




International
Labour
Office
Geneva

Global Manual for WIND

Work Improvement in Neighbourhood Development



Practical approaches for improving
safety, health and working conditions
in agriculture



The agricultural sector plays an essential role in the socio-economic development of any country. With an economically active population of 1.3 billion, the sector accounts for half of the world's labour force. Agricultural workers are exposed to a broad range of hazards and risks at work. The risk of accidents further increases with difficult terrain, poorly designed tools, exposure to extreme weather conditions, and the fatigue and poor general health associated with working and living in remote and rural communities. Small-scale farmers are especially vulnerable to these risks at work.

The Global Manual for WIND (Work Improvement in Neighbourhood Development) is designed to assist small-scale farmers and their families in improving safety and health at work and in their everyday life. The uniqueness of the WIND approach lies in facilitating voluntary improvements of working and living conditions, through the active participation of farmers, their families and community members. It also places focus on simple, practical solutions that can be achieved by using locally available, low-cost materials. The Manual consists of 33 checkpoints and includes many low-cost improvement examples with clear illustrations in important technical areas for farmers. These are: materials storage and handling, workstations and work tools, machine safety, work environment and control of hazardous agents, welfare facilities, work organization and community cooperation, and environmental protection.

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Work Improvement in Neighbourhood Development

**Practical approaches for improving safety,
health and working conditions in agriculture**

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Preface

The Work Improvement in Neighbourhood Development (WIND) training programme addresses the safety and health risks in the problems in neighbourhood development in particular in rural settings. Building on the ILO's experience gained through the WISE (Work Improvement in Small Enterprises) programme, WIND was innovated and introduced for the first time in Cantho Province, Vietnam in 1995 as a product of technical cooperation between the Centre for Occupational Health and Environment, Cantho Department of Health, Vietnam and the Institute for Science of Labour, Kawasaki, Japan and soon spread to many other provinces for its strengths in practical achievements. Since then, the ILO has facilitated the adoption of WIND to Cambodia, Mongolia, the Philippines, Thailand, and further to many countries in Africa, Central Asia, Eastern Europe, and Latin America.

This new Global Manual for WIND is a culmination of the most recent development in WIND collected from different parts of the world. Target of WIND of this new version is all potential users at the global level beyond country and region.

It has been drafted by Kazutaka Kogi, Toru Yoshikawa and Etsuko Yoshikawa, based on the WIND manual, Asian version (2003). Yuka Ujita, Seiji Machida and Tsuyoshi Kawakami took a lead in this revision. Thanks are due to international experts and ILO colleagues who provided valuable comments for improving the contents and illustrations, especially Ton That Khai, Francisco Santos-O'Connor, Shengli Niu, Andrew Christian, Javier Barbero, and Victoria Moyano.

I am certain that this manual can constitute a practical and effective tool to support continuous efforts to materialize safety and health at work of family and community.

Giuseppe Casale
Chief, a.i.
Labour Administration,
Labour Inspection
and Occupational Safety
and Health Branch

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WIND Action Checklist

How to use the checklist

1. Define the work area to be checked. The farm premises, work activities and living areas can be checked. In the case of a larger farm, particular work areas can be defined for separate checking.
2. Read through the checklist and spend some minutes walking around the work area before starting to check. Read each item carefully. Look for a way to apply the improvements. If necessary, ask some questions to the farmers. If the improvement is already in place or it is not needed, mark **NO** under “Do you propose action?” If you think the improvement is worthwhile, mark **YES**. Use the space under **REMARKS** to put a description of your suggestion or its location.
3. After you have gone through all the items, look again at the items you have marked **YES**. Choose a few items where the benefits seem likely to be the most important. Mark **PRIORITY** for these items.
4. Before finishing, make sure that for each item you have marked **NO** or **YES**, and that for some items marked **YES** you have marked **PRIORITY**.
5. Remember the checklist is not exhaustive and other areas may need examining.

I. Materials Storage and Handling

1. **Keep routes clear and in good condition.**

Do you propose action?

No Yes Priority

Remarks



2. **Provide multi-level shelves or racks near the work area for storing materials, tools or products.**

Do you propose action?

No Yes Priority

Remarks



3. **Provide a “home” for each tool.**

Do you propose action?

No Yes Priority

Remarks



4. Use containers of appropriate size and design to carry materials and products.

Do you propose action?

- No Yes Priority

Remarks



5. Use carts, hand-trucks and other wheeled devices to transport the load.

Do you propose action?

- No Yes Priority

Remarks



6. Use track, rollers, conveyors, hoists and other mechanical aids for lifting, carrying, and handling heavy loads.

Do you propose action?

- No Yes Priority

Remarks



II. Workstations and Work Tools

7. Adjust the work height to elbow level or slightly lower.

Do you propose action?

- No Yes Priority

Remarks



8. Provide stable chairs or benches of suitable height with sturdy backrests.

Do you propose action?

- No Yes Priority

Remarks



9. Put frequently used tools, switches and materials within easy reach.

Do you propose action?

- No Yes Priority

Remarks



10. Choose tools that can be operated with minimum effort.

Do you propose action?

No Yes Priority

Remarks



11. Use fixtures such as jigs or clamps to hold items while work is being done on them.

Do you propose action?

No Yes Priority

Remarks



12. Attach labels, signs and symbols that are easy to see and understand.

Do you propose action?

No Yes Priority

Remarks



III. Machine Safety

13. Attach proper guards to dangerous moving parts of machines.

Do you propose action?

No Yes Priority

Remarks



14. Install appropriate feeding devices to avoid accidents and increase production.

Do you propose action?

No Yes Priority

Remarks



15. Make emergency stops clearly visible, identifiable and quickly accessible.

Do you propose action?

No Yes Priority

Remarks



16. Ensure safe use of electricity.

Do you propose action?

- No Yes Priority

Remarks

.....



IV. Work Environment and Control of Hazardous Agents

17. Change workplace design and layout to improve natural ventilation.

Do you propose action?

- No Yes Priority

Remarks

.....



18. Use daylight effectively by changing workplace layout and redecorating where necessary.

Do you propose action?

- No Yes Priority

Remarks

.....



19. Avoid excessive exposure to sunlight, heat, or cold.

Do you propose action?

- No Yes Priority

Remarks

.....



20. Choose appropriate pesticide and use it correctly.

Do you propose action?

- No Yes Priority

Remarks

.....



21. Label containers of pesticides and other hazardous chemicals.

Do you propose action?

- No Yes Priority

Remarks

.....



22. Use personal protective equipment properly.

Do you propose action?

- No Yes Priority

Remarks



23. Dispose of pesticides and pesticide containers carefully and properly.

Do you propose action?

- No Yes Priority

Remarks



V. Welfare Facilities

24. Provide an adequate supply of safe drinking water and ensure proper fluid intake at the workplace.

Do you propose action?

- No Yes Priority

Remarks



25. Eat well for your health and well-being.

Do you propose action?

- No Yes Priority

Remarks



26. Provide clean toilets and washing facilities which are accessible at work.

Do you propose action?

- No Yes Priority

Remarks



27. Provide first-aid materials and learn basic first aid.

Do you propose action?

- No Yes Priority

Remarks



VI. Work Organization and Community Cooperation

28. Take appropriate rests during and after work.

Do you propose action?

- No Yes Priority

Remarks

.....



29. Share agricultural and household tasks with family members.

Do you propose action?

- No Yes Priority

Remarks

.....



30. Organize and coordinate efficient teamwork.

Do you propose action?

- No Yes Priority

Remarks

.....



31. Strengthen community cooperation and organize community-wide work.

Do you propose action?

- No Yes Priority

Remarks

.....



VII. Environmental Protection

32. Save water and energy consumption by modifying the work process and changing habits.

Do you propose action?

- No Yes Priority

Remarks

.....



33. Reduce, re-use and recycle waste.

Do you propose action?

- No Yes Priority

Remarks

.....



VIII. Additional Items

34. Do you propose action?

No Yes Priority

Remarks
.....

35. Do you propose action?

No Yes Priority

Remarks
.....

36. Do you propose action?

No Yes Priority

Remarks
.....

WIND IMPROVEMENT CHECKPOINTS

- I) **Materials storage and handling**
- II) **Workstations and work tools**
- III) **Machine safety**
- IV) **Work environment and control of hazardous agents**
- V) **Welfare facilities**
- VI) **Work organization and community cooperation**
- VII) **Environmental protection**

I. MATERIALS STORAGE AND HANDLING

Many kinds of materials need to be stored and handled in farming work. They are often heavy and vary in size and shape. In this chapter you will find simple and practical solutions for improving methods of storing and handling these materials. These ideas will help you to improve safety and health, as well as productivity and efficiency.

CHECKPOINT 1: Transport route

Keep routes clear and in good condition.

WHY

If workers have to move materials on a route in poor condition this increases the risk of injury particularly if manual effort is required. The transport of materials and products is an important part of farming work. They are often heavy and varied in shape, and this makes them difficult to handle. Poor conditions of transport routes such as narrow, rough or slippery farm roads further increase the difficulty.

Transport routes in good condition increase safety and efficiency in transport, prevent products from being lost or damaged and protect you and other people from accidents and injuries.

Also, wide and well-maintained aisles and corridors in your own house promote safe and effective household work.

HOW

1. Make routes wide enough for safe and efficient traffic and transport, and keep them well maintained. Main routes need to be wide enough for two-way traffic .
2. Improve and clean up routes if you find a problem or have difficulty in transportation of products. For example, in order to stop routes becoming muddy in the rainy season, reconstruct them in a higher and more suitable place, and cover them with thin layers of small pieces of brick, crushed stones or cement.
3. Do not place any obstacle on the transport routes. Provide designated places for storage and waste disposal.

4. If canals or ditches are used as water routes, dredge them regularly for smooth and efficient transport.

WAYS TO PROMOTE COOPERATION

Start from simple and low-cost improvements to main traffic/transport routes. For example, clean the path in front of your house or the main transport route leading to the farming field. This will raise awareness of the advantages provided by routes in good condition for safe and efficient transport.

Build up the habit of regularly cleaning and maintaining transport routes, in cooperation with other farm workers, family and community members.

SOME MORE HINTS

- Make the boundaries of transport routes easy to see, by marking them with small stones, cement or fences.
- Gradually improve transport routes by using locally available materials such as gravel or crushed bricks.

POINTS TO REMEMBER

Clear, wide and solid routes make traffic and transport easier, and help prevent accidents, injuries and damage.



Figure 1a.
Main route wide enough for two-way traffic.

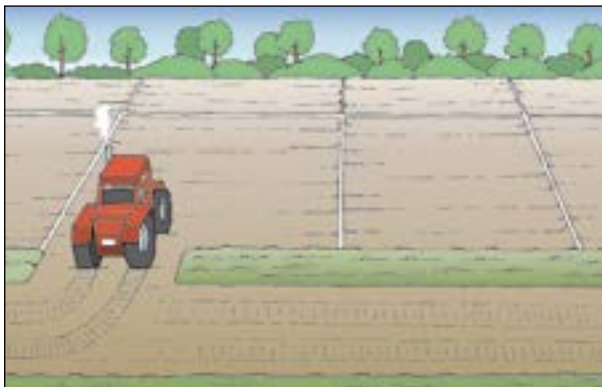


Figure 1b.
Routes to fields flattened out and wide enough for transport by carts and trucks.



Figure 1c.
A railing-attached bridge without uneven level to ensure safe crossing.



Figure 1d.
A clear wide entrance.

CHECKPOINT 2: Multi-level shelves

Provide multi-level shelves or racks near the work area for storing materials, tools or products.

WHY

Multi-level shelves and racks allow a better use of space and help you keep farm products or agricultural tools in good order. By placing things on multi-level shelves, you can easily find necessary items.

