well designed and can include some or all of the following undesirable factors which may lead to psychosocial risks:[150]

- workers have little control over their work and work methods (including shift patterns);
- workers are unable to make full use of their skills;
- workers, as a rule, are not involved in making decisions that affect them;
- workers are expected to only carry out repetitive, monotonous tasks;
- work is machine or system paced (and may be monitored inappropriately);
- work demands are perceived as excessive;
- payment systems encourage working too quickly or without breaks;
- work systems limit opportunities for social interaction;
- high levels of effort are not balanced by sufficient reward (resources, remuneration, self-esteem, status).

Work-related stress

Work-related stress is at the centre of occupational psychosocial risks and is defined as, "The adverse reaction people have to excessive pressures or other types of demand placed on them at work". It is now widely acknowledged that work-related stress is very common and that it has a high cost in terms of workers' health, absenteeism and lower performance. Although stress is not a disease, it is the first sign of a problem; if the body experiences a continuous strain, stress can cause acute and chronic changes.[151]

149 Psychosocial Risks and Stress at Work. European Union Europa; https://osha.europa.eu/en/themes/psychosocial-risks-and-stress

150 What are Psychosocial Risk Factors? Health and Safety Executive, UK; https://www.hse.gov.uk/msd/mac/psychosocial.htm

151 Psychosocial Risks and Work-Related Stress. ILO, undated; https://www.ilo.org/global/topics/safety-and-health-at-work/areasofwork/workplace-health-promotion-and-well-being/WCMS_108557/lang--en/index.htm

The pace of agricultural work has increased with the use of task rates and piecework. In agriculture, dawn to dusk is too often not an unusual working day, and the need for rest periods and holidays is often ignored or poorly respected. Agricultural workers regularly work long hours, especially during busy periods like harvesting and planting. Banana Link notes that, "Plantation conditions are harsh, for example, male and female workers can often work for up to 14 hours a day without overtime in unbearable heat, for up to 6 days a week".

Health impacts: Scientific evidence shows that in the longer term, stress can contribute to memory loss, peptic ulcers, inflammatory bowel diseases and musculoskeletal disorders, as well as hypertension and, as a consequence, to the development of heart and cardiovascular diseases. It may also alter immune functions, which may in turn facilitate the development of cancer. Taken together, these disorders are responsible for the great majority of diseases, death, disability and medical care use in most industrialised countries. They are also significant causes of death in developing countries.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Workplace stress-related hazards can be assessed, and their effects controlled, through risk-assessment and risk control measures which include:[152]

Primary prevention, reducing stress through:

- taking ergonomic measures - including addressing poor health and safety conditions which result in high risk work activities and high stress levels;
- improving work organisation, environment design, and working conditions - including high workload, tight deadlines, and work speed;
- improving workers' control over the work, including any lack of involvement in making decisions that affect workers and the way the job is done, and reducing the monotony of tasks where appropriate;
- monitoring and controlling shiftwork or overtime working, and ensuring there are reasonable workload deadlines and demands (neither too much or too little);
- reducing or monitoring payment systems which work on piece rates;
- carrying out organisational and management development.

Secondary prevention, reducing stress through:

- undertaking workers' and supervisors'/management education and training;
- providing social support for relationships at work, and especially the support workers receive from managers and colleagues.

152 SOLVE: Integrating Health Promotion into Workplace OSH Policies. ILO Geneva, 2012, p. 55. Trainers Guide; https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/instructionalmaterial/wcms_178397.pdf

Tertiary prevention, reducing the impact of stress by:

- developing more sensitive and responsive management cultures;
- incorporating stress risk management into OSH policies and practices;
- improving access to occupational health services.

For information on **Sexual Harassment and Violence**, see **Chapter 5 on Women Workers' Health and Safety**, including Training Exercise 6.

4.22 Hours of work/working arrangements

The employer's risk assessment identified all Field and Packhouse Tasks where the working arrangements involved the risk of harm, with varying degrees of risk.

Working arrangements include:

- Hours of work, fatigue and sleep; night work; shiftwork;
- Working in isolation;
- Monotonous or poorly designed work.

Hours of work, fatigue and sleep

The employer's risk assessment identified all **Field and Packhouse Tasks** as involving risk of harm due to long hours of work, continuous work, fatigue and lack of sleep, with varying degrees of risk.

Explanatory note: Agricultural workers regularly work long hours, especially during busy periods like harvesting and planting; dawn to dusk is too often not an unusual working day. The pace of agricultural work has increased with the use of task rates, piecework, and powered agricultural machinery. The need for rest periods and holidays is often ignored or poorly respected.

Legally maximum hours of work are often ignored and exceeded. Banana Link, an NGO, notes that, "Plantation conditions are harsh, for example, male and female workers can often work for up to 14 hours a day without overtime in unbearable heat, for up to 6 days a week".[153]

> In the **Guatemalan** banana industry, on average, non-union workers in the south of the country labour 68 hours per week and unionised workers in the north labour 54 hours per week - a 25.9% difference. Many non-union southern workers stated that they worked a 12 hour day, six days a week.
>
> In **Cameroon**, work starts at six in the morning and finishes around 5 or 6pm. But for a Cameroonian banana worker it is not uncommon to stay until 10pm in periods of high demand. Salaries are not based on an hourly rate but rather on the task assigned by managers each day. If the set quota is not achieved, pay is withheld.[154]

For more examples, see **Chapter 5 on Women Workers' Health and Safety**.

153 Op cit 5.

154 Op cit 69.

Health impacts: Long hours of work, particularly intense manual labour, contribute to workers' fatigue, adversely affect their health, and lead to accidents on the job. Fatigue or drowsiness associated with extended work hours may lead to poor judgement in performing duties, including the temptation to take dangerous shortcuts. Some work schedules, such as those involving long or unusually late or early hours, may contribute to fatigue in workers, and fatigue is associated with an increased likelihood of injury. There is also evidence that insufficient sleep is associated with moodiness, irritability and difficulty in modulating impulses and emotions.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Complying with statutory hours of work as per national laws:

Complying with weekly rest requirements, consisting of at least 24 consecutive hours each week. Such rest shall generally fall on Sundays and may under no circumstances be replaced by a compensatory allowance;

Daily and weekly working hours should be arranged so as to provide adequate periods of rest which, as prescribed by national laws and regulations, or approved by labour inspectorates or collective agreements, where applicable, should include:

a. short breaks during working hours, especially when the work is strenuous, dangerous or monotonous, to enable workers to recover their vigilance and physical fitness;
b. sufficient breaks for meals;
c. daily or nightly rest of not less than eight hours within a 24-hour period;
d. weekly rest of at least a full calendar day.

Extended workdays (over eight hours) should be contemplated only if:

a. the nature of the work and the workload allow work to be carried out without increased risk to safety and health;
b. the shift system is designed to minimise the accumulation of fatigue.

4.23 Working in isolation

The employer's risk assessment identified **Field Tasks** involving working in isolation as associated with varying degrees of risk of harm, especially for women workers.

Explanatory note: Working in isolation involves both physical, biological and mental risks. Physical risks in the case of injury, biological risks in the case of insect sting or snakebites, and mental risks in the case of effects on mental well-being and decision-making capabilities.

The ILO recognises that work arrangements in which exposure to violence and harassment may be more likely include night work and work in isolation, and governments should adopt appropriate measures for sectors or occupations and work arrangements where this may be prevalent.[155]

Health impacts:

- Risk to health due to delayed treatment for physical and biological injuries;
- Low morale and even depression in terms of mental health.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Safe systems of work have been drawn up for all work activities so that they avoidworking in isolation, especially for women workers. For any work on remote parts of the plantation, there shall be a minimum of two workers involved.

155 ILO Recommendation No. 206 on Violence and Harassment, 2019; https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:R206

4.24 Housing, accommodation and living conditions

The employer's risk assessment identified poor housing, accommodation and living conditions as being associated with risks of varying degrees.

Explanatory note: Because many banana workers live where they work, their lives and occupations are inseparable. There is a close link between housing and accommodation, and worker well-being and productivity. Decent housing and accommodation and a suitable living environment contribute to the health and well-being of workers and their families.

However, housing of agricultural workers is often characterised by inadequate and overcrowded installations, no heating, poor ventilation, deficient sanitary facilities and non-potable drinking water. Living conditions on many plantations remain inhuman, with workers living in tents, makeshift plastic huts/shacks or hostels for long periods.

Much agricultural work is carried out in a rural environment where there is no clear boundary between working and living conditions. Often the farm or plantation accommodation in which workers live is extremely basic and makeshift, built of pieces of plastic, wood or cardboard, or other forms of unheated dwelling; sanitation and welfare facilities are often poor or rudimentary.

Casual workers are rarely provided with plantation housing. Many are migrants who live in shanties near the estates without even the most basic sanitary facilities.

Health impacts: Poor housing enhances the spread of communicable diseases such as colds, bronchitis, influenza, tuberculosis, and now COVID-19. The hygiene situation in shanties can be especially deplorable, as witnessed by frequent outbreaks of waterborne diseases such as cholera, typhoid, malaria and dysentery.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

ILO guidance for agricultural employers on housing for both regular staff and seasonal and migrant workers includes:

In cases where housing is provided by the employer, it should comply with minimum housing standards established by the competent authority in the light of local conditions;

Accommodation provided for seasonal and migrant workers should meet minimum housing standards;

Housing standards should establish:

- minimum space per person or per family;
- the supply of potable water in the workers' dwellings;
- sewage and waste removal systems;
- protection against heat, cold, damp, noise, fire, and disease-carrying animals, particularly rodents and insects;
- adequate sanitary and washing facilities;
- ventilation;

- cooking and storage facilities;
- natural and artificial lighting;
- a minimum degree of privacy;
- the separation of living quarters for persons from those for animals.

