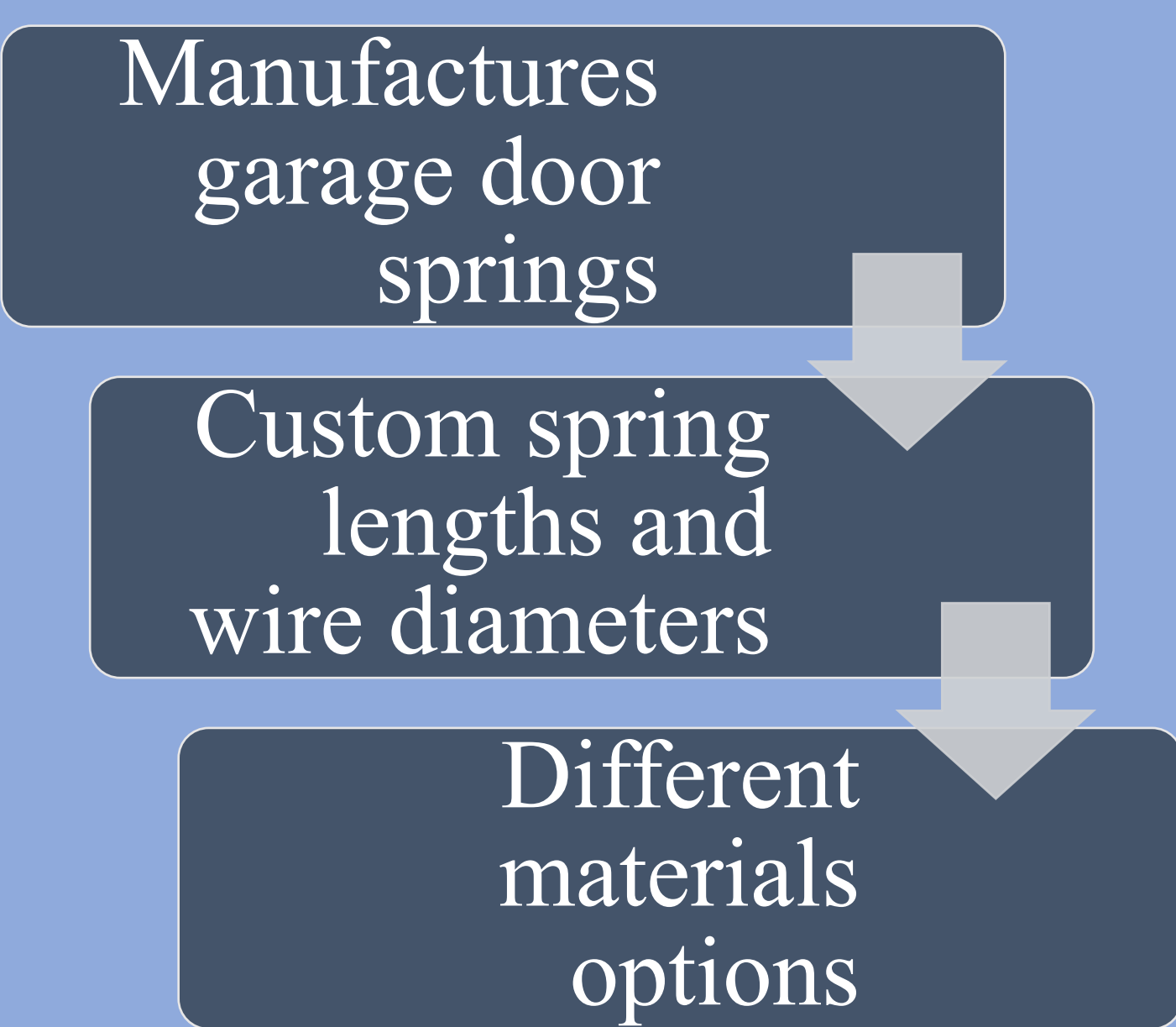


# Background & Research

## IDC Spring – Piqua OH



## Spring Manufacturing Process

- Spring Winding
- Heat Treating
- Coating & Finishing
- Coning
- Heating & Bending



## Current Problems

- Over-crimping
- Under-crimping
- Marring springs
- Tool breakage
- Operator Ergonomics