Agricultural hand tools are essential for farmers. By keeping the tools in designated places, you can save time and effort locating them.

Multi-level shelves and racks promote safe storage of materials, which may reduce the risk of accidents and fires.

HOW

1. Place multi-level shelves and racks where you can easily access them. Fit them to the wall so that you can make full use of the space.
2. Put labels or draw shapes of the items and tools on the front of shelves or containers to show their designated place. This will help locating the item.
3. Ensure that the shelves are strong enough to store heavy materials and products. If applicable, fix the shelves to the wall.
4. Multi-level racks are also useful in your house, e.g. the kitchen. Cooking materials (pots and pans), utensils and containers of ingredients can be neatly arranged on a rack.

WAYS TO PROMOTE COOPERATION

Start by making a simple change in your house such as building a small shelf for utensils or ingredients. All family members can see the change. This will help family members and neighbours understand the benefit and promote further similar improvements.

Encourage people to exchange ideas and good practices.

SOME MORE HINTS

- Place frequently used items at a level between your waist and shoulder, and the heavy and less frequently used at a lower level. Light and infrequently used items can be stored higher.
- Use small trays or pallets to store items of similar size and shape so that they are easily identified.
- Use mobile racks and trolleys to store and carry items which are used in more than one place.

POINTS TO REMEMBER

Proper use of multi-level shelves and racks can save your time and efforts.



Figure 2a.
Well-designed multi-level racks – tidy and saving space.

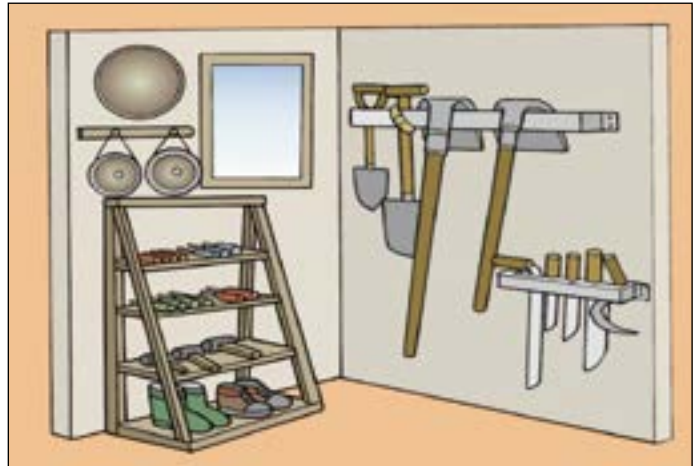


Figure 2b.
Hand tools tidily placed on the hangers and multi-level racks.



Figure 2c.
Multi-compartment cabinets and wall-mounted rack and hooks to store spices, ingredients, cooking tools and utensils.

CHECKPOINT 3: Home for tools

Provide a “home” for each tool.

WHY

Working in a cluttered area where tools and materials are scattered around on the floor is neither safe nor efficient. Besides, your valuable and often expensive tools may be damaged or lost, resulting in time, effort and money to replace them. In addition to your disappointment, your stress and strain will increase.

Providing a “home” for each tool is a simple and effective solution and will increase safety and efficiency. By returning a tool to its designated position each time after use, you can easily and quickly find the one you need and also recognize when one is missing.

HOW

1. Make a simple “home” for working or household tools and devices, using readily available resources such as pieces of bamboo or wood.
2. Put labels, or draw the shapes of the different tools, on the board to indicate the designated place of each item. You will see at a glance the location where the tool should be returned to.
3. For work to be performed at multiple locations, design and make tool boxes to transport your tools easily so they can be kept safely and in good order.
4. Store small tools or work items in bins, cans or in trays to help prevent losing them.

WAYS TO PROMOTE COOPERATION

Start from simple improvements which you can implement immediately. There are many practical and easily applicable solutions, such as a tool hanger made from bamboo, or just drawing the shape of each tool on the board or wall.

The technique of “home” is also useful in your house. Invite ideas from your family members and share practical and visible achievements.

SOME MORE HINTS

- Attach wheels to your tool cabinets or racks so that they can be easily moved to different worksites when necessary.

POINTS TO REMEMBER

Providing a “home” for each tool is a low-cost way of improving safety and efficiency at work.



Figure 3a.
A cabinet for tools: pliers, hammers, sickles, etc. hung neatly on both sides, in clearly labelled positions.

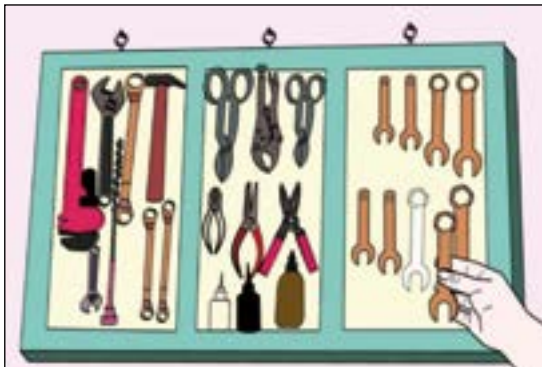


Figure 3b.
A wooden board for hanging tools, with the shape of each tool clearly and distinctly marked.



Figure 3c.
A mobile tool cart for smooth workflow in different workplaces.



Figure 3d.
Multi-level racks for tools: small tools or items in special bins or trays.

CHECKPOINT 4: Containers

Use containers of appropriate size and design to carry materials and products.

WHY

You may carry various kinds of heavy items in your work. The task is strenuous and often accompanied by a high risk of musculoskeletal problems such as back injuries. The risk can be reduced by good practices in lifting, carrying and handling loads.

HOW

1. Divide the loads into lighter packages, taking into account the weight that you can carry without risk. Carrying two packages of 10 kg each is better than carrying one package of 20 kg.
2. Firstly examine the shape, size and weight of the load and use well-designed containers to move it.
3. Attach sturdy easy to grip handles to the container so it can be filled, emptied, lifted, carried and handled easily.

WAY TO PROMOTE COOPERATION

Learn from good examples already put into practice and promote their application. Try to use the same shape and size of containers so that people can cooperate in transporting products.

SOME MORE HINTS

- Choose smaller containers that can be easily and safely handled.
- Wearing gloves and wrapping grips/handles of containers with soft cloths may help with handling.
- Keep your wrists in a comfortable and straight position while transporting loads.
- Where possible, use the same containers for transport and storage. This removes the need for double handling and saves time and effort.
- When lifting or carrying a heavy load,
 - Separate your feet until you reach a stable position;
 - Bend your knees;
 - Lift the load gradually and smoothly;
 - Keep the load close to your trunk; and
 - Do not turn your trunk while lifting the load.

POINTS TO REMEMBER

A lighter weight is a safer weight. Divide heavy loads into lighter ones to ensure safety and higher productivity.



Figure 4a.
Well-designed containers with easy to grip sturdy handles:
weight carried evenly by each arm.



Figure 4b.
A pannier with easy to grip handles carried by two persons.



Figure 4c.
Containers with easy to grip handles being used
in storage.

CHECKPOINT 5: Carts and other vehicles for transport

Use carts, hand-trucks and other wheeled devices to transport the load.

WHY

Carrying agricultural materials, tools and products is a major part of your work. The use of carts, hand-trucks, vehicles or boats reduces your workload, minimizes damage to the products and reduces the risk of accidents.

The use of vehicles significantly decreases the number of journeys necessary, leading to improved safety and efficiency in your work.

HOW

1. Use carts or hand-trucks with firm handles for transporting heavy or large quantities of products/materials.
2. Improve routes and bridges for smooth passage of vehicles and carts.
3. For transporting over longer distances, use larger carts or vehicles. Adapt the carts and vehicles so items can be carried safely and securely.
4. Take advantage of canals and rivers as transport routes. Motorized boats are extremely helpful for efficient transport of heavy or large quantities of materials.
5. If applicable, use draught animals such as cows, horses, buffaloes or goats for pulling carts.

WAYS TO PROMOTE COOPERATION

Walk around your village with fresh eyes. Discuss with your neighbours how they carry loads. There may be excellent examples of using self-made carts or hand-trucks. Exchange ideas and experiences to reduce your workload and improve safety and efficiency.

SOME MORE HINTS

- Attach appropriate side-boards to carts and other vehicles to prevent the load from falling off.
- Choose suitable carts or other vehicles in accordance with the load and the type of transport work. Learn from good examples.
- Have a regular check-up of the vehicles and boats regularly as this helps keep them in good condition. Simple maintenance work can reduce the risk of accidents.
- Well-maintained routes maximize the effectiveness of using carts, vehicles or animals for transport.

POINTS TO REMEMBER

There are many kinds of devices used for transport. You can learn from local experiences relevant to the local conditions.



Figure 5a.
Push cart to carry products.



Figure 5b.
Home-made cart made using bicycle wheels.



Figure 5c.
Cart drawn by cows.

CHECKPOINT 6: Lifting and handling devices

Use track, rollers, conveyors, hoists and other mechanical aids for lifting, carrying, and handling heavy loads.

WHY

Work-related musculoskeletal disorders are the most common type of occupational ill-health issues. The principle of prevention is to avoid hazardous manual handling operations by using appropriate equipment such as rollers or wheeled platforms, which can often be home made from locally available materials.

Awkward and strenuous bending postures may cause low back injury and should be avoided.

HOW

1. Use roller conveyors to move heavy loads for short distances. Fix both ends of the rollers onto stable places at the appropriate height for loading and unloading.
2. Learn from good practices around you on devices for lifting, carrying and handling loads. Design a new device or modify an existing one to suit the load to be carried.
3. When moving heavy objects at floor level, place a wheeled pallet underneath. This is particularly useful when you move agricultural machinery or boats.
4. Use inclined conveyors to move loads between two places with a height difference. This type of device is often used to move rice bags or packages of products, or when loading and unloading them to/from vehicles or boats.

WAYS TO PROMOTE COOPERATION

Tracks, conveyers and slides often require two or more persons to operate them. Exchange ideas on the design of such aids to improve their application and organization of joint work.

Discuss sharing the cost and use of machinery.

SOME MORE HINTS

- Lifting and handling devices need regular maintenance to ensure effective operation. Check all parts, such as rollers, steel beds or rubber beds, at regular intervals. If the devices are portable, store them in a safe place away from children.
- Similar ideas can be applied to various farming tasks. For example, a roller placed under a heavy agricultural machine or a boat helps you move it with less effort.

POINTS TO REMEMBER

The use of appropriate devices makes lifting and handling heavy loads easy, safe and effective.

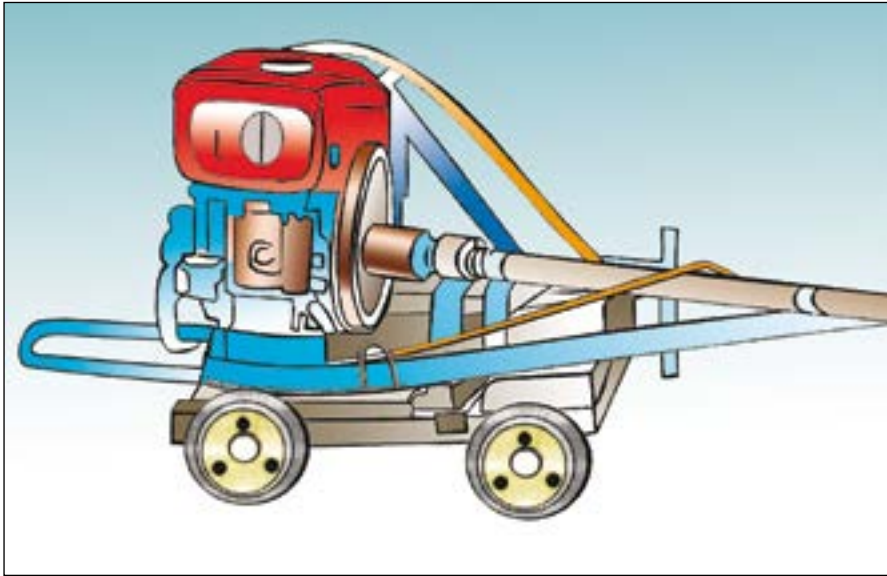


Figure 6a.
Wooden bed with wheels
for moving heavy machinery.



