

**MUSHROOMS IN THE
FOODSERVICE CHANNEL**

EXECUTIVE SUMMARY

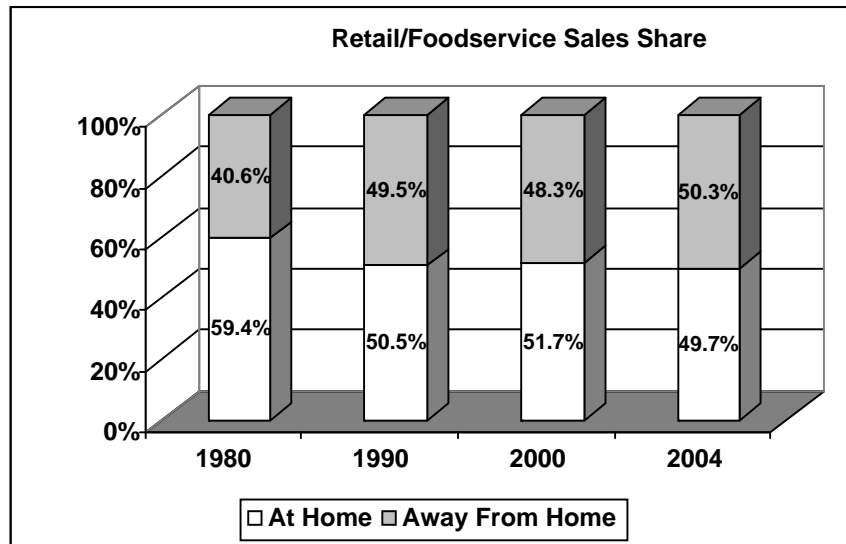
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BACKGROUND

Since 1980, the per capita consumption of mushrooms has been increasing. This increase in mushroom consumption can be seen in the retail channels as well as in foodservice, or food prepared away from home. Consumer dollars spent on food away from home now exceeds that for food at home with foodservice reaching \$483.5 billion in 2005. The percent of meals, however, along with the related food volume is about 77% of meals consumed at home with the remaining 23% consumed away from home (NPD).



Source: USDA 2006

Multi-segmented Channel

The foodservice channel is multi-segmented with significant differences existing between the segments in the types of food, menu design, methods of preparation and cooking, serving, transportation, etc. Thus, while the foodservice channel is often considered to be one, it is actually made up of many segments and sub-segments. The economics of these segments also vary. For-profit or commercial segments that include restaurants place greater emphasis on food and labor costs and, of course profitability. Institutional or non-commercial segments offer food as part of a larger service, e.g., schools, healthcare, etc. and thus are less concerned about profitability, albeit this is changing as foodservice becomes a profit center for some institutions.

Servicing the foodservice channel is a system of distributors that take title to the merchandise purchased and resell to the various industry segments. While fresh produce has been and still is a separate foodservice distribution system, "broadline distributors", e.g., Sysco, that control much of the distributor system offer one-stop foodservice operator purchasing of dry grocery, frozen, and fresh foods, including produce.

In order to better understand the importance of the foodservice channel and provide information to develop mushroom marketing strategies and tactics to its members, the Mushroom Council completed several market research projects during 2005-2006. These various studies are summarized in this executive summary with the full data made available on the Mushroom Council website.

FOODSERVICE CHANNEL SIZE AND SEGMENTATION

FOODSERVICE INDUSTRY 2005 (\$ BILLIONS)

| | Retail Food Sales (Equivalent) | | Operator Food Purchases | | Units/ Contact Points | Average Purchases Per Unit | |
|--------------------------------|---|--------------|-------------------------------|--------------|-----------------------------|----------------------------------|------------------|
| | \$ | % | \$ | % | | % | |
| Commercial | | | | | | | |
| Restaurants & Bars | | | | | | | |
| Limited Service | \$164.2 | 34.0 | \$46.0 | 27.6 | 278,381 | 30.7 | \$165,177 |
| Full Service | 145.5 | 30.0 | 43.6 | 26.2 | 253,943 | 28.0 | 171,943 |
| Bars & Taverns | 1.8 | 0.4 | 0.7 | 0.4 | 39,500 | 4.4 | 16,481 |
| Total | \$311.5 | 64.4 | \$90.3 | 54.2 | 571,824 | 63.1 | \$157,863 |
| Retail Hosts | | | | | | | |
| Supermarket F/S | \$19.9 | 4.1 | \$9.3 | 5.6 | 34,252 | 3.8 | \$272,451 |
| C-Stores | 16.8 | 3.5 | 5.9 | 3.5 | 58,300 | 6.4 | 99,480 |
| All Other Retail | 5.4 | 1.1 | 2.2 | 1.3 | 40,900 | 4.5 | 53,325 |
| Total | \$42.2 | 8.7 | \$17.4 | 10.5 | 133,452 | 14.7 | \$130,413 |
| Travel & Leisure | | | | | | | |
| Recreation | \$14.1 | 2.9 | \$4.9 | 3.0 | 36,200 | 4.0 | \$135,884 |
| Lodging | 16.8 | 3.5 | 6.7 | 4.0 | 23,792 | 2.6 | 283,164 |
| Airlines (000) | 2.2 | 0.5 | 0.8 | 0.5 | 21 | * | 37,333.3 |
| Total | \$33.1 | 6.8 | \$12.4 | 7.5 | 60,013 | 6.6 | \$207,289 |
| Non-Commercial | | | | | | | |
| Business & Industry | | | | | | | |
| | \$20.9 | 4.3 | \$10.5 | 6.3 | 35,352 | 3.9 | \$295,768 |
| Education | | | | | | | |
| School Systems | \$14.5 | 3.0 | \$7.3 | 4.4 | 16,342 | 1.8 | \$443,361 |
| Colleges (000) | 10.6 | 2.2 | 4.6 | 2.8 | 4,168 | 0.5 | 1,107,965 |
| Total | \$25.1 | 5.2 | \$11.9 | 7.1 | 20,510 | 2.3 | \$578,400 |
| Healthcare | | | | | | | |
| Hospitals | \$7.1 | 1.5 | \$3.5 | 2.1 | 5,850 | 0.6 | \$603,590 |
| Nursing Homes | 6.1 | 1.3 | 3.0 | 1.8 | 16,491 | 1.8 | 183,433 |
| Total | \$13.1 | 2.7 | \$6.6 | 3.9 | 22,341 | 2.5 | \$293,452 |
| All Other | | | | | | | |
| Vending/Office | | | | | | | |
| Coffee (000) | \$26.0 | 5.4 | \$11.7 | 7.0 | 9,000 | 1.0 | \$1,301,889 |
| Military (000) | 3.6 | 0.7 | 1.8 | 1.1 | 425 | * | 4,183,529 |
| Other | 7.9 | 1.6 | 4.0 | 2.4 | 53,050 | 5.9 | \$74,665 |
| Total | \$37.2 | 7.8 | \$17.5 | 10.5 | 62,475 | 6.9 | \$280,112 |
| TOTAL | \$483,458 | 100.0 | \$166,445 | 100.0 | 905,967 | 100.0 | \$183,721 |