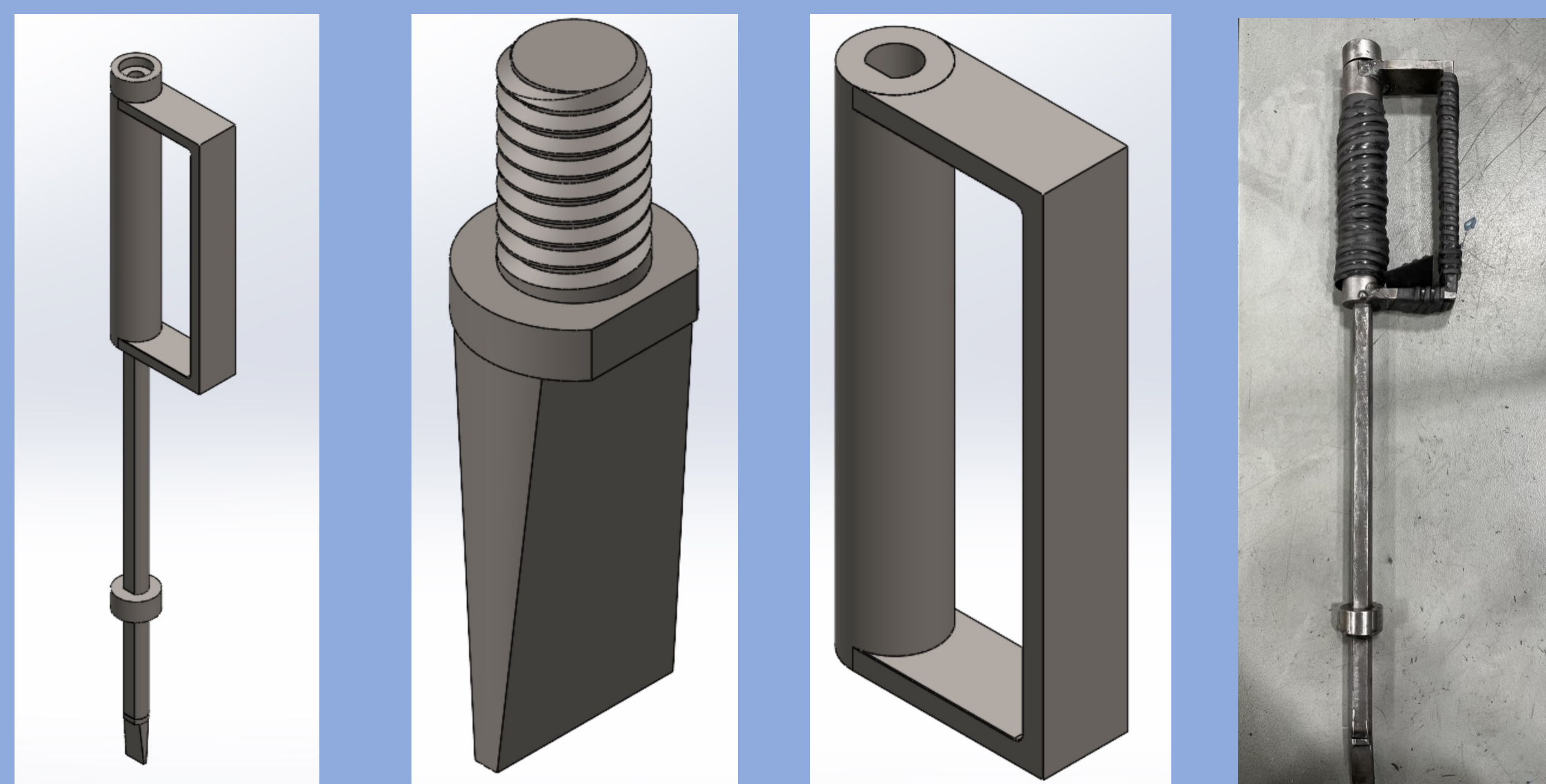


# IDC Spring Crimping Tool

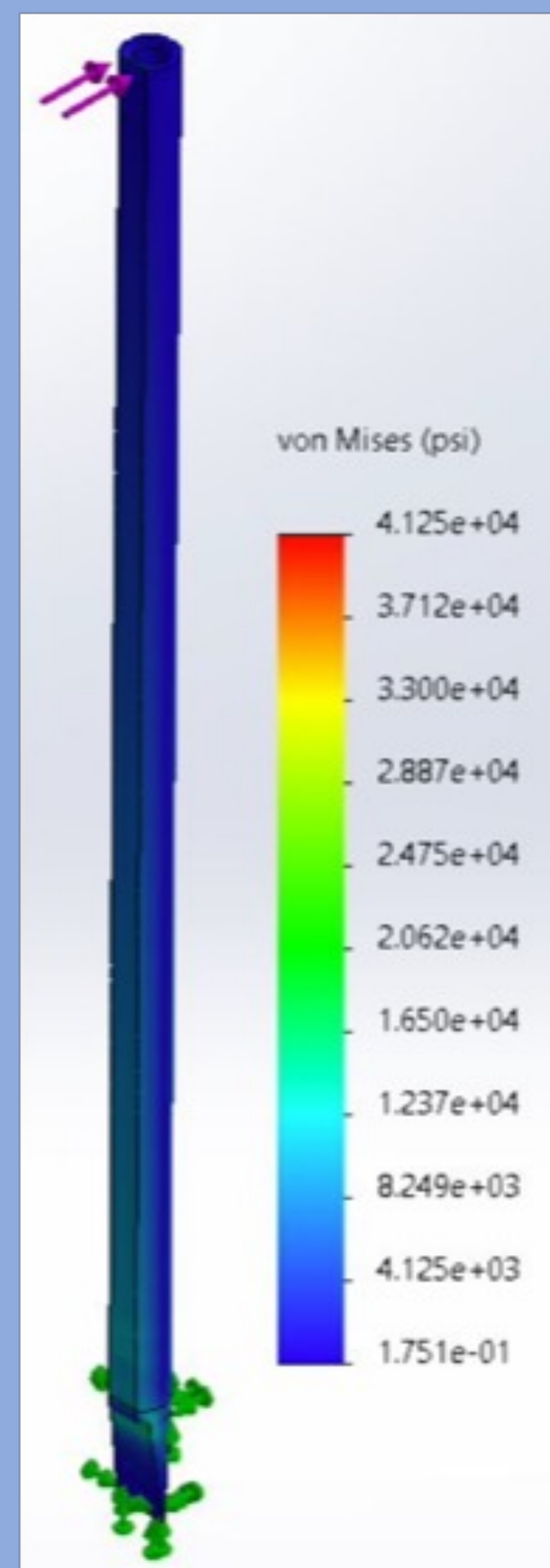
## Objective

For this project, the group is creating a repeatable and replaceable crimping tool for IDC Spring. The goal is to create a more efficient and operator friendly tool to replace the current tooling setup. Most importantly, the goal is to improve safety on the production line and minimize the stress on the operator.

