

Corn Eco-Industrial Park Plan

TEC proposes establishing eco-industrial park for corn-based feed, food, and pharma projects. This will reduce input costs and have huge export potential.

i. Core Project

Option 1:

Corn Starch (Water Content ≤ 14%)	300,000 T/Y	USD 50 M (Wet Process)
Corn Oil (Food Grade)	12,000 T/Y	
Protein Powder	22,000 T/Y	
Corn Fiber	43,000 T/Y	
Germ Cake	20,000 T/Y	
Corn Steep Liquor (Dry Matter Content 50%)	24,000 T/Y	

Option 2:

Corn Starch (Water Content ≤ 14%)	150,000 T/Y	USD 28 M (Wet Process)
Corn Oil (Food Grade)	6,000 T/Y	
Protein Powder	11,000 T/Y	
Corn Fiber	21,000 T/Y	
Germ Cake	10,000 T/Y	
Corn Steep Liquor (Dry Matter Content 50%)	12,000 T/Y	

Option 3:

Superfine Grade Ethanol	150,000 T/Y ($\geq 96.3\%$)	USD 90 M (Wet Process)
DDGS (Distiller's Dried Grains With Solubles)	135,000 T/Y	
Corn Oil (Food Grade)	12,000 T/Y	
Industrial Alcohol	3,000 T/Y	
Fusel oil	600 T/Y	

Option 4:

Superfine Grade Ethanol	60,000 T/Y ($\geq 96.3\%$)	USD 45 M (Dry Process)
DDGS (Distiller's Dried Grains With Solubles)	55,800 T/Y	
Fusel oil	180 T/Y	
Industrial Alcohol	1200 T/Y	
Biogas	2850 m³/ Day	

ii. Other Projects

These projects have applications in the feed, food, and pharma sectors.

Amino Acid (Lysine, Threonine, Tryptophan & Methionine)	10,000 T/Y	USD 7.8 M
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Used as a flavor enhancer and nutritional supplement in food products, as well as in animal feed to enhance protein quality, support growth, and health. Also employed in medication, supplements, and injectables.

Corn Gluten Feed	130,000 T/Y	USD 14 M
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Used for enhancing pet food nutrition and texture, and in the feed industry as a high-energy, protein-rich supplement for animal growth and productivity.

Corn Oil	10,000 T/Y	USD 16 M
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Used in the food industry for cooking and baking, in animal feed for energy and fat content, in pharmaceuticals as a carrier oil and an excipient.

Crystalline Glucose	60,000 T/Y	USD 16 M
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Used as a sweetener in food, readily available energy source in animal feed, as excipient in pharmaceuticals, and in fermentation processes for biofuels and chemicals.

Edible Dry Yeast	5,000 T/Y	USD 7.1 M
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Utilized in baking for leavening and flavor enhancement, in animal feed for nutrition and growth promotion, in pharmaceuticals such as nutritional supplements, and in industrial processes like bioethanol production and wastewater treatment.

Enzymes (Cellulase & Protease)	10,000 T/Y	USD 6 M
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Cellulases are used in cotton processing (stonewashing denim), paper recycling, detergent, juice extraction and as animal feed additive to aid in digestion and nutrient absorption. Proteases are used in food processing for meat tenderization and dairy products and as animal feed additive to enhance digestibility of proteins. Also used in pharma, leather processing and detergents.

Lactic Acid	10,000 T/Y	USD 7.1 M
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Used in food products as a preservative, flavor enhancer, and pH regulator, in feed to enhance digestibility, promote gut health in livestock and poultry and in pharma for dermatologic drugs, and as a precursor for the production of biodegradable plastic PLA.

Maltodextrin	30,000 T/Y	USD 14 M
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Used as a thickening agent, stabilizer, and sweetener in food products, in feed as a carbohydrate source, and as an excipient in medication formulations, acting as a filler, binder, or coating agent in tablets, capsules, and powders.

Modified Starch	10,000 T/Y	USD 7.2 M
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Applications across food, feed, pharmaceutical, and chemical industries, serving as a crucial ingredient for enhancing texture, stability, and functionality in various products.

Probiotics	10,000 T/Y	USD 1.8 M
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Used to enhance nutritional value and shelf life in dairy products, fermented foods, and beverages; improve digestive health and nutrient absorption in livestock and aquaculture; and in probiotic supplements to support gut health and immune function in humans.

Vitamin C (Ascorbic Acid)	10,000 T/Y	USD 42 M
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Used in food and beverages as a preservative, antioxidant, and nutrient fortifier, in animal feed to enhance immune function, growth, and overall health of livestock and poultry and in dietary supplements, medications, and skincare products.

Citric Acid	20,000 T/Y	USD 9 M
By-product: DDGS	10,000 T/Y	

Used as a flavor enhancer and preservative in beverages, candies, and processed foods, it improves the palatability of feed and digestibility for livestock and poultry. It is also used as a buffering agent and stabilizer in pharmaceutical formulations, and in household and industrial cleaners due to its acidity and its ability to dissolve mineral deposits.

Corn Starch	50,000 T/Y	USD 10.7 M
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Used as a thickening agent, feed additive, pharmaceutical excipient, and raw material for biodegradable plastics.

Fructose Syrup	60,000 T/Y	USD 14 M
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Used as a sweetener in a wide range of food products and beverages, in animal feed formulations to enhance palatability, energy content, and feed efficiency, and as an excipient or sweetening agent in the formulation of various medications, & syrups.

Mannitol	10,000 T/Y	USD 14 M
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Used as a sweetener, bulking agent, stabilizer in sugar-free and low-calorie foods, candies, and chewing gums and as an excipient in tablets and capsules.

Isomalto-Oligosaccharide	5000 T/Y	USD 4.2 M
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Used as a low-calorie sweetener and prebiotic fiber in food products, animal feed, dietary supplements and medications, enhancing gut health, & nutrient absorption.

Sorbitol	10,000 T/Y	USD 5.3 M
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Used as a sweetener, humectant, and stabilizer in sugar-free and low-calorie food, in animal feed as a source of energy and in oral care products like toothpaste and mouthwash.

Dextrin	5000 T/Y	USD 6.6 M
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Used as a thickening agent, stabilizer in food products, as binding agent for feed pellet formulation and as an excipient in tablet and capsule formulations.

Sodium Gluconate	30,000 T/Y	USD 8.5 M
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It is used as a food additive and as a stabilizing agent. It is also included in animal feed to promote nutrient absorption and animal health. Additionally, it is used to stabilize drug delivery systems and as a chelating agent in cleaning products, & concrete admixtures

Xylitol	5000 T/Y	USD 10 M
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Used gums, candies, chocolates, and baked goods as a low-calorie sweetener, in oral care products like toothpaste and mouthwash for its cavity-preventing properties and as a sugar substitute for diabetes medication.

Medical Starch	30,000 T/Y	USD 8 M
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Utilized in the production of tablets, capsules, and medicinal powders due to its binding and disintegrating properties.

Furfural	10,000 T/Y	USD 14 M
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Used as a flavoring agent in food products and as a precursor for the production of various chemicals, including solvents, resins, adhesives, and lubricants.

Polylactic Acid (PLA)	30,000 T/Y	USD 90 M
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PLA is a biocompatible, biodegradable plastic used for packaging food products, manufacturing biocompatible implants, producing fibers for clothing and in 3D printing.

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