BananaLink

TRAINING MANUAL ON HEALTH AND SAFETY RISK ASSESSMENT

Global Banana Export Industry

PREFACE

Banana Link, founded in 1996, is a not-for-profit organisation that advocates for fair and equitable production and trade in bananas and other tropical agricultural produce, based on environmental, social and economic sustainability. We work in partnership with plantation worker trade unions and small-scale farmer organisations in Latin America, the Caribbean, Central and West Africa and the Philippines, and promote social dialogue between all industry stakeholders.

Occupational Health and Safety - a key issue of concern across the global banana industry - has always been a core focus of Banana Link's activities. The organisation has taken a lead role in research, training, negotiation and multi-stakeholder dialogue on Occupational Health and Safety (OHS) across the banana industry, in particular during our role as coordinating organisation within the World Banana Forum Banana Occupational Health and Safety Initiative (BOHESI). The development of this specific training manual on OHS Risk Assessment responds to the ongoing need to deliver effective and permanent OHS training at plantation level, to ensure the healthy and safe employment of workers within the industry.

For further information on the key social, economic and environmental conditions within the banana industry, and the related projects coordinated by Banana Link, please see www.bananalink.org.uk

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ABBREVIATIONS/ACRONYMS

BL - Banana Link

BOHESI - Banana Occupational Health and Safety Initiative (World Banana Forum)

CSO - Civil Society Organisation

FAO - Food and Agriculture Organization (United Nations)

FAO-EST – FAO Trade and Markets Division

FAO-ESP – FAO Social Policies and Rural Institutions Division

GHS - Globally Harmonized System of Classification and Labelling of Chemicals (United Nations)

GUF - Global union federation

HIV - Human Immunodeficiency Virus Infection

ICT - Information and Communication Technology

ILO - International Labour Organization (United Nations)

IPM - Integrated Pest Management

ISO - International Organization for Standardization

IUF - International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Worker' Associations

LI - Labour Inspectorate

MSD - Musculoskeletal disorder

OHS - Occupational health and safety

OP - Organophosphorus pesticide

OSH - Occupational safety and health

NGO - Non-governmental organisation

PPE - Personal Protective Equipment

SDS - Safety Data Sheet

UNDP - United Nations Development Programme

UNEP - United Nations Environment Programme

WBF – World Banana Forum (UN FAO is the secretariat)

WHO - World Health Organization (United Nations)

INTRODUCTION

Aims of this manual

This manual aims to accompany professionals working in the export banana industry to become change makers and competent persons in improving health, safety and environmental conditions in the industry, to help ensure a socially, economically and environmentally sustainable value chain.

The manual offers the relevant informational and practical support to those delivering - and those receiving - training on occupational health and safety, based on the principle that the best way to ensure a safe and healthy workplace - for all workers - is through effective workplace health and safety risk management and risk assessment.

This manual therefore addresses the following key OHS principles and practices:

The creation and implementation of a representative framework for the management of workplace health and safety issues, to collectively and collaboratively address OHS issues that can arise on a daily basis.

Effective action and intervention driven by a Joint Health and Safety Committee, made up of workers and management representatives, who are fully trained to understand the diverse factors affecting the health and safety of all workers in the workplace.

Identification of health and safety issues at plantation level, and implementation of appropriate risk controls measures - by the employer with the active participation of workers - to address the improvements identified as necessary during risk assessments.

Periodic review by employers of the implemented risk controls, with the active participation of workers to ensure the controls are effective in addressing the identified health and safety challenges.

Permanent verification - by the employer and in cooperation with workers' health and safety and trade union representatives - that existing risk control measures continue to be effective in protecting workers and, where appropriate, the environment.

Target audiences

This manual is aimed at the following target audiences:

- Plantation owners, management, supervisors and other staff responsible for OHS, within national and multinational companies operating banana plantations.
- Waged banana workers and their trade unions, especially worker health and safety representatives.Technical OHS specialists and trainers working with the above two target groups.

This manual is focused on the large-scale banana export industry and hired labour. We do however invite small farmers and their Cooperatives to also use this manual as a key reference document, towards improvements in health and safety in small-scale banana production.

CHAPTER 1:
THE RIGHT TO WORKER REPRESENTATION

THE RIGHT TO WORKER REPRESENTATION

Occupational health and safety (OHS) legislation and systems in many countries rely for their effective operation on the participation of worker health and safety representatives.[1]

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

A worker health and safety representative is defined by the ILO as, *"A workers' representative elected or appointed in accordance with national laws, regulations and practice to represent workers' interests in occupational safety and health issues at the workplace".*[2]

Two types of worker OHS representatives are required according to ILO Convention No. 184 on Safety and Health in Agriculture, Article 8:

1. "***Workers*** *in agriculture shall have the right:*

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".***

1.1 WORKER SAFETY AND HEALTH REPRESENTATIVES

This first category of representatives (reps) deal with OHS matters as they occur on a daily basis and work with workers and management to help find solutions. In dealing with OHS problems they talk to the workers involved and then discuss with management the best solutions (risk controls) to be implemented by the employer for each problem and help with their implementation.

General OHS reps also assist health and safety committees with their work, especially supporting workers' reps on these committees, and they are often members of these committees.[3]

Functions, rights and powers of safety & health representatives as per the ILO[4]

These can include:

- Right to inspect the workplace
- Right to access OHS information

1 International Labour Office. 2011. Safety and Health in Agriculture : ILO Code of Practice.

2 ILO. 2011. Code of Practice on Safety and Health in Agriculture. Glossary, pp 177-181. https://www.ilo.org/publications/safety-and-health-agriculture-code-practice

3 Hurst, P., & Kirby, P. (2004). Health, Safety and Environment: A Series of Trade Union Education Manuals for Agricultural Workers. Geneva: ILO, IUF. Retrieved from https://www.iuf.org/wp-content/uploads/2004-Health-Safety-and-Environment-Manuals-for-Agricultural-Workers.pdf

4 ILO LegOSH data base. 2014. Cameroon. Section 8.4 OSH representatives' functions, rights and powers. https://wwwex.ilo.org/dyn/legosh_en/f?p=14100:1000

- Right to be present at interviews
- Right to receive professional assistance from OHS experts
- Right to accompany labour inspectors
- 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

Right of workers' representatives from outside the undertaking 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

SEE TRAINING ACTIVITY 1.A, CHAPTER 5, page 84

1.2 WORKER REPRESENTATIVES ON WORKPLACE HEALTH & SAFETY COMMITTEES

A workplace OHS committee is defined by the ILO 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."*[5]

These legally appointed and empowered committees are an important mechanism of consultation, collaboration and cooperation between employers and workers and their reps.[6] In many countries, such committees are a legal requirement. However, it is also important that health and safety activity in the workplace is not just restricted to the committee and that general worker OHS reps also play an active role, as well as the company safety and health officer.[7]

The committee may make observations and recommendations to help the employer but such advice in no way relieves the employer of her/his legal duty to protect the health and safety of her/his workers.

Functions, rights and powers of safety & health committees as per the ILO

5 ILO. 2011. Code of Practice on Safety and Health in Agriculture. Glossary, pp 177-181. https://www.ilo.org/publications/safety-and-health-agriculture-code-practice

6 ILO LegOSH data base: Cameroon, 2014. Sections 8.0, 8.6 and 8.7; https://wwwex.ilo.org/dyn/legosh_en/f?p=14100:1000

7 Hurst, P., & Kirby, P. (2004). Health, Safety and Environment: A Series of Trade Union Education Manuals for Agricultural Workers. Geneva: ILO, IUF. Retrieved from https://www.iuf.org/wp-content/uploads/2004-Health-Safety-and-Environment-Manuals-for-Agricultural-Workers.pdf

Health and safety committees should[8]:

- 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

8 ILO. 2011. Safety and Health in Agriculture : ILO Code of Practice. Sections 3.4.11 and 3.4.12

1.3 PROVISION OF A SAFE & HEALTHY WORKING ENVIRONMENT IS NOW AN ILO FUNDAMENTAL WORKERS' RIGHT

International Labour Standards to protect workers' health and safety in all types and sizes of industries worldwide received a major boost in 2022 when the ILO's International Labour Conference voted to make **the right to a safe and healthy working environment a fundamental workers' right,** and to add it to the ILO's Declaration on Fundamental Principles and Rights at Work.
Two existing ILO OHS conventions were upgraded to become Fundamental Conventions:

- ILO Convention No. 155 Occupational Safety & Health & the Working Environment, 1981
- ILO Convention No. 187 Promotional Framework for Occupational Safety and Health, 2006

This upgrading means that all ILO Member States - even if they have not ratified these two conventions - now have an obligation arising from the very fact of membership of the ILO to respect, to promote and to realise, in good faith and in accordance with the ILO Constitution, the principles concerning the fundamental right to a safe and healthy working environment.[9]

This landmark decision will help raise the profile of work on health and safety to help ensure that workers, globally - whatever industry they work in and whatever the type of employment relationships they work under - will have the aspiration and the right to decent conditions of health and safety at work as a labour and human right.

1.4 INTRODUCING HEALTH, SAFETY AND ENVIRONMENTAL DUE DILIGENCE REQUIREMENTS FOR BANANA COMPANIES

Human Rights Due Diligence (HRDD) aims to provide a mapping of risks in company's supply chains. It enables the retailer to adopt a 'know & show' approach to managing their human rights risks.[10] That employers/companies must exercise due diligence in their business operations is a concept of growing importance and one that is increasingly being legislated on, at country and European Union levels.[11]

Due diligence is the level of judgement, care, prudence, determination, and activity that a person would reasonably be expected to do under particular circumstances.

Applied to occupational health and safety, due diligence means that employers shall take all reasonable precautions, under the particular circumstances, to prevent injuries or accidents in the workplace. This duty also applies to situations that are not addressed elsewhere in the occupational health and safety legislation.

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9 ILO. 2022. A safe and healthy working environment is a fundamental principle and right at work. https://www.ilo.org/publications/safe-and-healthy-working-environment-fundamental-principle-and-right-work

10 OXFAM. 2019. Guidance for Workers' Rights Recommendations for Food Retailers. https://oxfamilibrary.openrepository.com/bitstream/handle/10546/620877/Revised%20Workers%20Rights%20Recommendations_Oxfam.pdf?sequence=8

11 European Union. (n.d.). Corporate sustainability due diligence.

To exercise due diligence, an employer must implement a plan to identify possible workplace hazards, assess the risk for each hazard, and carry out the appropriate corrective action to improve OSH risk controls to prevent and reduce injuries or disease. So workplace risk assessment by the employer with the active participation of the workforce should be an important requirement for enterprises/companies when carrying out due diligence activities.

"Due diligence" is important as a legal defence for a person charged under occupational health and safety legislation. If charged, a defendant may be found not guilty if he or she can prove that due diligence was exercised. In other words, the defendant must be able to prove that all precautions, reasonable under the circumstances, were taken to protect the health and safety of workers.[12]

1.5 INTERNATIONAL STANDARDS ON RISK ASSESSMENT IN AGRICULTURE

The most relevant international standard on risk assessment in agriculture is found in ILO Convention No. 184 on Safety and Health in Agriculture (2001), Article 7[13]:

> *"In order to comply with the national (health and safety) policy referred to in Article 4 of Convention 184, national laws and regulations or the competent authority shall pro vide, taking into account the size of the undertaking and the nature of its activity, that the* ***employer*** *shall:*

7.(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.*

This is complemented by ILO Recommendation 192 on Safety and Health in Agriculture, Paragraph 5[14].

"*To give effect to Article 7 of ILO Convention 184, a set of measures on safety and health at the level of the undertaking should include:*

(b) risk assessment & management measures in the following order of priority:

(i) elimination of the risk

(ii) control of the risk at the source

(iii) minimization of the risk by such means as the design of safe work systems, the introduction of technical and organizational measures and safe practices, and training; and

(iv) in so far as the risk remains, provision and use of personal protective equipment and clothing, at no cost to the worker"

12 OH& S legislation in Canada - due diligence; http://www.ccohs.ca/oshanswers/legisl/diligence.html

13 ILO. NORMLEX. C184 - Safety and Health in Agriculture Convention, 2001 (No. 184). https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C184

14 ILO. NORMEX. R192 - Safety and Health in Agriculture Recommendation, 2001 (No. 192).

Reference can also be made to: *ILO Safework. 2013. Training Package on Workplace Risk Assessment & Risk Management for Small & Medium-Sized Enterprises*[15]

The ILO decision to make OHS a Fundamental Principle and Right at Work as discussed below means that:

The requirements in C 184 on risk assessment are now supported by similar requirements in the two ILO Fundamental Conventions on OHS, Nos 155 and 187

ILO Convention 187, III. NATIONAL POLICY, Article 3

"In formulating its national policy, each Member, in light of national conditions and practice and in consultation with the most representative organizations of employers and workers, shall promote basic principles such as assessing occupational risks or hazards; combating occupational risks or hazards at source; and developing a national preventative safety and health culture that includes information, consultation and training".



15 ILO SAFEWORK. (2013). Training Package on Workplace Risk Assessment and Management for Small and Medium-sized Enterprises. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_protect/@protrav/@safework/documents/instructionalmaterial/wcms_215344.pdf

CHAPTER 2: WORKPLACE HEALTH & SAFETY RISK ASSESSMENT - BY THE EMPLOYER WITH THE ACTIVE PARTICIPATION OF THE WORKFORCE

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

Workplace risk assessment is a self-help tool for employers and their managers with the active participation of their workers to improve health and safety conditions in their businesses; a central part of business risk management. It aims to prevent and reduce fatalities, injuries and occupational disease at work; and even to protect nearby communities and the wider environment from the harmful effects of a company's work activities/operations.

Workplace risk assessment is also increasingly a legal requirement in many countries. It is also a growing requirement for market access and fair trade and for entry into many private certification schemes. Employers and companies are being increasingly asked for proof of the risk controls they have implemented to protect the health and safety of their workers; neighbouring communities and the wider environment (including links to climate change reduction measures).

2.1 WHAT IS WORKPLACE RISK ASSESSMENT?

Workplace risk assessment is essentially a careful examination by the employer, with the active participation of the workers, of what in her/his businesses could cause injury or disease/ill health to workers, members of the public affected by the work activities, and even nearby communities, and the environment (the hazards). Then to identify and implement health and safety "risk controls"/improvements to prevent and reduce the probability and severity of risk of harm from each hazard.

Workplace risk assessment should be carried out by the employer, or delegated representative(s), **BEFORE** workers are exposed to danger and with the active participation of the workforce. Workers know the dangers they face at work, and can help the employer identify and implement practical and effective solutions (risk controls) to prevent and reduce the risks of harm from each hazard.

See the 5 Steps of Risk Assessment and the Hierarchy of 5 Risk Controls in **Sections 2.5 and 2.6 below.**

2.2 HAZARD AND RISK

Before looking at risk assessment in more detail, we need to be clear what we mean by "hazard" and "risk" as both terms are used interchangeably in everyday speech. To avoid confusion both terms need to be clearly defined and differentiated.

In this Training Module[16]:

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. 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,

16 ILO 2013. Training Package on Workplace Risk Assessment and Management for SMEs. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_protect/@protrav/@safework/documents/instructionalmaterial/wcms_215344.pdf

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, stress, sexual harassment and violence (including domestic violence), 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 = probability of harm x severity of harm

RISK is the 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.

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."

2.3 WHO IS RESPONSIBLE FOR CARRYING OUT RISK ASSESSMENT AND IMPLEMENTING THE RISK CONTROLS?

With suitable training by a competent person(s) on health and safety, employers are encouraged to carry out their own risk assessments, with the involvement of their workers, and to implement the risk controls identified in the risk assessments. In carrying out their own risk assessments employers can also seek specialist advice from outside persons/sources.

The employer may also choose quite legitimately to instruct company/managers, supervisors, or even workers, or hire an outside service, to carry out the risk assessment(s) on her/his behalf. However, the legal responsibility for implementing the risk controls identified in the risk assessment(s) rests firmly with the employer.

There is sometimes confusion on this point.

In other words, the employer **cannot transfer its legal responsibility for carrying out the risk assessment(s), and implementing the risk controls identified in the risk assessment, to a third party.**

Whilst the employer can delegate to/seek assistance from a third party, they remain legally - and morally - responsible for ensuring the risk assessment is correctly done and the risk controls recommended are properly implemented.

Training of employers, managers, supervisors and workers on risk assessment by competent persons is important.

Workers, especially worker health and safety representatives and worker representatives on health and safety committees require training to be able to:

Firstly, acquire the knowledge, experience and skills to actively participate in their employer's risk assessment and to help implement the risk controls identified in the risk assessments;

Secondly, evaluate the quality of the employer's risk assessment and the effectiveness of the risk controls implemented. Also to periodically help check that the risk controls put in place remain effective and continue to protect workers and the environment prior to the next risk assessment being carried out.

2.4 CONDUCTING A WORKPLACE RISK ASSESSMENT AND FILLING IN THE FORM

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 & Risk Management for Small & Medium-Sized Enterprises*[17], after looking at risk assessment systems around the world in enterprises of all sizes, adopted a five step approach to risk assessment with a hierarchy of five risk controls which is used in this manual.

The simplest and most straightforward way to carry out a workplace health and safety risk assessment is for the employer/designated representative – with the active involvement of the workforce - to follow the 5 steps (See Section 2.5) and the hierarchy of five risk controls (See Section 2.6) **BEFORE** exposing workers to risk.

These steps are essential for filling in the risk assessment form for each hazard and its risk controls. An example risk assessment form can be seen below, and full information on filling out the form can be found in the training activities section below.

SEE TRAINING ACTIVITY 4, CHAPTER 5, PAGE 89

SEE ALSO ANNEX 1, PAGE 96 'SAMPLE COMPLETED RISK ASSESSMENT FORMS'

What are the hazards?	**Who is at risk and how? Degree of risk**	**What are you already doing to control the risks?**	**What further actions are necessary to control the risks?**	**Action by whom?** **Action by when?** **Done on which date?**
STEP 1	STEP 2	STEP 3.A	STEP 3.B	STEP 4
STEP 5: Record your findings, monitor and review your risk assessment. Update when necessary.				

17 https://www.iuf.org/wp-content/uploads/2004-Health-Safety-and-Environment-Manuals-for-Agricultural-Workers.pdf

2.5 THE FIVE STEPS OF WORKPLACE OHS RISK ASSESSMENT



Step 1: Identify the hazard(s)

Identifying how a worker could be killed, injured or suffer an occupational disease is the first step. When you work in a place every day, it is easy to overlook some dangers (hazards), so you should[18]:

- Walk around the plantation/farm, or part of it, and look at what could reasonably be expected to cause harm to health and/or safety
- 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 injuries and occupational disease
- Remember to think about long-term risks to health (e.g. high levels of dust or

18 ILO Code of Practice on Safety and Health in Agriculture. ILO Geneva, 2011, Section 4.2.6. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_protect/@protrav/@safework/documents/instructionalmaterial/wcms_215344.pdf

noise or exposure to toxic pesticides) as well as safety risks

- Remember to think about environmental risks
- Ask your workers if they can think of anyone you may have missed, or any problems you have not identified or properly taken account of

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

Step 2: Assessing the degree risk for each hazard - who might be harmed & how ?[19]

For **each** hazard, you need to briefly state briefly how a worker(s) could be harmed. E.g. farm dust - danger of lung disease; pesticides - danger of poisoning.

