

SUN SAFETY in Agriculture



UNIVERSITY OF SASKATCHEWAN
Canadian Centre for Rural
and Agricultural Health
CCHSA-CCSSMA.USASK.CA



INTRODUCTION

The sun is a major occupational hazard for anyone who works outdoors. With the amount of time spent outside, Canadian agricultural workers are in the highest risk category for sun exposure. Sun exposure increases your risk of skin cancer and heat stress, but the good thing is that these conditions are preventable!

Did you know?

Saskatchewan gets the most sun out of any of the Canadian provinces!



Basics of Sun Safety

If you are heading outside, use as many of the following sun protection mechanisms as you can. A combination of all works best! See Prevention Section for more details on each method of staying sun safe. Make sun safety part of your daily routine!

DO

- Use broad spectrum UVA/UVB sunscreen of SPF 30 and above
- Use 1 tablespoon of sunscreen per large body part
- Re-apply every 2 hours, and more frequently with sweat and swimming

DON'T

- Rely on spray sunscreens
- Skip sunscreen on cloudy days
- Use sunscreen as a standalone protection

For complete sun safety, you need **more** than sunscreen!

Remember...



Slip...
on a shirt



Slop...
on sunscreen



Slap...
on a hat



Seek...
shade



Slide...
on sunglasses

UVR: What's the risk?

Ultraviolet Radiation (UVR) is electromagnetic radiation emitted by the sun and artificial sources, like tanning beds.

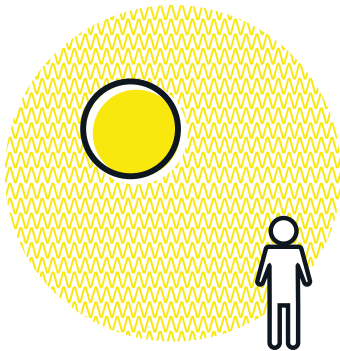
UVR cannot be seen or felt – it is not related to visible light or to temperature.

The UV spectrum can be subdivided into three types: UVA, UVB, and UVC. Only UVA and UVB radiation reach the earth's surface. UVB radiation is generally associated with sunburns though both types of UVR can cause skin damage, skin aging and skin cancer.



HOW DOES IT REACH ME?

Direct and indirect sources of UVR



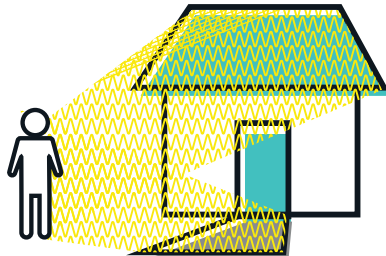
Directly, from the sun

Maximum UVR levels occur when the sun is at its highest point in the sky (solar noon) during the summer months. Most of the daily total UVR is received within 2 hours before and after a solar noon. A solar noon is when the sun reaches its highest position in the sky above a specific location. Take extra precautions or if possible, avoid outdoor activities between 11 am and 3 pm from April-September.



Indirectly, scattered by clouds or other particles in the atmosphere

UVR levels are highest under cloudless skies, but UVR levels can remain high especially during thin or scattered cloud cover. Some clouds can actually increase the UVR intensity on the ground by reflecting the sun's rays back towards earth.



Indirectly, reflected from surfaces

UVR is reflected or scattered to varying extents by different surfaces. For example, snow can reflect as much as 80% of UVR, dry beach sand about 15%, and sea foam about 25%.

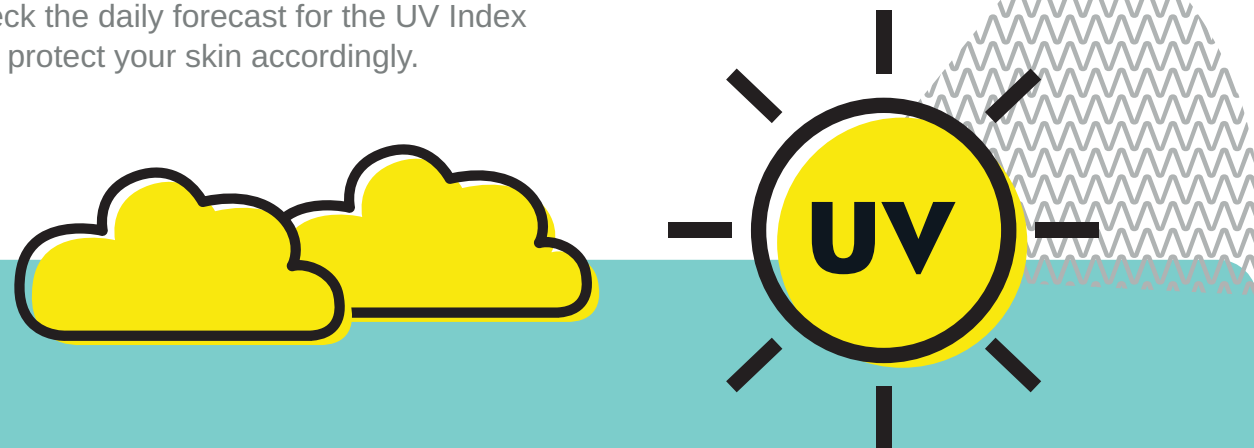
UV INDEX

THINK UV WHEN YOU CHECK THE WEATHER

What is the UV index?