* Less than .05%

Source: Technomic, Inc., J. M. Degen & Company, Inc.

METHODOLOGY

Four market research studies serve as input for this executive summary:

Assessment of Fresh Mushrooms in the Foodservice Channel, Technomic, Inc., April-August 2005. Completion of the Technomic project led to a related study titled:

Fresh Mushroom Opportunity and Market Projection, Restaurant Marketing Group, December 2005-February, 2006

Foodservice Cold Chain Analysis, Sensitech, September, 2005-January, 2006

Improving Mushroom Returns in Foodservice Through Distributor Best Practices, Willard Bishop, June, 2006

FOODSERVICE MUSHROOM MARKET SIZE

- 58% of foodservice operators use fresh mushrooms, 25% canned and 7% frozen
- The highest usage is in full-service restaurants (79%) and pizza restaurants (62%)
- The 2004 size of the foodservice fresh mushroom market is estimated at 356MM pounds
- Full-service restaurants account for 59% of mushroom volume or 210MM pounds
- Whole mushrooms are used by 78% of operators and account for 58% or 208MM pounds, 38% use pre-cut mushrooms while 4% use marinated
- White mushrooms are used by 67% of operators and account for 76% or 271MM pounds
- The Western region represents 32% or 114MM pounds with 70% of operators using

Much of the foodservice mushroom segment volume is inversely proportionate to the structure of total retail sales in the industry. For example, while pizza restaurants only account for 5% of foodservice industry retail sales, pizza restaurants account for 22% of mushroom volume used.

TOTAL FRESH MUSHROOM FOODSERVICE MARKET BY OPERATOR SEGMENT

| Operator Segment | Mushroom Volume | | | Share of F/S Industry Sales |
|-----------------------------|-----------------|-------------------|------------|--------------------------------|
| | % Using | Volume MM Lbs. | % Share | |
| Limited-Service Restaurants | 38 | 24.9 | 7 | 23 |
| Pizza Restaurants | 62 | 77.1 | 22 | 5 |
| Full-Service Restaurants | 79 | 210.0 | 59 | 25 |
| Travel & Leisure | 40 | 18.0 | 5 | 7 |
| Business & Industry | 45 | 10.2 | 3 | 6 |
| Education | 23 | 5.0 | 1 | 7 |
| Healthcare | 42 | 7.5 | 2 | 4 |
| All Other Foodservice | N.A. | 3.3 | 1 | 23 |
| TOTAL | 58 | 356.0 | 100 | 100 |

N.A. Not available

Source: Technomic, Inc.

Existing menu items containing mushrooms average 7 or 15% of all menu items. Mushrooms are the featured ingredient in 2 or 13% of the 7 menu items containing mushrooms.

| MUSHROOM MENU ITEMS | | | | |
|-----------------------------|------------------------------|-------------------------------------|--|--|
| Operator Segment | # of Total Menu Items | # of Menu Items w/ Mushrooms | Share of Menu items w/Mushrooms | # of Items Mushrooms w/Mushrooms As Feature |
| | # | # | % | # |
| Limited Service Restaurants | 44.5 | 4 | 9 | 2 |
| Pizza Restaurants | 40 | 10 | 25 | 1 |
| Full Service Restaurants | 45 | 6 | 13 | 2 |
| Travel & Leisure | 40 | 10 | 25 | 2 |
| Business & Industry | 35 | 4 | 11 | 2 |
| Education | 75 | 12 | 16 | 2 |
| Healthcare | 50 | 5 | 10 | 2.5 |
| TOTAL AVERAGE | 47 | 7 | 15 | 2 |

Source: Technomic, Inc.

Regionality

The West is the largest mushroom using region accounting for 32% of overall volume. This is in contrast to the West only representing 22% of total foodservice sales. Conversely, the South represents 35% of foodservice industry sales but only accounts for 24% of foodservice mushroom volume.

FOODSERVICE FRESH MUSHROOM VOLUME BY REGION

| Region | % Using | Mushroom Volume | | Share of F/S Industry Sales |
|---------------|----------------|------------------------|----------------|------------------------------------|
| | | MM Lbs. | % Share | |
| Northeast | 64 | 67 | 19 | 18 |
| South | 53 | 85 | 24 | 35 |
| Midwest | 54 | 90 | 25 | 25 |
| West | 70 | 114 | 32 | 22 |
| TOTAL | 58 | 356 | 100 | 100 |

Source: Technomic, Inc.

