# A Sustainable Food System Corn Refiners Play an Important Role



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## WELCOME



# President's Letter

John W. Bode
President & C.E.O., Corn Refiners Association

he corn refining industry provides value-added products to people throughout the world, where the quality, value and availability of our industry's products have earned an indispensable role in the supply chain. This annual report focuses on the key word "availability."

In less than 40 years, experts predict that food production must double to meet the needs of a growing global population. As a pillar of the food supply, our industry will work with partners to find innovative ways to increase production, minimize waste and maximize nutritional content of food. We will do so in ways that meet the increased environmental and economic demands that a more crowded world will impose. The corn refining industry embraces that challenge.

As this report details, there are many sustainable practices of the corn refining industry that we can build on to enhance the contributions we already make to a secure and sustainable global food system. Our industry presents a model for waste minimization. Over the years, corn refiners have improved process yields and operations to effectively use every component of the corn kernel to turn out value-added products. Many of these products contribute to the food supply – from various sweeteners that also help keep foods fresh, to animal feeds used in the production of high quality proteins, to specialty starches that can help improve digestion in humans. Further, refined corn products are used in pharmaceuticals, construction and industrial uses.

Last year, the Corn Refiners Association (CRA) celebrated its 100th anniversary and I was honored to join a strong CRA staff. We are proud to serve an industry of innovators who are committed to continuous improvement, and which is poised to help provide a secure, sustainable food supply.

As our industry meets the challenges of tomorrow, we have the advantage of a rich heritage built by exceptional leaders from the past. This edition of the *Corn Annual* is dedicated to the memory of Gerald M. Mitchell, who served on the CRA Board of Directors for many years. The benefits of his leadership and commitment endure.

## YEAR IN REVIEW

State of the Industry

Mark A. Bemis
Chairman, Corn Refiners Association
Senior V.P. & President, Corn Business Unit, Archer Daniels Midland Company

s the U.S. economic recovery continues to strengthen, the corn refining industry remains a dynamic part of the nation's economy. Corn refiners shipped more than 58 billion pounds of products in 2013. While our export shipments were down slightly over a total \$2.98 billion in 2012, exports in 2013 stayed strong. Exports of more than 4.98 million metric tons contributed over \$2.84 billion to our balance of trade.

The drought of 2012 kept corn supplies tight with total production of 10.78 billion bushels, but as the strong crop of 2013 came in, pricing began to ease. Corn farmers produced nearly 14 billion bushels in 2013 and the outlook for 2014 is just as abundant. Good quality and plentiful corn is important for corn farmers, corn refiners and our national economy. Exports of corn for fiscal year 2014 are forecast to reach \$11.0 billion.

Last year marked the 100<sup>th</sup> anniversary of the Corn Refiners Association (CRA). We have worked together to face the many challenges of a changing environment in which we operate and will continue to collaborate to ensure the strength of the industry. I would like to take the opportunity to highlight current issues of importance to the industry.

#### International Trade

Exports of refined corn products represent potential for significant growth in the industry. The Association's international trade efforts focus on maintaining current markets and supporting growth.

A current dispute on Country of Origin Labeling (COOL) rules for muscle cuts of meat could result in significant losses in trade to our top two markets for refined corn products. Canada and Mexico challenged the rules in the World Trade Organization (WTO), arguing that COOL has a trade-distorting impact by reducing the value and number of cattle and hogs shipped to the U.S. market. Pending the outcome of the WTO decision, the U.S. risks retaliation in the form of increased tariffs on agricultural and manufactured goods - with corn and HFCS as likely target products. In 2013, our industry shipped over \$980 million worth of refined corn products to Canada and Mexico.

Understanding the significance of this issue not only for the corn refining industry, but also for our allied industries, the CRA supported establishment of the COOL Reform Coalition by the National Association of Manu-



facturers and the U.S. Chamber of Commerce. The Coalition advocates for U.S. compliance with WTO obligations.

The Trans Pacific Partnership (TPP) is a proposed trade agreement with 11 countries in the Asia-Pacific region. Exports to the participating countries account for 46% of total refined corn product exports. Japan is the largest TPP member that does not already have a trade agreement with the U.S. Having Japan be part of a successful TPP agreement would help increase market access for U.S. starches and sweeteners.

