Welcome to the first lecture of the last module of this course. We are going to talk a lot about regulations affecting the food industry in these lectures. We are going to start with a discussion of labeling. Remember that we already talked about GMO labeling in that lecture so we will not discuss again here. The is one of the hottest topics in labeling so keep that in mind as you read this lecture.

The lecture objectives are as follows. We will list the agencies responsible for enforcing laws regarding food labeling. Explain that laws enforced by the food agencies are binding to both domestic and foreign producers. Determine the reasons for which foods can be recalled including misbranding and/or adulteration and the role of labeling in each. Discuss labels required by USDA for safe food handling. Recognize the role of date labels in food waste.

If you are not reading the labels on your foods, I highly suggest you start! Food labels are not only for food safety but also for nutrition. What is required and regulated on a food label? It has to have the name of the food. You would think this was obvious but you would be surprised how many times that information is left off. You have to have the net quantity of content. Ingredients must be listed and a nutrition label is a must. Health claims are optional. Many companies don’t want to go through the rigorous process required to have a health claim placed on their foods. Food safety issues can arise when food is improperly identified, nutrients are present in lower/higher amounts than indicated, items are missing from ingredients lists, or false health claims are stated. Obviously, the nutrition information on the label can affect health as well.

To touch on that last point a minute, for the purpose of our class we are only discussing labeling as it relates to food safety. Labeling is an important tool for nutrition and a vital resource for the consumer to prevent chronic health conditions. However, the role of labels in nutrition is beyond the scope of this course. I hope you will take a look at the labels such as the one seen on the right. This is a nutrition label, it is not a food safety label.
Food labeling is required for the following. You must have a label on breads, cereals, canned foods, frozen foods, snacks, desserts, drinks, etc. Pretty much anything that comes in a box needs to be labeled. However, labeling for the following is voluntary. That includes raw fruits, raw vegetables, and fish. I show you a bunch of labels on the right because sometimes labels can be misleading. Note that not one single label here guarantees that these foods are organic. The only label that guarantees organic is USDA Organic.

Who are the agencies that regulate foods? The FDA will regulate most packaged foods and they do so under the authority of the FD&C or Food, Drugs, and Cosmetics Act. I promised you we would see this law again and we will again in later lectures. FSIS is part of the USDA and they regulate meat, poultry and some eggs. They have several regulations that give them the authority to regulate foods including the Federal Meat Inspection Act, the Poultry Products Inspection Act, and the Egg Product Inspection Act. You have probably seen their labels such as the one shown at right, a USDA Choice grade label.

The FDA is responsible for ensuring that foods produced domestically and imported are properly labeled. The FDA enforces laws set out in the following two acts. And one of the reasons I put this in bright red here is that the FDA cannot make laws. The FDA cannot mandate that a label must be put on a food until US law says this is the case. The FDA enforces these two acts. The Federal Food Drug and Cosmetic Act (FD&C) and the Fair Packaging and Labeling Act (FPLA).

Let’s take a closer look at those two acts beginning with the FD&C. The food section of the FD&C includes a broad range of regulations aimed at ensuring that foods are safe, pure, wholesome, and produced under sanitary conditions. For the purposes of our lecture on labeling, we are going to address the following things. Misbranded foods. Adulterated foods. And the Food Allergen Labeling and Consumer Protection Act. Notice that the last act is an amendment to the FD&C. This was added to the increase in food allergies discussed earlier on. On the right hand side you see the Jensen Farms outbreak. We talked about this in the first module with cantaloupes and Listeria. Due to unsanitary conditions at Jensen Farms, 33 people lost their lives. This is why the FDA wants to ensure that foods are pure and produced under sanitary conditions.
The Fair Packaging and Labeling Act is also very important. There are several provisions of this act (most of which are enforced by the FTC, see later slides) but for the purposes of this class, the most important is the following: requires identification of food. You may think this is obvious but you would be surprised how many products go out on the market with an unusual name but fail to list what it really is. Prevents consumer deception with respect to identification of ingredients. For example, the food on the right claims to be 100% honey, if there were ingredients in the food such as water, this would be a violation of the FPLA. There was a rumor circulating that most products on the US market labeled honey are really just sugar and water. This was not true and would be a violation of the FPLA.

