American Truffle Company sets two new world firsts with harvest of Périgord black truffle

The American Truffle Company's (ATC) Dr. Paul Thomas has just set two world firsts: the first to successfully cultivate and harvest Périgord black truffles in the farthest north region that the species has ever been found, and the first of such harvest in the UK. Similar scientific cultivation methodologies have been applied to ATC's American truffle orchards that were established a few years behind the UK. The success and predictability of this scientific approach demonstrated by the latest UK black truffle harvest suggest that Dr. Thomas' scientific methodologies can reliably produce black truffles in non-native regions outside of the Mediterranean, including North America. This bodes extremely well for our community of truffle orchard client-partners.

Dr. Thomas, working with farmers in Monmouthshire in South Wales, has successfully cultivated and harvested the Périgord black truffle for the first time in the UK. The results of this finding were reported in the journal Climate Research, and included analysis by Dr. Thomas and his colleagues from the University of Cambridge.

After years of waiting, the truffle was harvested in March 2017 by a trained dog named Bella, found on the root system of an oak tree that had been inoculated with the truffle fungus. Further DNA analysis confirmed that Bella's find was indeed a Périgord black truffle (*Tuber melanosporum*), which are normally confined to regions with a Mediterranean climate. However, their Mediterranean habitat has been severely impacted by long-term climate change, and yields have been falling while the global demand continues to rise. According to Dr. Thomas, the global truffle industry is projected to be worth $6.09 billion annually in the next 10-20 years.

Black truffles grow below ground in a symbiotic relationship on the root system of trees in soils with high pH. They are naturally found mostly in northern Spain, southern France and northern Italy, where they are sniffed out by trained dogs or pigs. While they can form naturally, many truffles are cultivated by inoculating oak or hazelnut seedlings with spores and planting them in chalky soils. Even through cultivation, there is no guarantee that truffles will grow, as there is substantial amount of science required. Without access to and use of the requisite science, truffle orchards routinely fail over 98% of the time. In partnership with local farmers, Dr. Thomas and the University of Stirling have been cultivating truffles in the UK for the past decade. In 2015, Dr. Thomas successfully cultivated Burgundy truffles, which had been produced in the UK. This is the first time, however, the more valuable black Périgord truffle has been cultivated in such a northern and maritime climate. Its host tree is an oak that was inoculated with truffle spores, and the surrounding soil was made alkaline by treating it with lime.

"Since the system is underground, we couldn't see how truffles are affected by different environmental conditions, or even when the best time to water them is. There's been no science behind it until now, so progress is slow," said paper co-author Professor Ulf Büntgen of Cambridge's Department of Geography. "This is arguably the best flavored truffle species in the world and the potential for industry is huge," said Thomas. "We planted the trees just to monitor their survival, but we never thought this Mediterranean species could actually grow in the UK–it's an incredibly exciting development."

From (clockwise): Dr. Paul Thomas, nursery, Bella the trained truffle dog, and Harvester with trained dogs

The researchers have attributed the fact that black truffles are able to grow so far outside their native Mediterranean habitat to climate change. Such climate change will only continue to erode native European production of Périgord black truffles while production from the rest of the world, including North America, will become more and more important.

"This cultivation has shown that the climatic tolerance of truffles is much broader than previously thought, but it's likely that it's only possible because of climate change," said Thomas. "While truffles are a very valuable crop, together with their host trees, they are also a beneficial component for conservation and biodiversity."

The first UK-harvested black truffle, which weighed 16 grams, has been preserved for posterity, but in the future, the truffles will be distributed to restaurants in the UK, similar to ATC's North American distribution of domestically-grown Périgord black truffles, similar to ATC's North American distribution of domestically-grown Périgord black truffles.