CH. 24 Research: Developing New Food Products

MAIN IDEA	DETAIL
Research in the Food Industry	Is an organized method of examining a question, issue, or theory to improve **understanding**? The goal is to apply new knowledge. Research is based on the **scientific method**. Steps of the method are not always followed **in sequence**. Researchers must remain objective and avoid being influenced by **biases and emotions**. Begin by gathering information that relates to the problem. The research must be **replicable**. Another scientist should be able to follow the written record to **repeat** the procedure and achieve similar results. Results of research are reported so other can use and apply the knowledge gained. Research is divided into two main types: **descriptive and analytical.**
Descriptive Research	Involves collecting data that **describes** the natural course of events or opinions of people at a given time. Involves **observations, surveys, and interviews** to collect data. Food scientists use descriptive research to assess people's **opinions**. It is conducted with **taste tests** to collect information on consumer opinions about a product. The panel must be made up of people for whom the product is designed. A taste test must allow testers to respond in a way that can be **measured scientifically**. Written surveys can be designed to allow for responses that can be measured scientifically. Surveys must work with the **population being tested** whether written, picture (for young children), an interview, etc.
Descriptive Research Continued	Descriptive research can be used to **study trends** in food consumption. Or collect data from consumers about the types of new products that interest them.

	Example: low fat/low sugar products such as baked potato chips, low fat cheeses, sugar-free cookies, low trans-fat or gluten free products. Functional foods are **modified foods or food ingredients** that may provide health benefits beyond the traditions nutrients they contain, i.e. soy products.
Analytical Research	Determines cause and effect through **observation and testing**. It involves exact measurements of **mass, volume, time, length and/or chemical makeup**. Analytical research is used to **test hypotheses**. To find out why reactions occur. It is **key** to the development of a new food product. Usually, descriptive research is used to **reveal trends**. The results of the descriptive research are used to set up analytical research. The analytical research is used to **develop a new product**.
Developing Food Science Experiment	A food science experiment is designed to solve a problem or answer a question about food. 1. **State** the problem. 2. Forming a hypothesis or research question, an **educated guess** about how or why something happens. 3. **Gathering information**: availability and cost of ingredients, how ingredients interact in food systems similar to the new product, too. 4. Design an **experiment** to test the hypothesis with **controlled variables**. Before a researcher can conduct an experiment, they must **write the procedure in detail**. The written procedure should be clear enough that someone else could **conduct the experiment** without the researcher's assistance. The written format will be similar to that used in experiment procedures you have followed. 5. **Collecting Data**: Often means measuring length, mass, temperature, time, and volume. Observations **about texture, color, flavor, and aroma** may also be recorded. 6. Analyzing and Interpreting Data: How do the results relate to present information? 7. Sharing Results with other researchers.

Developing a New Food Product	Consumers constantly demand more choices, improved convenience and more healthful foods. Some items food scientists work on developing are **new products**. Other items are **variations** of established products. Olean is an example of a new food product. It was developed to give consumers the taste and feel of fat without the calories. The best way to understand a process is to work through it. 1. **Identify the Problem** or Need 2. Identify the **Consumer Group** Being Targeted **3. Conduct Research** 4. **Develop** the Product 5. **Pilot** Manufacture the Product 6. Receive Management approval: Before a product is mass-produced a complete report is presented to a management team. The report would include: *a sample product with a **complete description** *the **formulation or recipe** *a **cost analysis** broken down by ingredient and individual market unit *an analysis of the pilot manufacturing and taste test results, including any **new or redesigned** equipment needed *a recommendation for **packaging materials** and storage requirements *a description of market **competition** with similar products *an advertising proposal *an explanation of why the company should develop this product 7. **Mass-Produce** the Product 8. Market and Advertise the Product 9. Apply **Professional Ethics**