



AgriSun Solutions pty ltd

INSTALLATION & APPLICATION GUIDE

**Reflective Orchard Ground
Film**

**Practical field guidance for orchard
preparation, positioning, installation,
monitoring and removal**

Better Light. Applied

1. PURPOSE OF THIS GUIDE

AgriSun Reflective Orchard Film is installed at orchard-floor level to provide a reflective surface that redirects a portion of available incoming solar radiation upward toward the orchard canopy.

Correct installation matters.

The amount and distribution of reflected light within an orchard can be influenced by the position of the material, orchard architecture, canopy structure, row orientation and other site conditions.

This guide explains the practical installation and management of AgriSun Reflective Orchard Film.

For crop- and cultivar-specific application timing, refer to the relevant **AgriSun Crop Application Guide**.

2. BEFORE YOU INSTALL

Do not begin by simply unrolling the film.

First assess the orchard and decide:

What is the objective?

Which part of the canopy are you trying to influence?

Where should the reflective surface be positioned?

Will the installation interfere with irrigation, machinery or normal orchard operations?

Before deployment, record the crop, cultivar, expected harvest period and intended application objective.

Where AgriSun is being evaluated for the first time in a block, establishing an untreated comparison area is strongly recommended.

3. PRE-INSTALLATION ORCHARD ASSESSMENT

CROP & BLOCK

Record:

- ☐ Crop
- ☐ Cultivar
- ☐ Block identification
- ☐ Tree age
- ☐ Rootstock, where relevant
- ☐ Expected harvest period

ORCHARD STRUCTURE

Assess:

- ☐ Row orientation
- ☐ Row spacing
- ☐ Tree spacing
- ☐ Tree height
- ☐ Canopy width
- ☐ Canopy density
- ☐ Training system
- ☐ Ground condition

TARGET CANOPY

Identify the part of the canopy where redirected light is intended to interact.

This may include:

- ☐ Lower canopy
- ☐ Inner canopy
- ☐ Shaded fruiting zone
- ☐ Canopy beneath protective netting
- ☐ Another defined target area

PROTECTIVE NETTING

Where present, record:

- ☐ Net type
- ☐ Net colour
- ☐ Manufacturer's stated shading specification, if available
- ☐ Net height
- ☐ Net condition

IRRIGATION

Identify:

- ☐ Drip lines
- ☐ Micro-irrigation
- ☐ Sprinklers
- ☐ Drainage routes
- ☐ Other irrigation infrastructure

OPERATIONS

Consider:

- ☐ Tractor access
- ☐ Spray operations
- ☐ Picking access
- ☐ Orchard traffic
- ☐ Mowing or vegetation management
- ☐ Other machinery requirements

WIND EXPOSURE

Identify:

- ☐ Exposed row ends
- ☐ Prevailing wind direction
- ☐ Known high-wind areas
- ☐ Open boundaries
- ☐ Areas where wind may enter beneath the film

This assessment should be completed **before deciding the final position of the film.**

The factors above reflect the orchard-assessment considerations in the existing AgriSun material.

4. CHOOSING WHERE TO POSITION THE FILM

POSITION MATTERS

There is no scientifically established universal distance from the tree trunk that is appropriate for every orchard.

AgriSun therefore does **not** prescribe an arbitrary rule such as:

“Always install the film X centimetres from the trunk.”

Orchards differ substantially.

A narrow high-density apple orchard cannot automatically use the same placement as a wide-canopy citrus orchard, stone-fruit block or pear orchard.

Before deciding on placement, consider:

- tree height,
- canopy width,
- row spacing,
- tree spacing,
- row orientation,
- training system,
- target canopy,
- protective netting,
- irrigation,
- machinery access,
- ground condition,
- wind exposure.

THE OBJECTIVE

Position the reflective material so that redirected light can interact with the **intended portion of the canopy**, while allowing the orchard to continue functioning safely.

Published research comparing reflective ground-cover systems supports the importance of film position and orchard architecture in determining canopy-light interaction.

AgriSun's existing technical material therefore correctly avoids prescribing one universal trunk distance.

5. FILM WIDTH & GROUND COVERAGE

More reflective surface does not automatically mean a better biological or commercial result.

Film width and coverage should be considered together with:

- row width,
- canopy dimensions,
- sun angle,
- target canopy,
- machinery requirements,
- irrigation,
- and orchard architecture.

The practical objective is not simply to cover as much ground as possible.

It is to create an appropriately positioned reflective surface for the intended orchard application.

6. PREPARE THE ORCHARD FLOOR

Before unrolling the film, inspect the deployment area.

Remove or manage objects likely to:

- puncture or tear the film,
- prevent it from lying adequately on the ground,
- interfere with anchoring,
- or cover substantial areas of the reflective surface.

