

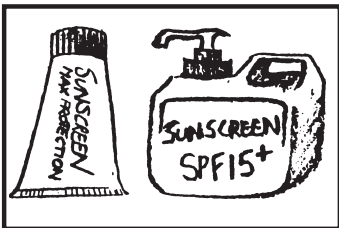
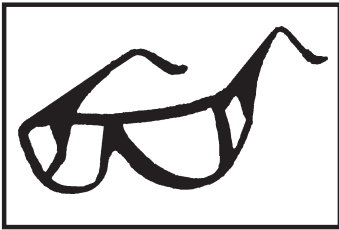
# 20. SUN SAFETY ON THE FARM



## THE HAZARD

Sun exposure is something which workers on Australian farms have taken for granted as working outside is a major part of farm work. The damaging solar radiation or ultra violet rays affect the skin and the eyes. Australia has the highest rate of skin cancer in the world (2 out of 3 people who were born in Australia will get some form of skin cancer) and outdoor workers, such as farm workers are at the greatest risk of developing skin cancer. The solar radiation hazard results from the effect of ultraviolet radiation which is measured in nanometers (nm). The ultraviolet radiation range consists of:

- UV-A 320-400 nm damages skin
- UV-B 290-320 nm the main cause of skin cancer
- UV-C 200-290 nm the ozone layer acts as a barrier to this level of radiation



- The effect on the skin of these rays from the sun builds up over time. The signs of a mild level of damage such as mild sunburn or freckling gradually increase with exposure and can eventually lead to a skin cancer. Ultra violet rays are most damaging between 10 am and 2 pm (11 am and 3 pm during daylight saving) because the angle of the sun's rays is shortest at those times. During winter, the infra-red rays are reduced, producing cooler temperatures but UV rays continue to damage the skin. Natural barriers to these rays are the ozone layer and cloud cover. However, skin damage still occurs with cloud cover, depending on cloud thickness. In Australia, the diminishing ozone layer is increasing the risk of skin cancer from solar radiation.

## HAZARD IDENTIFICATION

- When identifying solar radiation as a hazard on the farm, consider all possible characteristics of the worker, the work process, the environment and the interaction between them which increase the risk.

Characteristics of the worker to consider are:

- Skin type
- Family history of melanoma
- Presence of moles
- Knowledge about protection from the sun.

Characteristics of the work process to be considered are:

- The time of the day in which outside jobs are done
- The length of time spent working outside
- The season in which the work takes place (during summer, the sun's rays are more intense due to our proximity to the sun).



When considering the environment, look at:

- The presence of shade (artificial or natural)
- The altitude of the farm
- The extent of reflection from work surfaces or water

To identify further hazards relating to solar radiation, refer to the following Guidance Notes:

- ☛ Children on Farms (Number 7)
- ☛ Animal Handling (Number 10)
- ☛ Heat Stress on the Farm (Number 19)

## THE RISK

### 1. *Who is at risk ?*

- All people who live and work on the farm are at risk of skin cancer due to the typically outdoor lifestyle and the nature of farm work.
- Those people who have fair skin which tends to burn and freckle are more likely to develop skin cancer. A person who has many moles or “sunspots” is also more likely to develop skin cancer.
- A family history of melanoma (the most deadly form of skin cancer) makes an individual more likely to develop skin cancer.
- People who work outside without sun protection such as hat, sunscreen and sunglasses are more likely to develop skin cancer or eye damage.
- Children who are exposed to the sun frequently or for long periods are more likely to have skin damage leading to skin cancer and eye damage. This means that a person who was born overseas and came here as an adult is probably less at risk of skin cancer than other Australians.
- People who take certain medications (such as tetracycline or chloroquine) or are in contact with certain farm chemicals such as creosote are more likely to be sunburnt which increases the risk of skin cancer.

### 2. *Nature of potential injury/illness*

- Skin cancer is the most common form of cancer in Australia. Two out of three Australians who spent their childhood or adolescence in Australia will develop some form of skin cancer. Farmers and other outdoor workers are more likely to develop non-melanomas than indoor workers.

- The short-term effect of excessive sun exposure is sunburn- reddened skin, blistering, swelling and peeling. The more often a person is sunburnt, the more likely it is that they will develop skin cancer. Short term effects of excessive sun on the eyes may include soreness and swelling with excessive blinking and difficulty in looking at bright lights.
- The long-term effect of excessive sun exposure is premature ageing of the skin, cataracts on the eye, keratoses or “sun spots” and skin cancers.