Where collective housing is provided for workers who are single or are separated from their families, the competent authority should establish housing standards that provide as a minimum:

- a separate bed for each worker;
- a separate locker for keeping personal belongings;
- separate accommodation of the sexes;
- adequate supply of potable water;
- adequate sanitary and washing facilities;
- adequate ventilation and, where appropriate, heating;
- canteens, and rest and recreation facilities.

4.25 Waste disposal and recycling

The employer's risk assessment identified disposal of both **Organic and Inorganic Wastes** involved tasks with potential risk of harm.

Explanatory note: Banana production produces two types of wastes: a) Organic, vegetal waste, and organic and b) Inorganic waste. According to one estimate, the volume of waste produced is double the volume of bananas produced, and some inorganic waste may require special treatment.

Organic waste includes stems, shoots, corms, flowers, crowns, leaves, and rejected fruits. Banana plants consist of bulky, fibrous vegetal material which is difficult to break down. Depending on biodegradability and the volume generated, this waste can become a serious environmental pollutant. Poor disposal and lack of special treatment for these biodegradable wastes result in proliferation of pathogenic organisms. At the same time, leaching from this waste reaches the ground- and underground water supply, affecting its quality. Intensive use of chemicals can also interrupt the natural processes of decomposition such as bacterial degradation.

Inorganic, non-biodegradable (solid) waste includes plastic sheaths/bags, some containing residual insecticides, plasticated string and tape, cardboard boxes, fertiliser bags and pesticide containers. The final treatment of plastic varies, depending on the plantation. Some banana plantations accumulate the plastic bags, and then burn them or put them in large open-air dumps. Others recycle the waste plastic, compacting it into, for example, ditch bridges. In some instances, plastic bags can be seen scattered around the plantation, which is a great concern because they may find their way into rivers and even the sea, affecting aquatic organisms and coral reefs.

Health and safety impacts: Waste disposal is **physically demanding work**, especially given the volumes of organic and inorganic materials involved, and so workers are at risk of suffering from MSDs. Poor disposal and lack of special treatment for biodegradable wastes may result in proliferation of pathogenic organisms, and rodents. There is a risk of pesticide contamination from residual insecticide in the plastic sheaths when disposing of them.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Physically demanding work — Musculoskeletal disorders

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Workers use lifting devices wherever possible, plus ergonomically designed tools (tools designed to fit the worker), in good condition and sharp.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Organisational actions such as the redesign of jobs, training of workers and managers, and provision of adequate rest breaks.

Biological risks

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

The plantation and especially exposed work centres, such as waste disposal sites, implemented a pest/rodent and disease control programme to prevent the incubation, entry and spread of biological agents.

Waste deposit areas were located at a distance well away from centres of work activity to reduce the risk of contact with, and infection from, biological agents including snakes and rodents.

Chemical risks

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Clear, written procedures and systems of work for disposal/recycling of insecticide contaminated plastic sheaths.

Personal Protective Equipment (PPE)

Step 3, Risk Control Measure 5:

The following types of PPE for disposal of insecticide-contaminated plastic sheaths were decided on:

Coveralls and protective nitrile gloves

Working in Hot, Extreme Temperatures

Tools, equipment, technical and engineering controls

Step 3, Risk Control Measure 2:

Ensure that appropriate mechanical aids are available to reduce workloads and that tasks are well designed ergonomically so as to minimise physical stress.

Implement technical means to reduce air temperature, including ventilation or air cooling.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Work activities should be carried out in the early hours of the morning whenever possible. There must be: adequate supplies of drinking water; regular rest breaks; and shelters with seating for shade and rest. Workers, supervisors and managers should be trained on heat stress prevention.

Sun Exposure

Field workers on banana plantations can be exposed to excessive and prolonged levels of sun.

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

Organising tasks so that they are carried out earlier in the morning, with regular rest breaks; shelters with seating are provided for shade and rest. Plus there should be training of managers, supervisors and workers on prevention of sun exposure.

Personal Protective Equipment

Step 3, Risk Control Measure 5:

Using appropriate clothing (canvas and cotton), particularly by covering heads with wide-brimmed hats that protect the face and the neck. Plus sun cream and sunscreens should be applied.

4.26 Training Exercise 4

IDENTIFY SPECIFIC HAZARDS, ASSESS THE DEGREE OF RISK FOR EACH HAZARD, AND DECIDE ON THE RISK CONTROL MEASURES FOR EACH HAZARD

AIMS: Based on the Body Mapping exercise, to help us to:

- analyse specific hazards and levels of risk arising from them – high, medium, and low risk situations.
- Identify the risk control measures the employer should put in place - with your assistance – to make sure you and your colleagues are not injured and/or do not fall ill.

TASK: In your small group, select three/four hazards (or more) that you identified in the Body Mapping Training Exercise (page 39), and using the checklist below :

- Poor work organisation resulting in accidents, diseases or stress
- Psychosocial risks – e.g. stress
- Water, sanitation, hygiene, welfare and first aid
- Diseases and infections - skin diseases/irritation, eye infections, asthma from exposure to organic dusts, and cardiovascular diseases, nail fungi, swollen feet
- Sexual harassment and violence (including domestic violence); harsh supervision
- Pesticides and other chemicals (disinfectants, fertilisers etc.)
- Handling heavy/awkward loads and repetitive work resulting in musculoskeletal disorders
- Extreme temperatures and exposure to sun
- Slips and tripping over; Falls from height
- Cutting and digging tools
- Falling objects
- Noise and vibration
- Dangerous farm machinery and powered equipment – including run overs by forklifts/tractors
- Others

IN YOUR SMALL GROUP:

Answer the following questions and elect a spokesperson to report back with your group's views.

1. What are the risks arising from the hazard(s) you have selected which can harm workers? What are the likely health and/or safety effects on workers due to exposure to the hazard in terms of injuries, occupational disease/ill health?
2. What is the potential degree(s) of risk associated with each hazard that you have selected for banana workers?
3. In the situation of exposure to the hazard, what is the actual degree of risk associated with each hazard that you have selected?
4. Having assessed the degree of risk from each hazard, (based on probability of harm times the severity of harm), you (as the employer) must decide the corrective risk control measures for each hazard, and in which order they should be implemented. See the Hierarchy of Risk Control Measures in Section 3.6

RESOURCES:

For this Task, use the resource information in **Chapter 4 on Hazards and Risk Control Measures**, and use the **Hierarchy of Risk Control Measures in Chapter 3, Section 3.6.**

IUF: Making Women Visible in Occupational Health and Safety. Undated. https://www.iuf.org/wp-content/uploads/2020/12/3.-Making-women-visible-in-OHS-ENGLISH-def.pdf

IUF and ILO ACTRAV 2006. Series of Training Manuals on Health, Safety and Environment for Agricultural, Workers. https://www.iuf.org/wp-content/uploads/2004-Health-Safety-and-Environment-Manuals-for-Agricultural-Workers.pdf

Manual 2: Health, Safety and Environment for "grassroots" members

Manual 3: Health, Safety and Environment for worker representatives

Manual 4: Health, Safety and Environment (20) fact sheets

Manual 5: Pesticides

Manual 6: How to ratify and use ILO Convention No. 184 on Safety and Health in Agriculture

Appendix 1: IUF Briefing on Roving Safety Representatives in agriculture.

4.27 Training Exercise 5

CARRY OUT A RISK ASSESSMENT AND FILL IN THE FORM

Using the hazards and risk control measures you identified and discussed in Training Exercise 4, now **fill in the blank risk assessment form** (see the next page) as a working document to improve health and safety conditions on your banana plantation/farm. Refer where necessary to **Chapter 4 Hazards/Risk Control Measures**.

You need to write down the main findings of your risk assessment, and the risk control measures to be implemented, noting the person(s) responsible for implementing a specific risk control measure, by when, and when it was completed. Where literacy is an issue, other people may be able to assist.

This health and safety training uses a five-step risk assessment process based on using a simple health and safety risk assessment form. **See Chapter 3, especially Section 3.6 Hierarchy of Risk Control Measures.**

STEP 1. IDENTIFY THE HAZARDS. WHO IS AT RISK, AND HOW?

Identifying how a worker could be killed, injured or suffer an occupational disease/ill health is the first step (the hazards). When you work in a place every day, it is easy to overlook some dangers (hazards). So, you should:

- Walk around your plantations/farm and look at what could reasonably be expected to cause harm to safety and/or health
- Identify which work activities and processes are the most dangerous (hazardous), and in which parts of the workplace
- Learn from experience of previous accidents and work-related ill disease and health
- Remember to think about long-term risks to health (e.g. high levels of dust or noise or exposure to toxic pesticides) as well as safety risks
- Ask your workers if they can think of anyone you may have missed, or any problems you have not identified.

For **each** hazard, you also need to briefly state briefly how a worker(s) could be harmed. For example, farm dust = danger of lung disease.

ALL this information goes in the **FIRST** column of the risk assessment form.

STEP 2. EVALUATING THE RISK. WHAT IS THE DEGREE OF RISK EACH PERSON MAY FACE FROM EACH HAZARD? PRIORITISING RISKS FOR ACTION.

Risk assessment doesn't mean listing everyone by name, but rather identifying groups of workers who are at risk of harm from a given hazard. For example, "those working in the agricultural field gang" or "workers in the packhouse", and listing the numbers in each group.

For each hazard, evaluating the degree of risk - high, medium or low - takes a good trainer, a bit of practice, and some thinking. When discussing this in your training group, where there are different views on the degree of risk arising from a particular hazard, avoid getting lost in lengthy discussion on the degree of risk and focus on the solutions, i.e. focus on the risk reduction measure(s) that will make the job safer and healthier.

ALL this information goes in the **SECOND** column of the risk assessment form.

Model Risk Assessment Form

What are the hazards? Safety/health problems	Who is at most at risk, and how? Degree of risk: (high, medium, low)	What measures/actions need to be taken to stop workers being injured or made ill?	Who in your workplace should take action? By when? Action completed?	Review date? Further action needed and, if so, by whom? Action completed?

