

## From the Farm to Your Plate

### Digging Up the Secrets of Black Diamonds

The process of delivering truffles to the consumer is more involved than the average person may realize. Truffles are an *interesting* delicacy.

Why are they considered delicacies? The bliss molecule is a little known fact about the chemical makeup of truffles.

Black diamonds are the nickname given to truffles<sup>1</sup> - no, not the chocolate! Truffles are an underground fungus or more commonly known in the food world as

a mushroom.<sup>2</sup> It would make sense for these truffles to have scent of “a combination of newly plowed soil, fall rain, burrowing earthworms and the pungent memory of lost youth and old love affairs.” as described by Josh Ozersky.<sup>3</sup> There are two

types of truffles: black truffles, which are most heavily grown in Périgord, France,<sup>4</sup> and white truffles which are most heavily grown in Alba, Italy.<sup>5</sup> The average price for a pound of black truffles is \$1585 to \$3170.<sup>5</sup> And back



Black truffles are more common than white truffles. (The Atlantic)



White truffles are more expensive than black truffles. (The Atlantic)

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<sup>1</sup> “Just a couple of shavings of black truffles from France - known as black diamonds - can cost hundreds of dollars in a restaurant in Paris.” CBS

<sup>2</sup> “Yes, they're underground fungus, yes.” CBS

<sup>3</sup> Writing in *Time*, food writer Josh Ozersky once described its scent as “a combination of newly plowed soil, fall rain, burrowing earthworms and the pungent memory of lost youth and old love affairs.” The Atlantic

<sup>4</sup> “and Périgord, France (home to the best winter blacks)” Ibid.

<sup>5</sup> “Top black winter truffles go for between €1,500 to €3,000 per kilogram.” Ibid.

in December, a 3.93lb white, Italian truffle was auctioned off in NYC for \$50,000.<sup>6</sup> Yes, you read that right! Chocolate truffles at \$5 a box are sounding really good right now.

So what's the big deal and why are truffles so expensive? For a truffle to be considered a "good truffle", you need great weather conditions: high rainfall and low temperatures. Because of current changes in climate and the



The Balestra family found this white truffle weighing in at 3.93lbs. (The New Yorker)

fact that man cannot produce these great conditions, there is a low supply and high demand, which contributes to the high price.<sup>7</sup> Truffle farmers actually don't do much work to harvest the fungus but their trained dogs do. They use their keen smelling ability to find and dig up ripe truffles,<sup>8</sup> most likely at the base of an oak tree. Pigs are also able to dig up these wild mushrooms but have a tendency to eat them.<sup>9</sup> Truffles are their most valuable when they are fresh, so they usually are delivered to the buyers very quickly.<sup>10</sup> From the ground to a restaurant is a fast process, which involves careful inspection of each



Dogs are the most effective way for truffles to be found due to their sensitive noses. (The Atlantic)

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<sup>6</sup> "Several days later, the mayor of West Haven, Connecticut, where Sabatino has its U.S. headquarters, had been called upon to witness its Guinness World Records weigh-in—3.93 pounds, down from an astonishing 4.16 pounds when it was discovered, in the Umbria region of Italy. (The truffle had lost some of its water weight in the intervening week.)... Six seconds later, Brad—a Sotheby's employee acting for a Taiwanese phone bidder—raised it to fifty thousand. The auctioneer spent a fruitless and slightly uncomfortable forty seconds attempting to persuade someone to bid against Brad, before lowering his hammer." The New Yorker

<sup>7</sup> "Experts like him believe climate change has contributed to this decline. Lower rainfall means less water is showering trees and soil, where fungi flourish. Increasing temperatures have spurred surface evaporation, meaning even less water is reaching tree roots." The Atlantic

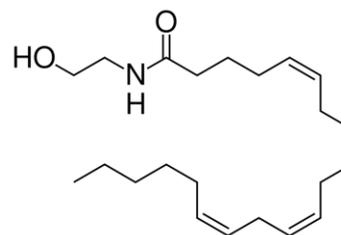
<sup>8</sup> "In the beautiful Italian province of Perugia, truffle hunters roam the frosty hills with their trained dogs, who sniff out these lumpy mushrooms when they're ripe, one at a time, as they have for centuries." CBS

<sup>9</sup> "Truffles grow wild, underground, usually at the base of an oak tree. They used to use pigs, but they ate the truffles." Ibid.