Let’s begin with talking about misbranded foods. This refers to falsely or misleadingly packaged or labeled food. What happens here is that food has an incomplete or missing ingredients list. A food may fail to list major allergens. A food may fail to list a common name of the product. A food may list false micronutrient composition. A food may fail to list potentially dangerous contents. A food may fail to list food additives. Or a food may make false nutrition claims. In other words, the ingredients list better be complete and accurate. Very important and shown on right, most FDA recalls are the result of undeclared allergens. These are considered misbranded foods. If you look at this list I pulled from the FDA recall site in early 2015, you will see undeclared peanut, peanut, peanut, on and on. This was the result of a huge cumin spice recall. Cumin spices were accidently contaminated with peanuts and recalls were continuing even into the middle of 2015.

I would like to take some time to look at some of the misbranding warning letters that the FDA mails out. The often do inspections based on complaints and find problems. Usually they sent out warning letters. In most cases not involving serious violations, the FDA will ask the company to make the required changes on their own and do recalls on their own if necessary. The food producer at left was given a warning from the FDA that their product was considered misbranded. This was because a major allergen was not listed on the label. This requires an immediate recall. Also, the label did not contain a list of all of the ingredients in the product. This could be problematic if someone was allergic to another ingredient in the product.
Here we have another letter for misbranding. This food had no nutrition labels, no common or usual food names, and no place of business listed for manufacturer, packer, or distributor. Why this is important is because if an outbreak was associated with these foods, they would need to be traced back to the source to determine the size of the outbreak. There was also no net quantity and other issues. This is a bring problem when you have specialized holiday candies which is exactly what this was here.

[note added: following the FDA Food Code, discussed later, could have prevented this problem]

Here is another misbranding warning letter. In this case the producers was warned about making false statements regarding the nutrient content of their foods. The FDA laboratory is very high tech. They can easily take a food and determine the nutrient content. The FDA laboratory easily determined the listed vitamin C content was incorrect. Interestingly, the FDA also stated in the letter that the company had already been warned about false claims for iron content in another food. Basically this is the FDA way of saying we are keeping an eye on you, get in line or we can shut you down!

Here is another misbranding warning label. In this case the FDA issued a warning label because the company used the wording “Fresh-packed” on their products. We will talk about how terminology such as this is confusing to the consumer later on. People like to believe that using the words Fresh-packed will lead the consumer to thinking the foods are better for them. But you cannot use the words “Fresh-packed” on a product that has been thermally processed, which is what happened here.

I am showing you a lot of these warning letter because this exemplifies a lot of what the FDA does. They send out a lot of warning letters every week and they are public so you are welcome to look at them. I included so many here so you could see the broad range of reasons for which foods could be outside of the regulations. In this case the producer failed to label the product PHENYLKETONURICS: CONTAINS PHENYLALANINE. This product contains aspartame, composed of phenylalanine. In most cases where people forget this label it is because they are not aware that aspartame contains phenylalanine.
Phenylketonuria (PKU)

• PKU is a rare condition in which a person is born without the ability to breakdown the amino acid phenylalanine.
• One of the reasons for which babies are screened immediately after birth.
• If products containing phenylalanine are not avoided, brain damage will occur.
• The label must always appear in a larger font than the surrounding text, all capitals, bold type.