The UV Index is a rating system adopted from the World Health Organization, as a way of describing the amount of UVR at the earth's surface.

- The higher the number, the stronger the UV levels and the less time it takes for the sun to damage the skin.
- Sun protection measures should be taken anytime the UV index is 3 or higher.
- UV Index can reach up to 10 in Canada and higher in other parts of the world.
- Check the daily forecast for the UV Index and protect your skin accordingly.



Consider UV when you plan your day

When practical, plan outdoor farm activities for early morning and after 3 pm between April and September.

The UV index can help to determine the level of precaution you should take before heading outside.

Index

TODAY'S Date:

Circle TODAY'S UV INDEX

1 2 3 4 5 6 7 8 9 10 11 +



Low

MODERATE

HIGH

VERY HIGH

EXTREME

**MINIMAL
PROTECTION
REQUIRED**

Wear
sunglasses
everyday all
year
round.



ADDITIONAL PROTECTION REQUIRED

When the UV Index is 3 or higher, protect your skin as much as possible. Seek shade, slip on clothing, slap on a hat, and slop on sunscreen!



EXTRA PROTECTION REQUIRED

Unprotected skin will be damaged and will burn quickly. Use extreme caution. Avoid outdoor activities between 11:00am and 3:00pm.



SunSmart
SASKATCHEWAN

SKIN CANCER

Skin cancer is common

The sun is a major occupational hazard for anyone who works outdoors. With the amount of time spent outside, Canadian agricultural workers are in the highest risk category for sun exposure. Sun exposure increases your risk of skin cancer and heat stress, but the good thing is that these conditions are preventable!



COMMON AND PREVENTABLE

What is skin cancer?

Skin cancer is the uncontrolled growth of abnormal cells in the skin.

There are several types of skin cancer. Melanoma and non-melanoma are the two main types of skin cancer. Melanoma is the most dangerous form of skin cancer and if left untreated can cause serious illness and death.

The most common risk factor for skin cancer is exposure to UVR, whether from the sun or from tanning beds.

THE BIGGEST RISK FACTOR

UVR and skin cancer

Although there are genetic factors that contribute to your risk of skin cancer, the most common cancers are strongly associated with exposure to UVR.

UVR causes damage to DNA and cell functions. This damage can show itself immediately as a tan or sunburn, though cells can be damaged even if neither of these is observed.

Skin cells have repair mechanisms, but they are not perfect.

Some skin cells die as a consequence of being too damaged to repair, but the biggest problem comes when some of the DNA damage is not repaired and the cells become defective.

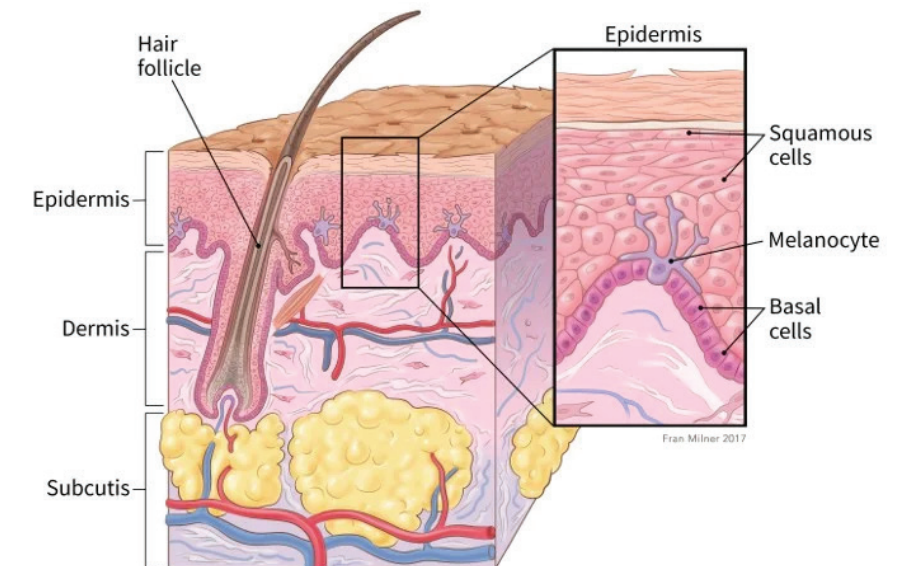
Ultraviolet (UV) radiation energy from the sun is more powerful than visible light rays and can damage the skin. The health risks in the short term are sunburn and skin damage. In the long term, the health risks are skin cancer (both melanoma and non-melanoma) and some eye diseases. The longer and more intense the UV exposures are, the greater the likelihood of developing skin cancer and eye disease.

