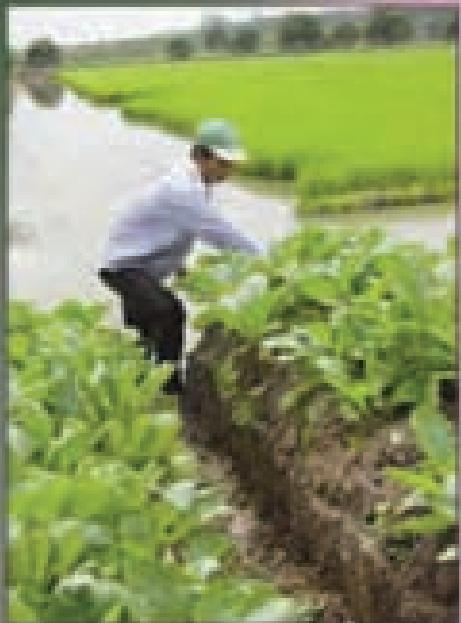




PROGRAMME

# WORK IMPROVEMENT IN NEIGHBOURHOOD DEVELOPMENT

TSUYOSHI KAWAKAMI TON THAT KHAI KAZUTAKA KOGI



TRAINING PROGRAMME  
ON SAFETY, HEALTH  
AND WORKING CONDITIONS  
IN AGRICULTURE



Center for Occupational  
Health and Environment



International  
Labour Office



The Institute for  
Science of Labour



Brot  
für die Welt

Asian version

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# **WORK IMPROVEMENT IN NEIGHBOURHOOD DEVELOPMENT**

**Training programme on  
safety, health and working conditions  
in agriculture**

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## Preface to new WIND Asian Version

The WIND (Work Improvement in Neighbourhood Development) programme was born in Cantho Province, Vietnam in 1998 as the 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. The Toyota Foundation provided the financial assistance for its genesis. Since then, WIND has spread to many provinces of Vietnam with the assistance of the ILO, the Institute for Science of Labour, and Bread for the World, an NGO based in Germany. Many farmers in Vietnam have actively and voluntarily participated in the WIND training and implemented significant improvements in safety, health and working conditions using their own resources and wisdom. Learning from these initiatives and achievements in Vietnam, the ILO has facilitated the spread of the WIND programme to Cambodia, Mongolia, the Philippines, Thailand, and even to some East European and African countries. Cantho continues to maintain its position as WIND innovator, having established a sustainable mechanism for delivering the programme to many villages through their network of rural health centers. Farmers in Cantho have carried out more than 100,000 improvements. The success and growth of the WIND programme are owed to these farmers at grass-root level. This new WIND manual is a product of the most recent development of the WIND programme in Cambodia, Mongolia, the

Philippines, Thailand and Vietnam. On the basis of the previous WIND version in 2002, texts have been revised to reflect the new achievements and findings. Many new illustrations and photos showing good examples in Asia are added. These revisions target the requirements of many potential users of the WIND programme in Asia. The same team who had developed the previous WIND version: Dr Tsuyoshi Kawakami, Safety and Health Specialist of ILO Subregional Office for East Asia, Bangkok, Thailand; Dr Ton That Khai, Director of Centre for Occupational Health and Environment, Cantho, Vietnam; and Dr Kazutaka Kogi, the Institute for Science of Labour, Kawasaki, Japan, prepared the text, arranged photos, and supervised the development of the illustrations. We are grateful to Mr Tun Sophorn, Ms Shurenchimeg Zokhiolt, and Ms Sara Arphorn for their support as colleagues working together on WIND development in Cambodia, Mongolia, and Thailand. A special acknowledgement must go to Ms Tran Thi Sam of Cantho Daily Newspaper, for developing the illustrations. It is our sincere wish that this manual provide many farmers with a powerful and effective tool to improve their safety, health and working conditions.

*Bangkok, Thailand, May 2005*

Christine Evans-Klock  
Director  
ILO Subregional Office for East Asia



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## PREFACE

Because research carried out by both the ILO and others leads us to conclude that agriculture is one of the most hazardous sectors of work, it clearly requires special and priority attention. Safety and health risks in the sector are numerous and diverse: manual handling of heavy materials and loads, strenuous work postures, long and irregular working hours, exposure to extreme weather conditions, pesticides and other agro-chemicals. Farms abound in opportunities for parasitic infections and animal and insect bites. Basic amenities for sanitation and welfare are frequently absent.

All of these hazards are increased because of the fact that in agriculture the "workplace" includes the family dwelling. Tools, fertilizers and pesticides are often stocked in farmers' houses, increasing the risk exposure of all family members, especially children.

The Work Improvement in Neighbourhood Development (WIND) training programme provides practical responses to the special problems of agricultural safety and health. Building on the ILO's experience gained through the WISE (Work Improvement in Small Enterprises) programme, WIND applies a participatory and action-oriented training approach, designed for rapid and sustainable improvements in farmers' safety, health and working conditions. To ensure relevance, as well as sustainability, WIND is very much reliant on, and

responsive to, farmers' own initiatives, knowledge and resources.

The WIND methodology has a good record of promoting equality of participation of men and women in rural communities. Many married couples in agricultural districts in Vietnam, for example, have participated in WIND training courses together. The joint efforts of the men and women who took these courses have resulted in significant practical improvements and risk reduction in both work and other aspects of life in rural communities.

It gives me particular pleasure to present the present manual in Vietnamese because the very first WIND workshop was held in Vietnam: in My Tan village in the commune of Hoa Luu (Cantho Province) in 1995. It was a collaborative effort between the Centre for Occupational Health and Environment (Cantho, Vietnam) and the Institute for Science for Labour (Kawasaki, Japan), generously financed by the Toyota Foundation. This workshop was followed in 1996 by the first WIND manual, *Ergonomic Checkpoints for Agricultural Working and Living Conditions*.

Since then, WIND has spread to many other provinces in Vietnam and beyond. With the assistance of the ILO, the Institute for Science for Labour and Bread for the World, an NGO based in Germany, the methodology has been adopted in

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Thailand and the Philippines, Cantho Province has, however, maintained its position as WIND innovator, having established a sustainable mechanism for delivering the programme to many villages through their network of rural health centres.

The present manual is a distillation of seven years of WIND experience, drawn principally from farmers' own initiatives to improve the quality of their lives and work. It has been drafted by Dr Ton That Khai, Director of the Cantho Centre for Occupational Health and Environment, in collaboration with Dr Tsuyoshi Kawakami, Specialist on Occupational Safety and Health in the ILO East Asia Multidisciplinary Advisory Team. Thanks are due to the many Vietnamese and international specialists who provided valuable comments for improving the contents, especially Ms Doan Minh Hoa, Mr Hoang Van Hung and their staff from the Department of Labour Protection of the Ministry of Labour Invalids and Social Affairs, Dr Nguyen Thi Hong Tu and her staff from the Department of Preventive Medicine of the Ministry of Health, Dr Nguyen Ngoc Nga of the National Institute of Occupational and Environmental Health, and Dr Kazutaka Kogi of the Institute for the Science of Labour of Kawasaki, Japan.

Most particular gratitude needs to be conveyed also to the many farmers in Cantho and Hai Duong provinces, in which pilot WIND training courses were tested in the development of this manual. Without their great efforts and cooperation, this book would never have seen the

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light of day.

A special acknowledgement must go to Ms Tran Thi Sam of Cantho Daily Newspaper, for illustrating this manual, showing good local practices.

I have no doubt this manual can constitute a powerful and effective tool to empower Vietnamese men and women in agriculture to improve their safety, health and working conditions.

*Bangkok, Thailand, December 2002*

Ian Chambers  
Director, ILO Area Office and East Asia  
Multidisciplinary Advisory Team  
(BAO/EASMAT)

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## INTRODUCTION

It is our great pleasure to present the new upgraded version of the WIND (Work Improvement in Neighbourhood Development) manual. This WIND manual consists of 42 checkpoints useful for improving safety, health and working conditions in agriculture. Special focus is placed on easy-to-implement solutions and learning from existing local good examples. The ideas you will find in this manual are concrete, practical and can be implemented at low-cost. Many ideas in this manual come from the innumerable good examples developed by farmers in Cambodia, Mongolia, the Philippines, Thailand, and Vietnam.

The WIND manual applies the concept of participatory, action-oriented training approaches. From our past experiences, good training tools are crucial for strengthening and sustaining the self-help initiative of local farmers. This manual is carefully designed to assist farmers in implementing improvements. For example, the action-checklist of this manual is a powerful tool to help farmers find possible improvement points in their farms.

You can use this manual for checking your workplace conditions and for learning various solutions that are simple, inexpensive and therefore applicable, even on small farms. From the experiences of many WIND

training workshops conducted in the Mekong Delta area of Vietnam, basic principles for improvement actions in agriculture have been developed. They are:

- to look at multi-faceted aspects of farmers' work and start with low-cost improvements using locally available materials and expertise;
- to continue improvement actions in a step-wise manner for sustainability;
- to help people look at both living and working conditions for a better quality of life;
- to promote exchange of experiences within neighbourhoods to widen your views;
- to promote the equal participation of women and men from the same family in the training workshop as well as in implementing improvements after the training.

You should read and use this manual together with your family and neighbours. Share practical experiences and ideas and learn how your neighbours have solved the same problems which you have. The following is some tips on how to use this manual effectively with your family and neighbours:

- to read the manual together to understand the contents of all the checkpoints clearly;
- to carry out the walk-through with the checklist exercise on farms and in houses with the participants;

- 
- to discuss the checklist results in groups and come up with a list of three to five priority actions for improvements;
  - to refer to the related checkpoints of this manual to confirm your ideas.

Improvement actions will be sustained when you join the network of farmers who have participated in a WIND training workshop. For example, Can Tho Province of Vietnam has trained 3,825 people as WIND facilitators. All the trained WIND facilitators have disseminated practical ideas for improving safety, health and working conditions in agriculture in their respective communities. Their networks have been established and maintained to provide follow-up support to the participating farmers. It was essential to network with trained farmers and repeat the follow-up

activities with them to sustain and expand improvement actions.

We do hope that this manual will be useful to many farmers who aims to improve their safety, health and working conditions. Your feedback on the experience of using this manual is important for us to continuously update the contents of this manual. We would appreciate it if you could inform us of the way you have used this manual and your ideas for improvements. You can contact us through Dr. Tsuyoshi Kawakami, Safety and Health Specialist, ILO Sub-regional Office for East Asia Bangkok, Thailand or Dr. Ton That Khai, Director, Center for Occupational Health and Environment, Can Tho Department of Health, Can Tho City, Viet Nam. Or you can email at [kawakami@ilo.org](mailto:kawakami@ilo.org) or [cpo@hcm.vnn.vn](mailto:cpo@hcm.vnn.vn).

May 2005

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# ACTION CHECKLIST

## HOW TO USE THE CHECKLIST

1- Define the work area to be checked. Ask the head of the family about the main occupation and any important labour problems.

2- Read through the checklist and spend a few minutes walking around the work area before starting to check.

3- Read each item carefully. Look for a way to apply the measure. If necessary ask some questions to the farmers. If the measure has been applied or it is not needed, mark **NO** under "Do you propose action? ". If you think the measure is worthwhile, mark **YES**. Use the space under **REMARKS** to put a description of your suggestion or its location.

4- After you have gone through the whole 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.

5- 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**.

Action checklist

---

**I. MATERIALS STORAGE AND HANDLING**

*1- Keep passageways clear and in good condition for the movement of people and materials.*

Do you propose action ?

No       Yes       Priority

Remarks:.....

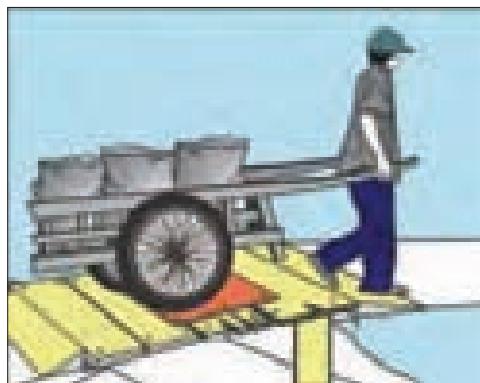


*2. Eliminate sudden height differences and holes on transport routes.*

Do you propose action ?

No       Yes       Priority

Remarks:.....



*3. Construct wide enough and stable bridges over canals or over ditches at the edge of field or road.*

Do you propose action ?

No       Yes       Priority

Remarks:.....

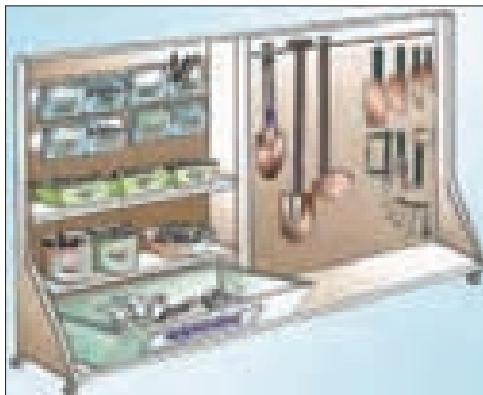


*4. Use multi-level shelves or racks near the work area for storing materials, tools or products.*

Do you propose action ?

No       Yes       Priority

Remarks:.....



Action checklist

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5. Provide containers or baskets of appropriate sizes and with good grips to carry materials and farm products.

Do you propose action ?

No       Yes       Priority

Remarks:.....

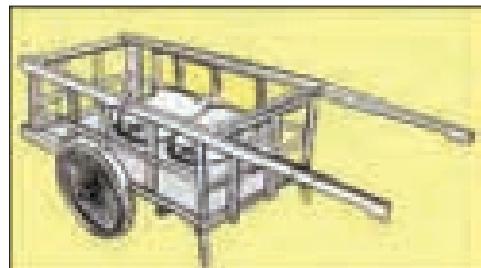


6. Use carts, hand trucks, vehicles, boats or animals to carry heavy materials.

Do you propose action ?

No       Yes       Priority

Remarks:.....



7. Attach large enough wheels to carts and hand trucks to work effectively on field routes.

Do you propose action ?

No       Yes       Priority

Remarks:.....



8. Use roller conveyors or other mechanical means for moving or lifting heavy materials.

Do you propose action ?

No       Yes       Priority

Remarks:.....



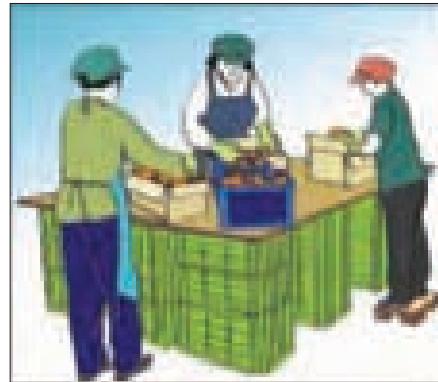
**II- WORK STATIONS DESIGN AND WORK TOOLS**

*9. Adjust the work height so that work is done at elbow level or slightly lower than elbow level.*

Do you propose action ?

No       Yes       Priority

Remarks:.....



*10. Provide stable chairs or benches with sturdy backrests.*

Do you propose action ?

No       Yes       Priority

Remarks:.....



*11. Choose work methods to alternate standing and sitting and to avoid bending and squatting postures as much as possible.*

Do you propose action ?

No       Yes       Priority

Remarks:.....



*12. Put frequently used tools, switches and materials within easy reach of farmers.*

Do you propose action ?

No       Yes       Priority

Remarks:.....



Action checklist

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13. Choose tools that can be operated with minimum force.

Do you propose action ?

No       Yes       Priority

Remarks:.....

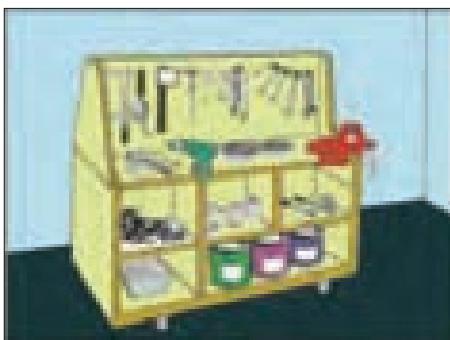


14. Provide a home for each tool.

Do you propose action ?

No       Yes       Priority

Remarks:.....

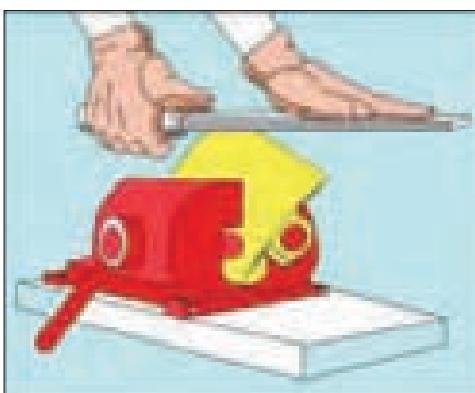


15. Use jigs, clamps or others fixtures to hold items while work is done.

Do you propose action ?

No       Yes       Priority

Remarks:.....



### **III- MACHINE SAFETY**

16. Purchase safe machines and maintain them properly.

Do you propose action ?

No       Yes       Priority

Remarks:.....



Action checklist

---

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

Do you propose action ?

No       Yes       Priority

Remarks:.....



18. Use appropriate feeding devices to avoid danger and increase production.

Do you propose action ?

No       Yes       Priority

Remarks:.....



19. Make the emergency controls clearly visible and attach local language labels to the controls or switches.

Do you propose action ?

No       Yes       Priority

Remarks:.....



20. Ensure safe use of electricity for machines and equipment.

Do you propose action ?

No       Yes       Priority

Remarks:.....



#### **IV- WORK ENVIRONMENT AND CONTROL OF HAZARDOUS AGENTS.**

21. Increase the use of natural ventilation to improve the indoor climate.

Do you propose action ?

No       Yes       Priority

Remarks:.....

.....



22. Use daylight and bright walls for lighting up the workplace.

Do you propose action ?

No       Yes       Priority

Remarks:.....

.....



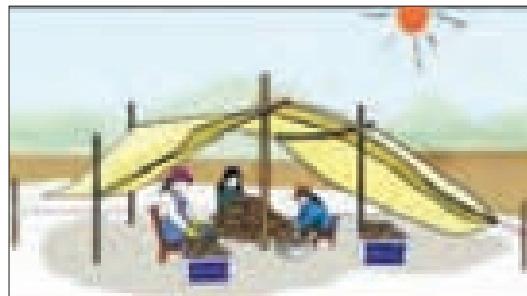
23. Avoid continuous exposure to excessive heat or cold.

Do you propose action ?

No       Yes       Priority

Remarks:.....

.....



24. Select safer pesticides and use the minimum amount.

Do you propose action ?

No       Yes       Priority

Remarks:.....

.....



Action checklist

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25. Keep pesticides, agro-chemicals and spraying devices in a safe and designated place.

Do you propose action ?

No       Yes       Priority

Remarks:.....



26. Put labels on pesticides and agro-chemicals.

Do you propose action ?

No       Yes       Priority

Remarks:.....



27. Establish safe methods to treat bottles and cans of used pesticides and chemicals.

Do you propose action ?

No       Yes       Priority

Remarks:.....

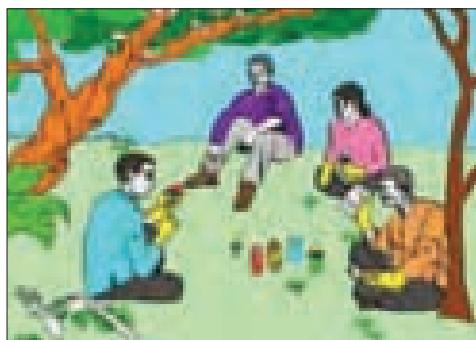


28. Collect safety and health information such as the safe use of agro-chemicals and disseminate the information to the community.

Do you propose action ?

No       Yes       Priority

Remarks:.....



29. Be aware of animals, insects or worms that may harm farmers.

Do you propose action ?

No       Yes       Priority

Remarks:.....



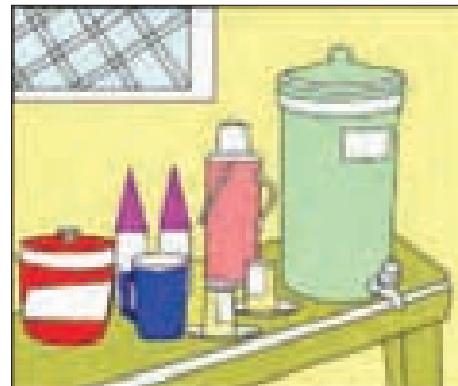
## V- **WELFARE FACILITIES**

30. Provide adequate supply of drinking water and refreshment at the farm.

Do you propose action ?

No       Yes       Priority

Remarks:.....



31. Ensure regular timing of meals and have a variety of nutritious foodstuffs.

Do you propose action ?

No       Yes       Priority

Remarks:.....



32. Build clean, hygiene toilets and washing facilities.

Do you propose action ?

No       Yes       Priority

Remarks:.....



Action checklist

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33. Provide resting corners and facilities for recovery from fatigue.

Do you propose action ?

No       Yes       Priority

Remarks:.....



34. Use proper protective devices such as clothes, gloves, boots, shoes, hats, helmets to protect from injuries or contact with hazardous substances.

Do you propose action ?

No       Yes       Priority

Remarks:.....

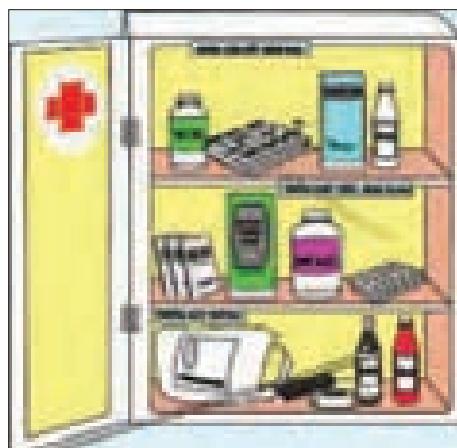


35. Provide first aid equipment.

Do you propose action ?

No       Yes       Priority

Remarks:.....



36. Take special care of pregnant women and farmers with disabilities.

Do you propose action ?

No       Yes       Priority

Remarks:.....



Action checklist

---

37. Keep children safe to prevent them from having accidents or diseases.

Do you propose action ?

No       Yes       Priority

Remarks:.....



## V- **WORK ORGANIZATION**

38. Organize a better work layout to reduce the distance for carrying materials.

Do you propose action ?

No       Yes       Priority

Remarks:.....



39. Insert frequent short breaks.

Do you propose action ?

No       Yes       Priority

Remarks:.....



40. Take regular weekly holidays.

Do you propose action ?

No       Yes       Priority

Remarks:.....



Action checklist

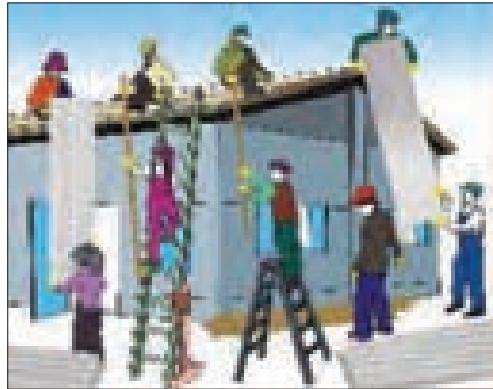
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*41. Perform community jobs together.*

Do you propose action ?

No       Yes       Priority

Remarks:.....



*42. Share family responsibilities to avoid overburdening a particular family member.*

Do you propose action ?

No       Yes       Priority

Remarks:.....



## **MATERIALS STORAGE AND HANDLING**

Farmers have to store and handle many kinds of materials. They are heavy, and different in size and shape. In this chapter, you will find simple and practical solutions on how to improve the ways of materials storage and handling. The ideas include clear passageways for carrying materials, use of multi-level shelves to keep materials in good order, and application of simple devices such as push carts or roller conveyors. These ideas are all helpful for improving productivity and efficiency as well as safety and health.

### **CHECKPOINT 1**

***Keep passageways clear and in good condition for the movement of people and materials.***

#### **BENEFITS FOR FARMERS**

- Many agricultural products and materials are heavy, varied in shape and difficult to handle. Clear and good passageways can help farmers handle materials easily, prevent fatigue and reduce work time.
- Narrow, rough or slippery passageways obstruct easy transportation of materials. On narrow or unsafe transport ways, loss of agricultural products and damage to precious tools could occur and there may be a higher risk of accidents.
- Similarly at home, wider and well-maintained aisles and corridors contribute to the smooth flow of house-keeping work and help prevent accidents.

#### **HOW TO IMPROVE**

- 1.) Make passageways wider and well-maintained. Two -way movement of people, farm products and materials should be allowed on main paths to farm fields and to agricultural facilities.
- 2.) Improve and clean up passageways to and from fields and facilities around your house. Make these passageways take stable and relatively higher routes and cover them with thin layers of stones or small pieces of brick to avoid being muddy during the rainy season.
- 3.) Make sure that obstacles do not remain on the passageways and transport routes. Also make sure that

proper places for storage and waste disposal are present. Try to establish the practice of placing nothing on these passageways and transport routes.

4.) Where canals and ditches are used to reach the farming fields, regularly dredge them. By doing this, boats transporting agricultural products can pass along these water routes smoothly.