The U.S. and the European Union (EU) are negotiating a Transatlantic Trade and Investment Partnership (T-TIP) agreement. For nearly four decades, the EU was our largest export market, mostly for corn gluten feed. Largely as a result of conflicting policies on biotechnology, we have seen exports of corn gluten feed shrink from over 6.3 million metric tons in 1995 to less than 400,000 metric tons in 2013. If T-TIP can successfully address issues surrounding biotechnology, the U.S. would have

greater access to a market worth hundreds of millions.

#### Food Security & Technology

Biotechnology allows farmers to use fewer chemicals and produce more on less land, which is not only good for the environment, but also helps keep our food affordable and is important to food security for a growing global population. The CRA is active on the steering committee of The Coalition for Safe Affordable Food to support factual communication about food biotechnology and support a federal solution for the safety and labeling of food and beverage products made with genetically modified ingredients.

#### Sustainability

The corn refining industry embraces sustainable practices and sets high standards for itself and its suppliers. Our Sustainability Committee developed a sustainability position paper, as well as guiding principles to demonstrate our commitment to the continuous improvement of the production of ingredients from corn refining.

Product	Volume	Units	Value
Corn starch	114,699.2	Metric tons	\$72,501,000
Corn oil, crude	283,808.0	Metric tons	\$301,679,000
Corn oil, once refined	3,954.8	Metric tons	\$5,067,000
Corn oil, fully refined	156,392.1	Metric tons	\$196,377,000
Glucose (dextrose)	111,063.4	Metric tons	\$89,871,000
Glucose syrup not containing fructose or containing in the dry state less than 20% fructose	455,035.7	Metric tons	\$215,708,000
Glucose syrup with 20-50% fructose	117,395.7	Metric tons	\$46,800,000
Chemically pure fructose	76,809.3	Metric tons	\$81,270,000
Fructose syrup with 50%+ fructose	1,238,978.3	Metric tons	\$511,904,000
Fructose solids containing more than 50% fructose	56,632.8	Metric tons	\$60,834,000
Corn gluten feed	916,616.0	Metric tons	\$239,369,000
Corn gluten meal	1,017,697.0	Metric tons	\$690,567,000
Other residues of starch manufacturing	102,119.0	Metric tons	\$31,166,000
Dextrins	25,002.8	Metric tons	\$23,342,000
odified starches derived from corn starch	307,834.9	Metric tons	\$271,744,000

CRA works closely with the National Corn Growers Association and supports science-based research projects, such as Field To Market®: The Alliance for Sustainable Agriculture.

#### **Environment**

Environmental responsibility is central to the corn refining industry from compliance with environmental regulations to development of environmentally sound products. While there are many regulations important to the industry, one of current interest is the consideration of biogenic carbon dioxide emissions under the Clean Air Act. Biogenic emissions are negated when growers plant and grow more short cycle crops, making them part of a carbon flow that has a net de minimus global warming impact. Regulation of biogenic CO2 could have significant impact on the industry by adding years and substantial costs to plant projects, which would hinder growth. CRA formed the Biogenic CO<sub>2</sub> Coalition to work with allied organizations and communicate effectively with stakeholders on this issue.

#### Research

CRA is dedicated to science driven policy and has a commitment to high quality research. To this end, we rely on a Scientific Advisory Panel (SAP) comprised of independent experts to

provide advice on scientific matters affecting food policy, technology and health and safety. With significant attention in the scientific community focused on sugars and health, this is a key area of activity for our SAP. By identifying research gaps and opportunities, the SAP has guided our organization to prioritize research efforts on the neurocognitive effects of sugars and potential health implications of the World Health Organization's draft guidance to reduce sugars intakes to 5% - 10% of total calories. Over the past six years, CRA has supported research ranging on topics from the composition of sugars to specific effects of sugars on metabolic markers of diseases such as obesity, diabetes, coronary heart disease, liver disease and the metabolic syndrome. As a result, nearly 20 articles have been published in scientific journals contributing to the body of knowledge on sugars and health.

#### The Association

Last year, CRA welcomed a new president and chief executive officer, John W. Bode. As an accomplished leader with a strong background in the food and agriculture sectors based on 30 years of experience as a lawyer and lobbyist, we have confidence that John will effectively lead a talented CRA staff to meet the challenges before us.