AN INCREDIBLE ORGAN

All about the skin

The top layer of the skin is called the epidermis. **The epidermis is made up of 3 types of cells:**

- Squamous cells are flat, thin cells on the surface of the skin.
- Basal cells are round cells that lie under the squamous cells.
- Melanocytes are found in between the basal cells. They're the melanin-producing cells (melanin is the pigment primarily responsible for your skin's colour).



Types of skin cancer

Skin cancer types are named after the skin cell in which the cancer develops: basal cell carcinoma, squamous cell carcinoma (together called non-melanoma skin cancer) and melanoma.

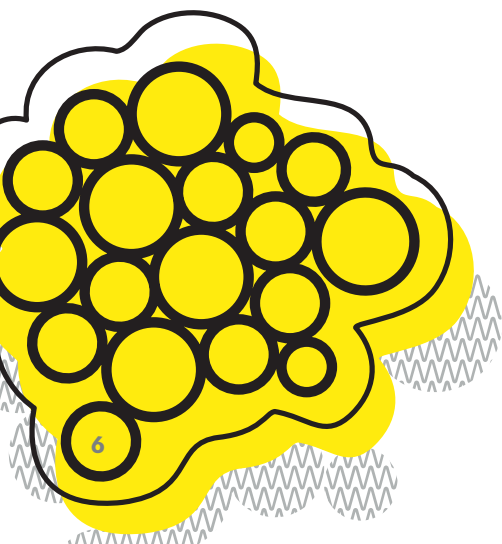
When cancer starts in melanocytes, it is called melanoma. When skin cancer starts in squamous cells or basal cells, it is called non-melanoma skin cancer.

Although one of the less common types of skin cancer, melanoma is considered the most serious type of skin cancer because it is more likely to spread to other parts of the body, especially if not detected early.

Left untreated, melanoma may spread deeper into the skin where it can be carried to other parts of the body such as the lungs, liver, brain and bones by lymph vessels or blood vessels.

The earlier melanoma is diagnosed, the less likely it is to spread to various organs and the more successful treatment is likely to be.

Worldwide, melanoma accounts for 4% of all skin cancers, but is responsible for 80% of skin cancer deaths.



Not just skin cancer: eye damage

Exposure to the sun and other sources of UVR without sufficient protection is known to cause harm to the eyes.

Chronic exposure to UVR is a risk factor for several eye-related disorders, including cortical cataracts and pterygium – a benign growth of tissue that forms on the whites of the eye.

Acute exposure to UVR can also cause other eye conditions: photokeratitis, photoconjunctivitis and retinal burns (e.g., from looking directly at the sun).

Skin cancer in Canada

The most serious form of skin cancer is **melanoma**.

Each year there are **over 80,000 new cases** of skin cancer in Canada, making it the most diagnosed type of cancer.

There are also **over 1,500 deaths** from skin cancer each year and rates are increasing.

ARE YOU AT RISK? Risk factors for skin cancer

Anyone can develop skin cancer. However, the risk is higher for some.

- People with fair or freckly skin, with blond or red hair, and with light-coloured eyes.
- People who burn easily.
- People with a large number of moles on their skin.
- People who spend a lot of time outdoors (such as agriculture workers).
- People with a past history of skin cancer.
- People with a family history of skin cancer.
- People who take medication that makes them more sensitive to the sun.
- People who use tanning beds.

While skin cancer is more common in people with fair skin, people with all skin types and colours can develop skin cancer. Skin cancer in people with darker skin is often detected at a more advanced stage and so the outcomes tend to be more serious.

Research shows that persons who work outdoors are 2.5-3.5% more likely to develop skin cancer than those who work indoors.

The most significant preventable risk factor for developing skin cancer is exposure to ultraviolet radiation from the sun or from artificial tanning beds.



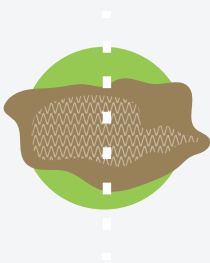
Recognizing the signs of skin cancer

Examining your skin on a regular basis can lead to early detection, treatment, and in most cases, positive outcomes. The Canadian Skin Cancer Foundation recommends monthly self-examinations using the ABCDEs of early detection.

