

Precision Agriculture Research Program

Introduction

The research on mechanical wild blueberry harvesters was started in 1947 by Agricultural Engineering Department of the University of Maine. In 1983 Bragg Lumber Company made a commitment to build 20 harvesters for the 1984 season. These machines were considered as the first commercially successful wild blueberry harvesters in North America.

The blueberry Industry (DBE) is manufacturing different heads (with different number of header bars and header diameters) with the aim to minimize berry losses during harvesting.

Objective:

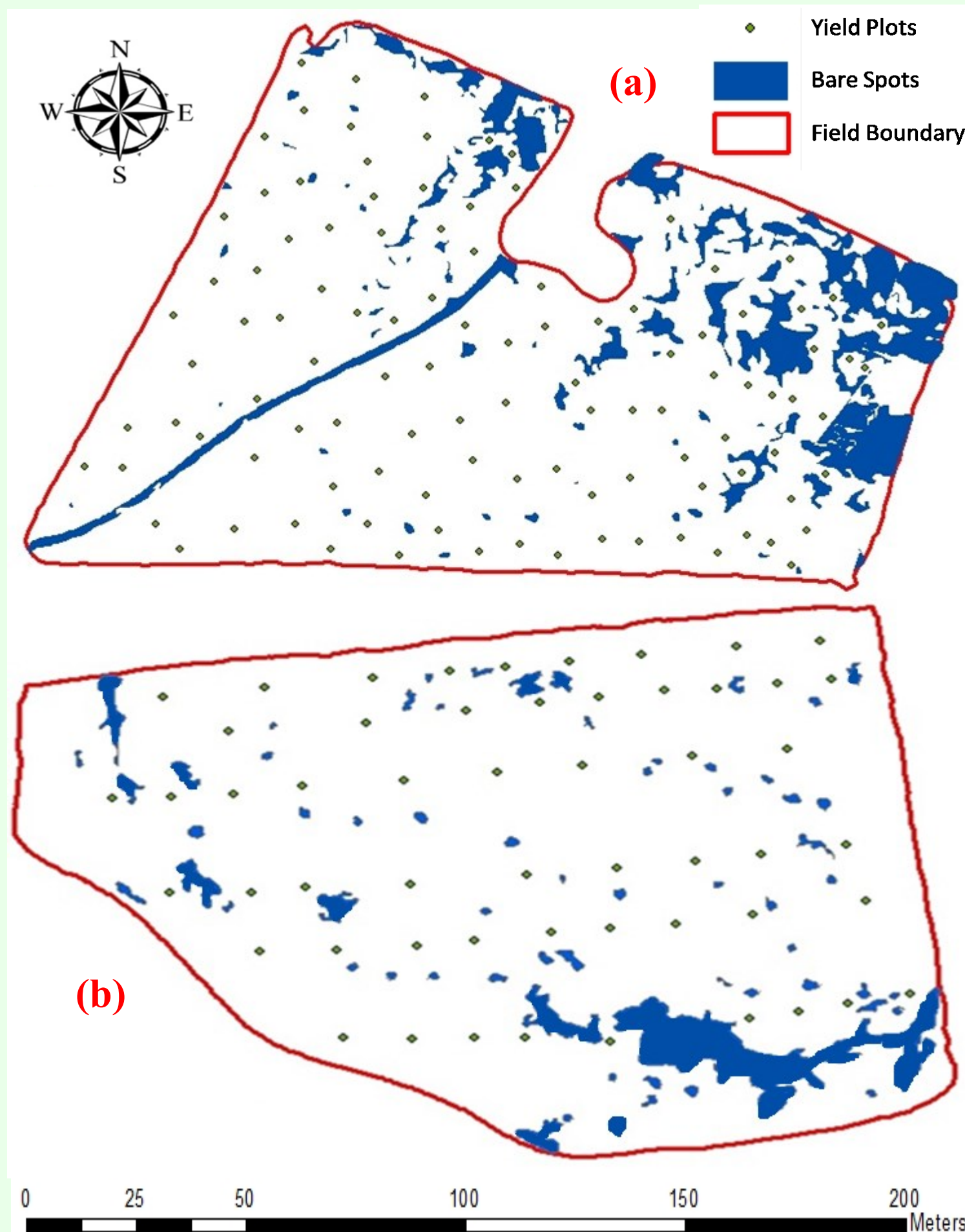
The objective was to examine the effect of harvester head designs (16 and 12 bars heads), ground speed (1.20, 1.6 and 2.0 km h⁻¹) and header revolution (26, 28 and 30 rpm) on picking efficiency of the wild blueberry harvester.



