

SAFETY ABSTRACT

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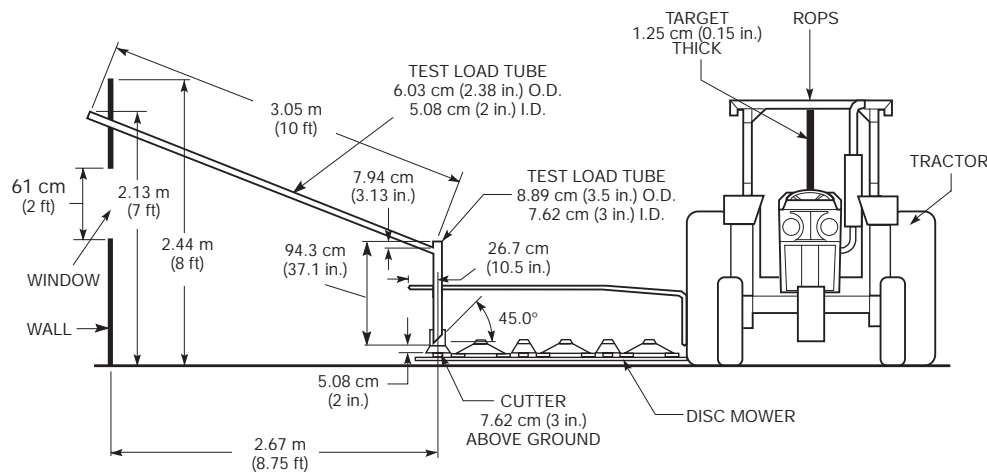
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Food Processing Equipment

On the Safety of Agricultural Disc Mowers

by Dennis B. Brickman, P.E.¹

THROWN OBJECT TEST SETUP WITH NO GUARD

(Test equipment shown in color)

ABSTRACT

A thrown object test protocol was developed and performed, based on agricultural rotary mower safety standards, to analyze the safety of an agricultural disc mower. The test procedure consisted of introducing 450 rocky mountain white marble stones with an average diameter of 1.25" to the outermost disc of a Sasaki Model No. AM-2400D six disc mower one at a time by gravity through a tube configuration illustrated in the above figure. Test projectile strikes on the 0.5" thick black Gatorfoam board operator zone space target, defined by the ROPS, seat and steering wheel of the tractor shown in the figure, were counted and recorded with the assistance of target punctures, white stone residue remaining on the black target and high speed video played back in slow motion. Testing was conducted on the Sasaki disc mower equipped with no guard, three different Sasaki guard designs and a competitor Kuhn guard. Test results reveal that all of the Sasaki guards allowed operator zone strikes, whereas the Kuhn guard prevented projectile strikes on the target. The Safety Hierarchy is used to systematically explore safety strategies for mitigating the thrown object danger.

¹ Senior Mechanical Engineer, Triodyne Inc., Niles, IL.

The full text of this paper will be published at the ASME Design Engineering Technical Conference in September of 1995 and will be available from Triodyne Inc. at no cost. To request the paper, call (708) 677-4730 ext. 162.