Risk assessment does not 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 'young workers'; and listing the numbers in each group, and identifying gender.

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. the risk reduction/control measure(s) that will make the job healthier and safer.

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

Assessing the degree of risk may seem complicated and subjective at first, but practice and experience help make assessment of the degree of risk easier and more accurate.

For each hazard, the employer must assess the degree of risk, based on the *Probability* (likelihood) of harm multiplied by the *Severity* of harm, as this will determine the type of corrective risk controls needed and in which order they should be implemented (highest risks first).

Probability

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 consequences

1. Insignificant: no injury or occupational disease
2. Minor: short-term impact
3. Moderate: semi-permanent injury or occupational disease

19 ILO SAFEWORK. 2013. Training Package on Workplace Risk Assessment & Risk Management for Small & Medium-Sized Enterprises. http://www.ilo.org/safework/info/instr/WCMS_215344/lang--en/index.htm

4. Major: disabling injury or occupational disease
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 controls that eliminate, reduce or minimise exposure to the hazard, and the more rapidly they need to be applied.

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 toxic/hazardous and spraying them may pose serious health risks to farmers or farmworkers. But where those hazards are properly controlled, the risks can be reduced to acceptable levels.

Step 3: Identify & implement the health & safety risk controls

For **EACH** hazard identified, **THE CENTRAL ACTIVITY IN RISK ASSESSMENT** is to decide on and implement the **health and safety risk controls** following the order in which they are listed in the Hierarchy of Risk Controls. (See Section 2.6 below)

3.A What is the employer already doing to control the risks for each hazard?

It is very likely that for some of the hazards identified there are already some health and safety risk controls in place. So it is important for the employer - in cooperation with the workers - to assess their effectiveness in reducing risks.

If the employer's risk assessment concludes in Step 3.A that the existing risk controls provide adequate protection for workers, then no extra controls or expenditure are needed for this particular hazard. For this hazard (**and only for this hazard)**, the employer can mark "No further action at this stage" in Column 3.B of the risk assessment form.

For each hazard, the information on the risk controls applied goes in the **THIRD** column of the risk assessment form. **Column 3 A** if they are existing risk controls. The information is recorded in **Column 3.B** if they are additional risk controls.

Join and fill out supplementary sheets if there is not enough space on the risk assessment form for all the information.

3.B What further risk controls does the employer need to implement (if any) for each hazard?

If more needs to be done, the assessment moves on to Step 3.B, starting with Risk Control 2.

Step 4: Record who is responsible for implementing which risk controls, & the timeframe

For each risk control(s) to be implemented, as per the Hierarchy of Risk Controls in Step 3, you need 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 (imminent and serious danger)
- MEDIUM RISK = Action within a period of days, weeks
- LOW RISK = Action over a longer period. Where risks are assessed as very low, no further action may be needed at present.

The person(s) assigned responsibility for implementing a specific risk control needs to sign and date the risk assessment form when the control has been implemented.

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

Step 5: Record your findings, monitor, review your risk assessment & update

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

As previously mentioned, risk assessment is a self-help tool, so from time to time you need to review and update your risk assessment to adapt and/or maintain effective health and safety risk controls and worker protection.

ALL this information goes at the end of the risk assessment form.



2.6 THE HIERARCHY OF FIVE RISK CONTROLS
(Step 3 of risk assessment)



This is a Hierarchy, **not** a list.

Risk Control 1, Elimination, has greater value and priority than the other risk controls.

Risk controls 2 & 3 have greater value and priority than risk control 5.

- You do **NOT** start lowering risks by using personal protective equipment as the first risk control.
- **You start with Elimination** - risk control 1.
- If you decide elimination is not possible for a particular hazard, you work through and apply the other risk controls in the order they are listed in the Hierarchy.
- Risk controls 2, 3 and 4 are best as they aim to provide collective measures of protection for all workers in a given area or activity
- However, it may not be necessary to apply all risk controls 2, 3, 4, and 5 for a particular hazard. Some may simply be *Not Applicable* for that particular hazard in which case you should note that on the form.

For **EACH** hazard, the risk controls you have decided to implement go in the **THIRD** column of the risk assessment form. Attach and fill in extra page(s) to the risk assessment if there is not enough space.

REMEMBER: Step 3 is divided into 2 sub steps, 3.A and 3.B. You have to follow and apply the Hierarchy of Risk Controls for **BOTH** sub steps if necessary:



RISK CONTROL 1: Elimination or substitution of the hazard(s)

Based on advice on the hazard concerned from a competent person(s), the employer (or employer designated representative or outside service) starts by considering whether the hazard can be eliminated thus reducing the risk of someone being harmed to zero or as near to zero as possible.

Examples include:

- Pesticides: Use **Organic farming** or **Integrated Pest Management** methods which do not involve the use of chemical pesticides.
- Noise: The employer can buy or hire quieter machinery/equipment which operates at safe noise levels.

Substitution can also be a form of elimination: Based again on advice from a competent person(s), the employer can use less toxic pesticides, as classified by the government pesticide registration scheme.

If the employer can successfully eliminate -or provide a substitute fo -a specific hazard, then for **that hazard only**, the **RISK ASSESSMENT STOPS HERE**. The risk has been reduced to zero, or as near to zero as possible, so there is no need to consider risk controls 2 to 5.

If elimination/substitution is **not** possible, the risk assessment moves on to consider the other risk controls starting with:



RISK CONTROL 2: Tools, equipment, technical and engineering improvements

It is important for the employer to look at good practice and seek good advice and information from competent persons and/or recognised sources on which tools or equipment or technical or engineering controls to use to lower risks.

Risk Control 2 measures are good because they provide **COLLECTIVE PROTECTION** of the work area - for all workers in that work area - not just protection for the individual.

Examples, including some very simple and inexpensive measures, are:

- Guarding of machinery – if adequate protection is not provided by the manufacturer or if the machine is built to an old standard, or the guard is missing or broken, improved guarding will be needed
- Putting a handrail around a high work platform
- Using something as simple as a wheelbarrow or hand cart to carry heavy loads;
- Having work surfaces or work benches at correct heights for the people working there, making them adjustable, and providing suitable seating
- Using tools that are the correct height for the person, e.g. spade, shovels, brushes, so that people do not have to bend unnecessarily

- Providing good lighting
- Providing sealed mixing and filling systems for pesticide sprayers



RISK CONTROL 3:
Safe work organisation, systems, practices, information and training

One of the simplest and most cost-effective ways of controlling risks at work is for businesses to develop and implement safe work organisation, systems of work, and practices linked to information and training; sometimes referred to collectively as **"safe systems of work"**. Many workplace injuries and much occupational disease occur simply because the employer has not thought through and implemented effective organisational risk controls; and managers, supervisors and workers are not well informed about, or properly instructed or trained to implement correct health and safety practices.

Organising the job safely is well within the competence of employers, their managers and supervisors, working together with the workforce. Risk controls are often simple and easy to put into operation. Moreover, improving health and safety and its organisation is not costly and also promotes business efficiency and profitability.

Examples include:

- Ensuring clear procedures and instructions, ideally written (including in electronic format on electronic devices), on how to operate machinery, apply pesticides or carry out other tasks safely – for workers, supervisors and managers
- Providing appropriate health and safety information – instruction manuals, clear product labels on containers, safety data sheets for chemicals and equipment, warning signs, etc. Providing appropriate health, safety and environmental information in the local language(s)
- Better housekeeping – keeping workplaces tidy, and passages clear of objects and clutter; wetting dust before sweeping it up
- Ensuring that supervisors or managers are adequately instructed and trained for the work they have to manage on the employer's behalf, including training on, and input into, workplace risk assessments
- Ensuring supervisors and managers have sufficient authority to keep health and safety standards up to scratch, e.g. authority to immediately replace damaged or broken machinery guards. Ensuring that supervisors and managers have the authority and means to order a new guard in the employer's absence
- Ensuring there are procedures in place, for example if the boss is away from the workplace and the guard on a dangerous machine breaks
- Ensuring supervisors or managers have been instructed, and have the authority, to stop the work on that machine until the guard has been repaired or replaced
- Providing regular health, safety and environmental training for workers, including training on risk assessment. Including providing specialised training for high risk work activities
- Improving participation of, and input from, your workers on workplace risk assessments, including implementation of risk control measures identified in the risk assessment(s)

- Planning or redesigning the layout of the workplace – to avoid, for example, workers having to cross in front of forklift trucks or other moving vehicles, which will lessen the risk of being run over



RISK CONTROL 4:
Water, sanitation, hygiene, first aid and welfare

The risk assessment next has to evaluate and decide if the existing provision of water, sanitary facilities, levels of hygiene, first aid and welfare facilities are adequate to cope with the risks from the hazards that have been identified or if there is a need to do more. Some of these controls are not strictly a means of protection against exposure to hazards, but they can reduce the effects of hazards and they can make work more pleasant. Improving risk controls can be done, for example, by:

- Providing clean water for workers for drinking, washing and decontamination purposes - including for workers on remote parts of the plantation
- Providing basic washing and sanitary facilities at the workplace, with separate facilities for women and men, and including toilets with seats
- Storing contaminated work clothing in a locker at work and not allowing workers to take such clothing to their homes
- Providing basic first aid equipment and training selected workers in first aid using professional, qualified, and competent trainers. Each field gang, for example, should include at least one worker trained and competent in first aid - especially when working on remote parts of the plantation
- Provision and use of insect repellents, sun and solar protection creams



RISK CONTROL 5:
Personal Protective Equipment

To boost the collective protection given to workers by risk controls 2-4, the employer's risk assessment should then consider the use of individual means of protection - personal protective equipment (PPE). Apart from standard items like boots, overalls and gloves, PPE use should be kept to a minimum. PPE should ***not*** be the main risk control for workers nor should workers be required to wear/use it for long periods.

However, PPE is often the first and only risk control provided for workers. Much PPE does not provide adequate health and safety protection. It is uncomfortable to wear or use for long periods. Using PPE in a hot climate, for example, can be very uncomfortable for the worker. For example, using a full-face mask and body protection in full sunshine during the hot season can be almost impossible. It can result in dehydration, headaches and even fainting. Furthermore, PPE often does not fit the user well. People are of different shapes, sizes and genders – one size does not fit all.

Where required, the employer's risk assessment should provide details of the type of PPE, state the Protection Factor given by each item of PPE, cleaning and maintenance schedules, and how regularly the PPE should be replaced.

It is essential that the employer involves the workers in the PPE selection process as they often have detailed knowledge of the way things work, the way tasks are carried out, and where protection is needed.

Any PPE required should be provided by the employer at no cost to the worker.

PPE includes: Coveralls; Eye protection; Footwear; Gloves; Hearing protection; Hats/Caps; Respirators for dusts or chemicals; Disposable dust masks; Safety helmets; Hot and Wet/ cold-weather clothing.

Remember: For **EACH** hazard, all the information on the risk controls to be implemented go in the **THIRD** column of the risk assessment form - either 3.A and/or 3.B.



CHAPTER 3: HAZARDS, RISKS & RISK CONTROLS IN THE BANANA EXPORT INDUSTRY

HAZARDS, RISKS & RISK CONTROLS IN THE BANANA EXPORT INDUSTRY

Carrying out workplace health and safety risk assessments and implementing the risk controls identified in the assessments is the duty of the employer, but should be done with the active participation of the workforce, especially worker representatives.

Chapter 5 describes some of the main hazards and risks and their risk controls in banana export supply chains. It is not an exhaustive list and can be added to. The hazards are **not** listed in any order of priority.

The employers' health and safety risk assessment:

- Identified the hazards and the risks arising from them;
- Recorded who is at risk and assessed the degree of risk(s) for each hazard;
- Prioritised risks in order of action for implementation of risk controls by the employer, with the help of the workers.

3.1 GENERAL HAZARDS

Hazard 1: Poor work organisation

Many injuries and much disease/ill health at work occur simply because the employer has NOT thought through and improved safe and healthy work organisation, and managers, supervisors and workers are not well informed about, or properly trained to, implement safe systems of work and correct health and safety systems, procedures, practices and instructions.

Health or safety risks in banana production

Common organisational issues to be addressed by the employer's risk assessments, and which are highlighted here along with risk controls, include:

- Excessive hours of work and lack of days off - linked to fatigue and lack of sleep;
- Poor housekeeping and lack of order and cleanliness

The health risks and risk controls associated with each of these issues are discussed as Hazards 2 and 3.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

- It is not viable to entirely or permanently eliminate or substitute poor work organisation.



2. Tools, equipment, technical and engineering improvements

- Maximise use of technical and engineering controls, and always have the right tools and equipment for the job



3. Safe work organisation, systems, practices and information and training

- Draw up a Company Health and Safety Policy
- Develop safe systems of work to lower the risks for the hazardous activities listed in Chapter 3.
- Provide training for workers and management on these safe systems of work by competent persons



4. Water, sanitation, hygiene, first aid and welfare

- Provide adequate supplies of water for both drinking and washing in both field and factory locations, good sanitation and hygiene conditions.
- Provide good welfare conditions
- Ensure first aid kits are available and accessible near all work areas
- Ensure that a trained worker first-aider is present in each work team



5. Personal Protective Equipment

- As a boost to other risk controls, list and provide Personal Protective Equipment as appropriate, at no cost to the worker. For each item of PPE have manufacturer's information on the protection factor, plus maintenance schedules and replacement schedules.

Hazard 2: Excessive hours of work and lack of days off

Workers in the export banana value/supply chain regularly work long hours, often continuous work without proper rest days, and working overtime in especially busy periods may be the norm. The pace of agricultural work has increased with the use of task rates and piece-work. In agriculture, dawn to dusk is often not an unusual working day, and the need for rest periods and holidays is often ignored or poorly respected.

Health or safety risks in banana production

All workers, and indeed management, on the plantation are potentially at risk of health problems arising from excessive hours of work and lack of days off. Long hours of work, particularly when it is intense manual labour, contribute to workers' fatigue, negatively impact on the worker's health and well-being, 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 short-cuts. 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.

Hierarchy of Risk Controls



1. Elimination or substitution of the hazard(s)

- Not possible to totally eliminate, as long hours may be required at peak times.
- See below for information on legal frameworks on working hours, which should not be exceeded.



2. Tools, equipment, technical and engineering improvements.

Not applicable in this instance.



3. Safe work organisation, systems, practices, information and training

- Daily and weekly working hours should be arranged to provide adequate periods of rest which, as prescribed by national laws and regulations, or approved by labour inspectorates or collective agreements. See also ILO Convention No. 184 on safety and health in agriculture, Article 20 on Working Time Arrangements.
- Management and the union should negotiate an agreement to recruit extra workers, and fill vacancies more promptly when they occur, as understaffing is a major cause of the problem.
- Working hours will generally be limited to 8 hours per day, 5 days a week, in line with legal maximum hours of work, including adequate rest periods, and a 1-hour break for lunch (to be verified in national legislation and / or collective agreements)[20]
- Weekly rest of at least a full calendar day.
- At peak times, working hours may be extended to fulfil production orders. Overtime will be paid. Extra working hours will be compensated in terms of time off within 7 working days after the peak period.
- Cases of domestic violence related to working hours and days off should be monitored by the management and worker representatives
- Possible work-related ill health should be noted in the plantation's injury/ accident and disease recording book and discussed at the next meeting of the OHS committee.
- More rest areas provided for field workers.
- Extended workdays (over eight hours) should be contemplated only if:

The nature of the work and the workload allow work to be carried out without increased risk to safety and health;

The shift system is designed to minimise the accumulation of fatigue.

20 Véniza, A., & Van den Bergh, I. (2021, April 04). Pesticide-reducing practices. https://www.promusa.org/Pesticide-reducing+practices+portal

4. Water, sanitation, hygiene, first aid and welfare

Workers working long hours should be given the opportunity to wash and clean themselves up more regularly during their shift. Workers to be provided with individual drinking bottles to reduce the risk of dehydration.

5. Personal Protective Equipment

Not applicable in this instance.

Hazard 3: Poor housekeeping, lack of order & cleanliness

For reference, see also Hazard 24 below on 'Waste disposal and recycling'

Workplaces in the export banana value/supply chain deal with large amounts of live, biological materials often with wet conditions. Good housekeeping practices both on the plantations, packhouses and associated facilities are important to reduce the risks of injury and occupational diseases.

Health or safety risks in banana production

Poor work organisation and systems that can result in a lack of order and cleanliness, of good housekeeping, as well as accumulation of waste or other materials in workplaces can be a hazard, resulting in a variety of risks to workers - tripping over and slips; blows from knocking into equipment and materials; biological risks such as allergic reactions from dust accumulation due to work processes.

There are also fire risks if work materials and wastes are allowed to accumulate and especially if emergency exits are blocked by clutter.

Hierarchy of risk controls

1. Elimination or substitution of the hazard(s)

Not applicable in this instance.

2. Tools, equipment, technical and engineering improvements

- Companies should search for technical solutions to reduce the production of waste for both OHS and environmental reasons
- Local exhaust ventilation systems can be installed to remove and extract dust from the workplace and avoid exposure of workers to dust

3. Safe work organisation, systems, practices, information and training

A good housekeeping programme identifies and assigns responsibilities for the following: Clean up during the shift; Day-to-day cleanup, Waste disposal; Removal of unused materials; and Checking to ensure cleanup is complete

- Maintenance: The maintenance of buildings and equipment may be the most important element of good housekeeping.
- Dust and Dirt Removal: Dampening (wetting) floors or using sweeping compounds before sweeping reduces the amount of airborne dust. The dust and grime that collect in places like shelves, piping, conduits, light fixtures, reflectors, windows, cupboards and lockers may require manual cleaning.
- Employee Facilities: Employee facilities need to be adequate, clean and well maintained. Separate from the work area and should be cleaned properly each shift.
- Surfaces: Poor floor conditions are a leading cause of incidents so cleaning up banana waste, waste water and other spilled liquids at once is important.
- Maintain Light Fixtures: Dirty light fixtures reduce essential light levels. Clean light fixtures can improve lighting efficiency significantly.
- Aisles and Stairways: Keeping aisles and stairways clear is important. They should not be used for temporary "overflow" or "bottleneck" storage.
- Tools and Equipment: Tools require suitable fixtures with marked locations to provide an orderly arrangement. Returning tools promptly after use reduces the chance of it being misplaced or lost.
- Waste Disposal: The regular collection, grading and sorting of banana waste and other scrap contribute to good housekeeping practices.
- Storage: Good organisation of stored materials is essential for overcoming material storage problems whether on a temporary or permanent basis. There will also be fewer strain injuries if the amount of handling is reduced, especially if less manual material handling is required.



