

**OCCUPATIONAL SAFETY, HEALTH AND ENVIRONMENT
(OSHE) IN AGRICULTURE IN ZIMBABWE: A CODE OF
PRACTICE:**

**FOR THE NATIONAL EMPLOYMENT COUNCIL FOR
AGRICULTURE**

Prepared

By

NEC AGRICULTURE.

**OCCUPATIONAL SAFETY, HEALTH AND ENVIRONMENT (OSHE) IN
AGRICULTURE IN ZIMBABWE: FOR THE NATIONAL EMPLOYMENT
COUNCIL FOR AGRICULTURE**

CONTENTS

1.	Definition of Terms.....	2
2.	Introduction.....	3
3.	Objectives and scope of code.....	3
4.	Common hazards and risks in agriculture.....	4
5.	Duties of the employer.....	4
6.	Duties and Rights of workers.....	5
7.	Occupational Safety and Health Management Systems.....	7
8.	Risk Assessment.....	7
9.	Chemical Safety.....	11
10.	Dust and Zoonotic Exposures.....	17
11.	Selecting and Using Farm Machinery.....	19
12.	Electricity and other energy sources.....	21
13.	Noise and Vibration.....	21
	14. Manual and Materials	
	Handling.....	22
	15. Forestry and Timber	
Operations.....	24
	16. Fishing	
	Safety.....	27
	17. Crocodile	
	Farming.....	27
	18. General Workplace	
	Safety.....	28
	19. Welfare	
	Facilities.....	32
	20. Appendix I: Personal Protective Clothing	
	and	
	Equipment.....	34

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DEFINITIONS

“**Accident**” means an undesired event giving rise to death, injury, ill health, damage or other loss.

“**Commercial fishing**” means all fishing operations, including fishing operations on rivers, lakes or canals, with the exception of subsistence fishing and recreational fishing;

“**Cholinestrase monitoring**” is the measurement and monitoring of acetylcholinestrase enzyme activity in the blood of exposed persons to pesticides against the person’s established baseline (prior to pesticide exposure) with a view to identify overexposure before occurrence of clinical illness.

“**Contractor**” means a person who renders services to the employer which are related to or connected with those of the employer’s undertaking and is not under the general control or management of the employer.

“**Employee**” means, any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration in respect of such employment or work.

“**Employer**” means, any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him, and includes the manager, agent or representative of such person who is in charge or control of the work upon which such other person is employed.

“**Fisher**” means every person employed or engaged in any capacity or carrying out an occupation on board any fishing vessel, including persons working on board who are paid on the basis of a share of the catch but excluding pilots, naval personnel, other persons in the permanent service of a government, shore-based persons carrying out work aboard a fishing vessel and fisheries observers;

“**Hazard**” means a source or situation with a potential for harm in terms of human injury or ill health, damage to property, damage to the work environment or any combination of these.

“**Hazardous substance**” means any chemical, waste, gas or gaseous matter, plant, animal or micro-organism which is injurious to health or the environment.

“**Health**” means a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

“**Imminent danger**” means a dangerous situation which is about to happen or threatening to happen.

“**Medical surveillance**” means a planned programme of periodic examination (which may include clinical examinations, biological monitoring or medical tests) of employees by a medical practitioner.

“**Musculature**” refers to system or arrangement of injuries in the body or part of the body or an organ.

“**Musculoskeletal injuries**” are a range of disorders involving muscles, bones, tendons, blood vessels, nerves and other soft tissues which include carpal tunnel syndrome, tendinitis and tenosynovitis.

“**Occupational Disease**” means a disease known to arise out of exposure in the workplace to hazardous substances or dangerous conditions in processes, trades or occupations.

“**Occupational health services**” means health or medical functions involved in treating the employer, the employees and their representatives in an undertaking and advising them on the requirements for establishing and maintaining a safe and healthy working environment which facilitate optimal physical and mental health in the workplace.

“**Occupational Safety**” means freedom from unacceptable risk of harm at work.

“**Occupational Safety and Health**” is identified as the discipline (or group of disciplines) dealing with the prevention of occupational accidents, work-related injuries and diseases as well as the protection and promotion of the health of workers.

“**Occupational Safety and Health Management system**” means part of an organization’s management system used to develop and implement the organization’s policy and manage occupational safety and health risks.

“**Percutaneous injury**” is the penetration of the skin by a needle or other sharp object which has been in contact with blood, tissue or other body fluid before the exposure.

“**Reportable occupational accident**” is an accident that causes loss of life or injury to an employee resulting in disa

blement and employee is certified unfit to work for a day or more.

“**Risk**” means the likelihood that an injury, ill-health or damage will occur and includes the severity and frequency of occurrence of the injury, ill-health or damage.

“**Risk Assessment**” means the overall process of estimating the magnitude of risk and deciding whether or not the risk is tolerable.

“**Skipper**” means the fisher having command of a fishing vessel.

OCCUPATIONAL SAFETY, HEALTH AND ENVIRONMENTAL (OSHE) ISSUES IN AGRICULTURE IN ZIMBABWE FOR NEC FOR AGRICULTURE

1. INTRODUCTION

Agriculture is the mainstay of the Zimbabwe economy, the livelihood of our people hence it is imperative that we take all necessary steps to ensure a safe and healthy working environment. Government of Zimbabwe is committed to the success of agriculture and has identified the agricultural sector as one of the most important sectors of the economy where meaningful and sustainable growth and development can be achieved.

According to the Medium Term Plan (2011-2015), agriculture plays a pivotal role in the Zimbabwean economy and has the potential to significantly reduce poverty, enhance economic growth and stability. It is estimated that agriculture provides employment and income for about seventy percent of the population, while supplying an estimated sixty percent of raw materials required by the industrial sector and contributes to forty percent of total export earnings. Government is also cognisant of the impact that agriculture has on poverty reduction, particularly as it transcends farmers’ incomes and goes further to benefit millions through better incomes as well as plentiful and cheaper food. Accordingly agriculture is a key pillar of the ZIMASSET Agenda where it occupies the Food Security and Nutrition as well as poverty eradication clusters and as such agriculture productions requires to be done in a sustainable manner ensuring that human health and safety is preserved at all costs.

2. OBJECTIVES AND SCOPE OF THE CODE

The overall objective of the code is to promote a preventive OSH culture in agriculture production and activities and in particular;

1. Raise awareness of hazards and risks associated with agriculture
2. Provide guidance on how to effectively manage and control occupational accidents, injuries and diseases in agriculture production and activities
3. Raise awareness of OSH issues concerning particular groups of workers such as women and young workers
4. Promote positive attitudes and behaviour towards OSH in agriculture sector in Zimbabwe.

This code covers general agriculture, horticulture, tea/coffee plantation, kapenta subsector, agro-processing, animal husbandry, Sugarcane production, the primary processing of agricultural and animal products, maintenance of machinery, equipment, appliances, tools, agriculture installations, storage, operation or transportations related to agriculture production, cane growing/production, wildlife conservancy, timber production, crocodile farming and any agriculture related activities. All workers whether seasonal, casual, or temporary employed for short periods/durations, contractors or permanent employees should benefit from the provisions of this code. The code being widely applicable to the agriculture

sectors outlined above irrespective of size, should provide protection to all workers irrespective of their employment status.

3. COMMON OCCUPATIONAL HAZARDS AND RISKS IN AGRICULTURE

Agriculture is one of the most hazardous occupations worldwide. Farmers and workers work with or exposed to;

- (a) **Mechanical hazards** (dangerous machinery such as tractors, vehicles, harvesters, cutting and piercing tools),
- (b) **Hazardous chemicals** (pesticides, fertilizers, carcinogenic substances such as arsenical and phenoxy-acetic herbicides, antibiotics, other veterinary products and dusts),
- (c) **Physical hazards** such as excessive noise and vibration, confined spaces such as silos, pits, cellars and tanks and working in tunnels during tobacco curing; slips, trips and falls from heights; bad weather conditions.
- (d) **Ergonomic hazards** (use of inadequate equipment and tools, awkward body positions or prolonged static postures),
- (e) lifting and carrying of heavy objects giving rise to musculoskeletal disorders, repetitive work,
- (f) **Biological hazards** such as transmissible livestock and animal diseases,
- (g) drowning, fire, lightning strikes, snake bites, attack by animals and other hazardous conditions at the farm.

4. DUTIES OF EMPLOYERS

Employers shall;

- 4.1. Provide and maintain safe and healthy workplaces, plant, tools, and other working equipment.
- 4.2. Organise work in order to prevent, so far as reasonably practicable, occupational accidents and diseases and apply relevant standards and guidelines as prescribed, approved or recognised by the OSH regulatory authority National Social Security Authority.
- 4.3. Set out in writing OSH policy, programmes and other arrangements needed to implement the OSH policy specific to their enterprises and appropriate to their size and nature of their activities.
- 4.4. Adopt a risk management and systems approach to managing workplace safety and health
- 4.5. Ensure the safe use, handling, storage, transportation of equipment and hazardous substances and safe disposal of hazardous chemicals.
- 4.6. Ensure provision of and proper use by workers of OSH protection systems including personal protective equipment and clothing
- 4.7. Report all reportable accidents, injuries and diseases to NSSA inspector of workplaces and maintain accidents registers in which accurate lost time for every reportable injury, illness or fatality is entered and shall be made available to the inspector of workplaces on demand.
- 4.8. Define the OSH responsibilities, accountabilities and authority levels of directors, managers, supervisors and others and communicate these clearly to their workers, visitors or any other persons working in the workplace.

- 4.9. Ensure consultation with and the full participation of workers and representatives in the fulfilment of the OSH policy.
- 4.10. Define the necessary OSH competence requirements for all employees and establish arrangements to ensure all managers, supervisors, workers and workers' safety representatives are competent to perform their OSH duties.
- 4.11. Ensure that workers have sufficient information in a form and language that they understand concerning OSH hazards and risks and arrangements for managing them including emergency arrangements
- 4.12. Identify hazards and assess risks, reducing that following the hierarchy of control measures namely elimination or substitution; reducing the hazard or risk at source through engineering controls; minimise the hazard/risk through administrative arrangements such as using safe working procedures, good housekeeping or organisational measures and use of personal protective equipment and clothing.
- 4.13. Organise workers and establish such structures as safety and health committees, recognise workers elected OSH representatives and ensure that OSH committee has workers representatives and employers' representatives with knowledge and experience in OSH issues.
- 4.14. Organise first aid and emergency preparedness and response arrangements
- 4.15. Ensure compliance with OSH requirements by contractors and subcontractors working at the agricultural enterprise.
- 4.16. Develop, establish and review procedures to monitor, measure and record OSH performance taking into account the results of investigations of accidents and diseases, dangerous occurrences, OSH compliance audits and reviews of OSH management systems by management.
- 4.17. Have particular regard for OSH of vulnerable workers in agriculture including casual and seasonal workers, lone workers, women and pregnant women, young workers and take appropriate action to ensure their protection from hazards and risks associated with their work.

