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South Carolina Department of Commerce

Food Processing
Executive Summary

As food safety concerns continue to grow, food retailers are reducing the number of people handling raw products in an effort to diminish the possibility of contamination by using prepackaged or case-ready products. An area in which this is becoming increasingly important is meat (poultry, beef, pork, and lamb), for several reasons:

- Strict USDA regulations in the handling and clean-up of butcher areas in grocery stores;
- Employer/employee relations, including attempts of unionization;
- Increasing consumer demand for consistency in quality; and
- Retail consolidation (retailers seeking a larger market share in food-retail dollars).

In the United States, the poultry industry was the first to use case-ready packaging nearly 20 years ago, when they started delivering ready-to-sell products to food retailers. Today, beef, pork, and lamb processors are beginning to use the same process in an effort to reduce safety concerns. It is anticipated that within five years case-ready packaging will be the standard not the exception. Reasons for this trend include:

- Meat case management (24-hour availability [no closing of the butcher area] and increased product selection);
- Improved sanitation and packaging; and
- Change in focus from production to product merchandising.

A South Carolina location offers case-ready packaging companies the advantages of available and skilled labor, an attractive business climate, a low-cost operating environment, proven market access, and an unparalleled quality of life.

- Available and Skilled Labor – In an increasingly tight labor market, South Carolina boasts a growing population, a high percentage of underemployed workers, and the United States’ lowest unionization rate for the manufacturing sector. Case-ready packaging companies may also be able to draw from industries that are declining in employment in the state; for example, textile-related and apparel industries. Workers from these industries have basic manufacturing skills that may be easily modified to accommodate the requirements of meat packaging. Case-ready packaging companies also profit from South Carolina’s state-sponsored training program (The Center for Accelerated Technology Training) that provides customized training at no cost to qualified businesses.
• **Attractive Business Climate** – South Carolina is a business friendly state that places emphasis on the complex needs of companies for the life of their investment. The state’s probusiness attitude is epitomized by a stable business tax structure and a comprehensive list of tax credits and investment incentives. Companies also benefit from a regulatory climate that speeds the processing of necessary permits, reducing delays in start-up.

• **Low-Cost Operating Environment** – From start-up operations all the way to product distribution, a South Carolina location is competitively priced, with some of the lowest business costs in the Southeast and the nation. Companies in the state benefit from abundant and reliable utility resources at reasonable prices.

• **Proven Market Access** – An intermodal transportation network of highways and interstates, airports, rail, and seaports also ensures that raw materials and finished products for the case-ready packaging industry are moved in a timely and cost-efficient manner. South Carolina is within one days’ time of 32 percent (33 million households) of the United States population and three days’ time of 80 percent (80 million households) of the population.

• **Unparalleled Quality of Life** – South Carolina’s quality of life blends a wide variety of leisure activities, a pleasant climate, a low cost of living, and Southern culture for the right mix of working and living. In fact, the state’s quality of life serves as an important recruitment tool – helping companies to attract and retain the best employees available.
South Carolina Department of Commerce

South Carolina’s Food Industry

South Carolina’s economy has early roots in agriculture. Agricultural products along with textile products from cotton were the basis of the state’s early industry. Consequently, agriculture and simple processing industries were the foundation upon which much of the state’s rural economy has been built.

Today, South Carolina’s economy has become much more diversified. Much of the diversification, however, has taken place in the state’s urban areas. Much of the rural economy in South Carolina is still focused on a few core industries, one of which is food products.

The processed food industry began in South Carolina on a large scale about 100 years ago. Now, there are over 175 food-processing facilities in the state employing approximately 21,500 persons. Since 1986, there have been more than 1,300 announcements of new facilities or expansions of existing food products facilities in South Carolina. The total investment has been over $1.7 billion over the 16-year period with more than 19,000 new jobs created. The following is a breakdown of capital investment by the food products sector since 1986.

### FOOD INDUSTRY INVESTMENT IN SC (1986-2002)

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>Capital Investment</th>
<th>% of Total</th>
<th>JOBS</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat Products</td>
<td>$676,509,085</td>
<td>39.4%</td>
<td>10,560</td>
<td>55.4%</td>
</tr>
<tr>
<td>Dairy Products</td>
<td>$38,166,000</td>
<td>2.2%</td>
<td>79</td>
<td>0.4%</td>
</tr>
<tr>
<td>Preserved Fruits and Vegetables</td>
<td>$175,859,505</td>
<td>10.2%</td>
<td>1,792</td>
<td>9.4%</td>
</tr>
<tr>
<td>Grain Mill Products</td>
<td>$214,591,302</td>
<td>12.5%</td>
<td>1,477</td>
<td>7.8%</td>
</tr>
<tr>
<td>Bakery Products</td>
<td>$158,212,449</td>
<td>9.2%</td>
<td>1,492</td>
<td>7.8%</td>
</tr>
<tr>
<td>Sugar and Confectionery Products</td>
<td>$4,212,000</td>
<td>0.2%</td>
<td>134</td>
<td>0.7%</td>
</tr>
<tr>
<td>Edible Fats and Oils</td>
<td>$2,400,000</td>
<td>0.1%</td>
<td>16</td>
<td>0.1%</td>
</tr>
<tr>
<td>Beverages</td>
<td>$179,695,405</td>
<td>10.5%</td>
<td>813</td>
<td>4.3%</td>
</tr>
<tr>
<td>Misc, Food and Kindred Products</td>
<td>$268,272,190</td>
<td>15.6%</td>
<td>2,687</td>
<td>14.1%</td>
</tr>
<tr>
<td><strong>TOTAL FOOD PRODUCTS</strong></td>
<td><strong>$1,717,917,936</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>19,050</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Within the food products industry, the majority of investment and job creation in South Carolina has come from the meat products sector, accounting for 39 percent of the investment and 55 percent of the job creation. Significant investors in South Carolina include such notable companies as Columbia Farms, Inc., Gold Kist, Inc., Kraft Foods,
The following table lists meat-processing companies currently operating in South Carolina.