STEP 3. IDENTIFY AND DECIDE ON THE HEALTH AND SAFETY IMPROVEMENTS (RISK CONTROL MEASURES).

For each hazard identified, the **core activities** in risk assessment are to identify, decide on, and implement the safety and health improvements (risk controls measures), following the order in what is called the '**Hierarchy of Risk Control Measures**':

Risk Control Measure 1. Elimination or substitution of hazards

Risk Control Measure 2. Tools, equipment, technical and engineering controls

Risk Control Measure 3. Safe work organisation, systems, practices, information and training

Risk Control Measure 4. Water, sanitation, hygiene, welfare, and first aid

Risk Control Measure 5. Personal Protective Equipment

Risk Control Measure 6. Health/medical surveillance

The reason for deciding on and implementing the risk control measures in the order in which they are listed in the Hierarchy is first to identify and decide on **COLLECTIVE RISK CONTROL MEASURES** as they protect the work area — and all the workers in that area — before moving on to consider individual risk controls which simply protect individual people. For example:

- Workers' health will be better protected from exposure to harmful dust if your risk assessment first identifies dust extraction machinery (an engineering control) as the main risk control (giving collective protection to the work area) rather than relying solely on a dust mask which generally will not give anywhere near the same degree of lung protection, and in any case only offers some degree of protection to the worker wearing it.
- Soundproofing a noisy machine (engineering control) controls noise more effectively in the workplace than individual ear protection, and avoids workers having to wear such protection for their whole work shift.

For each hazard, the risk control measures you have decided to implement to make work activities healthier and/or safer go in the **THIRD** Column.

STEP 4. TAKE ACTION: IMPLEMENT THE SAFETY AND HEALTH RISK CONTROLS.

When risk control measures are decided upon, as per Step 3, you need to take action to implement the measures. You also have to assign responsibility within the enterprise for their implementation within a reasonable timeframe, and record the date they were acted on and done.

In terms of how soon to take action:

HIGH RISK = Immediate action

MEDIUM RISK = Action within a period of days or weeks

LOW RISK = Action over a longer period. Where risks are assessed as very low, no further action may be needed at present.

ALL this information goes in the **FOURTH** column of the risk assessment form.

STEP 5. MONITOR, REVIEW YOUR RISK ASSESSMENT, AND UPDATE.

Risk assessment is a Self-Help Tool. So, you need to monitor, schedule reviews, and update the assessment so as to maintain, or improve, effective safety and health risk control measures.

ALL this information goes in the **FIFTH** column of the risk assessment form.

Model Risk Assessment Form

What are the hazards? Safety/health problems	Who is at most at risk, and how? Degree of risk: (high, medium, low)	What measures/actions need to be taken to stop workers being injured or made ill?	Who in your workplace should take action? By when? Action completed?	Review date? Further action needed and, if so, by whom? Action completed?

CHAPTER 5.

WOMEN WORKERS' HEALTH AND SAFETY IN THE EXPORT BANANA INDUSTRY

5.1 Introduction

Trade unions are key to making workplaces safer and healthier for all workers but often women's occupational health and safety (OHS) is not given enough attention. Women's workplace health and safety must get more attention. Making women visible in occupational health and safety is key to ensuring healthy and safe outcomes for women workers.[156]

As stated in the BOHESI Manual on Women's Health and Safety in the **Ghanaian** banana industry:

> "Women and men have physical, physiological and psychological differences that can determine how risks affect them. Women and men are not the same biologically (sex differences) and the jobs they are allocated, their working conditions and how they are treated by society are not the same (gender differences)".[157]

The world of work has primarily been created for men, by men, and women have entered many occupations later than men. The safety and health risks associated with work dominated by male employees are therefore generally better known and many preventive measures have been identified. The fact that women are generally underrepresented at management and supervisory levels in the banana industry, and on employer-worker Health and Safety Committees, coupled with a lack of understanding of women's health in general, negatively impact health and safety issues and decision-making practices for women. Therefore, to ensure continual improvement in workplace safety and health for both men and women, gender differences must be taken into account in the design of occupational health and safety legislation, regulatory activity, research, policies, systems and preventive measures.

Women's occupational health and safety is often not given enough attention or ignored completely, putting women workers at risk of injury, disease and ill-health. It is important to ensure that health and safety issues particularly affecting women at work (such as gender-related violence, pregnancy, menstruation and menopause) are adequately addressed.

Women workers face a double burden. In addition to stress from paid work, women carry out most of the (unpaid) work in the home: caring for children and adult relatives, cleaning, cooking, fetching water and fuel. Information from UN Women shows that women carry out at least two and a half times more unpaid household and care work than men. The stress generated by womens' caregivers' responsibilities increases risk for various mental health disorders and stress-related diseases.

156 Banana Occupational Health and Safety Initiative – Guidelines on Healthy and Safe Employment of Women in the Ghanaian Banana Industry. Susan Murray, World Banana Forum, Gender Equity Task Force Webinar, 23 July 2020; http://www.fao.org/world-banana-forum/news/detail-events/en/c/1298223/

157 BOHESI: Guidelines on Healthy and Safe Employment of Women in the Ghanaian Banana Industry. Undated, p. 5; https://www.bananalink.org.uk/wp-content/uploads/2020/03/ENG_Guidelines-on-healthy-and-safe-employment-of-women-in-the-ghanaian-banana-industry.pdf

The World Banana Forum's Working Group on Gender Equity launched an FAO-funded study in 2014 to investigate and analyse the diverse levels of women's employment in the banana export industry in the major production regions of Latin America, the Caribbean and Africa. This identified the following key issues for women workers:[158]

- Health and safety for women on plantations, especially for pregnant women and nursing mothers;
- Gender-based violence at home; sexual harassment in the workplace;
- Low wages (both due to unequal pay, and women typically doing lower paid and more precarious roles);
- Lack of awareness on gender issues and women's rights issues amongst male colleagues, employers and the wider industry;
- Lack of women's representation in decision-making platforms, including collective bargaining negotiations and other platforms for negotiation and social dialogue.

Also, the ILO has produced **10 key guidelines for gender mainstreaming** on occupational health and safety (OHS):[159]

Guideline 1: Taking a gender mainstreaming approach to reviewing and developing occupational safety and health legislation;

Guideline 2: Developing OHS policies to address gender inequalities in OHS practice;

Guideline 3: Ensuring consideration of gender differences in risk management;

Guideline 4: OHS research should properly take into account gender differences;

Guideline 5: Developing gender responsive OHS indicators based on sex-disaggregated data;

Guideline 6: Promoting equal access to occupational health services and health care for all workers;

Guideline 7: Ensuring the participation of both men and women workers and their representatives in OHS measures, health promotion and decision-making;

Guideline 8: Developing gender-responsive OHS information, education and training;

Guideline 9: Designing work equipment, tools and Personal Protective Equipment for both men and women;

Guideline 10: Working time arrangements and work-life balance.[160]

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158 World Banana Forum. The World Banana Forum Working Group on Gender Equity; http://www.fao.org/world-banana-forum/projects/good-practices/women-employment/en/

159 10 Keys for Gender Sensitive OSH Practice – Guidelines for Gender Mainstreaming in Occupational Safety and Health. ILO, 2013; https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_protect/%40protrav/%40safework/documents/publication/wcms_324653.pdf

See also: European Agency for Safety and Health at Work, EU-OSHA, Gender issues in safety and health at work, 2003 : https://osha.europa.eu/sites/default/files/TE5103786ENC_-_Gender_issues_in_safety_and_health_at_work.pdf

And: European Agency for Safety and Health at Work, EU-OSHA, sheet 43: Including gender issues in risk assessment: https://osha.europa.eu/sites/default/files/Factsheet_43_-_Including_gender_issues_in_risk_assessment.pdf

And: ILO, Providing safe and healthy workplaces for both women and men: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40dgreports/%40gender/documents/publication/wcms_105060.pdf

160 10 Keys for Gender Sensitive OSH Practice: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_protect/%40protrav/%40safework/documents/publication/wcms_324653.pdf

5.2 Numbers employed

There is a tendency for women to be more represented in smaller-scale banana production for domestic and regional markets, while men tend to be more present in large-scale production for the international export market.

As previously mentioned, it is estimated that women represent, on average, less than a fifth of the global workforce in the banana export industry, with the highest participation of women in the banana industry in the **Caribbean** (excluding the Dominican Republic), where close to 40% of workers and small producers are women.[161] The lowest participation is in Latin America (12.5%), the Dominican Republic (12.5%), and Cote d'Ivoire (11%).[162]

> Women workers in countries such as **Ecuador** and **Colombia** can represent as little as 5% of the workforce, because employers view women as 'high cost, high risk' employees, and women are often denied maternity benefits. When they are employed, they are often offered short-term contracts, and are at constant risk of losing their jobs.
>
> In some **Latin American** countries, women have to produce medical certificates proving that they are not pregnant, or submit pregnancy tests before they are offered jobs. Those with jobs can be the victims of sexual discrimination and harassment.[163]

Production tasks considered suitable for women vary considerably between regions, and sometimes between countries within regions:

- Small-scale women producers in the **Caribbean** undertake all tasks involved in production;
- The exclusion of women from field work is the norm in **Latin American** production; women's involvement is almost exclusively limited to the packing stations;
- **West and Central Africa** falls between these two situations;
- In the **Philippines**, women are hired to carry out the same activities as men in the field, although a division of tasks exists in packhouses where they carry out the sorting and handling of the fruit, while men apply fungicides and lift heavy loads.

The current division of tasks in banana production varies between regions, countries and, indeed, companies. Further research led by workers, trade union leaders and small-holders is needed to consider the OSHE implications of women's participation in work in the fields, if work is organised in a way that requires all field workers to undertake the more physically demanding tasks.