5. DUTIES AND RIGHTS OF WORKERS

5.1. Workers shall;

- 5.1.1. Cooperate with the employer in their efforts to comply with the law or other national OSH policies and with duties and responsibilities placed on the employer pursuant to this code.
- 5.1.2. Report forthwith to their immediate supervisor or safety and health representative any unusual conditions at the workplace, installations, equipment and machinery which they believe could present a hazard or risk to their safety or health or that of other people and which they cannot deal with themselves.
- 5.1.3. Comply with prescribed OSH measures
- 5.1.4. Take all steps necessary to eliminate or control hazards or risks to themselves and others arising during agricultural production and activities including the proper care and use of protective clothing and equipment.
- 5.1.5. Participate in instruction and training programmes provided by the employer or required by the OSH regulatory authority and must exhibit behaviour consistent with their training.
- 5.1.6. Participate and cooperate in exposure monitoring and health surveillance programmes required by the OSH regulatory authority and/or provided by the employer for the protection of their health.

- 5.2.** Workers and their representatives should encourage and support young workers to develop safe work practices and to fully comply with safe working procedures and instructions.
- 5.3.** Workers must be informed of medical examinations, including pre-assignment medical examinations and of the respective health assessments. The medical examination costs must be met by the employer. The results of the medical examinations should be communicated individually to the worker concerned and kept confidential and should not be used to discriminate against workers.
- 5.4.** Workers in agriculture have the right;
- (a) To be informed and consulted on OSH matters
 - (b) To fair and safe labour practices
 - (c) To know the OSH hazards and risks and the effects he or she is or likely to suffer due to exposure.
 - (d) To participate in the application and review of OSH measures and select their OSH representatives in their area of operation.
 - (e) To bring to the attention of their representatives, the employer or OSH regulatory authority hazards and risks to safety and health arising from agricultural production.
 - (f) To notify the OSH regulatory authority if they consider the measures taken and means used by the employer are inadequate for the purpose of ensuring safe and healthy working environment.
 - (g) To remove themselves from danger when they have reasonable justification to believe that there is an imminent and serious risk to their safety and health and that of other people. Such workers should inform their supervisor and/or safety and health representatives immediately.
 - (h) In the case of safety and or health condition that places them at increased risk of harm, to request a transfer to alternative work not exposing them to that increased risk, and if the worker(s) concerned have qualifications or can reasonably be trained for such alternative work. Effort should be made to accede to such a request without a loss of earnings.
- 5.5.** Women workers shall have the right, in case of pregnancy or when breastfeeding, to alternative work not hazardous to the health of the unborn or nursing child, where such work is available, in order to prevent exposure to hazards and to return to their previous jobs at the appropriate time without loss of earnings.
- 5.6.** Workers who remove themselves from danger in accordance with paragraph 5.4(g) should be protected from discrimination, retaliation and undue consequences but must follow due process established and recognised by both employer and workers.
- 5.7.** Workers and their elected representatives should receive appropriate education and training and where necessary retraining using effective methods for minimising OSH risks. All OSHE trainings should be done during working hours.

5.8. Use of Contractors:

5.8.1. When using contractors, the employer should ensure that:

- (a) OSH criteria such as a record of good OSH performance and an adequate OSH management system are included in procedure for selecting and evaluating contractors.

- (b) Contracts specify OSH requirements as well as sanctions and penalties in case of non-compliance.
- (c) Contracts should include the right for supervisors mandated by the employer to stop work whenever a risk of serious injury is apparent and suspend operations until remedies have been put in place and right to terminate contractors who fail to meet OSH requirements.
- (d) Same safety and training requirements apply to the contractors and their workers as to the workers in the agriculture enterprise.
- (e) Arrangements for reporting work-related injuries and diseases, ill health and incidents among the contractors' workers while performing work for the employer are clearly specified.
- (f) OSH performance of the contractor activities on site is regularly monitored.

6. OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT SYSTEMS.

6.1. Occupational safety and health management systems (OSHMS) specific to agriculture and appropriate to the size of the agricultural enterprise and nature of activities should be established and implemented.

6.2. The OSH management system should contain the key elements namely:

- (a) OSH Policy;
- (b) Planning for OSHMS covering hazard identification and risk assessment (HIRA) and control; applicable national OSH legislation; setting objectives and targets largely consistent with HIRA process;
- (c) Implementation and Operation covering defining roles, responsibilities and accountabilities of various players involved in the implementation of the OSHMS; training, competence and awareness issues; communication, consultation and participation; documentation and document control; emergency preparedness and response planning;
- (d) Checking and Corrective Action covering performance monitoring and measurement; Accident/Incident & Hazard Reporting & Investigation; Records and Records management and Audit;
- (e) Management review of the OSHMS.

7. RISK ASSESSMENT

7.1. A risk assessment process involves a careful examination of the working environment to identify hazards (physical, chemical, biological, ergonomic and organisational) and to evaluate the potential harm that they could do. Evaluation of risk takes into account both the likelihood of the hazard causing harm to persons and the severity of the harm if it were to occur.

7.2. The employer should make arrangements to identify, evaluate systematically and record the hazards and risks to workers' safety and health that may arise during the course of their work, taking into account such factors as sex, age, disability and reproductive health.

7.3. The carrying out of risk assessment should take a minimum of five steps namely

- (a) Identification of hazards
- (b) Identification of who might be harmed and how

- (c) Evaluation of the risks and deciding on precautions taking into account the hierarchy of control measures.
- (d) Record the findings, set priorities for improvement and implementation of action to be taken.
- (e) Reviewing and updating the assessment when necessary.

7.4. A method to carry out the risk assessment should be decided upon. A numerical method among others may be used to determine priorities for action. For each hazard identified, a numerical value is assigned to the likelihood of the hazard causing harm as well as to the severity of the consequences. This can be expressed on a rising scale as follows:

7.4.1. Likelihood

1. Rare: has rarely if ever happened.
2. Unlikely: is possible, but is not expected to happen.
3. Moderate: could be expected to happen.
4. Likely: will probably occur, but is not persistent.
5. Almost certain: Occurs regularly.

7.4.2. Severity of consequences

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

7.4.3. The degree of risk can be represented as follows:

$$\text{Risk} = \text{Likelihood} \times \text{Severity}$$

7.4.4. By determining the level of risk associated with each hazard identified in the working environment, employers and 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 [i.e. $1 \times 1 = 1$], whereas a hazardous event that occurs regularly (5) and has potentially fatal consequences (5) would have the highest priority for action (25) [i.e. $5 \times 5 = 25$]. The higher the level of risk, the more important it is to apply controls urgently to eliminate, reduce or minimise exposure to the hazard. Two key questions need to be considered for each hazard: **“How often is a person exposed to the hazard?”** and **“What is the likely outcome?”**

7.4.5. At an agriculture establishment the risk assessment may be done by the OSH Committee or an established risk assessment committee which is inclusive of key employees in various departments or sections.

7.4.6. As part of the risk assessment process, the employer in consultation with workers and their representatives, should chart the flow of raw materials, intermediate and finished products, mobile equipment and machinery and workers in the course of operations, noting the hazards that are associated with each step.

7.4.7. The risk assessment should be reviewed regularly whenever there is a significant change in the work to which it relates or when there is reason to suspect that it is no

longer valid. The review should be part of the system of management accountability which ensures that control action initiated by the initial assessment is implemented.

7.4.8. The table below shows an example of a risk assessment form and how it can be completed for typical work activity or process.

7.4.9. Example of Risk Assessment Form

Risk Assessment Worksheet

Location: _____ Address: _____

Risk Assessment done by: _____

Work Activity/Aspect: _____ Date _____

What are the hazards?	Who might be harmed and how?	What is being already done?	What further action is necessary?	Action by who?	Action by when?	Date Done

Risk Assessment Worksheet**Location:** Marondera **Address:** Marondera Road**Risk Assessment done by:** OSH Committee**Work Activity/Aspect:** Farm machinery **Date:** 17/2/2017

What are the hazards?	Who might be harmed and how?	What is being already done?	What further action is necessary?	Action by who?	Action by when?	Date Done
Farm machinery, including PTO shafts	Workers and others may suffer serious and possibly fatal injuries from contact with moving parts of machinery.	All PTO shafts guarded from the connector on tractor PTO to first bearing on the machine. All dangerous parts of machinery, eg auger screw, pulleys on mechanical feeders/waterers, shearing hazard on skid-steer loader etc, guarded unless safely located, eg can't be reached. All guards in good condition. Workers trained in safe systems of work, including for jobs such as clearing blockages, emptying bulk feed bin etc. A system of locking-off for maintenance work where appropriate.	Remind workers to report any damaged or ill-fitting guards to farm manager immediately.	Farm manager		
Dust from poultry dander and litter	Workers risk lung diseases, such as asthma, from inhaling poultry dander and litter dust.	All doors open and ventilation fans on when putting litter down/cleaning sheds. Suitable air filtration fitted to tractor cab, well maintained and tested before use (eg putting litter down). Suitable RPE available for use for other jobs inside the sheds (eg populating sheds).	Remind workers of risk of asthma and other lung diseases from poultry dander and litter dust.	Manager		

8. CHEMICALS SAFETY MANAGEMENT

8.1. The widespread and increasingly use of agrochemicals in Zimbabwe requires stringent controls to prevent health risks to employers and workers, the general public and the general environment. In this regard sound management of chemicals is required ensuring that the hierarchy of controls is followed namely:

- (a) Elimination
- (b) Substitution where a more hazardous substance or chemical is substituted with a less hazardous one;
- (c) Engineering control measures in which well-designed systems for storage, issuance and dispensing of chemicals are carried out;
- (d) Administrative controls such as establishing procedures and instructions of operations, restricting entry in chemicals storage areas and areas that have been sprayed with pesticides.
- (e) Provision of appropriate and suitable personal protective equipment and clothing and as last consideration.

8.2. Agro- chemical products are made to kill insects, fungi and regulate plant growth and can be poisonous and thus can be harmful to people when handled incorrectly or carelessly. These agrochemicals include principally insecticides (insects), fungicides (fungal and bacterial diseases), herbicides (weeds), acaricides (mites), nematocides (nematodes), rodenticides (rodents), molluscicides (snails), avicides (birds), plant growth regulators, repellents and defoliant.

8.3. Agrochemicals used should have comprehensive chemical safety data sheets containing information under 16 headings namely: Chemical product and company 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, disposal considerations, transport information, regulatory information and other information.