**Meat Processing Companies in South Carolina**

<table>
<thead>
<tr>
<th>Company</th>
<th>County</th>
<th>Product</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amick Farms Inc</td>
<td>Saluda</td>
<td>Processed poultry</td>
<td>1,050</td>
</tr>
<tr>
<td>Anderson Frozen Foods Inc</td>
<td>Anderson</td>
<td>Custom processing of meats</td>
<td>4</td>
</tr>
<tr>
<td>Atkins &amp; West Inc</td>
<td>Sumter</td>
<td>Processed meats</td>
<td>8</td>
</tr>
<tr>
<td>Aviagen North America</td>
<td>Chesterfield</td>
<td>Chicken eggs &amp; poultry</td>
<td>47</td>
</tr>
<tr>
<td>Beach Meats Inc</td>
<td>Horry</td>
<td>Processed meats</td>
<td>13</td>
</tr>
<tr>
<td>Brown Packing Co Inc</td>
<td>Cherokee</td>
<td>Beef, beef offal, beef by-products and beef hides</td>
<td>250</td>
</tr>
<tr>
<td>Cal-Maine Foods Inc</td>
<td>Kershaw</td>
<td>Fresh eggs</td>
<td>80</td>
</tr>
<tr>
<td>Carolina Culinary Foods, LP</td>
<td>Lexington</td>
<td>Processed chicken</td>
<td>21</td>
</tr>
<tr>
<td>Caughman's Meat Plant Inc</td>
<td>Lexington</td>
<td>Meats</td>
<td>28</td>
</tr>
<tr>
<td>Cheraw Packing Plant Inc</td>
<td>Chesterfield</td>
<td>Pork sausage</td>
<td>13</td>
</tr>
<tr>
<td>Columbia Farms Distribution</td>
<td>Greenville</td>
<td>Processed meats</td>
<td>25</td>
</tr>
<tr>
<td>Columbia Farms Distribution Inc</td>
<td>Charleston</td>
<td>Poultry slaughtering/processing/distribution</td>
<td>14</td>
</tr>
<tr>
<td>Columbia Farms Inc</td>
<td>Lexington</td>
<td>Fresh chicken in all forms</td>
<td>100</td>
</tr>
<tr>
<td>Columbia Farms Inc</td>
<td>Lexington</td>
<td>Poultry processing</td>
<td>425</td>
</tr>
<tr>
<td>Columbia Farms Inc</td>
<td>Greenville</td>
<td>Processed poultry</td>
<td>630</td>
</tr>
<tr>
<td>Cordray's Venison Processing</td>
<td>Dorchester</td>
<td>Venison processing</td>
<td>20</td>
</tr>
<tr>
<td>Cottingham Packing Co</td>
<td>Dillon</td>
<td>Slaughter and process of swine and cattle</td>
<td>8</td>
</tr>
<tr>
<td>Counts Sausage Co Inc</td>
<td>Newberry</td>
<td>Pork and beef products</td>
<td>21</td>
</tr>
<tr>
<td>Cromer's Abattoir Inc</td>
<td>Spartanburg</td>
<td>Beef, pork, sheep, goats</td>
<td>8</td>
</tr>
<tr>
<td>Devro-Teepak</td>
<td>Calhoun</td>
<td>Edible casings for meat packaging</td>
<td>370</td>
</tr>
<tr>
<td>Four Oaks Farm Inc</td>
<td>Lexington</td>
<td>Meat processing</td>
<td>10</td>
</tr>
<tr>
<td>G&amp;B Egg Division, Crystal Farms</td>
<td>Pickens</td>
<td>Eggs</td>
<td>29</td>
</tr>
<tr>
<td>G&amp;W Inc</td>
<td>York</td>
<td>Meat processing</td>
<td>22</td>
</tr>
<tr>
<td>Gentry's Poultry Co Inc</td>
<td>Saluda</td>
<td>Integrated poultry operation - grow and process</td>
<td>180</td>
</tr>
<tr>
<td>Gold Kist Inc</td>
<td>Sumter</td>
<td>Poultry-chicken products</td>
<td>2,420</td>
</tr>
<tr>
<td>Greenwood Meats Inc</td>
<td>Greenville</td>
<td>Processed meats</td>
<td>25</td>
</tr>
<tr>
<td>Greenwood Packing Plant</td>
<td>Greenwood</td>
<td>Pork products</td>
<td>675</td>
</tr>
<tr>
<td>Harvin Choice Meats Inc</td>
<td>Sumter</td>
<td>Sausages, smoked meats, specialty foods, fried pork skins</td>
<td>60</td>
</tr>
<tr>
<td>Hemingway Refrigeration &amp; Locker Co</td>
<td>Williamsburg</td>
<td>Meat processing</td>
<td>10</td>
</tr>
<tr>
<td>Holly Hill Locker Co</td>
<td>Orangeburg</td>
<td>Processed meats and ham curing</td>
<td>2</td>
</tr>
<tr>
<td>House of Raeford Farms Inc</td>
<td>Williamsburg</td>
<td>Fully chicken, batter breaded chicken patties and chicken nuggets</td>
<td>180</td>
</tr>
<tr>
<td>ISE Newberry Inc</td>
<td>Newberry</td>
<td>Egg processing and egg production</td>
<td>130</td>
</tr>
<tr>
<td>J&amp;G Food Products Inc</td>
<td>Richland</td>
<td>Beef</td>
<td>11</td>
</tr>
<tr>
<td>Lee's Sausage Co Inc</td>
<td>Orangeburg</td>
<td>Meat products-sausage</td>
<td>30</td>
</tr>
</tbody>
</table>
Meat Processing Companies in South Carolina