Figure 6b.
Manually powered
device for lifting
heavy items to the
working level.

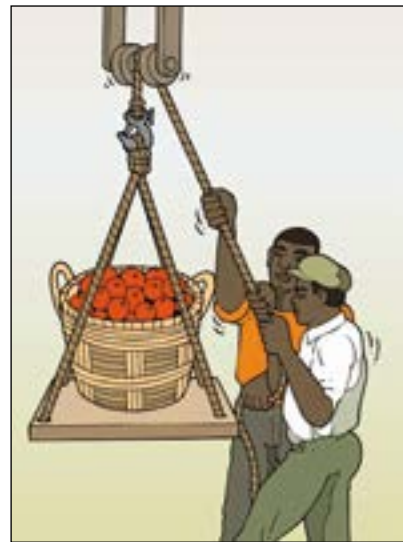


Figure 6c.
Manual hoist
for lifting
heavy loads.



Figure 6d.
Short conveyors between
different heights for loading
bags.

II. WORKSTATIONS AND WORK TOOLS

Well-designed workstations and tools increase work efficiency and also prevent health problems particularly in the back, neck, arms and legs. Farming work is usually carried out both on the farm and in the home, and family members are often involved in the work, for example sorting and packing products – hence the importance of good workstation arrangements at home.

CHECKPOINT 7: Work height

Adjust the work height to elbow level or slightly lower.

WHY

In order to prevent muscle strains and pain, and to increase productivity, workstations must be appropriately designed. A working height at elbow level minimizes your muscular efforts. This rule is applicable to both standing and sitting postures. This is particularly important in work such as sorting and packaging products, or in housekeeping work such as cooking and washing.

Working at too low a height requires a bending posture which imposes strains on your back and may cause low back pain. On the other hand, when the work height is too high you must elevate your arms and shoulders. This causes gradual stiffness and pain, and you will find it difficult to continue working in such a posture.

HOW

1. Look at your workstations, work tables and work surfaces. Adjust their heights to the elbow level of the person who works there most frequently. This will mean they can carry out work in comfort and this may increase efficiency and productivity.
2. When many people of different height work at one work table, provide foot platforms for the short and item platforms/holders for the tall. This allows them to adjust their work height to elbow level.
3. For work requiring a lot of movement and physical effort, such as cutting products or repairing tools, arrange workstations slightly lower than your elbow level.

WAYS TO PROMOTE COOPERATION

Farmers often squat on the ground when sorting or packaging farm products. This causes strains and pain. Encourage your family members and neighbours to work at appropriate workstations (chairs and tables) and to adjust the work height to elbow level. The same principle should be applied to household work.

Discuss and find feasible workstations and work heights which are the best possible for every worker. Evaluate and share the benefits of height adjustment.

SOME MORE HINTS

Make sure that you can reach major work items comfortably in your normal standing position. Materials, tools and containers should be within easy reach.

POINTS TO REMEMBER

Arrange appropriate work heights and avoid bending or squatting postures to reduce fatigue and musculoskeletal problems and to increase productivity.



Figure 7a.
A foot platform for a smaller person to adjust the work height to elbow level.

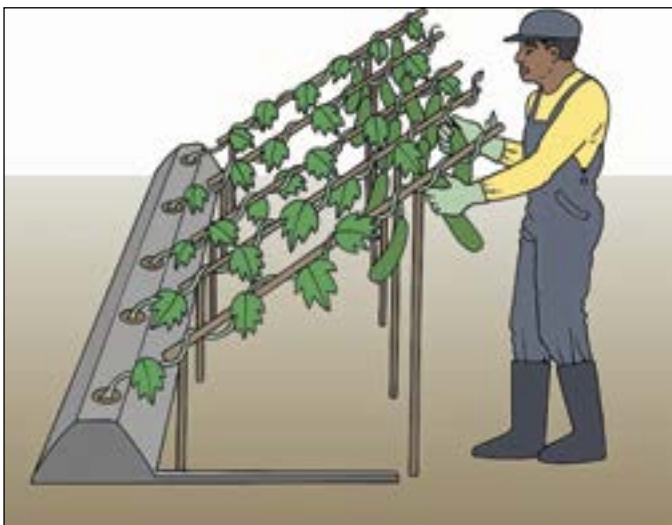


Figure 7b.
Improved arrangement to avoid strenuous working postures.



Figure 7c.
Work height lower than elbow height when greater force is needed.

CHECKPOINT 8: Proper chairs

Provide stable chairs or benches of suitable height with sturdy backrests.

WHY

Agricultural work involves various tasks to be performed while sitting. In general, working in a sitting posture may seem more comfortable than standing, but sitting for long hours in the same position on a poorly designed or unstable, seat causes muscle strain, pain and fatigue.

The use of stable chairs or benches of suitable height makes your tasks much easier. A sturdy backrest you can lean against will help to relax your back muscles.

HOW

1. Walk around your village. Identify work being performed while sitting, or that would be better performed in a sitting position. Discuss what type of seat (size, height, armrest, backrest and mobility) is appropriate to facilitate the work.
2. Attach a sturdy and appropriate backrest to chairs if possible.
3. Wooden or bamboo benches are often used for group work such as sorting farm products, picking up seeds, etc. Attach arm and back supports where possible.
4. Adjust the seat height with a cushion or other devices so that work can be performed at elbow height.

WAYS TO PROMOTE COOPERATION

Chairs with a backrest can usually be found in your house or your neighbourhood. Find good examples of chairs being used in agricultural work. Examine their features (size, height, material, weight, mobility, design, etc.) and ask about their advantages and disadvantages.

Once you identify the best chair for your work make the appropriate alterations, start from simple and feasible actions – attaching a backrest, adjusting chair height with a hand-made booster, making a simple wooden bench with a backrest, etc.

Tell your neighbours what the benefits have been, e.g. reduced back pain and increased productivity.

SOME MORE HINTS

- Armrests are also useful, particularly for work requiring fine processing and precision, to be performed in a sustained arm position.
- Chairs with a backrest are not good for the work requiring frequent changes of posture. Use stools or chairs without a backrest instead.
- When you work in sitting position for long hours, place a cushion or a round pillow at your lower back to reduce muscle strain.
- Change your working posture frequently and do regular stretching exercises. This helps your muscles and joints.
- Avoid bending and squatting postures

POINTS TO REMEMBER

The use of appropriately-designed chairs increases the quality of your work.



Figure 8a.
Stable chairs with a sturdy backrest for seated work.



Figure 8b.
Low-height chair with a sturdy backrest.



Figure 8c.
Simple mobile chair allowing the worker to occasionally change between standing and sitting.

CHECKPOINT 9: Easy reach

Put frequently used tools, switches and materials within easy reach.

WHY

Putting frequently used tools and materials within easy reach minimizes unnecessary movements. This avoids unnecessary stretching or bending which may cause musculoskeletal problems as well as saving time and energy.

The “easy-reach principle” is essential for all sorts of work. On the farm, tools such as knives, hoes and sickles should be placed within easy reach. Power switches and control panels should also be within easy reach of the operator. The same principle can also be applied at home: placing utensils, spice jars and pans for cooking – or pencils, notebooks and erasers for studying – within easy reach will help you perform your work more efficiently.

HOW

1. Identify the most frequently used materials and tools on the farm and in the home. Ensure they are placed within easy reach of those who use them.
2. Move less frequently used tools and materials to appropriate storage places.
3. If necessary, use shelves, racks or hangers to keep the tools and materials within easy reach.
4. Set up displays and control panels of pumps, threshing machines and other agricultural machines within easy-to-see and easy reach of the operator.

WAYS TO PROMOTE COOPERATION

The tools you frequently use may also be used frequently by others. For example, some farm tools such as knives and hoes are also used at home. Talk together and agree the best place for those tools to be stored so that everyone who uses them can reach them.

Observe your neighbourhood, and collect and share good practices. Help each other to develop innovative solutions by using local resources.

SOME MORE HINTS

- You can design special equipment to place materials within easy reach. For certain work, a wheeled device is convenient as it allows easy transportation of tools.
- Specially designed belts or bags to carry hand tools frequently used on the farm, such as fasteners, scissors, knives, or hammers is a good option.

POINTS TO REMEMBER

Time and energy are saved by placing tools and materials within easy reach.



Figure 9a.
Trays for products placed within easy reach.



Figure 9b.
Cooking items mounted on the wall within easy reach.



Figure 9c.
Tool cabinet placed within easy reach.

CHECKPOINT 10: Tools and devices

Choose tools that can be operated with minimum effort.

WHY

Well-designed tools ensure the correct working posture and greatly reduce your workload and fatigue as well as preventing accidents and improving productivity. The use of inappropriate and poorly designed tools, e.g. heavy or over-sized will make you tire quickly, resulting in lower efficiency and a higher risk of accidents.

Tools used in agriculture vary, largely depending on the type of work. For example, rice reaping and fruit picking need sharp knives with easy to grip handles. Detailed work such as branch grafting or thinning out requires accurate and delicate operation of specifically-designed tools. Greater strength is required for pounding, smashing and cutting, so heavy and stronger tools with sturdy handles are used for these kinds of work.

HOW

1. Choose lightweight but sufficiently strong tools to reduce the workload on upper limb muscles. Larger tools such as hoes and ploughs need handles of an appropriate length to ensure correct working posture. Attach sturdy easy to grip handles to the tools for safe operation.
2. You can design and make tools yourself. For example, a manual line-sowing device invented by a farmer in Viet Nam has been widely used there. Farmers no longer need to lift and carry heavy baskets of rice seeds.
3. Turntables and rotating worktables enable tasks to be carried out without having to manually lift and rotate the object. They are particularly helpful for repairing and maintaining machines and other equipment.

WAYS TO PROMOTE COOPERATION

Find good practices on easy-to-use agricultural tools designed by local people. Such tools increase productivity by saving energy and time and also by improving safety and health. Listen to your neighbours and discuss how to create useful tools using locally available resources. Share good practices with each other.

When you are interested in a new tool, consult somebody in your neighbourhood who has already used it. Any major problems with a hand tool can be identified by trial use.

SOME MORE HINTS

- Avoid overuse of a particular group of muscles by operating the same tool for long hours. Choose appropriately designed tools that do not require unbalanced muscular effort.
- When choosing a new tool, consider all possible uses for it, for example, operation by both right and left hands, standing and sitting.

POINTS TO REMEMBER

Appropriately designed tools and devices help to reduce fatigue and accidents, and increase productivity.



Figure 10a.
Hand-reaping machine with sturdy handles for safe operation.



Figure 10b.
Tool with long handle for good working posture.



Figure 10c.
Turntable for minimising the manual turning of heavy objects.