161 FAO/World Banana Forum. Women's Employment in the Banana Industry. http://www.fao.org/world-banana-forum/projects/good-practices/women-employment/en/

162 Women in the Banana Trade: Gender Equity Issues. Banana Link, undated; https://www.bananalink.org.uk/gender-equity/women-in-the-banana-trade/

163 Op cit 5.

5.3 Menstruation and Period Dignity

Menstruation and Period Dignity were identified in the employer's risk assessment as health issues associated with all **Field and Packhouse Tasks** in which women workers are involved.

Explanatory note: Menstruation is a monthly part of women's life during at least 40 years. Women workers should be supported at work when menstruating. Toilet and rest facilities for women must be available, clean, secure and suitable for women.

Health and safety impacts: Changes in hormone levels before a woman's period can cause physical and emotional changes known as PMS (premenstrual syndrome) or PMT (premenstrual tension). Typical symptoms include feeling bloated; breast tenderness; mood swings; feeling irritable; spotty skin or greasy hair; and loss of interest in sex. Symptoms usually improve when a period begins and disappear after a few days.

Women can also experience pain/cramps during menstruation which, when severe, can be debilitating. Women should be encouraged to discuss concerns about painful, heavy or irregular menstruation with a doctor or another health care provider.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Women need prompt access to safe and hygienic sanitation facilities at all times, but this need is particularly acute during menstruation. Women should have access to sanitary protection in the workplace because menstrual cycles can vary in regularity and flow. Women should feel comfortable and be able to go to the washroom to change their sanitary pads when needed.

One IUF affiliate, Unite in the UK, has started a **Period Dignity** campaign whose aims are[164]:

1. Changing attitudes towards periods – periods should not be embarrassing for anyone;

2. Employers to provide sanitary products in the workplace – we want this to be the norm for every workplace;

3. Places of education to provide sanitary products for students/employees - we want this to be the norm so that young women's education does not suffer;

4. Ensure tax is removed from all sanitary products;

5. Support Period Poverty campaign groups. Women and young girls should have access to these vital products. Nobody should face Period Poverty.[165]

164 IUF Making Women Visible in Occupational Health and Safety; https://www.iuf.org/wp-content/uploads/2020/12/3.-Making-women-visible-in-OHS-ENGLISH-def.pdf

165 https://www.unitetheunion.org/news-events/news/2018/september/unite-launches-campaign-for-period-dignity/

5.4 Sexual harassment and violence

ILO Convention No. 190 on Violence and Harassment, 2019,[166] Article 1.1 states:

> (a) the term "violence and harassment" in the world of work refers to a range of unacceptable behaviours and practices, or threats thereof, whether a single occurrence or repeated, that aim at, result in, or are likely to result in physical, psychological, sexual or economic harm, and includes gender-based violence and harassment;
>
> (b) the term "gender-based violence and harassment" means violence and harassment directed at persons because of their sex or gender, or affecting persons of a particular sex or gender disproportionately, and includes sexual harassment.

Sexual violence and harassment among commercial agricultural workers is widespread, perhaps even pervasive, throughout the world. Sexual harassment is a human rights as well as a sex discrimination issue, with health and safety impacts that are predominantly suffered by women. ILO research conducted on sexual violence and harassment in four commercial agriculture contexts in Africa, Asia, and Latin America indicate that non-standard forms of work, including temporary work and informal work, are key factors in creating power differentials for perpetrators to carry out sexual violence and harassment against women workers. Supervisors and more senior workers are most often the perpetrators in part because they have the power to:

- offer, deny or discontinue work
- lower the income that workers receive
- make the workers' conditions very difficult
- undermine the workers' social standing, and/or
- offer advantages to the workers.

These forms of power also threaten workers into silence so that they do not report. Agricultural workers' vulnerability to sexual harassment is compounded by limited labour law coverage and poor labour inspection services extending to agricultural workers. Employers of agricultural workers are also found to lack effective preventative policies and practices.[167]

In a FAO/WBF global overview of women in the banana export industry, sexual harassment was described as a problem by women workers and their representatives across the **West and Central African** and **Latin American** banana producing countries, and women's 'reaction' to this treatment was identified as a factor in job discrimination. Sexual harassment can be damaging to women's well-being, can cause stress, provoke fear, and can lower a women's quality of (working) life.

> Sexual harassment of women workers by a banana company administration in **Ghana** was reported in the research workshops, and it could lead to employment/job discrimination depending on the women's 'reaction'.

166 ILO; https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C190

167 Henry, C. and Adams, J. Spotlight on Sexual Violence and Harassment in Commercial Agriculture: Lower and Middle Income Countries. International Labour Organisation, Research Department, Working paper No. 31, 2018; https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_630672.pdf

> In **Cameroon**, women workers (from one banana company only) also reported sexual harassment and intimidation from supervisors. In this company promotion and task allocation were seen to be directly related to their reactions to advances made by supervisors. This was also the case of the company healthcare facilities, with better care being provided in return for sexual favours.[168]

Challenging sexual harassment requires company policies and procedures, including both personnel policies that promote a respectful working environment, and grievance and disciplinary procedures.

However, in the FAO/WBF global overview, research revealed only one example of a company policy specifically aimed to end sexual harassment. In **Ecuador**, **Guatemala** and **Colombia**, independent trade unions gave examples of successfully supporting female members to bring grievances against men guilty of sexual harassment. Meanwhile, women trade union representatives in Honduras and Ecuador, for example, stated that it was rare that a company would punish the perpetrator in a case of sexual harassment. Women working on plantations where there was no independent trade union described a feeling of powerlessness at the impunity enjoyed by men who engage in sexual harassment. Several examples were given of women workers who, despite the lack of alternative employment opportunities, had decided that their only choice was to leave their job.[169]

Therefore, employers must hold consultations that involve all workers as well as trade union representatives in order to develop and implement policies designed to eliminate or reduce the risk of workplace violence and harassment. Policies can include implementing disciplinary procedures or issuing statements in response to any complaints made. Complaints must be treated fairly and in a supportive and professional manner throughout both the investigation phase and the conflict resolution process. The utmost care should be taken to safeguard confidentiality and protect the personal information of workers who are victims of workplace violence or harassment.

Instances of "mobbing" (workplace harassment), sexual harassment and violence must be identified, reported to management and resolved with the intervention of management, trade union representatives, and - when the case warrants such intervention - competent public authorities, e.g. labour inspectors.

As per ILO Convention No. 190, Article 9c),

> employers in cooperation with workers and their representatives should carry out risk assessment to prevent sexual harassment and violence, including domestic violence.

When a risk assessment for workplace violence and harassment is conducted, account should be taken of the following warning signs of possible workplace problems or tensions:

- Any signs of abuse, either verbally or in the form of innuendos or sexual remarks, aggressive body language, threatening behaviour, or a manifested intent to cause harm;
- Any reported incidents or physical attacks that have caused injuries;
- A high rate of absenteeism and staff turnover.

168 Op cit 8.

169 Women's Secretary of FESTAGRO in Honduras, Women in the Banana Export Industry Global Overview. Working paper - Series for the World Banana Forum, by Anna Cooper, FAO, 2015, pp. 15-17; http://www.fao.org/3/a-bt419e.pdf

Actions that can be taken by the employer, and by government, include:

- Upgrade women's terms of employment and work arrangements to match those of men, and advance women into supervisory positions within commercial agricultural work forces.
- Expand the scope of collective bargaining to extend negotiations to represent temporary and casual workers.
- Extend legal protections to non-standard workers and workers in agriculture and tighten legislation and enforcement of working conditions within commercial agriculture, including for contracted workers.
- Promote women into leadership roles within unions and NGOs and support women-organised means for monitoring and reporting incidents in commercial agricultural work.
- Expand gender sensitive education and training for management and workers to change attitudes and behaviour, with a clear anti-harassment and violence message from employers. Extend awareness-raising on these issues to local rural communities.
- Provide confidential communication opportunities between workers and management, ideally with access to both male and female points of contact (e.g., supervisors).
- Set up effective grievance mechanisms, with clear remedial actions.
- Provide appropriate gender-segregated facilities such as toilets, changing rooms and showers.

One of the most notable findings of a report on unionisation rates in the Guatemalan banana industry is that 58% of women in non-union banana packing plants face sexual harassment at work compared to 8% of women at unionised packing plants.[170]

IUF/COLSIBA/Chiquita Panama Womens Project on Women's Employment and on Sexual Harassment

An International Framework Agreement was signed in 2001 by the IUF, the Coordinating Body of Latin American Banana and Agro-industrial Unions (COLSIBA), and the global banana corporation Chiquita on freedom of association, minimum labour standards and employment in Latin American banana operations.[171]

Various committees were established to monitor the Agreement, including a Women's Committee which sought to seek solutions to common issues faced by women banana workers and their union representatives, namely: limited employment opportunities and sexual harassment. An appendix to the Framework Agreement on **sexual harassment** was added in 2013.[172]

170 Op cit 11.

171 IUF/COLSIBA and Chiquita Agreement on Freedom of Association, Minimum Labour Standards and Employment in Latin American Banana Operations, 2001

172 IUF/COLSIBA and Chiquita Agreement, Appendix 2013. Joint Understanding on Sexual Harassment.

In 2015, a pilot project began on Chiquita banana plantations in **Panama** with the strategic aim of increasing the number of women in the workforce and varying the roles occupied by women through capacity-building. From a low point of 9.7% of the workforce in 2013, Chiquita's female workforce in Panama grew by 54% by 2017.

Serious concerns continued to be voiced, however, about sexual harassment in the workplace in Panama, specifically the targeting of temporary workers. Women working alone are also overly exposed to harassment by male co-workers. Chiquita reports it has actively dealt with any reports of sexual harassment and that, after thorough investigation, there have been cases of dismissal of perpetrators, and others have been reprimanded.