Fresh Mushroom Forms Used

Whole fresh mushrooms are used most often in foodservice (78%) with pre-cut fresh mushrooms used by 38% of operators. Pre-cut mushrooms are almost totally white with pizza restaurants and healthcare operators most likely to use pre-cut white mushrooms. In general, the ratio of whole to pre-cut fresh mushrooms is the same across all regions (80%/40%) except in the Midwest where whole is used by 68% of operators and pre-cut by 55%.

Grade #2 whole white mushrooms are used by 64% of operators with 25% also using Grade #1 small white mushrooms and 25% using Grade #1 large. Eleven percent (11%) use jumbo stuffer mushrooms. Some 83% of operators use Grade #1 pre-sliced fresh mushrooms.

**FRESH MUSHROOM FORMS USED
BY FOODSERVICE INDUSTRY SEGMENT**

| Operator Segment | Whole | Pre-Cut | Pre-Marinated | Pre-Cooked to Spec. |
|-----------------------------|--------------|----------------|----------------------|----------------------------|
| | % | % | % | % |
| Limited Service Restaurants | 65 | 41 | 9 | 3 |
| Pizza Restaurants | 48 | 57 | 4 | 0 |
| Full-Service Restaurants | 88 | 26 | 2 | 0 |
| Travel & Leisure | 88 | 32 | 6 | 0 |
| Business & Industry | 78 | 41 | 4 | 0 |
| Education | 88 | 33 | 0 | 0 |
| Healthcare | 75 | 57 | 8 | 0 |
| TOTAL | 78 | 38 | 4 | <1 |

Source: Technomic, Inc.

Not surprising, full-service restaurants are most likely to use a wide variety of fresh whole mushroom forms. However, other segments including travel & leisure, business & industry and education that includes colleges & universities are also likely to use multiple forms of fresh whole mushrooms.

**FRESH WHOLE MUSHROOMS USED
BY OPERATOR SEGMENT**

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby Bellas | Enoki | Woodear |
|-----------------------------|--------------|-------------------|-----------------|---------------|--------------------|--------------|----------------|
| | % | % | % | % | % | % | % |
| Limited Service Restaurants | 57 | 17 | 7 | 3 | 3 | 0 | 3 |
| Pizza Restaurants | 48 | 8 | 0 | 0 | 0 | 0 | 0 |
| Full-Service Restaurants | 72 | 57 | 39 | 24 | 17 | 7 | 7 |
| Travel & Leisure | 73 | 51 | 34 | 14 | 10 | 10 | 9 |
| Business & Industry | 61 | 44 | 27 | 13 | 20 | 7 | 7 |
| Education | 80 | 47 | 27 | 13 | 20 | 7 | 7 |
| Healthcare | 62 | 40 | 13 | 9 | 9 | 5 | 5 |
| TOTAL | 67 | 39 | 21 | 11 | 11 | 4 | 6 |

Source: Technomic, Inc.

Some 79% of operators using fresh portabella mushrooms use whole portabellas, while 27% specify caps, 12% specify baby portabellas and 3% specify cubes.

HISTORICAL GROWTH

Over the past three years, foodservice fresh mushroom volume has grown by about 3%. This growth, however, is not even across all varieties with white mushrooms only growing at 1% but other varieties growing at a much higher rate.

**THREE YEAR COMPOUND ANNUAL VOLUME GROWTH
OF FOODSERVICE FRESH MUSHROOMS**

| | Average Annual Compound Growth |
|--------------|---|
| | % |
| White | 1.0 |
| Brown* | 7.0 |
| Shiitake | 6.0 |
| All other** | 14.0 |
| TOTAL | 3.0 |

* Portabella, baby bellas
 ** Oyster, enodi, woodear
 Source: Technomic, Inc.

Focusing on usage, operators indicate a 26% increase in white mushroom usage. Allowing for those estimating a decrease in use over the past two years, the net increase for white mushroom usage is +22%. Portabella net usage is up a net of 23%, baby bellas +21% and shiitake +17%.

Whole mushroom usage is up a net of +24% over the past two years while pre-cut use increased by a net of +16% and pre-marinated by +15%.

**TWO YEAR USAGE
OF FOODSERVICE FRESH MUSHROOMS**

| | Increased | Decreased | Net |
|----------------|------------------|------------------|------------|
| | % | % | % |
| White | 26 | 4 | +22 |
| Portabella | 31 | 8 | +23 |
| Shiitake | 22 | 5 | +17 |
| Baby Bellas* | 25 | 4 | +21 |
| Oyser* | 9 | 12 | -3 |
| Enoki | 7 | 14 | -7 |
| Woodear* | 7 | 13 | -6 |
| Whole | 27 | 3 | +24 |
| Pre-cut | 20 | 4 | +16 |
| Pre-Marinated* | 23 | 8 | +15 |

* Small base
 Source: Technomic, Inc.

Reasons operators cite for the growth in mushroom volume growth include: New menu items with mushrooms, growth in overall business, increased consumer demand for mushrooms and

mushrooms added to existing menu items or new menu items added containing mushrooms. Stuffed mushroom menu items and steak/meat dishes were mentioned as growing the fastest.

REASONS FOR MUSHROOM VOLUME INCREASE

| | Whole | Pre-Cut |
|--|--------------|----------------|
| | % | % |
| Added new menu items calling for mushrooms | 29 | 22 |
| Growth in overall business | 33 | 46 |
| Greater consumer demand for mushrooms | 20 | 18 |
| Added mushrooms to existing menu items | 20 | 10 |
| Increased sales of menu items containing mushrooms | 19 | 12 |

Source: Technomic, Inc.

