**Corn - A Golden Treasure**

A bushel of dent corn weighs 56 pounds (25 kg) and contains approximately 90,000 kernels. These can be broken down into starch, solubles, gluten, hulls, and germ (heart of kernel) to make: 33 pounds (15 kg) of sweetener or 31 pounds (14 kg) of starch or 2.5 gallons (9.5 L) of ethanol plus 12 pounds (kg) of animal feed, 3 pounds (1.36 kg) of gluten meal, and 1.5 pounds (.68 kg) of corn oil. By processing and refining, a bushel of corn can be used in the following ways:

### 33 Pounds (15 kg) of Sweetener

**CORN SYRUP**

**Food and Drug Uses:**
- Baby food
- Bakery products (bread, rolls, biscuits, doughnuts, pies, cakes, cookies, pretzels)
- Beverages, brewed (beer, ale, etc.)
- Beverages, carbonated
- Catsup, chili sauce, tomato sauce
- Cereals, prepared
- Cheese spread and foods
- Chewing gum
- Chocolate products
- Condensed milk, sweetened
- Confectionery
- Cordials and liquors
- Desserts
- Eggs, frozen or dried
- Extracts and flavors
- Frosting and icings
- Fruit juices
- Ice cream, water ices, and sherbets
- Jams, jellies, marmalades, and preserves
- Licorice
- Malted products
- Marshmallows and related products
- Meat products (sausage, etc.)
- Medicinal preparations (drugs, pharmaceuticals)
- Mixes, prepared (cake, pie fillings, etc.)
- Non-dairy creamers
- Peanut butter
- Pickles and pickle products
- Salad dressing
- Sauces (seasoning, specialty, etc.)
- Seafood, frozen
- Syrups (table, chocolate, cocoa, fruit, medicinal, soda fountain, cordials, etc.)
- Soups, dehydrated
- Toppings
- Vinegar

**Industrial Uses:**
- Adhesives (plasticizing agent)
- Chemicals
- Dyes and inks
- Explosives
- Leather tanning (chrome process)
- Metal plating
- Paper, glassine, and parchment
- Plasticizer
- Shoe polish
- Rayon
- Textiles, for finishing
- Tobacco and tobacco products

### 31 Pounds (14 kg) of Starch

**CORN STARCH**

**Food, Drug, or Cosmetic Uses:**
- Antibiotics
- Aspirin
- Baby foods
- Bakery products (bread, rolls, cakes, pies, crackers and cookies)
- Baking powder
- Beverages, brewed (beer, ale, etc.)
- Chewing gum
- Chocolate drink
- Confectionery
- Cosmetics
- Desserts (puddings, custards, etc.)
- Drugs and pharmaceuticals
- Flours, prepared (including prepared mixes)
- Food and drug coatings
- Gravies and sauces
- Mixes, prepared (pancake, waffle, cake, candy, etc.)
- Mustard, prepared
- Pie filling
- Precooked frozen meals
- Salad dressing
- Soups

**Industrial Uses:**
- Acids, commercial (lactic, acetic, gluconic)
- Adhesives
- Boiler compounds
- Chemicals (calcium lactate, sodium lactate)
- Chemicals, organic
- Dyes
- Electroplating and galvanizing
- Enzymes
- Explosives
- Fermentation products
- Florists’ preparations
- Leather tanning
- Mannitol
- Paper
- Rayon
- Rubber (cold process)
- Sizing materials
- Sorbitol
- Textiles, dyeing and finishing
Cleaners
Sugar, powdered
Vegetables, canned

Industrial Uses:
Abrasive paper and cloth
Adhesives (glues, pastes, mucilages, gums)
Batteries, dry cell
Binder of binding agents
Board (corrugating, laminating, solid fiber board, cardboard)
Boiler compounds
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)
Dispensing and standardizing agent
Dressing, surgical
Dyes (as bodying agent, carrier diluent, etc.)
Fermentation processes
Fiber glass size
Fireworks
Insecticide powders
Insulating material (glass wool, rock wool)
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, lacquer, etc.)
Paper and paper products
Photographic films (antihalation powder)
Plastics (molded)
Plywood (interior)
Printing
Protective colloids (emulsions)
Textiles (warp sizing and finishing)
Tile, ceiling
Tire, rubber
Wallboard and wallpaper
Water recovery, industrial

2.5 Gallons of Ethanol
Alcoholic beverages
Industrial alcohol
Motor fuel extender

12 Pounds of Animal Feed and 3 Pounds of Gluten Meal
CORN GLUTEN AND HULLS
Products Used by Livestock and Poultry:
Corn germ meal
Corn gluten feed
Corn gluten meal
Corn oil byproducts
Hydrol (corn-sugar molasses)
Steepwater for feed (condensed fermented corn extractives)

Other Uses:
Amino acids
Fur cleaner
Zein and other protein products

1.5 Pounds of Corn Oil
CORN OIL FROM GERM
Food and Drug Uses:
Capsules for vitamins and medicines
Cooking oil
Margarine
Mayonnaise
Potato chips
Salad dressing
Sauces, seasoning
Shortening
Soups

Industrial Uses:
Chemicals and insecticides
Lecithin (for pharmaceuticals, cosmetics, linoleum, printing, inks, etc.)
Paint and varnish
Rubber substitutes
Rust preventive (surface coatings)
Soap
Soluble oil (leather and tanning use)
Textiles

Other Uses of Corn:
HIGH FRUCTOSE CORN SYRUP
(FROM CORN SYRUP)

Food Uses:
Bakery products
Canned juices
Canned fruits

DEXTRINS (FROM CORNSTARCH)

Industrial Uses:
Adhesives (glues, pastes, mucilages, gums)
Bookbinding
Briquettes
Candies
Ceramics
Core polishing
Core binder (castings, mold)
Cork products
Crayons and chalk (as binder)
Dyes (dry, cake, etc.)
Envelopes
Fireworks
Inks, printing
Insecticides
Insulation, fiber glass
Labels
Leather
Linoleum
Magazines
Matches (on head and side of box)
Oil-well drilling
Ore separation
Paints (cold water, poster, etc.)
Paper and paper products
Plastics (molding)
Plywood
Sandpaper
Shoes (counter pastes, polish, etc.)
Silvering compounds
Soaps
Straws (drinking)
Textiles, sizing, finishing and printing
Twine, cord, string, etc.
Wallboard and wallpaper
Window shades and shade cloth

HYDROL
(CORN-SUGAR MOLASSES)
Organic acids
Organic solvents
Tobacco
Leather tanning

SOLUBLES
(STEEPWATER)
Antibiotics
Chemicals
Pharmaceuticals
Yeast

Condiments
Confectionery products
Frozen desserts
Jams, jellies, and preserves
Soft drinks
Wine
Yeast

MALTODEXTRINS (FROM CORNSTARCH)

Food Uses:
Bakery mixes
Beverage powders
Dehydrated foods
Dry soup mixes
Gum confections
Icings and glazes
Instant tea
Instant breakfast foods
Low calorie sweeteners
Marshmallows
Nougats
Pan coatings
Sauce and gravy mix
Snack foods

HYDROL (CORN-SUGAR MOLASSES)
Organic acids
Organic solvents
Tobacco
Leather tanning

SOLUBLES (STEEPWATER)
Antibiotics
Chemicals
Pharmaceuticals
Yeast

Adapted from National Corn Grower’s Association. Corn Curriculum. Unit 9: Feed Your Face!