Starch Products (includes corn starch, modified starch and dextrins)	5,841,282,000
Refinery Products (includes glucose syrup, high fructose corn syrup, dextrose, corn syrup solids, maltodextrins)	29,775,449,000
High Fructose Corn Syrup 42% High Fructose Corn Syrup 55% and Above Total High Fructose Corn Syrup	7,292,785,000 11,248,275,000 18,541,060,000
Total — Domestic Basic Products	35,688,808,000
Total — Export Basic Products	4,487,805,000
Corn Oil — Crude and Refined	1,020,387,000
Corn Gluten Feed and Corn Oil Meal	11,456,876,000
Corn Gluten Meal	2,350,395,000
Steepwater	3,299,986,000

# **FOOD SECURITY**

# Corn Refiners' Role in a Sustainable Food

he topic of global food security – meeting the nutrition needs of a world population that is expected to reach 9.6 billion by 2050¹ – has gained much attention in recent years. Critical research and dialogues are taking place to understand the future needs of the food supply and how to meet them sustainably – from ways to increase production to methods to minimize waste. Corn refiners are taking part in this debate to ensure an abundant, nutritious food supply that promotes environmental stewardship and community health.

#### What is Sustainability?

The Corn Refiners Association recognizes the definition of sustainability as stated by the Sustainable Agriculture Initiative:

"Sustainable agriculture is the efficient production of safe, high quality agricultural products, in a way that protects and improves the natural environment, the social and economic conditions of farmers, their employees and local communities,

and safeguards the health and welfare of all farmed species."

#### Raw Materials

At its core, corn refining embraces the concept of sustainability, converting 99 percent of the corn kernel into useful products. By harnessing the energy of the sun, corn provides a rich source of starch, oil, protein, and fiber from which the industry produces a myriad of products that enhance the food supply, as well as products that reduce our dependency on non-renewable resources.

As the leader in world corn production, the U.S. corn industry is also a leader in development and application of sustainable practices that increase productivity and efficiency.

Field to Market®, a diverse alliance working to identify supply chain strategies to define, measure and promote continuous improvement for agriculture, quantified sustainability trends



# System



for U.S. corn in their 2012 Environmental and Socioeconomic Indicators Report. The report, which evaluated data from 1980 to 2011, showed impressive gains in resource efficiency per bushel of corn produced. Over the past three decades, they found the yield per acre of land was up 64%, soil erosion was down 67%, irrigation water applied down 53%, energy use down 44%, and greenhouse gas emissions down 36%.

While there are many technologies the corn industry utilizes, crop biotechnology has resulted in major environmental benefits and allowed farmers to grow more with fewer resources. And biotechnology continues to show great promise for producing more corn on less land, using less water and other resources to secure the food supply for an increasing population.

#### **Nutritious Food Supply**

As the world's population expands, lifestyles will also evolve to become increasingly urban and prosperous, and demand for convenient, nutritious prepared foods will continue to increase. Experts believe the expanding population, along with these shifts in lifestyles, will result in increased demand for foods that are more widely available and meet nutritional needs at affordable prices.

The traditional products of the corn refining industry such as starches, sweeteners and corn oil already play an important part in the food supply. Corn oil is a rich source of polyunsaturated fatty acids, which help regulate blood cholesterol levels and lower elevated

## CRA Guiding Principles for Sustainability

#### CRA Members strive to:

- Abide by all applicable federal, state and local rules and regulations.
- Improve the safety and health of their employees, the environmental efficiency of their operations and the efficient use of resources by continually evaluating technologies and practices.
- Support local growers and communities through advocating sound agricultural practices, and engage in partnerships and initiatives that promote sustainable agriculture.
- Maintain an open dialogue with local communities.
- Provide safe, high quality ingredients to their customers.
- Establish safe workplace policies and practices and train their employees to maintain a knowledgeable work force and promote personal development.
- Treat all with dignity and respect in the workplace and the communities where we live and work.
- Adhere to the highest ethical business standards in all aspects of our operations.

blood pressure. Corn sweeteners, including corn syrup and high fructose corn syrup, certainly contribute flavor to foods, but they are also effective at preserving foods and helping maintain moisture. Citric and lactic acids have preservative qualities and modified starches provide stability for many prepared foods that go through temperature changes. The ability of ingredients to help mitigate food spoilage will be increasingly important as the global food supply must adapt to meet food security needs.