8.4. Agrochemicals should have labels and relevant leaflets with information on proper mixing, loading and application procedures and instructions which must be followed. Information on the agrochemicals should include potential health effects and measures to be taken in case of exposure and such information must be in a language that is appropriate and understandable by all workers. Labels should easily be readable and must include pictograms easily understood by workers.

8.5. The agrochemical label must be durable and not be detachable from the containers so that the information remains available to all employees as the chemical passes along the supply chain and throughout the product lifetime.

8.6. Employers should carry out an assessment of the hazards and risks associated with use, storage and handling of agrochemicals and ensure that measures of controls are put in place ensuring that the hierarchy of control measures as outlined in 8.1 is followed.

8.7. Information and Training

8.7.1. Users of agrochemicals must identify their problem and if necessary seek advice from agricultural officials, research stations, company advisers or agricultural extension workers.

8.7.2. The employer must inform workers of the known hazards associated with agrochemicals used at their workplace.

8.7.3. The employer should obtain from their suppliers copies of chemical safety data sheets for all chemical products used on their premises ensuring that the chemical data sheets are readily accessible by all employees.

8.7.4. The employer should prepare emergency response forms which should specify appropriate response including first aid in case there is chemical splashes on skin or other parts of the body or if chemical has been inhaled or ingested.

8.7.5. The employer should instruct workers how to use the information on pesticides labels and chemical data sheets.

8.7.6. The employer should ensure workers are trained on the correct and effective use of chemicals, proper use and maintenance of personal protective clothing and equipment, preventive work practices and how to deal with emergencies.

8.7.7. The training and instruction issued to workers must be reviewed to check their impact on prevention of exposure to chemicals.

8.7.8. The employer must ensure that all chemicals used at work are labelled or marked.

8.7.9. The employer must ensure that a record of all chemicals used at the workplace is kept, cross-referenced to the appropriate chemical safety data sheet and that such a record should be accessible to all workers concerned and their representatives.

8.7.10. The employer must ensure that chemicals transferred into other containers or equipment, are indicated in a manner which will make them known to workers their identity, any hazards associated with their use and safety precautions.

8.7.11. The employer must ensure that exposure of workers to hazardous chemicals is assessed and that workers are not exposed to chemicals to an extent which exceeds exposure limits.

8.7.12. Spraying and post-harvest precautionary measures must be put in place in areas treated with chemicals, including measures to prevent pollution of food, drinking, washing and irrigation water sources.

8.8. Personal Protective Equipment and Clothing (PPE/C)

8.8.1. Personal protective equipment and clothing (PPE/C) includes respiratory protective equipment, chemical protective clothing including gloves and footwear, equipment to protect eyes and face.

8.8.2. PPE/C should afford adequate protection to the risk and hazards from those chemicals to which the wearer is exposed, throughout the period during which such equipment is necessary taking into account the type of work.

8.8.3. The equipment must be suitable for the purpose and there should be a sufficient supply readily available in the workplace in appropriate sizes for workers who require it.

8.8.4 Workers should be fully instructed on use of PPE/C and should use the equipment provided throughout the time they are exposed to the risk and hazard that requires its use for protection as well as maintain it in good condition.

8.8.5. All PPE/C that is necessary for safety in the use of chemicals should be provided and maintained, replaced in accordance with the manufacturer's recommended schedule or when the need arises, by the employer at no cost to the worker.

8.8.6. Washing facilities for those using chemicals and for maintenance and cleaning of personal protective and application equipment must be provided by the employer.

8.8.7. Respiratory protective equipment must be selected taking into account the work involved and should be matched to the wearer and the hazard.

8.8.8. It should be prohibited for PPE/C which is contaminated by chemicals hazardous to health to be laundered, cleaned or kept at workers' homes.

8.9. Workplace and Personal Hygiene.

8.9.1. Employers should provide adequate washing facilities to enable workers to maintain good personal hygiene and ensure that there is no spread of chemicals hazardous to health and the environment.

8.9.2. Face and eye washing facilities and safety showers with clean portable water should be available for workers contaminated by chemical splash.

8.9.3. Changing facilities for men and women should be designed in a manner which does not allow contamination of personal clothing with personal protective clothing and equipment.

8.9.4. The employer should provide in consultation with workers and their representatives areas for drinking and eating away from places contaminated with chemicals hazardous to health. Eating, drinking and smoking should be prohibited from such contaminated places.

8.9.5. Workers should wash their hands and face before eating or drinking following handling of chemicals.

8.10. Emergency Preparedness

8.10.1. Arrangements should be made to deal with emergencies arising from exposure to hazardous chemicals at all times. Occupational health services should have chemical safety data sheets on all hazardous chemicals and appropriate antidotes should be readily available.

8.10.2. Procedures to be followed should clearly be laid out in case of emergencies due to hazardous chemical exposure and training on such procedures should regularly be carried out.

8.10.3. Emergency arrangements should be made with external emergency services and local authorities to deal with emergencies due to exposure to hazardous chemicals.

8.11. First Aid

8.11.1. Adequate first aid arrangements must be put in place taking into account toxicity of the chemicals and emergency procedures in place.

8.11.2. Trained personnel in first aid should be available at workplaces and should hold valid first aid certificates.

8.11.3. An assessment of first aid needs should be made in consultation with workers and their representatives.

8.11.4. First aid equipment and facilities should be appropriate for dealing with chemical exposures ensuring that they are easily accessible to workers to use in case of emergency (e.g. emergency showers, eyewash stations etc).

8.12. Transport, Storage and disposal of agrochemicals

8.12.1. Agrochemicals should be transported in their original containers. Transfer of agrochemicals into unlabelled containers for distribution or transportation must be prohibited as this create a serious health risk to workers, their families, the community and the environment.

8.12.2. Agrochemicals should be stored in secure, sheltered, well ventilated spaces to which only authorised personnel is permitted. Storage areas should not be accessible to pregnant workers, children or animals. Containers should be placed on platforms or on skids. Storage facilities should be fire resistant, leak proof in the event of spills and storage area must be embanked. No Smoking Signs should be posted in visible areas around the storage facility.

8.12.3. Used agrochemical containers must be washed, triple or pressure rinsed, punctured or crushed so that they cannot be used again and disposed of properly following environmental standards and procedures.

8.12.4. Containers must not be rinsed or washed in streams, rivers or ponds. The water used for washing must be tipped into a hole in the ground, away from dwellings, wells, waterways and crops.

8.12.5. If containers cannot be disposed of immediately, rinse and store them securely to prevent theft or misuse, and away from children and animals. Do not use agrochemical containers for food or drinking water for humans or animals because adequate cleansing is very difficult to achieve. It is everyone's responsibility to discourage this practice.

8.13. Exposure during handling and application of agrochemicals.

8.13.1. Measuring, Mixing and Loading

- (a) From the label select the dose rate and mixing instructions appropriate for the area to be treated and the application equipment to be used.
- (b) The methods adopted for measuring and preparation for use will vary according to the product and the scale of use.
- (c) Ready-for-use solid products, such as dusts and granules, can be tipped or scooped from their packs directly into the hoppers of the application equipment.
- (d) Concentrates, which mix easily with water, can be measured out and then poured directly into sprayer tanks partly filled with water. Wettable powders are best pre-mixed ('creamed'), with a little water before pouring into the sprayer tank. The tank should then be filled with water to the correct level, and mixed well.
- (e) Do not fill sprayers too full – they may leak during use. If a stock of spray liquid is being prepared, do not make up more than can be used up during the same day.
- (f) Avoid skin contamination, so wear protective clothing as recommended on the product label. If contamination of skin or clothing occurs, wash off immediately, using plenty of water. Splashes in the eyes must be washed out for about 10 minutes.
- (g) Do not measure out or mix pesticides in or near houses, or where livestock are kept and keep children and animals away.
- (h) Use suitable equipment for measures such as graduated jugs for liquids, scoops for powders, funnel or filter.
- (i) Never use hands as scoops or dip hands and arms into liquids when stirring.
- (j) Use cleanest available water to avoid blockage of equipment.
- (k) Pour liquid carefully to avoid spillage and splashes.
- (l) All equipment should be used washed away from dwellings, wells, waterways and crops.
- (m) Closed mixing and loading systems represent the highest level of protection for workers handling agrochemicals and should be used as far as possible. Closed systems transfer the agrochemical formulation from its original container to the mixing vessel or application equipment and permit preparation of final spray mix without direct contact on the part of the worker. However care should be taken when cleaning or repairing closed systems to minimise exposure.
- (n) Where open mixing and loading is necessary, all label instructions should be followed and care should be taken to avoid direct contact with the agrochemical formulation or final spray mix.
- (o) Employers should ensure that prior to the beginning of work, all equipment is in proper working order and all workers who mix and load agrochemicals receive training to protect them against exposure.

- (p) Respiratory protective equipment, goggles, chemical protective gloves, chemical protective footwear and protective clothing should be used during mixing and loading as required by the product label. Surgical masks or cloth covering the nose and mouth are not protective against inhalation of agrochemical vapours and therefore must not be used.
- (q) Gloves and footwear should be decontaminated before being removed. Gloves and footwear which show sign of wear or damage should be discarded. Normal types of footwear including leather work boots should not be used as they absorb agrochemicals and become a source of exposure.

8.13.2. Application.

- (a) Agrochemical applications usually involve potential contact with more dilute substance than those handled during mixing and loading, but duration of contact is much longer, hence applicators are at high risk of exposure through dermal contact and inhalation. The likelihood of skin exposure due to clothing absorption is very high.
- (b) Leaks at connection points in hand held application equipment and walking through plants recently treated with agrochemicals or clothing contact with overhanging foliage can result in substantial exposures which can affect human health.
- (c) Closed cabs or other types of enclosures should be used where possible to minimise applicator exposure.
- (d) Spraying equipment to be mounted on vehicles should be positioned in such a way that it does not cause instability to the vehicle and the equipment should not be mounted in a way which results in the operator driving through the drift while spraying.
- (e) Outdoor applications should be conducted under minimum wind conditions or when wind direction can be used to minimise applicator and bystander exposures.
- (f) Application in green houses or similar enclosures should be conducted such that wind direction can be used to minimise applicator and bystander exposures.
- (g) Temperature and humidity should be taken into account when selecting time of day and duration of spraying activity.
- (h) Employers must ensure that application equipment does not leak and spare parts must readily be available for maintenance and that all equipment is in good working order prior to application of chemicals.
- (i) Employers must ensure that applicators are trained in the use of application equipment including calibration and use of PPE/C.
- (j) Respiratory protective equipment, chemical protective gloves and footwear should be worn during application of chemicals. Gloves and footwear must be decontaminated before being removed.
- (k) Label requirements should be followed with respect to protection against the whole body.