4. Water, sanitation, hygiene, first aid and welfare

Workers to be given the opportunity to wash and clean themselves regularly during their shift. Workers will be provided with individual drinking bottles to reduce the risk of dehydration.



5. Personal Protective Equipment

Not applicable in this instance.

Hazard 4: Work-related stress

Work-related stress, affecting both managers and workers, caused by a variety of causes such as, for example, pressure of work and harsh supervision, is a common risk in banana production and processing though the precise hazards causing it may vary from workplace to workplace, and company to company.

Health or safety risks in banana production

International Labour Organization (ILO) List of Occupational Diseases, revised 2010:

- 2.4 Mental and behavioural disorders
- 2.4.1 Post-traumatic stress disorder

Work-related stress is defined as, "The adverse reaction people have to excessive pressures or other types of demand placed on them at work". It is very common and 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; and continuous stress can cause acute and chronic health changes.

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. Work-related stress also contributes to an inability to cope with work as well as poorer career opportunities and employment prospects.

Indirectly, stress can lead to problems in and outside of the workplace such as domestic violence; violence; the abuse of drugs, tobacco and alcohol; strained family relationships; depression, and even suicide."

Common stress factors in agriculture include high work speed; long hours of work and continuous work; repetitive and boring/monotonous work; working in extreme temperatures (heat and humidity or cold conditions); heavy loads; pesticide contamination; workers trying to achieve sufficient earnings on low piece-rates; isolation from work colleagues; harsh supervision; and harassment, both sexual and mental.

Many jobs are not well designed and include some or all of the following undesirable features, which may result in psycho-social risks:

- 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).

Psycho-social risk factors can lead to musculoskeletal disorders (MSDs). For example, there can be stress-related changes in the body, such as increased muscle tension, that can make people more susceptible to MSDs; or individuals may change their behaviour, for example doing without rest breaks to try and cope with work deadlines.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.



2. Tools, equipment, technical and engineering improvements

Not applicable in this instance.

3. Safe work organisation, systems, practices, information and training

- 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 shift-work or overtime working, and ensuring there are reasonable workload deadlines and demands (neither too much nor too little)
- Reducing or monitoring payment systems which work on piece rates
- Carrying out organisational and management development



4. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance.

5. Personal Protective Equipment

Not applicable in this instance.

Hazard 5: Sexual harassment

Sexual harassment is a persistent problem in the workplace and one that affects people across industries and at every level. Sexual harassment is a human rights as well as a sex discrimination issue, with health and safety impacts that are predominantly suffered by women.

Challenging sexual harassment requires company policies and procedures, including both personnel policies that promote a respectful working environment, and grievance and disciplinary procedures.

Health or safety risks in banana production

Harassment refers to, "Any kind of emotional and physical abuse, persecution or victimisation. Harassment and pressure at work can consist of various forms of offensive behaviour. Harassment is characterised by persistently negative attacks of a physical or psychological nature on an individual or group of employees, which are typically unpredictable, irrational and unfair".

Psychological harassment can take many forms. It can include systematic or occasional harassment by managers and supervisors, including harsh supervision, or by fellow workers.

Sexual harassment and violence among commercial agricultural workers are widespread hazards, 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. Risks from sexual harassment can be damaging to well-being, can cause stress, provoke fear, and can lower a worker's quality of working life. Risk control measures should also cover the effect of sexual harassment outside of work: i.e. on the journey to and from work; false rumours and gossip within the village/community; effect on the partner who may blame the woman for the sexual incident and then attack her resulting in domestic violence.

Sexual harassment is a type of violence, predominantly against women, and often arises from power relations rather than sexual interest. This form of humiliation does not occur amongst equals, and in the long term, therefore, equality at the workplace will eliminate this problem. For the present, however, other measures need to be adopted to prevent such practices.

ILO Convention No. 190 on Violence and Harassment, 2019, represents an important step forward in the activities/campaigns to eliminate these hazards. Important definitions to consider include:

(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.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

- The company and worker representatives should develop an agreement to operate a policy of zero tolerance on sexual harassment, with effective mechanisms put in place for the practical implementation of this policy



2. Tools, equipment, technical and engineering improvements

- Provision of Individual Safety Alarms, in particular to any workers that have reported issues of sexual harassment.
- Bright lighting in any hazardous areas



3. Safe work organisation, systems, practices, information and training

- When a sexual harassment complaint is reported, the revised company procedure should ensure that the alleged perpetrator and victim must be separated immediately, pending investigation of the allegation. The ideal would be to move the perpetrator to work at another worksite pending investigation. It would be impossible to report harassment if you have to carry on working alongside someone who has harassed you.

- When thinking about reporting (or engaging in risk assessment), it is important to realise that many victims will not feel able to report / talk about sexual harassment with male managers or trade union reps.
- In order to commit to an effective sexual harassment policy, the company should employ a woman officer with authority to tackle sexual harassment, who will be named and available to women workers to speak to about experiences, and who will have authority to take action.
- The workplace health and safety committee should also regularly monitor sexual harassment reports and the outcome of any complaints. The operation of a new sexual harassment policy and enforcement measures should be closely monitored, and be a regular topic for review in workplace health and safety committee meetings.
- If there is a gender committee in the company, it would be good also to report to them.
- The company policy on sexual harassment should be updated, based on zero tolerance criteria and will be part of the company Health & Safety Policy.
- All staff, both workers and management, to receive training on sexual harassment reporting and prevention, by competent persons.
- Training on sexual harassment reporting and prevention should be an obligatory part of recruitment procedures in the future.
- The number of supervisor positions held by women to be increased, and they will be given training for this new role.
- Carry out a major assessment and review of the new sexual harassment policy 6 months after its entry into operation and, thereafter, at yearly intervals.



4. Water, sanitation, hygiene, first aid and welfare.

Separate restroom and sanitation facilities should be provided for women and men.

5. Personal Protective Equipment.

Not applicable in this instance

Hazard 6: Domestic violence

Domestic violence is the most pervasive form of gender-based violence. Domestic violence can be any form of violence between intimate partners. The violence can be physical, sexual, emotional, or psychological – including financial control, stalking, and harassment. It occurs between mixed or same-sex intimate partners, who may or may not be married, common law, or living together. It can also continue to occur after a relationship has ended by a single act of violence, or a number of acts of violence, that form a pattern of abuse. Employers need to provide safeguards for workers experiencing domestic violence, which predominantly affects women.

Domestic violence does not necessarily end when the woman is at work, and in some cases their harasser will follow them into work. For those experiencing domestic abuse the threat is always present and this can be devastating for the worker, and employers should not disregard this problem.

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.
- 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 trade 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.

It is important that victims are always consulted about the support that they need, and to remember that domestic violence is experienced differently by different people.

The impact of domestic violence in the world of work is acknowledged in the ILO Convention 190; a significant step in bringing domestic violence out of the shadows and eliciting a change of attitudes. 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 raising awareness. It is important that women, and other potential victims, are always consulted in regard to the support that they need, but also to remember that domestic violence is not necessarily experienced in the same way and that, although partners are the most common perpetrators, violence may be perpetrated by offspring, parents, and other family members.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.

2. Tools, equipment, technical and engineering improvements.

Not applicable in this instance.

3. Safe work organisation, systems, practices, information and training

The ILO Violence and Harassment Recommendation 206, Article 7 includes the following relevant controls:

b) establish violence and harassment prevention programmes with, if appropriate, measurable objectives;

(c) specify the rights and responsibilities of the workers and the employer;

(d) contain information on complaint and investigation procedures;

(e) provide that all internal and external communications related to incidents of violence and harassment will be duly considered, and acted upon as appropriate;

(f) specify the right to privacy of individuals and confidentiality, as referred to in Article 10(c) of the Convention, while balancing the right of workers to be made aware of all hazards; and

(g) include measures to protect complainants, victims, witnesses and whistle-blowers against victimization or retaliation.

Copied from ILO Convention 190 on Violence and Harrassment

- "Article 9 (c) identify hazards and assess the risks of violence and harassment, with the participation of workers and their representatives, and take measures to prevent and control them;"



4. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance.

5. Personal Protective Equipment

Not applicable in this instance.

3.2 SPECIFIC HAZARDS

Hazard 7: Pesticides

Pesticides are intensively used in export banana production. However, concerns over the impact of these chemicals on workers' health and the environment, not to mention economic considerations – pesticides can represent as much as 35% of production costs – have been driving efforts to reduce their use and adopt more sustainable crop protection practices.[21]

Health or safety risks in banana production

Workers are at risk of pesticide exposure through opening and handling pesticide containers and cleaning them out; diluting, mixing and applying the substances; being contaminated by spray drift when working too close to fields being sprayed; contamination from acting as field markers for aerial spraying; contact with residues on plant leaves or on the soil surface, especially if working barefooted and/or if re-entry intervals are ignored; and eating and drinking in the field with unwashed, pesticide-contaminated hands. Pesticide-contaminated water may also be used for drinking, bathing, cooking, or even washing clothes.

Aerial spraying of fungicides, often a contentious practice, is usually the preferred method of fungicide application as planes or helicopters can treat large areas

21 Véniza, A. (2020, Feb 21).Fungicide-reducing application technologies. http://www.promusa.org/Fungicide-reducing+application+technologies

faster than ground-based methods, which helps slow down disease development. Only fungicides are sprayed aerially, never herbicides or insecticides. Technological innovations such as GPS have helped reduce the volumes of fungicides and improve accuracy.[22] Banana companies often use specialised aerial spraying companies

Ground spraying of fungicides is a regular job, done by permanent workers, usually with motorised airblast sprayers. These sprayers use an airblast from an engine driven fan to atomise the pesticide and blow it upwards into the banana leaves. Airblast sprayers produce very fine spray droplets in the form of a mist/aerosol which easily be breathed in or contaminate skin and clothing. Workers in some situations have been asking for better protection because the protective clothes they are given are too thin and the product soaks through to the skin.

Nematicides and insecticides are the most toxic types of pesticides used on banana plantations and applying risk controls for these substances is especially important in terms of human health and environmental protection. Some pesticides are both nematicides and insecticides.

Nematicides are used in banana plantations to control minute soil-dwelling insects called nematodes which damage the roots of banana plants. Nematicides are highly toxic pesticides which can poison the nervous system and can be fatal if inhaled or ingested.

Nematicides are either applied in granular form with a backpack dispenser and wide tube applicator around the base of the banana plant, or by hand by a worker wearing protective gloves. They are also applied in liquid form with a knapsack sprayer (five x litre bottles in a one gallon carrier).

Common insect pests in bananas include weevils, aphids, thrips, and mealy bugs. Insecticides, usually applied as sprays, are toxic pesticides which can poison the nervous system and can be fatal if inhaled or ingested.

Herbicide applications for weed control consist in removing the weeds that compete with the banana plant for resources and favour the development of pests. Herbicides can be applied using tractor mounted or towed sprayers or manually by spray operators using backpack (knapsack) sprayers.

Backpack sprayers are especially useful to reach hard-to-access areas. Spray drift and an uneven distribution of the herbicide are more common with sprayers in which the pressure is maintained by operating a hand pump, than with sprayers that can maintain a constant pressure. Risk of pesticide exposure is high when using backpack sprayers as operators walk through or near treated areas they have sprayed.

Definitions

Many leaflets and books talk of fungicides, herbicides, insecticides, nematicides and the other classes of pesticides 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.
The following terms are defined in the FAO/WHO International Code of Conduct on Pesticide Management[23]:

- "**Pesticide** means any substance, or mixture of substances of chemical or

22 Véniza, A., & Van den Bergh, I. (2021) Fungicide-reducing application technologies. http://www.promusa.org/Fungicide-reducing+application+technologies

23 FAO/WHO. 2014. International Code of Conduct on Pesticide Management. Article 2, Terms and definitions. http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Code_ENG_2017updated.pdf

biological ingredients intended for repelling, destroying or controlling any pest, or regulating plant growth".

- "**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".
- "**Pesticide active ingredient** means the part of the product that provides the pesticidal action".
- **"Highly Hazardous Pesticides (HHPs)** 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 GHS (see below) 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." [24]

Health effects from pesticides

The UN WHO's Recommended Classification of Pesticides by Hazard categorises pesticide active ingredients by acute oral toxicity (ingestion) and dermal toxicity (skin) based on the hazard of single or multiple exposure to a pesticides over a relatively short period of time, but does not systematically review the chronic toxicity of all pesticides.

WHO: Acute Toxicity Classification



Class 1A: Extremely Hazardous - **VERY TOXIC**



Class I B: Highly Hazardous - **TOXIC**



Class II: Moderately Hazardous - **HARMFUL**

Class III: Slightly hazardous - **CAUTION**

Class U: Unlikely to present acute hazard in normal use - **UNLIKELY**

Acute health effects

For further information see also the ILO List of Occupational Diseases:(i) Diseases caused by pesticides (No. 1.1.36); and (ii) Occupational cancer (No. 3.0).[25]

- **Pesticide poisoning** is the main acute (immediate) health risk for workers. Pesticide poisoning symptoms range from relatively minor effects such as eye or local skin irritation to more severe effects such as headaches, tiredness, dizzy spells, nausea, vomiting, breathing difficulties, loss of consciousness, sensory perception problems, heart symptoms, which in certain instances can be fatal.

24 FAO/WHO. 2016. Guidelines on Highly Hazardous Pesticides. International Code of Conduct on Pesticide Management. http://www.fao.org/3/a-i5566e.pdf

25 ILO. 2010. List of occupational diseases. Point 1.1.36. https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_125137.pdf

- **Occupational dermatitis** is inflammation of the skin caused by substances used at work resulting in irritant or allergic reactions. Symptoms include itching, pain, redness, swelling, and the formation of small blisters or wheals (itchy, red circles with a white centre) on the skin.
- **Irritant contact dermatitis** is the result of skin exposure to a mild irritant (e.g. detergent or solvents) repeatedly over a long period of time or to a strong irritant (e.g. strong disinfectants, acids, alkalis, solvents, strong soaps, or cleansing compounds) that can cause immediate skin damage. Only the section of skin in contact with the substance will be affected.[26]
- **Allergic contact dermatitis** results when a person develops an allergy to the substance and will react whenever in contact with that substance, no matter how minute the exposure (minor to serious effects). Sensitisation may occur within days of exposure, but usually takes months or years.[27]

Chronic health effects

- **Chronic (delayed) health effects** only occur many years after the original pesticide(s) exposure, are not curable, result in permanent ill health, even death.
- The victim may in fact not even be the one who was originally exposed to the pesticide(s).The victim may be the baby born with birth defects due to the exposure of the mother or father to the pesticide(s).
- **Cancers**: Certain pesticides have been identified as cancer-causing substances (carcinogens). Gender-specific impacts are reported such as an association between breast cancer and occupational exposures to various pesticides, industrial chemicals and metals.[28]
- According to the International Agency for Research on Cancer's (IARC) the herbicide, glyphosate, which is widely used on banana plantations, is classed in IARC Group 2A, Probably carcinogenic to humans.[29]
- **Reproductive effects:** Certain pesticides have been linked to reproductive problems such as birth defects, infertility, spontaneous abortions, still-births, lower birth weights and early neonatal deaths.
- **Neuro-toxicological and neuro-behavioural effects:** Impaired development of the nervous system due to pesticide exposure can cause lowered intelligence and behavioural abnormalities.
- **Immunological effects**: Evidence from experimental and epidemiological studies to indicate that pesticide exposure may weaken the immune system through disturbances of the cytokine balance, exacerbating the risk of infectious disease and cancer.[30]
- **Endocrine disruption**: The endocrine system and the hormones it generates and controls is critical to healthy growth and development. At very, very low

26 Canadian Centre for Occupational Health and Safety. (2022). Dermatitis, Allergic Contact. https://www.ccohs.ca/oshanswers/diseases/allergic_derm.html

27 Health and Safety Authority, Ireland. Undated. Occupational Dermatitis,; https://www.hsa.ie/eng/work-place_health/occupational_asthma_and_dermatitis/

28 Fenga, C. (2016), "Occupational exposure and risk of breast cancer", Biomedical Reports, 21 January 2016.

29 International Agency for Research on Cancer (WHO). 2018. Monograph 112. Some Organophospate Insecticides and Herbicides. http://publications.iarc.fr/549

30 Gangemi, S., et al. 2016. Occupational and environmental exposure to pesticides and cytokine pathways in chronic diseases (Review). International Journal of Molecular Medicine, Volume 38, Issue 4, 2016; https://www.spandidos-publications.com/10.3892/ijmm.2016.2728

concentrations, some pesticides are able to mimic or block hormones or trigger inappropriate hormonal activity, potentially resulting in:

- Changes in sex ratio (declining proportion of boys)
- Increased risk of breast, testicular and prostate cancers
- Decreases in sperm counts and quality
- Increased incidence of defects in the male reproductive tract
- Neurological and behavioural disorders in children
- Impaired immune function.[31]

Environmental risks: Excessive use/misuse of pesticides can contaminate surrounding soil and water sources, cause loss of biodiversity, destroy beneficial insect populations that act as natural enemies of pests and reduce the nutritional value of food".[32] Persistent pesticides can contaminate the environment for decades and by traveling long distances from the original point of application, pose a global threat to the entire ecological system upon which food production depends.

The right to information

The Right to Information covers information on hazards and risk control measures for all "articles" and "substances" used at work. Information on everything from safe systems of work, working in hot temperatures, dangerous machinery, sharp or powered, pesticides, to banana latex dispersants etc.

SEE TRAINING ACTIVITY 5, CHAPTER 5, page 91

Banana workers and their health and safety reps often have difficulty in finding out about the pesticides and commodity chemicals they use, or are exposed to, and the risk control measures to be applied. The range of pesticides/chemical products, and their brand/trade names, can be bewildering. The same chemical may be referred to by a variety of terms which can be very confusing.

On the right to H&S information on pesticides, two principal sources are the manufacturer's product label and product safety data sheet (SDS).

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. Sometimes it is the only piece of information available so it is important to read it thoroughly.[33] The label must be in the language(s) of the destination country.[34] If the label is not in the local language(s) the use of that pesticide is illegal according to international law.