## Proposed Tool Design



## Simulation & Cost Comparison



**Screwdriver:**

- \$7.14 each
- QTY 30 = \$214.20 (each month)
- Yearly Total: \$2,570

**Proposed Tool:**

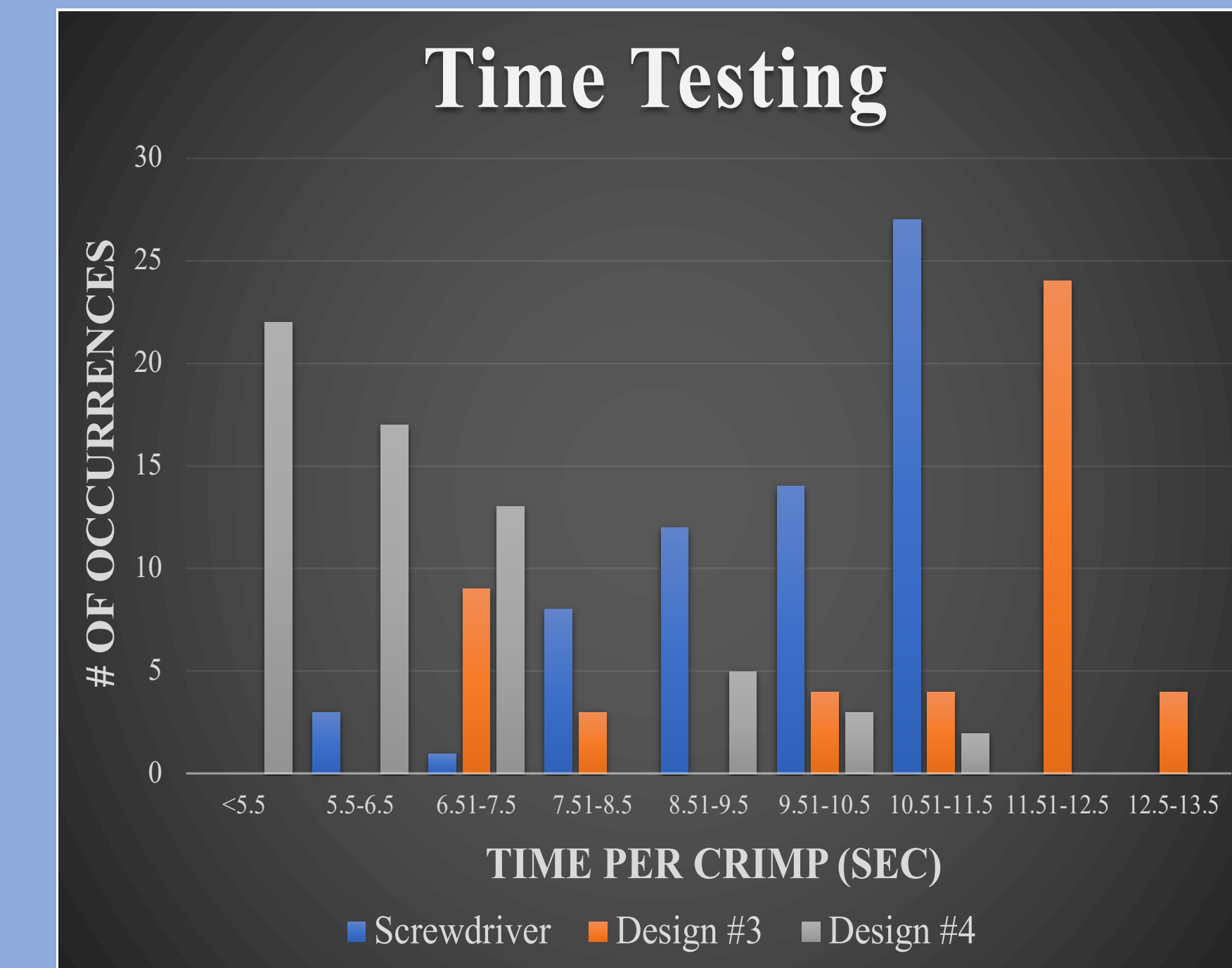
- \$1,160 each
- QTY 6 = \$6,960 (spent one time)
- QTY 6 Replacement Tips = \$1,860
- 6 Year Total: \$8,820

**Cost Savings:**

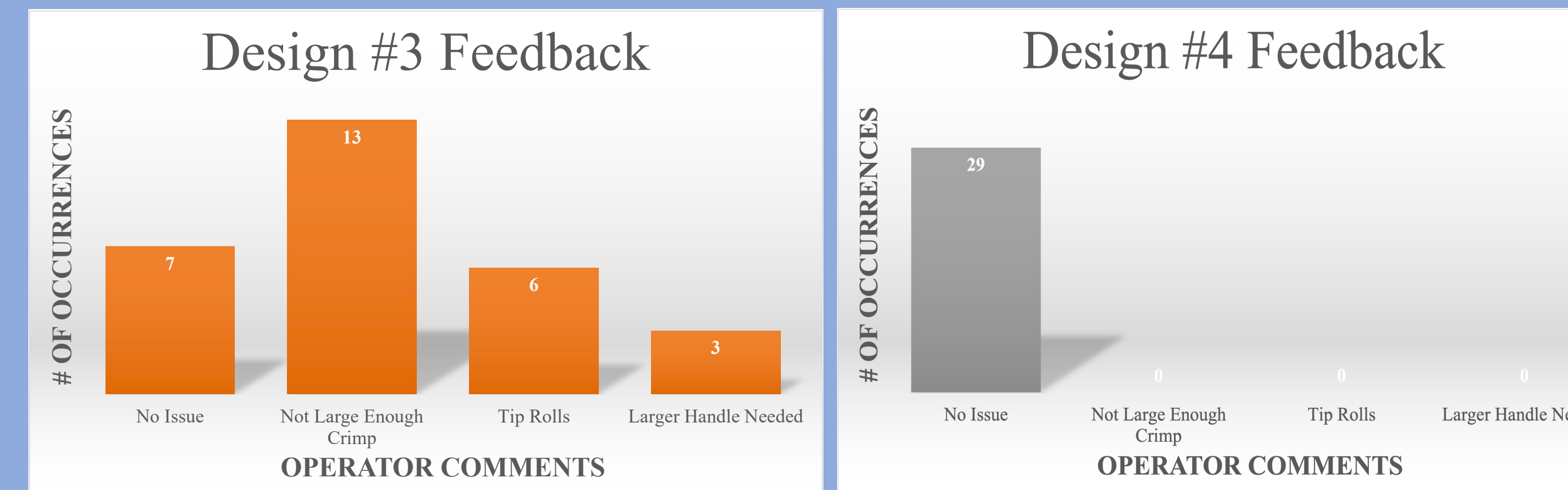
- Profitable after **3.5 years** (including first replacement tips)
- Estimated tip lifetime of 6 or more years due to fatigue analysis