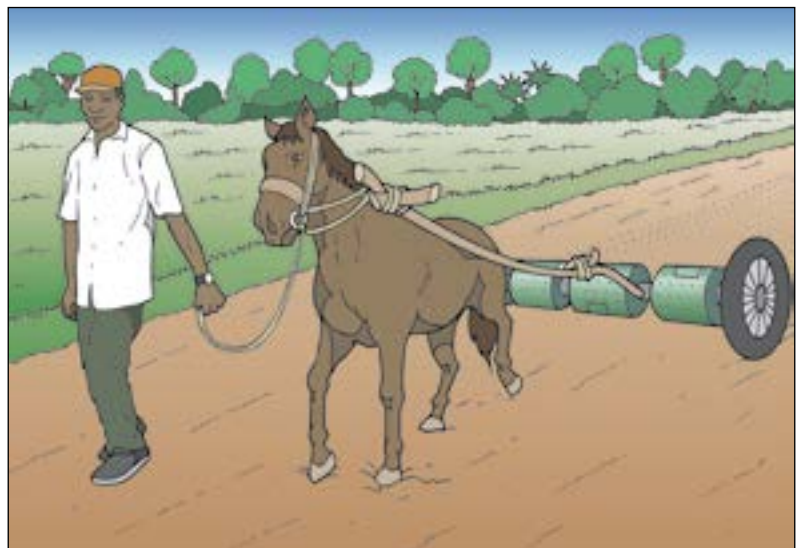


Figure 10d.
Home-made line-sowing equipment which can also be used for fertilizing and applying other products.

CHECKPOINT 11: Fixtures

Use fixtures such as jigs or clamps to hold items while work is being done on them.

WHY

When you work with a tool, holding workpieces in your hand often increases the risk of accident and injury. Imagine you are cutting an item with a knife in your right hand while your left hand is holding it. Your left hand is at risk of being cut. You need increased effort to cut hard materials using one hand. In addition, if you fail to hold the material properly it may drop, resulting in an injury or damage to the product, subsequently wasting time.

HOW

1. Design and use suitable fixtures such as jigs or clamps to hold your workpieces. They are particularly useful for fixing parts and components of machines, pumps or wheels when repairing them.
2. Securely attach the fixtures on worktables and stations. Adjust the height so that you can work at elbow level or slightly lower.

WAYS TO PROMOTE COOPERATION

- You can design and make simple fixtures yourself.
- When you need a fixture for a specific work item which is not often used, consider sharing use of the device with your neighbours.

- Promote the appropriate use of fixtures for cutting and repairing tasks to prevent accidents and injuries. Find good solutions and facilitate the exchange of experiences.

SOME MORE HINTS

- It is essential to ensure that the workpiece is properly fixed
- File any sharp edges of the fixture to avoid injury to your hands.

POINTS TO REMEMBER

Simple fixing devices greatly increase your comfort, safety and work efficiency.



Figure 11a.
Low-cost fixture made of pieces of wood, to hold workpieces for planing.



Figure 11b.
Simple fixture for easy and safe cutting operations ensuring product consistency.

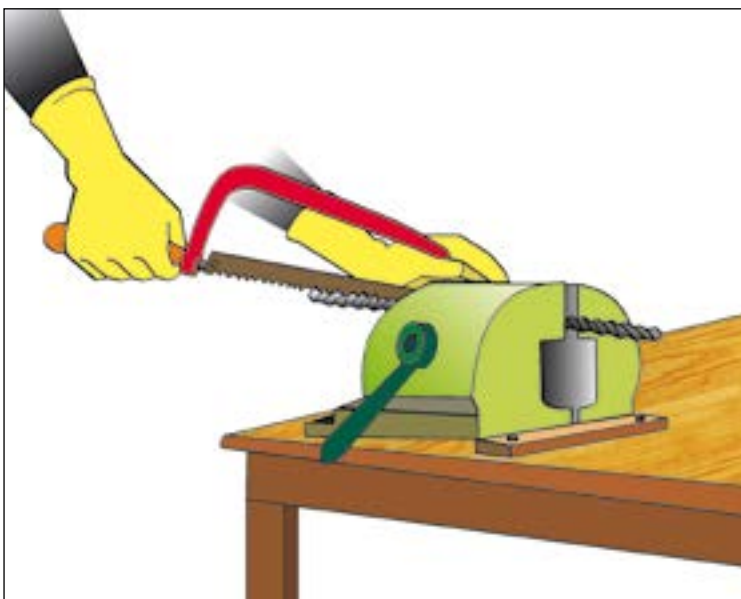


Figure 11c.
Jig to fix workpieces, allowing two-hand operation.

CHECKPOINT 12: Labels

Attach labels, signs and symbols that are easy to see and understand.

WHY

A mistake in the use of similar work pieces, operation of incorrect controls or switches on tools and machinery can lead to accidents. All controls and switches should be correctly and clearly labelled to reduce the likelihood of errors.

Attaching labels, signs or symbols to objects makes you see their functions as well as providing important information at a glance. By using visible, easy-to-understand and user-friendly labels, signs or symbols, you can save time, reduce unnecessary stress and improve safety and productivity.

HOW

1. Attach labels and signs to places where they are certain to draw people's attention.
2. Use only signs or symbols which are familiar to the users. Make sure the signs are understandable by consulting potential users.
3. Use large letters and illustrations that are readable from a distance.
4. Put labels directly above, beneath or beside the object.
5. Avoid text as much as possible. When necessary, make it clear and short.
6. Use the language of the designated users. When more than one language is used at the workplace, put them all.

WAYS TO PROMOTE COOPERATION

Good labels and signs attract the attention of a wide audience and are effective in preventing accidents. Design several kinds of labels for work and home items. Then discuss with neighbours and family members and judge which are the best (both text and illustrations) and use them.

SOME MORE HINTS

- Use different colours and shapes effectively.
- Lettering 1 cm high for labels is usually sufficient at most workstations.
- The sign must be short and easy to understand at a glance.
- Keep labels clean and visible.

POINTS TO REMEMBER

Proper labels and signs significantly reduce mistakes and improve safety and productivity.

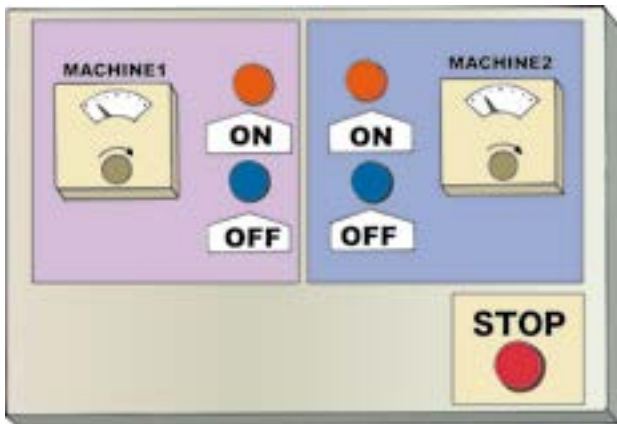


Figure 12a.
Correctly labelled controls on operating panel.



Figure 12b.
Easy-to-see labels helps avoid misuse.

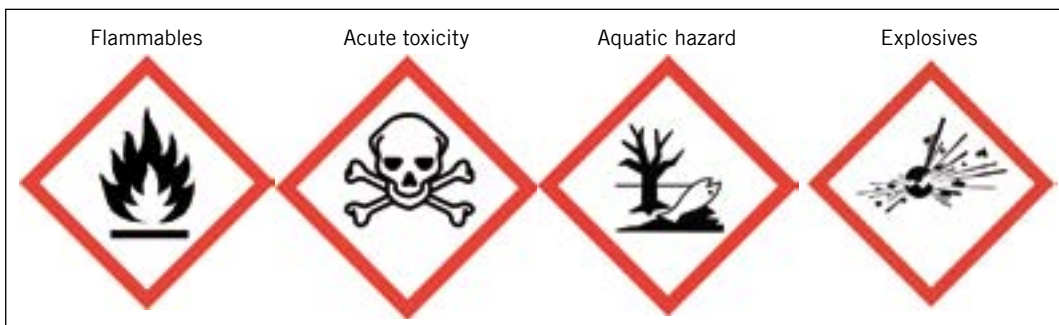


Figure 12c.
Examples of pictograms: The Globally Harmonised System for Classification and Labelling of Chemicals (GHS).

III. MACHINE SAFETY

Many kinds of machines are used in agricultural work. While the productivity of work increases, safety risks may also increase by the use of the machines. However, there are a variety of practical, simple solutions to reduce the risks - the proper use of guards, safe feeding devices and good maintenance. Electrical accidents are identified as another serious safety issue in agriculture in many countries. In this chapter, practical measures for safe use of machines and electrical equipment are presented.

CHECKPOINT 13: Machine guards

Attach proper guards to dangerous moving parts of machines.

WHY

Access to moving parts of machines increases the risk of accidents. For example coming into contact with gears, rollers or belts may cause serious injuries. In addition, objects may be ejected by the machines, e.g. in the form of sharp objects and hot metal. Simple, even hand-made guards can significantly reduce such hazards and risks.

Machines can harm not only the users but also visitors and family members (often children) who are just passing by.

HOW

1. Attach guards and covers to the moving parts of machines. Use available materials such as pieces of wood or steel. Select strong, durable materials so that children and non-maintenance people cannot remove them.
2. Make guards and covers detachable for repairs and maintenance, which should be done only by experienced and qualified persons following the safety maintenance procedures.
3. When continuous monitoring of the machine operation is required, use a transparent material for the guard such as plastic or metal mesh.
4. Install fences made of sturdy materials such as wood, bamboo or metal to limit access to machines placed in areas where many people pass by.

WAYS TO PROMOTE COOPERATION

Together with your neighbours, observe the various tasks carried out in your village using agricultural machines. Identify when, where, what and how machines are used. Identify the hazards and risks of these machines and assess the need for guards. Discuss feasible solutions and the steps to be taken. When necessary, design and make proper guards using locally available materials.

SOME MORE HINTS

- Ensure that the guards are tightly fixed to the machines to avoid accidental removal which may cause serious injuries. Before operating the machine, carefully check that all nuts and bolts attaching guards are securely tightened.

POINTS TO REMEMBER

The best protection against potential accidents is to avoid contact with moving parts of machines by attaching proper guards.

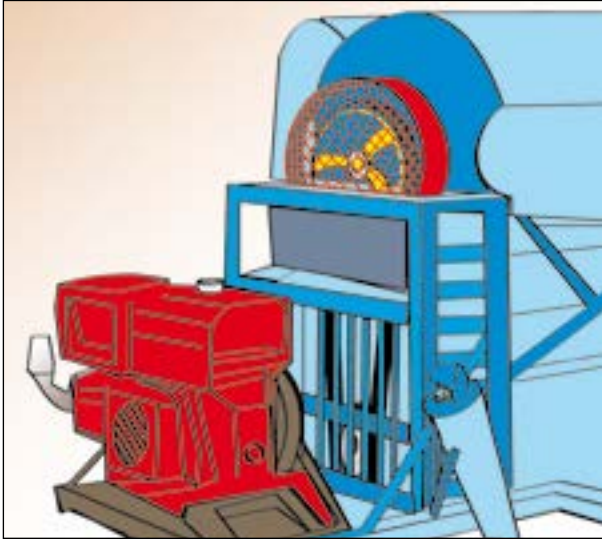


Figure 13a.
Safety guard made from locally available materials. By using transparent material such as a metal mesh, you can observe the operation safely.



Figure 13b.
Special guard on a powered hand tool to prevent accidents and injuries to the operator and people nearby.

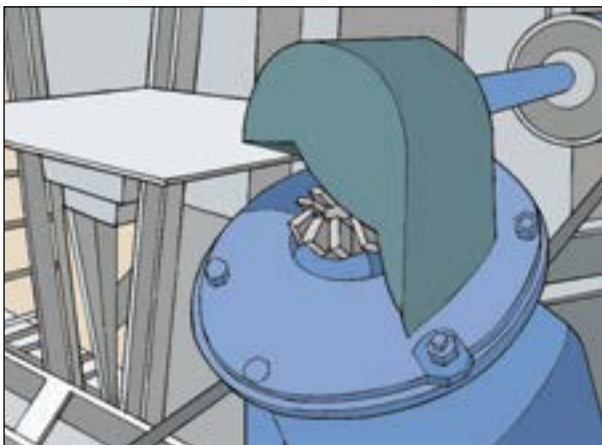


Figure 13c.
Hand-made safety guard made from locally available material.

