

COMPREHENSIVE RESEARCH ON PRUNES

PROGRAM AREA: Agricultural Engineering. Tree Structure and Tree Shaking

PROJECT LEADER: R. B. Fridley

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OBJECTIVES:

To investigate the effects of limb curvature and length on the transmission of vibration for effective thinning and harvesting and investigate the potential of improving shaker effectiveness by controlled multidirectional shaking.

WORK IN PROGRESS:

A digital computer program has been developed which simulates the effect of limb shape on the transmission of vibration. The program is currently being used for evaluation of various tree limb shapes.

EXPERIMENTS COMPLETED:

Tree branch models constructed of steel have been used for laboratory tests using a one-directional shaker and the results showed very good agreement with digital computer predictions.

WORK PLANNED:

A multi-direction shaker is being designed and is being constructed for further laboratory modeling studies. The results of these studies will be used to verify the digital computer simulation of a multi-directional shaker. Thus with a verified model the effect of design parameter changes can be economically and rapidly studied.

MAJOR ACCOMPLISHMENTS:

The theoretical analysis has been completed resulting in a digital computer program for simulating tree shaking. Laboratory studies have been used to verify the theoretical results for unidirectional shaking.

EVALUATION OF PROJECT:

Criteria for optimum tree training, thinning and optimum shaker design resulting from this study will be used to improve prune harvesting systems.