MENU ITEMS CONTAINING MUSHROOMS

| | New Menu Added w/ Mushrooms | Existing Menu w/Mushrooms Added | Current Menu Items w/Mushrooms w/Sales Increases |
|-------------------|------------------------------------|--|---|
| | % | % | % |
| Stuffed Mushrooms | 36 | 15 | 34 |
| Italian Foods | 23 | 21 | 19 |
| Steak/Meat Dishes | 21 | 32 | 31 |
| Vegetarian Foods | 18 | 21 | 13 |
| Chicken dishes | 11 | 21 | 16 |
| Soups | 3 | 12 | 6 |

Source: Technomic, Inc.

DISTRIBUTION

White mushrooms, portabella mushrooms, whole and pre-sliced mushrooms are almost universally available through foodservice distributors. Virtually all distributors have seen over the past two years an increase in the sales volume of white, portabella and the shiitake varieties.

DISTRIBUTION OF FRESH MUSHROOMS

| Variety | % Offering |
|----------------|-------------------|
| White | 100 |
| Portabella | 85 |
| Shiitake | 58 |
| Baby Bellas | 38 |
| Oyster | 23 |
| Woodear | 15 |
| Enoki | 8 |
| Whole | 100 |
| Pre-Sliced | 92 |
| Marinated | 19 |

Source: Technomic, Inc.

Distributor Best Practices

Key findings regarding best practices of distributors carrying fresh mushrooms include:

1. Best-practice broadline distributors carry five-seven mushroom varieties and forms. Half of the varieties and forms generate 82% of sales. Fewer than five varieties and forms result in up to 45% lost sales and profit opportunities. More than seven varieties and forms raise the sales and incremental profit opportunities.

Varieties listed in order of priority include: white medium whole, white sliced, button, portabella, specialty, pieces/stems.

2. Best-practice regional distributors carry products in three-to-four mushroom varieties and forms. One-fourth of these mushroom varieties and forms provide 80% of sales volume.

Varieties listed in order of priority include: white medium whole, portabella, white sliced.

3. Best-practice broadline distributors carry between seven-twelve SKU's. Over 80% of sales and gross profit dollars come from the top 12 category items.

SKU's include: white medium 10#, white button 10#, white sliced 10#, white sliced 5#, specialty 10#, foodservice white 10# and portabella 5#.

4. Best-practice regional distributors carry four or more SKU's with one item in each core variety and form before increasing the size of the variety or form offering.

SKU's include: white medium 10#, white button 10#, specialty 10# and Foodservice White 5#.

5. All best-practice distributors--broadline and regional--carry portabellas. Portabellas contribute 13% more profit dollars than sales dollars to distributors. Portabellas account for 10% of total mushroom sales and about 12% of gross profit dollars.

6. All best-practice distributors make personal service a top priority which leads to sales and profitability. Service oriented distributors (those providing operators with special add-on services such as overnight service, etc.) experienced one-third the shrink than that of price-oriented distributors.

7. Operators look for consistency when selecting a foodservice distributor either broadline or regional. In particular this includes consistent product temperature upon delivery for which they will pay more.

Cold Chain Management

The perishability of fresh mushrooms can lead to distributor and operator dissatisfaction with the product and the fresh mushroom supplier as well as increase cost due to spoilage. With an optimum temperature range of 31°F-41°F, adhering to a close tolerance is not easy. Yet, such adherence is critical for customer satisfaction throughout the foodservice channel from shipper to the operator's kitchen. This is particularly true of shelf life.

| Storage Temperature (°F) | Shelf Life (Days) |
|--------------------------|-------------------|
| 32 | 7-14 |
| 35 | 7 |
| 40 | 2 |

In a cold-chain study conducted in 2005 monitoring 138 fresh mushroom shipment temperatures from the fresh mushroom shipper through a chain restaurant's distribution center to the individual chain restaurant units, temperature variations were significant. Virtually all of the shipments (99%) experienced time over 41°F. The average amount of time the shipments spent above 41°F was 24.2 hours. Forty-three (43) shipments spent over 30 hours above 41°F, 17 shipments over 50 hours above 41°F and 4 shipments spent over 100 hours above 41°F.

| Event Type | Mushroom Supplier to Distribution Center % | Distribution Center to Restaurant % | Restaurant Kitchen % |
|-------------------------|--|-------------------------------------|----------------------|
| % Occurrence below 31°F | 0 | 9 | 4 |
| % Occurrence above 41°F | 43 | 98 | 67 |

Source: Sensitech

The time above 41°F was observed throughout the distribution process but was primarily at the chain restaurant's distribution center and at the individual restaurant location. Improved management of the foodservice mushroom cold chain can be accomplished at all three critical distribution points:

Supplier: The majority of 43% of above 41°F events that occurred while fresh mushrooms were in control of the supplier is a direct result of not pre-cooling the mushrooms and/or the trailer to within specifications prior to shipment. Refrigerated trailers are not designed to cool produce to the desired temperature; they are designed to maintain it. Other typical issues include using an improper set point of the trailer refrigeration unit and setting the refrigeration unit to the inappropriate refrigeration mode. Setting the trailer refrigeration mode to the "fuel saving" mode can create nearly constant fluctuations in temperature of up to 10°F. Also, loading pallets against the wall of the trailer allows heat to be conducted into the pallets and inhibit air circulation. Centerline (of wall) loading patterns are recommended and trailers should be pre-cooled at least 30-60 minutes as well as checking the trailer walls to ensure the set point temperature has been reached prior to loading.

Chain Restaurant Distribution Center: During this study, 98% of the shipments experienced above specification temperature events while the fresh mushrooms were at the DC and during transportation to the restaurant. This is significantly higher than the 30% experienced by Sensitech in other food industry studies. Warm docks with extended staging times while the product is both inbound and outbound, difficulty delivering several product SKU's that require several different trailer set points, a lack of appropriate trailer pre-cooling, and not following the appropriate trailer loading patterns leads to this type of temperature abuse. In addition to above temperature events, some 9% were below temperature occurrences while the product was being delivered to the individual restaurants. A common cause of colder temperatures during transport to restaurants is leakage of cold air through the bulkhead from the frozen to the fresh section of multi zone trailers. Loading freezing sensitive items away from the bulkhead will help to alleviate this situation.