Meanwhile, COLSIBA and the women workers agree that temporary contracts leave women vulnerable to harassment, under the threat of having contracts ended/not renewed. There is a need to search for alternatives to improve the way in which women are employed, so that they can have stable jobs. COLSIBA sees permanent positions as the only solution.

5.5 Domestic violence is a workplace health and safety issue[173]

Domestic violence is the most pervasive form of gender-based violence. Women are disproportionately affected, accounting for nearly 8 out of 10 of those who experience domestic violence.

It can include physical, sexual, emotional, or psychological abuse – including stalking, harassment and coercive control, (a systematic pattern of behaviour with the purpose of undermining a survivor and creating fear through threats, humiliation and intimidation, and depriving an individual of support).

It occurs between mixed or same-sex intimate partners, who may or may not be married, under common law, or living together. It can also continue to happen after a relationship has ended. It is worth noting that although partners are the most common perpetrators, violence may be perpetrated by offspring, parents and other family members.

It can be a single act of violence, or a number of acts of violence, that form a pattern of abuse.

Among the far-reaching social and economic impacts on women from the COVID-19 pandemic is a significant increase in domestic violence.

Domestic violence is a workplace health and safety issue:

The workplace can actually be a place of safety for survivors, where they have time away from their abusers. Plus it can be a source of financial independence. But the workplace can also be a dangerous place, where perpetrators can easily find and harm their targets.

There is an impact on co-workers. If a worker suffering pain or anguish is under-achieving, it can mean increased workloads for others, leading to a negative atmosphere. If there is a visit from a co-worker's abuser, there are potential safety risks to all, including clients and customers.

173 IUF 2020. Breaking the Silence - Why Domestic Violence is a Trade Union Issue. https://www.iuf.org/news/breaking-the-silence-why-domestic-violence-is-a-trade-union-issue/

There can also be serious impacts on the enterprise as a whole. Widespread stress among co-workers, or when a survivor is on medical leave and/or when a perpetrator is imprisoned, can all lead to even greater loss of productivity.

The workplace can play an important role in union action to prevent and tackle the impacts of domestic violence. It can provide a range of possibilities to enable survivors to break the silence and access information and support. It is therefore necessary to build awareness, among workers, employers, governments, and the wider public.

ILO Recommendation 206 sets out practical measures that employers can take to support survivors of domestic violence, including time off, if needed, to recover from the mental and physical impacts of this abuse, flexible working arrangements, and awareness-raising.[174]

It is important that women are always consulted about the support that they need, and to remember that domestic violence is experienced differently by different women.

Changing mindsets on sexual harassment and domestic violence

Trade unions already play a considerable role in helping to provide and sustain a work culture based on mutual respect and dignity. For that to develop even further, unions should keep organising training to change the mindset on gender-based violence, identify the root causes, stop the victim blaming, etc. Unions should:

- Promote non-discrimination and equality through campaigns and collective bargaining;
- Educate members about what violence and harassment in the world of work is;
- Raise awareness among members on ILO Convention No. 190 on Violence and Harassment and its importance;
- Include language in collective bargaining agreements based on ILO Convention No. 190 and ILO Recommendation No. 206;
- Work with employers in making sure that health and safety policies include violence and harassment, and specifically gender-based violence.

See also the Sample sexual harassment policy, Appendix 4.

174 https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:R206

5.6 Psychosocial risks

The ILO and the WHO have determined that, "The conditions present in a workplace environment, tied to the organisation, the nature of the work and the performance thereof, are liable to affect the health and welfare (physical, psychological or social) of the workers as much as the organisation of the tasks themselves".

Risks can include stress related to excessive workloads or long working hours; and bullying and harassment, including sexual harassment, gender-based violence and domestic abuse.

Examples can include:

- Excessive fatigue from a lack of toilet breaks, rest breaks and facilities, or changes to working hours or excessive overtime;
- High work rate or stress and increased fatigue can lead to lowered breast milk production and increased blood pressure;
- Morning sickness or nausea can be exacerbated if working on early shifts, or working in an area with nauseating smells;
- Lack of private areas for breastfeeding.

A final health concern with a gender dimension, identified by the FAO Latin American research, is the psychological stress and worry that single mothers face leaving their children alone or in the care of untrusted others. In some cases, women have no choice but to leave their "older" children of seven or eight years looking after babies or toddlers while they work the whole day in the packing plant, which may be essential in order to meet the family's financial needs.[175]

5.7 Pesticides

Women are more vulnerable than men to the risks associated from contact with pesticides routinely used in banana production, especially on medium to large monoculture plantations. Further research on the impacts of the pesticides routinely used in the industry on women banana workers is an urgent priority.

Occupational Exposure Limits (OELs)[176] for chemicals are, for instance, generally based on studies of men and on laboratory tests. Even medical research, the results of which may be applied to women, is invariably performed on male subjects such as laboratory-bred mice! As the journalist Caroline Criado Perez points out:

> "men and women have different immune systems and different hormones, which can play a role in how chemicals are absorbed. Women tend to be smaller than men and have thinner skin, both of which can lower the level of toxins they can be safely exposed to. The lower tolerance threshold is compounded by women's higher percentage of body fat, in which some chemicals can accumulate."[177]

175 Op cit 8.

176 In general, the Occupational Exposure Limit (OEL) represents the maximum airborne concentration of a toxic substance to which a worker can be exposed over a period of time without suffering any harmful consequences. OELs. Canadian Centre for Occupational Health and Safety; https://www.ccohs.ca/oshanswers/hsprograms/occ_hygiene/occ_exposure_limits.html

177 Op cit 21

There is considerable scientific evidence demonstrating that the chronic effects of contact with pesticides include reproductive health disorders in both women and men. Many of the pesticides routinely used in the banana export industry are suspected endocrine disrupters. The WHO recognises that pregnant women and children are more vulnerable to the negative health impacts of pesticide use. WHO guidance on the safe use of pesticides stipulates both that "pregnant women should not apply pesticides" and that "particular care should be taken to determine appropriate re-entry times for pregnant women, infants and small children". As described earlier in this overview, while there may be general acceptance of the principle that pregnant women should not undertake tasks that require immediate contact with pesticides, in practice these restrictions are unlikely to be applied until the final months of pregnancy, if at all.[178]

Pesticide exposure can pose special risks for women workers who are pregnant or breastfeeding. Persistent pesticides, for example, can induce, cause, or accumulate in dangerous levels in humans leading to adverse reproductive, developmental, immunological, hormonal and carcinogenic effects. Exposure to these chemicals can also result in miscarriages, low birth weight babies and premature births. Women can pass on these toxic chemicals to their children, both prenatally and through breastfeeding.[179] Increased incidence of miscarriage, stillbirth and birth defects are all reported by women exposed to chemicals in banana production. If pregnant or breastfeeding women are exposed to chemicals through application, handling of pesticide impregnated materials such as bags or ribbons used on banana plants or as a result of exposure to aerial spraying, then these can be transmitted to the foetus or breastfed child.

In **Ecuador**, a case was identified of a small group of women developing cancer of the uterus after reusing pesticide-impregnated plastic bags as aprons when they were not given sufficient PPE by their employer. Workers in this study also attributed a colleague's miscarriage to her work with post-harvest chemicals.[180]

In **Ghana**, pregnant and nursing women remained engaged in normal duties that were unsafe and presented health risks, in particular in relation to chemical exposure.[181]

In **Guatemala**, workers attributed cases of miscarriages and premature births, and children born with deformities and learning difficulties, to the mother's contact with agrochemicals through her work in the packing plant. The findings from Costa Rica support this interpretation of events. There have also been cases of women workers developing breast and uterus cancer.[182]

Women workers in the packhouse of Golden Exotics Limited, **Ghana** reported skin irritation and related health issues due to oversized gloves that allow water contaminated with chemicals to run down their arms.

178 FAO 2015. Women in the Banana Export Industry Global overview, pp 15-17. http://www.fao.org/3/a-bt419e.pdf

179 FAO (2001). Guidelines on Good Practice for Ground Application of Pesticides; https://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Old_guidelines/Ground_application.pdf

180 Op cit 178.

181 Op cit 8.

182 Op cit 69.

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Safe work organisation, systems, practices, information and training

Step 3, Risk Control Measure 3:

The employer must take steps to reduce as much as possible the exposure of pregnant or breastfeeding women to toxic pesticides, such as placing them at work stations where there is less risk of exposure, such as packaging, labelling, inspecting ripe bananas, deflowering, removing padding, and sanitary control.

5.8 Biological risks

> In **Latin America**, women banana workers reported work-associated problems such as: allergies and skin rashes, fungal infections in the toes, and urinary tract infections.[183]

Poor food hygiene at work, lack of access to clean drinking water, and dirty washing and sanitary facilities will increase susceptibility to gastrointestinal infection as well.

> In **Cameroon**, women workers complained of skin problems caused by spending long hours with hands in water when washing bananas in the pack house. Their employer replied that, "Added to this water is only a weak concentration of calcium hypochlorite as a disinfectant and a neutral type of bacterol used to disperse latex".[184]
>
> (See **Section 4.5** for more on Commodity Chemicals)

RISK CONTROL MEASURES IMPLEMENTED BY THE EMPLOYER

Water, sanitation, hygiene, welfare and first aid

Step 3, Risk Control Measure 4:

Provision of adequate water, sanitation, and hygiene facilities are important in reducing and controlling biological risks.

Personal Protective Equipment

Step 3, Risk Control Measure 5:

PPE should be suitable for women's bodies and not be unisex.[185]

For more on PPE and women workers, see **Section 3.10** on Collective Protection Measures versus Individual Protection .