DBE Wild Blueberry Harvester Head



Recording Plant and Fruit Characteristics



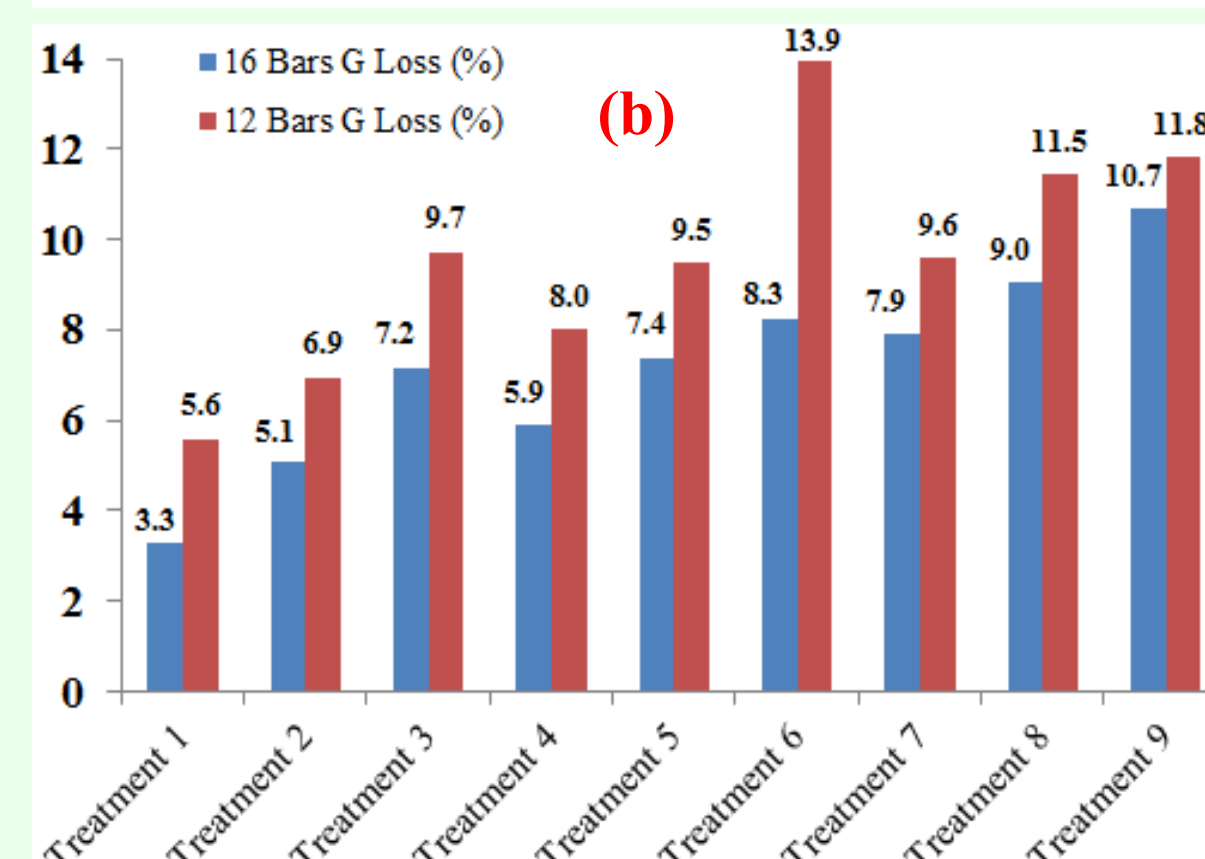