Remember! Check your whole body, including places that are not always exposed to the sun, like armpits and soles of the feet. Ask someone to help check hard-to-see areas like your back and scalp.



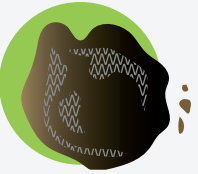
ABCDEs of early detection



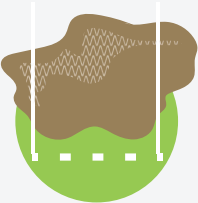
Asymmetry
Most melanomas are asymmetrical. If you draw a line through the middle of the lesion, the two sides won't match.



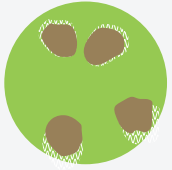
Border
Concerning lesions tend to have uneven and poorly defined borders.



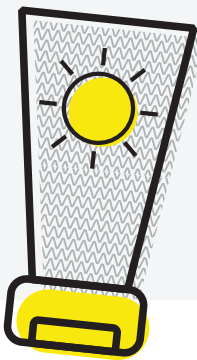
Colour
Benign moles are usually a single shade of brown. Multiple colours are a warning sign.



Diameter
Take a close look at lesions >6 mm in size or larger than a pencil eraser.



Evolving
Any change in size, shape, or colour of a spot is concerning, especially if these changes occur quickly.



HEAT RELATED INJURY

Dangers of heat stress

Working outdoors when it's hot can be dangerous. When your body's cooling system can't keep up with the heat around you, you can experience heat stress. As your body heats up, you'll lose water and salts through sweat which leads to dehydration. That's when heat illnesses can occur. Heat illness has a range of increasingly serious symptoms, beginning with heat rash and muscle cramps, which are warning signs of the onset of more severe heat stress. If no action is taken, symptoms will worsen and the health effects will progress to more severe stages of heat illness that are life threatening, such as heat exhaustion or heat stroke.

It is often difficult for someone with heat stress to realize the danger they are in. Therefore, it is extremely important that we all watch out for heat stress symptoms in each other, and take action as necessary.

Prevent heat stress with six simple steps:

1. Know the signs and symptoms of heat stress
2. Watch out for symptoms in yourself and others
3. Wear sunscreen, a hat, and lightweight, loose-fitting clothing
4. Drink water often – avoid drinks with alcohol or caffeine, and replace lost electrolytes if sweating lasts multiple hours
5. Take breaks in the shade and more often on hot days
6. Know how your workplace deals with heat stress



The following heat illnesses are in order of the stages of progression of heat stress:

Heat Rash

Red bumpy rash with severe itching.

First Aid: Change into dry clothes, rinse skin with cool water.

Heat Cramps

Muscle cramping due to overheating of the body and dehydration.

First Aid: Move to a cool area. Loosen clothing. Gently massage and stretch cramping muscles. Drink cool, lightly salted water or an electrolyte replacement drink. Salt tablets are not recommended. Seek medical attention if cramping doesn't go away.

Heat Exhaustion

Heat exhaustion is when our body's cooling system starts to break down due to fluid loss and inadequate salt and water intake. Symptoms include heavy sweating, cool moist skin, elevated body temperature, weak pulse, tired and weak, nausea and vomiting, very thirsty, panting or rapid breathing, and blurry vision.

First Aid: Get medical aid and cool the person down (move to a shaded area, loosen clothing, drink cool water). Fan and spray with water. Don't leave the person alone. It takes time to cool the body down from heat exhaustion, and if it's not treated promptly, it can lead to heat stroke.



Heat stroke

A condition that occurs when the body becomes unable to control its temperature and can lead to death or permanent disability. Heat stroke is a medical emergency. Your body has used up all its water and salt and cannot cool itself. Your body temperature rises to dangerous levels.

Symptoms are high body temperature—40°C or more, plus any of the following: weak and confused, irrational behaviour, hot dry red skin or profuse sweating, fast pulse, headache or dizziness. In later stages, the person may pass out or have convulsions.

First Aid: Request immediate emergency medical assistance. Take aggressive steps to cool the worker down. Move the worker to a cool, shaded area. Remove excess clothing and fan and spray the person with cool water. Offer sips of water if the person is able to drink.

Heat Exhaustion

ACT FAST

- Move to a cooler area
- Loosen clothing
- Sip cool water
- Seek medical help if symptoms don't improve

Dizziness

Thirst

Heavy Sweating

Nausea

Weakness

Heat exhaustion can lead to heat stroke.