# Results & Analysis

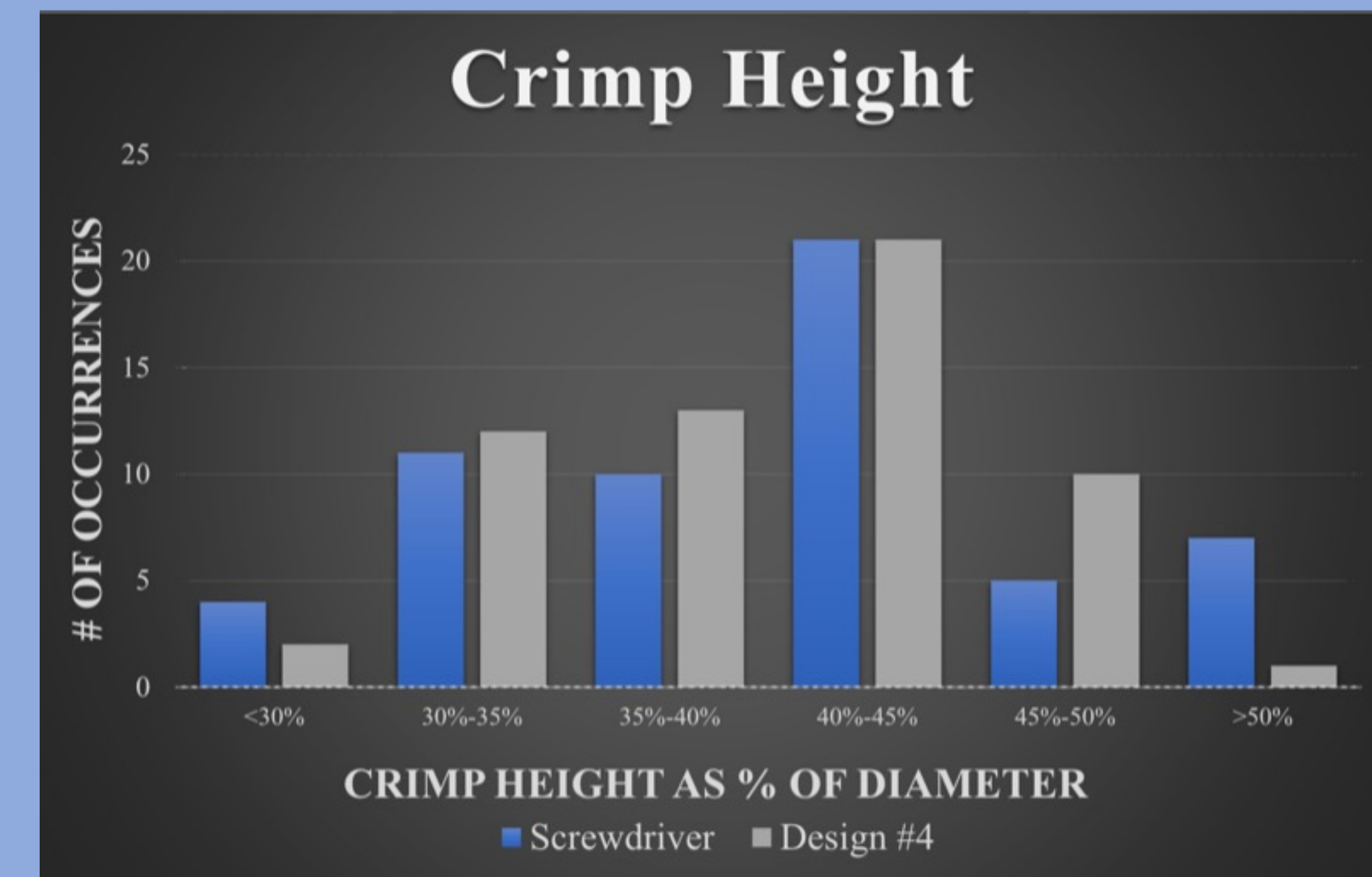
## Time Testing



## Operator Feedback Forms



## Crimp Height Testing



## Required Crimp Height

