

Australian Truffle Industry Association

“The National Voice for the Australian Truffle Industry”



TruffleCare™ Industry Best Practice Program Elements

TruffleCare™ is a whole of supply chain continuous improvement, best practice program that is based on the successful Australian Olive Industry's Code of Best Practice.

TruffleCare™ is being made available this winter truffle season in a 'Test and Trial' Pilot Program.

The TruffleCare™ 'Test and Trial' Pilot Program encompasses a selection of the following seven (7) key business risk management elements (Sections), matched to participant roles in the supply chain, and is initially focusing on the sustainable production and marketing of Australian mature-ripe black truffles (*Tuber melanosporum*):

Section 1: Enterprise Sustainability & Truffière Management Best Practice

Supported by a checklist of best practice elements aiming to foster sustainable production of high quality truffles, improved enterprise productivity and profitability, including truffle species verification and inoculum testing.

Section 2: Food Quality Requirements

Supported by an ATIA sensory training workshop to ensure harvested truffles meet product quality requirements including verification of truffle maturity & determining objective best before dates.

Section 3: Environmental & Biosecurity Requirements

Including implementing an on-farm biosecurity plan to ensure on-farm biosecurity awareness and preparedness - supported by an ATIA biosecurity plan template.

Section 4: Product Packaging, Labelling & Distribution Requirements

Ensuring truffle products comply with packaging and labelling requirements - supported by an ATIA product labelling guide, and checklists.

Section 5: Regulatory Requirements

Including fostering an industry culture of compliance with Australian Product Standards, FSANZ Food Standards Code and Australian Consumer Law (ACL) - supported by an ATIA regulatory compliance checklist.

Section 6: Food Safety Requirements

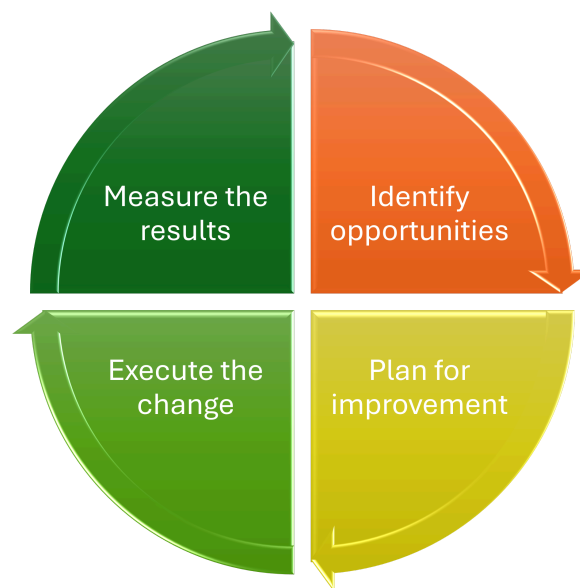
Including preparing a food quality / food safety plan and implementation of on-farm safe chemical use protocols - supported by an ATIA food quality / food safety plan template, and safe chemical use checklists and signatory declarations.

Section 7: Product Traceability & Recall Requirements

Including the use of unique batch code and implementing product traceback protocols - supported by product distribution and traceability, truffle storage and shelf-life checklists.

Continuous Improvement Cycle

TruffleCare™ signatories (participants) are not expected to be initially proficient or compliant in all program areas, rather they are encouraged to undertake ATIA accredited training programs and work systematically towards achieving full compliance over time. TruffleCare™ truly embraces the continuous improvement cycle, supporting all participants and all industry stakeholders to foster industry best practice.



Continuous Improvement Cycle

Enterprise Sustainability & Truffière Management

Let's take a closer look at Section 1: Enterprise Sustainability & Truffière Management Best Practice.

Growing truffles is not enough. In a high-cost producer country such as Australia with rapidly increasing truffle production, it is essential that truffle producers are able to compete on product quality rather than on price, by delivering high quality truffles that meet and exceed consumer quality and sensory experience expectations.

Consistently producing high quality truffles that meet the minimum quality parameters of the Australian Industry Standard for Truffles (ATIA 2023-draft), in sufficient volume to have a sustainable business, involves attention to detail from best practice truffière

establishment and management, through to timely harvest of mature-ripe truffles, accurate grading to the Standard, as well as best practice product handling, packaging and marketing.