Heat Stroke

ACT FAST

CALL 911

- Move person to a cooler area
- Loosen clothing and remove extra layers
- Cool with water or ice

Confusion

Dizziness

Becomes Unconscious

Heat stroke can cause death or permanent disability if emergency treatment is not given.

Protect Yourself from Heat Stress

Sun exposure can cause heat stress
Outdoor workers are at risk

Six Simple Steps

1. Know the signs and symptoms of heat stress
2. Watch out for symptoms in yourself and others
3. Wear sunscreen, a hat, and lightweight, loose-fitting clothing
4. Drink water often – avoid drinks with alcohol and caffeine
5. Take breaks in the shade and more often on hot days
6. Know how your workplace deals with heat stress

**Report All Heat Stress Concerns
to Your Supervisor!**

Visit sunsafetyatwork.ca or sunsmartsk.ca
for more information.

This project was funded by the Canadian Partnership Against Cancer and Health Canada.



SUN PROTECTION



YOUR FIRST LINE OF DEFENSE

Slip on **clothing**

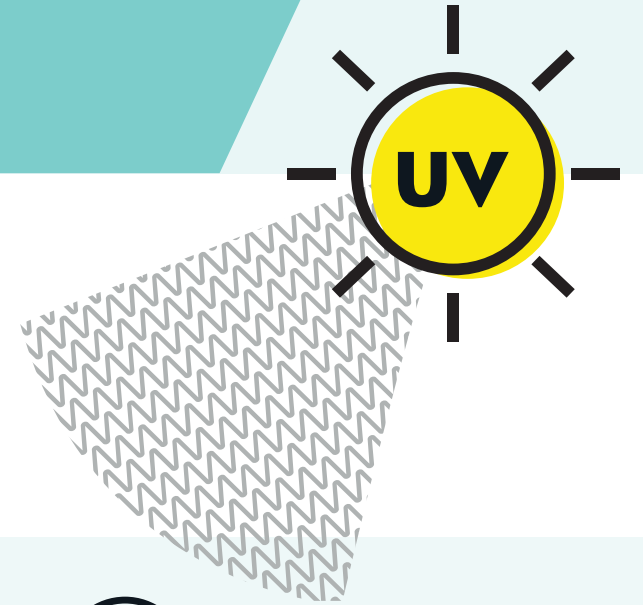
In general, clothing provides better protection than sunscreen. So cover up for the best protection against the sun!

- Wear lightweight shirts with sleeves (Long-sleeved shirts and long pants/skirts are best).
- Darker colours offer better protection than lighter colours.
- Stay dry – a wet shirt offers less UV protection than a dry one.

What does a **UPF rating mean?**

UPF stands for Ultraviolet Protection Factor and indicates how much of the sun's UV radiation will pass through unstretched, dry material.

A fabric with a rating of 50 will allow only 1/50th or 2 percent of the sun's UV rays to pass through.

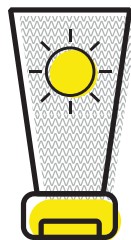


PROTECT YOUR HEAD AND FACE

Slap on **a hat**

A hat should shade your face, head, ears and neck. Look for broad brimmed hats for the best protection!

- Hats provide additional eye protection when worn with sunglasses, especially when eyewear does not cover the peripheral areas of the eyes.
- Use a brim attachment or legionnaire cover if wearing a hardhat or helmet.
- A hat with a tighter fabric is best – it will block more of the UVR.
- For a busy and active lifestyle outdoors, look for a hat that's comfortable and functional with ventilation and/or windcords.
- Hats come in a variety of fabrics, colours and styles. Choose a hat that makes you look and feel great! Hats can be for fashion and function all in one.



PREVENTION IN A BOTTLE

Slop on **sunscreen**

Use sunscreen to protect your skin not covered by clothing. Sunscreen works by absorbing or blocking UVR rays. Follow these tips to use sunscreen correctly.

Use sunscreen labelled:

- Broad spectrum (the sunscreen will protect against both types of UVR- UVA and UVB)
- SPF 30 (at least)
- Water resistant (this reduces the amount removed by sweating or swimming)

Note: Sunscreens labeled 'water resistant' in Canada must provide protection for at least 40 minutes in water. It still requires reapplication regularly.

Sunscreen Quick Tips:

- Use more than you think! The average adult requires two to three tablespoons of lotion-formulated sunscreen to cover the whole body, and a teaspoon to cover the face and neck.
- Consider using sunscreen for the lips and don't forget to apply sunscreen to commonly missed areas: ears, neck, hands and feet.
- Apply regularly.
- Use sunscreen in combination with other protection mechanisms. It's one line of defence, not the ONLY line of defence.