Restaurant: Some 67% of the shipments experienced above specification temperature events while the fresh mushrooms were stored at the restaurants. The most common causes of this type of abuse is the walk-in cooler not being properly used. Doors are left open for long periods and set points can be higher than ideal. Also, it is important to move fresh mushrooms into the cooler as soon as possible upon receipt and out of the usually warm backroom environment.

FORECAST

Forecasting future foodservice industry volume for fresh mushrooms is based on three factors as well as a high and low end estimate.

- Unit Growth: The natural growth in the number of foodservice industry units in each segment over time.
- Mushroom Penetration Growth: Current non-using foodservice operators adding mushrooms to their menus.
- Mushroom Volume Per Unit: This is the result of both the overall increase of an operator's business as well as new mushroom menu items being added by current mushroom users.

Thus, at the low-end projection, fresh mushroom volume would increase by 4% over the five-year period to 370.2 million pounds. At the high-end volume would increase by 16.3% to 414.0 million pounds in five years.

TOTAL FRESH MUSHROOM FOODSERVICE MARKET FORECAST BY OPERATOR SEGMENT

| Operator Segment | <i>Current</i> | | <i>Mushroom Usage 5 Years From Now</i> | | | |
|-----------------------------|-----------------------|----------------|--|----------------|----------------------------|----------------|
| | <i>Mushroom Usage</i> | | <i>Low End Projection</i> | | <i>High End Projection</i> | |
| | <i>% Using</i> | <i>MM Lbs.</i> | <i>% Growth</i> | <i>MM Lbs.</i> | <i>% Growth</i> | <i>MM Lbs.</i> |
| Limited-Service Restaurants | 38 | 24.9 | 5.0 | 26.1 | 24.8 | 31.1 |
| Pizza Restaurants | 62 | 77.1 | 1.0 | 77.9 | 14.6 | 88.4 |
| Full-Service Restaurants | 79 | 210.0 | 5.2 | 220.9 | 17.2 | 246.1 |
| Travel & Leisure | 40 | 18.0 | 3.0 | 18.5 | 10.0 | 19.8 |
| Business & Industry | 45 | 10.2 | 3.0 | 10.5 | 10.0 | 11.2 |
| Education | 23 | 5.0 | 3.0 | 5.2 | 10.0 | 5.5 |
| Healthcare | 42 | 7.5 | 3.0 | 7.7 | 10.0 | 8.3 |
| All Other Foodservice | N.A. | 3.3 | 2.0 | 3.4 | 10.0 | 3.6 |
| TOTAL | 58 | 356.0 | | 370.2 | | 414.0 |

Source: Restaurant Marketing Group

Opportunity Index Developed By Mushroom Variety

A coefficient was developed to measure of the opportunity of fresh mushroom in different industry segments and for different mushroom varieties. The three main factors chosen were:

- Opportunity in that Industry Segment: This is a measure of current usage in the segment, the segment growth over the last 5 years and the growth projection for the segment.
- Opportunity by Region: After the first factor is established, it adjusted by regional variations.
- Opportunity of Mushroom Types: The first two factors were adjusted by mushroom types.

All three factors were equally weighted. As the regionality and the mushroom type are nestled inside the industry projections, it makes it a robust projection model.

How to Read Opportunity Coefficient:

| | |
|------------|------------------------------------|
| 0 to 20 | is low opportunity |
| 21 to 100 | is average opportunity |
| 101 to 250 | is better than average opportunity |
| 251 to 500 | is high opportunity |
| 501 + | is very high opportunity |

The opportunity index only defines the volume opportunity. It does not take into account waste, prices by mushroom type and profitability of different types of mushrooms.

WHITE

| Operator Segment | Midwest | Northeast | South | West | Midwest | Northeast | South | West |
|---------------------|--------------|-----------|-------|------|---------------|-----------|-------|------|
| | <i>Whole</i> | | | | <i>Sliced</i> | | | |
| LSR | 74 | 67 | 70 | 123 | 53 | 48 | 72 | 89 |
| Pizza Restaurants | 194 | 174 | 182 | 321 | 210 | 189 | 91 | 348 |
| FSR | 791 | 712 | 745 | 1312 | 286 | 257 | 46 | 474 |
| Travel & Leisure | 69 | 62 | 65 | 114 | 25 | 23 | 47 | 42 |
| Business & Industry | 33 | 29 | 31 | 54 | 17 | 15 | 54 | 27 |
| Education | 21 | 19 | 20 | 35 | 9 | 8 | 58 | 14 |

Source: Restaurant Marketing Group

PORTABELLA

| Operator Segment | Midwest | Northeast | South | West | Midwest | Northeast | South | West |
|---------------------|--------------|-----------|-------|------|---------------|-----------|-------|------|
| | <i>Whole</i> | | | | <i>Sliced</i> | | | |
| LSR | 20 | 19 | 20 | 34 | 6 | 6 | 9 | 10 |
| Pizza Restaurants | 30 | 28 | 29 | 49 | 19 | 18 | 9 | 31 |
| FSR | 579 | 550 | 572 | 959 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 44 | 42 | 44 | 74 | 3 | 2 | 5 | 4 |
| Business & Industry | 22 | 21 | 21 | 36 | 6 | 6 | 22 | 11 |
| Education | 11 | 11 | 11 | 19 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