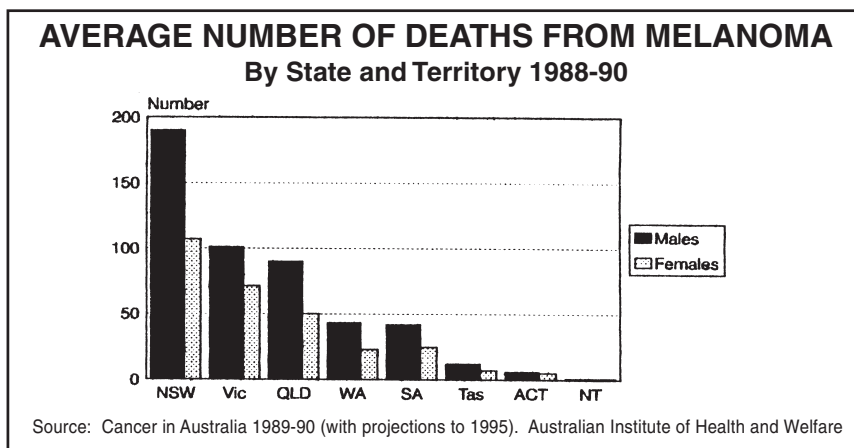
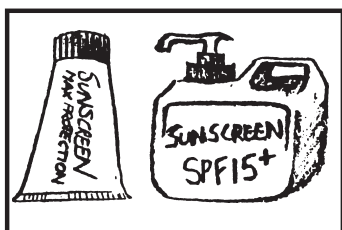


- Solar keratoses or “sunspots” are not cancers but they mean that you could develop skin cancer. They are red, flattish, scaly areas which appear in the over-40 age-group on areas which are most exposed to the sun such as backs of hands, forearms, ears, nose and face.

- Melanoma is the most dangerous skin cancer. If it is untreated, the cancer spreads to other parts of the body, resulting in death. If treated early, however, many can be cured. This skin cancer can be anywhere on the body and may appear as a new spot or a change of colour, size and shape of an existing spot. It usually has an irregular or smudgy outline.



- Other skin cancers (Basal Cell cancer and Squamous Cell Cancer) are not as dangerous as the melanoma but may still spread to other parts of the body if not treated. Twenty percent of all deaths from skin cancer in Australia are from non-melanomas.<sup>1</sup> They may appear as a thickened, red, scaly spot which may bleed or turn into an ulcer. They may also appear as a lump or scaly area which is red, pale or pearly in colour. They appear on areas which are most often exposed to the sun such as the face, ears or hands. The graph below compares the number of deaths from melanoma between males and females in each state and territory.



- Solar radiation has now been linked to development of cataract in the eye in later life in some people.

### 3. Degree of risk

When assessing the degree of risk associated with sun exposure, we take into account the following questions :

- How common is skin and eye damage from the sun ?
- How severe is the likely effect from the sun ?
- How long is a person exposed to the sun and at what time of the day ?

<sup>1</sup>Australian Bureau of Statistics data. 1994.

## How Common is Skin and Eye Damage from the Sun ?

Skin and eye damage from the sun is very common in outdoor workers and is influenced by the following features:

### Features of the worker

- All outdoor workers are at risk of skin and eye damage.
- Where the worker is fair-skinned with blue/grey eyes, freckles easily, has many moles, the risk of skin cancer is increased.
- If there is a family history of skin cancer, the worker is more at risk of developing skin cancer.
- Where the worker takes certain medication, uses certain creams on the skin or uses certain farm chemicals, the risk of sunburn is increased which contributes to the risk of skin cancer.
- If the worker is unaware of the risk or has the attitude that he/she is not at risk, the risk is increased because precautions will not be taken.

### Features of the Work Process

- If work is carried out between 10 am - 2 pm or 11 am - 3 pm, the risk from the sun is higher than at other times of the day.
- The longer a person spends in the sun, the greater the risk.
- The longer the exposure in summer or on sunny days, the greater the risk of skin cancer and eye damage. However, even where there is some cloud cover, skin and eye damage is occurring.

### Features of the Environment

- The absence of shade while a task is carried out or during rest breaks increases the risk by increasing exposure time to the sun.
- Highly reflective work surfaces such as unpainted corrugated steel, aluminium roofing, glass or water increases the amount of UV rays to which the worker is exposed; thus increasing the risk of skin and eye damage.
- The higher the altitude of the farm, the greater the risk of skin and eye damage. This is because ultraviolet radiation is stronger and there is less chance for it to dissipate through the atmosphere.