PKU is a rare condition in which a person is born without the ability to breakdown the amino acid phenylalanine. This is one of the diseases for which babies are screened immediately after birth. This is one of the reasons why newborn screenings are so important. If products containing phenylalanine are not avoided, brain damage will occur. If people cannot break this down, they will end up with brain damage if they eat the wrong foods. The label must always appear in larger font than the surrounding text, all capitals, bold type. If you look on the right, note the label on Equal, it is all capitals and bold. Again, this is not a mistake someone wants to make when it can result in brain damage.

Adulterated Foods

• Many foods are susceptible to adulteration.
• In the case at right, the UK equivalent to the FDA (known as the Food Standards Agency) was investigating adulterated saffron.

So we have finished our discussion of misbranded foods and now we want to talk about adulterated foods. Make sure you understand the difference between these two types of categories. In adulterated foods this is the deliberate addition of inferior or cheaper material to a food product, usually for profit gains. The two major things that occur in adulteration are the addition of prohibited substances or substituting a cheaper product. Our major problem with this here in Florida is grouper. Many places try to sell you grouper that is not grouper. The University of Florida has this handy guide here to help you determine when a grouper is a grouper.

Adulterated Foods

• Many foods are susceptible to adulteration.
• In the case at right, milk was adulterated by adding water and the chemical melamine.
• Melamine can fool standardized test used for protein content.
• Several infants lost their lives.
• Several thousand infants were hospitalized.

Unfortunately, many foods are susceptible to adulteration. I am showing you a case at the right involving the UK equivalent of the FDA, also known as the FDA, was investigating adulterated saffron. Saffron is one of the most expensive spices on the market. A lot of people try to pass off different spices or parts of the plant that are not edible as saffron. This has been a major problem in the UK.

Adulterated Foods

• Many foods are susceptible to adulteration.
• In the case at right, milk was adulterated by adding water and the chemical melamine. When we test milk it has to contain a minimum protein concentration. One way to falsely elevate protein is to add melamine, which is poisonous. When this happened, several infants lost their lives and several were hospitalized. You may recall the slide mentioning melamine introduction to pet foods that likely killed thousands of pets. This was done for the same reason, to falsely elevate the protein content of the pet foods.

Here is an especially egregious case that resulted in some deaths. In the case at right, milk was adulterated by adding water and the chemical melamine. When we test milk it has to contain a minimum protein concentration. One way to falsely elevate protein is to add melamine, which is poisonous. When this happened, several infants lost their lives and several were hospitalized. You may recall the slide mentioning melamine introduction to pet foods that likely killed thousands of pets. This was done for the same reason, to falsely elevate the protein content of the pet foods.
Here is a warning letter sent for adulterated foods to indicate the addition of folic acid. That might surprise you but folic acid is a food additive and has very strict regulations. Folic acid is not allowed to be added to snack foods. This was a snack food so they are in violation of FDA guidelines.

This letter includes both misbranding and adulteration. The adulteration was the addition of color additives not licensed for use in foods. Recall that very few colors are allowed under FD&C and producers are only allowed to use those colors that are approved. If the FD&C does not include that color, you cannot add it, and the foods are adulterated.

This is another adulterated and misbranding label. The food is adulterated because it is labeled abalone, but is in fact a different sea snail. This is a common bait and switch that occurs. Most commonly in Florida with grouper. Because the label is falsified, it is also considered misbranded. The labels failed to list all of the ingredients and because the labels are in two different languages but they do not match. We see this commonly where labels will come from another country and in English say the food is vegetables but in Spanish say the food is chicken. If the labels do not match, they are misbranded.

One of the most important food labeling guidelines that was recently added was the Food Allergen Labeling and Consumer Protection Act. Recall that this was an amendment to FD&C and was added to help consumers avoid the eight leading causes of food allergies. The eight leading causes are shown here. The act defines a major food allergen as one of the 5 foods listed, one of the 3 food groups listed. Because fish, shellfish, and tree nuts are food groups. And any ingredient which contains proteins from one of the 8 foods. This is important because processing of foods could introduce proteins that one would not expect to find in a particular food. When adding those foods in processing one must be careful to include them in the labeling.
Any food that contains an undeclared major allergen is misbranded under the FD&C. Failure to list food allergens is the leading cause of food recalls. Why, because it could potentially be fatal. Bakery products are the most frequently recalled type of food. Most often because they left the milk out. Milk is the most common undeclared allergen.