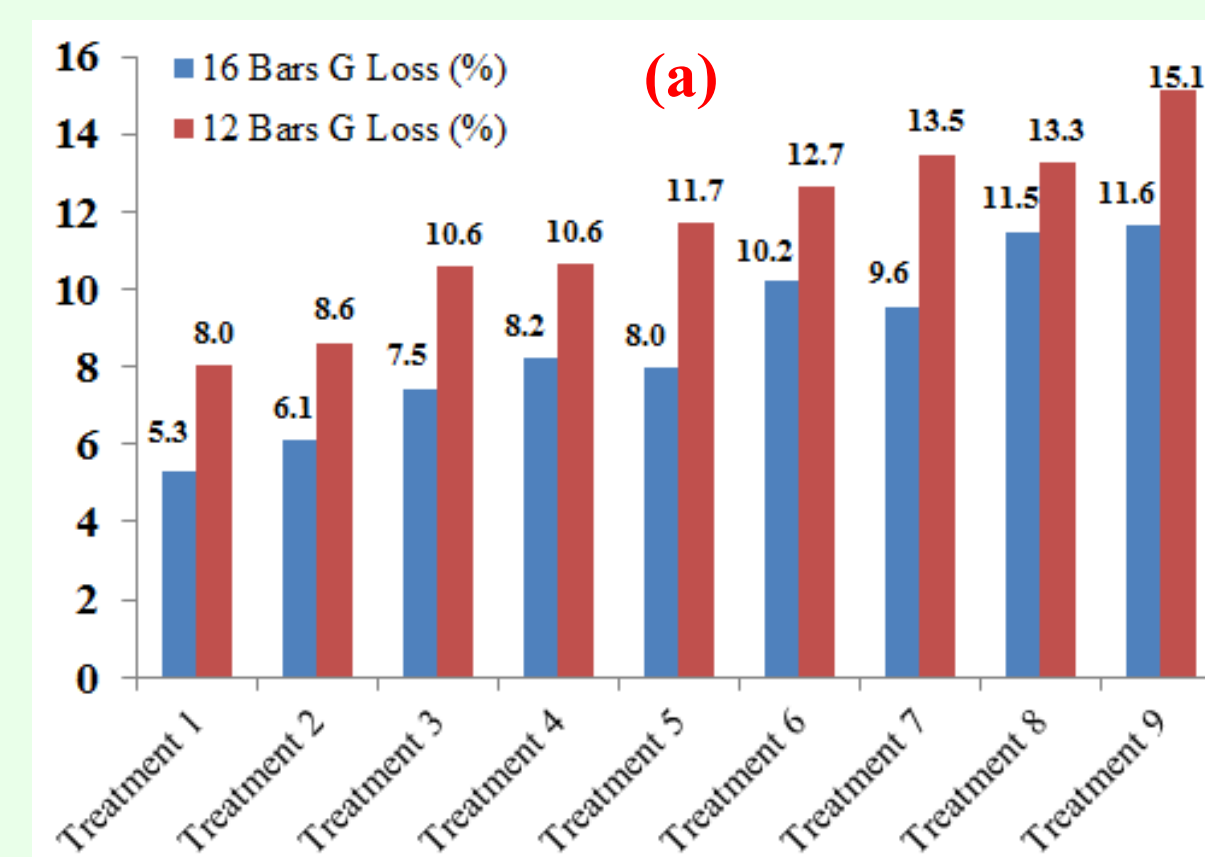
Maps of (a) Hardwood Hill and (b) Robie Glenn Fields