8.14. Normal and early re-entry into sprayed areas.

8.14.1. Appropriate restricted entry intervals (time after application when workers are prohibited from entering treated areas) should be established for all agrochemicals in use based on risk assessment done by the workplace or based on some information carried by the label or other appropriate criteria.

8.14.2. Agrochemical treated areas should be identifiable during the restricted entry interval with hazard signs or symbols that are easily understood by all workers and other persons close by and that such signs and symbols or some other format should convey information on toxicity and restricted entry interval time.

8.14.3. Early re-entry workers are at high risk of exposure to agrochemicals exposures and must wear PPE/C consistent with label requirements.

8.14.4. Early re-entry workers should receive special training regarding hazards associated with early entry into agrochemical treated areas.

8.15. Health Surveillance of Workers

8.15.1. Medical surveillance should be part of a program involving workers exposed to agrochemicals. Such a surveillance should include medical examinations following an incident of exposure to chemicals hazardous to health, when workers report symptoms of poisoning, upon resumption of work after a prolonged absence for health reasons and after termination of work involving exposure to chemicals.

8.15.2. As part of overall health surveillance of workers, workplaces should have simple techniques for early detection of effects on health and work-related diseases and injuries caused by exposure to hazardous chemicals including questioning workers about health complaints.

8.15.3. Health surveillance may include examination and investigation to determine levels of exposure among the exposed workers.

8.15.4. Results of medical examinations, tests or investigations which reveal clinical or preclinical adverse effects should be used to provide appropriate treatment and measures which improve the working conditions and environment in order to prevent or minimise exposure of workers.

8.15.5. Results of medical examinations should not be used to discriminate against the worker.

8.15.6. Results of medical examinations should be explained to workers by professional health personnel indicating implication of such results on the health of the worker.

8.15.7. Workers should have access to their own medical records and exposure monitoring results, either personally or through their physicians.

8.15.8. Results of medical records and exposure monitoring should be available for health statistics and epidemiological studies ensuring that confidentiality of individual medical and health surveillance information is maintained, where this may assist in the recognition and control of occupational diseases.

8.15.9. Cholinesterase monitoring

(a) Employers using organophosphorus or n-methyl carbamate pesticides should develop and implement a plan for cholinesterase monitoring for pesticides handlers.

(b) Pesticides handlers expected to measure, mix, load and or apply substantial amounts of these pesticides should be enrolled for the monitoring programme.

(c) Pre-employment screening should be instituted to ensure that those with low-level cholinesterase do not undertake work with organophosphate and carbamates pesticides.

(d) Baseline (prior to exposure) blood samples should be collected from pesticides handlers to establish each individual's normal cholinesterase levels.

(e) Both plasma and red blood cell cholinesterase should be measured in each blood sample.

(f) Blood samples should be regularly drawn to determine if cholinesterase levels have been depressed significantly and also done when workers show symptoms of poisoning.

(g) A cholinesterase depression of at least 20% or more of either plasma or red blood cell must trigger an investigation to establish the source(s) of exposure and provide measures to minimise or eliminate exposure.

- (h) A depression of plasma cholinesterase greater than 40% or depression of red blood cell cholinesterase greater than 30% must trigger removal of the handler from exposure and reassignment to other work until cholinesterase levels return to baseline levels.
- (i) Records of cholinesterase monitoring should be kept.
- (j) The cost associated with cholinesterase monitoring is the responsibility of the employer and must not be passed on to the workers.

8.16. Environmental Protection

- 8.16.1. Care should be taken to protect water sources from agrochemical drift, run-off or rinse from application equipment and containers.
- 8.16.2. Contaminated clothing should not be washed in open water.
- 8.16.3. Buffer zones should be established to aquatic life and other sensitive environmental areas.
- 8.16.4. The following substances must not be used as they are blacklisted in accordance with Statutory instrument 12 of 2007 [Environment Management (Hazardous Substances, Pesticides and Other Toxic Substances) Regulations]; Aldrin, Dieldrin, Endrin, DDT, hexachlorobenzene and any substance not registered in Zimbabwe.

9. DUST AND ZOO NOTIC EXPOSURES

- 9.1. Dust in agriculture are most frequently generated during preparation of fields for planting, harvesting, cleaning, primary processing, bagging and transportation of farm produce, preparation and handling of hay, production of birds and livestock animals. The dust may include such components as straw, bagasse, husks of grain, moulds, fungal and bacterial residues, bio-aerosols, endotoxins, pesticides residues, fumigants, faecal matter and particles of silica.
- 9.2. High levels of dust may also be a source of fire and explosion hazard.
- 9.3. The employer should consider eliminating or minimising dust and zoonotic exposures through engineering controls where feasible.
- 9.4. The employer should ensure that work systems and procedures are in place to minimise the hazards to workers from dust and biological exposures.
- 9.5. The employer should conduct dust measurements in work environments in order to determine whether levels of exposure do not exceed safe limits.
- 9.6. The employer should consider reducing exposure time by rotating workers.
- 9.7. The employer should provide appropriate PPE/C such as respiratory protection, coveralls, gloves, goggles and safety boots to minimise exposure to dust.
- 9.8. Buildings, lagoons or tanks where manure is stored should be constructed so as to keep levels of exposure of dust or other hazardous gaseous material that workers experience to acceptable levels.
- 9.9. In confinement facilities, ventilation should be adequate to protect the worker from unsafe levels of gases such as ammonia and hydrogen sulphide.
- 9.10. The employer must ensure that at no time should the workplace have hydrogen sulphide exceed the occupational exposure limit of 10ppm.
- 9.11. The employer should ensure that levels of hydrogen sulphide are assessed regularly through measurements in areas where there is exposure and to the extent possible alarm systems which signal hydrogen sulphide concentrations approaching dangerous levels are installed.
- 9.12. The employer should ensure that workers are trained to enter and work in confined spaces safely and including use of PPE/C in such dangerous places.

9.13. The employer should ensure that no worker enters a manure pit or similar facility without the use of an externally driven air mask as well as having a safety harness and two co-workers at the surface able to extract the exposed worker if required at a moment's notice.

9.14. The employer must develop a rescue plan in the event that a worker is overcome by hydrogen sulphide in a confined space such as a manure pit.

9.15 Rescue workers must not enter a confined space without adequate protection in the event that a worker is overcome by hydrogen sulphide.

9.16. Zoonotic exposures

- (a) Workers can develop symptoms of zoonotic diseases after handling infected animal or animal products or contaminated drinking water and disposing of infected faecal material.
- (b) Zoonotic diseases include anthrax from handling infected animals and tissue, brucellosis from handling placental tissues of infected livestock, campylobacter and cryptosporidium infections contracted from livestock through contaminated food or water resulting in gastrointestinal symptoms such as diarrhoea, leptospirosis contracted from rodents and rabies contracted from infected bites by dogs, wild animals and bats.
- (c) The employer should undertake to eliminate the occurrence of zoonotic diseases through a combination of diseases eradication measures chief among them being animal vaccination, human vaccination, provision and maintenance of safe drinking water, proper disposal of human and animal waste, work environment sanitation, labour camp sanitation, cleaning and protection of wounds, prompt treatment or proper disposal of infected animal and animal tissue, proper cleaning and disinfection of contaminated sites and prudent use of antibiotics to minimise growth of resistant strain.
- (d) The employer should institute and enforce regular hand washing as an effective measure against many of the pathogens involved in zoonotic disease transmission. Water, soap, disinfectants and single use towels should be provided at places where animals that are or are suspected of being infected are kept.
- (e) The employer should provide specific training in handling live animals, necropsy of infected animals, and handling of all animal by-products.
- (f) The employer must report outbreaks of communicable infectious diseases in accordance with national requirements.

9.17. Needle stick injuries and sharp exposures

- (a) Agriculture work carries with it the risk of injury from percutaneous needle stick or other sharps during tasks that require use of needles and related sharp devices.
- (b) Task associated with risk of needle stick injuries include administration of parenteral medications or therapies such as intravenous, intramuscular and subcutaneous, performing veterinary procedures such as surgery, suturing and taking tissue or blood samples.
- (c) Injuries from needle or sharp punctures carries with it a risk of trauma to underlying tissues, tendons and ligaments and risk of infection from inoculation of blood-borne pathogens.
- (d) The employer should make available to the workers for use in appropriate situations sharps and needle safety devices and sharps disposal containers that can eliminate or reduce the risk of percutaneous injury before, during and immediately after use of such devices. Such devices include needleless intravenous systems, needles with engineered injury protection such as needles that self- retract.

- (e) Workers must be prohibited from manually recapping, bending, breaking or clipping of contaminated needles or sharps for which such practices can give rise to harmful needle stick injuries.
- (f) Animals must be restrained from movement during handling in order to prevent needle stick or sharps injury.

9. SELECTING AND USING FARM MACHINERY AND EQUIPMENT SAFELY

9.1. Agriculture involves the use of a wide range of machinery, equipment and processes. Common machinery and equipment include tractors, combine harvesters, cultivators, harrows, sprayers, and mowers, seeding equipment, balers, wagons, trailers, all - terrain vehicles, augers, boilers and manure spreaders. Furthermore various tools are used in agriculture activities of which their design should be taken into account when selecting such tools in order to protect the safety of people.

9.2. Common safety risks associated with use of machinery, equipment and tools include cuts, bruises, scratches, traumatic injuries, burns, electrocution, fractures and amputations resulting from contact with cutters, gears, moving belts, shafts and moving parts of machinery and burst hydraulic hoses. The injuries occur during such operations as repairs, maintenance, cleaning and clearing of blockages.

9.3. Tractors and all-terrain vehicles.

- (a) Tractors are common power equipment used at farms and contribute significantly to injuries and death in agriculture production and maintenance activities. Older versions of tractors are of particular concern as they are not fitted with safety equipment such as rollover protective structures (ROPS) and seat belts.
- (b) Most tractors have rubber tyres, hydraulic systems and power-take-off (PTO) and use a combination of engine speeds and gear ratios. The most serious accidents associated with tractors include overturns, run-overs, and PTO entanglement.
- (c) All-terrain vehicles (ATVs) are used to transport various farm produce and equipment and sometimes used in tractor operation. Hazards associated with ATVs include rollovers, run-overs, slips and falls during climbing and disembarking the ATVs or tractor etc.
- (d) Other hazards associated with tractors and ATVs are noise and vibration.
- (e) The employer must conduct a comprehensive risk assessment ensuring that an inventory of all tractors and ATVs used at the workplace is established. Determination should be made as to whether the tractors or ATVs have such safety features as seat belts, ROPS and PTO shield, proper brakes and functioning hydraulic hoses and take account of the terrain where these equipment will be used.
- (f) The employer should consider elimination of the hazards and risks associated with tractors and ATVs through various means which include engineering controls, safe work systems and procedures, training, supervision and induction of workers.
- (g) The employer should institute competency based training for tractor and ATVs including competency based certification of such equipment.
- (h) The employer should ensure that tractors and ATVs in use are fitted with seat belts, PTO shields, ROPS and mudguards to protect the worker from movement of the wheels and a muffler able to attenuate noise levels to acceptable levels. If the noise levels cannot be reduced to acceptable levels then ear protection must be provided.
- (i) The employer must ensure that brakes, emergency brakes, lights, signal lights and other safety devices are maintained regularly and are in good working order.