The UN Food and Agriculture Organization (FAO) and World Health Organization (WHO) recommend the progressive adoption of the **Globally Harmonized System**

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

32 Report of the UN Special Rapporteur on the right to food. 2017. A/HRC/34/48. https://docs.un.org/en/A/HRC/34/48

33 FAO. 2022. International Code of Conduct on Pesticide Management: Guidelines on Good Labelling Practice for Pesticides. http://www.fao.org/3/a-i4854e.pdf

34 Canadian Centre for Occupational Health and Safety. Undated. Labels. OSH Answers Fact Sheets. https://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/labels.html

of Classification and Labelling of Chemicals (GHS) for classification and labelling of pesticides. However, many countries still apply the **WHO Recommended Classification of Pesticides by Hazard** for pesticide labelling purposes. The WHO Classification has been updated to take account of the GHS categories for acute oral and dermal toxicity but its classification criteria are not identical to the GHS.

The **GHS** is a voluntary system developed for standardising and harmonising the classification and labelling of chemicals globally, including standardising the content and format of chemical labels and safety data sheet. The GHS offers better protection to workers and users and facilitates international chemical trade. The GHS is voluntary so countries have to issue their own regulations or standards to implement GHS criteria and provisions.

GHS describe the nature and severity of a chemical hazard by hazard class and hazard category, and also assigns 9 **hazard pictograms** representing different types of hazards. GHS has 29 **hazard classes**, of which the following classes are commonly seen on pesticides: Flammability; Acute Toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Skin/Dermal Sensitisation; Acute and Chronic Aquatic Hazard; and Carcinogenicity. As GHS has no hazard class for terrestrial animals (e.g., bees, mammals), authorities may consider adding extra hazard classes for terrestrial animals when adopting GHS for pesticides.

GHS PICTOGRAM



GHS Product Labels must contain the following information:[35]

1. Product identifier – the brand name, chemical name, common name, generic name or trade name of the hazardous product.

34 United Nations. (2017). Globally Harmonized System of Classification and Labelling of Chemicals (GHS) 7th revised edition. https://unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev07/English/ST_SG_AC10_30_Rev7e.pdf

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. e.g. Acutely Toxic
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.

Safety data sheets for chemicals

For the pesticide/chemical product in question, the manufacturer's safety data sheet contains important and more detailed information on hazards, toxicity testing, risk control/protection measures, procedures after accidents, etc.

Employers should make sure that all hazardous/toxic products have up-to-date safety data sheets (SDSs) with them when they enter the plantation/farm. SDSs are increasingly available in electronic format.

The SDS must be readily available to the workers, or representatives, who are exposed to the hazardous product, and to the health and safety committee. Employers may computerise the SDS information as long as: all employees have access to and are trained on how to use the computer or device; the computers/ devices are kept in working order. A hard copy of the SDS must be available to the worker representative or health and safety committee upon request.[36]

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.[37]

The GHS has standardised the information required on SDSs: 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; Regulatory information.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

- Based on taking advice from appropriate competent sources, the employer's risk assessment should consider first of all whether non-chemical means of "pest" control could be used to eliminate the use of

36 United Nations. (2017). Globally Harmonized System of Classification and Labelling of Chemicals (GHS) 7th revised edition. https://www.unece.org/fileadmin/DAM/trans/danger/publi/ghs/ghs_rev07/English/ST_SG_AC10_30_Rev7e.pdf

37 Canadian Centre for Occupational Health and Safety. Undated. Safety Data Sheets. OSH Answers Fact Sheets. https://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/sds.html

the pesticide(s).

- The risk assessment should also consider the possibility of substituting a less toxic pesticide for the more toxic substance.



2. Tools, equipment, technical and engineering improvements

- The spray team supervisor must ensure that the spray team operators have checked their spraying equipment and that the equipment is in good working order, not leaking, properly calibrated (delivering the correct amount of pesticide required per hectare), and that the nozzles on their sprayers are in good condition and not too worn (in which case they can be a factor in causing spray drift).
- 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.[38]
- Leakage from back sprayers onto the back, neck and shoulders of the operator can also be an extra risk. So whenever a backpack pesticide sprayer is used, a backrest made out of waterproof fabric is used.
- The use of a closed transfer system to allow pesticides to be transferred directly from the container into the sprayer via a closed route (an engineering control).[39]
- Pesticide storage and mixing areas should be enclosed, with appropriate ventilation systems.



3. Safe work organisation, systems, practices, information and training

- As a matter of routine the company manager or health and safety manager communicates the daily spraying schedules and locations to the supervisors of the various field gangs and to a responsible person(s) in the plantation office. This is particularly the case where aerial spraying of fungicides is due to take place. This includes details of re-entry interval(s), and if the weather conditions were suitable for spraying.
- Field worker supervisors must keep their gangs working well away from spraying operations, including aerial spraying, and respect any re-entry intervals.
- There must be regular means of communications between the field gang supervisors and the spray team supervisors
- The plantation management must ensure that warning signs with pictograms or other safety warnings are placed on access points to sprayed areas to discourage access.
- In the case of aerial spraying, pilots must comply with government regulations on spraying:not flying too high above the crops; not spraying within a certain radius of schools, populated areas and sensitive zones such as rivers, water reservoirs, fish farms, or poultry farms, and so on.

38 FAO. 2001. Guidelines on Good Practice for Ground Application of Pesticides. https://openknowledge.fao.org/handle/20.500.14283/y2767e

39 Coffman, C., et al. 2009. Use of Engineering Controls and Personal Protective Equipment by Certified Pesticide Applicators. Agricultural and Biosystems Engineering Publications. Iowa State University. https://pdfs.semanticscholar.org/ea3d/0eafacf19b29aabec6ef906ad466d68fc28c.pdf

- The employer must ensure that the spray operators are competent, meaning they have received training from a qualified, competent person(s) on pesticide application, and have experience of pesticide spraying. This is especially important if the employer/plantation management hires a spray team through a contractor. The contractor must offer proof that her/his spray team is competent, meaning they have the necessary qualifications, training and experience to do the job correctly.
- Before mixing the pesticide(s), spray team operators, including pilots and loaders in the case of aerial spraying, must check the product label and safety data sheet to ensure the pesticide is used correctly and the appropriate risk controls are implemented.
- The supervisor of the spray team checks with the spray operators that they were well organised for the spraying job to be done and have informed the plantation office and the supervisors of the field gangs where and when spraying was to take place on that particular day. The supervisor also checks that the spray operators had read the product label and safety data sheet for the pesticide they were to apply. The spray team supervisor and operators check the weather conditions to see if conditions were suitable for spraying.
- The employer ensures that the spray team supervisor and operators are informed if any of the pesticides have been classified as carcinogenic (cancer causing chemical) by any official health and safety body.
- Pesticide application should ideally be carried out in the early hours of the morning. Application must be done when the ambient temperature is below 31°C, relative humidity is at 60% and wind speed is between 3.5 and 6.5 kilometres per hour.
- Spray operators also need to take care to minimise spray drift when applying the pesticide and to ensure that treated areas are marked with signs or written notes warning of any danger and specifying the recommended re-entry interval, as per the pesticide manufacturer's instructions on the pesticide label.
- All pesticides must be labeled, with information available in the local language(s) - see above information 'Product label for pesticides'



4. Water, sanitation, hygiene, first aid and welfare

- The spray team supervisor checks that the spray team has sufficient water with them for a) drinking purposes especially to avoid the risk of dehydration as they are wearing personal protective equipment which can increase body temperature and the rate of water loss; and b) to wash pesticide off contaminated skin, especially hands, or to deal with splashes of pesticide in the eye.
- The spray team operators are trained first aiders who are competent to apply initial first aid in the case of pesticide poisoning.



5. Personal Protective Equipment

Based on the precautionary measures listed in the manufacturer's pesticide label and safety data sheet, the employer's risk assessment can identify the following types of PPE to be used for the pesticide(s) in question:

- Eye protection: The operator should wear air-tight safety goggles with indirect ventilation that prevent splashes.
- Hand protection: The operator should wear chemical-resistant gloves made out

of polyethylene, or 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.

- Skin protection: Depending on the toxicity and length of exposure to the pesticide, the spray 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.
- Respiratory protection: The spray operator should wear a protective respirator with an approved chemical filter (as per the manufacturer's instructions) containing activated carbon to absorb the chemical droplets. Filters must be replaced according to the expiry date, which is printed on the filter cartridge, or earlier if breathing becomes difficult or when the smell of the chemical is detected during use.

Note on medical control and surveillance

Biological monitoring is available for certain pesticides. E.g. blood tests by qualified medical personnel to detect poisoning by toxic organophosphorus (OP) or carbamate pesticides through cholinesterase inhibition BEFORE spraying takes place. If you see the words, **"Cholinesterase inhibitor"** on the pesticide label or safety data sheet, then you are being exposed to a toxic OP or carbamate pesticide, which are nerve poisons. When re-tested, if your cholinesterase levels are falling, then you are being poisoned by the pesticide even if you are not showing any easily discernible symptoms at the time. You must **STOP** spraying.

Hazard 8: Other chemicals

8.1 Chemical fertilisers

Chemical fertilisers such as nitrates, phosphates and potassium, are plant nutrients and trace elements applied generally to the soil to promote crop growth.

Health or safety risks in banana production

Dry, chemical fertiliser is hygroscopic which means it attracts moisture and can draw out moisture from the skin and cause burns. Dry fertiliser can also cause irritation of the mouth, nose and eyes. Liquid fertilisers also need careful handling as these are in a highly concentrated form. Fire is a risk with all types of fertilisers with toxic fumes being released. More and more producers now use 'fertigation' systems whereby fertiliser is dissolved in water and applied through the irrigation system.

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.

Run-off 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.

The use or organic or bio-organic fertilizers is recommended, to replace synthetic fertilisers, to reduce environmental and health impacts.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

The risk assessment should consider the possibility of substituting a more toxic fertiliser for a less toxic, or ideally organic, substance (see annex 3 on 'alternatives' for more information.



2. Tools, equipment, technical and engineering improvements

- Enclosed mixing/blending systems
- Ventilation systems in storage and mixing areas
- Application tools that reduce human contact with chemical products



3. Safe work organisation, systems, practices, information and training

- Provide information and basic training, by a competent person(s), for workers and supervisors on correct chemical fertilizer preparation and application techniques
- Ensure that any product labelling is made available in the local language, and that any potential health risks are fully taken into account within the mixing and application methods used.



4. Water, sanitation, hygiene, welfare and first aid

- 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.
- Ensure first aid kits are available and accessible near all work areas
- Ensure that a trained worker first-aider is present in each work team



5. Personal Protective Equipment

- 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.
- Rubber boots and and overalls are also required

8.2 Commodity chemicals

These chemicals often come in bulk containers and contain caustic or corrosive materials. They include powerful disinfectants/biocides, acids and solvents used for cleaning equipment and machinery, and chemical latex dispersants.

Disinfectants are biocidal chemicals 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.

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.

Health or safety risks in banana production

Occupational dermatitis is a risk caused by skin contact with commodity chemicals, and use of latex dispersants in washing tanks. Fumes released when mixing products, especially disinfectants, can be a special risk especially if they are being used in confined or enclosed spaces.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

- Replace hazardous disinfectants/latex dispersants with less toxic or biodegradable alternatives where possible.



2. Tools, equipment, technical and engineering improvements.

- Ventilation systems in storage and mixing areas
- Application tools that reduce human contact with chemical products



3. Safe work organisation, systems, practices, information and training

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



4. Water, sanitation, hygiene, first aid and welfare

- Provide safe washing facilities with clean running water, soap, and towels near application/storage areas
- Ensure first aid kits are available and accessible near all work areas
- Ensure that a trained worker first-aider is present in each work team



5. Personal Protective Equipment

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.

8.3 Fuels & oils

Toxic and flammable products such as fuels and oils are widely used on banana plantations and require special precautions in handling, use, transfer, and storage. See the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS) for advice on classification and labelling of flammable products.[40]

Health or safety risks in banana production

- Exposure to fumes can lead to respiratory issues and irritation of the eyes and throat.
- Long-term contact with oils may cause skin conditions, including dermatitis.
- Inhalation of volatile organic compounds (VOCs) can result in headaches and dizziness.
- Some fuels contain carcinogenic substances that increase cancer risk with prolonged exposure.
- Improper handling can lead to chemical burns or poisoning.
- Spills can contaminate water sources, posing risks to public health and the environment.
- Risk of fires when handling fuels.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance



2. Tools, equipment, technical and engineering improvements

Ensure proper ventilation in areas where fuels and oils are handled.



3. Safe work organisation, systems, practices, information and training

- Train employees on safe handling procedures and emergency response.
- Regularly inspect storage areas for leaks or signs of deterioration.
- Store fuels and oils in approved containers and away from ignition sources.
- Keep spill containment kits readily available and easily accessible.



4. Water, sanitation, hygiene, first aid and welfare

- Provide safe washing facilities with clean running water, soap, and towels near application/storage areas
- Ensure first aid kits are available and accessible near all work areas
- Ensure that a trained worker first-aider is present in each work team

40 EHS Daily Advisor. Under GHS, all liquids with a flash point of not more than 93°C are categorised as flammable liquids. (The term "combustible liquids" is no longer used). https://ehsdailyadvisor.blr.com/2015/09/wasnt-flammable-ghs-changed-meaning-flammable-liquids/



5. Personal Protective Equipment

Use PPE such as gloves, boots, goggles and protective clothing.

Hazard 9: Physically demanding and/or repetitive work, heavy loads: musculoskeletal disorders

Physically demanding and/or repetitive work covers a wide range of activities from, for example, carrying heavy and awkward loads, often over long distances or on rough terrain, carrying out repetitive movements on production lines, or standing for long periods on cold floors. As many work activities in the banana value chain involve physically demanding/manual labour and/or repetitive work, all workers are at increased risk of suffering from a range of injuries/diseases classed under the common heading of **"musculoskeletal disorders (MSDs)".**

Health or safety risks in banana production

Physically demanding work and/or repetitive work can result in work-related MSDs which denote health problems of the locomotor apparatus ie. muscles, tendons, the skeleton, cartilage, the vascular system, ligaments and nerves. MSDs affect both upper and lower limbs, develop over time and are rarely the result of a single stress or strain. They 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/sector and so losing their employment and livelihoods. Workers can have different kinds of MSDs at the same time.

See the ILO List of Occupational Diseases 2010: 2. Diseases by target organism. 2.3 Musculoskeletal disorders:

- Tenosynovitis (Radial styloid and Chronic) due to repetitive movements, forceful exertions and extreme postures of the wrist. (2.3.1 and 2.3.2)
- Olecranon bursitis due to prolonged pressure of the elbow region (2.3.3) & Prepatellar bursitis due to prolonged stay in kneeling position. (2.3.4)
- Epicondylitis due to repetitive forceful work. (2.3.5)
- Meniscus lesions following extended periods of work in a kneeling or squatting position. (2.3.6)
- Carpal tunnel syndrome due to extended periods of repetitive forceful work, work involving vibration, extreme postures of the wrist, or a combination of the three. (2.3.7)

The causes of work-related MSDs are usually multifactorial with numerous well-established work-related risk factors for their development, including:

- Strenuous and heavy, often monotonous, work in awkward and uncomfortable positions for long periods (e.g. bending, stooping, squatting, kneeling, reaching, twisting and standing).
- Manual handling, lifting, carrying and moving of awkward and heavy loads (e.g. crops, crates, boxes, pallets, tools and equipment). This work includes 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, and often forceful, actions, in awkward or uncomfortable body postures such as, for example, use of machetes.
- Prolonged standing and walking, lack of seating at workstations, and exposure to vibrations.
- Psycho-social risk factors can lead to MSDs. For example, there can be stress-related changes in the body, such as increased muscle tension, that can make people more susceptible to MSDs; or individuals may change their behaviour, for example doing without rest breaks to try and cope with work deadlines.
- Workers in the company office are also at risk of MSDs such as carpal tunnel syndrome (affecting the wrist and hand) from repetitive actions when regularly using computers.

Packhouse tasks which may give rise to MSDs are:

- Lifting of bunches/hands of fruit
- Washing of fruit (including use of chemical latex dispersants & biocides)
- Post harvest fungicide application (crown rot control)
- De-flowering
- Sorting onto trays
- Selection and division into clusters
- De-handing
- Cardboard box assembly
- Classification
- Weighing trays
- 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 packhouse machinery/equipment

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance as heavy and repetitive work involving awkward positions is routine on banana plantations.



2. Tools, equipment, technical and engineering improvements

- Mecanise where possible so as to avoid, or reduce, manual handling, e.g. Self-raising pallet systems, cableway systems for banana transportation
- Ensure that the unit weights of any object of material that requires

transportation by hand is below the legal limits in national legislation

- Ensure that workers use tools that are ergonomically designed for the task, and that are in good condition and sharp.
- Ensure that women workers have access to the appropriate tools and equipment for their physiology



3. Safe work organisation, systems, practices, information and training

Ensure a manual handling risk assessment has been carried out for each work station and appropriate risk controls adopted, with appropriate information and training about the risks provided to company staff and workers.

Reducing risks of **upper limb disorders** from repetitive work by:

- Making sure tools and equipment fit the workers' hands and are suitable for the task;
- Making sure workstations are at a suitable height for comfortable working (and that suitable chairs and footrests are provided). Consider adjustable work-stations;
- Changing the work-station layout to improve the posture of the workers, particularly when they are applying force;
- Reducing the amount of force, vibration, repetition and prolonged fixed postures;
- Reducing the length of time that operators do the same task, allowing regular changes in posture;
- Taking account of psycho-social risk factors, e.g., high workloads, tight deadlines and lack of control over the work and working methods;
- Ensuring that workers whose job involves standing up are trained in good practices in order to avoid prolonged static postures
- Ensuring that workers are given the opportunity to stretch their upper and lower limbs and carry out exercise movements to increase joint flexibility at the beginning of the working day and throughout their working hours;
- Ensuring that when work is carried out sitting down, the chair should be ergonomically designed. Workers must also change position regularly (E.g. by getting up from their chair frequently).
- Ensure heavy or awkward lifting movements (eg twisting) are avoided
- Avoid lifting at low level or at high level above shoulder height

Reducing risks of **lower limb disorders** by:

- Changing working methods - including factors such as shift work, rest breaks, meals, and speed of work;
- Providing mechanical aids;
- Rotating workers between jobs to lessen the time spent carrying out 'risky' tasks;
- Providing regular breaks;
- Providing seating, where possible



4. Water, sanitation, hygiene, first aid and welfare.

Not applicable in this instance.

5. Personal Protective Equipment.

Providing, for example, knee pads or anti-fatigue matting

Hazard 10: Exposure to extreme temperatures

Banana workers carrying out physically demanding work in hot and humid conditions for lengthy periods, or being in a hot place for too long, are at risk of suffering from heat-related problems, even life-threatening heat stroke in certain conditions. The rainy season conversely can bring much cooler temperatures and wet/damp conditions.

See ILO List of Occupational Diseases, 2010. 1.2.6. Diseases caused by exposure to extreme temperatures.

