

NZTA website FAQ's.

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What are truffles?

Truffles are the fruiting bodies of ectomycorrhizal fungi which live on and around the roots of certain types of trees. Unlike other types of mushrooms which grow above ground and produce wind-dispersed spores, truffles fruit below ground, having evolved to produce strong chemical aromas when mature. These aromas are a truffle adaptation which attract and entice certain forest animals to locate and consume them. The truffle spores are dispersed through the forest when they pass through the animal's digestive system.

What is ectomycorrhizal?

The term ectomycorrhizal is used to describe the combined host tree root/fungus structure of truffles and some species of mushroom. Mycorrhizas are the structures which enable the symbiotic (mutually beneficial) relationship between the host tree and the fungus to be formed. The fungus physically extends and enhances the tree root system's ability to access soil trace elements, in particular phosphorous, and in exchange, the tree supplies the fungus with carbohydrate derived from photosynthesis, enabling truffle fruiting.

Which tree species are grown as truffle host trees?

Many different tree species can be used as truffle host trees. In New Zealand these have included:

Hazel nut *Corylus avellana*, Common/English oak *Quercus robur*, Holm oak *Quercus ilex*, Turkey oak *Quercus cerris*, Stone pine *Pinus pinea*, Maritime pine *Pinus maritimus* and *Pinus radiata*.

Are all truffles the same?

No. Although there are many species of truffle only a small number are sought after for culinary use and have commercial value. These are *Tuber magnatum* Pico (Italian White), *Tuber melanosporum* Vitt. (Perigord black), *Tuber borchii* Vitt. (Bianchetto) and *Tuber aestivum* Vitt. (Burgundy or summer truffle). Although the many different species of truffle have broad similarities in the way they grow and collectively share some of the multiple volatile chemical compounds responsible for truffle aroma, there

are also many significant differences between species. These include ecological range (climate/temperature), fruiting season, size, colour, appearance, aroma, taste, use and commercial value. *Tubers melanosporum*, *borchii* and *aestivum* truffle infected tree seedlings are available in NZ.

How big are truffles?

The average size range of Perigord black truffles is typically around 30-60g but very large fruiting bodies up to 1 Kg (150mm diameter) may occasionally be produced. Although experience in NZ is limited, Burgundy truffles are likely to have similar size characteristics.

The average size range of bianchetto truffles is smaller, typically 5-20g (walnut to egg size), but exceptional fruiting bodies up to 140g (orange size) have also been produced in NZ.

Where have truffles been produced in NZ?

It is estimated that there are around 30 productive truffière in NZ. These are located between the Bay of Plenty and Invercargill. There are many more truffière established throughout NZ which are not yet producing truffles.

How long does it take for a truffière to begin to produce truffles?

Under favourable conditions, Perigord black infected trees may begin to produce truffles in 5 years but may take many more years. Bianchetto may begin to produce after 4 years. Truffle growing is high risk. For reasons that are not understood, prospective growers should note that it is also possible that truffle-infected tree seedlings may never produce truffles.

How can I find out whether my site is suitable for growing truffles?

It is recommended that potential truffle growers seek professional technical advice in assessing site suitability for truffle growing. Climate, soil type and the presence of potentially contaminating fungi on any nearby trees are some of the key factors which may determine the future success or otherwise of a truffière development. Selecting to grow the truffle species best suited to your site will improve the chance of success. The Perigord black requires high soil pH (minimum 7.8) whereas bianchetto fruit at lower soil pH between 6.5 and 7.3. In each case this can be the natural pH of the soil or pH modified by the addition of large but precise quantities of lime. Burgundy truffles can be grown in acidic soils (pH < 7.0) without the need to add lime.

There must be reasonable summer warmth without excessive moisture for Perigord black to fruit. Bianchetto and Burgundy truffles will fruit in a cooler climate. With the exception of Ashburton which

has warmer summer temperatures than Christchurch, to date there has been no black truffle production further south than Waipara in North Canterbury.

What does it cost to establish a truffière?

Up to about NZ\$35,000/hectare depending on how much you are able to do yourself. This includes site assessment and soil testing, site preparation including addition of lime, fencing, irrigation, tree protection and truffle infected tree seedling purchase (400).

How much work is involved in managing a truffière and what will I have to do?

Truffle growing is similar to other horticultural cropping in that it can involve many hours of outdoor physical work at various times throughout the year, in all weathers. Waiting passively for truffles to begin to produce is probably not going to produce the best results. To be successful, the truffière is likely to require close ongoing maintenance and management including monitoring to maintain tree health, soil pH and trace element levels, applying top-up lime and trace elements, pest and disease control, mowing or herbicide control of groundcover, pruning, irrigation, and record keeping.

If truffles begin to produce you will also need to search and harvest, keep records, clean, check, grade, pack and courier truffles, as well as manage sales and marketing.

Do I have to own my own truffle dog?

No, but you may prefer to. Competent truffle dog search services are now available in NZ but relying on these will increase your costs. This may suit growers in the early stages of production as not many visits will be required. However if you are harvesting larger quantities of truffle each season you may find working your own dog is more cost effective, convenient, and rewarding. Be aware however, that there are also significant costs in dog acquisition, training and ownership. Professional search services can potentially provide growers with more experienced or highly trained dogs, essential back-up in the event that you lose your own dog unexpectedly, and a check on your own dog's performance.

What size is the truffle market?

Due to declining European truffle yields and strong international demand, the global market for truffles is large. There is potential to export to multiple markets including from southern to northern hemispheres outside the European truffle season.

The NZ domestic market for truffle is not large and it is not known exactly when truffle production in NZ will be sufficient to satisfy demand. Current total truffle production in NZ is not known but is estimated to be 100-200 Kg/yr.

Where can I taste or buy truffles?

Fresh truffle can be enjoyed on the seasonal menus of an increasing number of NZ's best restaurants, hotels and lodges. To purchase fresh truffle, please refer to the list of NZTA member truffle producers.

What price do NZ truffles sell for?

The highest price paid for a New Zealand truffle is reported to be equivalent to NZ\$9,000/Kg. Farm gate prices for Grade A Perigord black and bianchetto are around NZ\$3,000 - \$4,000 plus GST/ Kg.

What are the benefits of New Zealand Truffle Association membership?

Meet and learn from other growers, NZ and international truffle experts. Enjoy reduced member rates for annual Conference, Field Tours and Gala Truffle Dinner attendance. Receive annual updates on the rapidly developing Australian truffle industry. Receive regular newsletters and information about latest truffle and mushroom research. Gain access to information resources in the NZTA website members' area. Receive invitations to workshops, regional meetings and other training and information opportunities as they arise. Contribute toward the development and influence the direction of the NZ truffle growing industry.