Labor Savings
Typically, sixteen 1.3 lb. plastic bottles are placed in a single plastic tray for ease of handling. Trays allow easy automation of bottle filling, inoculation, palletizing, harvest preparation and substrate removal. Simple roller conveyors can be used extensively throughout the facility. All of this adds up to incredible labor savings, not to mention a lot less strain on the bodies and backs of staff. A fully automated machine line can process 4000-8000 bottle per hour, and two people can complete a day's processing with only a few hours of machine time. In fruiting rooms, bottles are quickly handled and picked resulting in very little waste.

Space Efficiency
The design of the bottle filter cap lets one tray stack atop another. Trays can be palletized in incubation rooms, eliminating the need for shelving and dramatically increases incubation density. More mushrooms can be grown per cubic foot of space and a farm can immediately increase its production capacity. Pallets are transported by forklift or pallet jack. In harvest rooms, trays can be stacked on most any type of shelving and several space-saving designs allow for very efficient use of square footage.

Bioefficiency, Versatility & Predictability
Throughout the development of the bottle system, experiments have been conducted to determine the best size container for optimum bioefficiency. Although large volumes produced larger crops (and sometimes bigger mushrooms) by virtue of higher substrate volumes, the bio-efficiency of production (mushrooms produced per unit of substrate) is generally highest in bottles with 800cc-1100cc volumes.
While not all mushrooms achieve their optimum bioefficiency in the same sized bottle, most varieties can be effectively grown from one size. Bottle growers can vary substrate mixtures readily as long as particle sizes and moisture-holding capacities of ingredients are kept in mind. As is the case with most production methods, when market demand drops, fruiting may be delayed by holding bottles in incubation a bit longer.
The bottle size also results in the ability to produce highly marketable, retail-pack-size mushroom clusters. Each bottle uniformly produces approximately the same quantity within the same time period -- helping the grower to achieve a predictability of harvest that is so necessary in today's market.

Reusable, Recyclable Containers Reduce Costs and Waste
Bottles are designed to be used countless times for many years -- an environmentally friendly choice. After mushrooms are harvested, substrate is mechanically removed from the bottles. The result is a loose, granular spent medium without the remains of plastic bags contaminating it. Bottles are generally made of durable polypropylene, so are recyclable. Although more expensive at start-up, bottles end up saving money. A single bag can cost anywhere from $0.10-$0.30, with an average cost of $0.12-$0.14 when purchased overseas or domestically in volume. For illustration sake, we can equate 4 bags to 16 bottles (1 tray). The cost of 1 tray, 16 bottles and 16 caps is approximately $9.00, but these can be used perhaps 50 times or more: $9.00/50 = $0.18 per fruiting. The corresponding 4 bags (one-time use) will cost $0.40-$1.20 per fruiting, a very significant cost difference.

Disease Control
Most bottle farmers use a one-time fruiting regimen to their advantage. Quick cycling of crops minimizes contamination and insect problems and makes organic production very feasible. Efficiencies of bottle systems make the one-flush treatment cost effective. Even so, if desired, varieties such as Oyster and Nameko will readily yield a second or even third crop. While the compact nature of bottle systems are well suited to any farm, good facility design that takes into account product flow will also help reduce disease risks.

Case Study: Large Oyster Farm -- 8,000-10,000 lbs. per week
A similar example was given in the recent ad, but the costs cited were ***more than $300,000 too high***. The example was described as, "a typical commercial farm." While this farm size may be common in Japan, we all know that there are very few producers in the US cultivating such tonnage. With the bottle system, it is well within reach, requiring less than 8 hours of equipment time each day and costs are easily amortized on a farm of this big.

Bottles:	234,000	$ 82,000
Caps:	156,000	$ 27,000
Trays:	14,625	$ 28,000
Equipment:		$140,000
TOTAL		$277,000

Case Study: Small Oyster Farm -- 300-400 lbs. per week

Start-up and small operations can also take advantage of bottle technology without high cash outlay. This system uses semi-automatic machines and requires more individual bottle handling than the system in the first example. Equipment may be upgraded or added on to in response to market growth.

Bottles:	9,600	$ 3,400
Caps:	6,400	$ 1,100
Trays:	600	$ 1,200
Equipment:		$ 29,000
TOTAL		$ 34,700

Japanese innovation and quality is recognized throughout the world, in their automobiles, cameras, watches, televisions, etc. The bottle system is no exception to this general rule. It has revolutionalized specialty mushroom production and is even expanding to Shiitake production. Its efficiency allows competitive production, giving growers the ability to stave off cheap imports from China, Korea and other countries. Bags have been good and we have utilized and enjoyed them for years, but when we investigated the capabilities of bottle systems, the choice was obvious.