Health or safety risks in banana production

Workers carrying out physically demanding work in hot and humid conditions for lengthy periods, or being in a hot place for too long, are at risk of suffering from heat-related problems which are, in order of increasing severity: lassitude, irritability, discomfort; lowered work performance, lack of concentration; heat rash; heat stress/exhaustion; and heat stroke.

The evaporation of sweat is the main method of heat reduction. In hot environments, less sweat evaporates when humidity is high (80%+). Dehydration through excessive perspiration (rendered more severe by excessively protective and waterproof clothing) is also a risk.

The metabolic rate is also critical. The more physical the work we do, the more heat we produce which needs to be lost so we do not overheat. Studies on the effect of heat exposure on workers' health have shown that temperatures that differ even minimally from the comfort zone also tend to increase the risk of accidents.

Heat stress can result in heat stroke, heat exhaustion, heat cramps, or heat rashes. Heat can also increase the risk of injuries in workers as it may result in sweaty palms, fogged-up safety glasses, and dizziness. Leg oedemas, cramps and fainting/exhaustion, and facilitate poisoning through cutaneous absorption and the spread of pesticides inside the organism.

Heat stroke (also known as sunstroke) occurs when a person's body temperature rises rapidly and the person is unable to cool down. It can be life-threatening by causing damage to the brain and other vital organs. Heatstroke can occur without any previous heat-related condition.

Heatstroke signs and symptoms include: fever of 40 degrees Celsius or greater; changes in mental status or behaviour, such as confusion, agitation, slurred speech; hot, dry skin or heavy sweating; nausea and vomiting; flushed skin; rapid pulse; rapid breathing; headache; and fainting, which may be the first sign in older adults. Getting the victim into shade and applying first aid/emergency medical care is critical.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.

2. Tools, equipment, technical and engineering improvements

Use appropriate mechanical aids where possible to reduce the impact of work activities associated with excessive heat.

3. Safe work organisation, systems, practices, information and training

- Soil preparation should be carried out in the early hours of the morning whenever possible to avoid heat stress;
- Provision of adequate numbers of shaded rest areas;
- Scheduling of adequate rest breaks under shade or in a cool rest area.
- Ensure that tasks performed in hot agricultural environments are well designed ergonomically to minimise physical stress.

4. Water, sanitation, hygiene, first aid and welfare

- Ensure that workers have sufficient quantities of clean drinking water, with the addition of proper electrolytes;
- There should be water points at regular intervals;
- Workers should have individual drinking bottles/canteens;
- Ensure each field worker gang/team has a trained first aider(s) able to give emergency treatment in case of heat stress or heat stroke.

5. Personal Protective Equipment

- Ensure that workers use light clothing (canvas and cotton) and wear wide-brimmed hats that protect the head, face and neck from the sun.
- If necessary, tropical reflective clothing can be provided.

Hazard 11: Exposure to sun

Working for long periods in the sun is a major health risk for field workers due to excessive exposure to ultra violet (UV) rays from the sun and the risk of the body overheating; especially when carrying out operations where there is no vegetal cover, e.g. soil preparation and planting/replanting.

Health or safety risks in banana production

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.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.

2. Tools, equipment, technical and engineering improvements

Cable-way system to transport the harvested bananas from the field to the pack-house is a key mechanism to reduce worker exposure to sun (compared to manual transportation of harvested bananas by the workers).

3. Safe work organisation, systems, practices, information and training

- Soil preparation should be carried out in the early hours of the morning whenever possible to help minimise sun exposure
- Provision of adequate numbers of shaded rest areas
- Scheduling of adequate rest breaks under shade or in a cool rest area



4. Water, sanitation, hygiene, first aid and welfare

- Ensure that workers have sufficient quantities of clean drinking water, with the addition of proper electrolytes
- There should be water points at regular intervals
- Workers should have individual drinking bottles/canteens
- Ensure each field worker gang/team has a trained first aider(s) able to give emergency treatment in case of heat stress or heat stroke.



5. Personal Protective Equipment

- Ensure that workers use light clothing (canvas and cotton) and wear wide-brimmed hats that protect the head, face and neck from the sun. If necessary, tropical reflective clothing can be provided
- Provision of sun cream and sunscreens which can be applied, if necessary
- Persons working outside must also have protective wear against bad weather

Hazard 12: Occupational diseases, allergies, bites & stings (biological risks)

In occupations that deal with plants & their products as in banana production, workers are at risk of acute & chronic diseases entering the body either directly (inhalation, skin absorption) or through breaks in the skin, due to exposure to:

- Micro-organisms - bacteria, viruses, protozoa, fungi, parasites
- Dust (organic) - crop dusts
- Plants - pollen, rough leaves/stems/bunches
- Insect stings, insect or animal bites - rodents, wasps, bees, spiders, scorpions, snakes, etc.

Relevant clauses in the ILO list of occupational diseases, revised 2010

1.2. Diseases caused by physical agents - musculoskeletal disorders, noise etc

1.3. Biological agents and infectious or parasitic diseases

1.3.4. Tetanus

1.3.6. Toxic or inflammatory syndromes associated with bacterial or fungal contaminants

1.3.8. Leptospirosis

2. Occupational diseases by target organ systems

2.1. Respiratory diseases

2.1.7. Asthma caused by recognised sensitising agents or irritants inherent to the work process

2.2. Skin diseases

2.2.1. Allergic contact dermatoses and contact urticaria caused by other recognised allergy- provoking agents arising from work activities not included in other items

2.2.2. Irritant contact dermatoses caused by other recognised irritant agents arising from work activities not included in other items

2.3. Musculoskeletal disorders

2.4. Mental and behavioural disorders

3. Occupational cancer

Health or safety risks in banana production

A) Infectious diseases

Zoonoses are diseases transmitted from animals to humans. Some zoonoses may then be transmitted from humans to humans. Micro-organisms causing zoonoses include bacteria, viruses, protozoa, fungi, rickettsias, parasites, "germs".

Examples of zoonotic diseases associated with food processing facilities include:

Leptospirosis has been reported as a rodent transmitted zoonotic bacterial disease occurring around banana packing sheds. The main occupational source of infection is the urine of infected rodent animals, and water and soil contaminated with infected urine. The disease enters the body through cuts or grazes in the skin, hence the importance of treating wounds with first aid. The disease is curable with antibiotics but if untreated the patient could develop: kidney damage; meningitis; liver failure; respiratory distress, and in rare cases causes death.

Malaria, Dengue fever would be examples of (non-infectious) zoonoses occurring in farm/plantation/food processing environments.

B) Respiratory/lung diseases

Worldwide, occupational asthma is the most common form of occupational allergic lung disease and can worsen pre-existing asthma. Asthma is widespread in agriculture and food and beverage industries. Farmers and farm workers usually have asthma rates higher than national averages. Occupational asthma affects workers who inhale organic dusts which are allergic respiratory sensitisers – such as dust from crops/plants, livestock & poultry skin/feathers and wastes. It is characterised by common asthma symptoms (such as a chronic cough and wheezing), occupational asthma is a reversible condition when diagnosed at an early stage.

New biological risks are arising all the time. The COVID-19 coronavirus (Severe Acute Respiratory Syndrome SARS 2) may well be added to the list of occupationally-related diseases in the future as workers on farms, plantations and in food processing facilities worldwide have suffered high rates of COVID infection.

C) Skin diseases

Dermatitis (plural Dermatoses)

Skin diseases are among the most common occupational diseases reported, along with risks of infection from puncture wounds or bacterial infections. Occupational dermatitis is inflammation of the skin caused by skin contact with substances used at work and takes two forms as listed in the ILO List of Occupational Diseases, revised 2010:

2.2 Skin diseases:

- 2.2.1. Allergic contact dermatoses and contact urticaria caused by other recognized allergy-provoking agents arising from work activities not included in other items.
- 2.2.2. Irritant contact dermatoses caused by other recognised irritant agents arising from work activities not included in other items.

Irritant and allergic contact dermatitis are difficult to distinguish from one another, but allergic contact dermatitis may occur in other places on the body that did not come in direct contact with the allergy-causing material.

D) Insect stings or bites - including spiders, scorpions, mosquitoes, rats etc. or snakebites. Risks of discomfort, wounds, infections, poisoning, diseases (e.g leptospirosis), and even death from snakebites.

E) Plants - including banana leaves, ground plants, thorns, pollen etc. Risk of physical injury and allergic reactions such as occupational asthma.

F) Occupational cancer

About 5-8% of all cancers worldwide are caused by exposures to carcinogens (cancer-causing substances) in the workplace, according to the US National Institute of Occupational Safety and Health (NIOSH).

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.



2. Tools, equipment, technical and engineering improvements

- Local exhaust ventilation in enclosed environment to reduce breathing in of dusts
- Vaccination, for example for tetanus



3. Safe work organisation, systems, practices, information and training

- All biological risks require planned prevention programmes and risk controls to prevent or minimise risk of harm.

- Farms/plantations, and especially exposed work centres, should implement pest/rodent and disease control programmes to prevent the incubation, entry and spread of biological agents; including rodent control in packing shed areas to prevent leptospirosis.
- The grass/vegetation in and around buildings and fixed workplaces should be regularly cut to reduce sources of potential infestation from snakes and rodents.
- Waste deposit areas are to be 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.
- Workers, supervisors and managers must 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.



4. Water, sanitation, hygiene, first aid and welfare

- 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, must be available to treat minor cuts and scratches when they occur.
- There are occupational health and medical services in operation (often as required by national legislation/Labour Codes).



5. Personal Protective Equipment

- Occupational asthma: provision of disposable dust masks: FFP 2 (EU) or N 95 (USA) standards
- 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.

Note on medical control and surveillance

Workers exposed to risks of respiratory lung diseases such as bronchitis and occupational asthma from exposure to organic dusts can have their lung capacity individually medically checked before exposure to the dust. Periodic medical retesting can measure if the exposure to excessive levels of dust is harming an individual worker's capacity to breathe properly . If this is the case, the employer must then reduce the exposure to dust of the individual worker concerned and and other workers affected.

Hazard 13: Slips & tripping over

Slips and Tripping over on wet, slippy floors, uneven surfaces, crossing drainage/ irrigation ditches, tripping over objects or food waste with risks of physical injury are habitual risks and account for a significant percentage of injuries.

Health or safety risks in banana production

On commercial banana plantations, the plants are arranged in rows with ditches running alongside them. These ditches, usually about 1 metre deep, are used for both irrigation and drainage. In addition, secondary drainage ditches, generally around 2 metres deep, are placed among the plant rows, and at wider intervals main drainage ditches are dug, reaching depths of 3–4 metres. Crossing these different types of ditches is difficult and hazardous, particularly when the ground is muddy and slippery, creating a constant risk of slips, trips, and falls. One of the main demands of field workers is the installation of footbridges over the deeper ditches to allow them to move and work more easily and with less risk of injury. The injuries that commonly occur include strains, sprains, and bruises affecting joints, muscles, ligaments, tendons, and bones.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.



2. Tools, equipment, technical and engineering controls.

- Provision of stable structures to bridge the ditches and which are wide enough to allow workers to cross comfortably.
- In the case of the primary drainage channel which may be 3-4 metres deep, a more permanent footbridge may be needed.



3. Safe work organisation, systems, practices, information and training

- Before working there, workers should survey and familiarise themselves with the terrain, identifying places where slips and trips and falling over could occur.
- Schedule work to avoid crossing ditches when the ground is excessively wet or slippery (after heavy rain).



4. Water, sanitation, hygiene, first aid and welfare

- Ensure first aid kits are available and accessible near fieldwork areas
- Ensure that a trained worker first-aider is present in each work team



5. Personal Protective Equipment

Ensure that workers have suitable footwear with soles that grip, e.g. rubber boots.

Hazard 14: Falling from height

Falling from height means work in any place where a person could fall a distance liable to cause personal injury, and even a fatal accident. Even falls from a low height can have serious health consequences depending on how the worker lands, especially if landing on/striking the head is involved.

You are working at height if you work above ground/floor level; could fall from a ladder or an edge, or a work platform, or through an opening or fragile surface or could fall from ground level into an opening in a floor or a hole in the ground or from a roof. 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.

Ladders are regularly and widely used to access the banana plants which can grow 4 to 5 metres high. Workers are at risk of falling from ladders or falling with the ladder when it slips down or sideways resulting in physical injury.

Health or safety risks in banana production

Risk of broken or fractured bones, concussion, including the risk of long-term disability.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

- Where possible, use mechanical harvesting aids like telescopic poles



2. Tools, equipment, technical and engineering controls.

- It is important to check that the ladder has been solidly constructed and that the binding twine is in good condition and pulled tight, especially for the ladders made from bamboo and lashed together with strong twine or string.



3. Safe work organisation, systems, practices, information and training

- Safe systems of work to regularly check that ladders, especially those made from bamboo, are in good condition and that where twine/string is used, the ladders are sufficiently stable
- Provide training on the proper use of ladders, including correct climbing techniques and how to secure the ladder before use.
- Ensure ladders are placed on stable, level ground and secured at the top and/or held by another worker.
- Rotate work to avoid fatigue when performing tasks at height.



4. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance.



5. Personal Protective Equipment

- Use slip-resistant footwear with good ankle support.
- Gloves to improve grip when climbing ladders.
- Head protection to protect against head injuries from falls.

Hazard 15: Cutting & sharp, pointed tools and contact with pallets

Banana workers routinely use sharp cutting tools such as knives and machetes for a variety of tasks ranging from defoliation, to harvesting the banana bunches, to packhouse activities.

Health or safety risks in banana production

Workers are at risk of cuts, lacerations or grazes to hands, arms and legs. More severe wounds such as, for example, machete-related injuries can result in severing of body parts. There are risks of eye injuries from the tools themselves. Workers are at risk of musculoskeletal disorders from repetitive and forceful actions when using tools.

Cuts, lacerations and grazes sustained when using tools can also provide entry points for disease organisms, e.g., tetanus. Hence the importance of promptly cleaning and dressing even minor wounds. Plus the need for workers to be vaccinated against tetanus.

Workers also risk injuries such as cuts, scrapes and bruises from getting trapped and banging themselves whilst handling the boxes, and contact with pallets.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance

2. Tools, equipment, technical and engineering improvements

Tools with protective guards or ergonomic handles

3. Safe work organisation, systems, practices, information and training

- Workers should keep all work tools and accessories clean and use them only if they are in good condition;
- Workers must not use tools that are in poor condition (e.g., poorly maintained) or use them incorrectly them to perform any kind of operation;
- Workers must not use tools other than what they are designed for or use them beyond their technical capacity;
- Workers must not carry cutting tools and sharp tools without their sheaths;
- In the work space, work tools, equipment and materials should be well stored in order to prevent any risk of tripping over them.

- Provide training on proper handling techniques for cutting tools



4. Water, sanitation, hygiene, first aid and welfare

- Ensure first aid kits are available and accessible near all work areas
- Ensure that a trained worker first-aider is present in each work team



5. Personal Protective Equipment

Provide strong gloves for workers handling sharp tools.

Hazard 16: Electricity

Banana processing workers in pack houses work in wet conditions, with both fixed electrical installations and with portable equipment including extension cables on the ground which are easily damaged. Working with mains power electricity (usually circa 220/230 volts) or three phase electricity (circa 350/450 volts), especially if installations and equipment/devices are poorly maintained, involves the risk of fatal electrocution, injuries from electric shocks and burns. There are thousands of 'near-misses', any of which could have had fatal consequences, and many electrical incidents which damage equipment. Faulty electrical installations and equipment can also cause fires. Working with power cleaning tools in wet environments can be especially dangerous. Electrically powered water pressure hoses are routinely used to clean concrete floors in banana processing areas .

Health or safety risks in banana production

The human body is a good conductor of electricity and electrical current can easily travel through it. There are three main types of electrical health risks. Electric shock which can vary from mild tingling to fatal electrocution; Electrical burns including thermal contact burns; Arc blasts (the effect of blasts). The power arc is a discharge of electricity through a combination of ionised air and vaporised conductor material.

The severity of electric shock is related to four elements: Amount of current; Length of time current is present; Path of current through the body; Frequency of the current (Hz).

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.



2. Tools, equipment, technical and engineering improvements

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 circuit breaker very quickly cuts off the circuit when a ground fault is detected. These devices 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. Cables should be regularly checked for signs of damage.
- Electric cables, both attached to tools and loose cables, must be well insulated, no peeled or protruding wiring; electrical appliances and their corresponding parts must be free from grease, debris, etc.



3. Safe work organisation, systems, practices, information and training

- Only qualified and trained electricians are permitted to use, repair, maintain, or install electrical equipment/installations.
- 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.
- Provide regular training on electrical safety, including hazards in wet environments, safe tool handling, and emergency response.
- Routinely check cables and installations
- Display clear warning signs for electrical hazards, especially in wet or high-risk areas.



4. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance. In the case of electrocution or electrical burns first aid is not sufficient - the worker should be taken to hospital.



5. Personal Protective Equipment

Not applicable in this instance.

Hazard 17: Poor lighting

Good working conditions demand, first and foremost, adequate lighting which neither dazzles nor causes troublesome reflections. 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 and the risks lowered.

Health or safety risks

Illumination is the rate of light energy transmitted onto a surface. This rate or light intensity is measured either in lux or foot-candles. It may be necessary to perform a lighting survey at a workplace to identify the needed lighting levels for different job tasks. A lux or foot-candle meter can be used to perform an in-house lighting risk assessment.

If lighting and visual conditions are deficient:

- This is made up for by tensing not only the muscles in and around the eyes but also, for example, the muscles of the neck and shoulders, resulting in risks of eyestrain, headaches, and MSDs.
- Risks of injuries from equipment or machinery are increased, as well as tripping over unseen obstacles or being run over by a moving vehicle.

Different levels of lighting are required for different types of work (e.g. close, accurate work such as soldering work will require higher light levels than walking down a corridor). However, when considering lighting, a number of different factors need to be considered such as colour, contrast, glare, reflective surfaces and so on. The different work activities and types of hazard(s) present associated with them therefore determine the lighting requirements for safe operation.

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.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Elimination is possible by provision of better lighting



2. Tools, equipment, technical and engineering improvements

The risk assessment should determine the locations and level of lighting required, for example the palletisation and loading hall should be lit at an illuminance of 300 lux.



3. Safe work organisation, systems, practices, information and training

- Where individuals are carrying out different activities, they will need control over their local lighting.
- Generally, lighting is designed when the workplace is empty and without consideration of the shadows cast by equipment (e.g. lighting of yards where trailers and containers may be parked) – it is important to assess lighting at an active moment.
- Pedestrian walkways should have specific lighting.



4. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance.



5. Personal Protective Equipment

Not applicable in this instance.

Hazard 18: Dangerous machinery and equipment & transport

Operating or working near unguarded or poorly guarded powerful, high speed food processing machinery involves the risk of contact/entanglement and fatal or serious injuries. With mobile machinery, especially the risk of injury from being struck by or run over by fast moving and powerful forklift trucks is a common hazard in agricultural industries.