Pay attention to:

- sharp branches,
- pruning material,
- stones or sharp objects,
- heavy vegetation,
- irrigation fittings,
- uneven areas,
- standing water.

The orchard floor does not need to be perfectly smooth.

The aim is to provide a practical deployment surface without obvious hazards that could unnecessarily damage or obstruct the material.

7. CHECK IRRIGATION & DRAINAGE

Before installation, identify all irrigation infrastructure.

DO NOT:

- obstruct drip emitters,
- prevent inspection of important irrigation components,
- interfere unnecessarily with micro-irrigation,
- block drainage routes,
- deliberately create areas where irrigation or rainwater can accumulate.

Film placement should allow the orchard's normal irrigation system to continue functioning.

Check the installation again after the first irrigation cycle following deployment.

Look for:

- unexpected pooling,
- movement of the film,
- soil or mud washing onto the surface,
- obstruction of irrigation components.

Your existing guide specifically states that film placement should not unnecessarily interfere with irrigation or block required drainage routes.

8. STEP-BY-STEP INSTALLATION

STEP 1 — CONFIRM THE TREATMENT AREA

Before opening the roll, confirm:

- ☐ Correct orchard block
 - ☐ Correct row
 - ☐ Correct treatment area
 - ☐ Planned film position
 - ☐ Machinery access
 - ☐ Irrigation position
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STEP 2 — POSITION THE ROLL

Place the roll at the beginning of the intended deployment area.

Orient the roll so that it can be unrolled efficiently without unnecessary twisting or dragging.

STEP 3 — CONFIRM THE REFLECTIVE SIDE

REFLECTIVE SURFACE FACES UPWARD.

Confirm orientation before proceeding down the row.

STEP 4 — BEGIN UNROLLING

Unroll the material progressively along the intended area.

Avoid unnecessarily dragging the material over sharp or abrasive surfaces.

STEP 5 — ALIGN THE FILM

Position the material according to the orchard plan.

Avoid unnecessary:

- folds,
- twists,
- large raised sections,
- and areas where wind can readily enter underneath.

The aim is to maintain an exposed reflective surface while allowing normal orchard operations to continue.

These deployment steps follow the existing AgriSun installation instructions.

9. ANCHORING

SECURE THE FILM FOR THE ORCHARD CONDITIONS

Reflective orchard film must be adequately secured.

Wind exposure differs substantially between orchards.

Pay particular attention to:

ROW ENDS

The beginning and end of the installation can be particularly exposed.

FILM EDGES

Loose edges can allow wind to travel underneath the material.

EXPOSED AREAS

Give additional attention to sections exposed to prevailing winds or open orchard boundaries.

CHANGES IN GROUND PROFILE

Ensure the material remains appropriately secured where ground conditions change.

10. HOW FAR APART SHOULD ANCHORS BE?

AgriSun does **not** prescribe one universal anchor spacing.

Required anchoring depends on:

- wind exposure,
- soil type,
- film width,
- film position,
- orchard configuration,
- terrain,
- and the anchoring system being used.

The installation must be sufficiently secure to prevent excessive lifting or movement without unnecessarily damaging the material.

This is intentionally site-specific rather than an unsupported fixed-distance instruction.

11. WIND MANAGEMENT

Wind should be considered **before installation**, not only after the film starts lifting.

BEFORE INSTALLATION

Identify:

- prevailing wind direction,
- exposed row ends,
- open boundaries,
- wind corridors,
- and known high-wind sections.

AFTER INSTALLATION

Inspect anchoring after:

- strong winds,

- heavy rain,
- significant irrigation events where relevant,
- machinery operations,
- or any visible film movement.

IF THE FILM BEGINS TO LIFT

Do not ignore it.

Inspect:

1. Where wind is entering.
2. Whether an edge has become exposed.
3. Whether anchors have moved.
4. Whether the film has torn.
5. Whether the installation needs additional securing.

Correct the underlying problem rather than repeatedly repositioning the same loose section.

12. KEEP THE REFLECTIVE SURFACE EXPOSED

Anything covering the reflective surface reduces the area available to interact with incoming radiation.

Regularly inspect for:

- soil,
- mud,
- leaves,
- grass,
- cut vegetation,
- pruning material,
- orchard debris,
- standing water.

AgriSun does not prescribe a universal cleaning schedule because orchard conditions differ.

CLEAN WHEN CONDITIONS REQUIRE IT.

Inspection frequency should reflect local conditions.

The source installation material specifically identifies soil, mud, leaves, grass, pruning debris and standing water as potential surface obstructions.

13. VEGETATION MANAGEMENT

Vegetation should not be allowed to substantially cover the reflective surface.

Manage orchard vegetation according to the farm's normal ground-management programme.