183 Op cit 69.

184 Op cit 8.

185 Experiences from the Field / Delivery of OHS Training on Women's Issues using the BOHESI Guidelines. Abena Amponsah Awuah, Assistant Manager for Certifications and Gender Officer, Golden Exotics Limited; http://www.fao.org/world-banana-forum/news/detail-events/en/c/1298223/

5.9 Physically demanding work (musculoskeletal disorders)[186,187]

As previously mentioned, musculoskeletal disorders (MSDs) are the most common health impairments in the workplace.

Women tend to suffer more from pain in the upper back and upper limbs as a result of repetitive work which is accentuated during pregnancy. Whilst men are more likely to carry heavy loads it is not just the weight of the loads that can cause problems, it is often the repetitive nature of the work or the twisting.

There are a number of risks that can particularly affect women during pregnancy which include prolonged standing/sitting, heavy lifting and twisting movements of the torso. Prolonged standing/sitting can cause backache and joint pain. Working at heights poses the risk of falls meaning that it might be unsafe for pregnant women to work at certain heights or on ladders. Over stretching /overreaching can lead to miscarriage. During the third trimester, the increased size of the abdomen means that any object lifted or carried is further away from their lower back than is safe. Muscles supporting the lower back already have to work hard to keep a woman's balance and help her stand without the added stress of lifting. Pregnant women should be assigned alternative jobs if their original job exposes them to higher MSD risk.

There is a clear need to differentiate between the sexes regarding the demands of physical labour. ILO Recommendation No. 128 establishes the maximum permissible weight to be carried by one worker (55kg for men), differentiating between men and women.[188] In some countries the Labour Code makes specific provisions for women. For example, in **Ecuador** a limit is established for the maximum weight considered safe for a woman to bear.

The triple working day of women means there is a gendered impact to the health issues resulting from excessively long working days engaged in physical work. Women, in comparison to men, work to a greater extent in the domestic economy both before and after their day engaged in the banana export industry, and therefore suffer higher levels of stress and exhaustion.

There are ergonomic risks from being in a static standing position throughout the day, from repetitive hand movements when handling fruit, and from the effort expended when using tools. There are also risks associated with prolonged positions, such as squatting. For women:

- During menstruation, there is some evidence that increased ligament laxity due to hormonal changes can increase the risk of injury associated with lifting;
- In pregnancy, fatigue and increased ligament laxity and postural changes can increase the risk of injury. Following reported back problems due to sinks in the packhouse being at the wrong height for women workers, Golden Organics Limited (GOL), a **Ghanian** banana plantation company, adjusted the heights of sinks in packhouses to address gender based differences so that they do not cause abdominal pains for women.

Latin America: Women workers suffered physical complaints from long periods standing and from repetitive movements, including lumbago, poor posture and varicose veins.

186 Op cit 178.

187 Op cit 69.

188 ILO Recommendation No. 128; https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:55:0::NO::P55_TYPE,P55_LANG,P55_DOCUMENT,P55_NODE:REC,en,R128,%2FDocument

Cameroon: Women workers reported long hours undertaking repetitive packhouse jobs without enough space to bend properly which can cause back pains and strains. They also reported having to carry out physically demanding field jobs such as deleafing, soon after giving birth.

Long working hours, where women stand for long periods of time in the packhouses with insufficient breaks, are also a problem because of negative health impacts, which include back problems, abdominal pains and irregular menstruation.

5.10 Hours of work[189]

In **Ghana**, hours of work is of concern to women as late-night working hours endanger their safety when returning home, and also affect family responsibilities and relations. One impact of women returning home late from work (and as packhouse workers later than any of the workers employed in the field), especially in communities where women being in formal employment is relatively new, is an increase in women being the victims of domestic abuse: 'punished' by male partners for their absence from home and suspected of being unfaithful.

In **Cameroon**, women workers tend to work long hours, from 10 to 14 hours on harvest days when in the packhouse, with only a 30 minute lunch break.

In **Côte d Ivoire**, women banana workers tend to work around 10 hours per day, despite the legal working day being 8 hours. Legally required overtime is not often paid.

Restricting women to tasks in the packhouse where finishing times are often late (up until 11pm) because harvested bananas have to be packed the same day and companies expect workers, especially in peak season, to do overtime (even if in excess of legal working weeks of 40 and 48 hours in Ghana and Cameroon respectively) can have a negative affect on family and partner relationships.

In **Latin America**, in the countries considered in an FAO report,[190] the legal working day is 8 hours (with different stipulations and limits applied to overtime). However, the reality for women workers in the banana industry is:

In **Honduras**, women employees regularly work 12 hours a day.

In **Guatemala**, in the plantations in the Izabal region, where conditions are better than the Pacific South thanks to a high level of trade union representation, employees work 10 to 11 hour days. There are periods of high demand when workers are required to work seven days a week from 6am to 6pm.

In **Nicaragua**, the average working day is 10 to 11 hours. During periods of high demand, workers in packhouses also work on a Saturday from 6am until 5 or 6pm.

In **Colombia**, a working week of 10 hour days from Monday to Friday has been negotiated instead of the legal norm of 8 hour days from Monday to Saturday.

In **Ecuador**, workers are often obliged to work a 10 to 12 hour day.

189 Op cit 8.

190 Op cit 69.

5.11 Other issues affecting women workers' health and safety: some examples

Severe weather conditions

In **Cameroon**, female and male workers engaged in field operations reported that they continued to work in severe weather conditions leading to fatigue, accidents or occupational diseases.

On-the-job training

In **Ghana**, women (and men) lacked on-the-job training on the range of activities/operations at the workplace and relevant health and safety precautions required. Accidents and illnesses therefore arise due to ignorance.

In **Cameroon** too, health and safety issues arise from a lack of basic education and training.

Poor accommodation

In **Cameroon**, poor accommodation was an issue, even when provided by the company. For example, a woman with 30 years' service, who began work when single and subsequently married and had children, has had to remain in the same company accommodation and conditions are therefore very cramped.

5.12 Training Exercise 6

SETTING PRIORITIES FOR WOMEN WORKERS' HEALTH AND SAFETY, AND DECIDING ON RISK CONTROL MEASURES

AIMS: To discuss and prioritise for risk control actions the main health and safety problems faced by women workers on banana plantations

TASK: In your small group, discuss the risks arising from three/four hazards (or more) from the list below. Identify the risk control measures the employer should put in place — with your assistance — to make sure you and your colleagues are not injured and/or do not fall ill:

- Poor work organisation resulting in accidents or diseases
- Psychosocial risks – e.g. stress
- Sexual harassment and violence (including domestic violence), harsh supervision
- Skin diseases
- Miscarriages
- Persistent abdominal pains
- Irregular menstruation
- Eye infections
- Nose bleeds
- Swollen feet
- Nail fungi
- Cardiovascular diseases
- Respiratory diseases from exposure to organic dusts — asthma
- Water, sanitation, hygiene, welfare and first aid
- Long and continuous hours of work; lack of adequate rest breaks
- Poor canteen facilities
- Pesticides and other chemicals (disinfectants, fertilisers etc.)
- Handling heavy/awkward loads and repetitive work resulting in musculoskeletal disorders
- Extreme temperatures and exposure to sun
- Slips and tripping over; falls from height
- Cutting and digging tools
- Falling objects
- Noise and vibration
- Dangerous farm machinery and powered equipment — including run overs by forklifts/tractors
- Others?

RESOURCES:

For this Task, use the resource information in **Chapter 4** on Hazards and Risk Control Measures, and use the Hierarchy of Risk Control Measures, in **Chapter 3, Section 3.6.**

IUF: Making Women Visible in Occupational Health and Safety. 2019. https://www.iuf.org/wp-content/uploads/2020/12/3.-Making-women-visible-in-OHS-ENGLISH-def.pdf

BOHESI: Guidelines on Healthy and Safe Employment of Women in the Ghanaian Banana Industry. Undated; https://www.bananalink.org.uk/wp-content/uploads/2020/03/ENG_Guidelines-on-healthy-and-safe-employment-of-women-in-the-ghanaian-banana-industry.pdf

IUF and ILO ACTRAV 2006. Series of Training Manuals on Health, Safety and Environment for Agricultural, Workers. https://www.iuf.org/wp-content/uploads/2004-Health-Safety-and-Environment-Manuals-for-Agricultural-Workers.pdf

Manual 1:	Educator's guide
Manual 2:	Health, Safety and Environment for "grassroots" members
Manual 3:	Health, Safety and Environment for worker representatives
Manual 4:	Health, Safety and Environment (20) fact sheets
Manual 5:	Pesticides https://www.iuf.org/wp-content/uploads/2004-Health-Safety-and-Environment-Manuals-for-Agricultural-Workers.pdf
Manual 6:	How to ratify and use ILO Convention No. 184 on Safety and Health in Agriculture
Appendix 1:	IUF Briefing on Roving Safety Representatives in agriculture. https://www.iuf.org/wp-content/uploads/2008-RSR-Education-Manual.pdf

APPENDIX 1.

Pesticides used in the banana industry

Sources (2018):

Pesticide Action Network Pesticide Database; http://www.pesticideinfo.org/List_ChemicalsAlpha.jsp

List of pesticides registered in Cameroon, March 2018: Bananas, Public List.

U.S. EPA: U.S. Environmental Protection Agency. https://www.epa.gov/safepestcontrol/search-registered-pesticide-products

EU: European Union. https://ec.europa.eu/food/plant/pesticides/eu-pesticides-db_en

FUNGICIDES

Azoxystrobin

CAS No. 131860-33-8

WHO hazard classification: U, Unlikely to be hazardous.

Acute rating from US EPA product label: No consensus value

US EPA Carcinogens: Not likely

US Toxic Release Inventory Developmental Toxin: Not listed

US Toxic Release Inventory Reproductive Toxin: Not listed

Endocrine disruption, Colborn List: Not listed

Endocrine disruption, EU list: Not listed

Bitertanol

CAS No. 55179-31-2; 70585-36-3 (WHO Acute Hazard list)

WHO hazard classification: U Unlikely to be hazardous.