#### **WAY TO PROMOTE COOPERATION**

- Start with a simple and low-cost way of improving main passageways. For example, clean the routes near the entrance of your house, clean paths in front of your house or paths leading to farming fields or work facilities. People will notice that the transportation has become faster and safer.
- Develop the habit of cooperating among family members or neighbours. For example, regularly maintain and improve the paths. When canals are used, dredge them together.

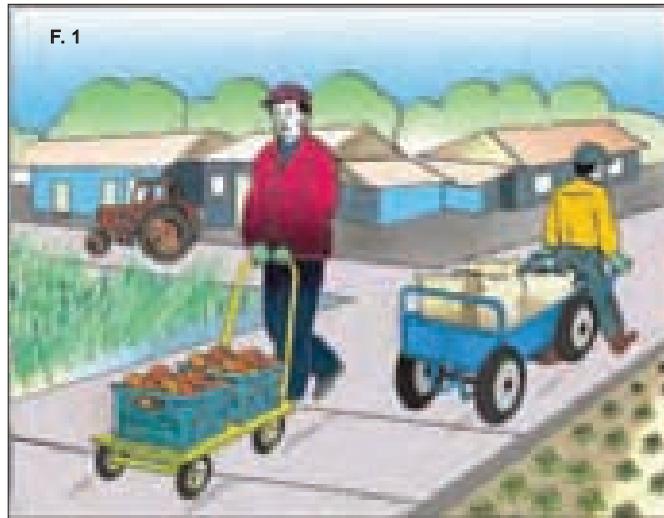
#### **SOME MORE HINTS**

- Make sure that the boundaries of passageways are clear to see. For example, such boundaries become easy to see by placing small stones or covering the routes with cement. Improve passageways step by step. Where appropriate, pave them with bricks or small stones or cover them with cement.

#### **POINTS TO REMEMBER**

*Cleared passageways can make the transportation of agricultural products easy, prevent injuries and damages.*

*Figure 1: Keep a wide and clear passageway for two-way movement of people and farm products*



*Figure 2: Passageway leading to gardens and rice fields is earthened up evenly and wide enough. Carts and trucks carrying agro-products can reach the workplace, avoiding heavy manual handling.*



*Figure 3: Clear and wide canal for the smooth transportation of agro-products by boat .*

*Figure 4: Clear and wide entrance marked by a fence of hibiscus.*



**CHECKPOINT 2**

***Eliminate sudden height differences and holes on transport routes.***

**BENEFITS FOR FARMERS**

- Transporting agricultural products and materials is an important part of farming work. Keeping the surface of transport routes free of obstacles will make your work flow smooth.

- Carrying loads on rough roads or passageways with many obstacles hampers the flow of work. Sudden height differences and holes on the surface may cause stumbling and accidents, or damage precious agricultural tools and vehicles. Eliminating these height differences can save your time and energy and prevent unnecessary accidents.

**HOW TO IMPROVE**

1.) Remove all the sudden height differences and obstacles in the passageways to farm facilities and fields. Fill in all holes or dents that may cause stumbling or disturbances. Or alternatively, use wooden planks to cover such differences and holes.

2.) Where height differences occur between two parts of the routes or between the routes and the field, use ramps by making the way in a sloped form or by using platforms. Such ramps can help smooth the movement of wheeled equipment and vehicles.

3.) Frequently fix or repair fill-ins or planks

used for sudden height differences and holes. In so doing, widen the main passageways or ramps to allow two-way transport.

**WAY TO PROMOTE COOPERATION**

- Maintenance of good transport routes without obstacles is the task of everybody in the family and in the community. Groups of farmers can take the voluntary initiative for regular maintenance of these routes. This cooperation can be expanded gradually to the whole community.
- Make it a routine community activity to maintain passageways and remove dangerous height differences.

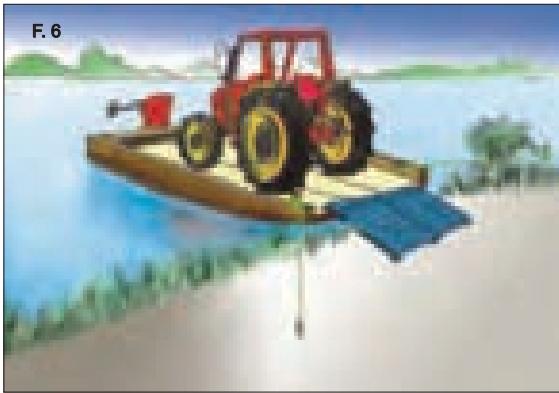
**SOME MORE HINTS**

- Place outstanding and easy-to-understand warning signs at dangerous height differences that cannot be removed.
- The surface of ramps or slopes for transportation purposes should be covered properly to reduce the risk of slipping.

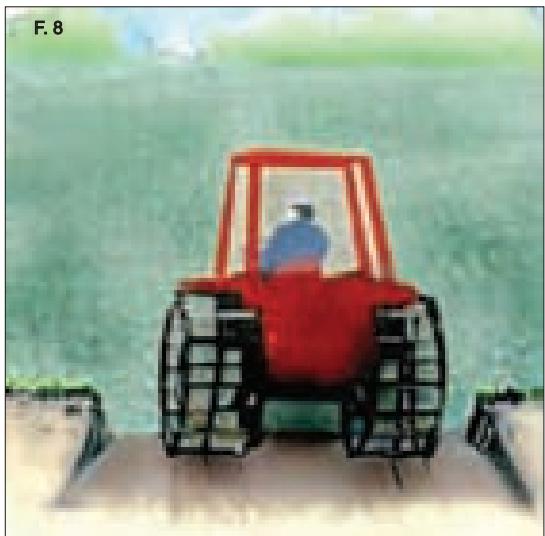
**POINTS TO REMEMBER**

*Maintaining routes without dangerous height differences provides a simple, but important solution to safe transportation. This requires cooperation of all people concerned.*

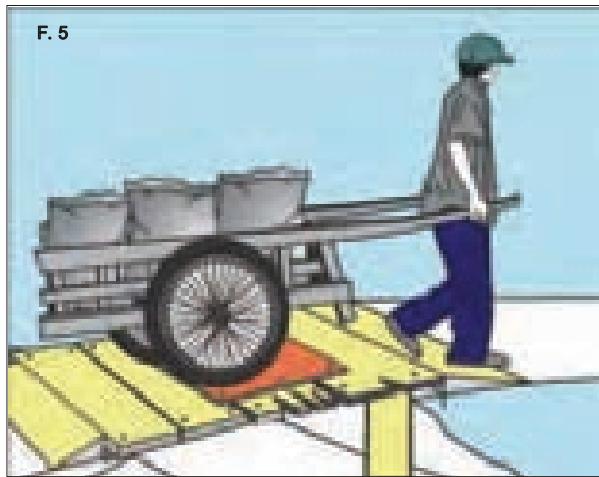
*Figure 5: Clear obstacles and holes along the pathways. Replace rotten planks of bridge with new ones.*



*Figure 6: Use a sloped platform at the heaps of earth or rough field edges.*



*Figure 8: Provide sloped form in the rice field for the smooth movement of agro vehicles.*



*Figure 7: Provide ramps with a small inclination over stairways for easier pushing of carts or wheeled racks.*



*Figure 9: Eliminate holes and obstacles on the rice field.*

### **CHECKPOINT 3**

***Construct wide enough and stable bridges over canals or over ditches at the edge of a field or road.***

#### **BENEFITS FOR FARMERS**

- Safe bridges over canals or ditches are essential for the safe travel of local people and for the efficient transportation of farm products.
- Even small ditches at the edge of a field or road need appropriate bridges. Jumping across them or using makeshift types of bridges can cause accidents and damage to products. Consider sharp-edged tools or grass-cutting tools can cause severe injuries.
- Narrow, rough or slippery passageways hamper easy transportation of materials. On narrow or unsafe transport ways, loss of agricultural products and damage to precious tools could occur and there may be a higher risk of causing accidents.

#### **HOW TO IMPROVE**

- 1.) Check the passageways and transport routes leading to farm facilities and to farm fields. Make sure not only canals and rivers but also ditches at the edge of fields and roads are properly bridged. The bridge should be stable and wide enough for farmers to transport farm products or machines and tools.
- 2.) Build safer and stronger bridges. Try to make the bridges wider. Add firm handholds for larger bridges over canals or rivers. Check conditions of the bridges regularly and strengthen the bridge frames if necessary.

3.) Eliminate height differences along the routes leading to bridges. Make the surfaces of the routes even and without obstacles. Planks or other sturdy materials can be used to cover the surfaces.

#### **WAY TO PROMOTE COOPERATION**

- Form a team of farmers in the same community and encourage the team to jointly check bridges over canals and rivers. In consultation with local people, the team can jointly plan and construct or improve necessary bridges. Cooperate with community leaders and local authorities.
- For small ditches, try to follow good examples found in the community. Cooperate with neighbours to regularly examine the conditions of bridges used by local people. Repair the rotten or damaged parts of bridges by your joint effort.

#### **SOME MORE HINTS**

- Where makeshift types of small bridges are used, make sure that they are not slippery and wide and sturdy enough to allow the passage of wheeled equipment.
- Space under each bridge over a canal or river should be large enough for boats to pass safely. For bridges over ditches, the space under them should be properly maintained so as not to disturb water flow.

#### **POINTS TO REMEMBER**

*Bridges which are stable and wide enough can provide farmers with a safe transportation means and help enlarge the communication among people.*



Figure 10: Wooden bridge with firm handholds constructed over stream. Bridge bed is wide enough, for the transport of people and farm products.

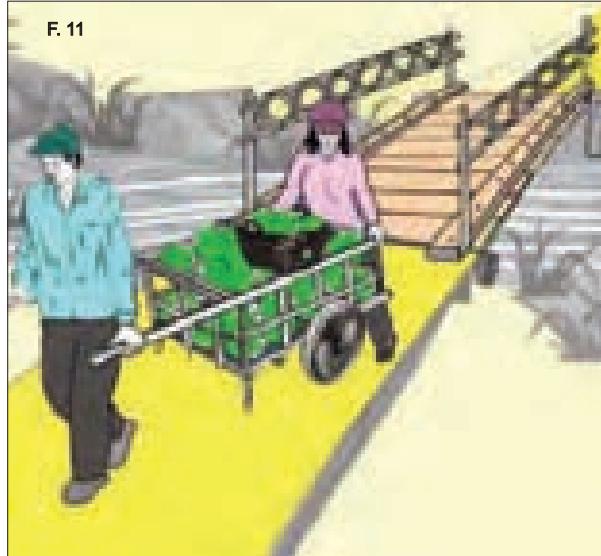


Figure 11: Where there is a narrow ditch, a firm bridge can facilitate the transportation of farm products.

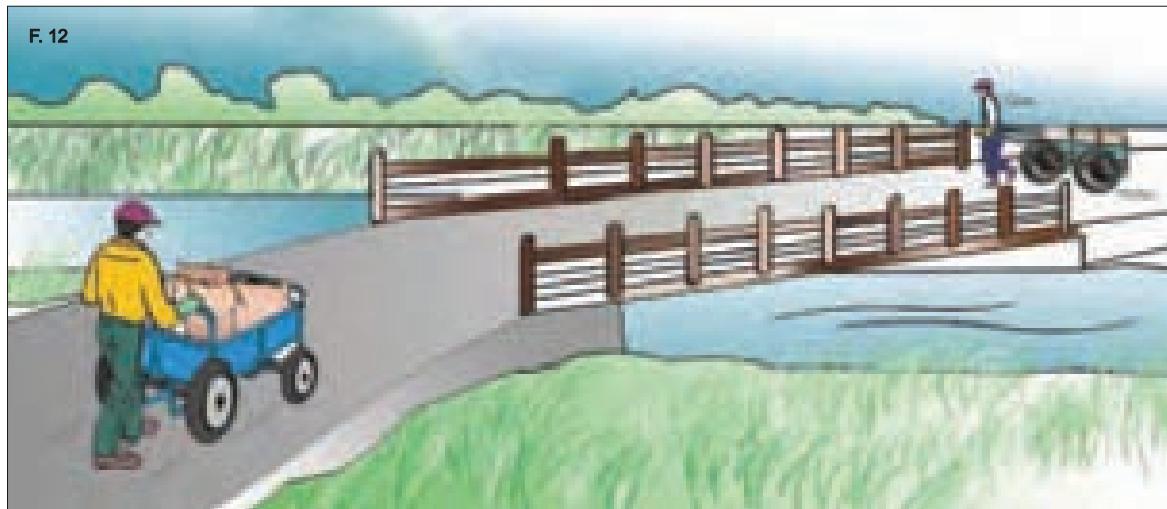


Figure 12: Build safer and stronger bridge across the river.

**CHECKPOINT 4**

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

**BENEFITS FOR FARMERS**

- 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 at an appropriate height, and therefore save your time.
- Agricultural hand tools are essential for farmers. By keeping the tools at specified places, farmers can save their precious time and energy in picking them up.
- Multi-level shelves and racks can also reduce the danger of accidents and fires as things kept there are more easily and more safely maintained.

**HOW TO IMPROVE**

- 1.) Place multi-level shelves and racks at places easy to access. Make full use of wall space by fitting multi-level, open-fronted shelves or racks to the wall.
- 2.) Put labels or draw shapes of different items or tools on the front end of shelves or containers to show where each item is kept. This saves time for searching.
- 3.) Prepare multi-level shelves strong enough to store heavy farm products or other heavy items. It is better to place such shelves close to the wall.
- 4.) Multi-level racks are also useful for your kitchen. You can keep pots, pans, knives, spoons and other utensils as

well as cooking materials and ingredients neatly on the racks. Containers of ingredients, such as salt, sugar, peppers, spices and cooking powder, etc., should be corked and labeled.

**WAY TO PROMOTE COOPERATION**

Start with a small change. For example, a shelf for small utensils or ingredients is easy to make. All family members can see the change. This immediate change stimulates other family members and community people to apply the same ideas. Try to spread the habit of labeling important items. Encourage people to exchange good examples.

**SOME MORE HINTS**

- Place frequently used items at a level between your waist and shoulder. Keep heavy and less frequently used items at a lower level. Light and infrequently used items can be stored in the overhead space.
- Use small trays or pallets for storing similar items. This makes it easy to find the necessary items.
- If appropriate, make some of the racks movable or use trolleys. Things used in different places (e.g., in the storage and in the work room, or in the kitchen and the dining room) can be kept in such movable racks.

**POINTS TO REMEMBER**

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

Figure 13 & 14: Well-designed multi-level racks for farm products. It looks tidy and save a lot of space in your house.

If appropriate, make some of the racks movable (Figure 15).

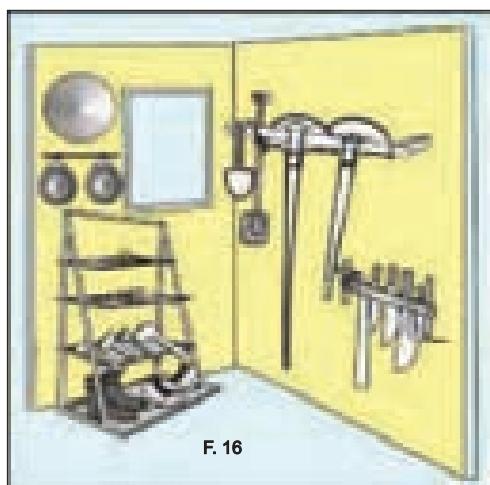
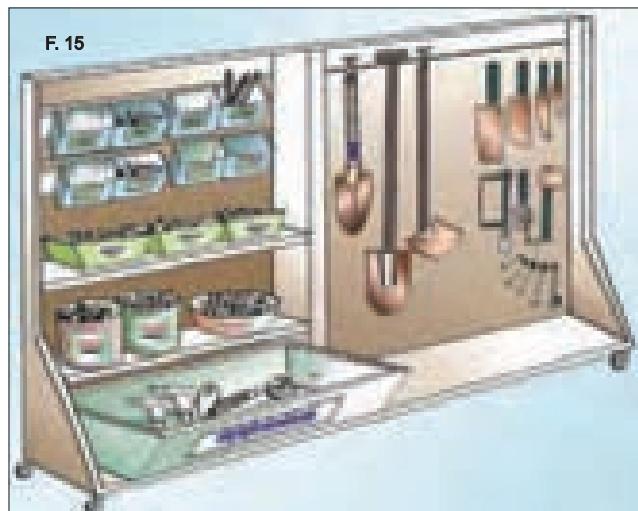
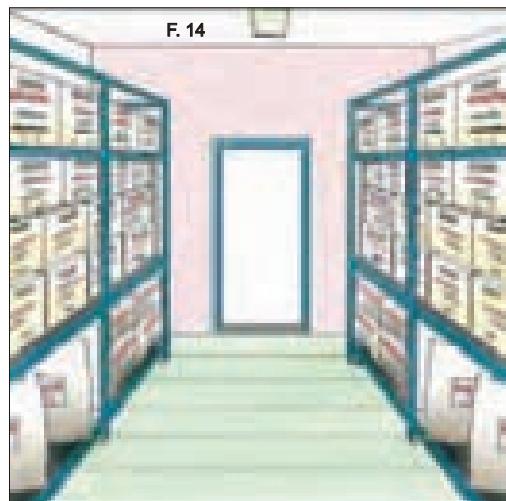
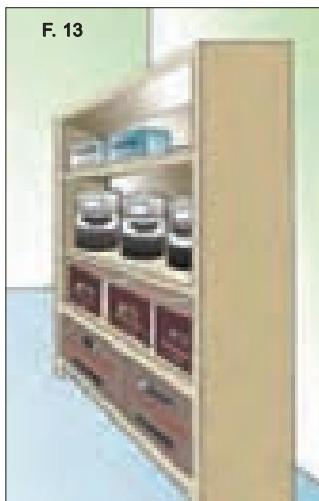


Figure 16: Agricultural hand tools and personal protective equipment are placed tidily and in order on the hangers and multi-level racks.



Figure 17: Multi-compartment cabinets contain spices, food for cooking and utensils needed by housewives.

### **CHECKPOINT 5**

***Provide containers or baskets of appropriate sizes and with good grips to carry materials and farm products.***

#### **BENEFITS FOR FARMERS**

- Carrying heavy items is strenuous and can be dangerous. It is always wise to use containers and baskets properly designed for each kind of loads. Containers or baskets are essential when carrying easy-to-slip heavy items.
- Divide heavy items into smaller objects. Containers and baskets of smaller sizes are often very helpful. Fatigue from carrying lighter packages is less than in the case of carrying heavy weights. The risk of back pains and injuries is also smaller.
- Good hand grips have multiple effects. The grips help you handle the materials easily. Besides, a simple hand grip attached to your loads ensures a clearer forward view. Holding loads in front of you blocks your forward view and may cause an accident. Hand grips also prevent dropping loads and damaging materials. A good hand grip can improve your work posture and prevent fatigue.

#### **HOW TO IMPROVE**

- 1.) Set your own weight limit of the load carried.
- 2.) Divide the carried loads evenly in both arms. Carrying two packages of 10 kg each is better than carrying one package of 20 kg.
- 3.) Choose containers or baskets of

relatively small sizes. Lighter loads are easier to carry and facilitate the use of carts, trolleys and hand trucks.

- 4.) Choose containers, packages, bags and baskets that have proper grips or handles. Or you can attach them yourself.

#### **WAY TO PROMOTE COOPERATION**

- Learn from existing experiences of using containers and baskets of smaller sizes. These may be purchased at low cost or made manually. Discuss what shapes, materials or sizes are useful for carrying particular kinds of farm products or materials.
- Explain to everybody that adding grips or handles can be done at low cost. You may find existing good examples of using appropriate grips in your neighbourhood. Encourage people to exchange such good ideas.

#### **SOME MORE HINTS**

- Choose small containers that can be easily and safely piled up. This will make loading and unloading of these containers much easier and faster. Wearing gloves or wrapping grips or handles with soft cloth may ease carrying of loads.
- Keep the wrist in a comfortable and straight position while holding grips. If necessary, enlarge the holes adjacent to the grips.

#### **POINTS TO REMEMBER**

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



Figure 18 & 19:  
Put farm products in small bags with firm handles. Proper weight carried in both arms makes your work more comfortable.

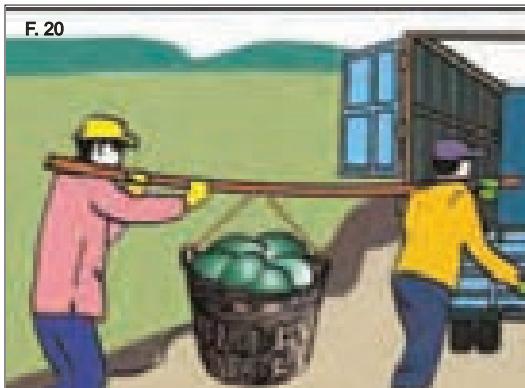
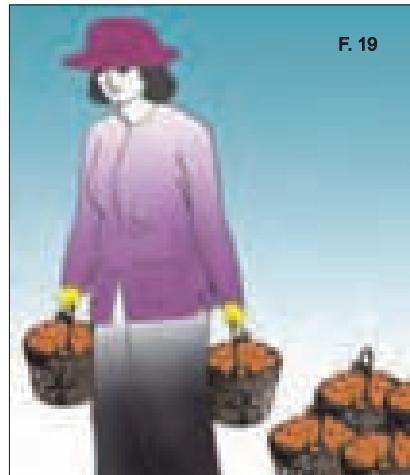


Figure 20 & 21: Use a pannier with firm hand grips, heavier things can be carried by 2 persons.



Figure 22: Add handles to the tool boxes.



Figure 23: Choose containers or baskets that have proper grips or handles.

**CHECKPOINT 6**

**Use carts, boats, vehicles or animals to carry heavy materials.**

**BENEFITS FOR FARMERS**

- Farmers need to carry agricultural products and tools everyday between farms and storage areas. By using carts, hand trucks, vehicles or boats, you can greatly reduce your workload and fatigue.
- By carrying farm products on carts and vehicles, you can minimize their damage and accident risks.
- The use of carts, hand trucks or vehicles can significantly reduce the number of trips. This is very advantageous for improving efficiency and safety.

**HOW TO IMPROVE**

- 1.) Use carts or hand trucks with firm handles for carrying heavy materials or a large quantity of materials. You may need to improve passageways and bridges for the effective use of carts and hand trucks.
- 2.) Use larger carts or available vehicles to carry materials at a distance. Make sure that these carts or vehicles are adapted for carrying the particular products or materials.
- 3.) Take advantage of using canals and rivers to transport materials. Motored boats will make your work much easier especially when carrying extremely heavy loads or a large quantity of materials.
- 4.) Use cows, horses, buffaloes or goats to pull carts for carrying materials and products.

**WAY TO PROMOTE COOPERATION**

Walk around your village with fresh eyes. Discuss with your neighbours how they carry loads. Everybody must have some experience in using carts, vehicles, boats or animals. There may be excellent examples of using self-made carts or hand trucks. Exchange ideas and experiences to reduce your workload and to improve your safety.

**SOME MORE HINTS**

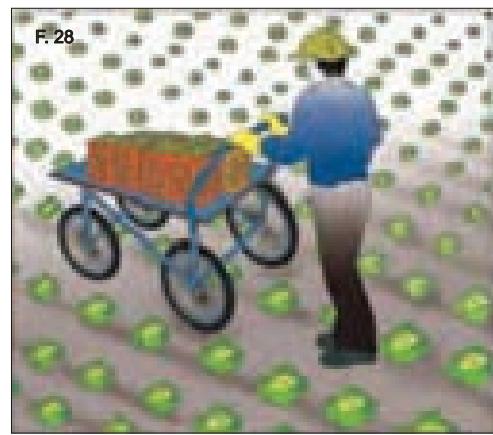
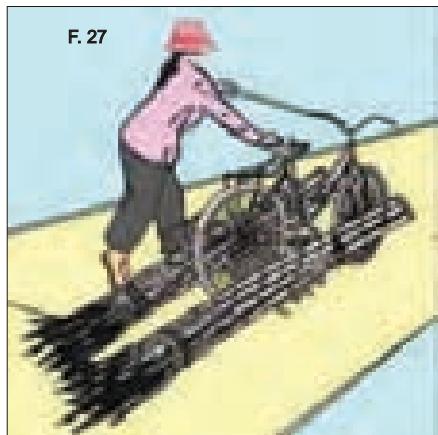
- Attach appropriate side-boards to carts or hand trucks to prevent products or materials from falling down while they are carried.
- Use different types of carts or hand trucks for different kinds of transport work. Learn from examples found in your neighbourhood.
- Check the conditions of carts, hand trucks, vehicles and boats regularly and keep them always in good condition. Simple maintenance activities will reduce your fatigue and accidents while carrying loads.
- Well-maintained transport routes will maximize the effectiveness of using carts, vehicles or animals for carrying materials.

