

# LIFE CYCLE ASSESSMENT: SUMMARY REPORT

## CONAGRA, INC.

### Products Included:

EVOL Fire Grilled Steak

EVOL Chicken Enchilada Bake

EVOL Butternut Squash & Sage Ravioli

EVOL Portabella & Goat Cheese Ravioli

EVOL Chipotle Chicken Mac & Cheese

EVOL Teriyaki Chicken

EVOL Truffle Parmesan Mac & Cheese

EVOL Chicken Alfredo

### Study Completed:

August 2021



## DOCUMENT SUMMARY

The following table identifies the relevant details of the life cycle assessment (LCA) for use in various certification programs.

|                          |                                                                                                                                                                                                                                                                                         |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MANUFACTURER             | Conagra Brands Inc.<br>Chicago, IL 60654                                                                                                                                                                                                                                                |
| PRODUCT(S)               | EVOL Frozen Foods<br>EVOL Fire Grilled Steak; EVOL Chicken Enchilada Bake;<br>EVOL Butternut Squash & Sage Ravioli; EVOL Portabella &<br>Goat Cheese Ravioli; EVOL Chipotle Chicken Mac &<br>Cheese; EVOL Teriyaki Chicken; EVOL Truffle Parmesan<br>Mac & Cheese; EVOL Chicken Alfredo |
| DECLARED/FUNCTIONAL UNIT | 1 Package of product as Sold to the Market                                                                                                                                                                                                                                              |
| REFERENCE STANDARDS      | <input checked="" type="checkbox"/> ISO 14040 <input checked="" type="checkbox"/> ISO 14044<br><input checked="" type="checkbox"/> ISO 21930                                                                                                                                            |
| LCA SCOPE                | Cradle-to-Grave                                                                                                                                                                                                                                                                         |
| LCA STUDY DETAILS        | Completed: August 2021<br>LCA Practitioner: Arka Pandit, WAP Sustainability<br>Consulting, LLC                                                                                                                                                                                          |
| YEAR OF PRIMARY DATA     | 2020                                                                                                                                                                                                                                                                                    |
| LCA DATABASE             | Sphera 2021.1; ecoinvent 3.7.1                                                                                                                                                                                                                                                          |
| LCIA METHODOLOGY         | TRACI 2.1                                                                                                                                                                                                                                                                               |
| APPLICABLE REGION(S)     | North America                                                                                                                                                                                                                                                                           |

Important Note: Results presented in this report are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

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# 1 EXECUTIVE SUMMARY

Current trends in corporate sustainability emphasize transparency and the evaluation of environmental and social impacts throughout a product's entire value chain. Thus, life cycle assessment (LCA) is considered to be an important delivery tool of transparent market communication and product optimization opportunities. By calculating the potential environmental impacts of their products, Conagra hopes to better understand areas of high environmental impacts, within and outside their direct production process, and participate in voluntary reporting of product environmental performance.

An important element to understanding the results from an LCA is the concept of a "Declared Unit". In short, the declared unit is the "what" and "how much" of a product that is being assessed. For this study, the declared unit is 1 individual package of EVOL product as sold to the market and being manufactured during calendar year 2020.

According to the international standards that dictate the LCA process (ISO 14040 and ISO 14044), the goal and scope of a study must be clearly described. In the case of this assessment, this LCA was conducted for participation in Carbonfund.org Foundation's Carbon Neutral® Product Certification Program. As such, the priority of this LCA was to determine the cradle-to-grave carbon footprint of the product. Review of this LCA was conducted by Carbonfund.org.

Key inputs evaluated in the study include electrical and thermal energy consumption, transportation, sourcing of raw materials, generation of waste and end-of-life disposal. The evaluation of transportation includes the transportation of raw materials to the manufacturing site, shipping to the customer and transportation of the product to its end-of-life disposal site. Additionally, necessary packaging materials have also been included in the study.

Results of the LCA are as follows:

Table 1: LCA Results for 1 Pack of EVOL Frozen Food (kg CO<sub>2</sub>EQ.)

| Parameter            | Description          | Fire Grilled Steak | Chicken Enchilada Bake | Butternut Squash & Sage Ravioli | Portabella & Goat cheese Ravioli | Chipotle Chicken Mac & Cheese | Chicken Teriyaki | Truffle Mac & Cheese | Chicken Alfredo |
|----------------------|----------------------|--------------------|------------------------|---------------------------------|----------------------------------|-------------------------------|------------------|----------------------|-----------------|
| <b>Declared Unit</b> | 1 individual package | 1.680              | 1.201                  | 0.610                           | 1.201                            | 0.989                         | 0.901            | 0.899                | 0.790           |

## 1.1 COMPANY PROFILE

Conagra Brands, Inc. ("Conagra"), headquartered in Chicago, combines a rich heritage of making great food with a sharpened focus and entrepreneurial spirit. The mission of EVOL, a brand of Conagra, is to inspire people to care about where food comes from and how it is produced, by making real food that tastes delicious.

