CORN IN TOUCH WITH US DAILY! – Fact sheet

Corn is in touch with us daily–often without our ever knowing it! Americans would find it difficult to live without corn. It is our country's number one crop. Many people are familiar with sweet corn and enjoy it as a part of their diets. However, most corn is field corn which is fed to livestock and poultry, and processed into a variety of products. For example, corn syrup sweetens our soft drinks, cornstarch strengthens fibers in cotton shirts, and toothpaste contains sorbital processed from corn to make the paste tasty. Many other non-edible products contain corn, including glue, fireworks, crayons, chalk, ink, paper, paint and cosmetics. The more obvious corn products are the edible variety, such as corn meal, corn chips and cereals.

The Many Uses of Corn

- **0.2% Seed**—High-yield hybrids are planted annually.
- **1.2% Food**—Americans eat little whole kernel corn, but eat 120 million bushels in processed foods.
- **2.6% Starch**—This extract thickens foods and is used in numerous new industrial products such as biodegradable plastics.
- **5% Alcohol**—Ethanol from corn powers cars and a variety of other engines.
- **8% Sweeteners**—Corn syrup has replaced imported sugar in a host of products like soda and candy.
- **10% Ending Stocks**—Corn held at year's end provides for a sustained food supply in bad crop years.
- **22.6% Exports**—The U.S. provides about 80% of the world's corn needs and is the world's largest exporter.
- **50% Animal Feed**—Feed for cattle, hogs and poultry continues to be the largest market for corn.

Many good things come from a kernel of corn...

Corn components include: **Starch** - 61%, **Feed** - 19.2%, **Oil** - 3.8%, **Water** - 16%

**The Hull**—This fibrous layer covering the kernel is used in producing corn gluten feed and meal.

**The Germ**—Most of the oil and some of the protein is found in this elongated oval portion of the kernel. It is used in cooking oils, margarine, mayonnaise, and salad dressing. The polyunsaturated oil produced from corn is considered a "premium" oil because of its delicate natural flavor, golden color and excellent frying characteristics.
Starch Protein—This white, powder-like part of the kernel may be used as a starch or converted to sweeteners or alcohol. Cornstarch typically is used in papers, adhesives, textile weaving, pharmaceutical tablets and many food items. When converted to sweeteners, it is used in soft drinks, bakery goods, baby foods, chewing gum, ice cream, jams, processed cheese and medicines. When processed into fuel ethanol, it's blended with gasoline to boost octane and reduce carbon monoxide emissions from engines.

The Sides—A large portion of protein in corn is extracted from the sides of the kernel. Called gluten, it's typically added to livestock rations for supplemental protein.

From one bushel of corn, you get...

| 32 pounds of STARCH, adhesives, batteries, detergents, crayons, degradable plastics, dyes, plywood, antibiotics, chewing gum, soups OR | 1.6 pounds of CORN OIL, cooking oil, margarine, mayonnaise, salad dressing, shortening, printing ink, soap, leather tanning OR 2.5 gallons of ETHANOL/ALCOHOL, motor fuel additive, alcoholic beverages, industrial alcohol, 3 pounds of 60% GLUTEN MEAL, amino acids, fur cleaner |
| 33 pounds of SWEETENER, shoe polish, paper, soft drinks and juices, licorice, peanut butter, pickles, catsup, marshmallows, cereal, 11.4 pounds of 21% PROTEIN GLUTEN FEED, livestock and poultry feed, pet food | 1.6 pounds of CORN OIL, cooking oil, margarine, mayonnaise, salad dressing, shortening, printing ink, soap, leather tanning OR 2.5 gallons of ETHANOL/ALCOHOL, motor fuel additive, alcoholic beverages, industrial alcohol, 3 pounds of 60% GLUTEN MEAL, amino acids, fur cleaner |

Corn Facts...

• U.S. corn yields averaged 37 bushels per acre in 1950. In 1966, the average yield was 74.1 bushels per acre. By 1994, corn growers produced a U.S. average record of 138 bushels per acre.
• A single kernel seed of corn may produce a plant that yields 800 kernels of corn per ear. An estimated 22,000 to 35,000 individual plants can be grown on one acre of land, and each plant produces an average of two ears.
• All ears of corn produce an even number of rows, with an average of 16 rows. An acre of corn yielding 100 bushels produces about 7.2 million kernels.
• There are more than 3,500 different uses for corn products and more uses are being found each day.
• In the United States, corn production covers more acreage than any other crop. The United States has, in one year, harvested more than 80 million acres of corn.
**Corn By-Products...**