**POINTS TO REMEMBER**

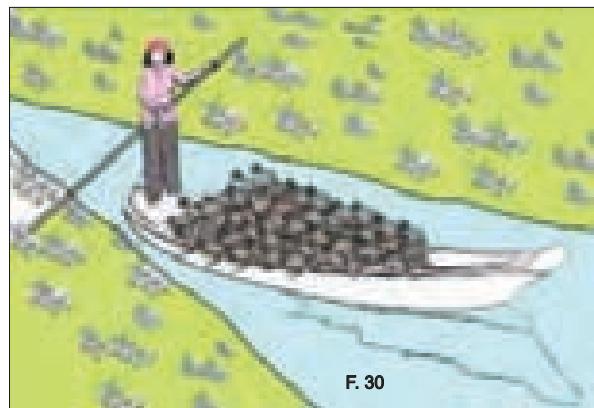
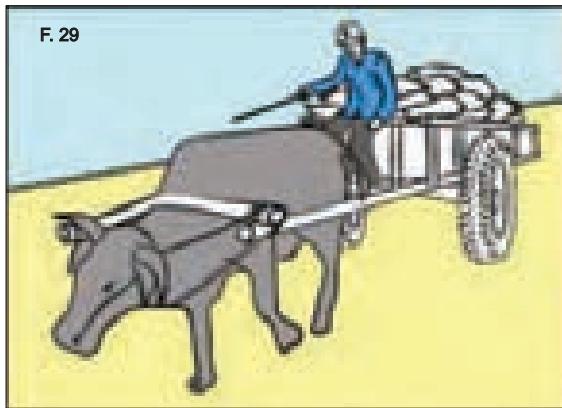
*There are many kinds of devices which are useful for carrying heavy materials in the local conditions. You can learn from local experiences.*



*Figure 24,25,26: Use carts and hand-trucks to carry heavy objects and farm products.*



*Figure 27, 28: Modify your bicycle so that it can be used as a means of transport.*



*Figure 29: Hand-truck pulled by animals.*

*Figure 30: Farm products transported by boat on the river.*

### **CHECKPOINT 7**

***Attach large enough wheels to carts and hand trucks to work effectively on field routes.***

#### **BENEFITS FOR FARMERS**

- Carts and hand trucks with bigger wheels can work even on bumpy and muddy field routes. Since transporting farm products and other materials from one place to another does not add any profits, longer transportation time on bumpy routes will only increase damage to products.
- Large wheels make the transport work easier and reduce fatigue of farmers. These large wheels also contribute to preventing accidents particularly on field routes with gaps and height differences.

#### **HOW TO IMPROVE**

- 1.) Check the wheels used in your carts and hand trucks. Are they large enough? If not, attach bigger wheels.
- 2.) If available, choose rubber wheels. Inflate them enough to go smoothly even on bumpy routes. Often, used bicycle or motor-cycle wheels will meet your requirements.
- 3.) Attach pushing or pulling handles to carts and hand trucks so that they are moved easily at the waist level .
- 4.) Design special carts or hand-trucks for different products so that the products are protected from damage and easy to load or unload. Check the stability of the attached

wheels. Bigger wheels need stronger fixing and frames.

#### **WAY TO PROMOTE COOPERATION**

Exchange ideas about how to make wheels of appropriate size. Learn from existing examples. Find and use available materials such as bicycle wheels, used planks, etc. For better designs consult with each other based on your and your neighbours' own experiences. Not only wheels but also other parts of carts and hand trucks need your ideas for improvement. Neighbourhood cooperation will enhance greatly when you have jointly designed carts or hand trucks minimizing physical efforts and protecting farm products against spoiling.

#### **SOME MORE HINTS**

The height of carts and hand trucks may increase when attaching bigger wheels. Appropriate platforms may help farmers to load and unload materials when using carts with larger wheels.

#### **POINTS TO REMEMBER**

*Carts and hand trucks having well-designed bigger wheels greatly help farmers to carry materials, even on bumpy, muddy or uneven field routes.*



Figure 31, 32 : On rough roads, it is easier to push or pull hand-trucks with big wheels than those with small wheels.



Figure 33, 34: Use wheels with hard rubber tires to reduce friction when moving on the field.



Figure 35: Wheeled work station to pick up strawberries.

**CHECKPOINT 8**

***Use roller conveyors or other mechanical means for moving or lifting heavy materials.***

**BENEFITS FOR FARMERS**

- Hand-made rollers or wheeled platforms, often made of locally available materials, are used by many farmers. These simple devices can help farmers move heavy materials such as agricultural products, machines and packages. Rollers placed in the form of a conveyor are particularly useful where heavy materials are moved regularly.
- Rollers that bridge height differences can allow farmers to move heavy materials without manual lifting or lowering. Farmers can thus avoid awkward and strenuous bending postures that may cause low back pains.
- Similar ideas can be applied to various farming work. For example, wooden rollers put under a heavy agricultural machine or boat make the moving work much easier.

**HOW TO IMPROVE**

- 1.) Try to use roller-conveyors when heavy materials are moved within a short distance. Put the both ends of rollers on stable places at the height appropriate for loading and unloading the materials.
- 2.) Learn from existing ways of using rollers or wheeled devices for moving materials. Design appropriate roller-conveyors or wheeled platforms for your moving work. Select durable

Materials that can sustain heavy weight safely.

- 3.) When moving heavy objects on the ground or on passageways, wooden rollers put under them may help your work greatly. Examples include carrying an agricultural machine to the rice field, moving boats to the river bank or moving a heavy cabinet.
- 4.) Use inclined roller conveyors for moving heavy materials between two places with a height difference. For example, when moving rice bags or heavy packages from storage areas to near-by platforms, or when moving farm products to or from vehicles or boats.

**WAY TO PROMOTE COOPERATION**

Roller-conveyors can save the energy of people and provide them with opportunities to work together. Exchange ideas about how to apply the roller-conveyors for various types of moving work and design an appropriate one jointly.

**SOME MORE HINTS**

Rollers and conveyors need good maintenance. Check all parts, such as rollers, steel beds or rubber beds, at regular intervals. This is important to prevent accidents. If your rollers or conveyors are portable, keep them in a safe place away from children when not in use.

**POINTS TO REMEMBER**

*Roller conveyors provide us with an effective means of moving heavy objects within a short distance.*



Figure 36: Use a wooden bed with wheels to move heavy agro-machinery.

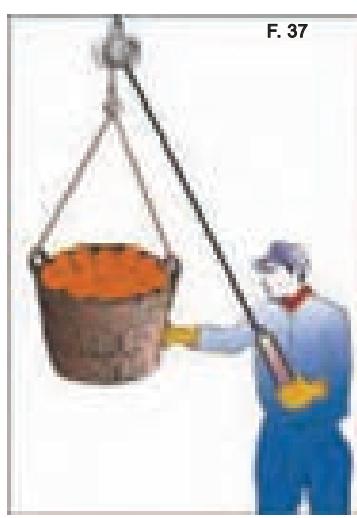


Figure 37: Electric chain hoist with a control switch for efficient lifting of heavy loads.

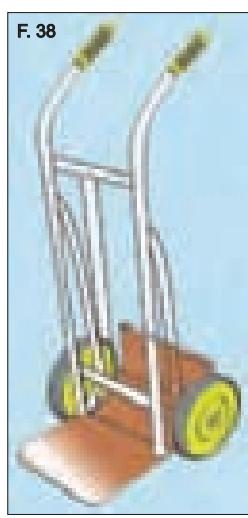


Figure 38: Hand trolley lifter for arranging and moving rice bags.



Figure 39: Short conveyors are very convenient for the movement of agricultural bags or farm products from one place to another.

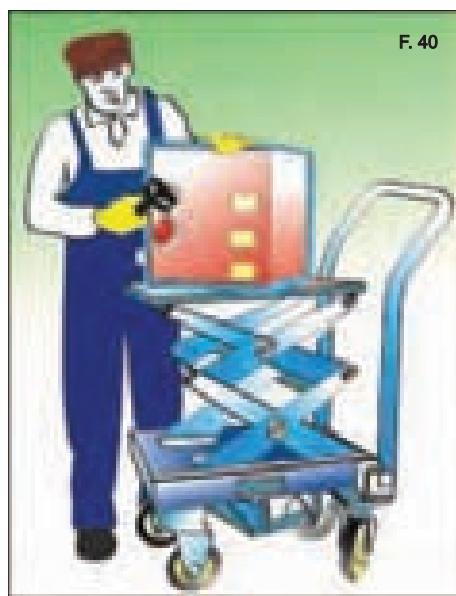


Figure 40: A manually powered device for lifting heavy item to working level.

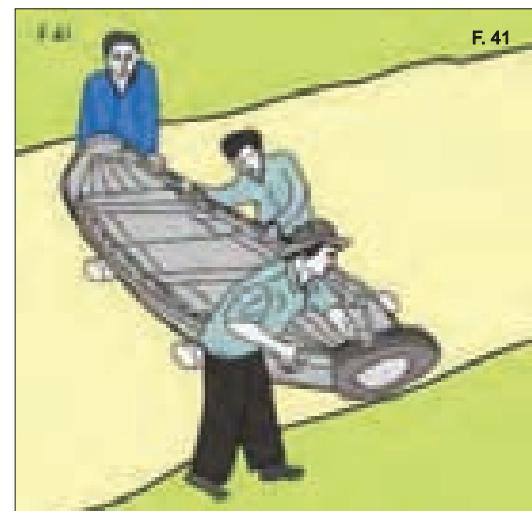


Figure 41: Use rollers to move heavy objects over short distances.



## **WORK STATION DESIGN AND WORK TOOLS**

As well as on the farm, farmers and their families are working at in-house workplaces. They have to sort and pack agricultural products, and also do cooking and other family jobs at home. Farmers need appropriate workstations and work tools for these jobs. Well-designed workstations for farmers' work prevent pains on your back, neck, arms and legs, resulting in increased work efficiency. This chapter provides you with practical measures to design the better workstations and work tools for you. The ideas include appropriate working-height, stable chairs and working tables, the measures to avoid strenuous work postures, and tools helpful for reducing your force. These improvements are all possible at low-cost.

### **CHECKPOINT 9**

***Adjust the work height so that work is done at elbow level or slightly lower than elbow level.***

#### **BENEFITS FOR FARMERS**

- Various agricultural jobs such as sorting and packaging farm products need appropriately-designed workstations. Muscle strains and pains could be prevented and efficiency increased. Good workstations can also make house-keeping jobs such as cooking and washing easier.
- A working height at elbow level minimizes your muscular efforts. This rule is applicable for both standing and sitting postures. Adjust the work surface to elbow level or slightly lower than elbow level. Work could be carried out comfortably. Efficiency and productivity of the work will increase remarkably.
- When working at a height lower than elbow level, farmers need to bend their body trunk. This posture poses strains on your back and could cause low back pains. If the work station is higher than elbow level, you have to keep arms and shoulders elevated. It will cause gradual stiffness and pains and farmers will find it difficult to continue their work.

#### **HOW TO IMPROVE**

- 1.) Look at your work stations, work tables, and cooking devices at home. Adjust their heights to elbow level.
- 2.) The height of workstations should be adjusted to the height of the

most frequent users.

3.) One workstation may be used by many farmers together. Use a foot platform for small farmers and an item holder for tall farmers to adjust their work height to elbow level.

4.) When you need to exert greater force such as cutting products and repairing tools, choose work stations slightly lower than your elbow level.

#### **WAY TO PROMOTE COOPERATION**

Many farmers work on the ground by squatting when sorting and packaging farm products. This posture causes strains and pains. Encourage your friends and neighbours to apply appropriate workstations (chairs and tables) and to adjust the height to elbow level. The same principle can be applied to your family work. Discuss plans with your family members to use appropriate workstations. After changes, evaluate benefits together.

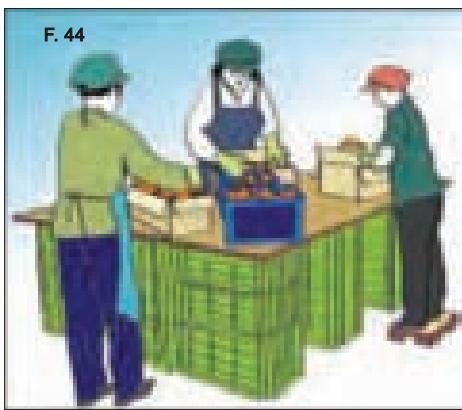
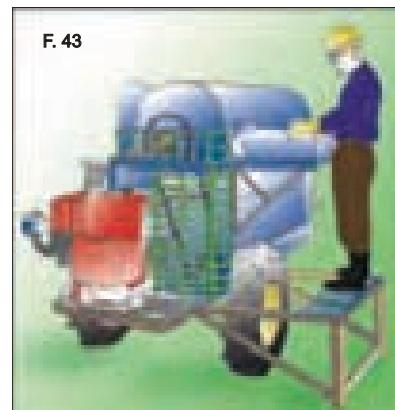
#### **SOME MORE HINTS**

Some workstations might be shared by several farmers who are of different heights. Design height-adjustable workstations using simple devices.

#### **POINTS TO REMEMBER**

*Your work will be most efficient when the work height is adjusted at around elbow level.*

*Figure 42, 43:  
Adjust the  
work height at  
around elbow  
level.*



*Figure 44: Use a foot platform for small farmers in case of the workstation may be used by many farmers together.*

*Figure 45: Change the farming arrangement in the field to avoid as much as possible strenuous working postures.*



*Figure 46 : Adjust the work height by using a stable foot platform corresponding to your elbow level.*

*Figure 47: When need greater force, choose the work station slightly lower than your elbow height.*



**CHECKPOINT 10**

***Provide stable chairs or benches with sturdy backrests.***

**BENEFITS FOR FARMERS**

- Farmers have many jobs which need to be carried out in sitting. Appropriate chairs or benches with sturdy backrests make your work much easier. You can relax your back muscles by leaning against a backrest.
- You may think that a sitting posture is always more comfortable than standing. However sitting for long and successive hours could cause strain and pains on your back. A backrest allows your back muscles to relax from time to time, reduces weariness and increases your job satisfaction.

**HOW TO IMPROVE**

- 1.) Walk around your village. Find jobs which are being performed in sitting, or would be better if performed in sitting. What kind of chairs do farmers use ?
- 2.) Attach a sturdy and appropriate backrest to chairs for seated farmers.
- 3.) Backrests should be attached to benches, too. Wooden or bamboo benches with arm and back supports will help group work such as sorting farm products, picking up seeds, etc.
- 4.) Adjust the work surface height to an individual's elbow level.

**WAY TO PROMOTE COOPERATION**

Chairs with a backrest do not cost much. You will surely find many good examples in this regard in your village. Learn from existing good examples. How are the chairs with backrest used? How are they made? With what materials? And then promote chairs with a backrest to many other villagers. Start with simple actions using available local materials such as upgrading wobbly chairs, or attaching sturdy backrests. Encourage your neighbours to form a habit of using chairs with a backrest when working in a seated position.

**SOME MORE HINTS**

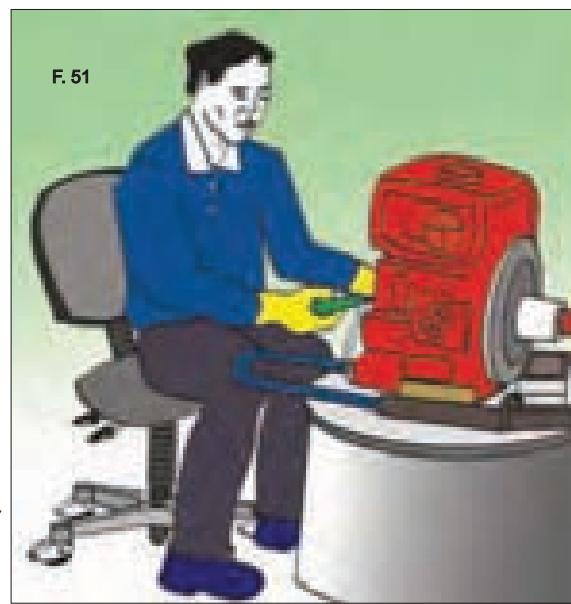
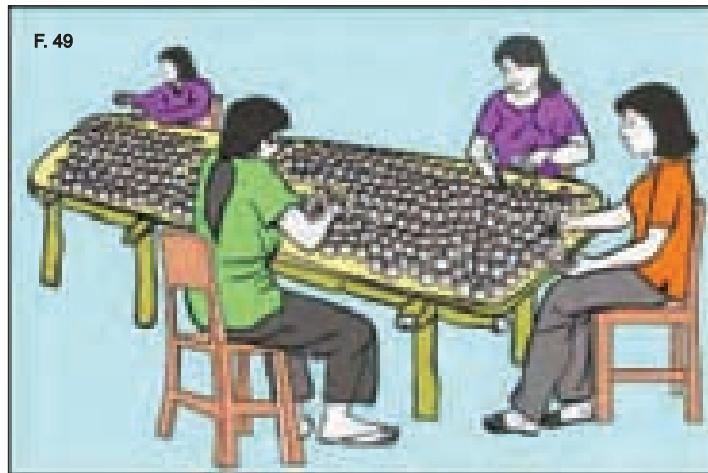
- Armrests can also be useful for precision jobs which need a sustained arm position.
- Chairs with a backrest might not be best for work which requires frequent body movements. If so, use stools or chairs without a backrest.
- When long periods of sitting are needed, use a cushion or a round pillow behind your lower back. It could reduce the strain on your back.

**POINTS TO REMEMBER**

*Appropriate chairs using sturdy backrests will increase the quality of your work.*



*Figure 48: Choose stable chairs with a sturdy back rest for seated farmers sorting and packaging farm products.*



### **CHECKPOINT 11**

***Choose work methods to alternate standing and sitting and to avoid bending and squatting postures as much as possible.***

#### **BENEFITS FOR FARMERS**

- Alternate standing and sitting while work is done. Changing work postures can allow your muscles to rest after working so as to avoid overuse of particular groups of muscles. Muscle fatigue can be prevented, and the quality of work will be improved.
- Continuing a single posture is strenuous. Continuous standing will cause pains on your shins, feet, and back etc. and then may affect your whole body. Long periods of sitting will increase strain on your low back and can cause low back pains.
- It is of particular importance to avoid strenuous work postures such as bending and squatting. These postures place a strain on your back and cause pains. When you have strain and pains, you will be prone to mistakes and accidents. Frequent changes of work posture can prevent such strain and pains.

#### **HOW TO IMPROVE**

- 1.) Provide a standing chair or stool close to your working place. In a standing position, you can sit on the stool by simply leaning. Choose light materials to make such a chair easy-to-move.
- 2.) Vary the jobs carried out by one farmer so as to change his/her work posture.

3.) Minimize bending posture while working on your farm. Various tools will help you. For digging or cultivating, choose tools with long handles. When spaying water, use a yoke.

#### **WAY TO PROMOTE COOPERATION**

Exchange ideas and experiences of practical solutions with your neighbours. Find an opportunity to work together with your neighbours so as to vary jobs and to avoid a single strenuous work posture. For example, during harvesting rice, you and your neighbours may alternate between cutting rice and carrying bundles of rice. Work together and evaluate the effectiveness.

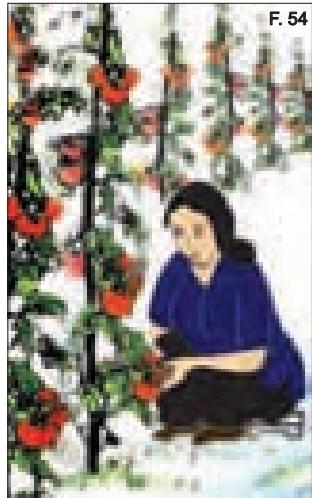
#### **SOME MORE HINTS**

Standing stools or chairs should be appropriate in size and portable. Big and heavy stools may disturb your work.

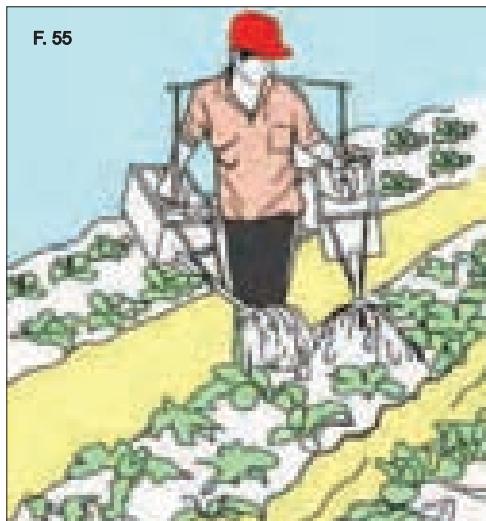
#### **POINTS TO REMEMBER**

*Continuing a single working posture for long periods is disadvantageous to your health. Find a way to alternate standing and sitting for greater efficiency and comfort.*

*Figure 52: Provide a standing chair or stool close to your working place. In a standing position, you can sit on the stool by simply leaning.*



*Figure 53, 54: Choose work methods to alternate standing and sitting.*



*Figure 55: A yoke for carrying two separate loads while keeping balance and minimizing the bending or lowering.*



*Figure 56, 57: Limit the bending posture by using tools with a long handle.*

### **CHECKPOINT 12**

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

#### **BENEFITS FOR FARMERS**

- Put frequently used materials within easy reach so that you will minimize unnecessary movements. By placing frequently used tools or materials within easy reach, you can also avoid strenuous work postures to pick up materials, such as stretching or bending forward. Time and energy can be saved, too.
- The “easy-reach principle” is applicable to various farmers’ tools and materials. Agricultural tools such as knives, hoes, and sickles should be placed within easy reach. At home, the same principle is useful for utensils, spice jars, and spans etc. for cooking. Power switches and controls should be placed in a convenient place, too. All such arrangements will help you complete your work with minimum effort.

#### **HOW TO IMPROVE**

- 1.) First, select the most frequently used materials and tools which should be located within easy reach. Select these both on your farms and at home.
- 2.) Place the selected tools and materials in a place within your reach. Move other tools and materials to appropriate storage places.
- 3.) If necessary, use shelves, racks or hangers to keep necessary tools

and materials within easy reach.

- 4.) Work items or hand tools frequently used in the field, such as fasteners, scissors, knives, hammers, or containers for drinking water, can be placed within your easy reach. Design a special belt or a hand bag to carry them along with you while working.
- 5.) Displays and control panels of pumps, threshing machines and other agricultural machines should be placed within an easy-to-see position.

#### **WAY TO PROMOTE COOPERATION**

How are frequently-used materials and tools placed within easy reach of farmers? Collect such good examples from your village. They must include (1) home materials such as spice jars, span hangers, tool hangers, shoe racks, and (2) farm tools such as knives, and hoes. Share the local wisdom with your neighbours. Help each other develop innovative solutions using local resources.

#### **SOME MORE HINTS**

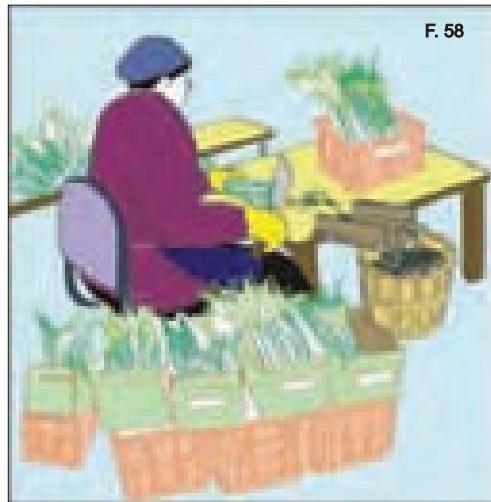
Shelves and materials containers will help you to keep frequently-used materials within easy reach and in an orderly manner.

#### **POINTS TO REMEMBER**

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



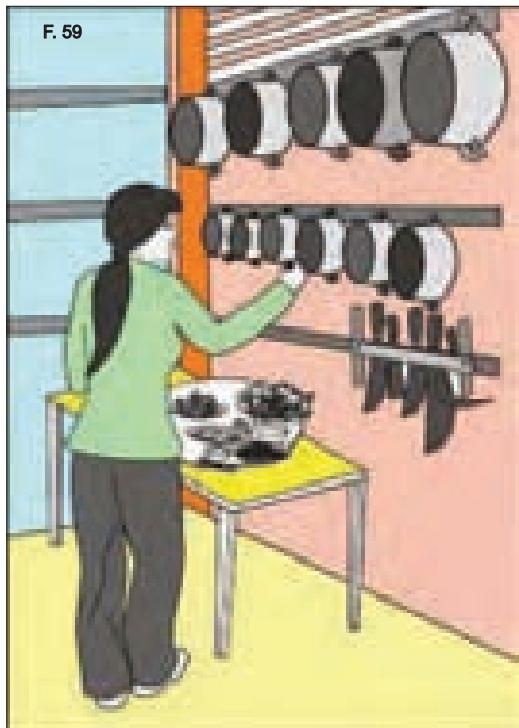
F. 57



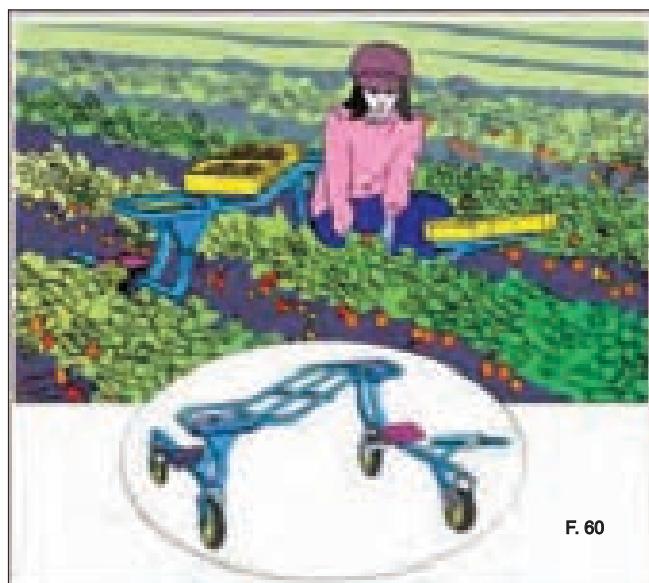
F. 58

*Figure 57: Provide tools storage cabinets near the working area within easy reach of farmers.*

*Figure 58: Panniers of raw products and materials are placed within easy reach.*



F. 59



F. 60

*Figure 60: Mobile work station on which baskets of agricultural products are placed within easy reach of the farmer.*

*Figure 59: Frequently used items are placed within easy reach, others placed higher.*

**CHECKPOINT 13**

***Choose tools that can be operated with minimum force.***

**BENEFITS FOR FARMERS**

- Well-designed, appropriate tools can greatly reduce your workload and improve productivity. Often delicate movements are required in operating tools. Even light fatigue could hamper good work output. When using heavy and bulky hand tools, you will become fatigued even more easily, resulting in low efficiency and even accidents.