SHIITAKE

| Operator Segment | Midwest | Northeast | South | West | Midwest | Northeast | South | West |
|---------------------|--------------|-----------|-------|------|---------------|-----------|-------|------|
| | <i>Whole</i> | | | | <i>Sliced</i> | | | |
| LSR | 9 | 8 | 9 | 13 | 0 | 0 | 0 | 0 |
| Pizza Restaurants | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FSR | 408 | 355 | 413 | 627 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 31 | 27 | 31 | 47 | 2 | 2 | 4 | 0 |
| Business & Industry | 10 | 9 | 10 | 16 | 2 | 2 | 7 | 0 |
| Education | 7 | 6 | 7 | 10 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

OYSTER

| Operator Segment | Midwest | Northeast | South | West | Midwest | Northeast | South | West |
|---------------------|--------------|-----------|-------|------|---------------|-----------|-------|------|
| | <i>Whole</i> | | | | <i>Sliced</i> | | | |
| LSR | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 |
| Pizza Restaurants | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FSR | 315 | 268 | 211 | 346 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 16 | 13 | 11 | 17 | 0 | 0 | 0 | 0 |
| Business & Industry | 6 | 5 | 4 | 7 | 0 | 0 | 0 | 0 |
| Education | 4 | 3 | 3 | 4 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

BABY BELLAS

| Operator Segment | Midwest | Northeast | South | West | Midwest | Northeast | South | West |
|---------------------|--------------|-----------|-------|------|---------------|-----------|-------|------|
| | <i>Whole</i> | | | | <i>Sliced</i> | | | |
| LSR | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 |
| Pizza Restaurants | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FSR | 220 | 185 | 147 | 263 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 11 | 9 | 7 | 13 | 0 | 0 | 0 | 0 |
| Business & Industry | 9 | 7 | 6 | 11 | 0 | 0 | 0 | 0 |
| Education | 6 | 5 | 4 | 7 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

ENOKI

| Operator Segment | Midwest | Northeast | South | West | Midwest | Northeast | South | West |
|---------------------|--------------|-----------|-------|------|---------------|-----------|-------|------|
| | <i>Whole</i> | | | | <i>Sliced</i> | | | |
| LSR | 0 | 0 | 0 | 0 | 5 | 6 | 0 | 0 |
| Pizza Restaurants | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FSR | 64 | 74 | 77 | 119 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 8 | 9 | 9 | 15 | 0 | 0 | 0 | 0 |
| Business & Industry | 3 | 4 | 4 | 6 | 0 | 0 | 0 | 0 |
| Education | 2 | 2 | 2 | 3 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

WOODEAR

| Operator Segment | Midwest | Northeast | South | West | Midwest | Northeast | South | West |
|---------------------|--------------|-----------|-------|------|---------------|-----------|-------|------|
| | <i>Whole</i> | | | | <i>Sliced</i> | | | |
| LSR | 4 | 3 | 4 | 7 | 0 | 0 | 0 | 0 |
| Pizza Restaurants | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FSR | 70 | 61 | 75 | 142 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 8 | 7 | 8 | 16 | 0 | 0 | 0 | 0 |
| Business & Industry | 3 | 3 | 4 | 7 | 0 | 0 | 0 | 0 |
| Education | 2 | 1 | 2 | 3 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

Opportunity Index Developed By Geographic Region

All Regions

The opportunity index can be reconfigured by region using the same variables. Mushroom opportunities that are valid for all geographic regions include:

- Use whole white mushrooms to focus for maximum opportunity on Full Service Restaurants (FSR)
- Whole white and sliced white also have significant opportunities among Pizza restaurants
- Whole Portabella mushroom have strong opportunity in FSR
- Sliced white mushrooms show some opportunity on FSR

Western Region

OPPORTUNITY INDEX WHOLE

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby | | |
|-----------------------------|-------|------------|----------|--------|--------|-------|---------|
| | | | | | Bellas | Enoki | Woodear |
| Limited Service Restaurants | 123 | 34 | 13 | 5 | 5 | 0 | 7 |
| Pizza Restaurants | 321 | 49 | 0 | 0 | 0 | 0 | 0 |
| Full-Service Restaurants | 1312 | 959 | 627 | 346 | 263 | 119 | 142 |
| Travel & Leisure | 114 | 74 | 47 | 17 | 13 | 15 | 16 |
| Business & Industry | 54 | 36 | 16 | 7 | 11 | 6 | 7 |
| Education | 35 | 19 | 10 | 4 | 7 | 3 | 3 |

Source: Restaurant Marketing Group

OPPORTUNITY INDEX SLICED

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby | | |
|-----------------------------|-------|------------|----------|--------|--------|-------|---------|
| | | | | | Bellas | Enoki | Woodear |
| Limited Service Restaurants | 89 | 10 | 0 | 0 | 0 | 0 | 0 |
| Pizza Restaurants | 348 | 31 | 0 | 0 | 0 | 0 | 0 |
| Full-Service Restaurants | 474 | 0 | 0 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 42 | 4 | 0 | 0 | 0 | 0 | 0 |
| Business & Industry | 27 | 11 | 0 | 0 | 0 | 0 | 0 |
| Education | 14 | 0 | 0 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

- Use whole white mushrooms as the primary focus for maximum opportunity in Full Service Restaurants (FSR). Whole white also has significant opportunities to build among Limited Service Restaurants (LSR).
- Whole portabellas have growth opportunities in FSR
- Shiitake, Oyster and Baby Bellas continue to have opportunities in FSR.
- Enoki and Woodear show the most opportunity among all regions in the west.
- Sliced white mushrooms show opportunities in FSR and Pizza with growth opportunities in LSR.