## How Severe is the Likely Effect from the Sun?

Sun exposure frequently leads to some form of skin cancer. This can result in death if not caught early enough and every year, around 1200 people in Australia die from skin cancer.<sup>2</sup>

Surgery to remove skin cancers results in disfigurement and pain.

Damage to the eyes can impair vision because it can eventually lead to cataracts and other growths on the eyes and eyelids.

## How Long is the Worker Exposed to the Sun?

As the effect of the sun accumulates, the risk increases directly with the length of exposure time. However, where the worker is exposed between 10am-3pm or 11am-4pm (daylight saving time), the risk increases even more.

<sup>2</sup>Australian Bureau of Statistics data. 1994.

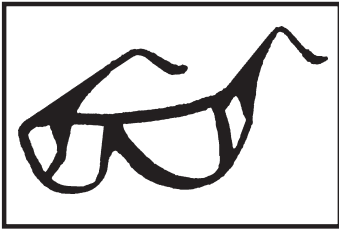
As skin cancer is very common in Australian farmers and can cause death if not found in the early stages, the level of risk associated with sun exposure should be assessed as high and action should be taken as soon as possible to reduce the risk.

## CONTROL MEASURES



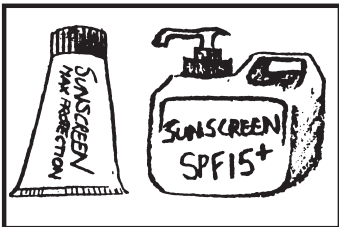
The following control measures will not be suitable for everybody. They are presented as options which are available to reduce the risk of skin cancer and eye damage while not interfering with farm productivity. In fact, well-designed control measures should increase productivity by decreasing exposure to the sun and reducing the cost of illness. An option which may seem impractical to one person in their particular situation may well be possible for somebody else in their circumstances. Where an option may not be practical at present, it may become so in the future, for instance, when planning the building of sheds or animal handling facilities.

*Elimination* or *substitution* measures for the hazard of sun exposure are not possible as the sun cannot be eliminated. The following control measures which are part of the lower end of the control hierarchy are the best solutions for control of sun exposure hazards.



### 1. Engineering/design options

- Natural shade such as trees, buildings and other structures should be designed into areas such as animal handling facilities or shearing sheds wherever possible. Trees can be planted around existing facilities. Advice on the best shade trees can be obtained from Greening Australia or your state Forestry organisation.
- Artificial shade can be created by portable structures such as canopies, tents and any other portable, easy to erect and fold-away shade structures. Verandahs are useful additions to any building as they protect from the sun while reducing the risk of heat stress.
- Non-reflective surfaces can be used for buildings and work surfaces to reduce reflection of UV rays. However, bear in mind that this may increase the risk of heat stress if other measures to reduce heat are not taken.



### 2. Safer work practices and procedures

#### *Before working in the sun*

- ✓ Make everybody on the farm aware of the risks associated with sun exposure and how they can protect themselves.
- ✓ Children's play areas need to be shaded and they need education in how to protect themselves from the sun. This will be assisted if adults set an example for them.
- ✓ Change the job so that it is done inside or move it to a new area under shade such as a tree or verandah.
- ✓ Reschedule work so that tasks which require the worker to be in the sun are carried out in the morning until 10 or 11am and then after 2 or 3pm.
- ✓ Where possible, schedule tasks so that those which require the worker to be outside for long periods are not done in summer.



## *While working in the sun*

- ✓ Taking work breaks in a cool, shaded area will reduce the risk associated with sun exposure and heat stress. While taking breaks, drink plenty of water.
- ✓ Ensure that appropriate clothing and sun protection is worn.

### **3. *Personal protective equipment and clothing***

- Peaked hats do not give as much protection as a hat with a brim of 10-12cm. Legion-style hats give added protection to the ears and neck. This hat gives shade but does not prevent solar rays reflecting up from water and other reflective surfaces.
- Therefore, sunglasses are needed. Wrap-around sunglasses are the most effective and if the work area is highly reflective, special purpose sunglasses may be necessary.
- Children of 5-15 years need to be encouraged to wear a hat and sunglasses.
- Sunscreen of SPF 15+ needs to be applied as follows:
  - Apply the sunscreen to dry skin on all exposed areas including ears, hands, lips and neck.
  - Apply it 15-20 minutes before going into the sun.
  - Do not rub the cream in.
  - Re-apply the sunscreen every two hours and more often if you are sweating a lot.
- Clothing needs to cover as much as possible without increasing heat stress. Long sleeves and trousers are preferable; they should be of a fairly close weave and made of natural fibres such as cotton or the new sun-protective textiles. A shirt with a collar will protect the neck.