Take care when:

- mowing,
- brush cutting,
- applying mechanical weed management,
- or moving equipment close to the film.

Avoid unnecessary damage to the material.

14. MACHINERY & ORCHARD OPERATIONS

Installation must not create an unsafe obstruction to normal orchard operations.

Before deployment consider:

- tractor wheel paths,
- sprayer access,
- picking operations,
- bins,
- ladders,
- mowing,
- irrigation maintenance,
- and other routine machinery.

IMPORTANT

Do not operate machinery over or immediately around an installation if doing so creates an unsafe condition.

Where necessary, modify the film position or orchard operation before proceeding.

15. PROTECTIVE SHADE & HAIL NETS

Reflective ground film may also be evaluated in orchards beneath protective netting.

Netting changes the orchard radiation environment.

Reflective film performs a different function by redirecting a portion of radiation reaching the orchard floor.

Where the technologies are combined, record:

- ☐ Net type
- ☐ Net colour
- ☐ Manufacturer's shading specification, if available
- ☐ Net height
- ☐ Cultivar
- ☐ Canopy architecture
- ☐ Film position
- ☐ Film coverage

IMPORTANT

Reflective film does **not** replace protective netting.

For detailed research and application considerations, refer to:

AgriSun Technical Guide — Reflective Film Under Shade & Hail Nets.

16. DURING-USE MONITORING

Reflective orchard film should not simply be installed and forgotten.

INSPECT THE INSTALLATION

Monitor:

- ☐ Anchoring
- ☐ Wind movement
- ☐ Film alignment
- ☐ Tears or damage
- ☐ Surface cleanliness
- ☐ Standing water
- ☐ Irrigation operation
- ☐ Vegetation
- ☐ Machinery interaction

MONITOR THE ORCHARD

Depending on the crop and application objective, monitor:

- ☐ Fruit condition
- ☐ Fruit colour
- ☐ Fruit exposure
- ☐ Canopy condition
- ☐ Ambient conditions
- ☐ Fruit-surface temperature where appropriate
- ☐ Sunburn symptoms
- ☐ Fruit maturity

Where AgriSun is being trialled against an untreated area, use the same observation method in both areas wherever practical.

17. HIGH TEMPERATURE & SUNBURN

Reflective film changes the orchard radiation environment.

It should **not** be represented as a sunburn-prevention treatment.

Sunburn risk can be influenced by:

- solar radiation,
- fruit-surface temperature,
- cultivar,
- fruit exposure,
- canopy architecture,
- previous acclimation,

- irrigation status,
- and weather conditions.

When introducing reflective film into a high-temperature or high-radiation orchard, particularly in a new cultivar, monitor fruit condition carefully.

DO NOT USE AMBIENT TEMPERATURE ALONE

Fruit-surface temperature can differ from surrounding air temperature.

AgriSun therefore does not prescribe a universal air-temperature threshold at which reflective film must be removed.

For detailed information refer to:

AgriSun Technical Guide — Apple Sunburn & High-Temperature Management.

18. AFTER EXTREME WEATHER

Following:

- strong wind,
- heavy rain,
- unusually high temperatures,
- significant irrigation events,
- or severe weather,

inspect the installation.

Check:

- ☐ Anchoring
- ☐ Film position
- ☐ Tears
- ☐ Mud/soil accumulation
- ☐ Standing water
- ☐ Irrigation
- ☐ Fruit condition

Correct problems where practical before continuing the application.

19. HARVEST

Reflective film does not replace normal harvest-maturity assessment.

Continue the crop's normal maturity programme.

Depending on the crop, this may include measurements such as:

- skin colour,
- soluble solids,
- firmness,
- starch index,
- acidity,
- fruit condition,
- and other commercial maturity criteria.

Do not delay or advance harvest solely because reflective film has been installed unless supported by the grower's normal harvest assessment.

Where conducting a trial, compare treated and untreated fruit using the same assessment criteria wherever practical.

20. REMOVAL

At the end of the intended application period:

STEP 1

Confirm that the film is no longer required for the application.

STEP 2

Remove anchoring materials safely.

STEP 3

Collect the film progressively to avoid unnecessary tearing or dispersal.

STEP 4

Remove loose pieces of film and anchoring material from the orchard.

STEP 5

Inspect the orchard floor.

Ensure irrigation, drainage and normal orchard operations can continue unobstructed.

STEP 6

Assess the material condition.

Where reuse is intended and appropriate for the particular material, inspect its condition before storage.

Do not assume material is suitable for reuse merely because it remains visually intact.

21. TROUBLESHOOTING

FILM IS LIFTING

Check anchoring immediately.

Identify where wind is entering beneath the film.

Re-secure according to local conditions.