**Dextrose (Food, Drug Uses)**

<table>
<thead>
<tr>
<th>Antibiotics</th>
<th>Baby Foods</th>
<th>Bakery products (biscuits, bread, crackers, fillings, icing, macaroons, pretzels, cookies, crackers, wafers, etc.)</th>
<th>Berries, canned and frozen</th>
<th>Beverages, brewed (beer, ale, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beverages, carbonated</td>
<td>Breakfast foods</td>
<td>Caramel color</td>
<td>Cheese foods and spreads</td>
<td>Chewing gum</td>
</tr>
<tr>
<td>Chocolate products</td>
<td>Citric acid</td>
<td>Citrus juices</td>
<td>Coloring, pure food mix</td>
<td>Condensed milk</td>
</tr>
<tr>
<td>Confectionery</td>
<td>Cordials, liqueurs and brandy</td>
<td>Cream, frozen</td>
<td>Dairy products</td>
<td>Desserts</td>
</tr>
<tr>
<td>Dietetic preparations</td>
<td>Distillation products</td>
<td>Doughnuts (cake, yeast)</td>
<td>Drugs (fermentation process)</td>
<td>Eggs, frozen or dried</td>
</tr>
<tr>
<td>Fish, pickled</td>
<td>Flavoring extracts</td>
<td>Food acids (citric, etc.)</td>
<td>Fruit juices</td>
<td>Fruits and vegetables (canned)</td>
</tr>
<tr>
<td>Gelatin desserts</td>
<td>Ice cream, water ices and sherbets</td>
<td>Infant and invalid feeding</td>
<td>Jams, jellies, marmalades and preserves</td>
<td>Lactic Acid</td>
</tr>
<tr>
<td>Meat products (bacon, bologna, hams, sausage, frankfurters, mincemeat)</td>
<td>Medicinal preparations &amp; intravenous (injections, pills, tablets, drugs, etc.)</td>
<td>Mixes, prepared (cake, icings and frostings, infant foods, pie fillings, toppings,</td>
<td>Peanut butter</td>
<td>Peas, canned</td>
</tr>
<tr>
<td>Pickles and pickle products</td>
<td>Prepared mixes</td>
<td>Powders (ice cream, prepared dessert, pudding, summer drinks, powders, etc.)</td>
<td>Sauces (catsup, tomato, etc.)</td>
<td>Seasoning mixes, dry</td>
</tr>
</tbody>
</table>

**Dextrins (Industrial Uses)**

- **Adhesives** (glues, pastes, mucilages, gums)
- **Cord polishing** (castings, molds, etc.)
- **Envelopes**
- **Labels**
- **Oil-well drilling** (cold-water, poster, etc.)
- **Plywood**

- **Bookbinding**
- **Core binder** (castings, molds, etc.)
- **Cork products**
- **Inks, printing**
- **Linoleum**
- **Paints (cold-water, poster, etc.)**
- **Sandpaper**

- **Briquettes**
- **Cork products**
- **Insecticides**
- **Magazines**
- **Paints (cold-water, poster, etc.)**
- **Shoes (counter pastes, etc.)**

- **Candles**
- **Crayon and chalk (as a binder)**
- **Dyes (dry, cake, etc.)**
- **Envelopes**
- **Fireworks**
- **Insulation, fiberglass**

- **Ceramics**
- **Dyes (dry, cake, etc.)**
- **Insecticides**
- **Magazines**
- **Matches (on head and side of box)**
- **Oil-well drilling** (cold-water, poster, etc.)
- **Sandpaper**

- **Cord polishing** (castings, molds, etc.)
- **Dyes (dry, cake, etc.)**
- **Insecticides**
- **Magazines**
- **Matches (on head and side of box)**

- **Cork**
- **Cork products**
- **Dyes (dry, cake, etc.)**
- **Insecticides**
- **Linoleum**

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- **Insecticides**
- **Linoleum**
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- **Linoleum**
- **Paints (cold-water, poster, etc.)**
<table>
<thead>
<tr>
<th>Straws (drinking)</th>
<th>Textiles, sizing, finishing and printing</th>
<th>Twine (cord, string, etc.)</th>
<th>Wallboard and wallpaper</th>
<th>Window shades and shade cloth</th>
</tr>
</thead>
</table>

**Cornstarch** *(Food, Drug and Cosmetic Uses)*

<table>
<thead>
<tr>
<th>Antibiotics</th>
<th>Aspirin</th>
<th>Baby Foods</th>
<th>Bakery products (breads, rolls, cakes, pies, crackers and cookies)</th>
<th>Baking powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beverages, brewed (beer, ale, etc.)</td>
<td>Chewing gum</td>
<td>Chocolate drink</td>
<td>Confectionery</td>
<td>Cosmetics</td>
</tr>
<tr>
<td>Desserts (puddings, custards, etc.)</td>
<td>Drugs and pharmaceuticals</td>
<td>Flours, prepared (including prepared mixes)</td>
<td>Food and drug coatings</td>
<td>Gravies and sauces</td>
</tr>
<tr>
<td>Meat products</td>
<td>Mixes, prepared (pancake, waffle, cake, candy, etc.)</td>
<td>Mustard, prepared</td>
<td>Pie filling</td>
<td>Precooked frozen meals</td>
</tr>
<tr>
<td>Salad dressing</td>
<td>Soaps and cleaners</td>
<td>Soups</td>
<td>Sugar, powdered</td>
<td>Vegetables, canned</td>
</tr>
</tbody>
</table>