- The hand tools necessary for farmers vary depending very much on their work. Rice reaping and fruit picking need sharp knives with good hand grips. Branch grafting or thinning out are precision work which need accuracy in tool operations. On the contrary, greater force is required for pounding, smashing, and cutting. Strong tools with sturdy hand grips are needed. There are many ways to improve your tools and therefore your safety and health.

**HOW TO IMPROVE**

1.) Choose light (but sufficiently strong) tools to reduce the workload on your arm and hand muscles. Bigger tools such as hoes and ploughs need appropriate lengths of bars for holding. Attach sturdy hand grips to the tools to secure safe holding.

2.) Design tools that can ease your work. For example, as shown in figure 61, a manual “line - sowing machine” was invented and has

been used in Vietnam. Farmers no longer need to hold and carry a heavy basket of rice seeds in the rice field.

3.) Rotating work stands or devices at appropriate height will minimize your efforts in lifting heavy objects. These devices are particularly helpful for repairing and maintaining machines and other equipment.

**WAY TO PROMOTE COOPERATION**

You can find wonderful agricultural tools designed by local people. The tools can save energy and farmers' time by improving safety, health and productivity. Come together and exchange experiences on how to invent new convenient tools using local available resources. Share good solutions with your neighbours.

**SOME MORE HINTS**

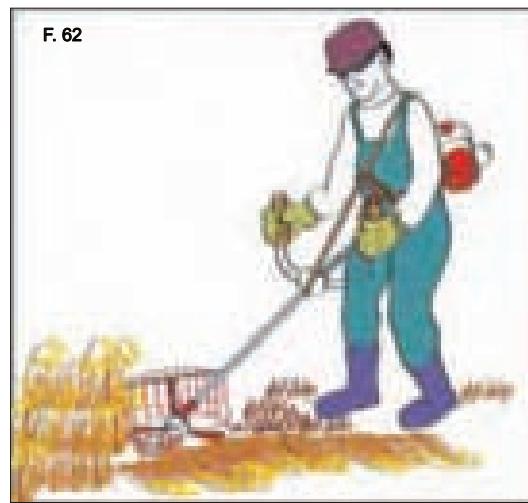
Avoid overuse of a particular group of muscles while using tools and devices. Choose and design tools which allow you to use many muscles in good balance.

**POINTS TO REMEMBER**

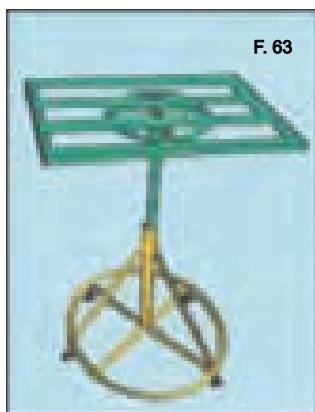
*Appropriately designed tools and devices help you reduce fatigue and increase productivity.*



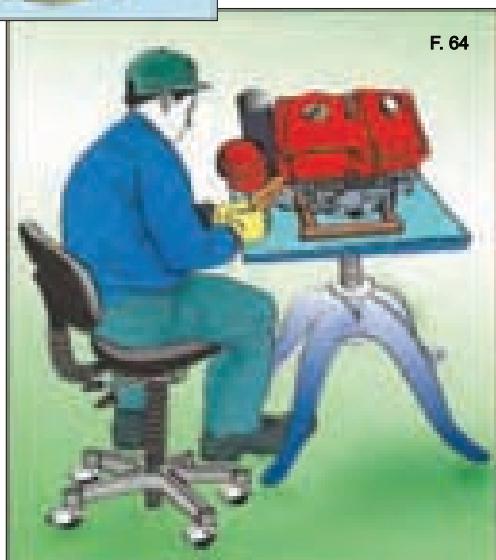
*Figure 61: Use a “line-sowing machine”. The machine rolls on the field; rice grows in lines convenient for fertilizing and weeding.*



*Figure 62: A hand-reaping machine to reduce the workload of your arm and hand muscles. Sturdy hand grips are attached to the machine to secure safe operation.*



*Figure 63, 64, 65: Design rotating work stands at appropriate height to minimize the lifting of heavy objects.*



**CHECKPOINT 14**

***Provide a home for each tool.***

**BENEFITS FOR FARMERS**

- You may have seen some cluttered work areas where many tools and devices were scattered around on the floor. How did you feel when looking at them? Not safe, not efficient. Precious, often expensive tools and devices can be easily damaged. Time and effort to search for lost tools could be huge. The results are often disappointing. Your stress and strain will be raised, too.

- Providing a “home” for each tool is a simple and effective solution to increase safety and efficiency. Each of your tools should be brought back to its designated position after use. Providing a “home” for each tool allows you to recognize at a glance which tools are still missing. At the end of your work, you will quickly know whether all tools are “at home”.

**HOW TO IMPROVE**

1.) Many farmers have developed simple “homes” for agricultural or cooking tools using bamboo or wood pieces. They can hang knives, sickles, billhooks and others in good order.

2.) Put labels, or draw the shapes of different hand tools on the tool board to show where every item goes. At a glance, everybody will find where tools should go back. This is good for maintenance.

3.) For work which requires a lot of

movement from place to place, design wooden boxes with good handles to keep your tools. Arrange tools in order and draw the shape of each kind.

4.) If you keep many tools, develop a cabinet for storage. Put labels, or draw the shapes to show where each of the tools should be placed.

5.) For small tools or work items, store them in special bins or trays with labels to prevent loss.

**WAY TO PROMOTE COOPERATION**

Start with simple, immediate actions. There are a number of practical solutions such as bamboo-made tool hangers or drawing the shapes of tools. The idea to provide a home for each tool is helpful for house-keeping, too. Invite ideas from your family and share visible achievements.

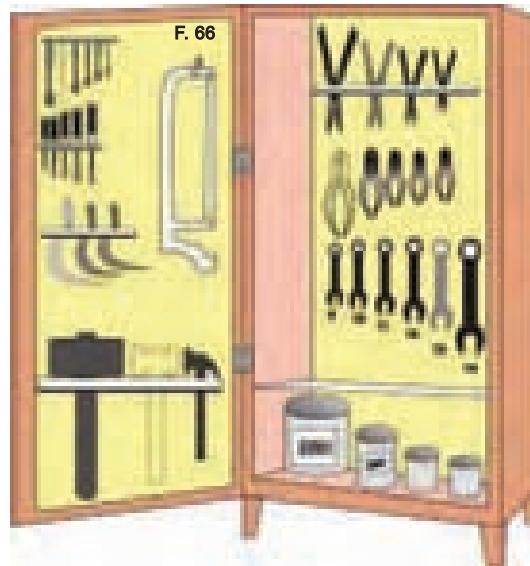
**SOME MORE HINTS**

Attach wheels to your tool cabinets or racks. They can be moved to different work sites when necessary.

**POINTS TO REMEMBER**

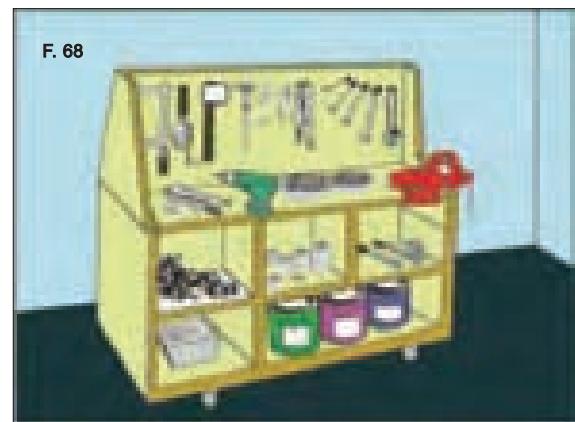
*Providing a “home” for each tool is a low-cost way to improve safety, health and efficiency in your work.*

*Figure 66: A simple tool storage cabinet: pliers, hammers, sickles etc. are hung on both sides and are easy to distinguish. Tools are marked and labeled clearly. It is easy to reach the required work items.*



*Figure 67: Use a wooden board to fix tool hangers. Mark the shape of each tool clearly and distinctly.*

*Figure 68: A mobile tools cart helps farmers to ensure smooth work flow in different work places.*



*Figure 69:  
Multi-level racks  
to keep  
agricultural tools.  
For small tools or  
work items, store  
them in special  
bins or trays with  
clear labels.*

**CHECKPOINT 15**

***Use jigs, clamps or others fixtures to hold items while work is done.***

**BENEFITS FOR FARMERS**

- Using jigs, clamps or others fixtures, farmers can hold different sizes of work items steadily. Their two hands are now free for any manipulation and therefore their work progresses more quickly and safely.
- Safety and health risks arise when you use your hands to hold work pieces. For example, when cutting materials, your hands may be in danger. You may have to work while bending forward deeply. Slipping of work pieces from your hands may cause injuries, product damage and time-wasting.

**HOW TO IMPROVE**

1.) Design and use convenient jigs and clamps to hold your work items. They are particularly useful for fixing parts and components of agro-machines, pumps, naves or wheels when repairing them.

2.) Fix the jig or clamp tightly on the work surface or table and adjust the actual work height so that work is done at elbow level or slightly lower than elbow level.

**WAY TO PROMOTE COOPERATION**

Fixtures and clamps can be made locally or purchased for reasonable prices. Promote the habit of using fixtures among villagers when cutting and repairing. Find good solutions and

facilitate the exchange of experiences.

**SOME MORE HINTS**

- It is important to adjust the fixing forces to be strong enough to secure the work pieces inside.
- File sharp edges of the clamp to avoid injuring your skin.

**POINTS TO REMEMBER**

*Simple fixture devices will greatly increase your comfort and safety while working.*



Figure 70: A low-cost fixture device made of wood to hold the work pieces

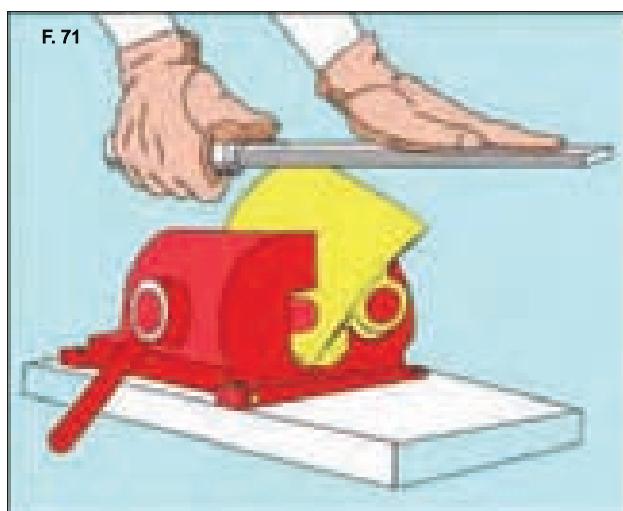


Figure 71: The use of a jig or clamp allows two hands to work freely and productively.



Figure 72: A simple fixture device to hold a bunch of small spring onions.



Figure 73: Use a fixture device to hold the naves or rollers when they are detached for repair or maintenance.



## MACHINE SAFETY

Farmers need to use many kinds of machines. While they are very useful, they can also be dangerous. This chapter provides simple solutions to reduce your risks of machine accidents. Guards, safe feeding devices, and good maintenance are the keys to the safe use of machines. Electrical accidents are another serious safety problem among farmers. In this chapter, you will find practical measures to ensure the safe use of electricity.

**CHECKPOINT 16**

**Purchase safe machines and maintain them properly.**

**BENEFITS FOR FARMERS**

- Agro-machines are big investments that help you increase productivity. However, they may also cause troubles and accidents to you when some parts of the machines are not protected safely. Before purchasing a machine, study its safety aspects carefully to identify all possible dangers. Are all dangerous parts well guarded ?
- Regular maintenance keeps your machinery productive and safe. Check all machine parts carefully. In particular, special care is needed for rotating parts, guards, and electrical wires etc.

**HOW TO IMPROVE**

- 1.) Before purchasing a machine, study and observe it carefully. Make sure that all moving parts are well guarded and electrical wires are well protected. Check whether all feeding and ejection parts can work safely. Switch it on and test the machine to see if it runs well. Can your hands be free from danger while the machine is in motion?
- 2.) Fix maintenance days at regular intervals. Develop a maintenance diary and record conditions.
- 3.) Protective guards as well as mechanisms need to be checked carefully.
- 4.) Maintenance should be carried out by qualified/experienced family

persons. Call for assistance from such experienced persons in your village. Or you should be trained. Machinery sellers or local agricultural officers will help you. Without sufficient experience, machines could be a danger to you and your family.

5.) While maintaining or repairing a machine, the machine must be switched off and electrical connection cut. Hang a tag, "DANGER, DO NOT OPERATE".

**WAY TO PROMOTE COOPERATION**

Your village must have persons experienced in selecting safe machines and maintaining machines in good conditions. Learn from them, and even ask them to conduct on-site short training for other farmers. Recognize that farmers who maintain machines play a very important role for villagers. Neighbourhood cooperation is necessary to promote safe use and maintenance of machines.

**SOME MORE HINTS**

You may find an inexpensive machine. You need to check its safety aspects even more carefully. Once accidents occur, costs can be enormous.

**POINTS TO REMEMBER**

*Only safe machines can contribute to higher productivity. Machines are not inexpensive: study safety aspects carefully before purchasing them.*

Figure 74:  
Purchase  
pumps or  
engines in  
which all  
moving parts  
are carefully  
protected.



F. 75



Figure 75: Assign a qualified person to be responsible for maintenance in order to avoid break downs due to lack of experience.

**CHECKPOINT 17**

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

**BENEFITS FOR FARMERS**

- Attaching proper guards to moving parts of machines is easy and rewarding. Moving parts of the machine pose accident risks to farmers. Serious injuries could occur from gears, rollers or belts. Without guards, dangerous items such as sharp objects and hot metal may even fly out from moving points. Simple, hand-made guards can greatly reduce such risks.
- Unguarded machines could harm not only users but visitors and family members (often children) who may pass by the machine. Risks could be even higher for them since they do not understand how the machine operates and what precautions are necessary. Machine guards can protect your friends and family members, too.

**HOW TO IMPROVE**

- 1.) Make guards and covers for the moving parts of machines. Use available materials such as wood or steel pieces. Select strong, durable materials.
- 2.) Guards and covers need to be detached easily for repairs and maintenance. Design them in such a way.
- 3.) Where you need to observe the operation of machines inside the guards, use transparent materials such as plastics or metal nets to make the guards.

- 4.) For machines located in areas where many people are passing by, install fences made of wood or bamboo to limit access to them.

**WAY TO PROMOTE COOPERATION**

Look around at various jobs done in your village together with your neighbours. Identify where and when they use what machines. Define risky parts of machines and list the machines which need appropriate guards. Discuss suitable solutions and design and attach appropriate guards using locally available materials.

**SOME MORE HINTS**

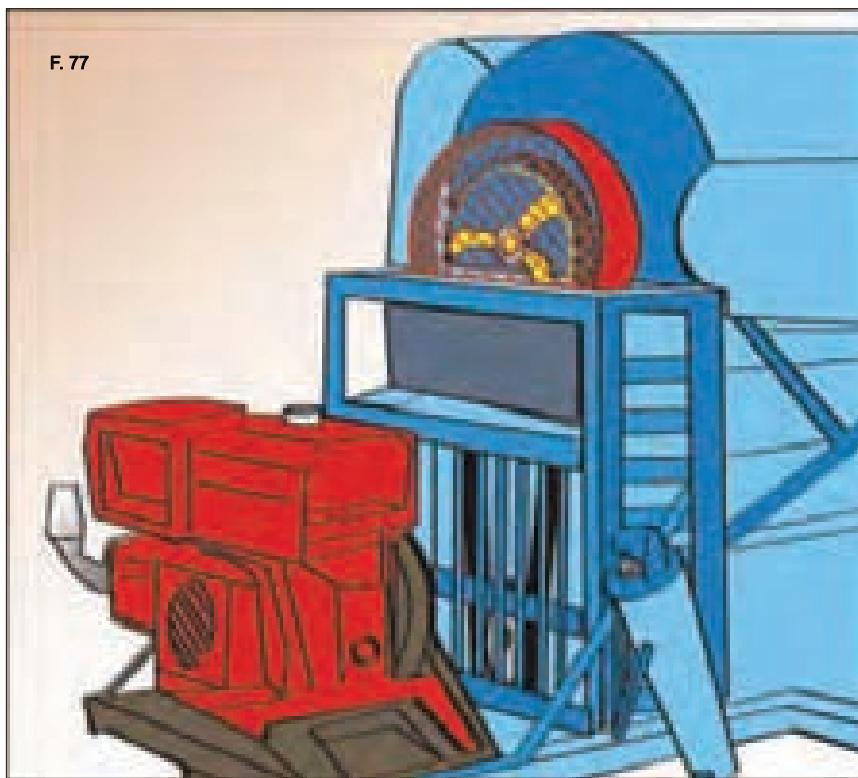
Guards must be tightly fixed to machines. Before operating the machine, carefully check each bolt and nut of the attached guards. If necessary, tighten them again. When not fixed well, temporary or removable guards could cause serious accidents to farmers.

**POINTS TO REMEMBER**

*Working near the moving parts of machines is very dangerous. The best protection is preventing contact by attaching guards instead of instructing farmers to avoid it.*



*Figure 76: Install fences to limit the access to machine located in areas where many people are passing by.*



*Figure 77: Safety guard made by local available materials. If necessary use transparent materials such, as metal nets, to make guards so that tasks can be clearly observed.*

**CHECKPOINT 18**

***Use appropriate feeding devices to avoid danger and increase production.***

**BENEFITS FOR FARMERS**

- Feeding devices can help you prevent serious accidents. Do remember that your hands are at great risk when feeding materials into machines. For example, very unfortunately, several farmers in Cantho Province in Vietnam lost their hands and arms while feeding rice bundles into threshing machines. The same dangers exist when working with milling, grinding, or husking machines. Only by a minor mistake, your hand, an important part of the human body, could be injured immediately. Feeding devices could reduce such risks significantly.
- Appropriate feeding devices can also speed up your work as well as provide safety. Repetitive motion of your arms and hands while feeding will cause fatigue and make your work slow. Simple gravity or automatic feeding mechanisms make the work much easier and save your working time. Productivity will obviously increase.

**HOW TO IMPROVE**

1.) Design gravity feeding devices in the form of a chute. The feeding devices should be fixed firmly to the machine. From the opening part, raw materials will slide into the machine. This idea can be applied to threshing machines.

2.) Design funnel devices and place

them close to the feeding mouth of the machine. The weight of the farm products will push them into the machine. This mechanism can be applied for pressing, milling or grinding of farm products.

**WAY TO PROMOTE COOPERATION**

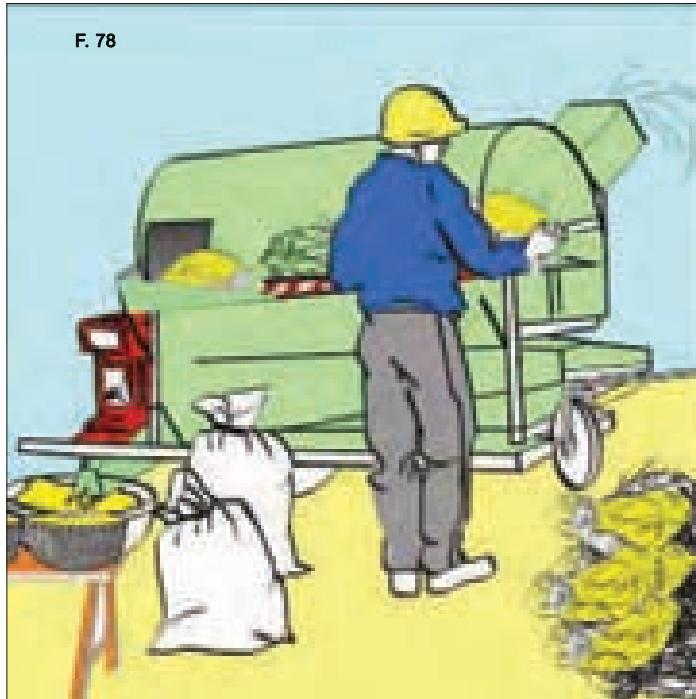
Walk around your village and farms. You will find some feeding devices used by your neighbours. How have they been invented and used? Share technical experiences with them. Show your machines to them and design and improve your feeding and ejection devices together.

**SOME MORE HINTS**

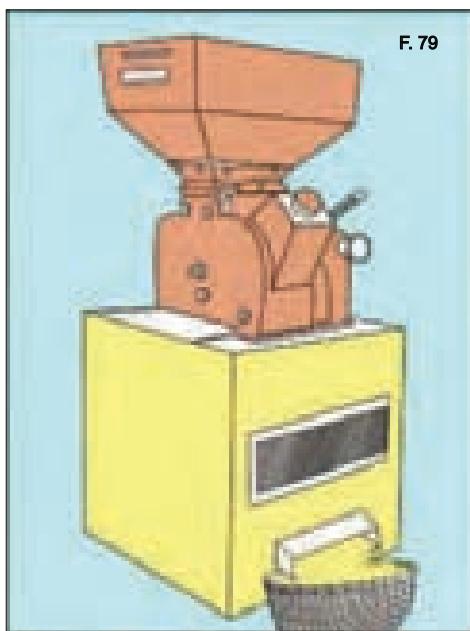
- While fitting or attaching feeding devices to your machine, ensure that they do not interfere with existing guards and other safety devices of the machine.
- Regularly inspect and maintain feeding devices.

**POINTS TO REMEMBER**

***Use convenient feeding devices to avoid accidents and improve your productivity.***



*Figure 78 : Feeding device in form of a conveyor which gradually carries the bundles of rice into the threshing machine.*



*Figure 79: A milling machine with a funnel-shaped feeding device.*



*Figure 80 : A corn-plucking machine with a trough-shaped feeding device.*

### CHECKPOINT 19

***Make the emergency controls clearly visible and attach local language labels to the controls or switches.***

#### BENEFITS FOR FARMERS

- Emergency stop switches of any machine must be clearly visible. Accidents and mistakes could happen unexpectedly. Immediate action is needed when someone is caught in dangerous machine parts. Emergency controls need to be well designed so that everybody, including visitors and outsiders, can easily see them and understand how they work.
- Place a label on each of the switches and controls to avoid misunderstanding and mistakes. The labels should be clearly visible and use simple, easy-to-understand words. Of course they must be written in the local language.
- It is wise to use different colours and shapes for different controls and switches. Similar colours and shapes may cause misunderstanding even to farmers using the machine every day. The result could be serious accidents.

#### HOW TO IMPROVE

- 1.) Place emergency controls or switches of machines within easy reach of users. Separate them from other switches.
- 2.) When emergency controls or switches are placed in the same area with other control buttons, make the emergency control outstanding and easy-to-see. For example, use a red

colour, bigger size and a peculiar shape.

- 3.) Use big and clear characters for labels of controls and switches. Replace unclear labels or labels written in a foreign language with labels clearly written in the local language.

#### WAY TO PROMOTE COOPERATION

You can find emergency switches at home and on agricultural machines in the farm. Are they clearly visible and easy-to-understand? Encourage your family and farmer friends to attach clear labels to controls and switches. They must be written in the local language. Design together clearly visible switches and controls. Share good designs with your neighbours.

#### SOME MORE HINTS

- Label clearly what operation is meant. If you use symbols for switches, they must be clear and easy-to-understand.
- Direction of controls and switches must be easy-to-understand using common sense and local customs. For example, ON should be upward, and OFF downward, etc.