Southern Region

**OPPORTUNITY INDEX
WHOLE**

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby | | |
|-----------------------------|-------|------------|----------|--------|--------|-------|---------|
| | | | | | Bellas | Enoki | Woodear |
| Limited Service Restaurants | 70 | 20 | 9 | 3 | 3 | 0 | 4 |
| Pizza Restaurants | 182 | 29 | 0 | 0 | 3 | 0 | 0 |
| Full-Service Restaurants | 745 | 572 | 413 | 211 | 147 | 77 | 75 |
| Travel & Leisure | 65 | 44 | 31 | 11 | 7 | 9 | 8 |
| Business & Industry | 31 | 21 | 10 | 4 | 6 | 4 | 4 |
| Education | 20 | 11 | 7 | 3 | 4 | 2 | 2 |

Source: Restaurant Marketing Group

**OPPORTUNITY INDEX
SLICED**

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby | | |
|-----------------------------|-------|------------|----------|--------|--------|-------|---------|
| | | | | | Bellas | Enoki | Woodear |
| Limited Service Restaurants | 50 | 6 | 0 | 0 | 0 | 7 | 0 |
| Pizza Restaurants | 198 | 18 | 0 | 0 | 0 | 0 | 0 |
| Full-Service Restaurants | 269 | 0 | 0 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 24 | 3 | 2 | 0 | 0 | 0 | 0 |
| Business & Industry | 16 | 6 | 2 | 0 | 0 | 0 | 0 |
| Education | 8 | 0 | 0 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

- LSR usage is very low. This could turn out to be a significant opportunity for the mushroom industry to develop this segment.
- Whole white, Portabella and Shiitake, mushroom have strong opportunity in Full Service Restaurants.
- Shiitake opportunity is the highest in the South among all regions.
- Oyster and Baby Bellas continue to have opportunities in the Full Service Restaurants.

Northeast Region

**OPPORTUNITY INDEX
WHOLE**

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby | | |
|-----------------------------|-------|------------|----------|--------|--------|-------|---------|
| | | | | | Bellas | Enoki | Woodear |
| Limited Service Restaurants | 67 | 19 | 8 | 4 | 4 | 0 | 3 |
| Pizza Restaurants | 174 | 28 | 0 | 0 | 0 | 0 | 0 |
| Full-Service Restaurants | 712 | 550 | 355 | 268 | 185 | 74 | 61 |
| Travel & Leisure | 62 | 42 | 27 | 13 | 9 | 9 | 7 |
| Business & Industry | 29 | 21 | 9 | 5 | 7 | 4 | 3 |
| Education | 19 | 11 | 6 | 3 | 5 | 2 | 1 |

Source: Restaurant Marketing Group

**OPPORTUNITY INDEX
SLICED**

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby | | |
|-----------------------------|--------------|-------------------|-----------------|---------------|---------------|--------------|----------------|
| | | | | | Bellas | Enoki | Woodear |
| Limited Service Restaurants | 48 | 6 | 0 | 0 | 0 | 6 | 0 |
| Pizza Restaurants | 189 | 18 | 0 | 0 | 0 | 0 | 0 |
| Full-Service Restaurants | 257 | 0 | 0 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 23 | 2 | 2 | 0 | 0 | 0 | 0 |
| Business & Industry | 15 | 6 | 2 | 0 | 0 | 0 | 0 |
| Education | 8 | 0 | 0 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

- LSR usage is very low. This could turn out to be a significant opportunity for the mushroom industry to develop this segment.
- Whole Portabella, Shiitake, Oyster and Baby Bellas continue to have opportunities in the Full Service Restaurants.
- Sliced white mushrooms also have some opportunity among Pizza restaurants.

Midwest Region

**OPPORTUNITY INDEX
WHOLE**

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby | | |
|-----------------------------|--------------|-------------------|-----------------|---------------|---------------|--------------|----------------|
| | | | | | Bellas | Enoki | Woodear |
| Limited Service Restaurants | 74 | 20 | 9 | 5 | 5 | 0 | 4 |
| Pizza Restaurants | 194 | 30 | 0 | 0 | 0 | 0 | 0 |
| Full-Service Restaurants | 791 | 579 | 413 | 315 | 220 | 64 | 70 |
| Travel & Leisure | 69 | 44 | 31 | 16 | 11 | 8 | 8 |
| Business & Industry | 33 | 22 | 10 | 6 | 9 | 3 | 3 |
| Education | 21 | 11 | 7 | 4 | 6 | 2 | 2 |

Source: Restaurant Marketing Group

**OPPORTUNITY INDEX
SLICED**

| Operator Segment | White | Portabella | Shiitake | Oyster | Baby | | |
|-----------------------------|--------------|-------------------|-----------------|---------------|---------------|--------------|----------------|
| | | | | | Bellas | Enoki | Woodear |
| Limited Service Restaurants | 53 | 6 | 0 | 0 | 0 | 5 | 0 |
| Pizza Restaurants | 210 | 19 | 0 | 0 | 0 | 0 | 0 |
| Full-Service Restaurants | 286 | 0 | 0 | 0 | 0 | 0 | 0 |
| Travel & Leisure | 25 | 3 | 2 | 0 | 0 | 0 | 0 |
| Business & Industry | 17 | 6 | 2 | 0 | 0 | 0 | 0 |
| Education | 9 | 0 | 0 | 0 | 0 | 0 | 0 |

Source: Restaurant Marketing Group

- LSR usage is very low. This could turn out to be a significant opportunity for the mushroom industry to develop this segment.
- Portabella, Shiitake, Oyster and Baby Bellas continue to have opportunities in the Full Service Restaurants.