Corn refiners also continue to produce and improve innovative ingredients – many with health benefits that have a valuable role in the global food supply. These products can help fill gaps we see now in diets of developed nations such as fiber. Ingredients that can help combat obesity and diabetes will be key components in the food supply as lifestyles change. Examples include:

- Resistant starch is a prebiotic fiber and can help increase beneficial bacteria for maintaining or improving digestive health.
- Soluble corn fiber has demonstrated prebiotic properties, which research has shown to increase calcium absorption. For

- populations that have limited access to good sources of calcium, maximizing the body's ability to utilize available calcium may prove to be important.
- Polydextrose is a soluble fiber that can be used to lower calories from sugar and fat without compromising taste or texture in both liquid and solid food applications.
- Polyols, which are a range of reduced calorie sweeteners, can contribute to a food's flavor and texture, and have the added benefit of allowing a lower increase in blood glucose levels, which is important for individuals with diabetes.

#### **Environment**

From a business standpoint, it makes sense for the corn refining industry to embrace sustainable environmental practices at their facilities. The efficient use of resources is essential for corn refiners to stay competitive, whether it is water re-use and efficiency, waste minimization or air emission reductions. High energy prices make it essential for facilities to continue to seek new ways of finding sustainable uses of energy and water resources.

Beyond the economics, social responsibility

#### U.S. Corn Refining Industry at a Glance – 2013

Corn Refining Plants 27 Location 11 states Corn Grind 1.50 billion bushels Value of Corn Purchased \$10.19 billion Number of Corn Suppliers 41,000 Employment by CRA Member Companies 65,300\* Capital Investment (replacement value) \$17.39 billion Major Products (estimated) Sweeteners (dry weight) 25.51 billion pounds Starches 7.79 billion pounds 1.20 billion gallons Ethanol Co-products 26.27 billion pounds Value Added by Manufacture \$8.05 billion \*Includes employees that provide services in non-corn refining areas. Compiled by the Corn Refiners Association based on 2013 data from the U.S. Department of Agriculture, Bureau of Labor Statistics, LMC Commodity Studies, Renewable Fuels Association, press reports, and industry data compiled for CRA by Veris Consulting, Inc.

drives the industry to seek out ways to strengthen environmental-stewardship. Corn refining plants are often the cornerstone of rural communities with deep roots where being a good neighbor is critical for the success and safety of the community and the business.

In addition to using energy and water efficiently, reducing emissions and utilizing renewable energy sources, corn refiners engage in a multitude of other activities to preserve and protect the environment.

For example, noise pollution can have an impact on communities where facilities are located. Employing technologies such as sonic mapping, corn refiners can identify and mitigate sound emissions with barriers, silencers or other methods.

Many facilities are involved in recycling programs with significant waste minimization goals. From finding alternative uses for organic materials to providing reusable lunch containers for employees, corn refiners are reducing waste in innovative ways. Sharing techniques and benefits of recycling with local communities, as well as suppliers, extends the reach of the industry's efforts.

#### **Community**

Corn refining plants represent a significant capital investment and, as such, are a stable entity in the communities where they are located. Investing in communities beyond the boundaries of plant locations is a practice corn refiners take with them wherever they operate.

Corn farmers in the U.S. have access to numerous tools and technologies to increase production in a sustainable manner. A number of corn refiners provide educational programs for local farmers to increase yields while reducing environmental impact and post-harvest loss, which will be critical as the population continues to grow.

Corn refining plants require skilled workers. The industry often collaborates with

## 2013 Safety Program Award Winners

#### **Incident Rate Excellence Award**

Archer Daniels Midland Company Clinton, IA; Clinton, IA (Bioprocessing); Marshall, MN; Southport, NC

Ingredion Incorporated
Indianapolis, IN; Stockton, CA

Roquette America, Inc. Gurnee, IL

Tate & Lyle Americas
Lafayette, IN; Sagamore-Lafayette, IN; Dayton, OH;
Loudon, TN; Loudon, TN (Bioprocessing)

#### **One Million Hour Award**

Archer Daniels Midland Company
Decatur, IL (BioProducts); Marshall, MN;
Southport, NC

Cargill, Incorporated Hammond, IN; Memphis, TN

Tate & Lyle Americas
Lafayette, IN; Sagamore-Lafayette, IN; Dayton, OH;
Loudon, TN; Loudon, TN (Bioprocessing)

