

**Grit**



**Unintentional Falls are the #1 cause of nonfatal hospitalizations among Americans**

# \$140 Million



Hand Distribution

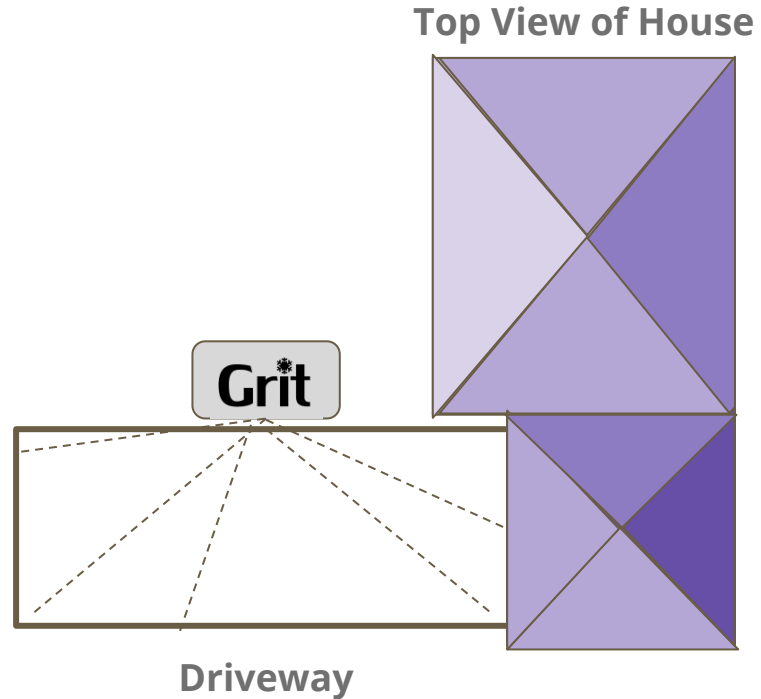


Push-Action Spreader



Truck Tailgate Spreader

# Product Purpose: Surface Preparation



**Can we shoot a granular de-icer far enough?**

**Can we control the spread of the de-icer?**

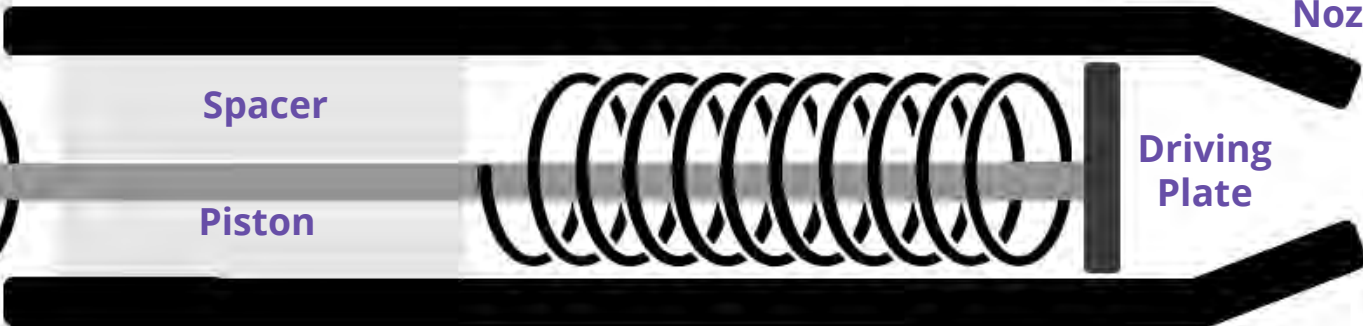
# Initial Design Ideas

	<b>+</b>	<b>-</b>
<b>Impeller</b>	<b>Similar to existing technology</b>	<b>Lots of wear due to salt at high speeds</b>
<b>Conveyer belt</b>	<b>Increased accuracy</b>	<b>Safety of exposed moving parts</b>
<b>Piston</b>	<b>Individual shots for precision</b>	<b>Reload Time</b>
<b>Compressed Air</b>	<b>Limited wear and tear</b>	<b>Requires compressor or air line</b>

Stopper



Barrel

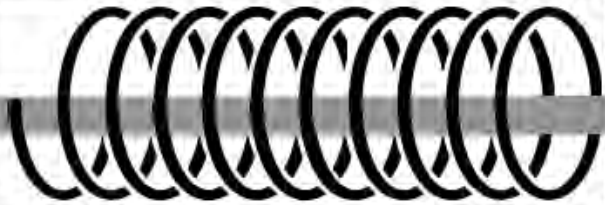


Nozzle

Spacer



Piston



Driving Plate



Recoil Spring



Launch Spring







**Can we shoot a granular de-icer far enough?**

**Achieved 15 of targeted 25 feet**  
with proper mechanical constraint and no nozzle

**Can we control the spread of the de-icer?**

**Salt spread has a radius of ~2 ft**  
without wind at an angle close to horizontal