CHECKPOINT 14: Feeding devices

Install appropriate feeding devices to avoid accidents and increase production.

WHY

Feeding materials into machines is accompanied by a high risk of accident and injury. Unfortunately, the amputation of a farmer's finger(s) or upper limb as a result of an accident while feeding crop bundles into threshing machines is not rare. The risk is similarly high in the operation of milling, grinding and husking machines. A slight error can instantaneously cause serious injury.

Feeding devices enable you to operate the machine safely by decreasing the possibility of your hands contacting the dangerous parts of the machine. Especially, certain types of automatic feeder, which only needs loading with materials without manual feedings, minimizes the risks.

The use of appropriate feeding devices may improve work efficiency and therefore increase productivity. The repetitive movements in manual feeding induce fatigue of upper limbs and decrease your work efficiency. Automated feeding mechanisms make the work much easier and more efficient and consequently productivity will increase.

HOW

1. Design and attach a chute-type feeding device. Fix the device firmly to the machine. Materials and produce slide easily down a gravity chute with minimum manual aid. This mechanism is suitable for threshing machines.
2. Design funnel-type devices and attach them at the feeding part of the machine. This mechanism is good for pressing, milling or grinding of farm products.

WAYS TO PROMOTE COOPERATION

Find good practices on feeding materials into machines in your neighbourhood and village. There are several types of feeding mechanisms. Share experiences and discuss the best feeding devices for a specific type of material.

SOME MORE HINTS

- Using feeding devices will reduce exposure to hazards but not eliminate the risk. Ensure machine guards and other safety devices are properly installed.
- Feeding rates are determined by weight, volume and shape of the material. The feeding of mixed materials may cause irregular ejection.
- Regularly inspect and maintain feeding devices.

POINTS TO REMEMBER

Attach suitable feeding devices to avoid accidents and increase productivity.

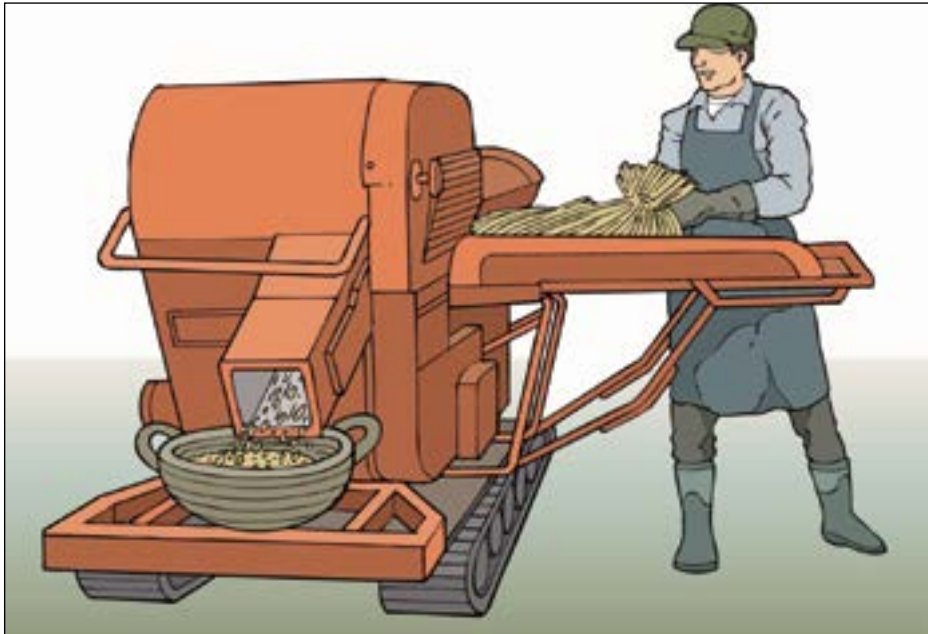


Figure 14a.
Feeding device attached to a threshing machine to gradually feed bundles of rice.



Figure 14b.
Chute-type feeding device – using a platform to adjust working height for good working posture.

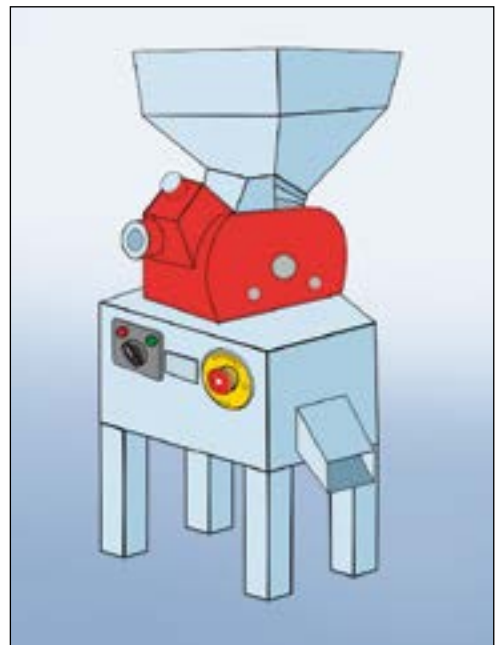


Figure 14c.
Funnel-type feeding device for milling.

CHECKPOINT 15: Emergency stops

Make emergency stops clearly visible, identifiable and quickly accessible.

WHY

Emergency stops must be clearly visible, identifiable and located within easy reach of the normal operating position.

Accidents happen unexpectedly. When a danger or impending danger arises during machine operation, the most critical action is to immediately stop the machine.

In emergency situations, it's difficult to read or recognize text. Selecting the right button or switch to stop the machine from the control panel is vital. Therefore, emergency stop devices must be well designed so that everybody, including visitors and family members, can easily see, clearly identify, and readily access them.

HOW

1. Place emergency stops within easy reach of users. Separate them from other switches and buttons.
2. When emergency stops are placed in the same control panel or close to other buttons, make them clearly visible and identifiable. The colour red is generally used for emergency stop devices.
3. Make emergency stop buttons large. Avoid screw-type devices.
4. If necessary, attach labels in large clear characters. Avoid text and foreign languages.

WAYS TO PROMOTE COOPERATION

You may also find emergency stops on household appliances or machines on the farm. Check the location and condition of these stops with your family members and neighbours.

Discuss and design together visible, identifiable and accessible emergency stops.

SOME MORE HINTS

- A red operator device or button on a yellow background, with or without text behind, is often used as an emergency stop.
- Never disable an emergency stop device.

POINTS TO REMEMBER

Clearly visible, identifiable and readily accessible emergency stops will save you, your family and your friends in an emergency.



Figure 15a.
Emergency stop, large and coloured red, within easy reach.



Figure 15b.
Emergency stop on the control panel, large and coloured red with easy-to-read text.

CHECKPOINT 16: Electrical safety

Ensure safe use of electricity.

WHY

Electricity is usually necessary for life today and is used for many purposes at work and at home. But electricity can kill or injure people and damage property. Unfortunately, electrical accidents including electric shock and burns are constantly reported at work in agriculture.

In agricultural tasks, many kinds of machines such as, threshing machines or water pumps are used in outdoor settings and/or wet surroundings. This increases the risk of accidents if the power cables and electrical connections are not properly maintained.

Extension cables, often used for agricultural work, may increase risks particularly if there is any damage to the plugs, sockets, electrical connections and the cable itself.

Unsafe use of electricity can cause death and injury, both of the person operating the equipment or machine and of others by fire or other serious accidents.

HOW

1. Always use cords or outlets equipped with earth-leakage circuit-breakers. Don't leave appliances plugged in where they might come into contact with water, corrosive or flammable materials.
2. Regularly check all wire connections. Use proper connectors or cable couplers to join wires. When they are not available, wrap the joins carefully with electrical adhesive tape. Never leave any joins uncovered. Replace the electrical adhesive tape immediately when it becomes loose or worn out.

3. Install electrical junction boxes and containers for electrical connections.
4. Protect all circuits with circuit-breakers or fuses. Main power switches and breaker boxes should be clearly marked.

WAYS TO PROMOTE COOPERATION

Electrical safety requires special skills and experience. Ask assistance and technical advice from qualified persons in your village or area.

It is a good idea to organize a brief on-site training on electrical safety in collaboration with neighbours including family members. Share experiences and develop a joint plan for the safe use of electricity.

SOME MORE HINTS

- Use certified appliances which are suitable for your working environment. Poor-quality products may cause short-circuits, resulting in injuries, fires or damage to property.
- Provide enough socket outlets and avoid overloading.
- Carry out preventive maintenance regularly.
- All electrical equipment should be correctly earthed. Check local regulations for earthing systems and follow them.

POINTS TO REMEMBER

Proper choice, installation and maintenance of electrical appliance can prevent accidents and damage.



Figure 16a.
Portable tools should be securely plugged into a socket which is away from water and out of a child's reach.

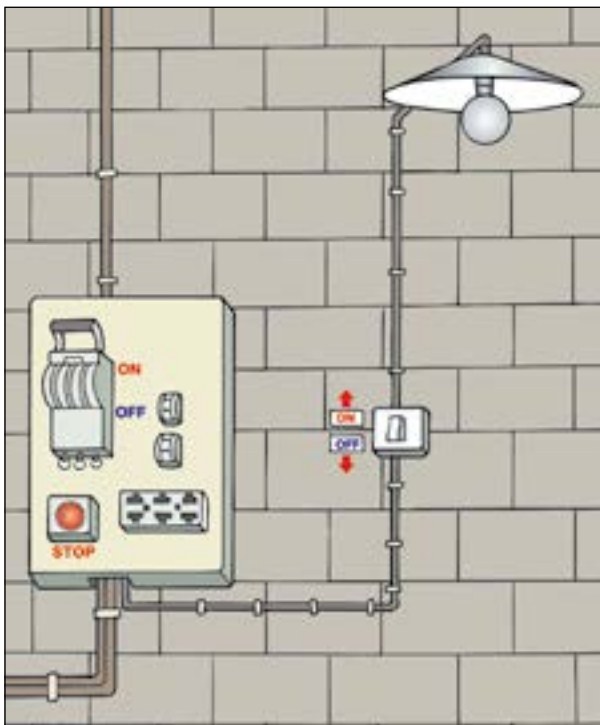


Figure 16b.
Properly covered and sheathed electric wires, control panel and switch.

IV. WORK ENVIRONMENT AND CONTROL OF HAZARDOUS AGENTS

As a farmer, you work in the natural environment which is not always comfortable and healthy. For your safety and health, it is important to control exposure to sunlight, heat, cold, humidity and other extreme circumstances at work. You can improve your working environment by utilizing natural resource such as daylight and breeze in effective ways, by installing simple equipment, or combination of both.

Pesticides and chemicals are commonly used in agriculture and pose safety and health risks. This chapter provides advice on protecting yourself from agrochemicals and disposing of them safely.

CHECKPOINT 17: Ventilation

Change workplace design and layout to improve natural ventilation.

WHY

Ventilation is a key to your safety and health. Inadequate ventilation leads to elevation of temperature, humidity and air pollution levels, which may result in fatigue, a sense of suffocation, sweating and even intoxication or heat stroke. Fresh air vitalizes you physically and mentally, and increases work efficiency.

Natural ventilation is the most effective and economical source of fresh air, and is readily available in the usual settings of agricultural work.

In addition to agricultural tasks such as packing farm products and repairing tools, there are various household tasks which are carried out indoors. Poor ventilation in the house is harmful to the health of family members who stay inside most of the time, especially older people and young children.

Proper ventilation using natural air flow is always essential, even in cold climates where a heating system is operated.