Banana production and processing involves the use of powerful, high speed, and high-risk machinery and equipment. Mobile, self-propelled machinery such as forklift trucks and tractors are widely used. Many workers - adult and young - do not realise just how powerful machines are in comparison to their own power, nor do they fully comprehend how fast the machines are.

Health or safety risks in banana production

The main risks include traumatic, even fatal, injuries including, but not limited to, cuts, burns, fractures and amputations caused by contact with shafts, cutters, gears, belts, 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.

Machinery guarding

One of highest risk categories in agriculture is Power take off (PTO) entanglement, which can result in loss of life or very serious injury. The tractor's power take-off (PTO) shaft transfers power between the tractor and the PTO-powered machinery. Power transfer is accomplished by connecting a detachable drive shaft from the tractor's PTO stub to the machinery. The PTO stub and drive normally rotate at circa 540 rpm (9 times/second) or 1,000 rpm (16.7 times/second) when operating at full recommended speed. Most accidents or incidents involving PTOs stem from clothing suddenly caught by an engaged but unguarded PTO stub or shaft, or when feeding crop material into machinery intakes. Risk controls are a master shield over the PTO stub, and a PTO guard on each detachable PTO drive shaft to protect against entanglement, plus trained operators using PTO-powered equipment. (PTO = L'arbre de prise de force (L'arbre de PDF))

Self-propelled mobile farm machinery/vehicles

Farm tractors have many characteristics that result in them being the most important piece of power equipment on the plantation/farm. The most serious risks associated with tractor operations are overturns, run overs, and power take-off (PTO) entanglement. The other most important safety device for a tractor is a rollover/ overturn protective structure - a tractor cab or a metal bar - to protect against the ever-present risk of partial overturn into drainage ditches.

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. Safety experts and tractor manufacturers strongly recommend against an operator carrying an extra rider for any reason.

Forklift trucks are powered trucks used to carry, lift, stack or tier materials. They include pallet trucks, rider operated forklifts, fork trucks, or lift trucks. They can be

powered by electric batteries or combustion engines. Forklifts are extremely useful workplace vehicles, as long as they are used safely and appropriately by operators who are appropriately trained and competent to use them. Forklifts can be dangerous. 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 often speed, injuries resulting from forklifts are generally very serious. Accidents involving them are often caused by poor workplace layout, poor workplace organisation, poor supervision and a lack of training.

Climbing onto or off trailers whilst still in motion, and falling beneath the trailer's wheels and being crushed, is another common type of run-over accident.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not possible to totally eliminate the risk.



2. Tools, equipment, technical and engineering improvements

- Tractors should be fitted with roll bars or cabs.
- Use of mechanical diggers fitted with cabs, which protect the driver in case of overturn and also offer some noise protection, or fitted with roll over bar protection.
- Power Take Off (PTO) shafts should be properly guarded. Damaged guards must be promptly replaced as a damaged PTO guard can be as hazardous as an unguarded PTO shaft.



3. Safe work organisation, systems, practices, information and training

Training of machine operatives by competent persons, including refresher training.



4. Water, sanitation, hygiene, first aid and welfare

Not applicable. In the case of machinery accidents local first aid is not sufficient - the worker should be taken to hospital.



5. Personal Protective Equipment

Not applicable in this instance.

Hazard 19: Falling objects

There is a risk of being hit by falling objects in banana industries which can include falling containers, boxes, pallets where these are in stacks, or even large tractor tyres stacked, unchained against a wall.

Health or safety risks in banana production

The biggest concern with any falling object accident is head trauma or a concussion. With any head injury, immediate medical attention is required. Concussion symptoms can develop over time, so though the worker might feel fine, if behaviour changes or abnormal sleepiness occurs, this could be a sign that it is likely to be more serious.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.

2. Tools, equipment, technical and engineering controls.

Mechanised storage systems can reduce the risk

3. Safe work organisation, systems, practices, information and training

- Falling boxes, packaging, containers, pallets 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. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance.

5. Personal Protective Equipment

Safety helmets should be provided, where neccesary.

Hazard 20: Excessive noise

Exposure to excessive noise at work is one of the commonest occupational health and safety problems and can be difficult to detect as the effects build up gradually over time. Often the dangers can be reduced by relatively simple and inexpensive means.

Health or safety risks in banana production

ILO List of Occupational Diseases 2010. 1.2.1. Hearing impairment caused by noise.

In an occupational setting, noise is most simply defined as unwanted sound.

The main disease risk is, "Hearing impairment caused by noise", often termed, "Noise induced hearing loss", which is gradual because of exposure to loud noise over time such as working next to noisy processing machinery for long periods, The person affected is not totally deaf but cannot understand speech in normal conditions especially in crowded situations, hear instructions and warnings at work, or use the telephone. It can also reduce people's awareness of their surroundings. Hearing loss

cuts its victim off from other people, social interaction becomes more and more of a strain, and even family life becomes difficult. Hearing damage may also be damage caused by exposure to sudden, extremely loud noises.

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 one's ability to work. This can be a contributory factor in workplace accidents as workers lose concentration and coordination. Over the long term, this increase in stress can lead to a number of health problems including heart, stomach and nervous disorders.

Noise levels and measurement

Noise in the workplace is measured in decibels (dB), using an A-weighted scale which most closely corresponds to human hearing, giving the symbol dB(A).

The decibel [dB, and also dB(A)] is a logarithmic scale. This means that for every increase of 3 dBA, the sound energy is doubled, greatly increasing the risk of hearing loss. Similarly, for every decrease of 3 dBA, the sound energy is halved, so greatly reducing the risk of hearing loss.

Table 1: Decibel (dB) basics

Change in dB	Change in sound energy
3 dB increase	Sound energy doubled
3 dB decrease	Sound energy halved
10 dB increase	Sound energy increased by factor of 10
10 dB decrease	Sound energy decreased by factor of 10
20 dB increase	Sound energy increased by factor of 100
20 dB decrease	Sound energy decreased by factor of 100

Source[41]

Noise control at work

Test	Probable noise level	A risk assessment will be needed if the noise is like this for more than:
The noise is intrusive but normal conversation* is possible	80 dB(A)	6 hours
You have to shout to talk to someone 2 metres away	85 dB(A)	2 hours
You have to shout to talk to someone 1 metre away	90 dB(A)	45 minutes

Source[42]
*The noise level of a normal conversation is 50–60 dB

41 Canadian Centre for Occupational Health and Safety. Noise - Basic information, Table 3; https://www.ccohs.ca/oshanswers/phys_agents/noise_basic.html

42 Controlling noise at work. The Control of Noise at Work Regulations 2005, Guidance on Regulation. UK HSE, paragraph 18, p 9; https://www.hse.gov.uk/pubns/priced/l108.pdf

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

- Use machinery and equipment that operates at noise levels of 83 d(BA) or less.
- When planning the purchase of new machinery or equipment, or replacement of existing articles, check that it operates wherever possible at noise levels of 83 d(BA) or less.



2. Tools, equipment, technical and engineering improvements

- Provide sound insulation around machinery.
- Replace older machinery with less noisy appliances.



3. Safe work organisation, systems, practices, information and training

- Measure the level of noise over an 8-hour working period. If noise levels over this period exceed 83-86 dB(A), limit the amount of time that individual drivers or workers are operating the equipment.
- Isolate noisy machinery where possible and restrict worker access to these areas
- Train workers on the importance of noise prevention and reduction controls



4. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance.



5. Personal Protective Equipment

If noise levels regularly exceed 83-86 dB(A), ensure that drivers using machines without cabs and general workers exposed to the same noise levels, wear ear protectors.

Hazard 21: Vibration

Body vibrations due to using vehicles, power units, machines which vibrate. The frequency of vibrations varies between 0.7 Herz (Hz) and 100 Hz.

Health or safety risks in banana production

ILO List of Occupational Diseases, revised 2010. 1.2.2 Diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral blood vessels or peripheral nerves).

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

Vibration is generally classified as:

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

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

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.

Prolonged exposure to hand–arm vibration syndrome (HAVS) can cause painful and disabling disorders of the hand-arm muscles, blood vessels, nerves and joints. Hand-arm vibration exposure affects the blood flow (vascular effect) and causes loss of touch sensation (neurological effect) in fingers. Workers affected by HAVS commonly report: attacks of whitening (blanching) of one or more fingers when exposed to cold; tingling and loss of sensation in the fingers; loss of light touch; pain and cold sensations between periodic white finger attacks; loss of grip strength; and bone cysts in fingers and wrists.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.



2. Tools, equipment, technical and engineering improvements

- Wherever possible, use machinery or equipment that operates at 83 dB(A) or less
- Regular maintenance of machinery and equipment should be carried out since worn components may increase vibration levels.
- Worn out equipment and tools should be removed from use and replaced with new technology.



3. Safe work organisation, systems, practices, information and training

- Keep non-essential workers out of noisy areas
- Limit the amount of time that individual workers are operating this equipment.



4. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance.



5. Personal Protective Equipment

Gloves can help reduce impact of vibrations.

Hazard 22: Welding

Welding is a common activity in banana processing factories and is a joining process in which metals, or sometimes plastics, are heated, melted and mixed to produce a joint with properties similar to those of the materials being joined.

Health or safety risks in banana production

Health risks associated with welding and cutting operations will depend on the composition and exposure level to (i) welding fumes and gases; and (ii) ultraviolet (UV) radiation. In general, there are two primary hazards to non-ionising radiation; tissue heating (thermal effects) and photochemical reactions to the skin and retina of the eye. The risk is dependent on the frequency.

Health risks include respiratory irritation, metal fume fever, lung cancer, skin cancer, damage to the nervous system, asphyxiation, and other health risks.

Safety risks include burns, eye damage, electrical shock, cuts, injury to toes and fingers. Fires and explosions may also occur.

Exposure of the eyes causes arc eye with conjunctivitis and severe pain and may lead to corneal ulceration.

All welding fumes can cause lung cancer, so the employer must put risk controls in place. Welding fumes can also cause asthma and many other health conditions.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Consider eliminating welding, where possible, by using cold joining techniques with:

- Mechanical fasteners (bolts, rivets etc.), or
- Adhesives (such techniques are under continuous development)



2. Tools, equipment, technical and engineering improvements

- Reduce the amount of welding;
- Use a consumable that produces less fume;
- Using a welding process that produces less fume;
- Making sure the metal has been properly cleaned and prepared;
- Automating or mechanising the process or job;
- Using other engineering controls such as local exhaust ventilation (LEV).



3. Safe work organisation, systems, practices, information and training

- Welding cables should be regularly checked for damage. If damaged, they should be promptly replaced or repaired using professional connectors not tape.
- Ensure proper ventilation in the workspace to avoid inhalation of harmful fumes.

- Keep flammable materials away from the welding area to prevent fires.
- Regularly inspect and maintain welding equipment to ensure it is in safe working condition.
- Establish a clear emergency response plan for accidents or injuries.
- Provide training for all personnel on safe welding practices and hazard recognition.



4. Water, sanitation, hygiene, first aid and welfare

- Ensure first aid kits are available and accessible near all work areas
- Ensure that a trained worker first-aider is present in each work team



5. Personal Protective Equipment

Use appropriate PPE such as welding helmets, special safety glasses, gloves, and flame-resistant clothing.

Hazard 23: Entry into confined spaces

Confined spaces can be described as a space with restricted access points and poor ventilation. A confined space is one that is large enough for the worker to enter, has limited or restricted means of entrance or exit, and is not designed for continuous worker occupancy.

Health or safety risks in banana production

Entry into confined spaces can pose very serious risks for workers. Risks of suffocation can arise from oxygen depletion or the presence of a toxic substance, and although risks may be greatest with whole body entry, the risk of suffocation can be as severe with just head and shoulders entry.

Many fatalities occur to rescue personnel who respond to emergencies involving workers trapped within a confined space without adequate planning and protection.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Avoid entry into confined spaces wherever possible

2. Tools, equipment, technical and engineering improvements

- Confined spaces that are totally enclosed, such as controlled storages for fruit and vegetables, should have all entrance points equipped with automatic warning alarms if an entrance is opened but the space is not yet safe to enter.
- Before a worker enters a confined space, the employer should ensure that the space has been purged, flushed or ventilated, as necessary, to eliminate or control the hazards, and adequate measures taken to ensure that no hazardous substances and no potential sources of ignition can enter the confined space

while people are working there. Gas and oxygen detection equipment should be used.

3. Safe work organisation, systems, practices, information and training

- The employer should ensure that potentially hazardous confined spaces are clearly marked with warning notices prohibiting unauthorised entry.
- An appropriate system, including tags and locks, should be used to ensure that no personnel enter a confined space without authorisation, and that no personnel or equipment remain in the confined space before any openings are resealed or power and piping reconnected. Permits to work are important in this context.
- Emergency communications should be in place.
- The employer should ensure that confined spaces that are not totally enclosed, such as manure pits and upright silos, are adequately ventilated before entry. The ventilation should continue while the worker is inside.
- The employer should ensure that workers are selected and trained to safely enter and work in a confined space before being assigned to do so. Such training should include the proper use of PPE in confined spaces.
- Workers in the hazardous confined space should be closely monitored by personnel outside the space to ensure that safe entry conditions are maintained. Such personnel should have the training and equipment to safely rescue or to initiate a prompt and safe rescue by others.
- There should always be one person and in certain circumstances a second person on standby in case of emergency. A self-enclosed air driven mask may be necessary for the worker's protection, and an extraction harness and two co-workers at the surface may be necessary to extract the worker if necessary.

4. Water, sanitation, hygiene, first aid and welfare

Not applicable in this instance.

5. Personal Protective Equipment

- The employer should ensure that no worker enters a manure pit or similar facility without an externally driven air mask, a safety harness and two co-workers to stay at the surface able to extract the exposed worker at a moment's notice.
- The employer should provide appropriate PPE, including appropriate rescue devices.

Hazard 24: Waste disposal and recycling

Wastes to be disposed of can be divided into two broad categories a) Organic waste - vegetal and fish/animal; and b) Inorganic waste- some of which may require special treatment. E.g. Packaging waste, cans, bottles etc. Highly toxic wastes such as highly hazardous pesticides will need to be disposed of according to national laws/ international guidelines **- for further information see <u>Hazard 7 Pesticides</u>**

Organic waste includes banana plants including stems, stalks, shoots, flowers, crowns, leaves, and rejected fruits, and often other 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, and so on.

Reduction in use of plastic is recognised as a major factor in reducing greenhouse gas emissions and combatting climate change. The final treatment of plastic varies, depending on the plantation/farm. Some banana plantations, for example, accumulate the plastic bags/sheaths which are put around the fruit to encourage growth and to protect it from pest attack, 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 or safety risks in banana production

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.

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.

2. Tools, equipment, technical and engineering improvements

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

3. Safe work organisation, systems, practices, information and training

- Organisational actions such as the redesign of jobs, training of workers and managers, and provision of adequate rest breaks.
- The farm/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.
- Clear, written procedures and systems of work for disposal/recycling of empty,

washed pesticide containers, and insecticide contaminated plastic sheaths in the case of banana production.



4. Water, sanitation, hygiene, first aid and welfare

Provision of good sanitation facilities and access to a trained first-aider in the workplace.



5. Personal Protective Equipment

- PPE requirements will vary according to the type of waste being disposed of.
- For disposal of insecticide-contaminated plastic sheaths: Coveralls and protective nitrile gloves

Hazard 25: Fire

Fires can threaten both lives and property. Areas at risk of fires on plantations include:

- Fuel and oil facilities where petrol and other flammable materials are handled
- Workshops maintaining and repairing machines and equipment
- Areas/Activities where welding equipment is used
- Electrical equipment and installations - unsafe and/or poorly maintained
- Commercial kitchens serving canteens. Open fires from cooking and mixing ingredients can often lead to direct harm and structural fire, putting the entire building and all of its occupants in immediate danger

Hierarchy of risk controls



1. Elimination or substitution of the hazard(s)

Not applicable in this instance.



2. Tools, equipment, technical and engineering improvements

Commercial kitchens should have a fire suppression system installed by a professionally licensed fire protection company specialising in commercial kitchen fire suppression systems. Including smoke detectors, fire extinguishers, or an automatic sprinkler system.



3. Safe work organisation, systems, practices, information and training

- Develop a fire protection plan.
- Use portable fire extinguishers which are useful for putting out small fires. However they are not effective against large, spreading fires. In these situations, doors should be closed to contain the fire.
- Small, Class K grease fires can only be put out with Class K fire extinguisher and should never be sprayed with water as this could increase the spread of

the cooking liquids. Class K extinguishers are specifically designed to suppress these fires without splashing fuel and spreading the fire built up further. At least one of these two extinguishers should be installed within 300 cm (10 feet) of any cooking equipment.

- All staff should be trained properly for the use of both classes of fire extinguishers. Class K and Class ABC.
- To use a fire extinguisher, follow the acronym **PASS**
    - **P**ull - Pull the pin on the extinguisher
    - **A**im - Aim the nozzle at the base of the fire
    - **S**queeze - Squeeze the trigger to release the product
    - **S**weep - Sweep the nozzle from side to side (slowly)
- Extinguishers should be tested regularly and frequently.



4. Water, sanitation, hygiene, first aid and welfare

- Provision of a system of water hydrants to provide water for fighting fires
- Ensure first aid kits are available and accessible near all work areas
- Ensure that a trained worker first-aider is present in each work team



5. Personal Protective Equipment

Provision of appropriate PPE for workers in fuel and oil facilities.

CHAPTER 4: GENDER-SENSITIVE RISK ASSESSMENT

GENDER-SENSITIVE RISK ASSESSMENT

Carrying out gender-sensitive risk assessments should be part of routine and regular risk assessment programmes by companies in the context of gender-responsive occupational health and safety risk management.

This Chapter is based in large part on two key publications

- Guidelines on health and safety employment of women in the Latin American banana industry. FAO publication, 2025[43]
- Guidelines on health and safety employment of women in the Ghanaian banana industry. Banana Link publication, 2020[44]

Key hazards and risks for women in the banana industry

Key hazards and risks identified in these two publications by members of the Women's Committee of La Coordinadora Latinoamericana de Sindicatos Bananeros y Agroindustriales (COLSIBA), and also by banana worker members of the Women Committee of the Ghanaian Agricultural Workers Union (GAWU) :

- Exposure to chemicals, including pesticides
- Stress
- Sexual harassment and violence
- Domestic violence
- Physically demanding or repetitive work that results in musculoskeletal disorders (MSDs)

See the above publications for further information on these issues.

Biological processes related to reproduction and hormone cycles

This section discusses the biological processes of women workers affected by these processes that employers should take into account when deciding and implementing worker health and safety risk controls and welfare provisions. Although biological processes are normal processes, not hazards or risks, there may be potential negative effects to these processes depending on how risks are managed in the workplace.