<sup>10</sup> "The real culprit is travel time. Truffles are extremely perishable and the delivery channels from China to Europe are notoriously slow, which means the tubers often arrive in poor condition. "They smell very badly," Le Tacon said. "Sometimes, they are rotten." The Atlantic

truffle to make sure it is an authentic European truffle.<sup>11</sup> Although all truffles look the same on the outside, the inside is what matters. Chinese also harvest truffles and often sell their truffles at a European price.<sup>12</sup> However, because they rake their truffles out of the ground, there is no way to tell if they are ripe or not.<sup>13</sup> French chef Bruno, says this causes the Chinese truffle to have “no taste and no smell” compared to a French truffle.<sup>14</sup> Some of the most wealthy truffle connoisseurs claim their European truffles are the best. Olga Urbani, the owner of her truffle business *Urbani*, says “It's the truffle itself. It's like eating a piece of wood.”<sup>15</sup>

There is a molecule called anandamine that is found in black truffles.<sup>16</sup> Anandamine is named from the Sanskrit word, “ananda” meaning extreme pleasure or bliss.<sup>17</sup> This molecule is given the nickname the “bliss molecule” because it is related to pain, mood, and memory.<sup>18</sup> Anandamine has a similar chemical makeup to tetrahydrocannabinol (THC) which is found in marijuana. The



The molecular structure of the “bliss molecule”, which is similar to THC. (BBC)

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<sup>11</sup> “On the day we were at the Urbani factory, sorters found a number of Chinese truffles mixed in with that day's purchases. They were separated out into specially marked red baskets. More and more, Chinese truffles are slipped in with the good French or Italian strains. Experts say it's like cutting flour into cocaine.” CBS.

<sup>12</sup> “Food importers and middle men are bringing 28 tons of Chinese truffles into France a year. And many are being passed off as the real thing in some French restaurants. Michel Tournayre says he's brought home some slices from his dinners out and studied them under a microscope in his lab at home to check their origin. Tournayre has tried to blow the whistle on the restaurants that sell Chinese truffles at French prices, but the police have more important matters on their plate and rarely do anything about it.” Ibid

<sup>13</sup> “She says that's because of the way truffles in China are farmed. Unlike in France, where dogs smell when a truffle is ripe, the Chinese rake at the earth with no dogs - as a CBS News producer in China discovered - and harvest the truffles the minute they find them. Which explains why - while the two truffles look the same - the price is drastically different.” Ibid

<sup>14</sup> Bruno: “The Chinese truffle is worthless. No-- no-- no taste, and no smell.” Ibid.

<sup>15</sup> “Olga Urbani may be the only person in the world who goes truffle hunting in a full-length fur coat and a Caribbean tan, but in the truffle business, she can pretty much do what she wants. Her company, Urbani, controls 70 percent of the world's truffle trade.” Ibid.

<sup>16</sup> “Mauro Maccarrone, of the Campus Bio-Medico University of Rome, Italy, and colleagues have revealed the highly-prized fungi produce anandamide” BBC

<sup>17</sup> “Its name comes from “ananda”, the Sanskrit word for extreme delight or bliss” Ibid.

<sup>18</sup> “Some scientists call the compound the bliss molecule because of its role in mood, appetite, memory, pain, depression and fertility. Its name comes from “ananda”, the Sanskrit word for extreme delight or bliss.” Ibid.

effects are the same as marijuana<sup>19</sup> but because anandamine breaks down so quickly, it doesn't make a big difference in the body.<sup>20</sup> Anandamine has a lock and key sort of method, where receptors attach to surface cells.<sup>21</sup> Truffles produce anandamine but do not have the receptors which are needed to "lock" onto it to cause effects.<sup>22</sup> Interestingly enough, animals, such as dog or pigs have these receptors, or keys, which attract them to the truffles.<sup>23</sup>

Truffles have a special process to be delivered to your plate and a special chemical makeup. Truffles are one of the most expensive foods in the world; a pound of French black diamonds would cost you at the least \$1500. Europeans work hard to deliver the best of the best and to keep the Chinese truffles out. Black truffles contain anadamine or commonly know as the "bliss molecule", which may be a factor as to why the truffle is loved so much. "Very rich American people they only see truffles on the table of a very elegant restaurant. They don't see this. Now you know why they are expensive, right?" says Olga Urbani. Appreciate your food, whatever it may be, or whatever it may contain. If you go to Urbani.com you can order 1oz of some fresh Italian black truffles for *only* \$95!

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<sup>19</sup> "...a compound that triggers the release of mood-enhancing chemicals in the human brain, and does so using the same biological mechanism as tetrahydrocannabinol (THC), the chemical responsible for producing the mind-bending effects of marijuana." Ibid.

<sup>20</sup> "The high generated when someone takes cannabis is the result of THC activating cannabinoid receptors. By acting on the same receptors, anandamide can trigger mood changes but does not generate a comparable high because it breaks down quickly in the body." Ibid.

<sup>21</sup> "In humans, just like other brain signalling chemicals, the compound triggers changes by locking onto receptors on the surfaces of target cells - like a key fitting into a lock." Ibid

<sup>22</sup> "The researchers were intrigued when their tests revealed the truffles had the means to make anandamide and contained the chemical but did not have the receptors to which it binds and that would allow it to trigger effects." Ibid.

<sup>23</sup> "This suggests they do not make anandamide for themselves," said Maccarrone. "Our interpretation is that they make it to attract animals that do have these receptors, and to stay on the truffle and keep on eating, so that the truffle's spores are spread over a wider area." Ibid.