- (j) The employer must ensure that the tractors in use have ladder or steps and handrail to assist the worker to embark and disembark the tractor safely.
- (k) The employer must ensure that tyre pressure of tractors and ATVs are at the correct levels in accordance with the manufacturer's specifications.
- (l) The employer must ensure that all tractors and ATVs are equipped with seating which is designed to reduce the occurrence of musculoskeletal injuries to the workers.
- (m) The employer should establish very strict maintenance and operating procedures, provide training and supervision to ensure effective implementation of tractor and ATVs operations.
- (n) The employer should ensure that the tractor and ATVs drivers have an understanding and full appreciation of tractor ATVs stability and have a high level of awareness of the risks of side roll-over, rear rollover and run-over and how these can be prevented.
- (o) Employers should be aware that the tractor's or ATV's centre of gravity is central to its stability; that adding weights such as lifting fork, front-end loader, side-saddle and rear chemical tanks alters the centre of gravity; that moving off a flat plane (level surface) alters the centre of gravity; that the centrifugal force can contribute to the overturning when tractors are turning; that the rear-axle torque can cause the front end of a tractor to lift off the ground if the rear axle cannot rotate; that drawbar leverage can occur (e.g. when a two-wheel drive tractor is pulling a load the tractor's rear tyres push against the ground backward and downward and become a pivot causing the load to tip the tractor rearward) and that loads should be attached to the tractors in accordance with the design specifications.
- (p) Operators should ensure that bystanders are kept away from a distance from areas where tractors are being used and situations where children might be at risk, the operator must make specific search for the presence of children close to the tractors and ATVs.
- (q) The employer should ensure that workers know the "one seat-one rider rule and enforce it.
- (r) Tractors and ATVs should not be used to transport workers other than the driver and no additional riders are allowed on tractors.
- (s) The employer must ensure that workers understand how to prevent PTO injuries and proper procedures must be followed to prevent entanglement in PTOs.

9.4. Other agriculture machinery, equipment and tools.

- (a) Other equipment which result in serious accidents, injury or death include tillage equipment such as ploughs and cultivators, combines, balers, manure spreaders, feed grinders and mowers. Hand held tools such as hoes, hammers, picks, sickles and machetes can result in cuts, lacerations, amputations of digits or limb, some of which can lead to disability.
- (b) The employer should ensure that in circumstances where workers require regular access to parts of the machine and a fixed guard is not possible, an interlocked guard should be used to ensure that the machine cannot start before the guard is closed and will stop if the guard is opened while the machine is operating. Prior to repair of agriculture equipment the power to the equipment must be turned off, movement of rotating parts stopped and safety locks engaged.
- (c) The employer should ensure that clearing of blockages and other reasons for gaining access to dangerous parts machinery should be done when machinery is stopped.
- (d) Unsafe or faulty equipment must not be allowed to be used.
- (e) Tools with broken or cracked handles, chisels, and punches with mushroom heads and bents or broken implements should be replaced.

- (f) The employer should ensure that workers receive relevant training on the proper coupling/hitching of implements and on the proper mounting for driveline power transmission systems and implements.
- (g) Workers should be authorised to safely stop the machine if it or any implements is not working safely or if any guards or protective devices are faulty and inform the supervisor as soon as possible.
- (h) Workers should never operate equipment while under the influence of alcohol or other substances which might affect their ability to operate the equipment.

10. ELECTRICITY AND OTHER ENERGY SOURCES

- 10.1.** Electrical energy is a common source of energy on the farms. Other sources include mechanical, hydraulic, fuel and pneumatic energy. These sources of energy present hazards to workers and must be controlled.
- 10.2.** Employers should ensure that energy sources and facilities are appropriately labelled and that existing overhead power lines and underground cables are mapped.
- 10.3.** The employer should ensure that all agriculture equipment undergoing servicing, maintenance or renovation is appropriately isolated, locked out, and labelled with a warning tag.
- 10.4.** Metallic irrigation pipes should never be carried in a vertical position to avoid contact with live electrical cables running through the farm.
- 10.5.** The employer should ensure that the safe control of electricity and other sources of energy is addressed by procedure and carried out by trained persons.

11. NOISE AND VIBRATION

11.1. Noise

- (a) Noise is a common and serious occupational hazard in agriculture operations. Sources of exposure in agriculture include use of tractors, chainsaws, grain dryers and contact with animals such as pigs. Permanent hearing damage can result from prolonged exposure to high levels of noise. Permanent hearing loss may also be experienced after exposure to sudden very high noise levels. Temporary hearing loss may be experienced after short periods of intense exposure to high noise level.
- (b) Noise can also be a safety hazard at work which interferes with communication and making warnings harder to hear. Noise also increases fatigue and cause fatigue, irritability and reduce performance.
- (c) Employers should assess the risk of developing noise induced hearing loss to their workers.
- (d) Employers should identify the sources of noise exposure in various agriculture operations.
- (e) Employers in consultation with workers should seek advice from OSH regulatory authority regarding occupation exposure limits for noise.
- (f) Employers must seek advice from suppliers of equipment and machinery on the noise emissions produced by these equipment and machine.
- (g) The employer should institute noise measurements to ascertain extend of noise exposure to workers making reference to occupational exposure limits. A noise map for determination of risk areas should be established.
- (h) Employers should establish a program to reduce noise levels to below the 85 dB(A) if levels are high enough to present risk of hearing impairment.
- (i) Upon purchase of equipment and machinery employers should specify low emissions levels as a condition of purchase from suppliers.

- (j) Employers should reduce noise levels first through engineering measures such as by fitting sound proof enclosures or other acoustic measures. Equipment should be regularly maintained since worn out equipment could increase noise levels.
- (k) If noise levels cannot be reduced through engineering measures, then workers should be provided with hearing protection such as ear muffs or ear plugs. Others measure should include reduced that time workers spend in the noisy environment.
- (l) Hearing protection must be properly used and maintained by the worker.
- (m) Where noise levels exceed the occupational exposure limit of 85 dB (A), workers should regularly receive audiometric testing and workers should be informed about their audiometric tests.
- (n) A record of audiometric testing for workers should be kept for a period of 40 years.

11.2. Vibration

- (a) Vibration in the workplace is classified as;
 - (i) Whole body vibration which is transmitted by sitting or standing on vibrating surfaces such driving a tractor. Prolonged exposure results in severe back pain and other musculoskeletal disorders.
 - (ii) hand-arm vibration which is transmitted through hand held powered tools and equipment such as chainsaws. Prolonged exposure can lead to damage of hand and arm muscles as well as joint and nerves.
- (b) Common sources of whole body vibration include driving or standing on a tractor, driving on rough or bumpy roads with ATVs, standing on platforms such as on mechanical harvesters.
- (c) Employers should carry out a risk assessment to identify sources of exposure and assess the risk of musculoskeletal injuries from various tasks and activities giving rise to vibration.
- (d) Based on the risk assessment, measures should be taken to reduce exposure to vibration through such means as damping, fitting anti-vibration mounts or replacing unsuspended tractor cabs with suspended ones, maintenance of equipment regularly, reducing the time spend with vibrating machinery, equipment or tools, provision of anti-vibration gloves etc.

12. MANUAL AND MATERIALS HANDLING

- 12.1.** Agriculture work can span a wide range of tasks from arduous to sedentary, from stooping, reaching, bending, repetitive work, to performing work in awkward body position while operating sophisticated agriculture machinery and equipment.
- 12.2.** Most agriculture operations are labour intensive involving manual seeding of crops such as tobacco, fresh vegetables, or field maintenance where hand tillage, weeding, pruning takes place and manual harvesting of crops.
- 12.3.** Agriculture work may also be carried out in hot or cold or humid environment which have a bearing on performance of work.
- 12.4.** Work also may be conducted in rough terrain which expose workers to risks of slips and falls thereby worsening or creating musculoskeletal injury.
- 12.5.** Workers who handle (lift, carry and position) heavy objects weighing in excess of about 23 kg at rates of about 3 times per minute over a two hour period are at increased risk of back injury, general fatigue and or heat stress depending on the environmental conditions obtaining during the performance of those tasks.

- 12.6.** The manual planting of seedlings, crop maintenance, and manual harvesting contribute to cumulative trauma disorders, neck and upper extremity impairment and low back pain.
- 12.7.** Stooped work is a common risk factor in muscle cramps and the development of musculoskeletal injury especially low back pain.
- 12.8.** Highly repetitive work during crop maintenance and harvesting contribute to the risk of developing upper limb musculoskeletal disorders.
- 12.9.** Excessive exposure to hand arm vibration can cause disorders in the blood vessels, nerves, muscles, bones and joints of the upper limbs of the body. Furthermore whole body vibration at high levels and prolonged exposure periods can result in diseases of the peripheral nerves, prostatitis as well as acute and chronic back pain.
- 12.10.** Musculoskeletal injuries and cumulative disorders may further cause osteoarthritis in women.
- 12.11.** Young workers are also at increased risk of musculoskeletal injury due to soft bone density and developing musculature.

