

## Project Overview

### Case IH-Agriculture

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**Major:** Biological Systems Engineering

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### Company Background

The Grand Island, Nebraska location of Case IH-Agriculture, a brand of Case New Holland, employs over 1,000 people to manufacture high quality combines and hay tools. Each day, 22 combines are manufactured in Grand Island and shipped throughout the world. Due to high demand for this agricultural equipment worldwide and increases in their production, Case IH runs 24 hours a day Monday through Friday and every other Saturday.

### Project Description

The purpose of this project was to reduce the amount of solid waste Case IH sends to the landfill through source reduction or recycling techniques. The five main solid waste streams studied were wood, cardboard, plastic, metal and lubricating grease. After conducting a voluntary employee survey which confirmed the positive attitude of employees toward recycling and identified any barriers to implementing source reduction opportunities, waste audits were conducted to quantify the amount, type and management practices of each of these wastes. Pollution Prevention suggestions were made based on the information collected and the preferences of the management at Case IH.

### Pollution Prevention Benefits

Due to the many challenges to source reduction from production related issues, such as manufacturing quality or the use of international vendors, all of the pollution prevention opportunities recommended involved recycling. Barriers to implementation of the opportunities included as where to place collection containers throughout the plant, how to collect commingled recyclables, and the feasibility of building an on-site recycling center to sort and package recyclable material. The opportunities can reduce landfill waste from Case IH by as much as **85%** with the corresponding reduction in greenhouse gas emissions associated with manufacturing from virgin material. Case IH will also improve its image in the community by reducing the amount of waste disposed of in the local landfill.

## Results

The overall pollution prevention impacts from the suggestions made are given in Table 1.

**Table 1. Pollution Prevention Results and Impacts**

| <b>P2 Opportunity</b>  | <b>Annual Savings</b> | <b>Annual Solid/Hazardous Waste Reduction</b> |
|--|-----------------------|---|
| Use of drum liners for lubricating grease  | \$19,560              | 1.6 tons                                      |
| Use of paint solvent regeneration equipment  | \$107,000             | 45 tons                                       |
| Improve cardboard recycling program  | \$58,800              | 600 tons                                      |
| Expand plastic recycling   | \$32,400              | 120 tons                                      |
| Increase metal recycling   | \$78,000              | 192 tons                                      |
| Establish wood pallet reclaim and improve wood recycling procedures                            | \$30,000              | 450 tons                                      |
| Institute program for glove washing  | \$60,000              | 18 tons                                       |
| Establish an on-site recycling center to sort, stage, and package all recyclables <sup>1</sup> | \$230,000             | 930 tons                                      |
| <b>Total</b>   | <b>\$385,760</b>      | 1427 tons                                     |

<sup>1</sup>This option includes the improvements to the cardboard, plastic, metal, wood and glove recycling programs and is not included in the total.