HOW

1. Choose places that have a good flow of natural air for agricultural and household work. This is particularly important in hot weather.
2. Install an appropriate number of well-designed windows or openings to allow a good flow of air. Remove obstacles to the airflow.
3. When applicable, install small windows in the roof so that the natural upward airflow can release heated air.

4. Use electric fans where sufficient natural airflow is not available.
5. Open windows regularly and frequently for adequate ventilation.

WAYS TO PROMOTE COOPERATION

Visit your neighbours' indoor workplaces and houses. Look at their arrangements and efforts for ventilation. Learn from good examples of using the natural flow of air. Exchange experiences to improve the indoor climate.

SOME MORE HINTS

- Isolate or place heat sources, such as cookers, furnaces and machines that produce heat, away from the main workplace.
- Install ceilings under the roof. They can buffer strong sunlight and heat radiation, extreme temperatures.

POINTS TO REMEMBER

A good flow of natural air facilitates ventilation and removes heat and polluted air.



Figure 17a.
Wide-open door and windows without obstacles, to increase the natural ventilation.



Figure 17b.
Well-ventilated workstation with good natural airflow.

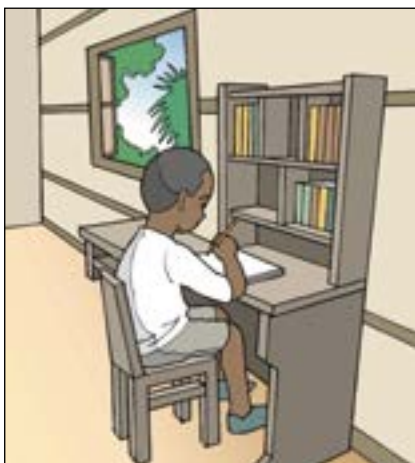


Figure 17c.
Good ventilation in the house with open windows.

CHECKPOINT 18: Daylight

Use daylight effectively by changing workplace layouts and redecorating where necessary.

WHY

Inadequate illumination at the workplace decreases job efficiency, and increases mistakes and the risk of accidents. Daylight is good and the most economical source of illumination, saving energy costs.

Daylight is known as a significant stimulant to the human visual system and circadian rhythm. Also, its positive effect on mental health is well-documented.

In addition to the design of windows, the colour of walls and ceilings is very important to maximize the effect of daylight. Light colours increase the reflection of light, resulting in better lighting conditions and thereby energy savings. Light colours may also contribute to people's comfort and motivation.

HOW

1. Identify tasks requiring more lighting, including those carried out by your family members. Designate places where you have plenty of daylight for those tasks.
2. Open windows and doors. Clean windows regularly. Remove obstacles near windows.
3. Install transparent materials or a translucent plastic panel in the ceiling or the roof for more daylight.
4. Paint or decorate walls and ceilings in light colours such as white, light cream or light blue. Alternatively, you can use light-coloured wallpaper. Clean walls regularly.

WAYS TO PROMOTE COOPERATION

Visit workplaces and houses in your village and find those in which you feel bright and comfortable. Learn how such workplaces and houses use daylight.

If you don't have good access to daylight, consult with your neighbours and find a mutually agreed way to improve. This may include the cleaning up of premises or the removal of obstacles near windows.

SOME MORE HINTS

- Arrange working time so that you can take maximum advantage of using daylight.
- Beware of the insulation effect of windows. It may cause a loss of heat, on the other hand, strong sunlight through windows, increases the room temperature.
- Adjust the amount and direction of daylight by installing curtains, shades and screens.
- When daylight is insufficient, or more light is needed for a specific task, use local lighting in combination with daylight.

POINTS TO REMEMBER

Daylight is the best and most economical source of illumination.



Figure 18a.
Workstation in front of a wide window.



Figure 18b.
Workstation benefiting from natural lighting due to the translucent panel in the ceiling and being near a window.



Figure 18c.
Workstation near the window increasing the use of natural light, also benefiting from walls painted in a light colour, and white-coloured boxes.



Figure 18d.
Combined use of artificial light when daylight is insufficient.

CHECKPOINT 19: Heat and cold

Avoid excessive exposure to sunlight, heat, or cold.

WHY

Working outdoors in strong sunlight and heat easily makes you exhausted and therefore decreases efficiency and productivity. Without adequate water intake, sweating causes dehydration, and even life-threatening health problems such as stroke and shock.

Exposure to ultraviolet (UV) radiation, a major component of sunlight, has a variety of acute and chronic effects on the human body, in particular on skin, eyes and immune system. Its negative outcomes can include skin cancer and cataracts. UV radiation levels increase with the levels of sunlight.

In cold weather, a significant amount of energy is lost in maintaining body temperature, especially in windy conditions.

HOW

1. Protect your skin from strong sunshine and UV radiation by wearing light-coloured, long-sleeved clothes and sunscreen.
2. In cold weather, wear clothes in layers to trap air which serves as an insulator. Choose clothes of natural materials that breathe to evaporate sweat.
3. Cover your head for protection from UV radiation and heat exposure in summer, and for prevention of heat loss in winter.
4. Arrange your work schedule to avoid excessive exposure to sunlight, heat or cold. In summer, start work early. In winter, arrange outside tasks to be carried out during the warmest hours.

WAYS TO PROMOTE COOPERATION

Local farmers and other local people have innovative ideas to protect themselves in specific climates. Share good practices including locally made or locally available protective clothes and equipment.

It is particular important to cooperate in arranging appropriate work schedules.

SOME MORE HINTS

- Take frequent short breaks when working in strong sunlight and heat.
- Carry out manually demanding tasks in the most favourable time period.
- Choose a wide-brimmed hat to protect you from exposure to sunshine.

POINTS TO REMEMBER

Excessive exposure to sunlight, heat and cold should be avoided through the use of protective clothes and work scheduling.



Figure 19a.
Simple tent protecting workers from direct exposure to strong sunlight.



Figure 19b.
Specific work clothes for cold weather.



Figure 19c.
Start work early to avoid exposure to strong sunlight and heat.

CHECKPOINT 20: Pesticides

Choose the appropriate pesticide and use it correctly.

WHY

Pesticides are used to kill pests, weeds and moulds. They can also harm humans, animals and the environment. Farmers therefore need to use pesticides wisely to increase productivity and at the same time, to reduce unwanted impact.

The harmful effects of pesticides on humans include acute poisoning, certain chronic diseases such as neuritis, chronic liver disorders, or cancer.

Pesticides may harm your family members and neighbours, especially children. Consumers may also be affected through pesticide residues in agricultural products.

HOW

1. Carefully examine the need to use a pesticide. Compare all possible alternative measures to control the pest or weed.
2. When the use of pesticides is the only reasonable solution, consult experts such as agricultural advisors or health centre personnel for their advice and information on how to choose and use the correct pesticide.
3. Purchase only approved products. Read the label of the product carefully.
4. When spraying pesticides wear appropriate protective gloves, goggles, masks, shoes and clothing.

5. Always store pesticides safely in appropriately locked containers, correctly labelled, and out of the reach of children.

6. Minimize the use of pesticides.

WAYS TO PROMOTE COOPERATION

It is always a good practice to inform your neighbours that you will be spraying pesticides so that they can make any necessary arrangements, including protection from accidental exposure.

Coordinating the use of pesticide in neighbouring farms may have mutual benefits. Further, you can propose community-wide management and arrangements for spraying pesticides.

Collect up-to-date information and exchange experiences on the safe and minimum use of pesticides. Joint efforts to ensure safety of local food products will increase their market competitiveness.

SOME MORE HINTS

- Ask pesticide suppliers and manufacturers to provide chemical safety data sheets. It is primarily their responsibility to give safety and health information to their customers.
- Collect relevant information through television and radio programmes, books and the Internet.

POINTS TO REMEMBER

Use pesticides safely and wisely. You will reduce health risks to you and your neighbours, as well as to your consumers.



Figure 20a.
Consultation with the agricultural advisor before purchasing pesticides.



Figure 20b.
Technical assistance by the agricultural advisor on the selection of the right pesticide.



Figure 20c.
Hazardous substances are to be kept away from children.



Figure 20d.
Community seminars on the safe use of pesticides for farmers and their family members.

CHECKPOINT 21: Labelling chemicals

Label containers of pesticides and other hazardous chemicals.

WHY

The misuse of pesticides may result in severe damage to your and others' health and to the environment.

Clear and easy-to-understand labels on the containers of pesticides and other hazardous chemicals are essential for the safety and health of everyone who has access to the containers, including your family members and others.

The original labels on chemical products are written in technical terms, and often in a foreign language, usually of the country of manufacture or distribution. It makes end-users difficult to understand information and follow the instruction.

HOW

1. Read the labels on the containers of all pesticides and chemical products carefully. If they are not clear, seek technical assistance from agricultural advisors or health centre personnel.
2. If persons are having difficulty understanding the information on the label, put an additional label on the container clearly indicating the name, purpose and warning in the local language. For example: "MAXI-PEST, Insecticide, DANGER".
3. Never remove labels even when you dispose of the container.
4. When you purchase pesticides and other chemicals in large quantities and divide them into smaller containers, label these appropriately and do not use beverage bottles or food containers. This will prevent misuse.

WAYS TO PROMOTE COOPERATION

Labelling is useful to identify something and to avoid its misuse. This is applicable to any substances in your house such as seasonings and detergents. Exchange information and share experiences with your family members and neighbours on the usefulness of adequate labels.

You may wish to invite experts from local health and agrochemical centres and organize a session on pesticide safety and management.

SOME MORE HINTS

- Choose water-resistant, permanent-ink bold pens for labelling. Use only simple and clear text which everyone understands, for example, "POISON" or "DANGER". It is a good idea to use pictograms and symbols such as a skull and crossbones to ensure everyone understands.
- When the label is worn out or not in good condition, replace it without delay.
- Labelling pesticide and hazardous chemicals is usually obligatory and regulated by law. Do not purchase pesticides without proper labels.
- Even if appropriately labelled, containers should be stored in the locked cabinet, away from children.

POINTS TO REMEMBER

Label all containers of pesticides and other chemicals in the local language to avoid misuse.



Figure 21a.
Simple, easy-to-read labels.



Figure 21b.
Labelling pesticides and hazardous chemicals in the local language.



Figure 21c.
Pesticides and personal protective equipment labelled and stored in a locked cabinet.

CHECKPOINT 22: Personal protective equipment (PPE)

Use personal protective equipment properly.

WHY

Personal protective equipment (PPE) protects specific parts of the body against hazardous agents or substances such as dust, noise and chemicals. PPE must be used when other primary measures cannot control exposure to the hazard.

HOW

1. Review the type of hazards you may be exposed to and identify appropriate PPE and learn how to use it. Consult suppliers or experts at the agriculture centre and get their technical assistance.
2. Organize and participate in training to understand the importance of using PPE. Also, continuous training to obtain knowledge and skills for proper use of PPE is vital.
3. Clean the equipment after each use and store it in a secure place.
4. Regularly check the functioning of PPE and provide necessary maintenance.

WAYS TO PROMOTE COOPERATION

Get and share up-to-date information and encourage neighbours to use PPE properly.

Check each other to make sure that the equipment is being properly worn.

If you don't feel comfortable using specific equipment, discuss with neighbours and experts and find a reasonable solution. Do not abandon the use of PPE.

SOME MORE HINTS

- Choose correct shapes and sizes of PPE and ensure it is compatible. In particular, check whether the mask fits the user well. Even a small space between the mask and the face allows chemical into the breathing zone reducing the effectiveness of the PPE.
- Consider particular climate factors such as tropical/cold and choose suitable PPE.
- Be aware of the importance of good storage for PPE. Certain types of equipment may be affected by temperature and humidity.
- Repeatedly practise the proper wearing of PPE.

POINTS TO REMEMBER

Correct choice and proper use of personal protective equipment is critical for your health.



Figure 22a.
Practise the proper wearing of equipment.



