For as long as animals have been used as a food source by humans, their by-products have been just as important. Cattle provide numerous by-products we use daily. Parts of the cow other than beef are used in the manufacturing process for many of the industrial, household and health products. Listed below are some of the ways that cattle really do touch us daily.

**Cattle by-products allow 99% of every dairy cow to be utilized!**

To learn more about cattle by-products go to [www.dairymax.org](http://www.dairymax.org)

### Household Goods
Household items manufactured with inedible cattle by-products are a daily part of life. Look to see how many of these cattle by-products you use nearly every day!

<table>
<thead>
<tr>
<th>From Fats/Fatty Acids and Protein Meals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candles</td>
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<tr>
<td>Cellophane</td>
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<tr>
<td>Ceramics</td>
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<td>Cosmetics</td>
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<tr>
<td>Crayons</td>
</tr>
<tr>
<td>Perfumes</td>
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<tr>
<td>Paints</td>
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</tbody>
</table>

### Pharmaceutical Products

**From the Pancreas**
- **Insulin** – for treating diabetes and high blood sugar
- **Chymotrypsin** – promotes healing of burns and wounds
- **Pancreatin** – aids in digestion of food
- **Glucagon** – treats hypoglycemia or low blood sugar

**From the Liver**
- **Heparin** – anti-coagulant
- **Liver Extract** – treatment of anemia
- **Vitamin B-12** – prevention of B-complex deficiencies

**From the Bone**
- **Bone Marrow** – treatment of blood disorders
- **Soft Cartilage** – plastic surgery component
- **Bone Meal** – calcium and phosphorous source

**From the Pituitary Gland**
- **Prolactin** – promotes lactation
- **Pressor Hormone** – regulates blood pressure
- **Vasopressin** – controls intestinal and renal functions
- **ACTH** – treatment of arthritis and allergies

**From the Blood**
- **Blood Factors** – for treating hemophilia, killing viruses and making anti-rejection drugs
- **Iron** – treatment of anemia
- **Thrombin** – coagulant which helps blood clot

### Travel-Related Products
Tires contain stearic acid which makes rubber hold its shape under continuous surface friction

Antifreeze contains glycerol derived from fatty acids to keep engines running cool

Asphalt has a binding agent from fat

Glue from beef protein is used in car bodies

Numerous lubricants and fluids contain fatty acids from inedible beef fats and proteins

Steel ball bearings contain bone charcoal

Other products include hydraulic brake fluid, airplane lubricants, runway foam, car polishes and waxes and textiles for car upholstery
**BUTTER**

Butter is made exclusively from milk or cream, or both, with or without common salt and with or without additional coloring matter. **Butter also contains protein, calcium and vitamins A, D and E.**

**Butter Varieties include:**
- Traditional Butter
- Salted/Unsalted Butter
- Whipped
- Light Butter
- Cultured Butter
- Anhydrous Butter
- Butter Oil
- Butter Powder

**ICE CREAM**

Ice cream has a great deal more nutritional value than its dessert counterparts, such as cake, pie or candy. The primary nutrients in ice cream are calcium, riboflavin (vitamin B2) and protein.

**Ice Cream Varieties Include:**
- Frozen Custard
- French Ice Cream
- French Custard Ice Cream
- Reduced Fat Ice Cream
- Lowfat Ice Cream
- Fat Free Ice Cream
- Sherbet

**WHEY**

Whey is the liquid part of milk that remains after the manufacturing of cheese. Whey can be transformed into a dry product by different techniques.

Today’s whey ingredients go into numerous products ranging from dairy foods and nutritional supplements to processed meats.

They serve as excellent emulsifiers, whipping agents and water-binders, and also aid in gelation, thickening and browning.

The two major categories of whey in the United States are sweet whey and acid whey.

- **Sweet whey** results from the manufacturing of hard cheeses such as cheddar and mozzarella and has a pH greater than 5.6.

- **Acid whey**, on the other hand, is produced during cottage cheese and ricotta manufacturing processes and has a higher mineral content and a pH of less than 5.1.

**CHEESE**

Cheese, a concentrated dairy food made from milk, is defined as the fresh or mature product obtained by draining the whey (moisture of original milk) after coagulation of casein, the major milk protein. **Cheese can be used in almost every food product.** Different ingredients and processes used during the making and aging of cheese result in a wide variety of cheeses, each with its own distinct texture and flavor.

There are more than 200 varieties of cheese produced in the U.S. and over 1,400 varieties in the world.

**Cheeses are categorized in several ways:**
- Natural
- Process
- Unripened
- Ripened
- Soft
- Hard

Dairy Max is a resource for information on dairy products. For more information, visit www.dairymax.org.