Please take a quick look at the list of foods that require allergen labels. Note the list of tree nuts! Please note coconut on this list. Recall that I told you allergies may be on the rise due to food proteins being used in products other than foods. Coconut may be used in cosmetics or shampoos [note added: sunscreens!]. I also want to make a point about wheat. Please note that allergies are regulated so wheat must be labeled. Sensitivities are not labeled, so gluten does not have to be labeled. The label gluten-free is permitted. However, celiac disease may result in new legislation requiring that gluten is labeled.

You may be surprised to note that the Federal Trade Commission sometimes gets involved in food safety issues and enforcing laws. They enforce laws regarding marketing of foods and enforce laws regarding advertising of foods. Many people have expressed concerns over marketing of sugar and fast foods to children. You may have noticed that many of the commercials for these foods have disappeared over backlash from parents. The FTC can regulate that advertising.

FTC rulings can involve misleading claims on foods. Often, the foods claim to have health benefits not supported by any data or testing done on that food. This is a relatively new field known as nutri- or nutraceuticals which are foods with health benefits. False claims keep the FTC busy and you can see one of these here. The FTC charge Gerber with falsely advertising its Good Start Gentle Formula protects infants from developing allergies. These claims are not approved by the FDA and the FTC ruled against Gerber.
The FTC has been very busy with these claims. You can see where they went after Pom Wonderful for making unsubstantiated health claims. One of the biggest cases was Dannon Yogurt and they actually had to drop the false health claims for Activia yogurt from their commercials. They also went after claims that Rice Krispies benefit children’s immunity. Needless to say, they do not find it amusing when companies try to overstate the health benefits of their foods. You will see this with a lot of alternative medicines and the FTC and FDA are starting to go after them as well.

Let’s talk about what the USDA does when it comes to labeling. We will talk about the overall goals of the USDA later on but here we are just discussing labeling. USDA regulations require an inspection legend on all federally inspected meat and poultry product containers. The product will be declared misbranded if the legend is missing. We will talk later about how inspectors are placed in slaughter plants and are responsible for doing many of these things. The goal here is to intercept foods that may be imported and not inspected. [Note added: and also domestic foods produced without the benefit of inspection].

The USDA also regulates handling statements. You may have seen some that say “keep refrigerated”, “cook to 160 degrees”, etc. Please check the foods in your house and see if you have any with safe handling instructions. For example, do you see the words “refrigerate after opening”? Packaged products that require special handling to maintain their wholesome condition must have prominently displayed the applicable handling statement. It may look like “keep refrigerated” “keep frozen” “perishable – keep refrigerated or frozen” or other varieties of this.

Safe handling instructions are required for the following; raw meat and poultry, partially cooked meat and poultry, and eggs. You will see a statement that looks something like what you see here. “This product was prepared from inspected and passed meat and or poultry. Some food products may contain bacteria that could cause illness if the product is mishandled or cooked improperly. For your protection, follow these safe handling instructions.” And then the safe food handling instructions will be shown. Again, look at your own foods and see if they have these labels.
Another thing you might see is the consumer advisory. Food establishments that sell or serve raw or undercooked animal foods or ingredients must inform customers about the increased risk associated with eating these foods. This included meat, eggs, and seafood. This could be signs on doors or reminders on menus. The next time you visit a restaurant that has some of these foods, look and see if you can spot consumer advisories. They may say something like “caution eating hamburger rare or raw could result in serious health consequences” or something to that effect. Items should also be fully described on the menu. For example, if it has raw oysters, it must say “raw oysters” not just “oysters”.