Factors that impact on the quality and quantity of harvested truffles and truffière productivity are well established:

Verify host tree and truffle inoculum status

Non-commercial ectomycorrhizal fungi can outcompete or replace Australian Black Truffle (*Tuber melanosporum*) on host tree roots, resulting in reduced or contaminated yield. To ensure earlier truffle production and to maximise truffière productivity, it is important to grow only approved truffle species (and avoid contamination of truffle inoculum with inferior truffle species).

Note: Truffle producers, graders and marketers must be able to positively identify the truffle fruiting body species for product labelling purposes.

Note: Black Winter Truffle (*Tuber brumale*) was previously introduced to Australia, and whilst not widely grown or marketed, may pose a threat to the Australian industry, as it is frequently found as a contaminant in black truffle orchards across Europe, New Zealand and Eastern Australia, where it can be an aggressive competitor to *T. melanosporum* (depending on soil pH).

Note: Asian Truffles (*Tuber indicum*, *T. sinense* and *T. himalayense*) are inferior exotic truffle species prohibited from importation to Australia and all are listed as having medium overall risk to the Australian truffle industry in the PHA Biosecurity Plan for Truffles. Noting *Tuber indicum* is exported from China in large quantities to European markets because of its low price, whilst they look like *Tuber melanosporum*, but have no aroma, they are frequently mixed with and sold as *T. melanosporum*.

A major concern for truffle growers is the contamination of their crop from competing ectomycorrhizal fungi. Many Australian trees including eucalypts, wattles and blackwoods and many introduced trees including willows, poplars and pines host ectomycorrhizal fungi which colonise the roots of inoculated truffle trees and replace the truffle fungus. Ectomycorrhizal fungi can also be transported by grazing animals. For this reason, it is highly recommended that the truffière and irrigation water sources are fenced to prevent animals from having access to commercial tree plantings.

Manage truffière soil structure, moisture, nutrition and health

Truffles need friable, moist and well drained soils, with high limestone content (optimum pH is 7.5 - 8.3) - it is recommended to continuously monitor soil moisture.

Manage pests, diseases and weeds

It is important to manage both host trees and the truffle fungus. For oak and hazelnut host trees, the experience of established truffle growers is that these trees are generally disease and pest free. The use of insecticides and fungicides on the trees is avoided - unless absolutely necessary as the chemicals may have a detrimental effect on the truffle fungus.

Effective weed control in the brulé zone is also important and developing a weed control strategy is considered essential to managing a truffière. It is also important to remove excessive leaf litter from deciduous host trees from the brulé zone which will serve to minimise habitat for invertebrate pests, and reduce pest

damage to truffles.

Truffle rot is a serious problem in truffières around the world, contributing causes include the presence of pathogenic fungi such as *Trichothecium crotoicinigenum*, poor drainage / over watering and exposure of the truffle at the soil surface.

Manage the truffière canopy

In particular with hazelnut host trees which throw suckers and are very vigorous, producing excessive shade which will impact on truffle mycelium growth and formation of fruiting bodies - manage tree height and canopy density.

Avoid damage to truffle fruiting bodies in the brulé zone

Damage to the truffle fruiting bodies can result in poor quality truffles. Damage can be caused by disease, insect pests, feral animals, and environmental factors including drought and frost, and orchard machinery. It is therefore important to undertake timely harvest and avoid soil compaction in the truffle growing zone.

Avoid harvesting immature truffles

Always check the truffle for mature-ripe aroma and colour development before lifting (truffle dogs will be able to smell immature truffles, so harvesters need to be trained not to mark or lift these truffles before assessing).



Upcoming Newsletters

In future TruffleCare™ Newsletters we will provide details on the other proposed elements of the TruffleCare™ program including elements relevant to truffle graders, consolidators and marketers, and we will also include details on the Australian Quality Standard for Truffles in a future Newsletter.

We will also provide updates on the 'Test and Trial' TruffleCare™ Pilot Program that is currently underway. It is, however, not too late to express your interest and join the Pilot Program this season.

Apply Now

THANK YOU FOR SUPPORTING OUR INDUSTRY

I would like to acknowledge the ATIA Best Practice Sub-Committee, including TruffleCare™ Administrator, Peter McFarlane, for their ongoing work on this important project.

On behalf of the Best Practice Sub-Committee, I extend many thanks and a warm welcome to the participants who have joined the 'Test and Trial' Pilot Program to date. We look forward to working with you closely as we bring the program to life, and as we include your experiences and feedback in the continuous improvement of the program.

Katherine Faull
President
Australian Truffle Industry Association

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