FILM HAS MOVED OUT OF POSITION

Reposition it where safe and practical.

Inspect the anchoring system and determine why movement occurred before continuing.

MUD OR SOIL IS COVERING THE FILM

Check the source.

Possible contributors include:

- irrigation,
- drainage,
- rain,
- orchard traffic,

- soil movement.

Restore exposure of the reflective surface where practical without unnecessarily damaging the film.

WATER IS COLLECTING

Inspect:

- film position,
- ground profile,
- irrigation,
- drainage.

Do not intentionally obstruct orchard drainage.

VEGETATION IS COVERING THE FILM

Manage vegetation according to the orchard's normal ground-management programme while avoiding unnecessary film damage.

FILM IS TORN

Assess:

- extent of damage,
- remaining anchoring,
- whether the film is still adequately positioned,
- remaining application period.

Repair or replace according to the scale of the damage and practical requirements.

MACHINERY CANNOT OPERATE SAFELY

Stop the affected operation.

Modify the installation or machinery route before proceeding.

FRUIT SHOWS POSSIBLE HEAT OR SUNBURN SYMPTOMS

Compare the treated area with an untreated area where available.

Record:

- fruit exposure,
- fruit-surface temperature where possible,
- ambient conditions,
- irrigation status,
- location of symptoms,
- severity.

Seek appropriate horticultural advice where necessary.

Do not automatically assume that reflective film is either the cause or the solution without appropriate assessment.

These troubleshooting instructions are directly aligned with the existing AgriSun guide.

22. QUICK FIELD CHECKLIST

BEFORE INSTALLATION

- ☐ Crop and cultivar confirmed
 - ☐ Production objective defined
 - ☐ Expected harvest recorded
 - ☐ Crop-specific timing checked separately
 - ☐ Orchard layout assessed
 - ☐ Target canopy identified
 - ☐ Irrigation identified
 - ☐ Drainage considered
 - ☐ Netting recorded
 - ☐ Wind exposure assessed
 - ☐ Machinery access checked
 - ☐ Sunburn history considered
 - ☐ Control area established where appropriate
-

INSTALL

- ☐ Correct block and rows
 - ☐ Orchard floor prepared
 - ☐ Reflective surface facing upward
 - ☐ Film correctly positioned
 - ☐ Film aligned
 - ☐ Edges secured
 - ☐ Row ends secured
 - ☐ Irrigation functional
 - ☐ Drainage unobstructed
 - ☐ Machinery access maintained
 - ☐ Installation photographed
-

MONITOR

- ☐ Anchoring
 - ☐ Wind movement
 - ☐ Film position
 - ☐ Surface cleanliness
 - ☐ Irrigation
 - ☐ Drainage
 - ☐ Vegetation
 - ☐ Film damage
 - ☐ Fruit condition
 - ☐ High-temperature events
 - ☐ Sunburn symptoms
-

HARVEST

- ☐ Normal maturity testing continued
 - ☐ Treated/control fruit compared where applicable
 - ☐ Results recorded
 - ☐ Photographs taken
-

AFTER USE

- ☐ Anchors safely removed
- ☐ Film collected

- ☐ Loose material removed
- ☐ Orchard floor checked
- ☐ Irrigation clear
- ☐ Drainage clear
- ☐ Material condition assessed

This checklist is supported by the field checklist in your existing draft.

23. IMPORTANT USE NOTICE

AgriSun Reflective Orchard Film is a light-management product.

Agricultural responses can vary according to crop, cultivar, climate, orchard architecture, canopy management, film placement, timing, irrigation and seasonal conditions.

Published research conducted with one material, crop, cultivar or orchard system should not automatically be assumed to produce the same result in another orchard.

AgriSun does not guarantee that reflective orchard film will:

- increase yield,
- increase fruit size,
- increase soluble solids (°Brix),
- improve fruit colour,
- advance harvest,
- reduce sunburn,
- improve export pack-out,
- or produce a particular financial return.

Where the product is being introduced into a new crop, cultivar, orchard system or production environment, a controlled comparison with untreated trees or rows is recommended before large-scale deployment.

24. RELATED AGRISUN TECHNICAL GUIDES

For more detailed crop-specific information, refer to:

AgriSun Apple Application & Timing Guide

AgriSun Sweet Cherry Application Guide

AgriSun Peach, Nectarine & Plum Guide

AgriSun Pear Application Guide

AgriSun Citrus Application Guide

AgriSun Reflective Film Under Shade & Hail Nets

AgriSun Apple Sunburn & High-Temperature Management Guide

AgriSun Orchard Trial Protocol

AgriSun Scientific Research Compendium

AGRISUN REFLECTIVE SOLUTIONS

Better Light. Applied With Evidence.

Practical application. Responsible claims. Research-informed orchard light management.