

Corn - A Golden Treasure

A bushel of dent corn weighs 56 pounds 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 of sweetener or 31 pounds of starch or 2.5 gallons of ethanol plus 12 pounds of animal feed, 3 pounds of gluten meal, and 1.5 pounds of corn oil. By processing and refining, a bushel of corn can be used in the following ways:

33 Pounds 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 butters and juices
 Fruits (canned, candied, fillings, frozen, etc)
 Fruity drinks
 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

DEXTROSE

FOOD AND DRUG USES

Antibiotics
 Baby foods
 Bakery products
 Berries, canned and frozen
 Beverages, brewed (beer, ale, etc.)
 Beverages, carbonated
 Breakfast foods
 Caramel color
 Cheese foods and spreads
 Chewing gum
 Chocolate products
 Citrus juices
 Coloring, pure food mix
 Confectionery
 Cordials, liqueurs and brandy
 Cream, frozen
 Dairy products
 Desserts
 Dietetic preparations
 Distillation products
 Doughnuts (cake, yeast)
 Drugs (fermentation process)
 Eggs, frozen or dried
 Fish, pickled
 Flavoring extract
 Food acids (citric, ale)
 Fruit juices
 Fruits and vegetables, canned
 Fruits (candied, glaze, frozen)

Gelatin desserts
 Ice cream, water ices, and sherbets
 Infant and invalid feeding
 Jams, jellies, marmalades, and preserves
 Lactic acid
 Meat products (bacon, bologna, hams, sausage, hot dogs, mincemeat)
 Medicinal preparations (intravenous injections, pills, tablets, drugs, etc.)
 Mixes, prepared (cake, icings and frostings, infant foods, pie fillings, toppings, etc.)
 Mouthwash
 Peanut butter
 Peas, canned
 Pectin, fruit
 Pickles and pickle products
 Powders (ice cream, prepared dessert, pudding, punch)
 Sauces (catsup, tomato, etc.)
 Seasoning mixes, dry
 Sorbitol (in candies, toothpaste, etc.)
 Soups, dehydrated
 Spices and mustard preparations
 Syrups (table, fountain, medicinal, etc.)
 Toothpaste
 Vinegar
 Wine
 Xanthan gums
 Yeast

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

31 Pounds 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
 Cleaners
 Sugar, powdered
 Vegetables, canned

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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)
Dispersing 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
Corn sugar (crude and refined)
Hydrol (corn-sugar molasses)
Steepwater for feed (condensed fermented corn extractives)

OTHER USE

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 FRUCTOS(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
Cord 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
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!