**Corn Oil, Refined** *(Food, Drug Uses)*

<table>
<thead>
<tr>
<th>Carriers for vitamins and other medicinal preparations in capsule form</th>
<th>Cooking Oil</th>
<th>Margarine</th>
<th>Mayonnaise</th>
<th>Potato chips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salad</td>
<td>Sauces,</td>
<td>Shortening</td>
<td>Soups</td>
<td></td>
</tr>
</tbody>
</table>
### Corn Syrup (Industrial Uses)

- Adhesives (plasticizing agent)
- Chemicals
- Dyes and inks
- Explosives
- Leather tanning (chrome process)
- Metal plating
- Paper, glassine and parchment
- Plasticizer
- Polish, shoe
- Rayon (Viscose process)
- Textiles, for finishing
- Theatrical make-up
- Tobacco and tobacco products

### High Fructose Corn Syrup (Food Uses)

- Bakery products
- Canned fruits
- Canned juices
- Condiments
- Confectionery products
- Frozen desserts
- Jams, jellies and preserves
- Soft drinks
- Wine
- Yeast

### Cornstarch (Industrial Uses)

- Abrasive paper and cloth
- Adhesives (glues, mucilages, gums, etc.)
- Batteries, dry cell
- Binder or binding agents
- Board (corrugating, laminating, solid fiberboard, cardboard)
- Boiler compounds
- Bookbinding
- Briquettes
- Ceramics (as clay binder)
- Chemicals
- Cleaners, detergents
- Coatings on wood, metal and paper
- Color carrier (in paper and textile printing)
- Cord polishing, sizing
- Cork products
| Crayon and chalk (as a binder) | Dispersing and standardizing agent | Dressing, surgical | Dyes (as a bodying agent, carrier diluent, etc.) | Fermentation processes |
| Fiberglass size | Fireworks | Insecticide powders | Insulating material (glass, wool, rock wool, etc.) | Lubricating agents |
| Oilcloth | Oil-well drilling (drilling mud) | Ore refining (electrolytic reduction process, flotation process, etc.) | Paints (cleaning compounds, cold water and latex paints, poster, laquers, etc.) | Paper and paper products manufacture |
| Photographic films (antihalation powder) | Plastics (molded) | Plywood (interior) | Printing | Protective colloids (emulsions) |
| Textiles (warp sizing and finishing) | Tile, ceiling | Tires, rubber | Wallboard and wallpaper | Water recovery, industrial |

**Corn Syrup** *(Food, Drug Uses) Liquid or Dried Form*

<p>| Baby foods | Bakery products (bread, rolls, biscuits, doughnuts, pies, cakes, cookies, pretzels, etc.) | Beverages, brewed (beer, ale, etc.) | Beverages, carbonated | Breakfast foods |
| Catsup, chili sauce, tomato sauce | Cereals, prepared | Cheese spreads and foods | Chewing gum | Chocolate products |</p>
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Product Type</th>
<th>Subcategory</th>
<th>Subcategory</th>
<th>Subcategory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee whiteners</td>
<td>Condensed milk, sweetened</td>
<td>Confectionery</td>
<td>Cordials and liqueurs</td>
<td>Desserts</td>
</tr>
<tr>
<td>Eggs, frozen or dried</td>
<td>Extracts and flavors</td>
<td>Frostings and icings</td>
<td>Fruit butters and juices</td>
<td>Fruit drinks</td>
</tr>
<tr>
<td>Fruits (canned, candied, fillings, frozen, etc.)</td>
<td>Ice cream, water ices and sherbets</td>
<td>Jams, jellies, marmalades and preserves</td>
<td>Licorice</td>
<td>Malted products</td>
</tr>
<tr>
<td>Marshmallows and related products</td>
<td>Meat products (sausage, etc.)</td>
<td>Medicinal preparations (drugs, pharmaceuticals)</td>
<td>Mixes, prepared (cakes, infant foods, pie fillings, pudding powders, ice cream, etc.)</td>
<td>Peanut butter</td>
</tr>
<tr>
<td>Pickles and pickle products</td>
<td>Rice and coffee polish</td>
<td>Salad dressing</td>
<td>Sauces (seasoning, specialty, etc.)</td>
<td>Seafood, frozen</td>
</tr>
<tr>
<td>Soups, dehydrated</td>
<td>Syrups (table, chocolate, cocoa, fruit, medicinal, soda fountain, cordials, etc.)</td>
<td>Toppings</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Sources: National Corn Growers Association; United States Department of Agriculture