

# Reduction of Internal Parasites Through Improved Feeder Design

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<p><b>Engineering Problem &amp; Project Objectives</b></p> <ul style="list-style-type: none"> <li>How can I improve my existing goat feeders to efficiently reduce the consumption of internal parasites?</li> </ul> <p><b>Goal</b></p> <ul style="list-style-type: none"> <li>To improve my existing goat feeders with the objectives of being easy, quick, and clean to reduce the time spent of cleaning the feeders.</li> </ul> <p><b>Why?</b></p> <ul style="list-style-type: none"> <li>I did this project to help commercial goat farmers throughout the U.S. like myself reduce the time it takes to clean their goat feeders in order to save money and prevent reoccurring worm problems.</li> </ul>	<p><b>Data Analysis and Results</b></p> <ul style="list-style-type: none"> <li>The retractable feeder tray takes only 2 seconds to clean while the non retractable feeder tray takes 25 seconds to clean.</li> <li>In the current market \$14 million is spent to treat reoccurring worm problems due to dirty feeders. \$13.8 million is spent to pay farmhands to clean non retractable tray feeders. \$1.1 million is spent to pay farmhands to clean retractable tray feeders.</li> <li>In the future market potential \$28.5 million is spent to treat reoccurring worm problems due to dirty feeders. \$28.1 million is spent to pay farmhands to clean non retractable tray feeders. \$2.2 million is spent to pay farmhands to clean retractable tray feeders.</li> </ul>
<p><b>Project Design</b></p> <ul style="list-style-type: none"> <li>I redesigned the tray of the feeder by removing the boards and screws attaching to the tray and sawing off eight inches of the board to easily slide across the floor support boards.</li> <li>I drilled four one-inch holes on the back side of the tray to act as a grip to easily slide the tray in and out.</li> <li>I installed two 2"x4"x16" boards a 1/2 inch higher than the floor support boards to prevent anything from touching the retractable tray.</li> <li>I used a jigsaw to remove the back middle leg of the feeder that way nothing was preventing the tray from being retractable.</li> </ul> <p>Photo by finalist</p> 	<p><b>Interpretation and Conclusions</b></p> <ul style="list-style-type: none"> <li>Based off the goal and results the retractable feeder tray was able to accomplish the objectives of being easy, quick, and clean.</li> <li>It saved 23 seconds of cleaning versus the non retractable tray feeder.</li> <li>With the reduction in time to clean the goat feeders the retractable tray design can save U.S. goat farmers \$12.7 million in the current market potential alone.</li> <li>If the United States reaches the future market potential the retractable tray design can save \$25.9 million compared to cleaning the non retractable tray feeders.</li> <li>Through these savings it can help increase the commercialization of goats to reduce the amount of goat meat our country has to import.</li> </ul>