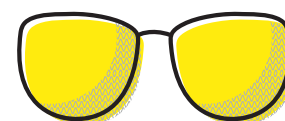


TREES ARE YOUR FRIENDS!

Seek **shade**

Seek shade or bring your own. Make use of shaded areas on the farm or consider erecting portable shade structures that can be a place for workers to rest and avoid extreme sun exposure. Not only will you stay cool and comfortable, you'll be better protected from the sun's rays. Shade can reduce exposure to UVR by 50-95%!

- When used in combination with other protective measures (clothing, hats, sunglasses and sunscreen) shade offers the best protection against UVR.
- Additional personal protection methods are recommended under shade to protect against UVR reflected off of surfaces.
- Shade can be provided by natural or constructed sources.
- Good quality shade includes dense vegetation and covered structures that offer shade from the side, not just overhead, to protect against scattered UVR.
- As a general guide, wider and denser sources of shade provide increased protection.
- Cloth sources of shade such as canopies and umbrellas should have tightly woven fabric.



COOL AND PRACTICAL

Slide on **sunglasses**

What better way to show off your style than to rock a cool pair of shades?

- The best UV protection is offered by close-fitting wraparound sunglasses.
- Look for sunglasses or prescription lenses with full UVA and UVB protection.
- Examples of appropriate labels are UV400 or 100% UV protection.
- Contact lenses, even those with UV protection, do not provide full coverage for the eye and the skin around the eye.
- Wear your sunglasses all year long to protect your eyes from direct and reflected UVR.

Shade can reduce exposure to UVR by 50-95%.



KIDS AND SUN SAFETY

Children have sensitive skin that can be damaged by exposure to UV radiation, even on cloudy days. By protecting children from too much UV radiation exposure, you can reduce their risk of developing skin cancer later in life.

The strategies that work best for protecting children from the risks of UV radiation are the same as those that work for adults. Children also learn best from your example. Health Canada recommends the following tips.

Enjoy the sun safely! Tips to protect children’s skin and eyes

Babies

- Keep babies under one year out of direct sunlight to prevent skin damage and dehydration. Never let them play or sleep in the sun.
- Do not put sunscreen on a baby less than 6 months old without asking your healthcare provider first.
- Never use baby oil to protect children from the sun. It does not block UV rays and can cause the skin to burn faster.

Children

- Plan outdoor activities with the UV index reading in mind.
- The sun’s UVB rays are strongest between 11 a.m. and 3 p.m, which is typically the hottest time of day. Unless the child is protected, keep them out of the sun during these hours.

Shadow Rule

If your shadow is taller than you are, your UV exposure is likely to be lower. If your shadow is shorter than you are, your UV exposure is high and protective measures need to be taken. The smaller your shadow, the greater the risk!

Shadow Rule from AgSafe Alberta

- In strong sunlight, have children wear a wide-brimmed, breathable sun hat and sunglasses and cover their skin with sunscreen.
- Pay close attention to the areas that are most exposed and are easy to burn, like their face, lips, ears, neck, shoulders, back, knees, and the tops of their feet.