#### **Zero Lost Workdays Award**

Archer Daniels Midland Company
Clinton, IA (Bioprocessing); Decatur, IL (BioProducts);
Marshall, MN; Southport, NC

Cargill, Incorporated
Hammond, IN; Memphis, TN; Wahpeton, ND

Ingredion Incorporated
Indianapolis, IN; Stockton, CA; Winston-Salem, NC

Roquette America, Inc. Gurnee, IL

Tate & Lyle Americas
Lafayette, IN; Sagamore-Lafayette, IN; Dayton, OH;
Loudon, TN; Loudon, TN (Bioprocessing)

#### **About The Safety Program**

The CRA has always recognized the vital importance of safety in its plants, products, and manufacturing processes. An awards program was implemented in 2009 to further underscore the industry's committement to safety. In 2013, the program expanded to include bioprocessing and specialty product refinement facilities.



communities to provide support or training to help strengthen the local workforce. In the U.S., for example, support may come in the form of sponsoring classes on mechanics at local community or technical colleges. In other areas of the world, support may come in the form of building schools that benefit the whole community.

Corn refiners' commitment to a safe workplace extends to communities where plants operate. Collaboration with local fire departments and emergency response teams not only increases plant security, but presents an opportunity for sharing resources to improve safety outside of the plant. Such community support is provided in the form of material resources and technical expertise. Programs to engage employees to improve workplace safety range from the safe use of machinery to activities to improve health and fitness. Knowledge gained through these programs is also applicable to life outside the workplace. Another component of workplace safety that benefits employees and members of the community alike is the corn refining

industry's donations to local hospitals for equipment or special programs.

#### Recognized Leaders

The positive role that corn refiners play in a sustainable food system is acknowledged through recognition of the industry's leadership from a variety of organizations. Corn refining companies have received awards recognizing leadership in areas such as corporate sustainability, environmental impact, societal improvement, corporate ethics, product innovation and transparency in communicating climate change information, to name but a few.

The innovative and determined nature of the corn refining industry, demonstrated through its long history and ever-expanding product portfolio, places it in a position to contribute meaningfully to the future of our world's food security. The versatility of carbohydrate chemistry ensures the industry will continue to find new ways for corn to benefit the environment while helping feed an expanding population.



1. Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2013). World Population Prospects: The 2012 Revision. New York: United Nations.

## Corn Refiners Association Member Companies' Products

	Archer Daniels Midland Company	Cargill, Incorporated	Ingredion Incorporated	Penford Products Co.	Roquette America, Inc.	Tate & Lyle Americas
STARCH PRODUCTS						
Unmodified, food	•	•	•	•	•	•
Unmodified, industrial	•	•	•	•	•	•
Modified, food		•	•	•	•	•
Modified, industrial	•	•	•	•	•	•
Dextrins	•	•	•		•	•
Cyclodextrins					•	
REFINERY PRODUCTS						
Glucose syrups	•	•	•		•	•
Maltodextrins	•	•	•		•	•
Dextrose monohydrate	•	•	•		•	•
Dextrose anhydrous		•	•		•	
High Fructose Corn Syrup-42	•	•	•		•	•
High Fructose Corn Syrup-55	•	•	•		•	•
Crystalline fructose	•					•
CO-PRODUCTS						
Crude oil	•	•	•			
Refined oil	•	•	•			
Corn gluten feed	•	•	•	•	•	•
Corn gluten meal	•	•	•	•	•	•
Corn germ or corn germ meal	•	•	•	•	•	•
Steepwater (CFCE)	•	•	•	٠	•	•
Carbon dioxide	•					•
Corn fiber food/industrial ingredients	•	•	•		•	
FERMENTATION AND OTHER CHEMICALS						
Citric acid	•	•				•
Lactic acid	•	•				
Lysine	•					
Threonine	•					
Xanthan gum	•	•				
Erythritol		•	•			
Sorbitol	•	•	•		•	
Xylitol		•	•		•	
Mannitol	•	•	•		•	
Maltitol	•	•	•		•	
Hydrogenated starch hydrolysates			•		•	
Glucose hydrolysates			•		•	
OTHER						
Ethanol, fuel/industrial	•	•		•		•
Ethanol, beverage	•					

Product lists are accurate as of publication date, but may change with time. Also available online at http://www.corn.org/cra-members/member-products/.