#### POINTS TO REMEMBER

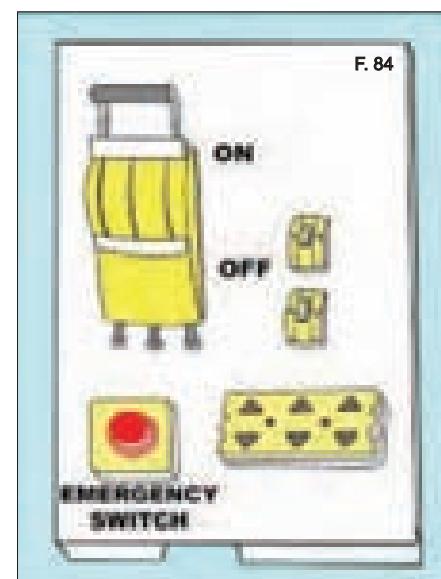
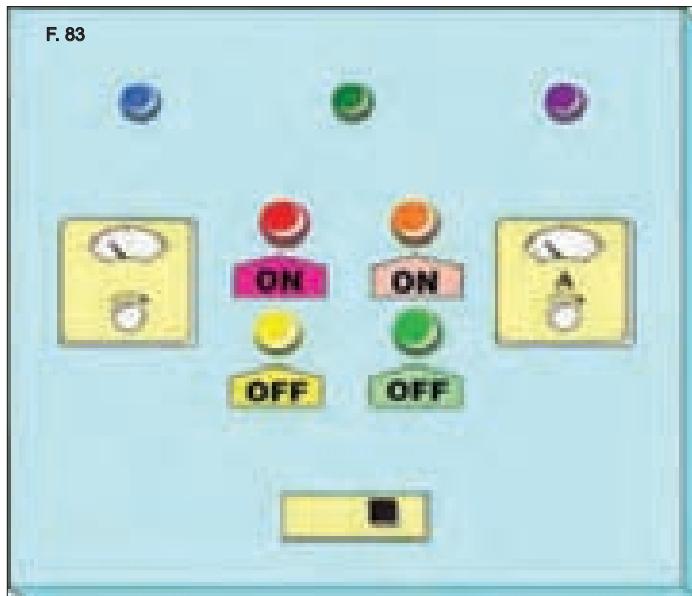
*Clearly visible and easy-to-understand controls or switches will save you, your family and your friends in case of emergency.*



*Figure 81:* Place emergency control of the machine clearly visible and within easy reach of users..



*Figure 82:* Clearly visible emergency controls of a pump attached to an electricity board.



*Figure 83, 84:* An electricity board with controls, switches and displays, which are written in the local language.

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**CHECKPOINT 20*****Ensure safe use of electricity for machines and equipment.*****BENEFITS FOR FARMERS**

- Farmers use electricity for many purposes. Unfortunately, electrical accidents are increasing among farmers. Some farmers use electricity to catch fish and are electrocuted. Safe use of electricity is required for the happiness of families and communities.

- Farmers need to use many kinds of machines such as tractors, threshing machines, or water pumps in field conditions, exposing them to humid and wet environments. The junctions connecting electrical wires and machines are another main cause of electrocution or machine break-down. Unprotected electrical connections can cause serious accidents, and could harm not only machine operators but also other farmers, families, or visitors passing by the farm. Careful covering of all electrical wires connected to machines and their proper maintenance can prevent electrical accidents and machinery damage.

**HOW TO IMPROVE**

1.) Check all electrical junctions. Fix them carefully with an electrical adhesive tape. Do not leave any junctions uncovered and be sure that nobody will touch them.

2.) Any damaged or scratched electrical junctions must be replaced with new, safe ones immediately.

3.) Protect all circuits and wires with circuit breakers or fuses. The main power switches and breaker boxes should be clearly marked.

**WAY TO PROMOTE COOPERATION**

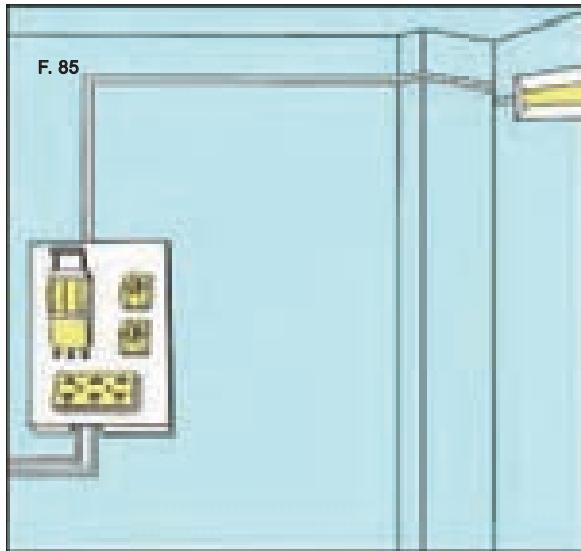
Electrical safety needs special skills and experience. There must be some persons in your village who are strong in electrical safety. It is a good idea to have a brief on-site training on electrical safety. Share experiences among villagers, and develop joint maintenance plans for all electrical safety in your village.

**SOME MORE HINTS**

- Use approved electrical plugs and circuits. Cheap versions may cause short circuits, resulting in accidents and machine break-down.
- Don't use electricity to catch fish and other animals.
- All electrical equipment should be earthed correctly. An independent earthing rod should be used to connect earthing wires from machines.

**POINTS TO REMEMBER**

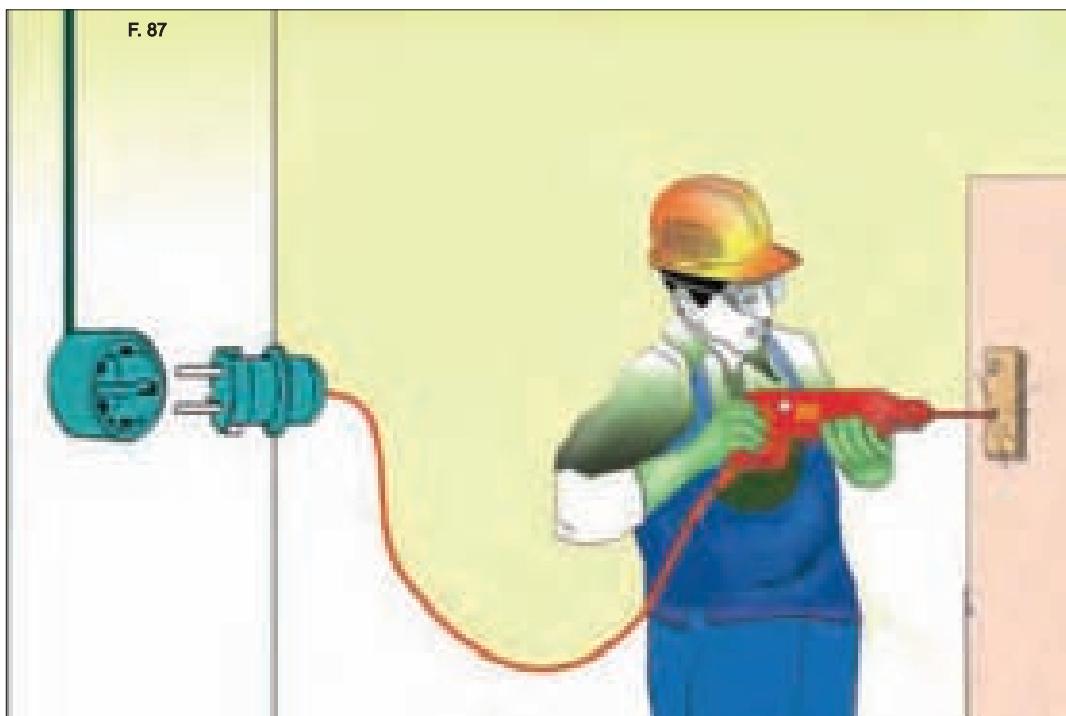
*Well protected electrical wires that are maintained properly can prevent accidents and machine damage.*



*Figure 85: Switch board and wires are carefully sheathed.*



*Figure 86: Electrical wires connected to the machine are well protected and clearly labeled.*



*Figure 87: Use appropriate electrical plugs with earthed correctly.*



## **WORK ENVIRONMENT AND CONTROL OF HAZARDOUS AGENTS**

Farmers work in hot, humid, or cold work environments. For your health and safety, it is important to reduce exposure to strong sunlight, heat, or cold. There are practical measures to protect yourself. Farmers are increasingly using many kinds of agro-chemicals such as pesticides. The agro-chemicals which you use may affect the health of your family, community people, and consumers of your agricultural products as well as your own health. This manual provides farmers with practical tips for safe and minimum use of agro-chemicals. The ideas include information dissemination, labeling, safe ways of spraying and keeping pesticides, and methods on how to handle used containers of agro-chemicals.

**CHECKPOINT 21**

*Increase the use of natural ventilation to improve the indoor climate.*

**BENEFITS FOR FARMERS**

- Fresh air is the source of health and energy. A good natural air flow takes away heat and polluted air from your house and indoor workplaces. A hot and poorly ventilated environment is unhealthy. Farmers and their family members would get tired easily. Job efficiency will decrease while the number of mistakes increases.
- Farmers often work indoors to pack farm products, or to repair agricultural tools. Their families spend much time in the house for cooking, eating, sleeping or studying. It is always recommended to increase the natural air flow except in cold weather. A poorly ventilated environment is especially harmful to older people and children.

**HOW TO IMPROVE**

- 1.) Choose places with good and natural air flow for kitchens and other indoor jobs. This is particularly important in the hot season.
- 2.) Increase the number of openings and windows. Make the size of existing windows larger or remove obstacles from windows for better air flow.
- 3.) Make small openings in the roof. Natural upward airflow would release heated air through the openings.

4.) Use electric fans in situations where sufficient natural airflow is not secured.

5.) Open all windows regularly and frequently. Remove materials that prevent good indoor ventilation.

**WAY TO PROMOTE COOPERATION**

Visit indoor workplaces and houses of your neighbours. Look at how natural airflow is used. You must find some good examples. Exchange experiences to improve indoor climate.

**SOME MORE HINTS**

- Move or isolate the heat source in your house such as cookers, furnaces, or machines which produce heat.
- Install ceilings under the roof when appropriate. Ceilings will protect heat radiation from the roof.

**POINTS TO REMEMBER**

*A good natural air flow takes away heat and polluted air from your house and indoor workplaces.*

*Figure 88: Open more windows and doors, remove obstacles that prevent natural ventilation.*



F. 88



F. 89

*Figure 89: Use windows and electric fans. A good air flow takes away heat and polluted air.*

### **CHECKPOINT 22**

***Use daylight and bright walls for lighting up the workplace.***

#### **BENEFITS FOR FARMERS**

- Daylight is the best and cheapest source of illumination. The use of daylight reduces energy costs. Appropriate illumination at the workplace improves job efficiency and minimizes mistakes or risk of accidents. Moreover, daylight helps improve moisture and kills termites in your house.
- Appropriate colours for walls and ceilings are very important. Walls and ceilings with light colors increase the reflection of light, resulting in better lighting conditions and energy savings. Walls painted with light colors also create a good environment for efficient work, make the room more comfortable and minimize mistakes.

#### **HOW TO IMPROVE**

- 1.) Open windows and doors to invite more light into your house and indoor workplaces. Clean doors and windows. Remove obstacles that prevent daylight from coming inside.
- 2.) Identify what in your workplaces and house needs more lighting. Your work-stands, kitchens or something else? Is it possible to reposition them closer to the source of daylight?
- 3.) Enlarge existing windows to take more advantage of daylight.

4.) Use transparent materials or a translucent plastic panel in the ceiling or the roof to invite in more daylight.

5.) Choose bright colors to paint or decorate walls and ceilings. Use the white sides of used calendars or white fertilizer bags to brighten up walls and ceilings. Clean walls regularly.

#### **WAY TO PROMOTE COOPERATION**

Visit several workplaces in your village and find good examples where maximum daylight is used. The good examples may include relocation of workplaces, bright walls or transparent materials and so forth. Promote the exchange of experiences with your neighbours. Many actions for improvement do not cost much, but they increase job efficiency.

#### **SOME MORE HINTS**

- Avoid working at night. Work during the daytime and take maximum advantage of daylight.
- Be aware that windows and skylights could warm up your house in the hot weather and cause a loss of warmth in the cold weather.
- Use curtains or screens at the window to adjust in-coming light.

#### **POINTS TO REMEMBER**

*Daylight is the best and cheapest source of illumination.*



Figure 90: Choose bright colored materials to brighten up walls and ceilings.

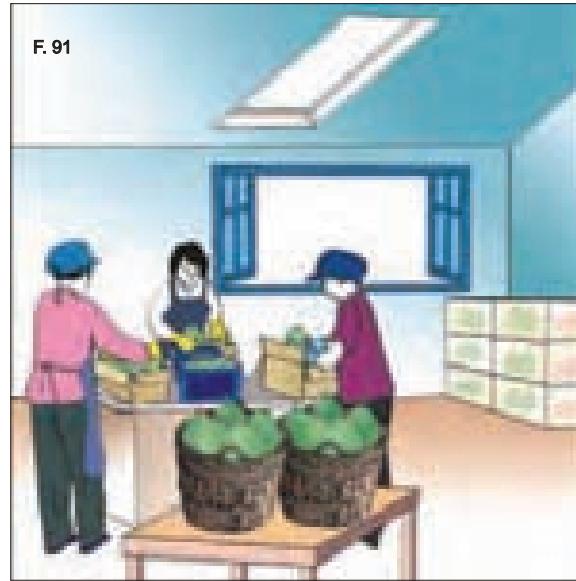


Figure 91: Use a translucent plastic panel in the roof to invite more daylight.



Figure 92, 93: Work near the openings to take maximum advantage of daylight.

**CHECKPOINT 23**

**Avoid continuous exposure to excessive heat or cold.**

**BENEFITS FOR FARMERS**

- Farmers start work early in the morning to avoid exposure to strong sunshine. Working in strong sunlight decreases efficiency and productivity. It could cause exhaustion, skin problems and even shock to farmers. Working in strong sunshine causes significant loss of water from your body.
- It could be cold in winter, especially in the mountainous areas. Farmers need appropriate protection against cold weather. Farmers will lose a lot of energy when exposed to cold wind.

**HOW TO IMPROVE**

1.) Protect your skin against strong sunshine. Brightly-coloured, long sleeved clothes are appropriate when working in strong sunshine. Wear woollen clothes with the neck covered in cold weather.

2.) Wear a hat with a large brim or a bath towel to cover the head to reduce radiation and heat.

3.) Improve your work schedule to reduce exposure time to strong sunlight or cold. In the sunny season, start work early and avoid working at noon time.

4.) In the cold season, start work late or increase indoor work.

**WAY TO PROMOTE COOPERATION**

Farmers have a number of good ideas to protect themselves against excessive heat and cold. Of particular importance is to arrange appropriate work schedules to avoid exposure to heat and cold. Facilitate exchanging experiences to set better work schedules. Another important collaboration is to share good examples of protective clothes made from local materials. Raise people's awareness of protecting themselves against excessive heat or cold.

**SOME MORE HINTS**

- Take frequent short breaks when working in strong sunlight.
- Heavy work such as carrying heavy loads should be done in the early morning or in the late afternoon when sunshine is not strong.
- Choose a hat with a large brim to protect from sunshine. A Vietnamese local hat, 'non la' meets this purpose.

**POINTS TO REMEMBER**

*Adjust work schedule and use protective clothes to avoid excessive exposure to heat and cold.*

Figure 94: A simple tent to avoid strong sunlight.

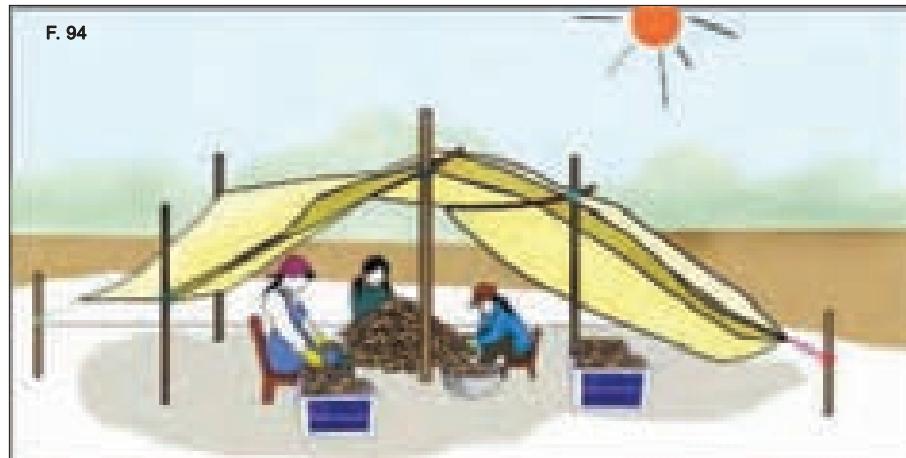


Figure 95: Start working early to avoid strong sunlight.



Figure 96: Long-sleeved shirts, and broad-brimmed hats to protect farmers from radiation and heat.

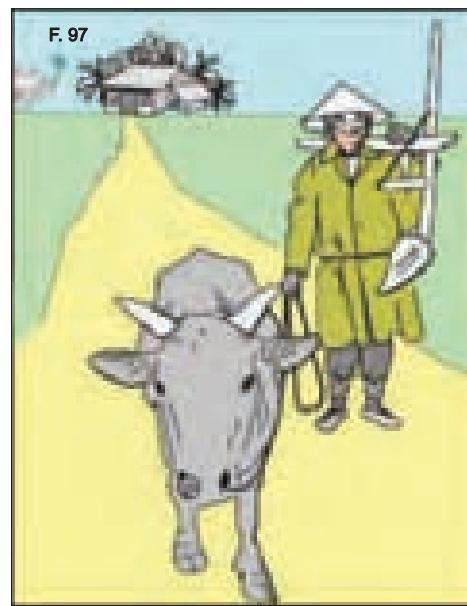


Figure 97: Use appropriate protective clothes, hats, gloves, and boots against cold.

**CHECKPOINT 24**

**Select safer pesticides and use the minimum amount.**

**BENEFITS FOR FARMERS**

- Farmers need to use pesticides wisely. Select the right kind of pesticides that are safe, use the minimum amount to reduce the risks of poisoning. As well as acute poisoning, some chronic diseases such as neuritis, chronic liver disorders, or some types of cancer might be partly related to exposure to pesticides.
- Pesticides are poisonous not only to sprayers but also to consumers of your agricultural products. Certain amounts of pesticides could remain in agricultural products and cause harm to the people who eat your farm products. By using pesticides appropriately, you can contribute to the safety and health of your customers.

**HOW TO IMPROVE**

1.) Before relying on pesticides, farmers should know what kind of pests they need to tackle. Are pesticides the best solution really? There are many other ways to control pests.

2.) If pesticides are the only available solutions, ask agricultural advisors or health center personnel for advice and information to select and use safer pesticides properly.

3.) When spraying pesticides, wear appropriate protective gloves, goggles, shoes and clothing.

4.) Make a plan to minimize the amount of pesticides used.

5.) Never mix different pesticides and other agro-chemicals by yourself. The mixture increases your health risks.

**WAY TO PROMOTE COOPERATION**

Collect the information on safe use of pesticides together and exchange experiences. On the farm, use break times to share information concerning wise methods to reduce the amount of pesticides. Increase knowledge on the effect of different kinds of pesticides. Exchange information about pest control and safe use of pesticides.

**SOME MORE HINTS**

- Ask pesticide sellers and manufacturers to provide Chemical Safety Data Sheets. It is their primary responsibility to deliver safety and health information to their customers.

- Television, radio and books provide you with useful agricultural promotion programmes including safe use of pesticides. Don't miss such programmes.

**POINTS TO REMEMBER**

*Use pesticides safely and wisely. You will reduce health risks to your consumers as well as yourself.*

*Figure 98 – Ask the agricultural advisor for safety advice before purchasing pesticides.*



F. 99



*Figure 99 – Determine the pest with agricultural advisors to find safe, effective solutions.*

**CHECKPOINT 25**

***Keep pesticides, agro-chemicals and spraying devices in a safe and designated place.***

**BENEFITS FOR FARMERS**

- Pesticides and agro-chemicals are poisonous to both men and animals. Spraying devices contaminated with pesticides can become the source of pollution, too. Placing pesticide containers and spraying devices indoor will pollute the living environment of your family. Everyday chronic exposure to such hazardous atmosphere will pose health risks to your family.
- Design a well-locked storage place to isolate hazardous chemicals outside the living area. Keep them out of children's reach. This will help farmers and their families avoid using wrong pesticides. It will also prevent someone against using pesticides for suicidal purposes.

**HOW TO IMPROVE**

- 1.) Choose an aluminum or wooden container with a lock to keep all bottles of pesticides.
- 2.) Keep spraying devices and bottles of pesticides in a small storage house in the field. This house should not be a place for people to live in and it should always be locked carefully after leaving. Design multi-level shelves to store pesticides. Separate herbicides and pesticides into different places.

**WAY TO PROMOTE COOPERATION**

Construct together a public storage house for keeping pesticides. Each family has its own corner. This solution is not costly. It enhances neighbourhood cooperation and is very useful for preventing poisoning in the community.

**SOME MORE HINTS**

- Select a place far from your house to keep pesticides, and keep them far from the sources of water and food.
- Store the key carefully and out of reach of children.
- Choose a place far from the source of water to wash spraying devices.

**POINTS TO REMEMBER**

*Pesticides are poisonous and dangerous. Keep them carefully in a safe and designated place apart from the home.*

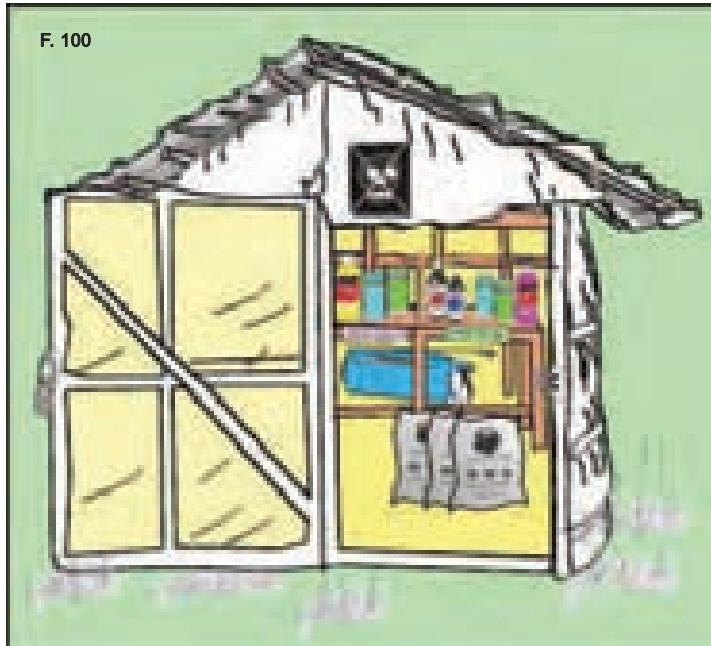


Figure 100: A storage house with a firm lock to keep pesticides in the rice field. A multi-level shelf with bottles of pesticides and agro-chemicals. Separate pesticides and herbicides into different places and label them clearly.

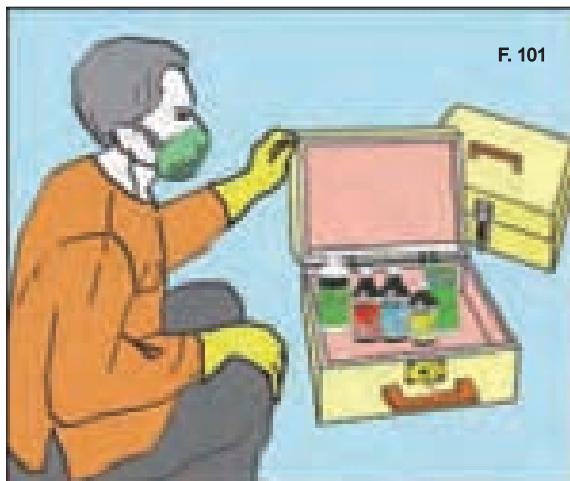


Figure 101, 102: Pesticide container with a safe lock.



**CHECKPOINT 26*****Put labels on pesticides and agro-chemicals.*****BENEFITS FOR FARMERS**

- Clear and easy-to-understand labels help you know what pesticide you purchase and use, especially important for someone using agro-chemicals for the first time.
- Often, the bottles of pesticides and agro-chemicals have their labels written in foreign languages. They are very difficult to recognize, especially for farmers or those who have not had experience with these chemicals. Wrong use of agro-chemicals, such as mishandling pesticides together with herbicides, is dangerous to users. It will damage crops and the health of farmers.

**HOW TO IMPROVE**

1.) Check all bottles of agro-chemicals - those being used or unused. Label them in local language clearly, for example: "INSECTICIDES", "HERBICIDES".

2.) Do not remove labels. In case of unclear labels, re-label them with the warning "VERY TOXIC". Consult village health and agricultural centers to obtain appropriate information.

3.) You may purchase pesticides in large quantities and divide them into small containers. Do not forget to place easy-to-read labels on each of the small containers.