12.12. Ergonomic Control Strategies

- (a) Employers should carry out assessment of risk to workers' health due to manual and materials handling of agriculture materials and tools. Assessment should include;
- i) Characterisation of the agriculture work environment and its implication on workers.
 - ii) Design of work stations
 - iii) Weight of agriculture materials and tools to be lifted and handled
 - iv) Frequency of handling agriculture equipment, materials and tools taking into account actions per minute as well as force applied.
 - v) Postures assumed by the workers while handling the agriculture products, tools and operation of machinery and equipment.
 - vi) The physical characteristics of the workers engaged in the activities such as gender, sex and age.
- (b) Employers, taking into account the findings of the risk assessment, develop a strategy to eliminate the hazards identified, and implementation of preventive measures in order to minimise occurrence of musculoskeletal disorders. Consideration should be given to substitute hazardous work processes or equipment or tools with less hazardous processes or equipment or tools as well as give due regard to engineering controls. If this cannot be achieved workers should be provided with PPE/C and information and training on such PPE/C to work safely.
- (c) Employers should select agriculture tools, machines and design work processes that eliminate exposure to ergonomic hazards such as carrying of heavy loads greater than 23 kg.
- (d) Employers should consider partial or full mechanisation of agriculture tasks such as harvesting of small grain, maize, nuts or vegetables.
- (e) Employers must provide tools that eliminates or significantly eliminates noise, vibration or awkward postures.
- (f) Employers must consider use of load transfer devices that minimise the risk of lower back injury and chronic back pain.
- (g) All forms of alcohols beverages must be prohibited from the worksites.
- (h) There should be regular maintenance and repair of worksite equipment.
- (i) Records of ergonomic assessments must kept be appropriately
- (j) Administrative controls which should be considered include use of programmed rest periods for workers, routine job/task rotation among workers, clear operational instructions

and job descriptions and training of work in order to work safely. Training should routinely inform the workers on the need to assume neutral body positions to prevent low back injury and chronic back pain.

(k) Workers must be encouraged to report any pain, discomfort, numbness or tingling of any body part, to the employer and such workers must not be victimised as a results of such reports.

(l) Workers must be informed about the risks associated with ergonomic risk factors and the need to assume neutral body postures when working.

(m) Employers must provide adequate and suitable PPE/C and such PPE/C must be fit tested through demonstrations at the agriculture worksite ensuring workers are well informed on how to use the PPE/C, why the PPE/C has to be used and how it has to be stored or cleaned where necessary.

13. FORESTRY/TIMBER OPERATIONS

13.1. All forestry activities should be thoroughly planned and organised in advance to prevent any possible mishaps or accidents

13.2. All tools, machines and hazardous chemicals used in forestry work should be operated only by workers who have been assessed as competent to operate such tools and machinery.

13.3. Tools, machines and equipment should be of good design and construction, taking into account safety, health and ergonomic principles and they must be maintained in good working order.

13.4. Forestry environmental factors must be evaluated first including carrying a comprehensive risk assessment before any work is undertaken. The risk assessment should take into account topography of the land, working methods and equipment to be used, dangerous trees, electricity or telecommunication lines and roads.

13.5. Equipment used should be easy to do safe maintenance and minor repairs at the worksite and workers should be trained to do minor repairs and maintenance.

13.6. Hand tools should be of such size, length and weight to cater for the needs of the work and physical attributes of the user.

13.7. Machines such as chain-saws, brush saws and grass cutters should be as light as possible to strike a balance between the machine size and power required for the job on one hand and the avoidance of operator fatigue and damage to the musculoskeletal system on the other.

13.8. All workers who use chainsaws should be trained to the necessary level of competence to use the machine safely.

13.9. When using a chain saw adequate PPE/C must be provided and at a minimum must include safety helmet, hearing protection, eye protection, gloves, leg protection and chain saw boots etc.

13.10. Machines should be equipped with shock-absorbent, fully adjustable seats for drivers and fitted with safety belts.

13.11. The means of access to and exit from machinery such as steps, ladders and doors should be designed to provide hand and footholds of a convenient height and spacing.

13.12. All pulleys, shafts, belts and fan belts should be securely guarded.

13.14. Machine operators should hold relevant skills certificates for operating and maintaining the machines they are using.

13.15. For handling and planting trees treated with hazardous chemicals prior to employers should provide and workers use personal protective equipment. This should include:

(a) a suitable protective bib and brace or overall made from chemical resistant

material;

(b) chemical-resistant boots and chemical-resistant gloves.

13.16. When plants have to be dipped in pesticides prior to planting, personal protective equipment should consist of:

(a) a face-shield and suitable respiratory equipment which must cover nose and mouth;

(b) a one-piece suit or trousers and a jacket with hood made from chemical resistant material;

(b) elbow-length chemical-resistant gloves.

13.17. All tree climbers should be provided with appropriate PPE/C which include safety harnesses, safety belt with double “D” ring, climbing ropes and strops and steel spurs long and sharp enough to hold in any tree in which they are used.

13.15. Employers should also provide PPE/C for forestry work and guided and as specified in table 1 below.

Table 1: PERSONAL PROTECTIVE EQUIPMENT (PPE) APPROPRIATE FOR FORESTRY OPERATIONS

Parts of the body to be protected	Feet	Legs	Trunk, arms, legs	Hands	Head	Eyes	Eyes/face	Hearing
PPE Normally appropriate:	Safety boots or shoes ¹	Safety trousers ²	Close-fitting clothing	Gloves	Safety Helmet	Goggles	Visor (mesh)	Ear muffs ³
Operation								
<i>Planting⁴</i>								
Manual	✓			✓ 5				
Mechanized	✓		✓					✓ 6
<i>Weeding/cleaning</i>								
Smooth-edged tools	✓			✓		✓		
Handsaw	✓			✓				
Chain-saw	✓	✓	✓	✓ 8	✓	✓	✓	✓
Brush saw								
-with metal blade	✓	✓	✓	✓	✓	✓	✓	✓
-with nylon filament	✓	✓		✓		✓		✓
Rotating knife/frail	✓		✓	✓				✓ 6
<i>Pesticide application</i>	To comply with those specified for the particular substance and application technique							
<i>Pruning*</i>								
Hand tools	✓ 9			✓	✓ 10	✓		
<i>Felling¹¹</i>								
Hand tools	✓		✓	✓ 12	✓			
Chain-saw	✓ 7	✓	✓	✓ 8	✓		✓	✓
Mechanized	✓		✓		✓			✓
<i>Debarking</i>								
Manual	✓			✓				
Mechanized	✓		✓	✓		✓		✓ 6
<i>Splitting</i>								
Manual	✓			✓		✓		
Mechanized	✓		✓	✓	✓	✓		✓
<i>Extraction</i>								

Manual	✓			✓	✓ 13			
Chute	✓			✓	✓ 13			
Animal	✓			✓	✓ 13			
Mechanized								
-skidder	✓		✓	✓ 14	✓			✓ 6
-forwarder	✓		✓		✓			✓ 6
-cable crane	✓		✓	✓ 14	✓			✓ 6
-helicopter	✓		✓ 15	✓ 14	✓ 16	✓		✓
Stacking/loading	✓		✓	✓	✓			✓ 6
Chipping	✓		✓	✓	✓		✓	✓ 6
Tree climbing ¹⁷								
Using a chain-saw	✓ 7	✓	✓	✓ 8	✓ 18	✓		✓
Not using a chain-saw					✓			

Notes: *If pruning involves tree climbing above 3m, a fall restricting device should be used. ¹With integrated steel toe for medium or heavy loads. ²Safety trousers incorporating clogging material, in hot climates/weather chain-saw leggings or chaps may be used. Safety trousers and chap contain fibres that are inflammable and melt, and should not be worn during fire fighting. ³Ear plugs and ear valves not generally suitable for forestry because of risk of infection. ⁴For planting of chemically treated plants and for dipping of plants in chemicals see relevant section 13 on Forestry Safety. ⁵When planting spiny seedlings or chemically treated plants. ⁶When noise level at work position exceeds 85dB(A). ⁷Chain-saw boots with protective guarding at front vamp and instep. ⁸Cut-resistant material incorporated in the back of the left hand. ⁹When falling branches are likely to cause injury. ¹⁰When pruning to a height exceeding 2.5m. ¹¹Felling includes debranching and crosscutting. ¹²When using a handsaw. ¹³When extracting near unsuitable trees or branchwood. ¹⁴Only if manipulating logs; gloves with heavy-duty palm if handling wire choker rope or tether line. ¹⁵Highly visible colours. ¹⁶With chin strap. ¹⁷For required tree-climbing equipment see Section 13 on Forestry Safety. ¹⁸Climbing helmets are preferable: if they are not available, safety helmets with chin straps may be used.

Source: International Labour Office (ILO). (1998). Safety and health in Forestry Work: An ILO Code of Practice. ILO, Geneva. Page 37

14. FISHING SAFETY

14.1. The fishing vessel owner (employer) has the overall responsibility to ensure that the skipper (person having command of the vessel) is provided with the necessary resources and facilities to carry out fishing operations in a safe manner.

14.2. The skipper has the responsibility for the safety of the fishers on board and the safe operation of the vessel, including but not limited to the following areas:

- (a) providing such supervision as will ensure that, as far as possible, fishers perform their work in the best conditions of safety and health;
- (b) managing the fishers in a manner which respects safety and health, including prevention of fatigue;
- (c) facilitating on-board occupational safety and health awareness training; and
- (d) ensuring compliance with safety of navigation, watch-keeping and associated good lake or dam water operational standards.

14.3. The skipper shall not be constrained by the fishing vessel owner from taking any decision which, in the professional judgement of the skipper, is necessary for the safety of the vessel and its safe navigation and safe operation, or the safety of the fishers on board.

14.4. The employer should install emergency stop (e-stop) devices on hydraulic deck machinery to prevent entanglement injuries.

14.5 Fishermen or fisherwomen should:

- (a) maintain watertight integrity by inspecting and monitoring the hull of the vessel, ensuring that watertight doors and hatches are sealed.
- (b) put on Personal Floatation Devices (PFDs) (life jackets and immersion suits).
- (c) carry a first aid kit for emergencies.
- (d) Report any accidents to the supervisor/instructor immediately.
- (e) Return all equipment to the designated area.

14.6. The minimum age for work on board a fishing vessel should be 16 years.

14.7. The minimum age for assignment to activities on board fishing vessels, which by their nature or the circumstances in which they are carried out are likely to jeopardize the health, safety or morals of young persons, shall not be less than 18 years.

14.8. Fishers who work on board a fishing vessel should have valid medical certificates attesting to fitness to perform their duties.

14.9. The medical certificate of a fisher shall state, at a minimum, that:

- (a) the hearing and sight of the fisher concerned are satisfactory for the fisher's duties on the vessel; and
- (b) the fisher is not suffering from any medical condition likely to be aggravated by service at the waters or to render the fisher unfit for such service or to endanger the safety or health of other persons on board.

14.10. The medical certificate shall be valid for a maximum period of two years.

14.11. Every fishing vessel shall carry a crew list, a copy of which shall be provided to authorized persons ashore prior to departure of the vessel, or communicated ashore immediately after departure of the vessel.

15. CROCODILE FARMING SAFETY

15.1. Crocodile farming involves multiple hazards that include exposure to crocodile attack, exposure to biological hazards in the form of bacteria and viruses and in particular exposure to diseases agents such as salmonella, trichinella and chlamydia.