Methodology

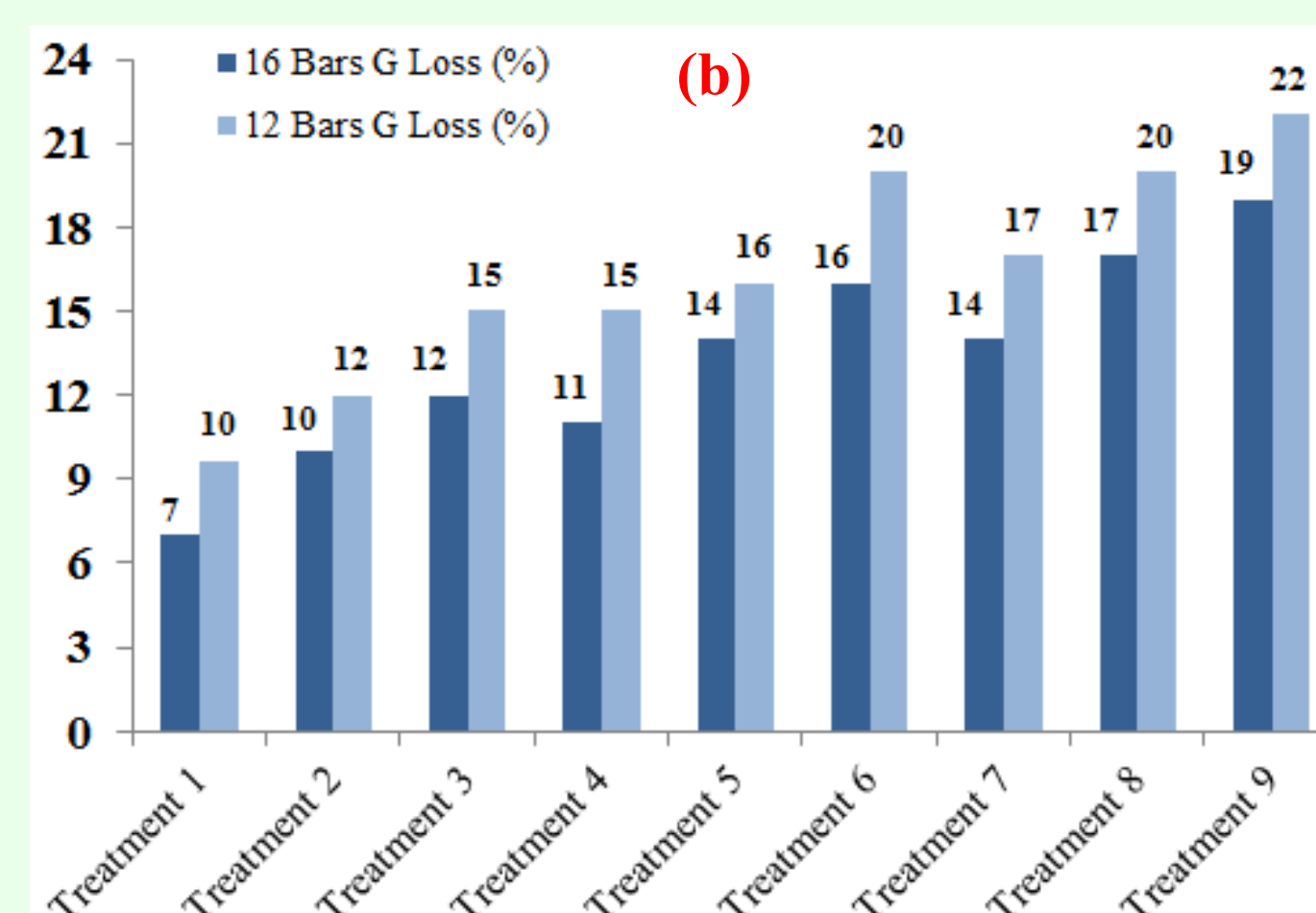
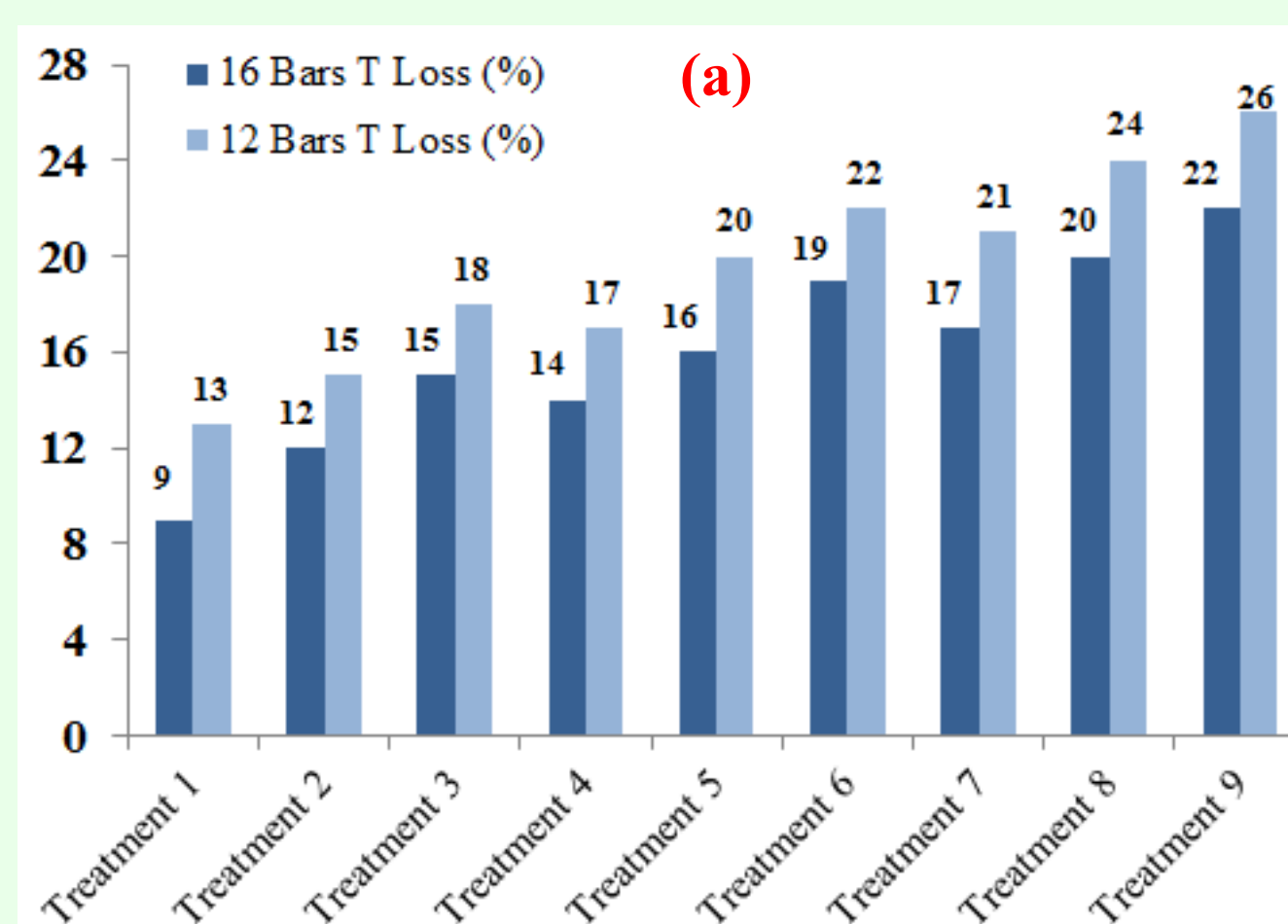
Two wild blueberry fields were selected in central Nova Scotia. One hundred eight yield plots (0.91 × 3 m) were selected randomly in each field. Fifty four plots were harvested using 16 bars header at each level of ground speed and rpm. Same numbers of plots were harvested using 12 bars header. The total fruit yield, unharvested berries on the plants, berries on the ground, berries on the pan behind header and berries through blower, were collected from each plot within selected fields. The pre-harvest fruit losses were also collected from each plot prior to harvest. The treatment combinations were assigned randomly within selected fields.

Results

- ✓ Results indicated less fruit loss at lowest levels of ground speed and rpm (i.e. 1.2 km h⁻¹ and 26 rpm) using 16 bars and 12 bars header in both fields.
- ✓ The comparison of the fruit loss using 16 bars and 12 bars header indicated that the 16 bars head was better in picking and transporting the berries into the bin irrespective of the ground speed and rpm.
- ✓ Berries on the ground were the major contributors towards the overall fruit loss in both fields and with both headers.
- ✓ Overall, results revealed that the selection of header with greater numbers of bars and suitable combination of ground speed and header rpm can minimize the fruit losses during harvesting.



Ground Fruit Loss in (a) Hardwood Hill and (b) Robie Glenn



Total Fruit Loss (%) in (a) Hardwood Hill and (b) Robie Glenn