**WAY TO PROMOTE COOPERATION**

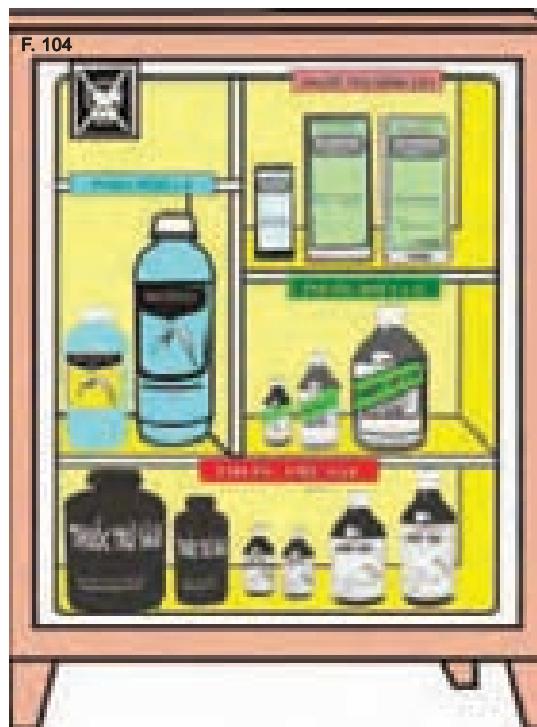
Even though you are familiar with agro-chemicals, labels and notices with directions for use are very useful to protect you and your family against dangerous misuse. Exchange the information with your neighbours, and encourage them to do the same. This action costs nothing, but is really useful for everybody.

**SOME MORE HINTS**

Choose pens with bold lines to write labels. Use clear and easy-to-understand words, for example, "POISON, DANGER". Or use danger symbols such as skulls and cross bones.

**POINTS TO REMEMBER**

*Put labels written in your language on all bottles of agro-chemicals to avoid the dangers of misuse.*



**CHECKPOINT 27**

***Establish safe methods to treat bottles and cans of used pesticides and chemicals.***

**BENEFITS FOR FARMERS**

- Establishing safe methods to treat waste bottles of pesticides is important. Waste bottles and boxes of pesticides lying about rice fields or canals will cause pollution. This is extremely dangerous to men, animals and fish. Moreover, broken parts of bottles might injure farmers while working in rice fields.
- Waste containers of agro-chemicals must be treated properly. Don't reuse them for any purpose, especially for household purposes. This is very dangerous. Waste containers may still contain small amounts of poison that could kill people and animals.
- Empty containers must be disposed of safely in the designated area. Collecting and selling waste bottles of agro-chemicals is dangerous. Buyers may mix pesticide bottles with other bottles. It is particularly dangerous when the labels of these bottles are removed. Instead of going back to pesticide factories, these bottles might be brought to food or beverage factories for reuse !

**HOW TO IMPROVE**

- 1.) Empty agrochemical containers should never be reused for any purpose.
  - 2.) Choose a safe disposal site for burying agrochemical wastes.
- 

3.) Collect all bottles which have been thrown out and are lying about in the field, put them in a covered container and bury in a safe disposal site.

**WAY TO PROMOTE COOPERATION**

Waste bottles of pesticide and agro-chemicals are toxic. Advise your neighbours to collect them and put them in a safe disposal place. It will be very important to have a community disposal place to share among villagers. Seek advice from your health or agricultural centres to dispose of the waste bottles properly.

**SOME MORE HINTS**

- Use personal protective clothing with gloves when collecting waste containers of pesticides.
- The burial site must be chosen carefully so that there can be no risk of pollution to surface or ground water. The site must be far from the living area. Containers and waste should be buried at a depth of 1 meter. The area used should be fenced or marked with warning signs.

**POINTS TO REMEMBER**

*Protect your living environment by adopting safe methods of disposing waste agro-chemical bottles.*



*Figure 105 – Choose a safe disposal site far from the living area and source of water for burying agrochemical waste.*



*Figure 106: Create a community disposal system to share among villagers in the community.*

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**CHECKPOINT 28**

***Collect safety and health information such as the safe use of agro-chemicals and disseminate the information to the community.***

**BENEFITS FOR FARMERS**

- Nowadays, there are many kinds of agro-chemicals appearing on the market with different uses, dosages and toxicities. Select right agro-chemicals and apply correct doses. This will protect your crops and prevent risks of poisoning.

- District agricultural departments and commune agro-promotion units are reliable addresses that provide relevant information on the safe use of agro-chemicals.

**HOW TO IMPROVE**

1.) Join the local agro-promotion clubs to update your knowledge on how to choose the correct pesticides, new information on pests, how to detect and prevent them, etc...

2.) Consult and get advice from the local agro-promotion personnel or agricultural officers to ensure a good decision before buying pesticides or agro-chemicals.

3.) Collect information in pamphlets, flyers, newspapers or on radio about the toxicity and safe use of agro-chemicals. Disseminate this useful information to your neighbours.

**WAY TO PROMOTE COOPERATION**

Encourage your neighbours to exchange experiences and information for safe use of agro-chemicals. It will be a good idea to ask health and agricultural offices to conduct seminars on safe use of pesticides and other agro-chemicals.

**SOME MORE HINTS**

Note the trade names of your pesticides, and keep the record. This information will be useful when you ask the agricultural or health officers for further information.

**POINTS TO REMEMBER**

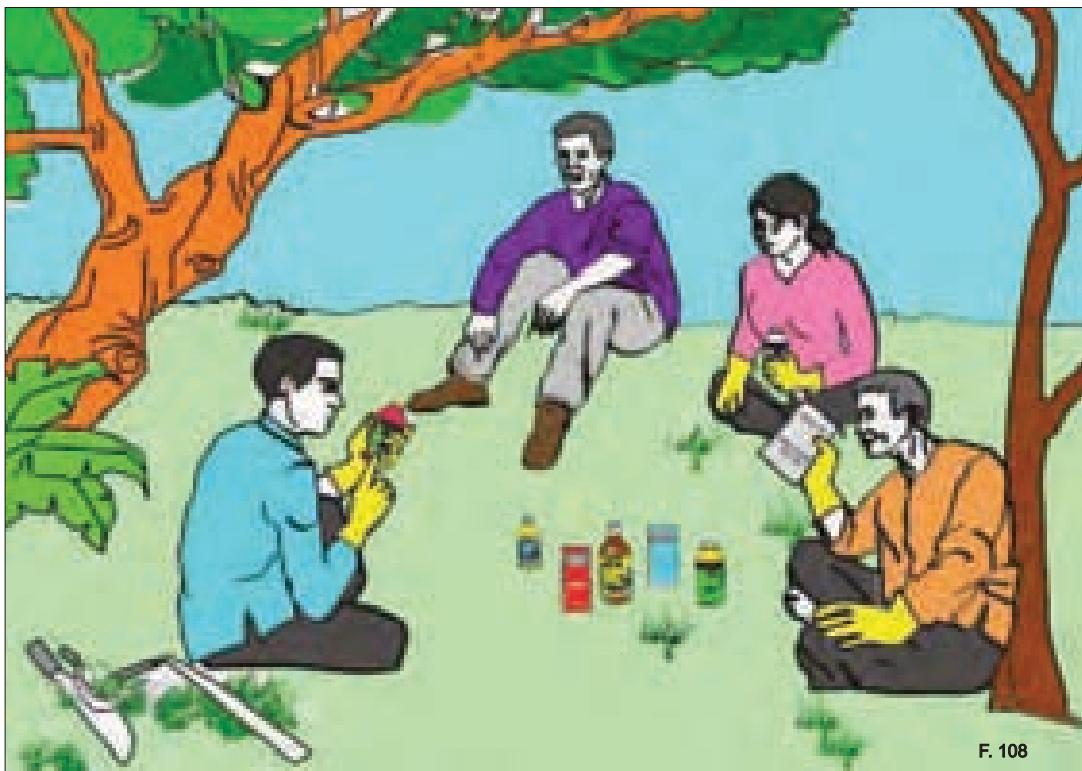
*The right knowledge and understanding on safe use of agro-chemicals will protect you and your family.*

F. 107



*Figure 107: Get advice from the local agricultural officer before purchasing pesticides.*

F. 108



*Figure 108: Share experiences with your neighbours on safe use of agro-chemicals.*

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### **CHECKPOINT 29**

***Be aware of animals, insects or worms that may harm farmers.***

#### **BENEFITS FOR FARMERS**

- Ensure the use of appropriate personal protective equipment when working in the rice field and farms. Farmers need to protect themselves against pests, insects, and animals such as snakes, centipedes, leeches, or bees. Frequent exposure to nuisances by insects or worms in the field will also reduce your job speed, interrupt work flow and increase your fatigue.
- Farmers should remember that domestic animals can even cause serious health and safety problems. For many farmers, these nuisances are common like severe trauma, and diseases caused by cows, pigs, or horses. You need to pay increasing attention to infection by Avian Influenza Virus (Bird Flu) when handling poultry. Don't underestimate the dangers and forget appropriate protection.

#### **HOW TO IMPROVE**

- 1.) Canvas shoes, boots, gloves, broad-brimmed hats, long -sleeved shirts are useful personal protective equipment for outdoor farmers.
- 2.) Wear a helmet with face protection while working in areas where there are winged insects such as locusts and bees.
- 3.) Poultry and cattle must be kept in closed sheds or within the farming area.

Avoid any contact with poultry/cattle without protecting equipment.

- 4.) Use an appropriate protective cage to fix cattle when it's necessary to approach to them, for example, for milking or regular physical checking.

#### **WAY TO PROMOTE COOPERATION**

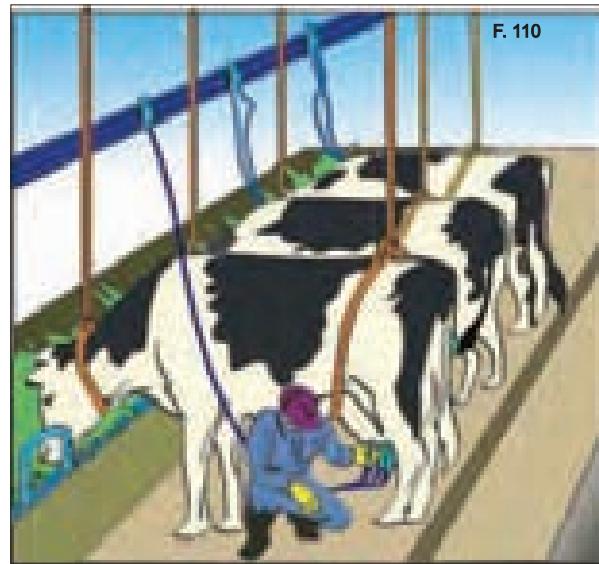
Look at your neighbours. What kind of shoes, boots, gloves, hats and other protective equipment do they use in the field? Provide an opportunity to exchange ways on how to protect themselves from animals, insects and worms. Discuss the benefits of protection.

#### **SOME MORE HINTS**

- There are several local methods to avoid exposure to nuisances. For example, farmers in Vietnam often use limes to remove leeches from their bodies. Limes can also reduce pain caused by insect bites and bee stings. Smoke can drive bees away. It is advisable to collect such wisdom to avoid exposure to insects and other nuisances.
- All trays, farming equipment and sheds must be regularly disinfected by appropriate disinfectants. Consult local health or agricultural officers.

#### **POINTS TO REMEMBER**

*Use appropriate shoes, boots, gloves, hats and other protective devices to protect yourself.*



*Figure 109, 110: Use appropriate protective cage to fix cattle when it's necessary to approach to them, for example, for milking or regular physical checking.*



*Figure 111: Poultry must be kept in closed sheds and regularly disinfected. When contact with poultry is necessary, farmers should be protected with safety equipment.*

*Figure 112: Wear a helmet with face protection when working in areas where there are winged insects.*



## **WELFARE FACILITIES**

Safe drinking water at the workplace, nutritious food, hygienic toilets, short breaks and rest corners... they are all basic necessities for healthy farm work. These can be improved using inexpensive local resources. Pregnant women need special care. Farmers with disabilities can work actively when provided with some adjustment in their workstations or working conditions. In this chapter, you will find practical solutions to upgrade the welfare facilities and systems necessary for farmers. Neighbourhood cooperation is the key to the success.

**CHECKPOINT 30**

**Provide adequate supply of drinking water and refreshment at the farm.**

**BENEFITS FOR FARMERS**

- Providing safe drinking water for farmers while working on farms or in rice fields is essential. Sanitary drinking water is necessary to keep their health and avoid fatigue. You can bring appropriate water containers to farms and rice fields.
- Water from rice fields and canals along the rice fields is polluted by micro-organisms, animal excreta, and other wastes. You should be especially aware that the water in the rice field is often contaminated with pesticides, fertilizers and other hazardous chemicals. Water from rice fields and canals is not appropriate for drinking.

**HOW TO IMPROVE**

- 1.) Select clean and hygienic water sources for drinking. Rain water and underground water are possible choices. However, watch the water sources carefully. Rain water collected from the roof and kept for a long period in containers can be polluted by dust, mosquito larvae and micro-organisms. Avoid underground water if pesticides and other hazardous chemicals are used nearby.
- 2.) Boil selected rain or underground water for at least 15 minutes. Pour it into a clean bottle and cork it firmly.
- 3.) On the farm and in the rice field, keep the water containers in safe, hygienic and cool places before drinking.

- 4.) After working on the farm or in the rice field, throw away any remaining water.

**WAY TO PROMOTE COOPERATION**

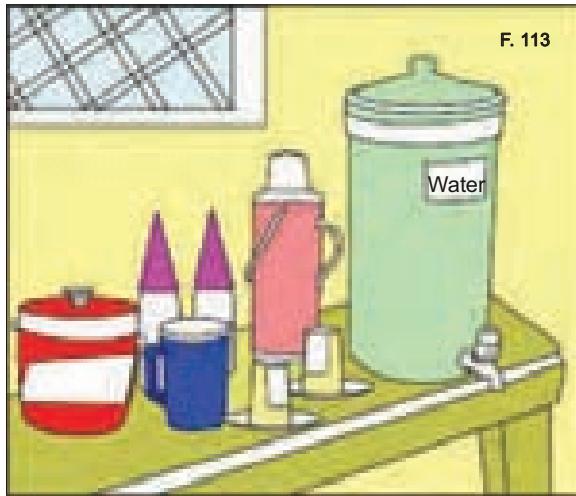
Work in the sunshine is strenuous. Insert break periods as often as possible. Distribute safe drinking water to all farmers working together. During busy periods such as harvesting, many farmers have to work together and help each other. Assign one or two persons to prepare, bring and distribute safe drinking water to everybody.

**SOME MORE HINTS**

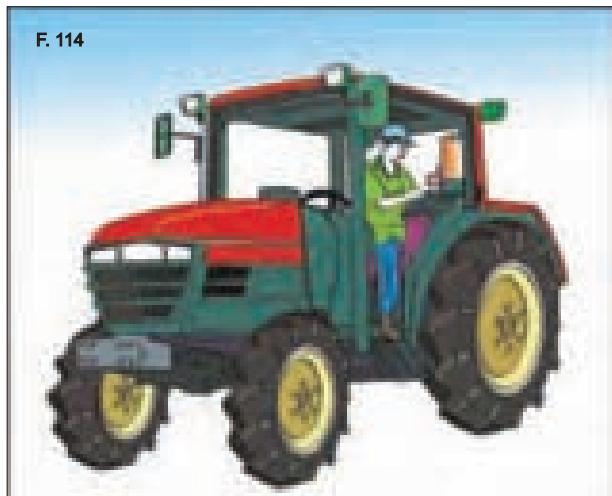
- Use a water filter before boiling to screen dust, sand and other debris.
- Boil water right after cooking meals while the cooker is still hot to save fuel.
- Regularly clean the filter and drinking water containers.
- To disinfect water, Chloram B tablets (Sodium Dichloroisocyanurate) are useful and inexpensive. Dissolve tablets into the bottle of water.
- Don't drink alcoholic beverages during work and break periods. It will increase your fatigue and the risk of errors and accidents. Alcohol cannot be a substitute for drinking water.

**POINTS TO REMEMBER**

*Bring safe drinking water to farms and rice fields to keep your health and avoid fatigue.*



*Figure 113: Hygienic drinking water placed near the workplace.*



*Figure 114: Bring appropriate water containers while working in the rice field.*



*Figure 115: Take a short break and refresh with safe drinking water.*

**CHECKPOINT 31**

***Ensure regular timing of meals and have a variety of nutritious foodstuffs.***

**BENEFITS FOR FARMERS**

- Even during busy working periods like harvesting, you should maintain good eating habits. Three regular meals a day are necessary for a hardworking farmer. Heavy workloads and long working hours consume a lot of energy. Providing only one or two meals a day, even if they are heavy meals, is not a good solution. Heavy meals reduce job efficiency. Long intervals between two meals cause fatigue and reduce productivity.
- Well-balanced meals consisting of a variety of ingredients such as meats, fishes, vegetables, and fruits are necessary to maintain your health. Good meals will protect you against fatigue or diseases as well as provide energy to complete your farm work.

**HOW TO IMPROVE**

- 1.) Ensure you eat breakfast before going to work. Take a lunch box to the farm or rice field and eat lunch at the workplace. If your house is close to the farm, you can come back for lunch. After work, prepare a good dinner at home.
- 2.) Prepare easy-to-carry foods for lunch. Bring a lunch box with a bottle of safe drinking water.
- 3.) Use local and low cost sources of protein in your food such as soy beans, small shrimps, shellfish, fish, etc...

- 4.) Build a fish pond and plant vegetables and fruits in your garden. They will provide your family with a variety of foodstuffs with a variety of nutrients.

**WAY TO PROMOTE COOPERATION**

- Eat lunch with your neighbours on the farm or in the rice field. This provides a pleasant opportunity to exchange information on cropping. You can also share delicious and nutritious foods with neighbours, and learn new methods of cooking healthy foods. Enjoy the moment to talk with your neighbours after work.

**SOME MORE HINTS**

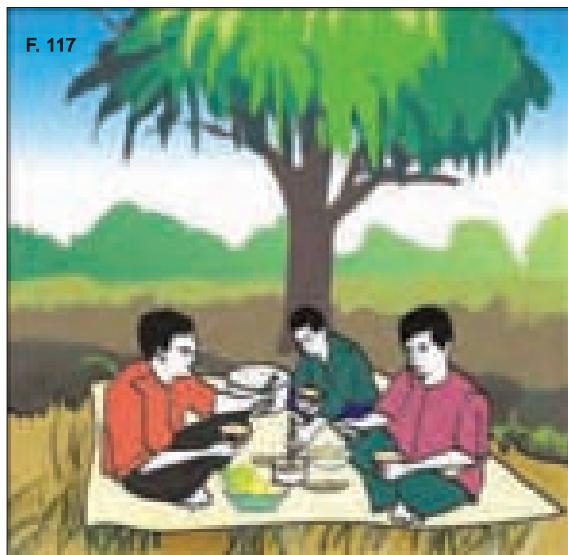
- Choose a pleasant place for lunch near the farm or rice field. The place needs shade. You may select a place under a big tree. It is also nice to build a hut near the farm for eating and resting.
- Cooking is fun! Share the roles of cooking. Both men and women can share the pleasure of cooking and developing healthy foods.

**POINTS TO REMEMBER**

*Having regular and nutritious meals prevents fatigue, minimizes the risk of errors and accidents and increases productivity.*



*Figure 116: Have enough nutritious food for meals.*



*Figure 117: Share lunch with your neighbours in the rice field.*



*Figure 118 : Have regular and nutritious meals.*

**CHECKPOINT 32*****Build clean, hygienic toilets and washing facilities.*****BENEFITS FOR FARMERS**

- The building of toilets is important to create hygienic living and working environments. Without appropriate toilets, human excreta pollutes surrounding environments, increasing the risk of food and water-borne diseases. Appropriate washing facilities are also essential for farmers and their families.

- It is also advisable to build a hygienic toilet on the farm or at the rice field if they are far from home. One reason is to protect the environment. Another reason is to protect women farmers against possible health problems. Many female farmers at the farm often have to refrain from urinating simply because they have no toilet. Many tend to avoid drinking water for the same reason. It is known that urinary tract infections occur frequently among female farmers.

**HOW TO IMPROVE**

1.) Build a sanitary toilet for your family. There are many types of low-cost latrines appropriate for agricultural communities. They hold human excreta long enough for disinfection. Equip your toilet with a water container, paper, a garbage bin with a cover, a brush, and a soap. Keep your latrine clean and keep flies away.

2.) Try to build another toilet near the farm and rice field. You may construct one together with your

neighbours.

3.) Toilets should be fenced appropriately for privacy.

**WAY TO PROMOTE COOPERATION**

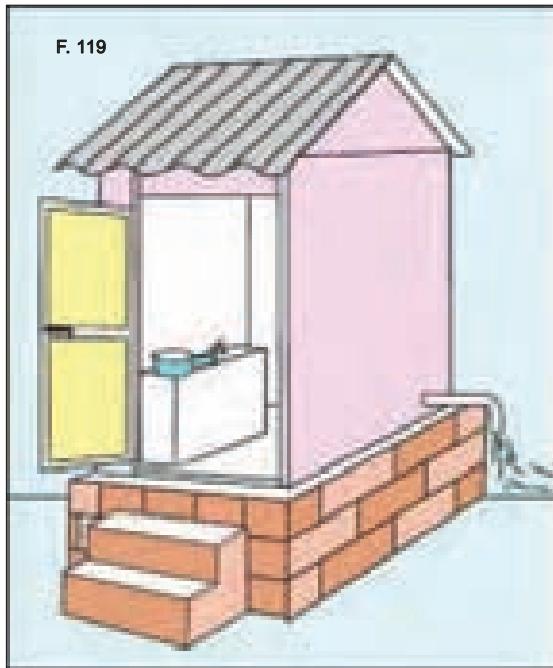
Plan together with your neighbours where to build sanitary toilets in the workplace. Many farmers can share the established toilets while working together. Also make a collaborative plan to always keep the established toilets clean.

**SOME MORE HINTS**

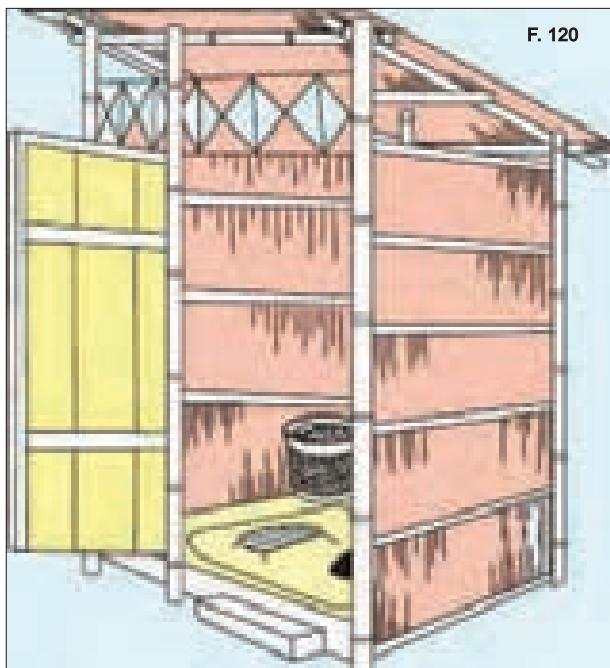
Take up the good habit of washing hands after using the toilet. Provide necessary washing facilities.

**POINTS TO REMEMBER**

*A sanitary toilet near the workplace is not a luxurious proposal but a basic necessity for every farmer's family.*



*Figure 119: An enclosed bathroom with necessary sanitary devices.*



*Figure 120: A simple and low-cost latrine.*



*Figure 121: Establish a sanitary latrine near the work place.*

**CHECKPOINT 33**

***Provide resting corners and facilities for recovery from fatigue.***

**BENEFITS FOR FARMERS**

- Farmers spend a considerable part of their life in the field. Like at home, they also need to rest, relax, refresh and eat in order to recover from fatigue and keep in good health. Workplaces and homes are often apart. Resting corners and facilities built on the farm and at the rice field facilitate recovery from fatigue. Also at home, facilities for resting and relaxing help farmers to refresh and recover from fatigue.

**HOW TO IMPROVE**

1.) Build a resting facility near your farm or rice field. A small and simple shelter will meet the purpose. You can use available local materials such as palm thatches for construction. Equip the resting facility with a hammock, mat and bed for lying down.

2.) Or you can renovate existing small houses in the field to be resting corners. For example, small cottages to guard fish ponds or farm products can be used as resting corners. Clean them and bring in a hammock or a bench etc.

3.) Prepare relaxation facilities at home such as reclining chairs, hammocks, benches etc.

4.) Plant trees and flowers surrounding your resting corners or facilities. You may wish to install pictures or other

decorations on the wall of your resting facility. Create a pleasant environment for your comfort.

**WAY TO PROMOTE COOPERATION**

Resting means recovery. Share good resting environments and habits with your neighbours. Cooperate with your neighbours to build a resting facility at the farm or the rice field and use it together. Nice resting environments facilitate pleasant conversation with your neighbours, too.

**SOME MORE HINTS**

Use local and low-cost materials to build a resting facility. The resting facility can be very simple if it is used only during the busy harvest seasons. Or you can make it a permanent one if it is, for example, to keep tools and equipment together.

