

## عنوان مقاله:

Modal Analysis and Performance Evaluation of a Hardox Steel Cultivator

## محل انتشار:

پانزدهمین کنگره ملی و اولین کنگره بین المللی مهندسی مکانیک بیوسیستم و مکانیزاسیون کشاورزی (سال: 1402)

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## خلاصه مقاله:

The present study investigates the effect of Hardox steel, a high-strength, abrasion-resistant material, on agricultural equipment, specifically a cultivator. A Hardox steel cultivator will be studied under a variety of loading conditions, using modal analysis to understand its vibration characteristics. A modal analysis was performed on a simple cultivator head in order to determine its vibration characteristics under external loads. SolidWorks is used to model the cultivator, and Abaqus is used to conduct the modal analysis. Based on these results, potential areas for improving the cultivator's performance can be identified. Agricultural applications of Hardox steel are examined, including its durability, strength, and wear resistance. There have been a number of steels compared in order to determine which is the best option. In agricultural applications, Hardox ۴۵۰, Hardox ۵۰۰, and Strenx steels have been evaluated, but Hardox ۴۵۰ has proven to be the most economical choice. Research directions are suggested, including the exploration of Hardox steel's performance under different conditions and the potential use of advanced materials to enhance agricultural equipment efficiency and durability

## کلمات کلیدی:

Hardox Steel, Modal Analysis, Agricultural Equipment, Cultivator, Vibration Characteristics

## لینک ثابت مقاله در پایگاه سیویلیکا:

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