<table>
<thead>
<tr>
<th>Company</th>
<th>County</th>
<th>Product</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loris Cold Storage &amp; Fresh Meats, Inc</td>
<td>Horry</td>
<td>Hog and cow slaughtering and meat packing</td>
<td>6</td>
</tr>
<tr>
<td>Louis Rich (Kraft Foods, Inc.)</td>
<td>Newberry</td>
<td>Processed turkey and turkey products</td>
<td>1,387</td>
</tr>
<tr>
<td>M Tuten Meats Inc</td>
<td>Jasper</td>
<td>Processed meats</td>
<td>5</td>
</tr>
<tr>
<td>Manchester Farms</td>
<td>Sumter</td>
<td>Processed quail &amp; chicken</td>
<td>174</td>
</tr>
<tr>
<td>Ninety Six Canning Co. Inc</td>
<td>Greenwood</td>
<td>Canned meats</td>
<td>5</td>
</tr>
<tr>
<td>Orangeburg Sausage Co</td>
<td>Orangeburg</td>
<td>Beef, pork</td>
<td>15</td>
</tr>
<tr>
<td>Orchard View Meat Processors Inc</td>
<td>Greenville</td>
<td>Meat packing plants</td>
<td>25</td>
</tr>
<tr>
<td>Palmetto Pigeon Plant</td>
<td>Sumter</td>
<td>Squabs</td>
<td>60</td>
</tr>
<tr>
<td>Perdue Farms Inc</td>
<td>Dillon</td>
<td>Fresh/frozen ready to cook chicken products</td>
<td>1,052</td>
</tr>
<tr>
<td>Poston Packing Co of Florence Inc</td>
<td>Florence</td>
<td>Meat packing and wholesale</td>
<td>36</td>
</tr>
<tr>
<td>Prestage Farms Inc</td>
<td>Kershaw</td>
<td>Turkey</td>
<td>84</td>
</tr>
<tr>
<td>Saluda Meat Center</td>
<td>Saluda</td>
<td>Processed meats</td>
<td>12</td>
</tr>
<tr>
<td>SOPAKCO Inc</td>
<td>Marlboro</td>
<td>Thermo stabilized meats</td>
<td>323</td>
</tr>
<tr>
<td>Sunnydale Meats Inc</td>
<td>Cherokee</td>
<td>Beef and pork products</td>
<td>15</td>
</tr>
<tr>
<td>Union Packing Co</td>
<td>Union</td>
<td>Processed meats (beef and pork)</td>
<td>6</td>
</tr>
<tr>
<td>Valois Foods International</td>
<td>Hampton</td>
<td>Poultry processing</td>
<td>32</td>
</tr>
<tr>
<td>Vaughn Packing Co Inc</td>
<td>Greenville</td>
<td>Pork, beef, prepared meats</td>
<td>22</td>
</tr>
<tr>
<td>Williamsburg Packing Co</td>
<td>Williamsburg</td>
<td>Custom slaughter of pork for sausage, BBQ pigs, and fresh pork</td>
<td>17</td>
</tr>
<tr>
<td>Wilson Processing Co Inc</td>
<td>Oconee</td>
<td>Processed meats</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total Employment</strong></td>
<td></td>
<td></td>
<td><strong>10,212</strong></td>
</tr>
</tbody>
</table>
South Carolina’s Superior Workforce Resources

Our Greatest Resource

South Carolina’s greatest resource is its workforce. We are positioned to provide companies with one of the most cost effective, productive, flexible, and technically competent workforces in the nation. Being both a right-to-work state and an employment-at-will state, South Carolina companies maintain control of their workforce and operations.