Figure 22b.
Examples of personal protective equipment used in agricultural situations.



Figure 22c.
Identification of specific hazards (dust, gas or vapour) and selection of right type of mask and filter.



Figure 22d.
Regular cleaning and maintenance (change of filters) for effective protection.

CHECKPOINT 23: Disposal of pesticides and pesticide containers

Dispose of pesticides and pesticide containers carefully and properly.

WHY

Pesticides and chemicals can harm humans, animals and the environment if they are not disposed of properly. Nearly all pesticides are classed as hazardous waste. Unused pesticides or empty pesticide containers disposed of in fields, drains, sinks or canals may cause pollution. It is critical to establish safe methods of disposal.

Residual amount of chemical in the container, even just a little amount, has the potential to harm people and animals. Thus pesticide containers should not be used for any other purpose.

It is your responsibility to ensure that empty pesticide containers are disposed of safely in the designated area in accordance with local regulations.

HOW

1. Carefully read the label of pesticide container and get information/instructions on its disposal. When it's not clear, obtain advice and assistance from experts and suppliers.
2. Learn the regulations and arrangements for hazardous waste of your local authority.
3. Never put pesticides down the sink or toilet or down drains.
4. Do not remove the label of the pesticide container after use as someone may be tempted to reuse the container.

5. Dispose of empty pesticide containers in the designated place in accordance with local regulations. Do not leave them around.
6. Do not put pesticides and their empty containers into a fire.

WAYS TO PROMOTE COOPERATION

Collect all bottles and containers which have been thrown out and left on the ground in your village. They could harm people and the environment. Discuss the safe disposal of them with your neighbours.

It is good practice to designate a community disposal site and establish common rules. Seek advice from an expert in the local health or agricultural centres.

SOME MORE HINTS

Use personal protective clothing and gloves when handling pesticides and other chemical waste.

POINTS TO REMEMBER

Prevent accidents and protect people and the environment by safe handling of pesticides and chemical waste.



Figure 23a.
Community disposal site designated in accordance with local regulations.



Figure 23b.
Container with a lid and lock for empty chemical and pesticide containers.



Figure 23c.
Collection of hazardous waste administered by the local government.

V. WELFARE FACILITIES

Safe drinking water, nutritious food, hygienic toilets, short breaks and resting after work – these are basic necessities for healthy farm worker.

Special attention and arrangements are required for pregnant women or those with disabilities so that they can work in safe, healthy and comfortable conditions.

The importance of neighbourhood cooperation is particularly highlighted in this chapter.

CHECKPOINT 24: Drinking water

Provide an adequate supply of safe drinking water and ensure proper fluid intake at the workplace.

WHY

Significant amounts of fluid are lost from your body through sweating during work. An adequate intake of fluids is critical to avoid dehydration. The required amount of water intake increases when working in a hot environment or in strong sunlight. A glass of cool water can save you from life-threatening health problems, and refreshes you physically and mentally.

In cold environments adequate water intake is equally important. Fluid losses can occur through sweating or increases in urine production. However, fluid replacement is often insufficient because the feeling of thirst may be blunted. Drinking a warm beverage during a short break will revitalize you.

Drinking water should be safe and clean, even in the field where clean tap water is not always accessible. Beware rainwater, river water and well water could be contaminated. Also, stored water must be protected from bacteria growth.

HOW

1. Ensure that the source of drinking water is clean and safe. Regularly check and monitor its quality.
2. Rainwater and groundwater are drinkable only when filtered and boiled for at least 15 minutes. Avoid groundwater sourced from the area where pesticides may have been used.
3. Take fluid regularly even if you don't feel thirsty.

4. Use clean and sterilized water containers. Keep them in dust-free places and avoid exposure to direct sunlight.
5. In a cold environment, use thermal containers.

WAYS TO PROMOTE COOPERATION

Ensure that everyone takes in a proper amount of clean water during work, especially in busy periods such as harvesting. When working as part of a team with your neighbours, take turns to ensure that there is sufficient water for everyone.

SOME MORE HINTS

- On average, in a temperate climate, an adequate fluid intake for men at a normal physical activity level is roughly 3 litres a day. Physical activity and environmental factors increase this by 50–200 per cent.
- Regularly clean water containers and filters.
- Do not drink alcoholic beverages during work and breaks. Alcohol accelerates dehydration and increases the risk of errors and accidents.
- Symptoms of mild to moderate dehydration include sticky mouth, dry skin, tiredness, thirst, decrease of urine output, headache and dizziness. When you recognize these symptoms, take fluids and rest.

POINTS TO REMEMBER

Prepare and intake correct amounts of clear drinking water during work and at home.



Figure 24a.
Hygienic drinking water placed near the workstation.



Figure 24b.
Portable container for providing drinking water for field work.



Figure 24c.
Take regular breaks to drink water together with the neighbouring farmer.

CHECKPOINT 25: Nutrition

Eat well for your health and well-being.

WHY

A well balanced diet contributes to increased productivity and morale, prevention of accidents and premature deaths, and reductions in health-care costs.

Nutritional needs differ at different stages of life and lifestyle patterns. In general, agricultural work is physically more demanding than, for example, office work. That means agricultural workers need to consume more calories than office workers.

Contaminated food causes serious health problems. Especially, in fields, storage of food needs careful attention.

HOW

1. Eat cereals (rice, bread, noodles, maize, manioc, potatoes, etc.), vegetables, fruit, dairy products (milk, yoghurt, cheese), and protein (meat, fish, poultry, egg, nuts, etc.) each day.
2. Never skip a meal. Breakfast is especially important giving you energy to start your work safely and efficiently.
3. Use as many local ingredients as possible.
4. Prepare and store food carefully. Food may be contaminated through poor personal hygiene, dirty kitchen equipment, poor cooking, or keeping it warm for long periods.

WAYS TO PROMOTE COOPERATION

Having lunch with your neighbours on the farm provides a good opportunity to increase communication. You may share not only your food with them, but ideas and experience too.

SOME MORE HINTS

- Have at least one meal with your family every day.
- When you take a lunch box to the field, store it in a cool place. Avoid direct exposure to sunlight.
- You may produce necessary foodstuff by planting vegetables and fruit, or by building a fish pond.
- Consider cultural and religious requirements in the food when different ethnic groups of people work together.
- Do not take too much salt. In normal physical activity, an adult should take no more than 6 grams of salt a day (around one full teaspoon). Taking too much salt is hazardous and may cause hypertension, stroke and cancer.

POINTS TO REMEMBER

Nutritious meals promote health and well-being providing workers with sufficient energy and reduce the risk of errors and accidents therefore increasing productivity.

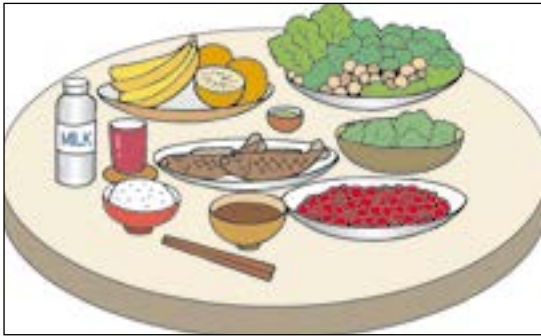


Figure 25a.
Balanced, nutritious meal with local ingredients.



Figure 25b.
Lunch with neighbouring farmers in the field.



Figure 25c.
Family dinner after work.

CHECKPOINT 26: Sanitation and personal hygiene

Provide clean toilets and washing facilities which are accessible at work.

WHY

Clean toilets and washing facilities are basic needs for well-being at any workplace.

Lack of adequate toilets may harm health as well as the environment.

It is reported that certain types of illnesses are caused by the lack of adequate washing facilities and poor personal hygiene practices. Washing hands and bodies after work is essential to prevent infection and health problems due to exposure to pesticides, chemicals and other harmful substances. This is particularly important before eating and drinking.

HOW

1. Install enough toilets near your work area with a supply of toilet paper, a covered bin, and as far as is reasonably practicable, running water. If this is not possible, consider alternatives such as water containers.
2. In remote areas consider constructing simple latrines.
3. Provide washing facilities with a supply of soap and a means of drying hands. The basin must be large enough to wash hands and forearms.
4. Keep facilities clean.

WAYS TO PROMOTE COOPERATION

It is practical to share toilets and washing facilities in the field with other farmers. In collaboration with neighbours, plan where those facilities are to be installed or built. Also develop a joint plan for cleaning and providing necessary supplies.

SOME MORE HINTS

- Where possible, separate facilities for men and women.
- Practice good personal hygiene: washing hands after defecation, especially before eating.
- When you construct a latrine, locate it far away from water sources.
- Never restrict fluid intake during work because a toilet is not available. This harms your health. Consider possible options such as portable cabins or chemical toilets.

POINTS TO REMEMBER

Clean toilets and washing facilities that are readily accessible are necessary for your well-being and productive work.



Figure 26a.
Toilet with appropriate washing facilities.



Figure 26b.
Latrine-type toilet made from locally available materials.



Figure 26c.
Toilet and washing facilities installed in the field for shared use by neighbouring farmers.

CHECKPOINT 27: First aid

Provide first-aid materials and learn basic first aid.

WHY

When you get sick or injured at work, first aid must be provided as soon as possible. However, farms and fields are often located in remote areas, distant from villages and communities where medical services are available.

With basic knowledge and skills in first aid, you can provide medical assistance and save lives in an emergency. Appropriate first-aid training is essential because incorrect actions and use of medicine can do harm.

In addition in case of emergencies, cooperation and coordination are key. You cannot take care of an injured or sick person alone.

HOW

1. Prepare a first-aid kit at home. Regularly check the items, especially their expiration dates. Suggested items for a first-aid kit include: sterile cotton gauzes, bandages, dressings, scissors, tapes, disinfectant and a bottle of saline solution.
2. Prepare a small box with basic first-aid items to take to work with you.
3. Keep the first-aid kit out of the reach of young children.
4. Participate in recognised first-aid training courses delivered by qualified persons. Ask the health officer or village administrator about available training.
5. Make a contact list of doctors, nurses and clinics.

WAYS TO PROMOTE COOPERATION

Share knowledge, information and first aid kits.

It would be a good idea to designate one or two persons in the community as medical stewards.

SOME MORE HINTS

- Label all containers in the first-aid kit to avoid misuse.
- Do not lock the first-aid kit, so that you can use it whenever necessary.
- In order to maintain the first-aid skills obtained in training, read the material provided and practice the procedures learnt.
- Learn about alternative medicine such as herbs or other traditional medicines.

POINTS TO REMEMBER

First aid will help people in an emergency.



Figure 27a.
First-aid kit at home.

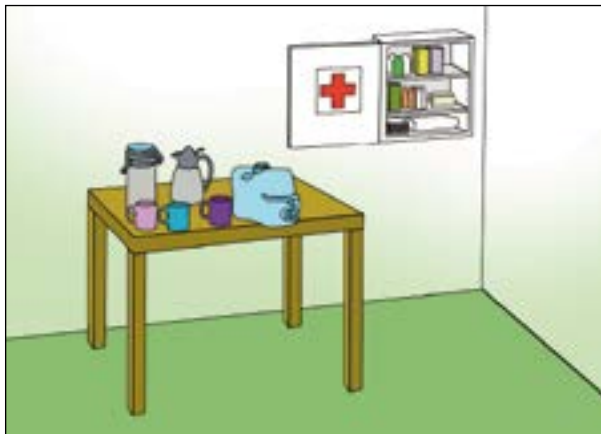


Figure 27b.
First-aid box installed in a safe and hygienic place,
away from young children's reach.

Figure 27c.
Portable first-aid box which can accompany you
to all workplaces.