- Menstruation
- Pregnancy and lactation
- Perimenopause
- Menopause
- Postmenopause

Menstruation and the right to dignity during the menstrual period are health issues that are linked to all field and packing activities in which women workers are involved. These workers need adequate support at work when they are menstruating. This

43 FAO. 2025. Guidelines on healthy and safe employment of women in the Latin American banana industry. Rome , Italy. https://openknowledge.fao.org/items/b0bfe0f1-fc45-4bc9-a877-81b03d6c6c66

44 Banana Link. 2020. Guidelines on health and safety employment of women in the Ghanaian banana industry. 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

includes having prompt access to safe and hygienic sanitary facilities at all times. This need is particularly critical during menstruation, they should have access to sanitary protection in the workplace because menstrual cycles can vary in regularity and flow. They should also feel comfortable and be able to go to the washroom to change their sanitary pads when needed.

Menstruation should be a topic that can be discussed openly in the workplace without stigma, humiliation or embarrassment. Women workers who feel comfortable and supported during menstruation are less likely to take sick leave or experience significant barriers to carrying out their duties at work.

Pregnancy and breast feeding/lactation. Pregnant women and new mothers are more likely to be exposed to a number of occupational hazards and risks that can adversely affect their health and the health of the newborn or foetus. Pregnancy and childbirth could potentially affect a woman's ability to perform her usual job duties, and the needs of pregnant women may change during pregnancy.

Pregnancy-related symptoms vary from woman to woman, and many women work during pregnancy and return to work while breastfeeding. Therefore, companies must take the necessary measures to control, reduce and prevent occupational risks for all workers, including pregnant women and new mothers. Working conditions that pose a risk to reproductive health are often unsafe for other reasons and should be reviewed and improved for all workers. Risk identification, assessment and control must be a continuous process, which should take into account changes in technology, materials or processes, or changes in the health status of the worker.

Peri-menopause is the transition from women's reproductive years to the natural end of monthly menstrual cycles (the menopause). This usually begins in the 40s and ends in the early 50s, although any age from the late 30s to 60 can be normal. It can be difficult to tell when the perimenopause begins, because hormonal changes begin while menstrual periods are still regular.

Menopause is not a disease, it is the time in a woman's life when she stops menstruating. Around 1 in 3 women have gone through or are going through the menopause. It does not just affect women in later life; it can have a negative physical and emotional impact on women, and individual symptoms vary widely. Common early symptoms of the menopause can include hot flushes (or flashes), night sweats and mood swings. In addition to these and the hormonal imbalances they cause, many other changes take place during and after the menopause that affect other health issues, such as the need for and timing of contraception, bone, and heart health (see below). In addition, many women have specific medical problems that can be affected by the menopause and may have special requirements when considering the use of menopause treatments.

Post-menopause. After the menopause, a woman's ovaries produce very little oestrogen. This can increase the risk of the following health problems:

- Heart disease
- Stroke
- Osteoporosis
- Lead poisoning
- Urinary incontinence
- Oral issues: Increased dryness of the mouth and an increased risk of tooth decay are more common after the menopause.

Diseases and other gender-related health issues

- Breast cancer
- Miscarriages
- Fibroids
- Endometriosis
- Reproductive work

This section discusses the diseases and other issues that affect the health of women workers and that employers should take into account when deciding and implementing risk controls for the health and safety of women workers and welfare provisions. Some of these diseases are linked to exposure to specific hazards and risks at work. Others are not specifically related to the occupation, but are negative health conditions that can interfere with performance and attendance at work and, therefore, employers must be aware of and take into account when assigning work tasks and preparing work schedules. It is important that employees are aware of their responsibilities to ensure that working conditions do not aggravate symptoms.



CHAPTER 5: TRAINING ACTIVITIES

TRAINING ACTIVITIES

The training activities below draw on resources used by the ILO and IUF in their Series of Trade Union Manuals on Health, Safety and the Environment in Agriculture. These activities have been designed to help the trainer to implement a structured training program that promotes interactive, participatory and empowering education methodologies.

Participants should be encouraged to regularly ask questions, provide practical examples from their workplace and apply the learnings to situations that may arise in their day to day working activities. The aim is to use the knowledge and competencies gained during the training in order to improve practices and instill a culture of OHS prevention and management amongst employers and workers.

The training must be delivered by a 'competent person' with professional experience in domains related to safety, health and risk prevention in professional environments

and must have in-depth knowledge and experience of the agricultural sector, occupational health and safety, risk management and risk assessment.

The following training activities should be integrated into a structured training program, that includes regular monitoring and evaluation with the training participants, to assess the impact and define future training needs.

TRAINING ACTIVITY 1

1.A Worker safety & health representatives

SEE CHAPTER 1, PAGES 9-11

Topic: Worker health and safety representatives are sometimes a legal requirement on plantations and large farms; 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: Using the information listed by the ILO in Chapter 1 above, analyse how do your rights, powers and functions in your country and workplace compare, and how they could be improved.

In small groups, discuss how can you make best use of the rights and powers of worker representative(s) on your plantation/farm to improve workplace health and safety conditions and standards. Develop a list of proposals, to be shared and discussed in the wider group.

Resources: See Chapter 1, page X 'Functions, rights and powers of safety & health reps' and also check the rights, powers and functions of health and safety representatives in your country at the ILO LEGOSH H&S database[45]

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

1.B Worker representatives on workplace health and safety committees

SEE CHAPTER 1, PAGES 9-11

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 between the employer and workers when the committee is established.

Aim: To discuss the setting up, composition, running and functions of workplace OHS committees with a view to increasing their effectiveness in helping prevent and reduce fatalities, injuries and occupational diseases in the banana industry.

The trainer should be aware of the following:

- Does your national laws have any requirement for employers to set up and run Health and Safety Committees in their businesses. If so, how are they organised?
- What legal rights and powers do worker representatives members have on these committees?
- What examples can you provide of how these committees and their worker reps protect workers by improving their health and safety conditions?

Task : Ask participants to raise their hands to determine whether any amongst them are or have ever been members of a workplace health and safety committee, in the banana industry or elsewhere?

In small groups, ask participant to discuss a few of the following questions (they can be divided between the groups):

- What is the law in your country, if any, on health and safety committees?
- According to the law, what information should Committee members regularly receive?
- How many management and worker representatives are members of the Committee?
- What are the functions of the Committee? Compare your law with the text below
- What is the role of worker representatives and management members on the Committee?
- Who are the other persons who may participate in meetings of the health and safety Committee?
- How often must the Committee members meet face-to-face?
- What are the key aspects in the agenda of the Committee's meetings and who sets the agenda?
- Is the position of the Chair of the Committee rotated on a regular basis?
- How are decisions arrived at? By consensus?.By voting?
- What could go wrong and stop the committee from working effectively?
- What actions could you take to make the committee more effective?

Ask each group to present their conclusions before the rest of the participants and agree an action plan to improve the work of the workplace health and safety committee.

Resources: See Chapter 1, 'Functions, rights and powers of safety & health committees'. Check your country information on the ILO LEGOSH global database on health and safety legislation[46].

TRAINING ACTIVITY 2

Identifying hazards in the workplace using body mapping

Aim: To train participants on how to use body mapping to identify injuries, occupational diseases/disorders in banana production. Illustrating Step 1 of OHS risk assessment.

Task: Your trainer will draw some body maps on posters (front and back), and will arrange for small groups of participants who do similar work on the banana plantation to be formed. Each group will fill in the body maps based on the instructions below and report back. It is also possible to do this task individually, using the A4 body mapping template below

Body mapping is participatory – and fun. It can be used effectively where workers speak different languages or have reading difficulties, and is a quick way to make sense of complex situations. Body maps can show the patterns of symptoms and the long-term effects of hazards and risks.

In your small group

1. See the body mapping templates below. Each participant should place marks (**X or spot**) on to the body map to show any health and safety injuries or disease that they or others have experienced on the plantation, as per the categories below

2. Use different colours to identify different problems/symptoms:

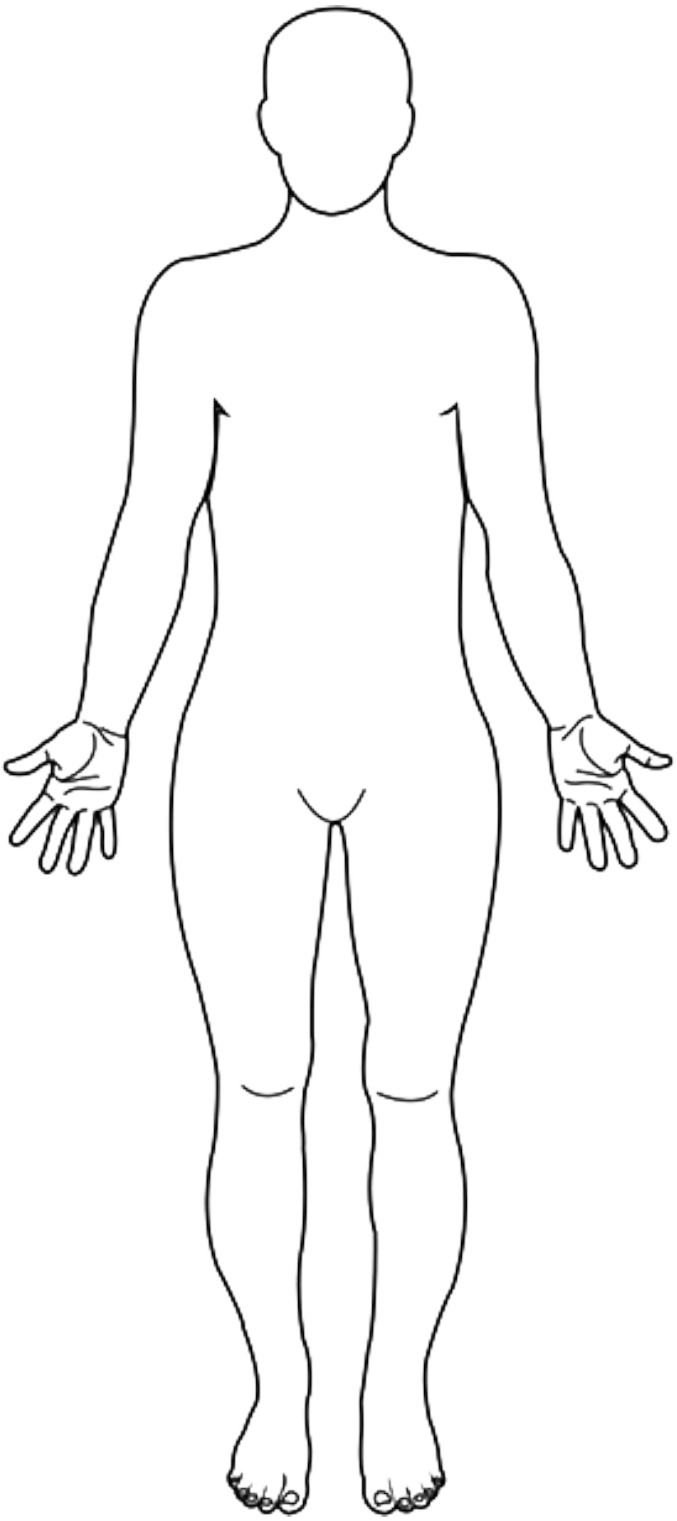
    - physical injuries - wounds, cuts, abrasions, scratches, bites, stings, broken bones, amputations: **red X**
    - aches, pains and repetitive strains - **blue X**
    - breathing difficulties, coughing – **black X**
    - stress related disorders/psychosocial problems – **green X**
    - other problems such as pesticide poisoning, diseases, skin rashes, runny eyes and nose, dizziness, reproductive disorders and so on - **black X** or a different colour if available.

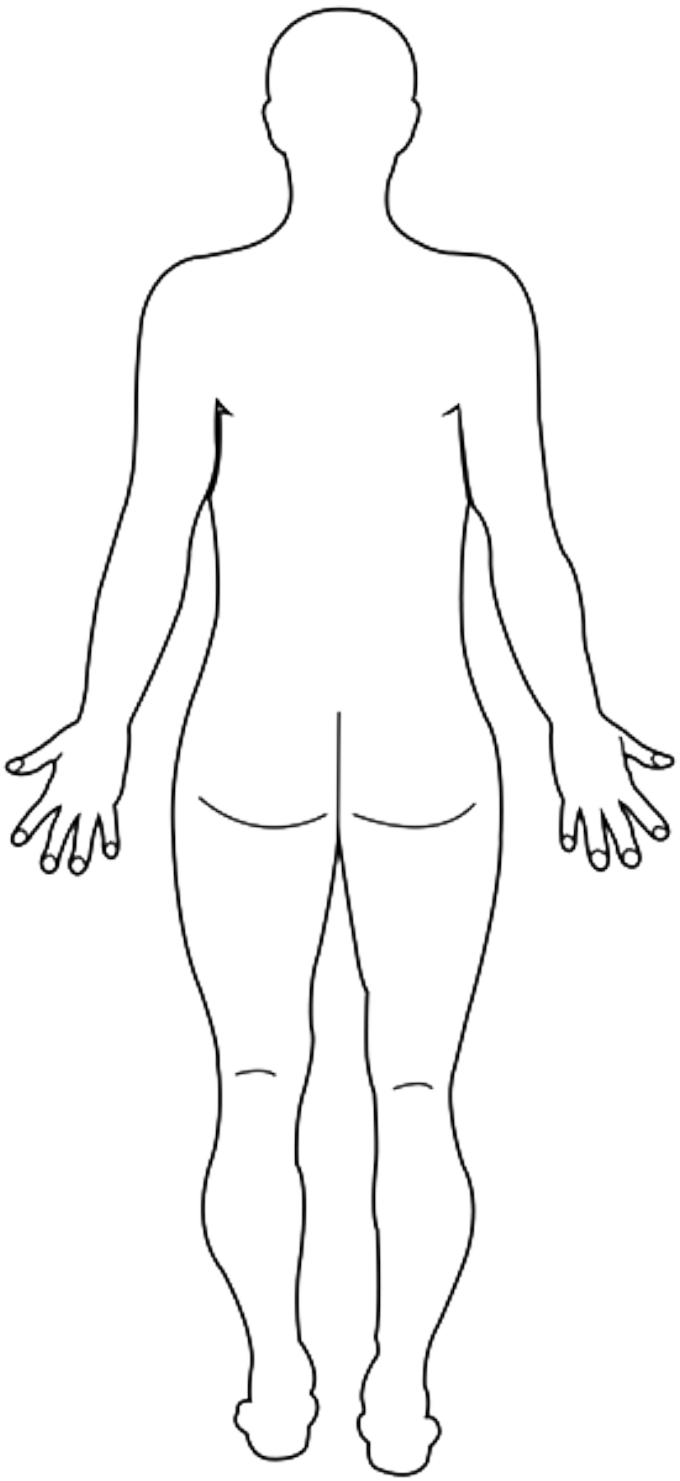
3. As you apply the **X**, explain briefly why you placed the **X** in that particular place.

4. Make sure that there is someone in your small group that notes down what is said about the body map and can report back.

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

BODY MAPPING TEMPLATES:





TRAINING ACTIVITY 3

Risk assessments for specific hazards & risks

SEE CHAPTER 2, PAGES 15-27

Aim: For the different types of workers in banana production, use the information from the Body Mapping exercise (Step 1 of risk assessment: Identify the hazards) to help us to:

- Assess the degree of risk arising from each hazard identified (risk is a combination of the probability of harm multiplied by the severity of harm)
- Discuss the effects on workers' health and safety of the different degrees of risk - high, medium, and low risk situations.
- Following the order in the Hierarchy of Risk Controls - for each hazard - identify the Risk Controls that the employer should implement, including details of by when and by whom.

Task: **In your small group,** you will be asked to select a hazard, or a certain number of hazards, from the list of 25 Hazards in Chapter 3. If the trainer asks you to do more than one hazard, it is useful to choose at least one from the 'General Hazards' (page 29) and one from the 'Specific Hazards' (page 39).

Answer the following questions then elect a spokesperson to report back.

1. For the hazard(s) you have selected, what are the likely effects of risk exposure in terms of injuries and/or occupational disease?

2. For each hazard, describe the risk control measures to be put in place following the order in the **Hierarchy of Risk Controls** (Step 3 of risk assessment):

Risk Control 1: Elimination or substitution of hazards

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

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

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

Risk Control 5: Personal protective equipment

Risk Control 6: Health/medical surveillance

Resources

- **Chapter 2** on Risk Assessment in this Training Manual
- **Training Activity 4**, the Right to Information in this Training Manual.
- ILO 2013. Training Package on Workplace Risk Assessment & Risk Management for Small & Medium-Sized Enterprises. ILO SAFEWORK.[47]

47 ILO 2013. Training Package on Workplace Risk Assessment & Risk Management for Small & Medium-Sized Enterprises. ILO SAFEWORK. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_protect/@protrav/@safework/documents/instructionalmaterial/wcms_215344.pdf

TRAINING ACTIVITY 4

Filling in the risk assessment form

SEE CHAPTER 4, pages 79 - 82

SEE ANNEX 1, SAMPLE COMPLETED RISK ASSESSMENT FORMS

Aim: Ensure that participants understand and can effectively use and fill-out a risk assessment form, for each hazard and its risk controls.

Task: Give each participant a printed version of the sample risk assessment form below. Ask them to choose one hazard and go through the process of filling out the form individually, give them 15 minutes to do this. At any point participants can ask questions to the facilitator.

Once completed, participant can volunteer to share the information they have completed in the form, and ask any questions.

This exercise can be repeated for different hazards, and can also be done in pairs.

BLANK RISK ASSESSMENT FORM

What are the hazards?	Who is at risk and how? Degree of risk	What are you already doing to control the risks?	What further actions are necessary to control the risks?	Action by whom? Action by when? Done on which date?
STEP 1	**STEP 2**	**STEP 3.A**	**STEP 3.B**	**STEP 4**
STEP 5: Record your findings, monitor and review your risk assessment. Update when necessary.				

TRAINING ACTIVITY 5

The right to information

SEE CHAPTER 3, HAZARD 7 PESTICIDES, PAGES 39-48

Aim: Finding and using manufacturers health and safety information on pesticides including information on the Internet

Resource: Read Hazard 7 Pesticides, for background information on the right to information; product labels for pesticides; safety data sheets.

Task: Tracking a pesticide using the pesticide label and safety data sheet. This activity can be done individually, in pairs or in a small group

The first step is to find the **chemical name** of the pesticide, also referred to as the pesticide **active ingredient**, which will be given on the pesticide label and in the SDS. (This is not the same as the brand/commercial name of the formulated product). Finding out the chemical name allows you to track the pesticide using international chemical/health and safety databases.