Examples of the competitive advantages offered by South Carolina are:

- Second-lowest hourly wages in the nation;
- One of the lowest rates of unionization in the United States, with virtually no work stoppage;
- The Center for Accelerated Technology Training (CATT) – the state’s nationally recognized pre-employment training program, providing a well-trained workforce that is ready at the time of the facility opening.

Labor Availability

South Carolina has an abundance of available labor to offer any company looking for a competitive location. Major reasons include:

- a continual population growth,
- an increased in-migration,
- an expanding employment base,
- a decline in textile and apparel manufacturing, and
- an existence of underemployment.

Why our workforce provides a competitive advantage!

- One of the highest percentages of manufacturing workers (19.6 percent) in the United States.
- A workforce that is projected to increase 30 percent between 2000 and 2020.
- Third highest productivity rate in the United States - 20 percent above the national average.
A Continual Population Growth:

South Carolina is one of the fastest growing states. The state population grew an estimated 15.1 percent, faster over the last ten years than the nation at 13.2 percent. While other areas of the country are stagnant or losing population, South Carolina population growth guarantees a constant source of new labor. Not only does South Carolina have the population, the state offers people who are the right age to work. Statistics indicate that 60 percent of South Carolina’s population is between the ages of 20 and 64.

When companies seek employees, one of the biggest demographic age groups targeted is the 20-44 age group representing an employee’s most productive years. This cluster contains the highest percentages of the population entering the workforce for the first time. South Carolina is ranked seventeenth in population growth in the nation for this age group with an increase of 6.6 percent of people aged 20-44.

South Carolina ranks sixteenth in the nation in the 45-64 age group, with a growth rate of 43 percent. Many individuals within the 45-64 age group may be changing careers or receiving payments from company pensions and need additional income to supplement living expenses. Above average escalation of these population segments signifies that individuals want employment opportunities to be able to live and thrive in South Carolina.

In-migration, Another Source of Labor

The southern states are becoming increasingly popular as a place for companies and individuals to relocate because of a lower cost of doing business, a lower cost of living, and a more moderate climate. From July 2000 to July 2001, a total of over 1.3 million people moved to the South (U.S. Bureau of the Census, December 2001).

South Carolina ranked eleventh in the nation in net in-migration in 2001. From July 2000 to July 2001, an estimated 16,325 people moved into the state (U.S. Bureau of the Census, Population Estimates). Having industries moving into the state that promise opportunities for growth ensures that these new residents will not only have a place to work, but may increase the probability of more in-migration.

Bureau of Census, First Census Results, December 2000.
An Expanding Employment Base

South Carolina also has a growing employment base. According to recent statistics, over 1.8 million of South Carolina’s residents are employed (U.S. Bureau of Labor Statistics, November 2002).

The South Carolina Employment Security Commission predicts that this trend will continue with employment growing to over 2 million by the year 2006, a 14.4 percent increase. These statistics again demonstrate that South Carolina offers a labor force to companies relocating in the state. Companies need states like South Carolina with an expanding employment base.

A Decline in Textile and Apparel Manufacturing

South Carolina was built around textile and apparel manufacturers. However, in recent years, South Carolina has shifted its manufacturing base from textiles to other areas such as automotive assembly and technology manufacturing. In fact, the textile industry experienced a reduction in employment of 71,000 since 1988 (S.C. Employment Security Commission, April 2002).

This segment of the labor force continues to be an excellent source of labor, especially for manufacturers. These employees are accustomed to producing a high quality product while keeping costs down. Textile and apparel workers will continue to encounter change as their industry changes and will want employment challenges that new companies can bring.

An Existence of Underemployment

According to the South Carolina Department of Revenue and Taxation, Research Section, almost 35 percent of South Carolinians are considered underemployed, earning $15,000 or less per year. Companies looking to expand or locate in South Carolina could offer this segment of our population employment that is more fulfilling and better paying. This statistic reinforces that a wealth of untapped labor is available in South Carolina. This group usually responds first to more rewarding job opportunities that benefits and opportunities for advancement.

Productivity of Labor

When companies look for employees, they want people who will do the job in the most efficient and effective manner. South Carolina is known for having a labor force with both of these attributes. Employees in South Carolina create quality products in a way that lends itself to constantly increasing productivity rates. Some of the South Carolina measures that demonstrate this fact are low occupational injury and illness incidence rates; low rates of unionization; and the state’s status as an employment-at-will state.
**Occupational Injury and Illness Incidence Rates**

Injuries and illnesses mean lost time and lower productivity. Companies spend millions of dollars a year ensuring that these incidences are few and far between. Most southern states have a relatively low incidence of injury and illness. South Carolina has one of the lowest incidences of injury and illness in the workplace at 4 per 100 employees (U.S. Bureau of Labor Statistics). The probability that productivity levels will improve in South Carolina is enhanced when considering this statistic. Many existing companies have reported that their South Carolina location is their most productive.

**Rates of Unionization:**

South Carolina has one of the lowest rates of unionization in the southeast and the nation. As the graph below illustrates, South Carolina is second only to North Carolina. Having low unionization rates helps to keep South Carolina employees productive because they can work without having to comply with standards their local union may set. Also, employees and employers can work together in an effort to improve productivity without intervention from a third party source. South Carolina has virtually no work stoppage (0.01 percent).