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## **1.2 LCA COMMISSIONERS AND PRACTITIONERS**

Conagra commissioned this LCA study. Primary data were provided by Conagra associates from the facility in which the products are produced. WAP Sustainability Consulting was contracted to develop the LCA model and complete this background report. Arka Pandit of WAP Sustainability served as the project manager. Arka Pandit of WAP Sustainability was the lead LCA practitioner. Primary data were collected, and quality assured through efforts of both WAP Sustainability and Conagra.

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## **1.3 REPORTING DATE**

This LCA study was commenced in June 2021.

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## **1.4 INTENDED APPLICATION AND REASONS FOR THE STUDY**

This LCA was conducted for participation in the Carbon Neutral® Product Certification Program.

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## **1.5 COMPARATIVE ASSERTIONS AND PUBLIC DISCLOSURE**

This study was not completed with the intent that comparative assertions with external objects or general public disclosures (i.e., comparative marketing claims) would be made. However, the results from the report will be used as the basis of carbon neutral claims and strategies.

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## **1.6 STANDARDS**

The follow standards were utilized in the creation of this LCA

- ISO 14040-14044:2006 Product Life Cycle Assessment (LCA) – full LCA or single attribute LCA for carbon footprint only
- Carbon Neutral® Product Certification Carbon Footprint Protocol Program

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## **1.7 PRODUCT DESCRIPTION**

### **1.7.1 Product Classification and Description**

This life cycle assessment report covers the following products from EVOL Products from Conagra:

EVOL Fire Grilled Steak  
EVOL Chicken Enchilada Bake  
EVOL Butternut Squash & Sage Ravioli  
EVOL Portabella & Goat Cheese Ravioli  
EVOL Chipotle Chicken Mac & Cheese  
EVOL Teriyaki Chicken  
EVOL Truffle Parmesan Mac & Cheese  
EVOL Chicken Alfredo

All products included in this study are individual packages of frozen food entrees sold under the EVOL brand name by Conagra.

The following figure is a collection of images of all the products evaluated under this study.



Figure 1: EVOL products evaluated under this assessment

## 1.7.2 Applicability

The frozen food entrees evaluated under this study are intended for consumption after reheating in a microwave.

## 2 SCOPE OF THE STUDY

### 2.1 LCA METHODOLOGICAL FRAMEWORK

The LCA follows an attributional approach.

### 2.2 DECLARED UNIT

The declared unit is 1 unit of individual EVOL frozen food entrée as sold to the market.

### 2.3 REFERENCE SERVICE LIFE

The reference service life of the frozen entrée cannot be determined as it depends on the use by the consumer. As such, one is not declared in this LCA.

### 2.4 SYSTEM BOUNDARY

This LCA is a Cradle-to-Grave study. An overview of the system boundary is shown in Figure 2. All EVOL products assessed under this study are manufactured at the Fayetteville, AR facility of Conagra.

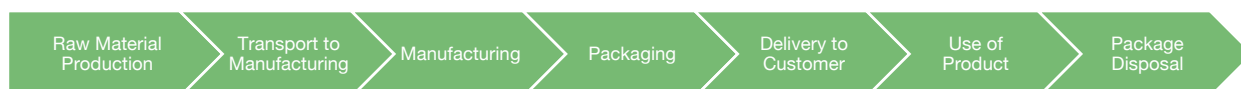


Figure 2: System Boundary Summary

#### 2.4.1 Product Stage (A1-A3)

This stage includes raw material extraction, supplier processing, and delivery of the materials to the manufacturing site. This stage is summarized in Table 2.

Table 2: Items Included in Life Cycle Stages A1-A3

| Included                                                                                  | Excluded                                                              |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Extraction and processing of raw materials and packaging                                  | Creation of supplier facilities                                       |
| Transportation of materials and packaging to the manufacturing location                   | Manufacturing of supplier operational equipment or transport vehicles |
| Manufacturing of products, including energy, water, and material usage and water disposal |                                                                       |

The products were modeled utilizing data from the Sphera and ecoinvent databases to produce the potential environmental impacts over their lifetime. For any materials unavailable in the Sphera or ecoinvent database, appropriate proxies were used. Specific descriptions of secondary unit processes can be viewed through the Sphera/GaBi dataset documentation online at <http://www.gabi-software.com/america/databases/gabi-data-search/> or through the ecoinvent

dataset documentation online at <https://www.ecoinvent.org/database/older-versions/ecoinvent-version-2/how-to-use-ecoinvent-2-online/database-search/database-search.html>

The raw materials for the product were obtained from multiple suppliers both within and outside the United States. The compositions of the products were collected from Conagra associates but are not represented here due to the proprietary nature of the formulations.

The materials are delivered to the manufacturing facility via truck or a combination of ocean freight and truck and are accounted for in the model. The distances were modeled by material and were calculated using the supplier location and the location of manufacturing.