Teens

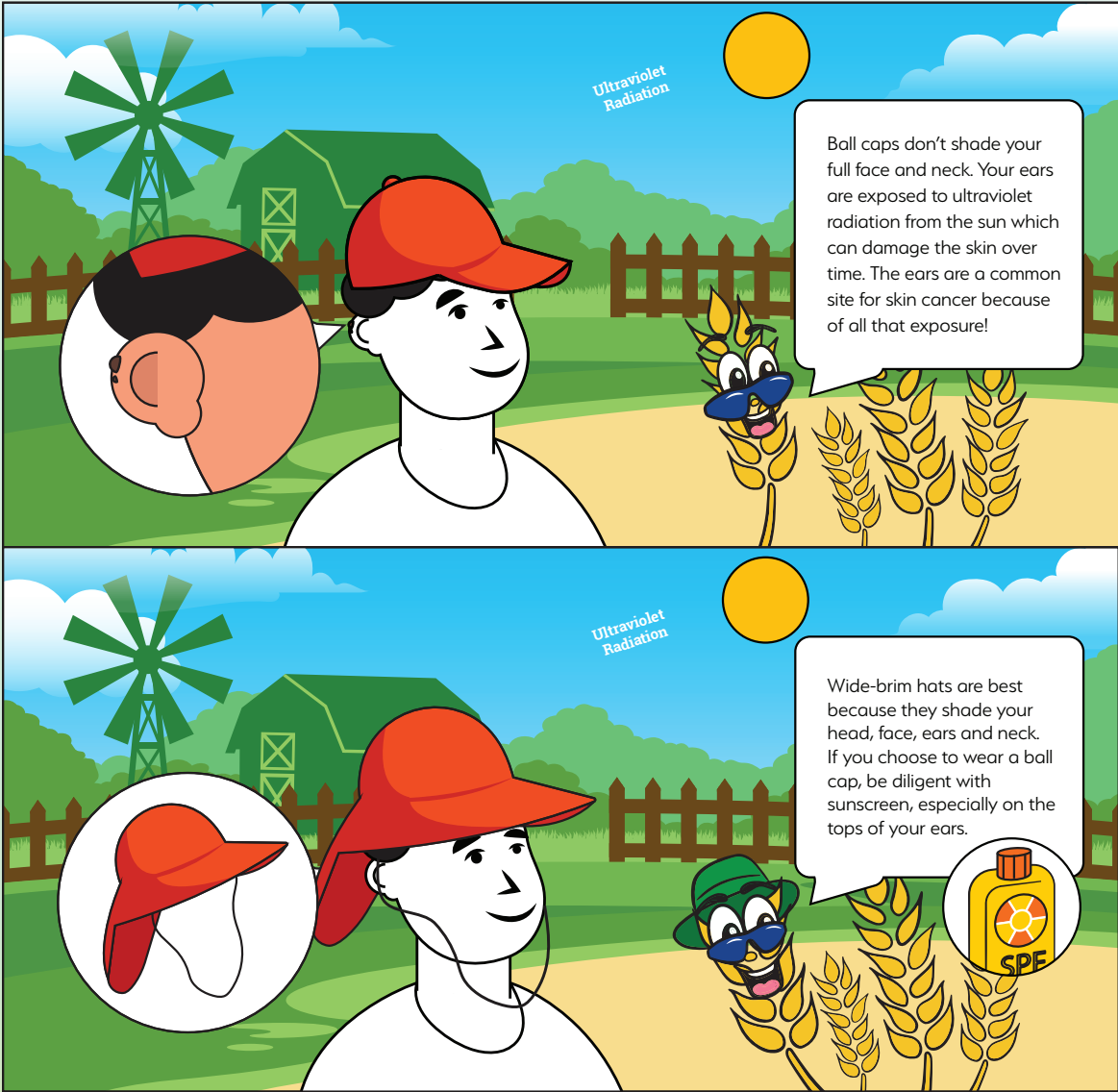
- Encourage teens to follow the sun safety tips above.
- Give teenagers sunscreen lotion if they are going to be outdoors for extended periods. Make sure they understand the importance of using it.
- Teach teens about sun safety, how to understand the UV Index, and the symptoms of sunburns and heat illness.

Upgrade Your Hat

Any hat is better than no hat, but some hats provide better protection from ultraviolet radiation from the sun than others.

Instructions:

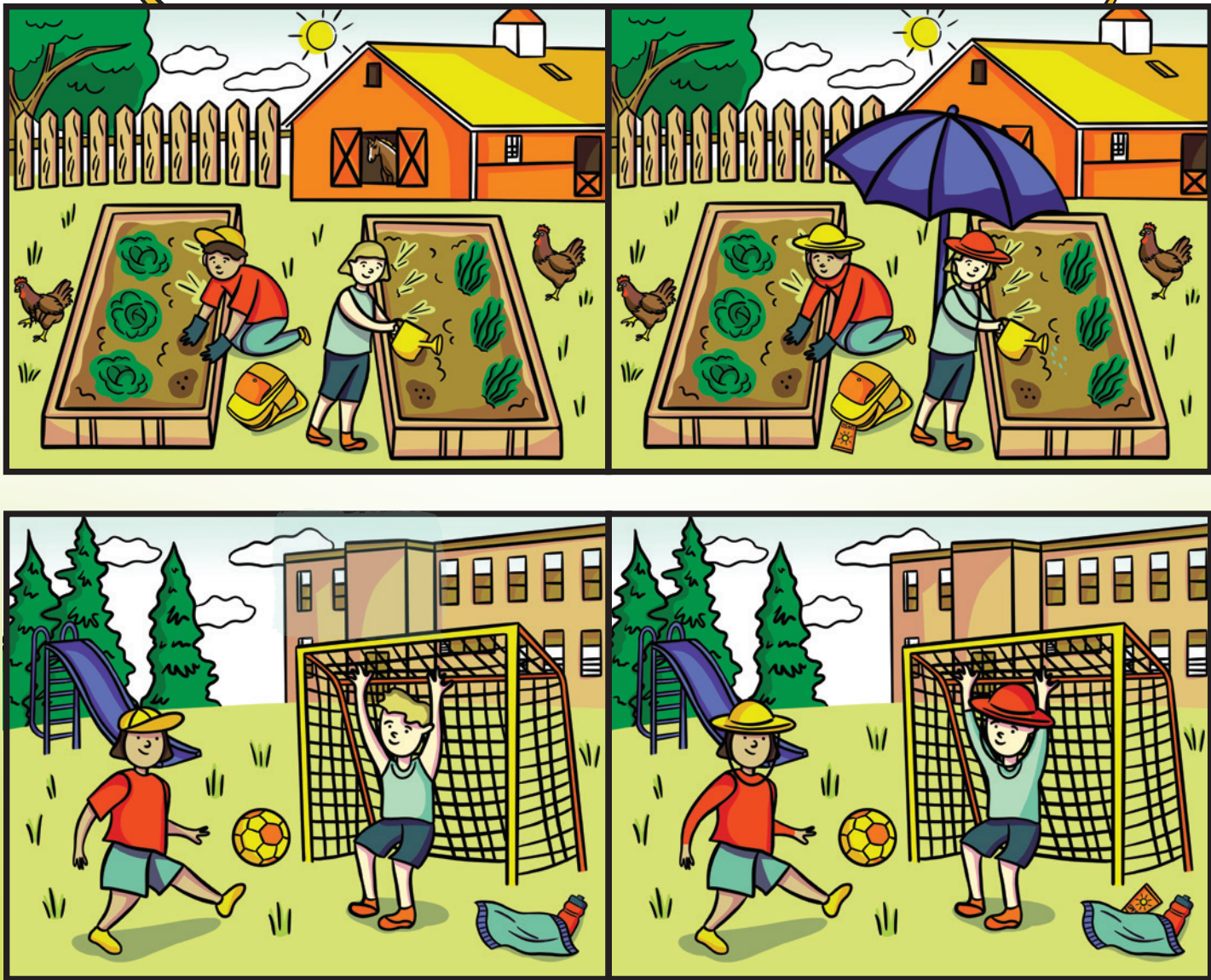
Colour or shade the areas under each hat that would be shaded and protected from the sun. What do you notice?



Circle the 11 Sun Smart differences in these scenes.

Whether at work or play, protect your skin and eyes from the sun.

Did you know the sun's rays can be strong even when it's cloudy!?



Q:
What do you call a chicken with a bad sunburn?

A:
Fried Chicken!

SUN SAFETY ON THE FARM

Safety checklist

Potential Hazard	Yes	Needs Correction	Date Corrected or Notes
Are you wearing long-sleeved shirts and pants when exposed to the sun?			
Are your hats wide-brimmed and brimmed all the way around the head, like a bucket hat?			
Have you checked your medications for increased sun risks?			
Are you using a broad-spectrum SPF 30-50 sunscreen lotion?			
Are you reapplying sunscreen every two hours, or more frequently with heavy sweating?			
Are you wearing sunglasses to protect the eyes?			
Are you checking your skin periodically and talking to your doctor about any changes you see?			
Are employees trained how to protect themselves from the sun?			
Are you scheduling work that happens in direct sunlight to avoid peak hours?			

Make sun safety part of your daily routine!



SUN SAFETY

in Agriculture



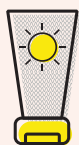
See more
resources

Make sun safety part of your daily routine and follow the **basics of sun safety:**



Slip.. on a shirt

wear long sleeves and pants if possible



Slop.. on sunscreen

reapply every 2 hours and use with other prevention



Slap.. on a hat

broad brimmed is better!



Seek.. shade

whenever possible and especially during midday



Slide.. on sunglasses

that protect from UVA and UVB rays

Check the UV Index daily to help prepare and protect yourself when working out in the field and around the farm.

UV Index

Circle today's UV index.



MINIMAL PROTECTION REQUIRED

Wear sunglasses everyday all year round.



ADDITIONAL PROTECTION REQUIRED

When the UV index is 3 or higher, protect your skin as much as possible. Seek shade, slip on clothing, slap on a hat, and slop on sunscreen!



EXTRA PROTECTION REQUIRED

Unprotected skin will be damaged and burn quickly. Use extreme caution. Avoid outdoor activities between 11am and 3pm.



Heat Exposure Awareness

Dizziness
Thirst
Heavy Sweating
Nausea
Weakness

Confusion
Dizziness
Becomes Unconscious



ACT FAST

- Move to cool area
- Loosen clothing
- Sip cool water

Seek medical attention if symptoms don't improve

ACT FAST CALL 911

- Move to a cooler area
- Loosen clothing and remove extra layers
- Cool with water or ice