**South Carolina is an Employment-at-Will State**

Employment-at-will is a labor term meaning a company can discharge an employee without incurring liability. In states where employment-at-will applies, productivity is usually higher. South Carolina is an employment-at-will state and has and continues to see positive results from this policy. Not only does it have an effect on productivity in the state, but it also protects employers from having to continuously deal with employees that are less than acceptable.

**Payroll Costs**

**Direct Costs**

South Carolina has the lowest average hourly wage in the Southeast United States – $11.82 and the second lowest in the United States. South Carolina can supply a highly skilled, well-trained labor force at a competitive price.
Indirect Costs
South Carolina has the seventh lowest average costs for Workers’ Compensation Insurance according to Actuarial and Technical Solutions – Premium is $3.18 per $100 of payroll. South Carolina’s cost for unemployment insurance as a percentage of payroll is also very competitive.

A Workforce Trained for Industry Demands

The vital aspect of a strong workforce is a commitment to ensuring that workers are provided with the best training programs. South Carolina is committed to training its workforce. Our collaborative approach to supporting the requirements of our industries is comprehensive.

- **Tech Prep** – Tech Prep programs include career guidance for students in high schools and a core curriculum with defined competencies at each level. There are provisions for applied academics in communications, mathematics, and sciences, along with an apprenticeship program. The apprenticeship program is of particular interest to companies. Students enter the apprenticeship program during their senior year in high school. The program combines class work and apprenticeship training throughout the senior year and continues through attendance at a technical college. At the end of the program, usually taking three to four years, students receive a high school diploma, vocational certification, associate degree, and a workplace competency certificate from the apprentice’s employer.

- **Technical College System** (TECH) – South Carolina has an extensive network of 16 technical colleges, many with branch campuses that support technical training. And, since all South Carolina residents live or work within 30 minutes of one of these campuses, training is convenient and easily accessible. The mission of the technical colleges is to support economic development. As a result, each college is focused on serving local business and industry needs, and this in turn is reflected in a constantly updated curriculum. Companies can use the TECH system to train employees, offer continuing education, hire entry-level workers who have completed degree-related programs, and keep skills up to date with the latest business and management technology.
• **The Center for Accelerated Technology Training (CATT)** – For almost 40 years, South Carolina’s TECH system has provided CATT, one of the state’s most powerful economic development incentives at no cost to companies. This program provides companies moving to, or expanding in, South Carolina with well-trained and highly motivated employees through a comprehensive and customized process that includes recruiting, screening, and training.

CATT is often the key element that allows South Carolina companies to start-up rapidly, operate efficiently and productively, and succeed in today’s global environment. The program is driven exclusively by a company’s needs and desired level of partnership. Hallmarks of this nationally acclaimed program include: flexibility, responsiveness, quality control, solid management, experience, a grasp of world-class quality concepts, and the ability to help create highly functioning work teams.

• **Higher Education** – South Carolina’s three research universities (Clemson University, University of South Carolina [USC], and Medical University of South Carolina [MUSC]) have nationally recognized training programs and research initiatives: Clemson and USC have extensive engineering coursework related directly to the requirements of South Carolina’s industries, as well as research centers dedicated to new technology. MUSC has developed a comprehensive clinical testing program and houses one of the nation’s university-based pharmaceutical development centers. MUSC utilizes its biomedical research results for economic growth with the private sector in grant contract research, licensing, and new company development. The relationships between South Carolina companies and these schools have resulted in numerous successes including technology transfer, competitive advantages, and access to modern manufacturing technologies.

Therefore, by having one of the most cost effective, productive, and technically competent workforces in the United States, South Carolina can offer our companies an opportunity for long-term success.

**Food Science Research at Clemson University**

Clemson University is a leader in engineering and agricultural research. Founded in 1889, Clemson is a land grant, state-assisted university awarding Bachelor’s, Master’s, Specialist’s, and Doctor’s degrees. Clemson is comprised of approximately 1,200 faculty, 13,526 undergraduate students, and 3,456 graduate students in five colleges and 64 departments.

In 2002, Clemson University attracted over $103 million in competitive research grants. One of the projects that utilized these funds included development of food packaging that not only detects bacteria but alerts consumers to its presence.
In addition to traditional academic departments, Clemson has 26 recognized centers or institutes that focus on interdisciplinary research, with over 1,100 currently active research projects and programs. One of Clemson's greatest assets is the level of trust attributed by the business community. Clemson's reputation for excellence in research and development stems from its commitment to solving "real world" problems.

The Department of Food Science and Human Nutrition prepares students to become food scientists and technologists to help meet consumer demand for food products that are healthful, safe, palatable, and convenient. To do this, students use their knowledge of chemistry, microbiology, and other sciences to develop new or better ways of preserving, processing, packaging, storing, and delivering foods. Some food scientists engage in basic research, discovering new food sources; analyzing food content to determine levels of vitamins, fat, sugar, or protein; or searching for substitutes for harmful or undesirable additives, such as nitrates. They also develop ways to process, preserve, package, or store food according to industry and government regulations. Others enforce government regulations, inspecting food-processing areas and ensuring that sanitation, safety, quality, and waste management standards are met. Food technologists generally work in product development, applying the findings from food science research to the selection, preservation, processing, packaging, distribution, and use of safe, nutritious, and wholesome food.