VI. WORK ORGANIZATION AND COMMUNITY COOPERATION

One of the unique features of agricultural work, especially that carried out by small-scale, self-employed farmers, is that there is no definitive line between work and private life. Farmers and their family members need to cooperate in everyday life and work. Tasks are often shared by family members.

In this context, special attention must be paid to pregnant women, the aged and those with disabilities.

In addition, joint work with other farmers and households in the community is often essential to manage certain seasonal farming and community tasks. Meetings for planning and management, as well as joint recreational activities, can enhance communication and collaboration and increase the efficiency of work activities in addition to improving the safety, health and well-being of every community member.

CHECKPOINT 28: Work breaks and daily rest

Take appropriate rests during and after work.

WHY

Lack of appropriate rest causes fatigue, which may result in errors, accidents and ill-health, and low productivity. It is known that taking a short break during work increases efficiency and productivity. This is why working time, work breaks, and holidays are regulated by law.

As you spend long hours in the field, far away from home, the rest area needs to be designated in or near the field. This assists in ensuring breaks are taken.

HOW

1. Find a spot for the resting area in or near the field. You can build a simple, small hut using available local materials such as palm thatches, or just find a space under a big tree.
2. Make the area comfortable for everyone for example provide a mat, chairs cushions, a tea set and games.
3. Take short breaks (around 15-20 minutes), in addition to lunch breaks. More frequent and long breaks are required for work with heavy physical demands or performed in extreme weather conditions.
4. Ensure appropriate breaks for pregnant and nursing women, workers with disability and elderly workers.

WAYS TO PROMOTE COOPERATION

When applicable, jointly build and manage a common rest area with other farmers and neighbours.

Coordinate rest breaks with your family members and other farmers.

Increase communication with other farmers and neighbours during rest breaks and after work. For example, playing a game with them can be a pleasant and relaxing activity and also facilitate collaboration.

SOME MORE HINTS

- Choose a dry place for resting.
- Taking rest breaks is essential even if you are very busy in the harvest season. Note that continuous working without adequate resting may decrease productivity.
- Look to temporary and flexible use of existing facilities such as tool-sheds as places to take breaks. However ensure they are clean and have the necessary facilities.

POINTS TO REMEMBER

Taking proper rest is essential to maintain your health and to increase productivity.



Figure 28a.
A well designed rest area where neighbours can enjoy breaks.



Figure 28b.
Take breaks together with neighbouring farmers at rest areas close to the workplace.



Figure 28c.
Recreational activities with family members and neighbours after work.

CHECKPOINT 29: Family responsibilities

Share agricultural and household tasks with family members.

WHY

In many agricultural households all family members, both men and women, need to share roles, responsibilities and workloads.

Good coordination of tasks and everyone's cooperation can prevent overloading of any one family member.

By creating an adequate balance between work and family life, the efficiency of work and productivity will increase.

HOW

1. Identify the work to be performed in both agricultural and household settings.
2. Discuss with all family members the tasks to be carried out jointly.
3. Assign tasks to each member. Age, capacity and experience must be taken into account.
4. Avoid too heavy a workload for a particular family member.
5. Regularly review the assigned tasks and the workload.
6. Pay special attention to pregnant and nursing women, the disabled and the elderly.

WAYS TO PROMOTE COOPERATION

Encourage each member to carry out their assigned duties. Discuss individual workloads and possible difficulties with a view to finding the best solution.

Exchange ideas and good practices with neighbours.

SOME MORE HINTS

- Do not assume gender specificity of a particular task. Both women and men can perform any household task.
- Work must be assigned in a flexible manner, in accordance with the season, conditions and other commitments.
- During the busy period, consider the need for temporary support by relatives, neighbours or seasonal workers.

POINTS TO REMEMBER

Sharing tasks with family members promotes safety, health and productivity.



Figure 29a.
Household task (cooking) shared by husband and wife.



Figure 29b.
Contribution of all family members to farming work.

Figure 29c.
Special attention to the working environment of pregnant workers.



CHECKPOINT 30: Teamwork

Organize and coordinate efficient teamwork.

WHY

Agricultural tasks are often monotonous and repetitive, especially when the work is machine-paced. This may cause fatigue and loss of concentration, resulting in low productivity or even accidents. Task rotation within a working team may decrease such negative consequences and lead to better performance.

There are also some tasks you cannot carry out alone. You can manage them by working together with neighbouring farmers in collaboration.

Well-organized teamwork can increase efficiency and productivity.

HOW

1. Look at your tasks and identify those you have difficulty in performing. Examine the possible benefits of completing these tasks as part of a team.
2. Form a working team of family members and neighbours. Designate a coordinator if appropriate.
3. Organize work schedules and job rotation in the team.
4. Consider all relevant factors that may affect performance of the team, such as the capacity of each member, the nature of the task (regular/temporary/seasonal, manual/machine paced), the workload, etc.
5. Arrange rest breaks appropriately.

WAYS TO PROMOTE COOPERATION

Working in a team can be productive only if it is well planned and coordinated. The scheduling of the tasks and their rotation must be discussed and agreed by all team members.

Learn from other villages or communities about good practices in teamwork, especially work arrangements during the busy season.

SOME MORE HINTS

- List all possible advantages and disadvantages of team working. Some of your tasks may be better performed individually.
- Good communication is a key to successful teamwork.
- When you work with a machine, adjust the speed of operation for your comfort and work efficiency. This is also important for your safety.

POINTS TO REMEMBER

Good teamwork improves your safety and productivity.



Figure 30 a.
Productive teamwork resulting in an efficient flow of product.



Figure 30 b.
Well-organized teamwork with rotation of tasks.

CHECKPOINT 31: Community cooperation

Strengthen community cooperation and organize community-wide work.

WHY

Agricultural work includes a variety of tasks which are difficult to carry out alone, for example, building farm roads, bridges and houses; digging wells and canals; harvesting crops; or moving heavy machines and equipment. Even if you, in collaboration with your family members, can manage such work, joint work with neighbouring farmers and the local community can achieve the same goal more quickly and efficiently.

In addition, work and activities carried out in the community provide a good forum for strengthening mutual collaboration resulting in increased productivity and improved living conditions.

The management of work by the community requires good planning and coordination skills. Competent leaders should be appointed to organize, carry out and supervise these tasks safely and efficiently.

HOW

1. Identify tasks that can be better performed by cooperating with other farmers. Usually these tasks are labour-intensive, and need to be completed with a certain time frame e.g., sowing, harvesting, pesticide spraying and construction. Community needs such as building and maintaining common roads and facilities are also among them.
2. Organize and plan group working to carry out the tasks identified, in collaboration with other farmers and community members.
3. Nominate an experienced, skilled farmer to coordinate and supervise the group.

4. Assess safety and health risks associated with the tasks, such as working at height, carrying heavy materials or using dangerous machines. Ensure measures are in place to prevent accidents and injuries.

WAYS TO PROMOTE COOPERATION

Involve all neighbouring farmers and community members from the initial stages, namely the identification of tasks and the first planning meeting.

Invite family members from each household, both women and men, to join the group.

SOME MORE HINTS

- Ask for technical support from the local authority or technical institutions when you have technical difficulties that the members cannot solve.
- Jointly monitor and evaluate the progress of group work activities. Assess safety and health risks regularly when new work methods and procedures are introduced.
- Group work activities can strengthen mutual cooperation between farmers and community members. This can be extended to a variety of agricultural work such as group purchasing of seeds, materials and machinery, or the development of new products and methods.

POINTS TO REMEMBER

Certain tasks can be performed more efficiently in cooperation with other farmers and the community.



Figure 31a.
Joint work with community members
in the maintenance of community road.



Figure 31b.
Planning meeting on a joint work
with neighbouring farmers.



Figure 31c.
Safety training in the community
conducted by a skilled community member.

VII. ENVIRONMENTAL PROTECTION

Protection of environment is vital part of farmers' work and life. Agricultural activities as well as those carried out at home may impact on the environment. All communities are responsible for protecting the environment and should take appropriate measures to minimize any adverse impact their activities may have.

You can contribute to environmental protection in various ways: saving of energy and water use, reducing carbon emissions, using a minimum of agrochemical products and promoting the reduction, and re-use and recycling of waste.

CHECKPOINT 32: Save water and energy consumption

Save water and energy consumption by modifying work processes and changing habits.

WHY

Water is a limited resource. Globally, many people have difficulties accessing clean water. We should keep our water clean.

Water used in our life and work may in the absence of proper treatment pollute rivers, seas and soil. Sewage and waste water treatment requires large amounts of energy and public money. Reducing water consumption reduces waste water treatment requirements and this also leads to energy savings.

The production of energy has an impact on the environment e.g. through carbon emissions. Despite efforts to increase green and recyclable energy production, there is still a dependence on traditional sources of energy. We can reduce the negative impact on the environment by lowering energy consumption.

HOW

1. Do not use water to flush solid farm waste. Collect and discard solid farm waste appropriately.
2. Use batch washing for cleaning farm materials and products. Minimize continuous rinsing.
3. Re-use water. For example, the water retained after washing raw materials can be used for flushing toilets or washing floors.
4. Regularly check and maintain all water pipes and valves to avoid water leakage.

5. Turn off lights and other electrical appliances at work and at home when they are not required.
6. Use energy-saving appliances if available.

WAYS TO PROMOTE COOPERATION

Visit your neighbours and see how they use water for washing products and cleaning workplaces.

Discuss with your family and neighbours ways of saving water and reducing energy consumption.

SOME MORE HINTS

- Do not drain contaminated water containing chemicals and other hazardous substances into rivers, canals or the ground.
- Find opportunities to discuss, identify and share good examples on this subject with neighbouring farmers and community members.
- Establish and implement community policies and measures to reduce water and energy consumption. This may mean setting up a working group, joint inspection, a community water reservoir and treatment facility, or promoting water recycling.

POINTS TO REMEMBER

You can save large amounts of water and energy through everyday efforts. This protects the environment.



Figure 32a.
Batch washing facility for cleaning products.



Figure 32b.
Change of work process from continuous rinsing to batch rinsing saves water.



Figure 32c.
Reduce energy consumption by turning off appliances.

CHECKPOINT 33: Waste management

Reduce, re-use and recycle waste.

WHY

Agricultural work produces a large amount of organic waste e.g. as animal faeces, surplus parts of products and non-organic waste such as packaging. These wastes, along with household wastes, if disposed of inappropriately may pollute/harm the environment.

The fundamental principle for minimizing such harm is to reduce and or recycle the waste. This may also benefit you economically by reducing unnecessary purchases.

Separate collection of non-toxic waste such as paper, plastics, metals and woods is also important in the recycling process.

The correct separation of waste protects waste collectors from injury. Also, it prevents accidents to your family members and neighbours.

HOW

1. Find the best way to package your products, try to use recyclable materials and avoid excessive packaging.
2. When you purchase something, choose the product with simple, environmental friendly packaging.
3. Collect organic waste and use it as animal food or fertilizer.
4. Use separate waste containers for different types of waste such as metals, bottles, cans and plastics.

5. Do not mix hazardous wastes such as pesticides, chemicals or sharp materials with other waste.
6. Come up with ideas for recycling the wastes produced at work and at home.

WAYS TO PROMOTE COOPERATION

Learn from your neighbour's good practices on the reduction and recycling of waste.

In collaboration with local authorities and the community, develop a system of waste recycling, including separate collection mechanisms for waste products.

SOME MORE HINTS

- Train farmers and their family members in how to collect waste separately and the possibilities of recycling waste.
- Seek advice from relevant local authorities on how to establish and manage a system of community waste collection.

POINTS TO REMEMBER

Reducing, re-using and recycling waste is an important step in protecting the environment.



Figure 33a.
Minimum use of packaging materials which are reusable and recyclable.



Figure 33b.
Separate waste containers for recycling.