15.2 The employer should provide the workers with;

- (a) Appropriate protective clothing such as gloves, mitts or gauntlets and protective hand and arm covering.
- (b) Insulated protective clothing for freezers or chillers and refrigeration units.
- (c) Non-slip and waterproof boots (gumboots) or other safety footwear.

16. GENERAL WORKPLACE SAFETY

16.1. Agriculture installations

- (a). Agriculture installation generally include farm workshops, animal housing, storage facilities, wells and pumps, stockyards, pens, crop and machinery maintenance structures etc.
- (b). Safe design, construction and maintenance must be considered for each of these structures ensuring that the structures meet the minimum local authority model building by-laws.
- (c). Key design issues associated with agriculture installations include the building materials used and layout, illumination, ventilation, storage of hazardous materials such as ammonium nitrate fertiliser, and electrical installations. Some inadequacies to these aspects create hazards and risks such as fire explosions, electrocution, breathing difficulties and poor vision.
- (d). Buildings and structures must be fire resistant and insulation materials used on building must be non-combustible and non-toxic.

- (e). Separate pathways for workers and mobile equipment must be provided and blocking devices must be employed to prevent workers performing work in areas where vehicles travel. Pathways for mobile equipment should have sufficient width, height, and turning space.
- (f). Walking ways must be sufficiently marked and where there are low hanging beams, structural support or ceilings, these must be well marked and workers provided with suitable head gear to prevent the head bumping against hard objects.
- (g). Illumination must be sufficient enough for the tasks being performed.
- (h). Ventilation must be sufficient to handle highly toxic substances as well as flammable gases, liquids and various forms of dust whether be it organic or inorganic.
- (i). Electrical installations should be designed to prevent electrocution and must be done by qualified electricians.

16.2. Slips, Trips and Falls.

- (a). Slips, trips and falls including falling from height are common risk factors in agriculture settings.
- (b). Injuries may results due to missing walkways, leaving materials in walking aisles, deteriorated steps and stairs, unprotected openings, poorly maintained ladders, poorly lit areas and walking on slippery surfaces, on mud and falling from heights which in some cases can be fatal.
- (c). Risk factors associated with slips, trips and falls must be identified.
- (d). Floors must be non-slippery, of robust material which is not combustible.
- (e). Openings including pits must be covered or barricaded and clearly marked with warning signs and well lit.
- (g). Platforms, walkways and stairways must be provided with hand rails with panelling to the height of railings.
- (h). Temporary workplaces such as mobile elevated work platforms should be equipped with suitable guard rails or other edge protection items. If such measures cannot eliminate risk of falling then workers must be provided with and trained in the use of fall protection systems such as safety harnesses.
- (i). The employer must ensure that good housekeeping is maintained as this help minimise slips, trips and falls and workers must be instructed and supervised in housekeeping.
- (j). The employer must ensure that walk ways and surfaces and stairs are well lit.
- (k). Pathways and walking aisles must be clearly identified ensuring that passage ways are clear of tools, buckets and slippery materials.
- (l). The employer must ensure that ladders are properly maintained and are appropriate for the task at hand and that workers are trained on the proper use of such ladders. Safe work practices with ladders must be observed by workers including the presence of a second person at the base of the ladder, avoidance of working at ladders in windy conditions or stormy conditions. Slippery shoes must be prohibited when using ladders.
- (m). Ladders must be regularly inspected to check of any defects and if defects are detected they must be repaired immediately and if ladder cannot repaired the ladder must be replaced.

16.3. Farm Workshop

- (a) The farm workshop is a location where most repairs of farm equipment, machinery and tools takes places. It is therefore prone to a number hazards and risks which include slips, trips, falls, noise, vibration, power tool hazards, electrical shocks, fires from flammables materials and fumes and vapours from welding.

- (b) The hazards and risks must be identified and corrective measures to prevent exposure undertaken.
- (c) Good housekeeping must be maintained at all times in the farm workshop.
- (d) The employer must ensure that workers are properly trained in the repair of equipment, and that prior to repairs, power to equipment should be turned off, movement of all rotating parts stopped and safety locks engaged.
- (e) The employer should provide means to support loads or lift heavy equipment or loads and all equipment to support and lift loads must be assessed for failure.
- (f) Ventilation must be adequate to exhaust fumes from engines or other welding activities.
- (g) The employer should provide first aid kits in the farm workshop and that there are trained workers to administer first aid in case of an injury. Fire extinguishers must also be readily available and workers trained in the use of such equipment should be in place.
- (h) Farm workshops should comply with Factories and Works Act Chapter 14:08 since farm workshop operations are classified as a factory. In addition the farm workshop should comply with the following regulations; (i) Factories and Works (Registration and Control of Factories) Regulations 1976 Government Notice 262, (ii) Factories and Works (General) Regulations 1976 Government Notice 263 and (iii) Factories and Works (Machinery) Regulations, 1976 Government Notice 302.
- (i) Agricultural entities which make use of boilers must comply with the provision of the Factories and Works (Boiler) Regulations, 1976, Government Notice 279. Boilers in use must be registered and regularly inspected by the inspector. "Drum" boilers must never be used as they present risk of death when they explode.

16.4. Fire Precautions

- (a) The heat and smoke of fire, along with toxic gases and rapid loss of oxygen, can kill workers quickly.
- (b) Three major classes of fire that strike agriculture establishments are **Class A** (Combustibles such as wood, straw, hay, paper products and plastics); **Class B** (flammable liquids such as gasoline, diesel, fuel oil and methanol); and **Class C** (Electrical such as wiring, cords, welding and electrical motors).
- (c) Major sources and contributors to fire include smoking, lightning, excessive storage of combustible waste materials (discarded timber, brush and jungle thrash, tyres, nut hulls etc), poorly maintained electrical systems, improper storage of flammable liquids, and heavy use of combustible building materials and lack of fire barriers in large open buildings.
- (d) Fertilisers like urea and ammonium nitrate do not only present a major fire risk but also a serious risk from explosion.
- (e) Establishments that are constructed mainly of wood are much more susceptible to fire than those constructed of non-flammable materials.
- (f) The employer should assess the risks from fire and make sure that:
 - There are safe means of escape, kept free from obstructions and clearly marked;
 - everyone knows what to do if a fire starts, especially how to raise the alarm. Display fire action instructions and have a fire drill periodically;
 - there is fire alarms work equipment working (check them weekly) and that they can be heard everywhere over normal background noise;
 - there are enough extinguishers, of the right type and properly maintained, to deal

promptly with small outbreaks of fire. Make sure workers know how to use them.

- ABC type fire extinguishers are mounted in strategic places and fully charged and inspected annually. These are preferably for agriculture establishments but larger or BC type fire extinguishers may also be needed for large chemical or fuel storage.
- that electrical installations and equipment comply with ZESA standards and are installed, adjusted, repaired or removed by qualified electricians. Unqualified personnel should not have access to electrical switchboards or any unprotected electrical installations.
- lightning protection systems are installed by competent person(s).

16.5. Protection against Lighting

- (a) The lightning hazard is greatest amongst persons whose occupations keep them out of doors. The probability of injury to the individual from lightning is generally small except under certain circumstances of exposure outdoors.
- (b) **Effects on persons:** When persons are subjected to direct lightning strokes, the result is nearly always fatal. When lightning strikes, the light is so intense and the brush effects so widespread that it is difficult for an observer to be certain of what has happened until the spot is examined afterwards and even then the traces may be confusing. The major number of lightning casualties arises not from direct strokes, but from secondary phenomena, such as side flashes and induced discharges.

The injuries inflicted by lightning consist of electric shocks of greater or lesser severity which may be combined with burns and in some cases, tearing of flesh apparently by an explosive action of the discharge.

- (c) **Personal Safety:** Persons normally required to work in the open should be made aware of the following safety precautions;
- Do not go out of doors or remain out during thunderstorms, unless it is necessary. Seek shelter inside buildings, vehicles or other structures or locations which offer protection from lightning.
 - If there is any choice, choose shelters in the following order;
 - Dwelling houses or buildings which are protected against lightning
 - Large unprotected buildings
 - Dwelling houses which are not protected against lightning. (keep away from doors, windows, fireplaces, stoves, and other metal objects, electrical wiring and telephones)
 - Motor vehicles, buses with metal tops and bodies
 - Dense woods or large grove trees, but avoid isolated trees
- (d) If remaining out of doors is unavoidable, keep away from the following;
- Tractors and other farm machinery operating in the open fields
 - Motor cycles, scooters and bicycles
 - Open boats not protected against lightning
 - Open fields and sports fields
 - Golf courses
 - Swimming pools, lakes and sea shores
 - Wire fences, clothes lines, overhead wires and railway tracks

- Isolated trees
- Hill tops and exposed positions
- Small unprotected buildings, burns, sheds
- Tents and temporary shelters

16.6. Handling of Animals

- (a) Employers must assess the risk of injury from animals especially injuries due to handling of livestock. Injuries usually arise from poorly designed, constructed or maintained livestock facilities.
- (b) Serious crushing injuries to the legs, arms, head and body are common when handling livestock as well as exposure to high levels of noise in enclosed facilities.
- (c) Employers must ensure that there are appropriate and adequate handling facilities and equipment for the animals. These handling facilities and equipment must be regularly maintained.
- (d) Gates and fences must be strong enough to contain the animals.
- (e) Alleys and chutes should be wide enough to permit animals to pass, but not wide enough for the animals to turn around inside and they should be strong to withstand weight of animals.
- (f) The employer should ensure that animal handling facilities in respect of floors, ramps and steps are roughened to prevent slip in wet conditions. The floors, passageways are kept from any protruding nails, splinters, sharp corners or loose boards.
- (g) Employers and workers must ensure that children or other members of the public cannot enter any yard or pen occupied by potentially dangerous animals especially female animals with young ones.
- (h) Workers must be trained on the proper handling of bulls and dairy bulls must be provided with purpose built pens.

16.7. Confined Spaces

- (a) A confined space is one large enough for the worker to enter, has limited or restricted means of entrance or exit and is not designed for continuous work. Entry into a confined space can present very serious risks to workers and can result in suffocation due to lack of oxygen or due the presence of toxic gases such as hydrogen sulphide. Risk of suffocation can just be severe with just head and shoulder entry.
- (b) Working in confined spaces require additional measures because their configuration hinders the entry of other workers in cases of emergencies involving trapped workers inside.
- (c) The employer should therefore carry out a comprehensive risk assessment to identify available confined spaces at the establishment and ensure appropriate preventive measures are in place.
- (d) Confined spaces at agriculture establishments include grain storage pits, silos and boilers. An examples of temporary occupancy into these confined spaces may entail performing repairs in boilers, servicing a sump well, cleaning a silo or milk tank.
- (f) All confined spaces should be clearly marked with warning notices prohibiting unauthorised entry into such places.
- (g) An appropriate system of entry into or procedure for working in confined spaces should be established ensuring that permit to work in these areas are issued.
- (h) The employer should ensure that confined spaces that are not totally enclosed such as manure pits and upright silos are adequately ventilated before entry and that the ventilation should continue whilst work is ongoing.