**Ongoing Research**

In addition to the research mentioned above, department faculty has experience in several specialized areas that may be of particular interest to the case-ready industry.

- **Processing and shelf life evaluation of muscle foods and other food products.** Areas of study include functional property evaluations of meat proteins, microbial and chemical aspects of fermented meat products, and the interactions of light, oxygen, and storage temperature with packaging systems for meat products and other foods.

- **Commercial food processing and packaging.** Computer modeling, simulation and optimization of food processes, food quality and shelf life of packaged foods. Design of food processing plants, sanitation inspection, and compliance with laws and regulations; waste packaging materials.

- **Processing and packaging on muscle food quality with an emphasis on poultry products.** Lipid chemistry, flavor, and oxidation of meat products; interaction of packaging materials with food components; recovery and use of underutilized poultry products including MDBM and spent fowl meat.

- **Effects of processing on the functional characteristics of proteins and the interaction of food product ingredient composition with processing requirements for optimal functional characteristics and product safety.**
• Effects on processes and anti-microbial properties on controlling pathogens in food products with an emphasis on processed meats; procedures for improving the detection of injured pathogenic cells; application of food safety and sanitation practices in industry, food service, and by the consumer.

• Commercial food processing and preservation systems, validation of new processes, applications of statistical and quality improvement techniques to improve productivity, new product development, compliance of South Carolina processing plants with federal and state regulations, and food safety and toxicology.

An example of groundbreaking research is the new plastic food applications project that is currently underway by a team of researchers from the Food Science and Chemical Engineering Departments with Sealed Air Corp's Cryovac Division.
South Carolina Fosters Prosperity and Expansion

South Carolina understands that companies, not the government, invest capital and create jobs – it is our responsibility to work with industry to create a climate that fosters prosperity and expansion. From the initial contact through planning, construction, start-up, and continued business growth, the state provides one of the leading probusiness environments in the nation.

South Carolina has earned recognition as a business friendly state by placing emphasis on the complex needs of our investors. We understand that companies exploring investment opportunities in our state want to know the processes required to start-up and operate a business here, from the costs associated with operation to the forms of assistance available through state and local governments.

As part of our efforts to develop a long-term partnership with all of our companies, South Carolina works to promote a clear understanding of the business tax structure and regulatory climate in the state, as well as the available financial incentives. In addition, we provide continuous support resources for all companies in the state, not only during start-up, but also for the life of the investment.

Business Tax Structure and Financial Incentives

Our probusiness attitude is reflected by our stable business tax structure and an unparalleled list of tax credits and investment incentives. During the past decade we have supported companies by:

- Maintaining a 5 percent corporate income tax rate – South Carolina has the lowest income tax rate in the Southeastern United States;

- Preventing a general tax increase – South Carolina has the eighth lowest per capita tax burden in the United States and in addition to the low tax rates, has actually decreased taxes for industry and individuals; and

- Maintaining consistently affordable insurance costs for accidents on the job (Workers’ Compensation) and unemployment.
Tax liability for companies operating in South Carolina includes:

- **Corporate Income Tax** -- Companies pay a state corporate income tax on income allocated to South Carolina operations (interest, dividends, royalties, rents, property sale gains and losses, and personal services income) and income apportioned to the operations (based on weighted payroll, property and sales factors). A 5 percent corporate income tax rate is applied to the sum of these incomes, and the resulting figure is a company’s state corporate income tax.

- **Corporate Franchise Tax and License Fee** – All companies must pay an annual state corporate franchise tax. The rate is one mill ($0.001) per dollar of a proportion of total paid-in-capital and paid-in-surplus (earned surplus is not included), plus an annual $15 license fee. For multi-state corporations, the license fee is determined by apportionment in the same manner employed in computing apportioned corporate income.

- **Property Tax** – Taxes on real property (land and buildings) and personal property (machinery and equipment) for manufacturers are only levied by the local (county and/or city) government. Personal property is allowed to depreciate annually (beginning in year 1) at a rate established by state law. Generally, this rate is 11 percent per year and is depreciated to a residual level of 10 percent of the original property value. Real and personal property are assessed at 10.5 percent of fair market value. A local millage rate is applied to the assessed value of all property to determine the value of the tax. Millage rates are determined annually by local governments and are comprised of a school operating portion (approximately 67 percent) and a county operating portion (approximately 33 percent).

- **Sales Tax** – South Carolina utilizes a state tax on sales and use of 5 percent. Some counties (by approval of a majority of county voters) assess an additional 1 percent local option sales tax; however, this amount is offset by a state mandated credit to real property taxes.