**POINTS TO REMEMBER**

*Resting facilities at the workplace and at home facilitate recovery from fatigue and help you and your family maintain good health conditions.*



F. 122

*Figure 122: Resting means recovery. Share good resting environments and habits with your neighbours.*



F. 123



F. 124

*Figure 124: Prepare relaxation facilities at home.*

*Figure 123 : Provide a resting chair to relax after a hard working day.*

### **CHECKPOINT 34**

***Use proper protective devices such as clothes, gloves, boots, shoes, hats, helmets to protect from injuries or contact with hazardous substances.***

#### **BENEFITS FOR FARMERS**

- Personal protective devices provide protection for a certain part of the body from hazardous agents or substances. The selected protective devices must be used properly, otherwise they give farmers a false sense of security. This is very dangerous.
- Protecting your foot from injuries is very important. Working without wearing shoes in the rice field or on the farm may a common habit in some areas. Bare-footed farmers are likely to be injured by pieces of broken bottles or sharp nails lying on the field. The wound on the bottom of the foot, even if small, increases difficulty in work. Injuries of this area of the body are hard to keep clean. Severe complications such as infection or even tetanus could develop.
- Broad-brimmed hats, long-sleeved shirts protect farmers from heat and strong sunshine. Appropriate protective masks are needed when handling hazardous agents or spraying pesticides.

#### **HOW TO IMPROVE**

- 1.) Provide shoes with a thick sole for treading on the hard soil or the vegetable farm. Tuck trousers into the shoes when working on humid or muddy soil. Provide boots for working

in the rice field.

- 2.) Choose gloves suited to your jobs. Thick gloves are used for jobs that require grip strength or jobs handling pointed, sharp items (picking up sugar-cane leaves, or weeding in the pineapple field etc.) Thin gloves are used for precision work such as picking and thinning-out of branches. Rubber gloves are used when handling agrochemicals and fertilizers .
- 3.) Choose filter masks containing activated carbon for spraying pesticides. Don't use expired filter masks.
- 4.) Clean and maintain every protective device regularly.

#### **WAY TO PROMOTE COOPERATION**

Encourage people to use personal protective devices as a trial. Ask them to be patient. Users need time to adapt to wearing the devices. Regularly promote the use and maintenance of personal protective devices.

#### **SOME MORE HINTS**

Check whether the mask fits the shape of the user's face. Even small spaces between the mask and face could cause leaking of chemicals and reduce effectiveness.

#### **POINTS TO REMEMBER**

*Regular use of personal protective devices will reduce injuries and exposure to hazardous substances.*



Figure 125: Boots and shoes used in farming.

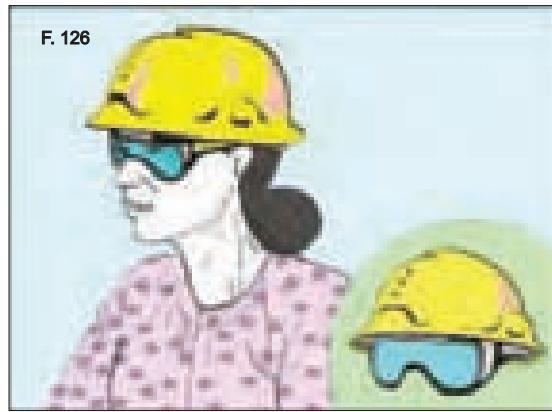


Figure 126: Helmet and glasses to protect eyes

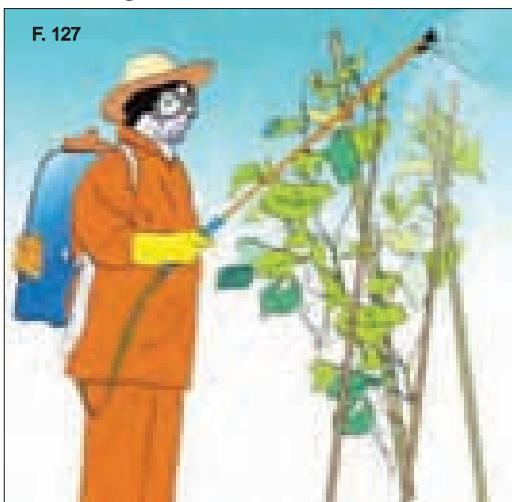


Figure 127, 128: Mask with filters containing activated carbon to be used when spraying pesticides.

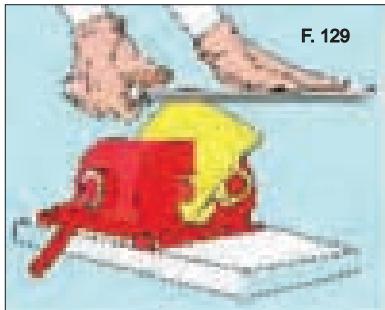


Figure 129 - Use protective gloves regularly.

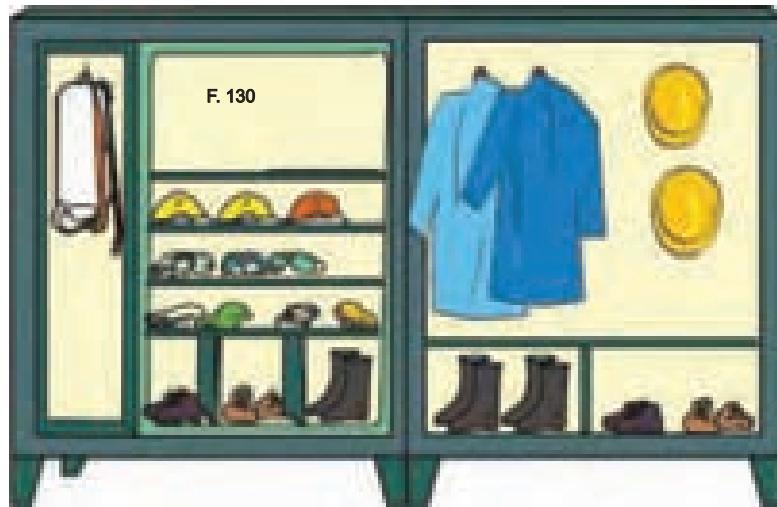


Figure 130 - Use cupboards with doors to keep clean personal protective equipment in good order.

**CHECKPOINT 35*****Provide first aid equipment.*****BENEFITS FOR FARMERS**

- Many farmers live far from health care stations, and communication systems in remote, rural villages are often poor for emergency situations. It is necessary to provide first aid equipment near the workplace. A set of drugs helps farmers to cope with common diseases such as colds, indigestion, and minor injuries. For emergency and more serious cases, first aid kits can provide patients with preliminary treatment before being transferred to the hospital.

**HOW TO IMPROVE**

1.) Place a first aid kit in an easy-to-see place that is easy to find. Place the box out of reach of children. Paint the kit box with a light color.

2.) Place different groups of drugs and equipment in separate compartments of the first aid kit. This arrangement is helpful for emergency treatment. For example,

- a group to treat injuries includes sanitary cotton, gauzes, alcohol, betadine, bandages, scissors, etc.
- a group to treat common cold, fever, or pains includes anti-cold or eucalyptus oil, cupping glasses, rubbing coin, antipyretic and pain-relief drugs such as paracetamol, etc.
- A group to treat stomach problems includes ORS (Oral dehydration salt), carbophos, other stomach and anti-diarrhea drugs, etc.

**WAY TO PROMOTE COOPERATION**

Help each other by giving some medicine or medical equipment to your neighbours and friends when necessary. Some urgent cases might happen even at night time. Exchange ideas on how to improve the contents of the first-aid kits and maintain them in good condition.

**SOME MORE HINTS**

- Clearly label all bottles of drugs to avoid mistakes.
- Regularly check the expiry dates of drugs. Discard those out of date or those of poor quality. Cork drug bottles well for good maintenance.
- Choose a piece of land near the house to grow medicinal herbs such as ginger, lemon grass, etc.

**POINTS TO REMEMBER**

*Well-equipped and maintained first aid kits will help your family members and neighbours in an emergency.*

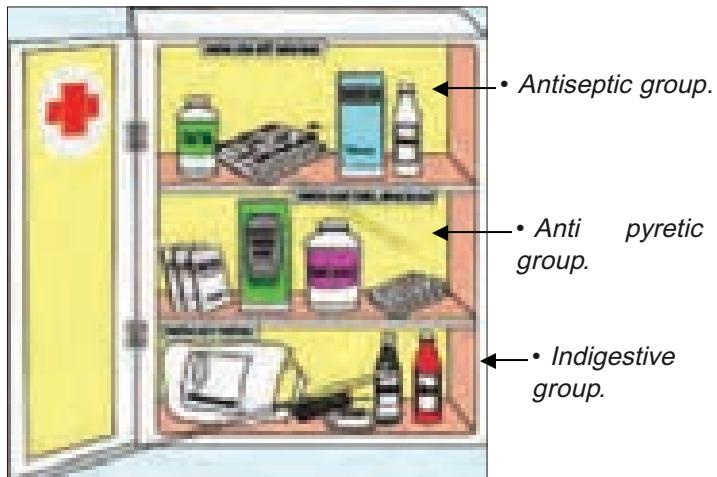


Figure 131: A drug kit to keep drugs and related equipment in order.

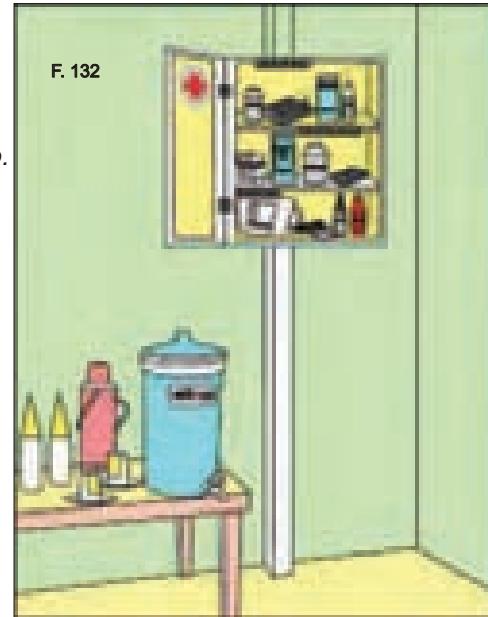


Figure 132 : A first-aid kit with painted in a light color.



Figure 133: A family medicinal herb garden.

**CHECKPOINT 36**

***Take special care of pregnant women and farmers with disabilities.***

**BENEFITS FOR FARMERS**

- Women in rural areas are active in farming. While pregnant, they need special care. They should avoid hard work, work that requires excessive force, working in bad postures, long hours of work or night work.
- Farmers with disabilities can work actively when appropriate, often simple support measures are provided. Practical actions should be taken to make their work easier. Adjusted work methods can improve both safety and the efficiency of their work.

**HOW TO IMPROVE**

- 1.) Do not assign pregnant women to carry out work that requires a lot of strength such as lifting or carrying heavy objects, especially at the beginning and in the last months of pregnancy. Neighbourhood and family cooperation is needed.
- 2.) Allocate light work with comfortable postures for pregnant women when they are required to work. Provide sitting facilities for pregnant women and insert frequent rest pauses at work.
- 3.) Discuss their improvement needs with farmers with disabilities. Observe their working conditions to identify possible solutions. Practical support designed to overcome their disabilities will allow disabled farmers to work safely and efficiently. Often simple

solutions work very well.

**WAY TO PROMOTE COOPERATION**

Collect examples of good work adjusted to the special needs of pregnant women and farmers with disabilities. Work together to implement more improvements. For example, improved clear passageways would help farmers with lower limb disabilities. Neighbourhood cooperation is surely necessary.

**SOME MORE HINTS**

- Adjust basic welfare facilities such as provision of drinking water, resting corners, and toilets according to practical needs of pregnant farmers and farmers with disabilities.
- Pay attention to the special needs of older farmers. Their skills and experiences are helpful for younger farmers. Simple solutions such as avoidance of heavy materials handling, provision of clear passageways, or easy-to-read instructions would help older farmers very much.

**POINTS TO REMEMBER**

*Providing a work-friendly environment for farmers with disabilities also provides a work-friendly environment for all farmers.*

*Figure 134: Simple work method adjustments allow disabled farmers to work in a productive way.*



*Figure 135, 136: Provide support for older farmers so that they can work safely.*



*Figure 137: Provide a suitable seat for a pregnant woman when she takes part in the work with other farmers.*

**CHECKPOINT 37**

***Keep children safe and prevent them from having accidents or diseases.***

**BENEFITS FOR FARMERS**

- In rural villages, there are many dangers to children such as drowning in the river, animal bites, involvement with dangerous machines, or exposure to pesticides and other hazardous agents. Knowing such dangers and providing adequate protection to prevent accidents and diseases are vital. Children play with their friends in the field. Busy parents working at the farm cannot keep watching their children all the time.
- Teach your children practical measures to protect themselves from safety and health problems. Their learning will be useful for their future. They will create safe and healthy working and living environments in your community.

**HOW TO IMPROVE**

- 1.) Place appropriate guards against dangerous places and facilities to prevent children from having accidents.
- 2.) If you bring children to rice fields and farms, check potential dangers such as machines, slippery passageways, exposure to pesticides, etc, and keep children out of danger.
- 3.) Let children always wear shoes. Keep children in hygienic conditions.

4.) Identify dangers in your house, such as possible electrical accidents and falls, and take protective measures. Regularly tidy up your house. Drain sewers and gutters to avoid mosquitoes. If possible, use mosquito nets while children are sleeping.

5.) Use health service programmes provided by the health centre in your village. They will have the schedule and list of vaccinations. Have your children properly vaccinated and apply the guidelines of the health centre.

**WAY TO PROMOTE COOPERATION**

Children and babies need special attention for their safety. Discuss the possible dangers and the protective measures in your family. Share the roles and responsibilities among family members to protect children. Collect good examples for the safety and health protection of children from your neighbours and apply to your family.

**SOME MORE HINTS**

- Appropriate toys will stimulate the children's development and make them happier.
- Use outstanding colors such as yellow or red for children's clothes to prevent traffic accidents.

**POINTS TO REMEMBER**

***Keep your children safe and healthy and protect them from dangers in the working and living environments.***



Figure 138: Protect children from mosquitoes by providing mosquito nets or mosquito screens.

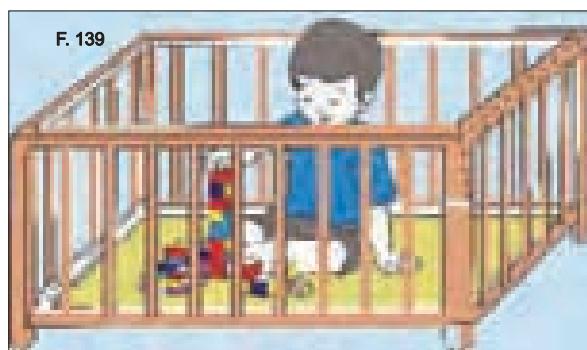


Figure 139: Children play safely in a wooden play-pen.

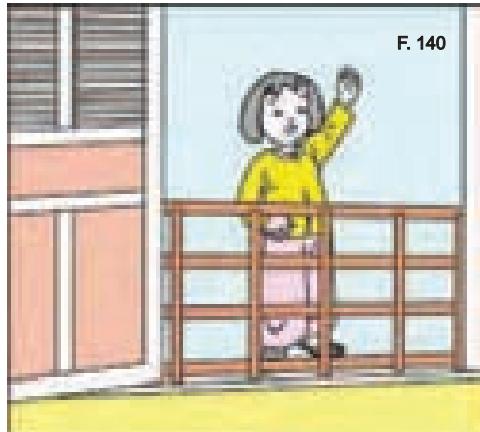


Figure 140: Safety frame to keep children inside the house.

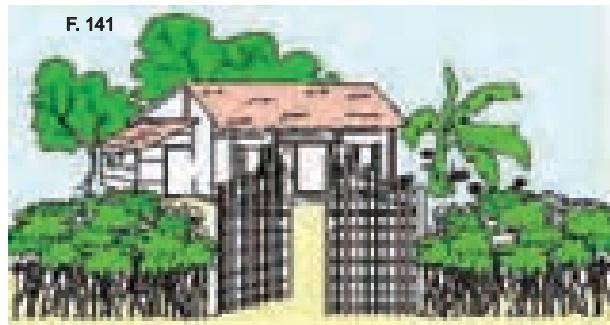


Figure 141: Bamboo gate and hibiscus fence.



Figure 142, 143: Keep away children from dangerous machines and chemicals.



## **WORK ORGANIZATION**

Simple work organization changes often produce amazing results, such as drastic cut of the distance materials are carried. Working time is another important area for good work organization. Working with frequent short breaks is more productive and safer than long continuous work. Regular weekly holidays facilitate recovery from fatigue and pleasant family life. Community cooperation is the key to the successful work organization changes. The ties between people will be strengthened to make their work easier and more pleasant.

**CHECKPOINT 38**

*Organize a better work layout to reduce the distance for carrying materials.*

**BENEFITS FOR FARMERS**

- Carrying materials from one place to another does not add any value. Farmers have to consume much time and energy for carrying materials over long distances on the farm. Better work layout to shorten the distance of carrying materials will decrease your workload and increase safety.
- It is important to look at your work layout carefully. Eliminate unnecessary tasks and effort by improving the layout. For example, if you could handle your work items at the same working height, you would decrease unnecessary bending postures. This would prevent farmers from low-back pains and fatigue.

**HOW TO IMPROVE**

- 1.) Look at your farm and observe how you reach the farm from your home. Are there any possibilities to reduce the distance by making a short-cut, or improving paths.
- 2.) Clear and expand the path leading to farms from houses. Remove all unnecessary materials and obstacles on the paths. Provide bridges for small canals and ramps for height gaps. These solutions will make the use of push-carts easier and reduce extra effort.
- 3.) Use rivers and canals as much

as possible for easy transporting. Use boats to carry farm products from the farm to houses.

- 4.) Apply the same principles to the workstations to sort and pack farm products. Improve the flow of your work to eliminate extra tasks. Adjust the working height of work tables and pushing carts to the same level.

**WAY TO PROMOTE COOPERATION**

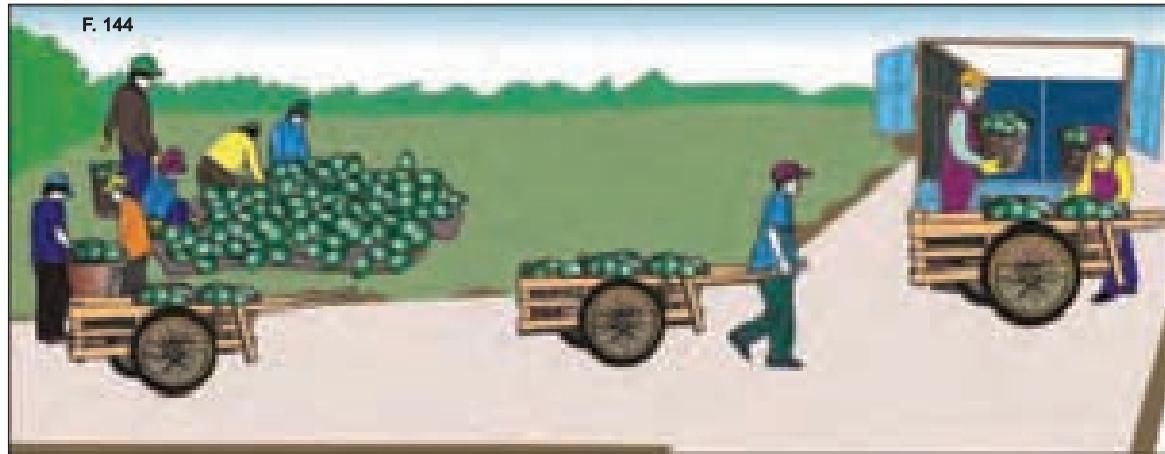
Discuss with your family members and neighbours practical ways to shorten the distance for carrying farm products or materials. Neighbourhood cooperation will be helpful for developing new paths or canals. Try one simple solution first, assess the results and improve it step by step.

**SOME MORE HINTS**

In the course of the work layout improvement, combine varied tasks to be done by one farmer. It would make the work more interesting, and the farmer would acquire wider job skills.

**POINTS TO REMEMBER**

*Shortening the transport route by better work layout does not add cost. It reduces farmers' fatigue and improves work time and productivity.*



*Figure 144: Clear and expand the paths leading to farms. This solution will make the use of push-carts easier and reduce extra efforts.*



*Figure 145 - Move your work items at the same working height. Adjust the working height of work tables and push carts to the same level to minimize the lifting of materials.*

**CHECKPOINT 39*****Insert frequent short breaks.*****BENEFITS FOR FARMERS**

- Inserting short breaks during work are very important to recover from fatigue and refresh yourself. Breaks can be short (for around 15 to 20 minutes) but need to be frequent depending on the workloads. Effective breaks lead to accident prevention. After a break, work can be done efficiently.

- Working continuously without breaks is dangerous, even if farmers take longer breaks after completing their jobs. Long continuous work increases feelings of fatigue and consequently the risk of accidents. Fatigue also decreases the quality of work.

-Developing comfortable environments for short breaks is equally important. For farm work, a shady place is needed to increase the effectiveness of breaks. Provision of safe drinking water is essential.

**HOW TO IMPROVE**

1.) On the farm, select a resting place near the workplace. Farmers are allowed to take short breaks frequently without losing time. This is especially helpful for farmers whose houses are far from the farm.

2.) Each short break can last for around 15 - 20 minutes depending on the workloads. Take longer breaks for lunch.

3.) If possible build a simple resting house. Using locally available low-cost materials near the working area. Install hammocks, mats or simple beds for lying down after lunch. Get together with your neighbours in the resting place to chat and refresh.

**WAY TO PROMOTE COOPERATION**

Neighbours can cooperate to build and implement a habit of short breaks in their community. It is ideal if some people can build a resting corner together for community use. Diligent farmers might feel reluctant to take frequent breaks. Learn from the good experiences of neighbours who have established the habit of good breaks. They must enjoy efficiency in their work. It consolidates neighbourhood cooperation.

**SOME MORE HINTS**

Use local and low-cost materials to build the resting house. Some farmers may prefer to build a stronger resting house which can be used for storing agricultural tools on the farm.

**POINTS TO REMEMBER**

*Frequent short breaks help farmers to recover from fatigue and to work safely and efficiently.*

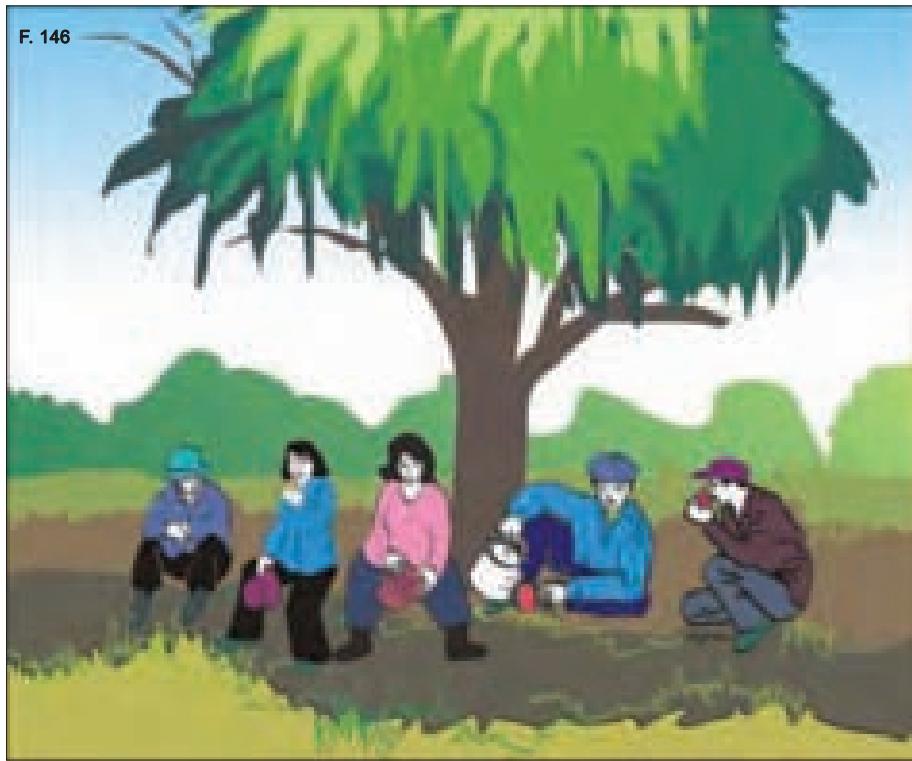


Figure 146: Take short breaks Regularly.

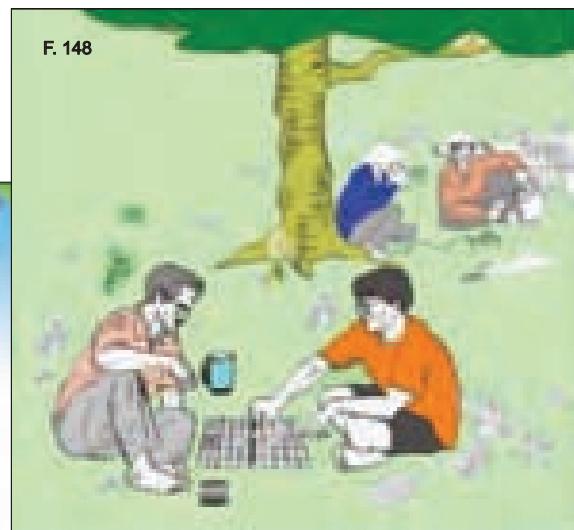
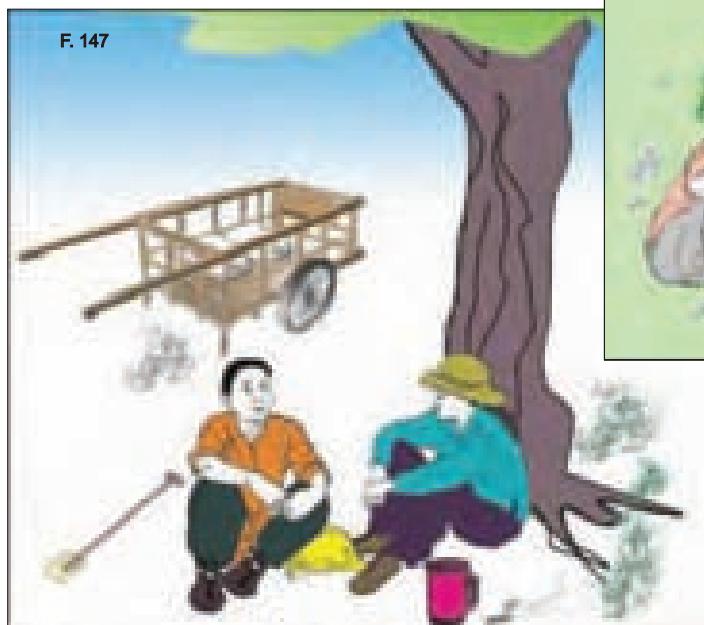


Figure 147, 148: Shady resting corners under a tree.