KEY LEARNINGS AND IMPLICATIONS

| LEARNINGS | IMPLICATIONS |
|--|--|
| The foodservice industry continues to capture a larger share of consumer food expenditures | While consumers spend more on food away from home, they consume a much larger share of meals at home |
| The foodservice industry is large and multi-segmented with varying methods of serving food and economic requirements | An important consideration when developing foodservice marketing strategy and tactics is to understand the differences between the operator segments and the purchasing power of each operator in each market |
| Foodservice distribution ties the operator segments together but distribution is also segmented particularly for produce | Understanding in each individual market the distribution structure that services each operator is critical. This is particularly true of primary and secondary produce sources |
| 58% of foodservice operators use fresh mushrooms with another 25% using canned. The highest using and highest volume segments are full service and pizza restaurants. Full service and pizza restaurants account for 81% of fresh mushroom volume but only represent 30% of foodservice industry sales | Full service and pizza restaurants are most often independents rather than chain controlled. Thus, while these independent operators collectively purchase much food they pose some difficulty to reach on an individual basis |
| White, whole fresh mushrooms account for the majority of fresh mushroom volume. Sliced, portabella and shiitake mushrooms create opportunities beyond whole white mushrooms | Whole fresh mushrooms and sliced are more likely to encounter downward pricing pressure than portabella and other varieties as well as other processed, i.e., pre-marinated |
| The western region represents 32% of fresh mushroom volume with 70% of operators using | With a multi-cultural population and emphasis on fresh foods, mushrooms are more widely used in the West. |
| Mushrooms are used in 15% of current operator menu items, with pizza restaurants and travel & leisure operators including mushrooms in 25% | These segments along with full service restaurants form the best sales opportunities for fresh mushrooms but have few purchasing concentrations |
| Overall fresh mushrooms have grown at 3.0% over the past three years | White mushrooms have only grown 1% with most of the overall growth coming from specialty mushrooms such as a brown and shiitake |
| Over the past two years fresh mushroom growth is coming from white, portabella, shiitake and baby bellas as well as whole and pre-cut | Virtually all varieties and forms of fresh mushrooms are benefiting from operator and consumer interest in fresh mushrooms |
| Stuffed mushrooms, Italian foods, steak and meat dishes and vegetarian dishes are leading menu applications for fresh mushrooms | Operators are looking for new ways to enhance existing menu items as well as adding new items with consumer appeal |

| LEARNINGS | IMPLICATIONS |
|---|--|
| Virtually all distributors handle fresh mushrooms with whole white, pre-sliced and portabellas being the most popular | Distributors will handle foods that have high operator demand and mushrooms are in the top 5 produce items (along with potatoes, tomatoes, lettuce and onions) |
| Best practice distributors focus on a few high volume mushroom varieties and forms that service the majority of operator demand | Distributors focusing on high volume items and supplementing with growing mushroom varieties such as portabellas raises overall fresh mushroom sales and profitability |
| Best practice distributors try to provide the freshest mushroom products with consistent delivery temperatures to reduce spoilage and shrink | Cold chain management is a critical component to ensuring operator satisfaction with fresh mushrooms for which they are willing to pay more |
| Temperature abuse of fresh mushrooms are evident throughout the cold chain and adversely affect fresh mushroom shelf life | Fresh mushroom shippers, chain and independent restaurant operators need to be informed and trained in proper mushroom cold chain management techniques |
| The foodservice fresh mushroom category is forecast to grow between 4-16% over the next five years. | The foodservice opportunities for whole and sliced white mushrooms, whole portabella mushrooms and shiitake mushrooms are the most evident |
| Regional variations exist for fresh mushroom varieties and forms that should guide the mushroom industry and shippers in developing marketing strategies and tactics. | The Western region has the greatest opportunity to grow fresh mushroom volume, however, all regions have an opportunity to grow white and portabella volume as well as the volume of all specialty mushrooms |

RECOMMENDATIONS

Based on these market research studies, the following recommendations have been developed for the mushroom industry as a whole and grower-shippers to consider to expand upon foodservice channel opportunities.

- A critical component in any fresh mushroom growth strategy should be the development of new menu applications. These can be in the form of completely new menu items or modifying existing menu items by adding fresh mushrooms.

Communicating these menu applications require alternative means. Independent operators that include many full service and pizza restaurants can be most effectively reached through broad reach media and public relations as well as through distributor sales representatives. Chain operators including limited service restaurants and some pizza chains are best communicated with through various trade shows and personal methods at the corporate level.

Promotional support of chain limited time offers (LTO) menu items using fresh mushrooms should be considered to demonstrate to chains the value of featuring mushrooms and potentially motivate chains to add as permanent menu items. Successful promotions at one chain can serve as evidence of the financial impact of mushrooms ingredients to other chains.

- The success of a menu applications approach is enhanced due to the high degree of operator penetration of fresh mushrooms. With most operators already having fresh mushrooms in their pantry, the more difficult marketing of a new food product ingredient is not a requirement for mushrooms.
- Specialty mushrooms, particularly portabellas and shiitakes provide up-selling opportunities for current and new mushroom users. Familiarity with white mushrooms and their inclusion in existing recipes and menu items improves the chances for success.
- Operators often have a difficult time attracting and satisfying vegetarian customers in all segments. Mushrooms are an acceptable means of delivering savory flavor and satiety to these vegetarian consumers.
- Mushroom's value adding potential should also be part of any communications message either in the form of consumer satisfaction with superior food flavor achieved through mushroom's umami capabilities or through consumer perceptions of the overall fresh mushroom image.
- Evaluating a distributor's current mix of fresh mushroom varieties and forms is a first step towards motivating to achieve best-practice status. Some demonstration of the sales and gross profit impact of the proper fresh mushroom mix should be included.
- Cold chain management from the mushroom shipper to the individual foodservice operation should be communicated via video, website and point-of-sale messages. The cost of poor cold chain management should be emphasized to distributors and operators.
- Basic information on fresh mushroom sourcing, purchasing, storing, cooking, correcting potential problems, etc. should be communicated via alternative means including the Internet, point-of-sale, distributor sales representatives, etc.
- For the fresh mushroom industry and mushroom grower-shippers to experience the future opportunities of these products, regional differences in current mushroom penetration by the segments and their use must be understood with appropriate responses developed. Each region and market within each region has a unique operator segment and distribution structure that should influence the development of go-to-market strategies and tactics.