Some of the key elements of the state’s incentive program that reward firms for investing in South Carolina and reduce tax liability include:

**Corporate Income Tax Credits**

- Tax credits for new job creation
- Tax credits for corporate headquarters facilities
- Tax credits for providing child care benefits
- Tax credits for investments in new production machinery in the 27 counties affected by the closure of federal facilities (considered Economic Impact Zones). These credits can completely eliminate corporate income tax liability.
- Ten- or 15-year income tax moratorium in economically distressed counties
**Exemptions and Incentives Against Property Tax**

- No tax on inventory, intangibles, or pollution control equipment
- Five-year abatement of the county operating portion of property tax (lowers the millage rate by approximately 33 percent by removing the county operating portion of the rate for five years)
- Opportunity to negotiate with the county for a fee-in-lieu of property taxes (with a minimum $5 million capital investment, a county can substitute a 20-year fee schedule with a reduced assessment rate in place of standard property tax payments). The minimum investment is $1 million in economically distressed counties.

**Exemptions from Sales Tax**

- Sales tax exemption on manufacturing equipment and electricity
- No value added taxes
- No wholesale sales tax
- No tax on packaging materials

**Regulatory Climate**

South Carolina offers companies a regulatory climate that speeds the processing of necessary permits, reducing delays in start-up. The South Carolina Department of Commerce and local development authorities serve as valuable resources for new and expanding companies seeking information about environmental, building, and operating permits.

**Environmental Permits**

The South Carolina Department of Health and Environmental Control (SCDHEC) administer environmental issues in South Carolina. SCDHEC works cooperatively with business in South Carolina to assist economic development in the state while maintaining a safe environment. This cooperative relationship between SCDHEC and business is demonstrated in the fact that less than 1 percent of all environmental permits applied for in South Carolina are challenged.

SCDHEC oversees all state and federal permits issued in South Carolina, having been granted federal oversight responsibilities for implementing U.S. Environmental Protection Agency regulations and compliance procedures. This situation allows South Carolina businesses to work with local agents concerning most environmental issues. SCDHEC
is aware of the importance of new industry to our state and gives priority to the review of new facilities, thus reducing turnaround time for issuance of new permits.

Permitting fees, both initial and maintenance, are lower than those in most states and are often site specific. Local and regional agencies in South Carolina have not enacted local environmental compliance or permitting requirements, with the exception of the standard local wastewater system use ordinances. South Carolina has no state law requiring the preparation of environmental impact statements.

Building and Operating Permits

Building and operating permits are the responsibility of the local governmental entity (county and/or municipality). This information is available from the local planning department and/or building inspector. Several counties within South Carolina have a “one stop” permitting system, where all necessary permits can be obtained at the same time. Costs for building and operating permits vary depending on location.
South Carolina
Unmatched Access To Markets

Providing Strategic Access to Markets and Materials

South Carolina’s strategic East Coast location offers companies a competitive advantage in accessing domestic and international markets and receiving raw materials. In fact, the state’s strategic location is central to a substantial portion of the nation’s consumer and industrial markets and is within one day’s drive of over 50 percent of the nation’s fastest growing markets, 32 percent of the nation’s population, and 27 percent of the nation’s manufacturing facilities.

A major benefit to companies is that five interstates, four commercial airports, three seaports, and 2,600 miles of rail support South Carolina. This intermodal network ensures that raw materials and finished goods are transported in the most efficient manner possible. In other words, companies can maintain just-in-time or other manufacturing/distribution processes, reduce transportation costs, and reduce shipping time, while at the same time being more responsive to customer requirements.

South Carolina Highways – The Road to Success

While South Carolina is fortieth in size nationally, it has the fifth largest state maintained road system (a total of over 42,000 miles) and is crisscrossed by five strategic interstates (I-20, I-26, I-77, I-85, and I-95). The location and intersection of these interstates, combined with South Carolina’s state highways, provide efficient access to the state’s ports and over half of the nation’s fastest growing metropolitan statistical areas.

One measure of the commitment and success of South Carolina’s road system is the fact that the University of North Carolina (Charlotte) rated South Carolina’s Department of Transportation first or second as the most efficient system in the nation for the last four years. A second measure of our commitment is the state’s launch of an unprecedented $5 billion investment over the next several years – this investment will more than double current road/highway construction and improvements.
South Carolina Airports – Connecting Companies to the World

Companies benefit from the proximity of a commercial airport within one hour of any location in South Carolina. By being close to an airport, better flight flexibility and time allocation is achieved. Direct flights are available to most major domestic hubs throughout the United States, and international connections can easily be made via Atlanta, Charlotte, Chicago, and New York.

The four largest commercial airports in South Carolina (and nearby Charlotte, NC) are the following:

- **Charlotte-Douglas International Airport (Charlotte, NC):** Offers direct passenger flights to every major United States domestic hub city, London’s Heathrow Airport, and Frankfurt, Germany.
• **Charleston International Airport:** Offers direct passenger flights to Atlanta, GA; Charlotte, NC; Raleigh-Durham, NC; Washington, DC; Pittsburgh, PA; Newark, NJ; Cincinnati, OH; and New York, NY (via LaGuardia)

• **Columbia Metropolitan Airport:** Offers direct passenger flights to Atlanta, GA; Chicago, IL (via O'Hare); Charlotte, NC; Newark, NJ; Cincinnati, OH; Pittsburgh, PA; Washington, DC; and New York, NY (via LaGuardia); and

• **Greenville-Spartanburg International Airport:** Offers direct passenger flights to Atlanta, GA; Chicago, IL (via O'Hare); Charlotte, NC; Freeport, Grand Bahamas; Detroit, MI; Raleigh-Durham, NC; Memphis, TN; Washington, DC; Pittsburgh, PA; Philadelphia, PA; and New York, NY (via LaGuardia).