Acute rating from US EPA product label: No consensus value

US EPA Carcinogens: Not likely

US Toxic Release Inventory Developmental Toxin: Not listed

US Toxic Release Inventory Reproductive Toxin: Not listed

Endocrine disruption, Colborn List: Not listed

Endocrine disruption, EU list: Yes

Boscalid

CAS No. 188425-85-6

WHO hazard classification: U Unlikely to be hazardous

Acute rating from US EPA product label: No consensus value

US EPA Carcinogens: Suggestive

US Toxic Release Inventory Developmental Toxin: Not listed

US Toxic Release Inventory Reproductive Toxin: Not listed

Endocrine disruption, Colborn List: Not listed

Endocrine disruption, EU list: Not listed

Carbendazim

CAS No. 10605-21-7

WHO hazard classification: U, Unlikely to be hazardous.

Acute rating from US EPA product label: Slightly toxic

US EPA Carcinogens: C, Possible

US Toxic Release Inventory Developmental Toxin: Not listed

US Toxic Release Inventory Reproductive Toxin: Not listed

Endocrine disruption, Colborn List: Yes

Endocrine disruption, EU list: Yes

Source: IUF Asia-Pacific

Chlorothalonil
CAS No. 1897-45-6
WHO hazard classification: U Unlikely to be hazardous.
Acute rating from US EPA product label: Highly toxic
IARC Carcinogens: 2B, Possible
US EPA Carcinogens: Likely
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Yes
Endocrine disruption, EU list: ?

Cyflufenamid
CAS No. 180409-60-3
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Difenoconazole
CAS No. 119446-68-3
WHO hazard classification: Slightly hazardous, class III
Acute rating from US EPA product label: Slightly toxic
US EPA Carcinogens: C, Possible
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Yes

Dodine
CAS No. 2439 -10-3
WHO hazard classification: Slightly hazardous, class III
Acute rating from US EPA product label: Slightly toxic
US EPA Carcinogens: Not likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Fenpropidin
CAS No. 67306-00-7
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Suggestive
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Fenpropimorph
CAS No. 67306-03-0
67564-91-4
WHO hazard classification: U Unlikely to be hazardous.
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Not likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Fluopyram
CAS No. 658066-35-4
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Imazalil
CAS No. 35554-44-0
73790-28-0 (Alternate in use. May not be correct.)
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: None given
US EPA Carcinogens: Likely
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Yes
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Imazalil sulphate
CAS No. 58594-72-2
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Mancozeb
CAS No. 8018-01-7
8065-67-6 (Old CAS number)
WHO hazard classification: U Unlikely to be hazardous
Acute rating from US EPA product label: No consensus value
Cholinesterase inhibitor - nervous system effects
US EPA Carcinogens: B2, Probable
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin:Yes
Endocrine disruption, Colborn List: Yes
Endocrine disruption, EU list: Yes
Highly hazardous pesticide: Yes

Myclobutanil
CAS No. 88671-89-0
WHO hazard classification: Slightly hazardous, class III
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Yes
Endocrine disruption, Colborn List: Yes
Endocrine disruption, EU list: Yes

Propiconazole
CAS No. 60207-90-1
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: Moderately toxic
US EPA Carcinogens: C, Possible
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Yes

Propineb
CAS No. 12071 - 83-9 (Two CAS numbers for the same compound)
9016-72-2 (Two CAS numbers for the same compound)
WHO hazard classification: U, Unlikely to be hazardous.
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Not listed
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Yes
Endocrine disruption, Colborn List: No info
Endocrine disruption, EU list: No info

Pyrimethanil
CAS No. 53112-28-0
WHO hazard classification: U Unlikely to be hazardous
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: C, Possible
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Spiroxamine
CAS No. 118134-30-8
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Not likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Tebuconazole

CAS No. 107534-96-3

80443-41-0

WHO hazard classification: Slightly hazardous, class III

Acute rating from US EPA product label: Moderately toxic

US EPA Carcinogens: C, Possible

US Toxic Release Inventory Developmental Toxin: Not listed

US Toxic Release Inventory Reproductive Toxin: Not listed

Endocrine disruption, Colborn List: Not listed

Endocrine disruption, EU list: Yes

Thiabendazole

CAS No. 148-79-8

WHO hazard classification: U Unlikely to be hazardous

Acute rating from US EPA product label: Slightly toxic

US EPA Carcinogens: Likely (high doses), Not likely (low doses)

US Toxic Release Inventory Developmental Toxin: Yes

US Toxic Release Inventory Reproductive Toxin: Not listed

Endocrine disruption, Colborn List: Not listed

Endocrine disruption, EU list: Not listed

Thiophanate methyl

CAS No.23564-05-8

WHO hazard classification: U Unlikely to be hazardous

Acute rating from US EPA product label: low acute oral/dermal/inhalation toxicity (toxicity categories III/IV).

US EPA Carcinogens: Possible

Metabolite: MBC, C, Possible.

Carbendazim (methyl 2- benzimidazole carbamate):(https://www3.epa.gov/pesticides/chem_search/reg_actions/reregistration/fs_PC-102001_1-Nov-04.pdf)

US Toxic Release Inventory Developmental Toxin: Not listed

US Toxic Release Inventory Reproductive Toxin: Not listed

Endocrine disruption, Colborn List: Not listed

Endocrine disruption, EU list: Not listed

Thiram

CAS No. 137-28-8

Cameroon registration no: 836/14/FO

WHO hazard classification: Slightly hazardous, class III

Acute rating from US EPA product label: Highly toxic

US EPA Carcinogens: Not likely

US Toxic Release Inventory Developmental Toxin: Yes

US Toxic Release Inventory Reproductive Toxin: Yes

Endocrine disruption, Colborn List: Yes

Endocrine disruption, EU list: Yes

Triademefon

CAS No. 43121-43-3

WHO hazard classification: Slightly hazardous, class III

Acute rating from US EPA product label: Moderately toxic

US EPA Carcinogens: C, Possible

US Toxic Release Inventory Developmental Toxin: Yes

US Toxic Release Inventory Reproductive Toxin:Yes

Endocrine disruption, Colborn List: Yes

Endocrine disruption, EU list: Yes

Copper sulphate pentahydrate
CAS No. 7758-99-8
12527-76-3 (tribasic)
WHO hazard classification: Not listed
Acute rating from US EPA product label: Blank
US EPA Carcinogens: Not likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Monopotassium salt of phosphorous acid
CAS No. None
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Not listed
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

HERBICIDES

Glufosinate-ammonium
CAS No. 77182-82-2
WHO hazard classification:Not listed
Acute rating from US EPA product label: No consensus available
US EPA Carcinogens: Not likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed
Highly hazardous pesticide: Yes

Glyphosate (Isopropylamine salt)
CAS No. 38641-94-0
WHO hazard classification:Not listed
Acute rating from US EPA product label: No consensus available
IARC Carcinogens: 2A, Probable
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Paraquat (dichloride)
CAS No. 1910-42-5
WHO hazard classification:II, Moderately hazardous
IARC Carcinogens: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Yes
Highly hazardous pesticide: Yes

INSECTICIDES

Bacillus thuringiensis subsp. Kurstak (microbial)
CAS No.
WHO hazard classification:
Acute rating from US EPA product label:
US EPA Carcinogens:
US Toxic Release Inventory Developmental Toxin:
US Toxic Release Inventory Reproductive Toxin:
Endocrine disruption, Colborn List:
Endocrine disruption, EU list:

Bifenthrin
CAS No. 82657-04-3
83322-02-5
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: C, Possible
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Yes
Endocrine disruption, EU list: Yes

Buprofezin/Buprofenzin
CAS No. 69327-76-0
WHO hazard classification: U, Unlikely to be hazardous.
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Suggestive
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed
Source: IUF Asia-Pacific

Chlorpyrifos ethyl (Synonym: Chlorpyrifos)
CAS No. 2921-88-2
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: Moderately toxic
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Yes
Highly hazardous pesticide: Yes

Cypermethrin
CAS No. 52315-07-8 (undefined stereochemistry)
66841-24-5 ([(1R)-1a(R*), 3b]
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: C, Possible
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Yes
Endocrine disruption, EU list: Yes
Source: IUF Asia-Pacific

Deltamethrin
CAS No. 52918-63-5
WHO hazard classification: II, Moderately hazardous.
Acute rating from US EPA product label: Moderately toxic
US EPA Carcinogens: Not listed
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Yes
Endocrine disruption, EU list: Yes
Source: IUF Asia-Pacific

Fipronil
CAS No. 120068-37-3
WHO hazard classification: Moderately, class II
Acute rating from US EPA product label: Moderately toxic
US EPA Carcinogens: C, Possible
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Yes
Endocrine disruption, EU list:Yes

Imidacloprid
CAS No. 105827-78-9
138261-41-3
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: Moderately toxic
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Matrine (biological)
CAS No. 519-02-8
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Not listed
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not Not listed
Endocrine disruption, EU list: Not listed
Source: IUF Asia-Pacific

Thiamethoxam
CAS No. 153719-23-4
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: Moderately toxic
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Yes

INSECTICIDE/NEMATICIDES (Eeelworm control)

Cadusafos
CAS No. 95465-99-9
103735-82-6
WHO hazard classification: 1b Highly hazardous
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed
Highly hazardous pesticide: Yes

Carbofuran
CAS No. 1563-66-2
WHO hazard classification: 1b Highly hazardous
Acute rating from US EPA product label: Highly toxic
US EPA Carcinogens: Not likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed
Highly hazardous pesticide: Yes

Ethoprophos
CAS No. 13194-48-4
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: C, Possible
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Yes
Endocrine disruption, EU list: Not listed
Highly hazardous pesticide: Yes

Fenamiphos
CAS No. 22224-92-6
Cameroon registration no. 532/09/NEM
WHO hazard classification: 1b Highly hazardous
Acute rating from US EPA product label: Highly toxic
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed

Fluopyram
CAS No. 658066-35-4
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Oxamyl
CAS No. 23135-22-0
WHO hazard classification: 1b Highly hazardous
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed
Highly hazardous pesticide: Yes

Terbufos
CAS No. 13071-79-9
WHO hazard classification: 1a Extremely hazardous
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: E, Unlikely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed
Highly hazardous pesticide: Yes

NEMATICIDES (Eelworm control)

Fosthiazate
CAS No. 98886-44-3
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: Not likely
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

ACARICIDES (Mite control)

Abamectin
CAS No. 71751-41-2 (B1a,B1b mixture)
65195-55-3 (B1a)
65195-56-4 (B1b)
WHO hazard classification: Not listed
Acute rating from US EPA product label: No consensus value
US EPA Carcinogens: E, Unikely
US Toxic Release Inventory Developmental Toxin: Yes
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Yes
Highly hazardous pesticide: Yes

MOLLUSCICIDES (Slug control)

Metaldehyde
CAS No. 9002-91-9 (monomeric form)
108-62-3 (polymeric form)
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: Moderately toxic
US EPA Carcinogens: Suggestive
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

Thiodicarb
CAS No. 59669-26-0
WHO hazard classification: Moderately hazardous, class II
Acute rating from US EPA product label: Moderately toxic
US EPA Carcinogens: B2, Probable
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

FUMIGANT

Dazomet
CAS No. 533-74-4
WHO hazard classification: III, Slightly hazardous.
Acute rating from US EPA product label: Blank
US EPA Carcinogens: Not listed
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed
Source: IUF Asia-Pacific

PLANT GROWTH REGULATOR

Giberellin A3
CAS No. 468-44-0 (EU uses this CAS)
510-75-8 (EU uses this CAS)
77-06-5
8030-53-3 (EU uses this CAS)
WHO hazard classification: U Unlikely to be hazardous.
Acute rating from US EPA product label: Slightly toxic
US EPA Carcinogens:No data available
US Toxic Release Inventory Developmental Toxin: Not listed
US Toxic Release Inventory Reproductive Toxin: Not listed
Endocrine disruption, Colborn List: Not listed
Endocrine disruption, EU list: Not listed

APPENDIX 2.

Cancer-causing pesticides (carcinogens) used in the banana industry

Sources:

Pesticide Action Network Pesticide Database
http://www.pesticideinfo.org/Docs/ref_toxicity3.html#PANSummaryCancer

U.S. Environmental Protection Agency, List of Carcinogens.
https://www.epa.gov/fera/risk-assessment-carcinogenic-effects

International Agency for Research on Cancer (IARC), WHO[191]

Probable human carcinogen

Glyphosate – herbicide. Category 2A, IARC Carcinogens

Mancozeb – fungicide. Category B2, US EPA

Thiodicarb – molluscicide/insecticide. Category B2, US EPA

Possible human carcinogen

Chlorothanolil – fungicide. Category 2B, IARC

US EPA Carcinogen List, Category C

Insecticides: Bifenthrin, Fipronil

Fungicides: Carbendazim, Chlorothanolil, Difenoconazole, Fenbuconazole, Pyrimethanil, Propiconazole, Tebuconazole, Triademefon, Triadimenol

Likely human carcinogen

US EPA Carcinogen List, Likely human carcinogen

Fungicides: Cyflufenamid, Fluopyram, Imazalil, Imazalil sulphate, Tetraconazole

Suggestive human carcinogen

US EPA Carcinogen List:

Buprofezin/Buprofenzin – insect growth regulator

Fenpropidin – fungicide

Metaldehyde – molluscicide/insecticide

191 https://www.iarc.fr/fr/

APPENDIX 3.

Pesticides to "avoid the use of" in the banana industry

Sources:

FAO/ World Banana Forum 2017. Good Agricultural Practices for Bananas
http://www.fao.org/3/i6917e/i6917e.pdf

Pesticide Action Network Pesticide Database
http://www.pesticideinfo.org/List_ChemicalsAlpha.jsp

United Nations Environment Programme. Highly Hazardous Pesticides
https://www.unep.org/explore-topics/chemicals-waste/what-we-do/emerging-issues/highly-hazardous-pesticides-hhps

Avoid Use of Highly Hazardous Pesticides (HHPs) which means pesticides that are acknowledged to present particularly high levels of acute or chronic hazards to health or environment according to internationally accepted classification systems such as the World Health Organisation or the Globally Harmonised System of Chemicals Classification and Labelling (GHS) or their listing in relevant binding international agreements or conventions. In addition, pesticides that appear to cause severe or irreversible harm to health or the environment under conditions of use in a country may be considered to be and treated as highly hazardous.[192]

There is no official list of Highly Hazardous Pesticides but, in 2008, the FAO/WHO Joint Meeting on Pesticide Management developed the following eight criteria (which include links to documents and conventions that include HHPs):

Criteria 1: Pesticide formulations that meet the criteria of classes Ia or Ib or II of the WHO Recommended Classification of Pesticides by Hazard; or

WHO CLASS IA Pesticides: EXTREMELY HAZARDOUS

Insecticides: Carbofuran and Terbufos

WHO CLASS IB Pesticides: HIGHLY HAZARDOUS

Cadusafos: Insecticide; Oxamyl - Insecticide/Nematicide

WHO CLASS II Pesticides: MODERATELY HAZARDOUS

Fungicides: Fenpropidin, Imazalil, Propiconazole, Spiroxamine, Tetraconazole, Tridemorph, Triadimenol

Insecticides: Bifenthrin, Chlorpyrifos, Diazinon, Ethoprophos, Imidacloprid

Criteria 2: Pesticide active ingredients/formulations that meet the criteria for category 1A and 1B carcinogens as used by the GHS; or

Criteria 3: Pesticide active ingredients/formulations that meet the criteria for category 1A and 1B mutagens as used by the GHS; or

Criteria 4: Pesticide active ingredients /formulations that meet the criteria for category 1A and 1B reproductive toxicity as used by the GHS; or

Criteria 5: Pesticide active ingredients in Annexes A and B of the Stockholm Convention on Persistent Organic Pollutants (POPs), plus paragraph 1 of Annex D.

Organochlorine pesticides: DDT, endrin, dieldrin, aldrin, chlordane, toxaphene, heptachlor, mirex, and hexachlorobenzene, or

Criteria 6: Pesticide active ingredients/formulations listed in Annex III, Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

Criteria 7: Pesticides listed under the Montreal Protocol on Substances that Deplete the Ozone Layer, 1997; or

Criteria 8: Pesticide active ingredients/formulations that have a high incidence of severe or irreversible adverse effects on human health or the environment.

192 Guidelines on Highly Hazardous Pesticides. International Code of Conduct on Pesticide Management FAO/WHO; https://iris.who.int/bitstream/handle/10665/195648/9789241509671_eng.pdf

APPENDIX 4.

A sample Sexual Harassment Policy

Source: International Labour Organisation Code of Practice on Health and Safety in Agriculture, 2011, Appendix VII; https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_159457.pdf

1. Company X prohibits sexual harassment of its employees and applicants for employment by any employee, non-employee or applicant. Such conduct may result in disciplinary action up to and including dismissal.

2. This policy covers all employees. The company will not tolerate, condone or allow sexual harassment, whether engaged in by fellow employees, supervisors, or other non-employees who conduct business with the company.

3. Sexual harassment is any behaviour that includes unwelcome sexual advances and other verbal or physical conduct of a sexual nature when:

   - submission to, or rejection of, such conduct is used as the basis for promotions or other employment decisions;
   - the conduct unreasonably interferes with an individual's job performance or creates an intimidating, hostile or offensive work environment.

   Company X employees are entitled to work in an environment free from sexual harassment and a hostile or offensive working environment. We recognise sexual harassment as unlawful discrimination, as is conduct that belittles or demeans any individual on the basis of race, religion, national origin, sexual preference, age, disability, or other similar characteristics or circumstances.

   No manager or supervisor shall threaten or imply that an employee's refusal to submit to sexual advances will adversely affect that person's employment, compensation, advancement, assigned duties, or any other term or condition of employment or career development. Sexual joking, lewd pictures and any conduct that tends to make employees of one gender "sex objects" are prohibited.

4. Employees who have complaints of sexual harassment should (and are encouraged to) report such complaints to their supervisor. If this person is the cause of the offending conduct, the employee may report this matter directly to [specify various officials (e.g. Director of Human Resources, designated contact manager, etc)]. Your complaint will be promptly and thoroughly investigated. Confidentiality of reports and investigations of sexual harassment will be maintained to the greatest extent possible.

5. Any manager, supervisor or employee who, after appropriate investigation, is found to have engaged in sexual harassment of another employee will be subject to disciplinary action, up to and including dismissal.

6. If any party directly involved in a sexual harassment investigation is dissatisfied with the outcome or resolution, that individual has the right to appeal the decision. The dissatisfied party should submit his or her written comments to [specify official (e.g., Gender Committee, contact manager)].

7. The Company will not in any way retaliate against any individual who makes a report of sexual harassment nor permit any employee to do so. Retaliation is a serious violation of this sexual harassment policy and should be reported immediately. Any person found to have retaliated against another individual for reporting sexual harassment will be subject to appropriate disciplinary action, up to and including dismissal.

Notes

HEALTH AND SAFETY FOR WORKERS IN THE BANANA EXPORT INDUSTRY

A MANUAL FOR WORKERS

This Workers' Manual aims to help banana plantation workers and their trade unions to improve health and safety conditions, risk management and risk assessment in the export banana industry and to ensure resilient food supply chains.

It provides information and training materials on workplace health and safety risk assessment as part of risk management for workers in the export banana industry; their health and safety representatives; their representatives on workplace health and safety committees, and their trade unions.

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