Quantifying the Impacts of Regional Sourcing on Sustainability

Project Overview

Problem Statement
The Allagash Brewing Company is committed to reducing its environmental impact and improving sustainable business practices. To meet its sustainability goals, Allagash asked us to quantify the economic and sustainability impacts of locally sourced Maine grains compared to industrial Midwest grains.

Grain Sourcing

Supplier Landscape
The brewing supply chain involves several steps, starting with farmers processing grains such as barley, wheat, and oats (key ingredients in beer), then transporting those raw materials, then brewing the beer, then bottling the beer, and finally distributing the beer. All of these phases of the supply chain have sustainability and economic impacts. Our project scope focuses upstream on the farming and transportation phases of the supply chain, comparing the impacts of three supplier characteristics: (1) cost, (2) local jobs created, and (3) carbon emissions.

Optimization Modeling

Sourcing Optimization Model
We created a sourcing optimization model to help Allagash determine the right mix of Maine and Midwest suppliers to meet its local sourcing targets while quantifying the impacts on the local economy and CO2 emissions.

The model minimizes the total cost of Allagash’s sourcing decision and deals with each supplier’s capacity and sustainability impacts.

Note: The data shown above is intended for illustrative purposes only and does not reflect true market information.