South Carolina’s commercial airports also offer overnight express cargo service through the primary carriers: Airborne, DHL, Emory Worldwide, Federal Express, and UPS.
South Carolina’s Superior Quality of Life

South Carolina’s quality of life makes recruiting and retaining top-level talent an easy task. The cultural diversity that South Carolina’s residents bring to the state is complemented by a host of leisure activities, including arts, entertainment, and recreation, which are available year-round due to the state’s mild climate.

Recreation

South Carolina’s geography is defined by the foothills of the Appalachian Mountains and the Atlantic Ocean — from higher elevations ranging between 1,000 feet to 3,500 feet in the foothills, to sub-tropical conditions along 200 miles of Atlantic coast. With such a diverse topography and a temperate climate, South Carolina is perfect for year-round outdoor activities.

In fact, with more than 300 challenging golf courses, golfers can play 365 days a year. From the mountains of the Upstate to the beaches of the Lowcountry, South Carolina is a natural place to play golf, which has been a part of the state’s history for more than 200 years; the country’s first golf course was built in the Charleston area.

Hiking, camping, and backpacking opportunities abound in South Carolina. Dozens of state and national forests and parks, along with wildlife refuges and preserves, are located throughout South Carolina, offering unique experiences for outdoor enthusiasts. The temperate climate also supports year-round natural beauty found at such places as Middleton Place near Charleston, the home of America’s oldest formal gardens, and Brookgreen Gardens near Murrells Inlet, the world’s largest collection of outdoor sculptures nestled among 2,000 species of plants.

For those who want to experience South Carolina by bike, the state offers plenty of enjoyable trails that vary in intensity. Mountain bike trails range in topography from the rugged upstate to the flatter area of the coast.

South Carolina’s water resources offer recreational activities from kayaking and rafting on whitewater rivers; to fishing and boating on lakes; to blue water sailing and deep-sea fishing. In addition to the Atlantic coast, 830 square miles of the state are covered by...
water, including ten major rivers and three main lakes. Lakes Marion, Moultrie, and Murray together encompass 221,000 acres of water surface and are all man-made lakes built to furnish hydroelectric power plants. Lake Murray, located in the center of the state, boasts the second largest earthen dam in the world.

Arts and Culture

Steeped in Southern history and American heritage, South Carolina’s historic communities reflect a rich past that is evident in many different ways. Celebrating the past or celebrating the present, South Carolina’s smaller communities and metropolitan areas support a host of artistic and cultural events. There are over 300 festivals that occur across the state and throughout the year.

Because important Revolutionary and Civil War battles were fought in South Carolina, even celebrating history has become an art form. Thousands of people participate in living history demonstrations, from military reenactments to demonstrations of plantation life. Architecture is a subject of celebration as well, and dozens of tours of public and private dwellings throughout the state reveal some of America’s oldest and most beautiful buildings.

Sporting Events

Sports are a prominent feature in South Carolina’s quality of life; spectators enjoy a wide variety of events, from high school football to professional hockey. The state’s grade schools and colleges offer seasonal sports opportunities for their athletes as well as cheering fans. Each year, the impressive list of sporting events held in South Carolina and neighboring states grows:

- Minor league baseball in Charleston, Columbia, Greenville, and Myrtle Beach;
- Professional basketball – Atlanta Hawks (NBA) and Charlotte Sting (WNBA);
- Professional football – Atlanta Falcons and Carolina Panthers;
- College sports such as football, baseball, basketball, soccer, tennis, volleyball, and golf;
- East Coast hockey league teams in Charlotte, NC and Charleston, Columbia, Florence, and Greenville, SC;
• A Professional A-League soccer team in Charleston (The Battery) and professional soccer clubs throughout the state;

• Professional golf in Augusta (The Masters) and Hilton Head (MCI Classic);

• Professional tennis in Charleston (Family Circle Cup);

• International Steeplechase in Camden (Carolina and Colonial Cup races), and Charlotte; and

• Busch and Winston Cup series stock car racing in Charlotte, NC and Darlington and Myrtle Beach, SC.

Environment and Climate

Due to its southeastern location and varied terrain, South Carolina has a number of different climates, ranging from temperate to sub-tropical; yet, all are mild and conducive to year-round outdoor activity. There are four distinct seasons, but warm weather prevails through most of the year. Average temperatures range from the 40’s in the winter to the 80’s in the summer. There is very little frozen precipitation during the winter months, and the frozen precipitation that does occur rarely accumulates to an extent that results in business closures and travel delays. South Carolina’s temperate climate is not only a benefit in terms of quality of life, but also allows for year-round construction activity, an uninterrupted flow of transportation, and worker availability.