### **4. *First Aid***

- Be aware of potential for sunburn. At the first sign of any skin pinkness, stay out of the sun completely. Apply moisturiser if the burn remains mild. If the burn is more severe, there are pharmaceutical creams to relieve the burning sensation and nourish the skin. If the burn is severe, drink plenty of fluid and avoid wearing clothing on the affected area. Any blisters should be left intact.

Skin needs to be regularly checked for skin cancers. Ask somebody to check your back and other areas which are difficult to see and see your doctor immediately if any of these develop. Look for:

- ☛ **Any new freckle, mole, sunspot or unhealed sore on your skin.**
- ☛ **A spot which bleeds when touched or rubbed.**
- ☛ **A spot that looks different from others around it.**
- ☛ **A spot that has changed in colour, size or shape over the last few weeks or months.**
- ☛ **White patches on the lips which will not go away.**

## RELEVANT LEGISLATION AND STANDARDS

### Legislation:

The Occupational Health & Safety Act in each state or territory requires that the working environment should be safe and without risks to health. This includes the outdoor working environment where suitable measures and work systems should be set in place to reduce risk of skin and eye damage associated with exposure to solar radiation.

### Standards:

- AS-1067. 1990 Sunglasses
- AS-1067. 1983 Special Purpose Sunglasses
- AS/NZS-2604-1993 Sunscreen products
- AS/NZS 4399-1996 Sun protective textiles



## USEFUL REFERENCES

1. Pamphlet: *Protection from Sunlight*. Worksafe Australia. 1991.
2. Pamphlet: *Ultraviolet Light and Your Eyes*. The Australian Optometrical Association. 1993
3. Video: *Taking Control - A Sunburnt Country. Episode 4*. New South Wales Cancer Council.

## CONTACTS

### Australian Agricultural Health Unit

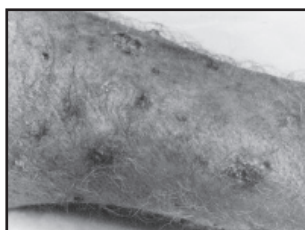
PO Box 256  
Moree NSW 2400  
Phone: (02) 6752 8210  
Facsimile: (02) 6752 6639

### State/Territory Occupational Health & Safety Organisations as listed below:

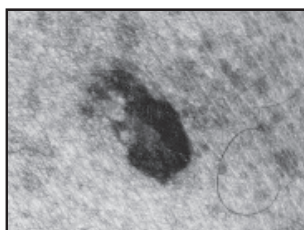
- WorkCover New South Wales: Ph 131 050
- Victorian WorkCover Authority: Ph (03) 9628 8188
- Queensland Division of Workplace Health & Safety: Ph (1800) 177 717 or (07) 3247 4711
- South Australian WorkCover Corporation: Ph (08) 8226 3120
- WorkSafe Western Australia: Ph (09) 327 8777
- Tasmanian Workplace Standards Authority: Ph (03) 6233 7657
- Northern Territory Work Health Authority: Ph (08) 8999 5010
- Australian Capital Territory WorkCover: Ph (02) 6205 0200

### State/Territory member organisations of the Australian Cancer Society:

- ☛ New South Wales Cancer Council: Ph: (02) 9334 1900
  - ☛ Anti-Cancer Council of Victoria: Ph: (03) 9279 1111
  - ☛ Queensland Cancer Fund: Ph: (07) 3258 2200
  - ☛ Anti-Cancer Foundation of the Universities of South Australia: Ph: (08) 8291 4111
  - ☛ Cancer Foundation of Western Australia: Ph: (09) 381 4515
  - ☛ Cancer Council of Tasmania: Ph: (002) 332 030
  - ☛ Northern Territory Anti-Cancer Foundation: Ph: (089) 274 888
  - ☛ Australian Capital Territory Cancer Society: Ph: (06) 285 3070
- ☛ **Greening Australia Ltd.** Telephone: (06) 281 8585
- ☛ **The government forestry organisation in your state/territory**



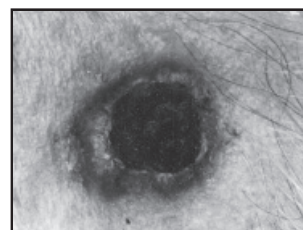
**SUNSPOTS**



**MELANOMA**



**SQUAMOUS CELL  
CANCER**



**BASAL CELL CANCER**

# AGHEALTH

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