The chemical names of two pesticides being tracked in this training activity are two fungicides, **Chlorothalonil** and **Thiophanate methyl**; both routinely applied for control Black Sigatoka leaf-streak disease, the most serious fungal disease in banana production. Both are listed as cancer-causing (carcinogens).

The second step is to find a **chemical identifier number** on the label/SDS, such as the CAS No. or EC No., which are numeric identifiers, designate only one substance, have no chemical significance but are links to a wealth of H&S information. Finding an identifier number means you can be sure you are finding out information on the pesticide product you are actually using or are exposed to.

Next, a combination of **Hazard Pictogram** and **Signal Word** are used to alert the reader to a potential hazard and to indicate the severity of the risk. e.g. Acutely Toxic (see GHS Pictogram on page 44)

Next, read the **GHS Hazard statement(s)** on the label which are standardised phrases which describe the nature of the hazard/risk posed by a hazardous product.

Next - and most importantly - read the **GHS Precautionary statement(s)** which standardised phrases that describe the risk control measures to minimise or prevent risks/adverse effects. The SDS for a product should contain more detailed information on risk control measures than the label - hence the importance of reading both the label and the SDS

Ask each person or group to present their conclusions before the rest of the participants and discuss how this methodology can be integrated into their OHS prevention and management practices in the workplace.

Examples

Using labels, SDSs and accessing databases on the web, here are examples of the type of H&S information one can obtain on:

CHLOROTHALONIL

Fungicide: Contact, broad spectrum, Black Sigotoka disease control (benzene derivative)

CAS No. 1897-45-6

World Health Organization hazard classification: ***U Unlikely to be hazardous***

Acute rating, US Environmental Protection Agency product label: ***Highly toxic***

International Agency for Research on Cancer (IARC): ***2B, Possible Carcinogen***

US Environmental Protection Agency (EPA) Carcinogens List: ***Likely***

US Toxic Release Inventory Developmental Toxin: ***Yes***

US Toxic Release Inventory Reproductive Toxin: ***Not listed***

Endocrine disruption, Colborn List: ***Yes***

Endocrine disruption, European Union (EU) list: ***?***

Note: **Hexachlorobenzene (HCB)** is an impurity present in chlorothalonil. It is classified as a ***B2 (Possible) carcinogen*** by IARC

THIOPHANATE METHYL

Fungicide - broad spectrum, especially Black Sigatoka disease control, bananas

CAS No.23564-05-8

EC number 245-740-7

World Health Organization hazard classification: Table 5. Technical grade active ingredients of pesticides ***unlikely to present acute hazard in normal use***

Acute rating from US EPA product label: ***low acute oral/dermal/inhalation toxicity*** (toxicity categories III/IV).

US EPA Carcinogens: Category C: ***Possible carcinogen***

Plus the Metabolite: MBC, methyl-2-benzimidazolecarbamate: 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, European Union (EU) list: ***Not listed***

Brand/Trade names: Fungo, Topsin M, Domain, Cavalier, Halt, etc.[48]

Useful definitions

- Carcinogen is the scientific term used to describe a cancer causing substance.
- Developmental Toxin - a chemical substance which, reversibly or irreversibly, which interferes with routine body processes (homeostasis) , normal growth, differentiation, development or behaviour
- Reproductive Toxin - a chemical substance which can affect both female and/or male reproduction.
- Endocrine disruption - a chemical substance which can interfere with the hormones in the body that control growth and development, including sex differentiation.

48 https://rx-sol.com/product/Thiophanate-Methyl-50-Fungicide

TRAINING ACTIVITY 6

Risk assessment visit(s) on the banana plantation

During any Risk Assessment, or any training activity on Risk Assessment, it is essential to visit the workplace. This activity therefore needs to be planned in advance, by the employer and with the active participation of the workforce. Below are some guidelines on carrying out an effective and informative visit

CLOTHING REQUIREMENTS

- Sensible shoes
- No clothes, which flap (and that can get caught in machinery)
- Sun protection

MATERIALS

Notebook and pens. Take a notebook with you and use it to record the information on hazards and risk controls while on the plantation visit. Fill in the risk assessment (RA) form when you are back in the classroom based on the notes you have taken. It is much easier and efficient to do this way. Copy the headings of the risk assessment form in your notebook, especially the Hierarchy of Risk Controls.

Camera (phone): To be used to take photos of hazards, and of good risk controls as well as poor ones**.** Note location, time, and date for each photo and who took it.

Ideally, each group should have:

- **Measuring tape** (30 m plus ideally) - to measure distances over which heavy loads are carried
- **Temperature and humidity measuring devices** (can download these through the app store on your mobile phone) - to be used to measure the temperature and humidity for EACH HAZARDOUS ACTIVITY you are assessing

If possible:

- **Portable weighing device** - to allow accurate measurement of the loads being carried, and distinguishing between female and male workers, young and adult workers
- **Noise meter** (can download these through the app store on your mobile phone)
- Examples of **Personal Protective Equipment (PPE)**:
    - Standard PPE: Coveralls, shoes, gloves
    - Specialized PPE, including: disposable dust/COVID masks (full fitting face piece (FFP) masks - FFP2 or FFP3 (or N equivalents (USA)); eye protection and pesticide spray gear; sun protection - creams, lotions; insect repellents; and others.
- Examples of **safety data sheets** routinely provided by plantations:
    - 2 for fungicides, 2 for insecticides/nematicides, 2 for herbicides

ON THE PLANTATION AND IN THE PACKING HOUSE

Record the hazards you identify and potential risks controls for EACH HAZARD following the order in the Hierarchy of Risk Controls (at least **one page for each hazard and the risk controls** for that particular hazard). Use a notebook. Fill in the RA form once you are back in the classroom.

You should provide DETAIL & PRECISE INFORMATION on each hazard (and potential risk control measures)

E.g. If you see a tractor/fork lift truck, which could be a potential hazard, note down:

- The make and model of the tractor/forklift truck
- The registration number of the tractor/forklift truck
- Whether the tractor is fitted with a cab or with cabless tractor, some form of rollover protection bar
- Ask the drivers for their experience in using this equipment (competency)
- Where tractors/forklifts are being used around buildings, e.g. packhouses, are clear walkways marked out for pedestrians?
- Any other observations

E.g. Machinery:

- Are they fitted with guards?
- Are the guards in good condition?
- Is each machine fitted with an emergency stop button?

E.g. Portable electrical equipment:

- Are the electric cables in good condition? (If not, take a photo of the damage - check out the repair/maintenance workshop)

E.g. Are ladders in good condition? (No rungs missing?)

E.g. For each pesticide:

- Is the pesticide label written in a language or languages that workers on the plantation (including migrant workers) can understand? List the language(s) on the label.
- The commercial brand/name of the pesticide and manufacturer
- The pesticide active ingredient
- Any other ingredients, e.g. chemical solvents
- The pesticide formulation – e.g. emulsifiable concentrate (EC), wettable powder…
- The hazard warning symbol(s) or language on the label
- Any other Precautionary/Warning language on the label, Eg. CHOLINESTERASE INHIBITING PESTICIDE/SUBSTANCE; DO NOT USE NEAR WATER-COURSES, etc.
- For each pesticide active ingredient, is a manufacturer's safety data sheet available to managers and workers - in a language(s) they can understand?

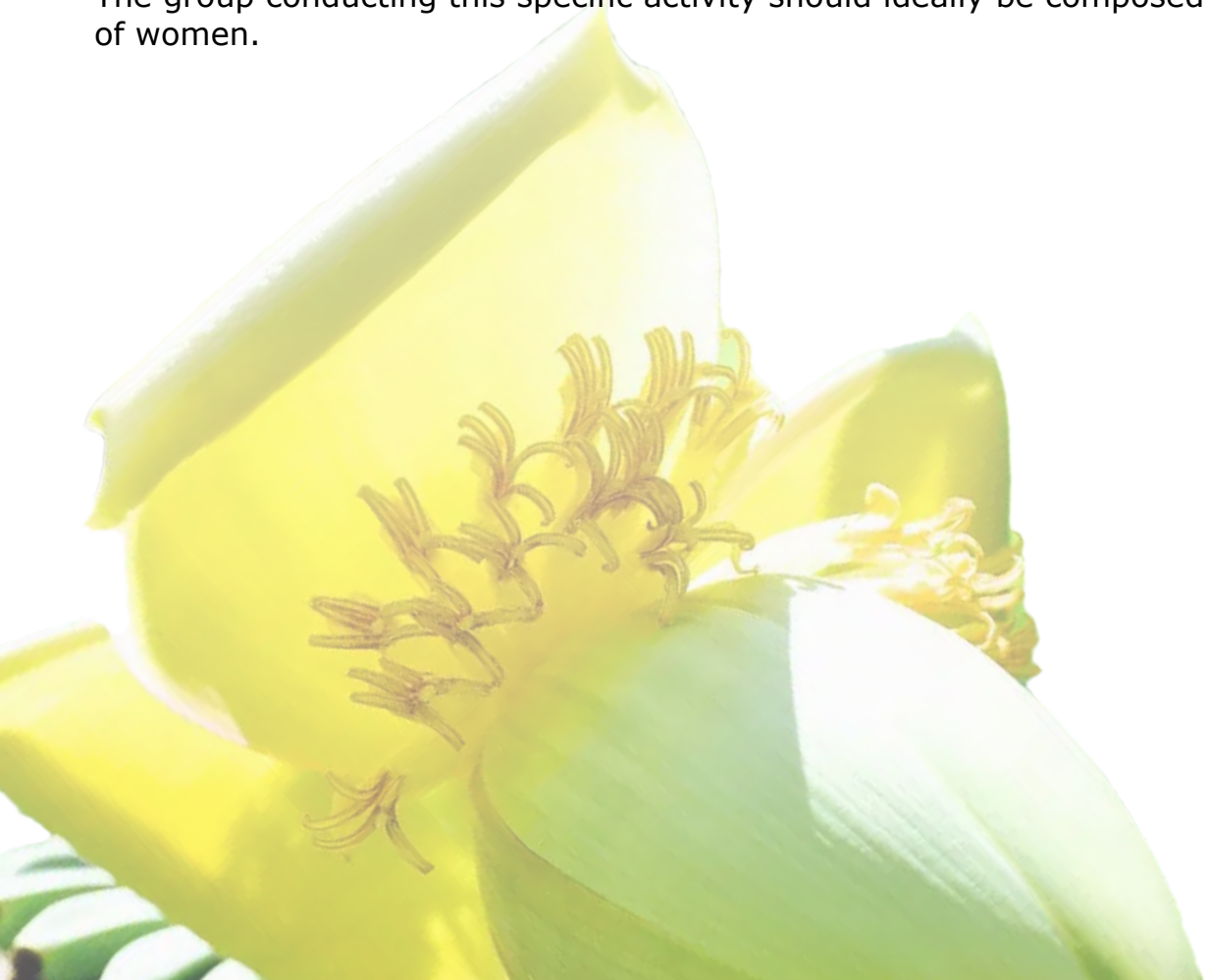
Back in the classroom, check if the pesticide active ingredients you recorded are still approved for use in banana production in your country (see government pesticide list). Pesticide stores often contain "obsolete pesticides" no longer approved/ registered for use and which should be safely disposed of.

E.g. Gender-based violence and harassment (GBVH)

In the risk assessment plantation visit, one group of workers should pay specific attention to the places and venues where GBVH is likely to occur on the plantation. It would be about:

- having the workers pass by changing rooms, toilets, etc., and noticing if these are specific to men and women, secure, clean and can be locked from inside, or indicating the existence or absence of toilets in the field;
- identifying areas where women are isolated for some time during the day, and if there is any means for them to ask for assistance if something happens;
- looking if there are any poorly lit areas, especially when it is dark;
- mapping out the employment status per sex (jobs and status as permanent/ precarious/seasonal workers), as well as the hierarchical structure on the plantation (including the security staff);
- looking if there are isolated entrances and exits, and if there are fences used to limit public access to the property;
- looking at the transport system for workers;
- discussing the workplace culture and the gender power relations;
- looking if alcohol is permitted at the workplace;
- looking if there is a clear message displayed at the workplace prohibiting any behavior related to sexual harassment or gender-based violence

The group conducting this specific activity should ideally be composed by a majority of women.



Annex 1. Sample completed risk assessment forms

Risk assessment template No.1: Hours of work

What are the hazards?	Who might be harmed and how? Degree of risk	What are you already doing to control the risks?	What further action do you need to take to control the risks?	Action by whom? Action by when? Done by when?
STEP 1	**STEP 2**	**STEP 3.A**	**STEP 3.B**	**STEP 4**
Excessive hours of work and lack of days off resulting in fatigue, lack of sleep and relaxation and a range of other health problems.	Potentially all workers on the plantation including management are at risk. Degree of risks variable according to hours worked, days off.	There is a rota system which in theory means working hours can be more equally shared but it is not strictly adhered to.	1. Recruitment of 15 extra workers, field and packhouse, and more prompt replacement of vacancies 2. Working hours : limited to 8 hours per day, 5 days a week including adequate rest periods, and a 1 hour break for lunch. 3. Weekly rest of at least a full calendar day. 4. At peak times, working hours may be extended to fulfil orders. Overtime will be paid. Extra working hours will be compensated in terms of time off within 7 working days after the peak period. 5. Packhouse workers will have the option of standing or sitting for certain tasks.	1. Personnel manager Within 60 working days 2. Plantation and personnel managers Ongoing 3. Plantation and personnel managers Ongoing 4. Plantation manager 5. H&S officer Within 5 working days
STEP 5: Record your findings, monitor and review your risk assessment. Update when necessary.				

Risk assessment template No.2: Physically demanding/Repetitive work

What are the hazards?	Who might be harmed and how? Degree of risk	What are you already doing to control the risks?	What further action do you need to take to control the risks?	Action by whom? Action by when? Done by when?
STEP 1	**STEP 2**	**STEP 3.A**	**STEP 3.B**	**STEP 4**
Due to a combination of physically demanding work and repetitive work, packhouse workers are at risk of Musculoskeletal disorders (MSDs) especially Carpal Tunnel Syndrome.	Over 60 packhouse workers, 40 of them women, are potentially at high risk of MSDs.	Training on basic lifting techniques has been given.	1. Management, in cooperation with the worker H&S reps, to carry out a manual handling risk assessment for each work station and adopt appropriate precautions to reducing risks of MSDs 2. Ensuring unit weights are as low as practicable (not more than 25kg) 3. Avoiding lifting at low level 4. Ensuring heavy or awkward lifting movements (eg twisting) are avoided; 5. Making sure tools and equipment fit the workers' hands and are suitable for the task, e.g. knives; 6. Making sure workstations are at a suitable height for comfortable working (provision of suitable chairs/footrests) 7. Workers standing for long periods trained to avoid prolonged static postures; 8 Reducing the length of time that operators do the same task, allowing regular changes in posture; Workers will be given the opportunity to stretch their upper and lower limbs and carry out exercise movements to increase joint flexibility at the beginning of the working day and throughout their working hours. 9. Changing the workstation layout to improve the posture of the workers, particularly when they are applying force	The risk controls 1-9 will be introduced over a period 5-40 working days. Plantation manager, deputy manager and H&S officer, in cooperation with will implement the risk controls.
STEP 5: Record your findings, monitor and review your risk assessment. Update when necessary.				

Risk assessment template No.3: Pesticide poisoning

What are the hazards?	Who might be harmed and how? Degree of risk	What are you already doing to control the risks?	What further action do you need to take to control the risks?	Action by whom? Action by when? Done by when?
STEP 1	**STEP 2**	**STEP 3.A**	**STEP 3.B**	**STEP 4**
Risk of pesticide poisoning (insecticides). Due to poor work organisation resulting in spray teams working too close to field workers (spray drift)and (2)Re-entering sprayed areas before it is recommended.	+ 200 field workers potentially at risk - women and men. Medium to high risk depending on the insecticide (s) being applied.	Management rechecked that the motorised spraying equipment is in good working order. Spray teams have written management instructions on spraying procedures and have received basic training on pesticides health and safety. Field workers have received basic training on health and safety including pesticides. Spray teams always carry enough water for drinking purposes and cleaning/ emergency purposes to wash pesticide off skin and out of eyes. Elimination of use of the the hazardous insecticide or Substitution with a less toxic substance is not possible, based on advice from a government agricultural extension adviser.	1. Management to reorganise pesticide spraying systems and update and strengthen pesticide risk control measures: 2. Spray team supervisors to inform the plantation office and field gang supervisors of the proposed spray schedule for the following week and confirm this information in writing 3. Direct phone communication link between spray team and field team supervisors 4. New management instructions to: a. Spray team operators to immediately stop spraying if too near field workers b. Field workers: right to removes themselves from danger of spray drift contamination to a safe distance c. Spray operators to stop spraying if "too windy" d. Pesticide re-entry intervals. Warning signs around sprayed areas stating when it is ok for workers to re-enter them e. Field workers will have the right to refuse to re-enter	1 & 2. Plantation H&S Officer, in cooperation with the worker reps Within 5 working days 3. Spray team & field gang supervisors to be issued with mobile phones Deputy Manager Within 5 working days 4. New management instructions Within 10 working days Plantation manager & OHS Officer 5. Initial training session Plantation H&S Officer Within 10 working days 6. OHS committee monitoring Ongoing
STEP 5: Record your findings, monitor and review your risk assessment. Update when necessary.				

Risk assessment template No.4: Sexual harassment

What are the hazards?	Who might be harmed and how? Degree of risk	What are you already doing to control the risks?	What further action do you need to take to control the risks?	Action by whom? Action by when? Done by when?
STEP 1	**STEP 2**	**STEP 3.A**	**STEP 3.B**	**STEP 4**
10 women packhouse workers have complained of sexual harassment from fellow male workers, one a supervisor.	High risk situation for 10 women workers. Potentially 50 other women packhouse workers could be at risk. SH can also be a factor in domestic violence.	Sexual harassment policy exists but it is out of date with modern prevention methods and poorly applied.	1. Company will operate a zero tolerance policy on sexual harassment 2. Immediate separation of alleged perpetrator and victim. Ideally, alleged perpetrator to work on another worksite 3. Recommendation for the company to hire a women officer to deal with sexual harassment issues 4. New, updated sexual harassment policy put in place 5. All management and workers to receive training on sexual harassment reporting and prevention, by competent persons. 6. Training on sexual harassment reporting and prevention will be an obligatory part of recruitment procedures in the future. 7. The number of women supervisors in the packhouses will be increased, and the women given training for this new role.	1.Plantation Management in cooperation with worker OHS reps With immediate effect 2. Deputy plantation manager With immediate effect 3. Plantation manager to discuss with Company Board Within two weeks 4. Planation manager & H&S Officer Within 5 working days 5. H&S Officer Initial training within 20 working days 6. Personnel manager Within 5 working days 7 Plantation & personnel managers Within 30-60 working days
STEP 5: Record your findings, monitor and review your risk assessment. Update when necessary.				

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