

Mechanical Harvesting of Eastern Black Walnut Nuts

Jim Jones
Vice President and Director of Forestry and Land Management
Hammons Products Company
Stockton, Missouri

INTRODUCTION

It is generally accepted that for the commercial production of Eastern Black Walnut nuts to be successful that mechanized harvesting will be a must. Most, if not all, commercial tree nut crops in North America are now harvested by machine. This is an important consideration for the introduction and development of Eastern Black Walnut nut harvesting systems. It will not require the industry to start at ground zero, but rather to learn from others and make rapid gains. The purpose of this paper is to review recent machine harvesting experiences, field needs for mechanical harvesters, machines necessary for a successful harvest and cultural practices to facilitate the process.

HARVESTING EXPERIENCES

The harvest of Eastern Black Walnut nuts is not unlike any other agricultural crop. The crop matures within a specific time period and an optimum time for harvest occurs. With a planting of unknown genetic material the maturity dates will be fairly widespread. However, with blocks of improved varieties the maturity issue will be much less complicated and the grower will quickly be able to determine an optimum harvest schedule. The basic goal for harvest should be to remove the nuts from the trees, remove the husk from the nuts and reduce the moisture content to a storable level as soon as possible after maturity has been reached. The traditional harvest season is basically October 1st to November 15th when dependent upon the natural fall of the nuts. It is believed that this schedule could be advanced by perhaps a week or more through the use of a tree shaker. Here again single variety blocks would simplify the decision making.

One of the major benefits of machine harvesting is employee acceptance. In today's society and work environment this is very important. Managers must be able to create productive, efficient and economical harvest systems.

A Weiss-McNair harvest systems has been used at Hammons Sho-Neff Plantation and two other projects for the past four years (not all sites all years). The system includes a tractor mounted blower and sweeper and a tractor powered harvester. The retail price 4 years ago was approximately \$35,000.00 for the package. These machines have been used to harvest as little as 350 lbs./acre and as much as 1200 lbs./acre. They are manufactured in Chico, California and have been widely used by the English walnut, pecan, almond and other tree nut industries. Each year similar machines cover hundreds of thousands of acres. In harvesting several hundred acres of less than perfect sites the machines have proven to be quite durable and dependable.

FIELD NEEDS

To successfully harvest with the shaker-blower-sweeper-harvester system requires a relatively smooth surface. The fields at Hammons Sho-Neff Plantation have been carefully prepared and cropped in an agroforestry management system for as many as 24 years. The best harvest conditions require the grass to be 4 inches or less in height, relatively smooth soil surface, no dead branches and a minimal rise within the tree row.

One must remember that the Southwest Missouri region receives 40+ inches of precipitation per year. Wet field conditions can keep nut harvesting machines out of the field for a week at a time. When the nuts are fresh, firm, green and round they can be easily moved with a blower and the sweeper. However, when these same nuts are older, black, somewhat flattened and frozen to the ground they do not roll very easily. Another argument for a speedy, early harvest. In addition to these challenges is the need to remove dead branches from the harvest areas prior to hay and nut harvest.

Machine harvesting in Southwest Missouri has demonstrated the importance of soil conditions and a quality ground cover. With regional rain fall conditions it would appear that bare soil IS BASICALLY OUT OF THE QUESTION FOR THIS AREA. While harvesting at Sho-Neff Plantation the weed control band must be avoided with the tractor tires to prevent creating ruts during most seasons. It is believed that a well managed ground cover of bluegrass and white Dutch cover provide a near ideal harvest surface.

On some harvest sites with sparse ground cover and a gravelly soil it is somewhat difficult to keep the small stones from entering the nut cart along with the nuts. Without a de-stoner tank the stones create real problems in the hulling machine.

SUMMARY

Mechanical harvesting systems for Eastern Black Walnut nuts should allow the grower to take advantage of new technology and reduce personnel requirements. To do a satisfactory job of harvesting will require proper management of the soil surface and the ground cover used to prevent soil erosion and provide harvest and access support. One of the negatives associated with the machine harvest is that additional vehicles in the planting create more soil compaction.

The machines to mechanically harvest Eastern Black Walnut nuts are now basically available with some new products yet to come. Machines are just one piece of the puzzle. Improved genetics and improved cultural practices will blend with the machine to make the Eastern Black Walnut nut crops in the future a viable land management enterprise for growers.

EQUIPMENT LIST FOR MACHINE HARVESTING

Weiss-McNair

Blower-Sweeper-Harvester \$35,000.00

Savage

Shaker (PTO driven) \$5,000.00

Tractors

John Deere 4020 (harvester) \$7,500.00

John Deere 3020 (sweeper & blower) \$7,500.00

Hesston 780 (shaker) \$8,000.00

Total Equipment Costs \$63,000.00

MANUFACTURES OF NUT HARVESTING EQUIPMENT

Harvesters, Sweepers and Blowers:

- Weiss-McNair, Inc.
531 Country Drive
Chico, CA 95928
Tel: 916-891-6214

- Flory
PO Box 908
4737 Toomes Rd.
Salida, CA 95368
Tel: 209-545-1167
Fax: 209-545-4924

- Ramacher
531 Country Drive
Chico, CA 95928
Tel: 916-891-6214
Fax: 916-891-5905

- Savage Equipment
400 Industrial Drive
Madill, OK 73446
Tel: 405-795-3394

Catchment Frames:

- Weldcraft Industries, Inc.
PO Box 11104
Terra Bella, CA 93270
Tel: 209-784-4322
Fax: 209-784-4620

Shakers:

- Compton Enterprises
2434 Dayton Road
Chico, CA 95928
Tel: 530-895-1942
Fax: 530-895-0760

- Orchard-Rite
1816 South Van Ness
Fresno, CA 93721
Tel: 209-237-3222

- OMC
2700 Colusa Highway
Yuba City, CA 95993
Tel: 916-673-2822
Fax: 916-673-0296