(i) The employer should ensure that no worker enters a manure pit or similar facility without an externally driven air mask, a safety harness and that two co-workers stay at the surface ready to extract the exposed worker at a moment's notice. The workers outside armed with an extraction harness should monitor closely the operations of their colleague inside the confined space and should be able to initiate a prompt response in case the worker inside requires rescue.

(j) Workers should be trained on how to work safely in confined spaces including proper use of personal protective equipment.

(k) Before entry into a confined space by any worker, the space should be adequately ventilated or purged to ensure that all noxious gases are removed and measurements done to establish the levels of noxious gases therein.

17. WELFARE FACILITIES

17.1. Welfare facilities consists of basic amenities employers are expected to provide at agriculture enterprises and these include safe water, toilets, food services, occupational health services (first aid, medical care), housing and day care facilities.

17.2. Water

(a) The employer should provide adequate potable water for cooking, drinking, washing, personal hygiene and other related activities.

(b) Non potable water should be clearly distinguishable from potable water to prevent usage of water not suitable for human consumption.

(c) Employers should provide separate toilets for each sex which afford suitable privacy and toilets should be built for single occupancy and lockable from inside.

(d) Employers should provide portable toilets at remote worksites.

(e) Employers and workers should maintain toilet facilities in a clean state and that the employer supply sanitary paper. The toilets should be well ventilated and illuminated.

(f) Workers should be aware of the importance of good personal hygiene practices to reduce exposure to hazards that can result in communicable diseases and keep the facilities in high state of cleanliness.

(g) The employer should ensure that the sewage disposal system works properly and that it does not result in contamination of water sources and the environment.

17.3. First Aid and Occupational Health Services

(a) First aid, including trained personnel should be available at all agricultural establishments.

(b) First aid training should include treatment of open wounds, chemicals intoxication, snake, insect and spider bites as well as handling workers suffering from TB, hepatitis, HIV/AIDS and other communicable diseases.

(c) First-aid boxes should always be clearly marked, easily accessible and should be located near areas which are prone to accidents. First-aid boxes should be reachable within a minute or less. The contents of the first aid box should be protected from heat, humidity, dust and abuse by some workers.

(d) Workers should be regularly updated on first aid taking into account the following;

i) Persons trained on first aid;

ii) Location of first aid boxes and first aid rooms;

iii) What workers should do in case of an accident;

iv) Knowledge about hazards and risks from exposures may require first aid.

(e). Where there is need for elaborate medical care, establishments should have arrangements with external health providers to deal with workplace injuries and diseases due to workplace activities.

17.4. Housing and shelters

(a) Decent housing and accommodation should be provided to workers at agricultural establishments.

(b) During hot climates, shaded rest areas should be available at all worksites in order to minimise problems of heat exhaustion.

(c) Application of chemicals should not be done in manner which affects workers dwelling areas.

(d) Employers are encouraged to provide nursery, day care and nursing facilities where women are employed.

17.5. Workplace Wellness programmes.

(a). Agriculture workplaces should promote healthy lifestyles, which lifestyles should include eating balanced diet, personal hygiene, rest, recreation, exercise, alcohol and drug abuse problems, HIV/AIDS, smoking, workplace violence as well as bullying and harassment.

(b) Agriculture workers should be covered by workers compensation in case of an occupational injury or diseases. All workers should also benefit from social security coverage.

APPENDIX I: PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

1. The law

Statutory Instrument 68 of 1990 on Accident Prevention and Workers Compensation 3rd Schedule Section 1 (a) – (d) and (m) require that personal protective equipment be provided by the employer for use at work.

Personal protective equipment (PPE) includes coveralls, eye protection, and footwear, gloves, hearing protection and respiratory protective equipment (RPE), safety helmets and wet weather-clothing. Your safety and health and that of workers can depend on it.

2. When selecting PPE remember:

- you need to consider and introduce other means of protection first. Provide PPE as a last resort after taking all other reasonably practicable measures;
- engineering controls provide long-term solutions and are often cheaper than providing, replacing, maintaining and storing PPE;
- controls at source protect all workers in the area, while PPE only protects the wearer;
- it is essential to involve the workers themselves in the selection process, as they often have detailed knowledge of the way things work or are done which can help you.

3. Also make sure that PPE:

- is effective and gives adequate protection against the hazards in the workplace, eg for handling acids do the gloves resist acid penetration?

- is readily available for use;
- is suitable and matches the wearer, the task and the working environment, so that it does not get in the way of the job being done or cause any discomfort;
- does not introduce any additional risks, e.g. limits visibility or causes heat stress;
- has a standard mark such as CE marked to confirm that it has been manufactured to an appropriate standard;
- is compatible with any other PPE that has to be worn. Safety spectacles may interfere with the fit of respirators;
- is checked before use and cleaned, maintained and stored in accordance with the manufacturer's instructions.

Remember that employers are not permitted to charge their employees for personal protective equipment provided for use only at work.

4. Possible Hazards And Types of PPE

Eyes

Hazards: chemical splash, dust, projectiles, gas and vapour, radiation.

Options: safety spectacles, goggles, face shields, visors.

Head

Hazards: impact from falling or flying objects, risk of head bumping, hair entanglement.

Options: a range of helmets and bump caps.

Breathing

Hazards: dust, vapour, gas, oxygen-deficient atmospheres.

Options: disposable filtering face piece or respirator, half- or full-face respirators, air-fed helmets, breathing apparatus.

Protecting the body

Hazards: adverse weather, chemical splash, spray from spray guns, impact or penetration, contaminated dust, excessive wear or entanglement of own clothing.

Options: conventional or disposable overalls, boiler suits, specialist protective clothing, eg high-visibility clothing.

Hands and arms

Hazards: cuts and punctures, chemicals, electric shock, skin infection, disease or contamination.

Options: gloves, gauntlets, mitts, wristcuffs, armllets.

Feet and legs

Hazards: wet, slipping, cuts and punctures, falling objects, chemical splash, abrasion.

Options: safety boots and shoes with protective toe caps and penetration-resistant mid-sole, gaiters, leggings, spats.

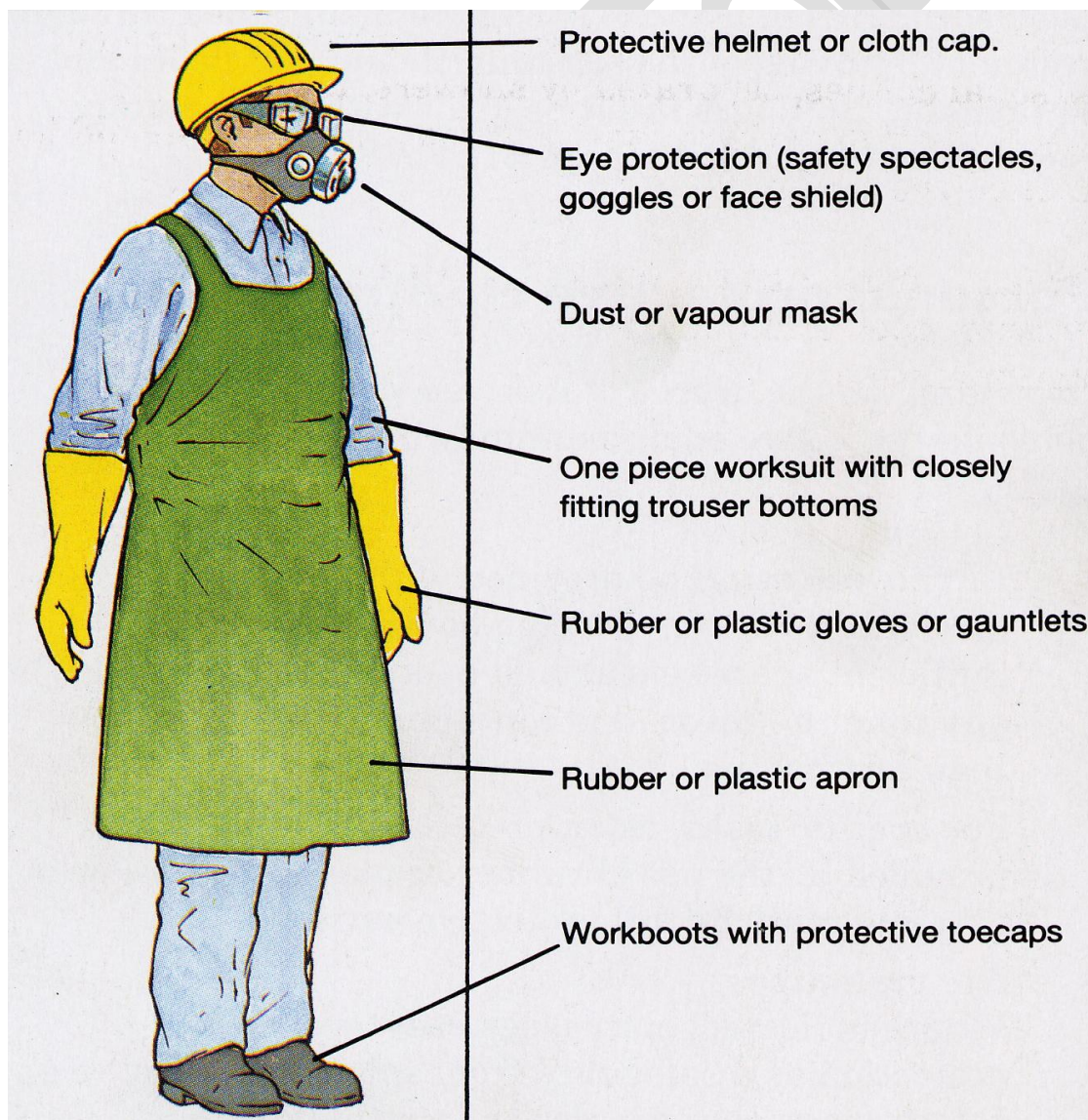
5. Respiratory protective equipment (RPE)

Proper and well-fitting respiratory protective equipment should be marked to indicate conformity to some standard.

Face-fit testing must be carried out for all respirators that rely on a good face seal to be effective, i.e. disposable, half- and full-face masks. This ensures the respirator is capable of fitting properly, but the fit still needs to be checked before each use. If in doubt, ask advice from a reputable supplier or manufacturer.



Examples of half-mask respirators against gases/vapour



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