# Corn Refiners Association Member Companies' Domestic and International Plant Locations

#### Archer Daniels Midland Company

P.O. Box 1470 Decatur, Illinois 62525

#### **Domestic Plants:**

Decatur, Illinois 62525 Cedar Rapids, Iowa 52404 Clinton, Iowa 52732 Marshall, Minnesota 56258-2744 Columbus, Nebraska 68601

#### **International Plants:**

Razgrad, Bulgaria Tianjin, China Guadalajara, Jalisco, Mexico Boleraz, Trnava, Slovakia Adana, Turkey

#### Cargill, Incorporated

P.O. Box 5662/MS62 Minneapolis, Minnesota 55440-5662

#### **Domestic Plants:**

Hammond, Indiana 46320-1094 Cedar Rapids, Iowa 52406-2638 Eddyville, Iowa 52553-5000 Fort Dodge, Iowa 50501-8828 Blair, Nebraska 68008-2649 Wahpeton, North Dakota 58075 Dayton, Ohio 45413-8001 Memphis, Tennessee 38113-0368

#### International Plants:

Castro, Parana, Brazil Uberlandia, Minas Gerais, Brazil Song Yuan, China Haubourdin, Pas-de-Calais, France Krefeld, Nordrhein-Westfalen, Germany Castelmassa, Veneto, Italy Martorell, Barcelona, Spain Orhangasi, Bursa, Turkey

#### Ingredion Incorporated

5 Westbrook Corporate Center Westchester, Illinois 60154

#### **Domestic Plants:**

Stockton, California 95206-0129 Bedford Park, Illinois 60501-1933 Indianapolis, Indiana 46221 North Kansas City, Missouri 64116 Winston-Salem, North Carolina 27107

#### **International Plants:**

Baradero, Buenos Aires, Argentina Chacabuco, Buenos Aires, Argentina Lane Cove, Sydney, Australia Balsa Nova, Parana, Brazil Alcantara, Maranhao, Brazil Cabo, Pernambuco, Brazil Conchal, Sao Paulo, Brazil Mogi-Guacu, Sao Paulo, Brazil Cardinal, Ontario, Canada London, Ontario, Canada Port Colborne, Ontario, Canada Shouguang, Shandong, China Shanghai, China Barranquilla, Atlantico, Colombia Cali, Valle del Cauca, Colombia Hamburg, Germany Eldoret, Rift Valley, Kenya Guadalajara, Jalisco, Mexico San Juan del Rio, Queretaro, Mexico Tlalnepantla, Mexico State, Mexico Faisalabad, Punjab, Pakistan Cornwala, Punjab, Pakistan Lima, Peru Icheon, Kyungigi-do, South Korea Incheon, Bupyong-ku, South Korea Sikhiu, Nakhornratchasima, Thailand Klang, Rayong, Thailand Goole, United Kingdom

#### Penford Products Co.

(A company of Penford Corporation)
P.O. Box 428
Cedar Rapids, Iowa 52406-0428

#### **Domestic Plant:**

Cedar Rapids, Iowa 52404-2175

#### Roquette America, Inc.

1417 Exchange Street P.O. Box 6647 Keokuk, Iowa 52632-6647

#### **Domestic Plant:**

Keokuk, Iowa 52632-6647

#### **International Plants:**

Lianyungang, Jiangsu, China Lestrem, Pas-de-Calais, France Beinheim, Bas-Rhin, France Gokak, Karnataka, India Pant Nagar, Uttrakhand, India Viramgam, Gujarat, India Cassano Spinola, Alessandria, Italy Calafat, Dolj, Romania Benifayo, Valencia, Spain

#### Tate & Lyle Americas

(A subsidiary of Tate & Lyle, PLC) P.O. Box 151 Decatur, Illinois 62525

#### **Domestic Plants:**

Decatur, Illinois 62521 Lafayette, Indiana 47902 Lafayette, Indiana 47905 Loudon, Tennessee 37774

#### **International Plants:**

Razgrad, Bulgaria Guadalajara, Jalisco, Mexico Casablanca, Morocco Koog aan de Zaan, The Netherlands Boleraz, Trnava, Slovakia Adana, Turkey

## **Honorary Directors**\*

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