Energy resources used in the manufacturing process are accounted for in the model. The electricity is sourced from the power grid, and no onsite electricity generation is used. Electricity production datasets from Sphera, ecoinvent and eGRID are used to assess the generation, distribution, and transmission of electricity. Secondary datasets for other fuels, packaging, and waste were utilized from either the Sphera or ecoinvent database. Manufacturing inputs and outputs per declared unit were calculated by using annual figures and dividing them by annual production. Packaging materials are also included in the model in this stage with the values being calculated via direct measurement.

#### **2.4.2 Delivery**

In this stage, the product is transported to the customer. The product is delivered to the local grocery stores via truck using an average delivery distance of 1000 miles. The travel distance between the customer's home and their local grocery store was excluded from this study.

#### **2.4.3 Use Stage**

This stage contains all energy, water, and materials related to the use of the product, including cleaning, maintenance, and replacements. The EVOL individual entrées are microwaved for 3 minutes and 30 seconds per package. The electricity used by a standard microwave for 3 minutes and 30 seconds use is included in the assessment. There were no other energy/materials/water use during the use phase of the product. The use of water and the energy used to run any machines are considered outside the scope of the assessment.

#### **2.4.4 End-of-Life (C1-C4)**

In this stage, the product is transported to the end-of-life facility and disposed. This stage is summarized in Table 3.

Table 3: Items Included in Life Cycle Stages C1-C4

| Included                                                                  | Excluded                                                   |
|---------------------------------------------------------------------------|------------------------------------------------------------|
| Energy and materials required for deconstructing the product              | Production of end-of-life capital equipment and facilities |
| Transportation of the product to the end-of-life facility                 |                                                            |
| Waste processing for reuse, recycling, energy recover, and/or reclamation |                                                            |

|                                                                                              |  |
|----------------------------------------------------------------------------------------------|--|
| Waste disposal, including all resource inputs and management activities of the disposal site |  |
|----------------------------------------------------------------------------------------------|--|

The food is consumed by the customer and all product packaging was assumed to be landfilled at end-of-life.

### 3 LIFE CYCLE INVENTORY ANALYSIS

Primary data was collected from Conagra associates. All calculation procedures adhere to ISO14044. Collection and processing of major data points is described below.

- Electrical Energy, Thermal Energy and Water Consumption.
  - Data was collected for January 2020 through December 2020 from the Fayetteville, AR manufacturing facility and consumption was divided by production during this period to derive an energy use-per-production unit for use in the LCA.
- Raw Materials and Purchasing
  - Bills of materials were obtained from Conagra associates. The technical team provided formulation information and supplier locations. The distances between the supplier locations and the manufacturing facility were calculated by the LCA practitioner.
- Waste Value
  - Facility waste records from January 2020 through December 2020 were provided by Conagra.
  - Waste amounts were divided by production during this period to derive a waste generation amount-per-production unit for use in the LCA.
- Shipping Distance to customers.
  - Transport from the manufacturing plant to the local grocery store is based on an assumed transport distance of 1000 miles.
- End of life Scenarios
  - Product waste disposal has been modeled as per guidelines in section 2.8.5 of Part A: Life Cycle Assessment Calculation Rules and Report Requirements. The product is sent to EOL facilities based on region requirements given in Part A PCR. No credits were taken for energy production from end-of-life processes. Cut-off criteria for recycling has been applied.

Data was reviewed for accuracy as it was collected by first calculating the per-unit values and comparing them against published studies. Any inconsistencies in data were resolved through email and telephone communication with technical associates at the manufacturer.

## 4 LIFE CYCLE IMPACT ASSESSMENT

### 4.1 SELECTION OF IMPACT PARAMETERS

This study was commissioned for the creation of a carbon neutral product and development of carbon offsets under Carbonfund.org Foundation's Carbon Neutral® Product Certification Program. As such, the only LCIA indicator selected was Global Warming Potential.

### 4.2 LCA RESULTS

The results from the study are shown below. All results are given per declared unit.

Table 4: LCA Results for 1 Pack of EVOL Frozen Food (kg CO<sub>2</sub>EQ.)

| Parameter     | Description          | Fire Grilled Steak | Chicken Enchilada Bake | Butternut Squash & Sage Ravioli | Portabella & Goat cheese Ravioli | Chipotle Chicken Mac & Cheese | Chicken Teriyaki | Truffle Mac & Cheese | Chicken Alfredo |
|---------------|----------------------|--------------------|------------------------|---------------------------------|----------------------------------|-------------------------------|------------------|----------------------|-----------------|
| Declared Unit | 1 individual package | 1.680              | 1.201                  | 0.610                           | 1.201                            | 0.989                         | 0.901            | 0.899                | 0.790           |

## 5 REFERENCES

1. ISO 14044: 2006 Environmental Management – Life cycle assessment – Requirements and Guidelines.
2. ISO 14044: 2006/ Amd 1:2017 Environmental Management – Life cycle assessment – Requirements and Guidelines – Amendment 1.
3. ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
4. TRACI: The Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts. Version 2.1 – User Guide - <https://nepis.epa.gov/Adobe/PDF/P100HN53.pdf>.