**CHECKPOINT 40*****Take regular weekly holidays.*****BENEFITS FOR FARMERS**

- Because of busy work in the rice field and the farm, farmers often don't take holidays on the weekend. Even on rainy days, or in the interval periods between two crops, many farmers are still growing vegetables, feeding animals, and catching fish. Without regular weekly holidays, the time for family-get-togethers in a relaxed and friendly atmosphere will be missing. Farmers will have less chance for leisure or access to useful information from the mass media.

- Weekly holidays are helpful for farmers recovering from accumulated fatigue caused by their farm activities.

After holidays, farmers will be able to work refreshed. It is important to promote a better quality of life as well as the quality of work. The habit of regular holidays should be built among villagers.

**HOW TO IMPROVE**

1.) Provide regular holidays every week for the whole family. You family members will use that holiday time for rest and fun. They may spend the time for their hobbies such as taking care of ornamental trees, reading, listening to music, playing musical instruments etc.

2.) Besides regular weekly holidays, plan to have a longer vacation every year. Sightseeing outside your district would be a wonderful experience for

your family, especially children. Plan and prepare the budget well in advance. Exchange information with neighbours to plan an inexpensive holiday time with your family.

**WAY TO PROMOTE COOPERATION**

It would be nice if the whole community could promote taking regular weekly holidays. Create the change gradually and build a habit of all members in the family taking regular holidays together. At the first step, some families may still be engaged in light jobs at home. Increase the time for resting and decrease the time for working. Exchange experiences with your neighbours and share the steps to have no work on holidays.

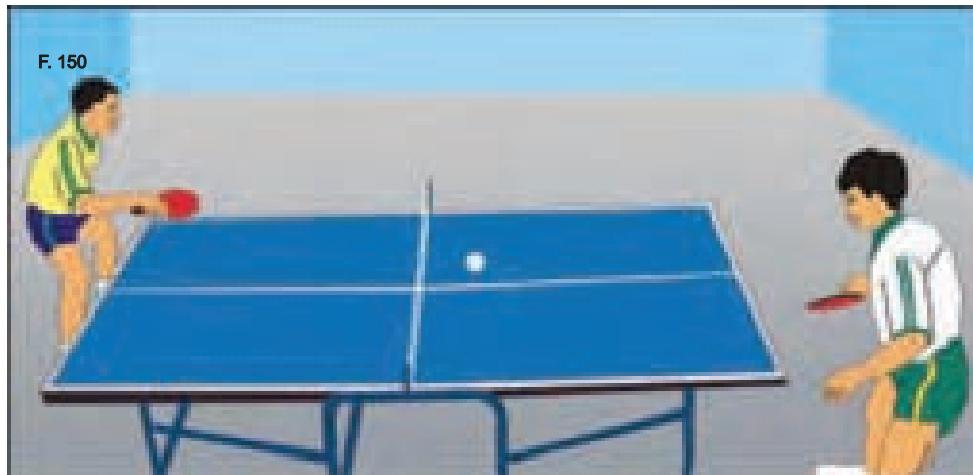
**SOME MORE HINTS**

Visiting shopping areas and outings nearby could also be interesting if you go with your family on holidays. Secure sufficient time with your family and enjoy together.

**POINTS TO REMEMBER**

*Regular weekly holidays can strengthen your family ties as well as facilitate recovery from fatigue.*

*Figure 149, 150:  
Take regular  
weekly holidays to  
recover from  
fatigue, or for  
leisure.*



*Figure 151: Sightseeing tour  
with family.*

*Figure 152 : Shopping at the  
weekend.*

**CHECKPOINT 41**

***Perform community jobs together.***

**BENEFITS FOR FARMERS**

- In the community, there are a variety of strenuous jobs which need the cooperation of many people. They are, for example, building roads, bridges, and houses, digging wells and canals, harvesting in the rice fields and farms, or the movement of heavy machines. These are opportunities to strengthen neighbourhood development in the community.

- Community work often requires special skills and safety precautions. Good community cooperation make these jobs safe and productive.

**HOW TO IMPROVE**

1.) Help each other to perform community jobs which need skills and cooperation. Plan and prepare a joint work plan for easy participation.

2.) Ensure safety and health measures are put in place for the community work which can often include strenuous and dangerous aspects such as working at heights, carrying heavy materials, or the use of dangerous machines. Experienced, senior persons should ensure the provision of safety and health measures such as safety devices, push carts or machine guards, and guide the participating people to work without accidents.

**WAY TO PROMOTE COOPERATION**

Create a group of voluntary farmers to assist the community in carrying out strenuous jobs. They have to investigate the needs and priorities of the community and prepare work plans carefully. The ways to ensure safety and health of the participating community people need to be discussed and established.

**SOME MORE HINTS**

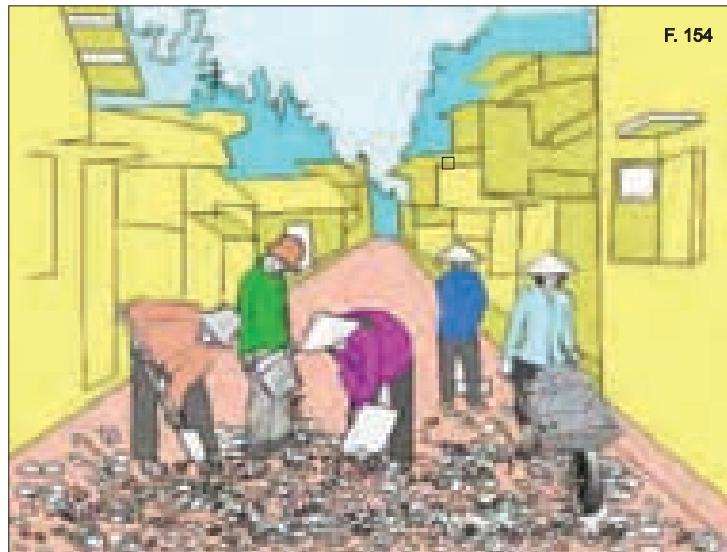
Community cooperation can be extended to a variety of agricultural jobs. Sharing seeds and new methods for growing crops, or saving money to purchase or hire costly agro-machines, etc. Always pay attention to ensuring safety and health of the community people participating in the work.

**POINTS TO REMEMBER**

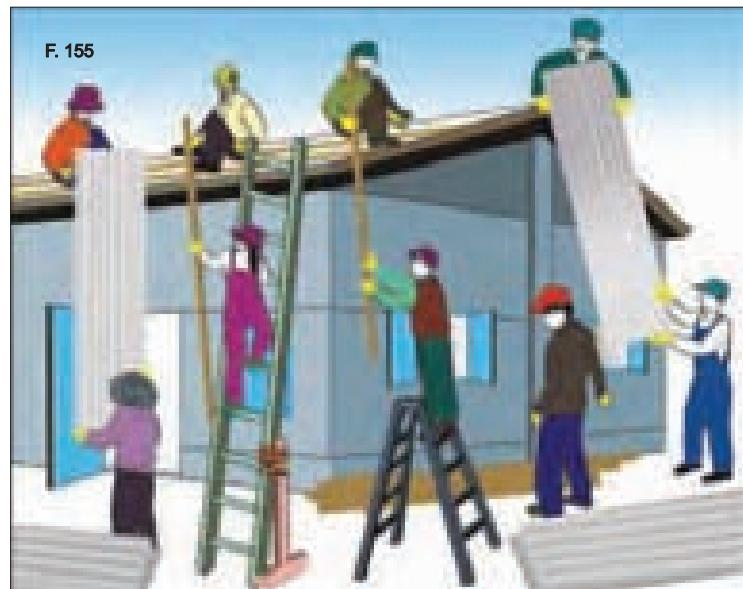
Many community jobs need good cooperation. Plan and prepare jointly. Safety and health measures should be ensured.



*Figure 153: Cooperatively perform strenuous jobs with the help of experienced leaders.*



*Figure 154: Repair the village road together.*



*Figure 155:  
Community jobs  
require the  
cooperation of many  
people.*

**CHECKPOINT 42**

*Share family responsibilities to avoid overburdening a particular family member.*

**BENEFITS FOR FARMERS**

- All the farm and household work can be done better if every family member shares proper responsibilities depending on their physical capacities. Both men and women can share household work and family responsibilities. Cooperation between women and men as well as at the community level is essential.

- The best ways to share family roles and responsibilities are for every family member to know and participate in various family jobs such as cooking, washing, child care, and cleaning, etc. Participation would provide new insights and fun. Family members can learn from each other and consolidate their ties.

**HOW TO IMPROVE**

1.) Discuss with your family members whether any of them shoulders too much responsibility and gets tired. It is useful to talk about how to share roles and responsibilities.

2.) Let family members play a variety of roles depending on their physical capacities rather than fix each one's role. Continue discussions in the family about role sharing and flexibly change roles when opportunities come.

**WAY TO PROMOTE COOPERATION**

Whole communities can promote discussions on how to share family responsibilities for happy family life. There must be a variety of good examples that avoid overburdening of a particular family member. Exchange such good experiences. Always promote the viewpoints of equal work and sharing family responsibility between men and women.

**SOME MORE HINTS**

Family and household jobs are continuous from morning until night and it is often difficult to insert sufficient breaks. The work continues even on holidays. It is essential to help each other and share responsibilities.

**POINTS TO REMEMBER**

*Sharing family responsibilities enriches your family and working life.*



Figure 156 : Cook foods together.



Figure 157 : Family members can share the farm work.



## GOOD EXAMPLES



A Vietnamese farmer is proud of showing his commitment to the WIND programme.



Action-checklist exercises (left: Thailand, right: Cambodia).



Group discussion (Thailand)



Mongolian farmer showing his winter work

## MATERIALS STORAGE AND HANDLING

### I. BETTER ORGANIZED STORAGE

1. *Clear passageways.*
2. *Make the surface of transport routes even, not slippery and free of obstacles.*
3. *Save space by introducing multi-levels racks.*
4. *Avoid placing materials and farm products on the floor, place in special storage areas.*

#### 1- *Clear passageways*



*Keep passageways wide enough for two-way movement.*



*Passageway leading to the rice field.*



*Canal which is straight and wide enough.*



*Clear and wide entrance marked by a fence.*

Good examples

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*Before improvements*



*After improvements*

**2- Make the surface of transport routes even, not slippery and free of obstacles.**



*Provide ramps with a small inclination for easier movement of wheeled vehicles.*



*Use a sloped platform for safe movement of wheeled vehicles.*



*Provide sloped form in the rice field for the smooth entrance of agro-vehicles.*



*Bigger wheels greatly help farmers to carry materials even on bumpy, muddy or uneven field routes.*

Good examples

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**3- Save space by introducing multi-levels racks.**



**4- Avoid placing materials and farm products on the floor, place in special storage areas.**



*Provide containers or baskets of appropriate size and with good grips.*

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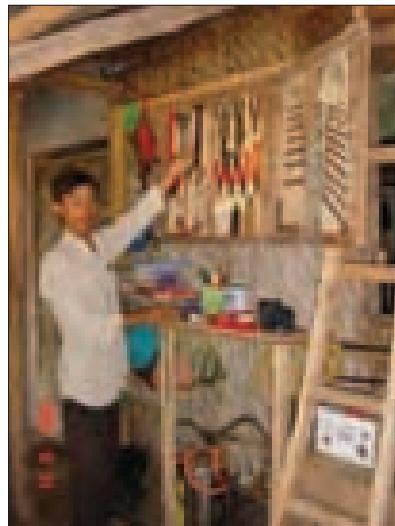
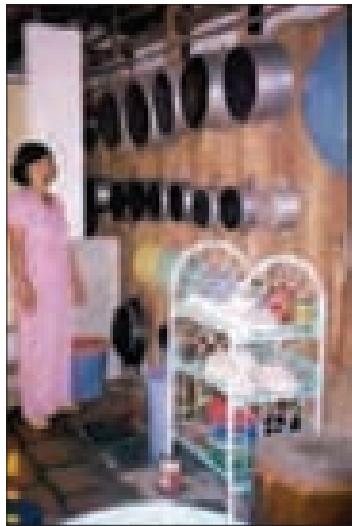
Good examples

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## II. FEWER AND SHORTER TRANSPORT AND HANDLING OPERATIONS

- 1- The more you use it, the closer it should be
- 2- Use carts, boats, vehicles or animals to carry heavy materials.
- 3- Put wheels on tool containers or heavy materials.

1- The more you use it, the closer it should be

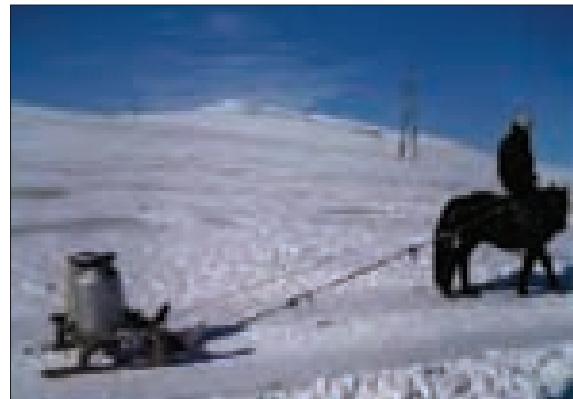


2- Use carts, boats, vehicles or animals to carry heavy materials.



Good examples

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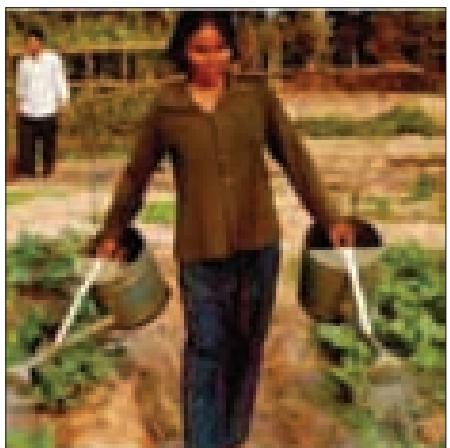
3- Put wheels on tool containers or heavy materials.



**III. FEWER AND MORE EFFICIENT LIFTING OPERATIONS**

- 1- Don't lift loads higher than necessary
- 2- Move materials at working height
- 3- Make lifting more efficient and safer

1- Don't lift loads higher than necessary



*Proper weight divided between both arms makes your work more comfortable.*

*Heavier things can be carried by 2 persons.*



Good examples

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## 2- Move materials at working height

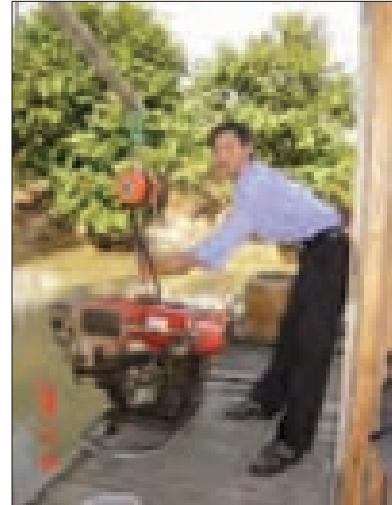


*Before improvement*



*After improvement*

## 3- Make lifting more efficient and safer



*Conveyor*



*Level*

Good examples

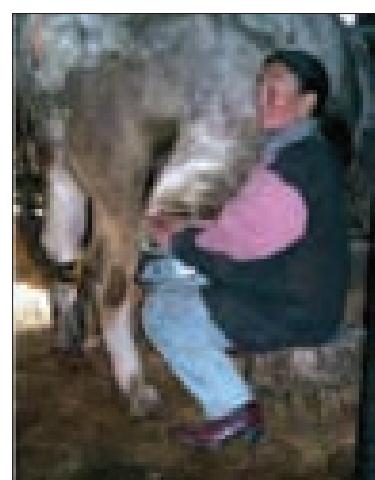
## WORK STATION DESIGN

**I. EASY REACH RULE:** Keep materials, tools and controls within easy reach.



**II. ELBOW RULE:** Work at elbow height.

1. Perform work operations at elbow height.



Good examples

---

**2. Use good chairs with a backrest.**



**3. Choose work methods that avoid bending or squatting postures as much as possible.**



*Change the farming arrangement in the field to avoid as much as possible strenuous working posture.*



*Use tools with a long handle.*

*Carry loads evenly in both arms.*

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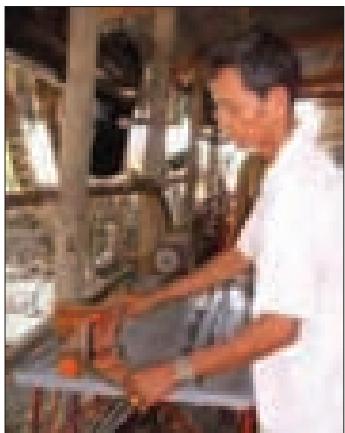
Good examples



*Hand-reaping machines to reduce the workload*

### III. JIGS AND FIXTURES RULE:

#### 1. Use jigs and fixtures to save efforts.



#### 2. Choose tools that can be operated with minimum force.



*Hand tool used in the rubber plantation.*

*Pesticide spraying machine.*

Good examples

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#### IV. EASY TO DISTINGUISH RULE:

Provide a “home” for tools.

Improve displays and controls to minimize mistakes.

1. Provide a “home” for each tool and work item.



2. Attach simple worded labels in the local language to minimize mistakes.



## MACHINE SAFETY

### I. PURCHASE SAFE MACHINES

- Rotating parts are adequately guarded
- Feeding and ejection can be done safely
- Moving parts of the machines should be locked during maintenance
- Operating instructions and labels are easily understood.

The purchase of safe machines is the best way to control machine hazards



Carefully check all safety devices before purchasing machines

### II. ATTACH PROPER GUARDS TO DANGEROUS MOVING PARTS

Guards should be attached directly to the machine and open only for maintenance tasks.



Good examples



### III. USE FEEDING AND EJECTION DEVICES TO INCREASE PRODUCTIVITY AND REDUCE MACHINE HAZARDS.



Funnel-shaped feeding.

Trough-shaped feeding.

Safety ejection device.

### IV. PUT EASY-TO-UNDERSTAND OPERATING INSTRUCTIONS.



Good examples

## V. ENSURE SAFE WIRING CONNECTIONS FOR MACHINES AND EQUIPMENT



## VI. MAINTAIN MACHINES PROPERLY



During maintenance, the control should be locked and have a tag “DANGER ! DO NOT OPERATE”.

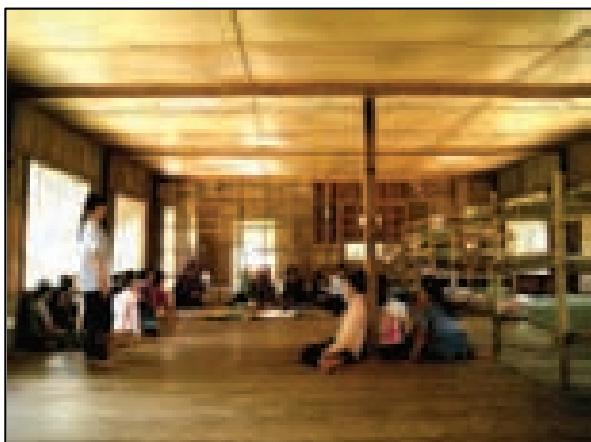
## WORK ENVIRONMENT

### I. GOOD LIGHTING

#### 1- Make full use of daylight



#### 2- Use light colors for walls and ceilings



### II. GOOD VENTILATION

#### 1- Increase natural ventilation



Good examples

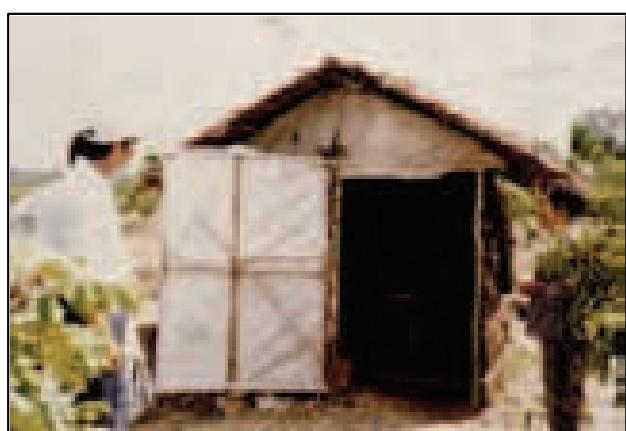
### III. PROTECT AGAINST HEAT OR COLD

*Avoid continuous exposure to excessive heat or cold*



### IV. ELIMINATE OR ISOLATE HAZARDOUS SUBSTANCES

*1- Store hazardous substances safely*



Storage house to keep pesticides.

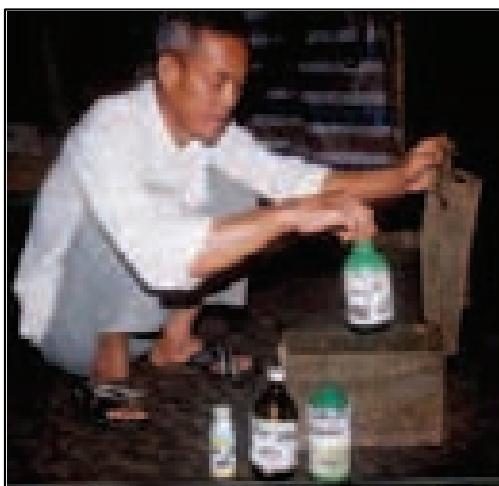


Pesticide container with a safe lock.

Good examples

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**2. Put labels on agro-chemicals to minimize mistakes**



**3. Establish designated places to treat used pesticide bottles**



**4. Reduce agro-chemicals by using organic fertilizers.**



## WELFARE FACILITIES

### I. PROVIDE BASIC FACILITIES



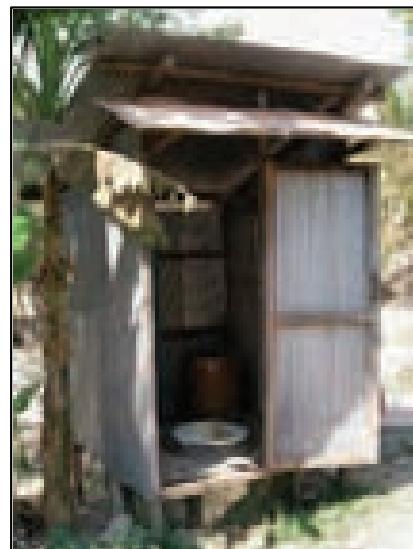
Secure safe drinking water.



Washing facility after work.



Bring nutritious lunch to the farm if far from home.



Sanitary latrine near the farm.

### II. BUILD AND USE RESTING FACILITIES

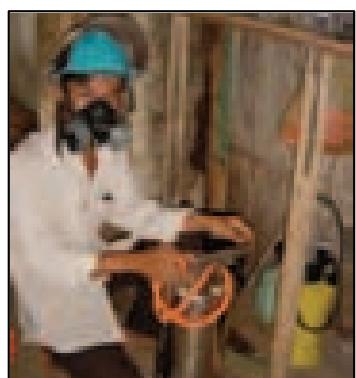


Good examples

### III. PROTECT YOUR BODY



Protective clothes.



Masks with filters containing activated carbon to be used when spraying pesticides.

### IV. BE READY FOR EMERGENCIES



First aid kits.

**V. ENSURE SAFETY OF CHILDREN.**



Provide mosquito nets and vaccinations to prevent children from contracting diseases.



Keep children away from machines and chemicals.

## WORK ORGANIZATION

### I. BETTER WORK LAYOUT TO REDUCE THE DISTANCE TO CARRY MATERIALS.



Movable plastic tent to cover the drying ground for rice. By using this device, farmers do not need to move the rice when raining.

Move the cooking items to the same working height to minimize lifting of materials.

### II. INSERT FREQUENT SHORT BREAKS.



Good examples

### III. PERFORM COMMUNITY JOBS TOGETHER.



Repair the village road together.



Help build a house together.

### IV. SHARE FAMILY AND WORK ROLES TO AVOID OVERBURDENING A PARTICULAR FAMILY MEMBER.



### V. TAKE REGULAR WEEKLY HOLIDAYS