This brings us to our last topic for this lecture which is product date labels. Product dating labels are not required by Federal regulations with the exception of infant formula. That is important, they are NOT required. However, calendar dates, often known as open dating, often appear on foods. However, there is no uniform or universally accepted system for dating foods in the United States. If a calendar date is used, there is a requirement that there must be a date in front of it which explains the meaning of the date. For example, the phrase “use by” should occur before the date. Note the labels on the milk container.

If you are looking for product dating labels on your foods, some of the phrases you might see are “use by”, “best before”, “sell by”, “enjoy by”, “born on”, and on and on. There are many phrases that could be used but you will almost never see “expired on” or any other term using the word expire, despite people referring to these as expiration dates. Your instructor challenges you to find a food that says “expiration date”. There is no standard use for any of these terms but the following tend to be defined; sell-by tells the store how long to display the product for sale. Foods that reach their sell-by dates usually go on BOGO or on sale. Best if used by (or before) is the recommended date for best flavor or quality. The use-by date is the last date recommended for peak quality. Very important, none of these dates have anything to do with the safety of foods! When the “expiration” date passes, there is usually no safety concern but sometimes the nutritional value begins to drop.
Because nutritional quality drops over time, there is an exception to dating label law for infant formula. Federal regulations require a “use-by” date on the product label of infant formula. This is the last date at which the formula contains the exact nutrients listed on the label. This is because it is very dangerous to use formula that is out of date. The nutrient content of the food drops and this could be deadly to the infant. The use-by date will be printed on the bottom of the bottle shown here on the right. Formula cannot be sold and should not be used after the use-by date has passed. In addition, many people dilute formula with water and this should never be done as it dilutes the nutrients and can be deadly.

Returning to all foods other than infant formula, the federal government does not regulate product dating labels but many states have chosen to enforce some dates. This is not consistent from state to state. In Florida, we require dates on dairy and shellfish. They cannot be sold after the date has passed. However, some producers will just sell those items in another state. I show you an internet viral image on the right. I took out a certain word because it was naughty and while the picture is crude, it really does illustrate the point. No one is regulating date labels so despite the date of 1538 on this milk, it may not be subject to recall.

Why do we care about labeling systems? The USDA and FDA do have it within their authority to declare the current dating system “misbranding”. They could actually change the way these dates work. Some people have called for them to do this. Legislation has attempted to address this issue but it has failed. Why this is so critical is because nearly 40% of foods are discarded in part due to these dates even though they are perfectly safe for consumption. We already lose 10% of foods to pests, and then another 40% due to expiration dates. Half of all food we are producing is never being eaten. Just to illustrate a point of why these dates don’t make any sense, look at the picture on right. Bud using a “born on date” but what does this mean. Was this the date the beer was brewed? Bottled? The date the hops were harvested? In other words, this date is meaningless.
Here is a final thought on food labels. Many of the things you see on food labels have nothing to do with food safety and nutrition. These are not things that are mandatory but are actually clever marketing tools. Some labels are used to mislead the consumer who believes they are making a healthy choice. The word natural is not regulated on foods with the exception of some meats. If you see the word natural or all natural on foods, it doesn’t mean anything. The word local is not regulated and neither is locally-grown. I gave an example earlier on of a “locally-grown” food in your Starbucks that contains berries from another country. Fresh is meaningless but fresh-packed is regulated. Supports a healthy immune system, completely meaningless terms. None of the above phrases are regulated by the food industry. In other words, legally, all of these phrases could appear on a bottle of soda.

To sum this all up. The FDA, USDA, and FTC enforce regulations regarding food labeling. Omission of ingredients, particularly allergens is the leading cause of food recalls. Failure to follow laws regarding labeling can result in charges of both misbranding and adulteration. Safe handling instructions and consumer advisories are critical to prevent foodborne illnesses from potentially raw meats and eggs. Food date labels are meaningless (except infant formula) and lead to considerable food waste.