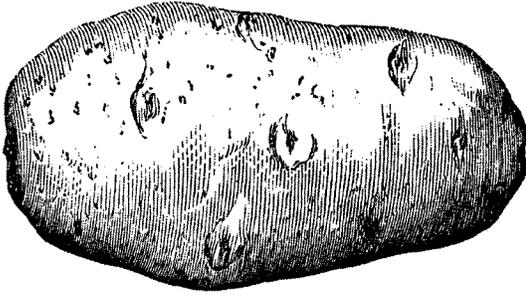


# Potato Facts



## How to Calibrate Air Harvesters for Maine Conditions

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*A properly calibrated potato harvester can reduce serious bruising.*

**R**educing serious bruise from five percent to four percent could return about \$750,000 in sales to Maine potato growers.

The past five years, serious bruise averaged 6.5 percent per year, or about 4.5 million dollars of lost sales.

A properly calibrated potato harvester can reduce serious bruising. However, most harvester calibration information is for conditions very different from those in Maine. This fact sheet includes information on calibrating air harvesters for Maine conditions.

Thomas™ and Lockwood™ air harvesters are commonly used in Maine. These two machines operate similarly with respect to primary, secondary, rear cross, side elevator and boom beds. The calibration data presented here work with both types of air harvesters.

The data used to develop these calibration recommendations were collected over several years using an instrumented sphere. Proper harvester calibration will not make up for very rocky conditions. However, a properly calibrated harvester will still perform better than a poorly calibrated harvester used under similar conditions.

The harvester calibration approach promoted in the Pacific Northwest uses ratios between forward speed and bed speed. Hydrostatic drive tractors, changing conditions within fields and

variable yields make using ratios of forward speed to speed of a PTO-driven bed unsuitable for Maine conditions.

The calibration recommendations presented here differ from those of the Pacific Northwest as they ignore forward speed. Lockwood™ and Thomas™ air harvester speeds in Maine are generally between 0.7 to 1.2 miles per hour, with some faster and some slower. All harvesters travel at different speeds under different conditions. For these recommendations, an assumption is that the harvester is traveling at a speed typical for Maine conditions.

In a stationary position, with the tractor turning the harvester at the same revolutions per minute used while harvesting, measure the speed of each harvester bed. For accuracy, use a hand-held tachometer. For safety, keep clear of moving parts and always insure a second person is in the tractor seat with a hand on the PTO lever.

Plot the speed of each harvester bed on the chart. If the value is off the chart, simply estimate where it should be. Connect the points to form a line. A properly calibrated harvester will have a line close to straight up and down on the chart. The line does not have to be in the center of the chart, but the closer it is to straight up and down, the better the calibration.

A line toward the slower end of the chart is perfectly fine. Seed growers



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**Most bruise damage occurs during transfer from one bed to another.**

prefer less movement to avoid tumbling with the narrow pitch chains customarily used. Machines harvesting lower yields or two or four rows windowed tend to be better calibrated on the slower end. Machines harvesting six or eight rows windowed tend to operate better on the faster end. A machine with a line on the slower end is better suited for wet conditions; a machine with a line on the faster end is better suited for dry conditions. A machine towards the middle may handle both wet and dry conditions satisfactorily. In any case, with the harvester properly calibrated, you can travel at a speed dictated by soil and yield conditions. (Change speeds by shifting up the tractor gears rather than increasing engine speed.)

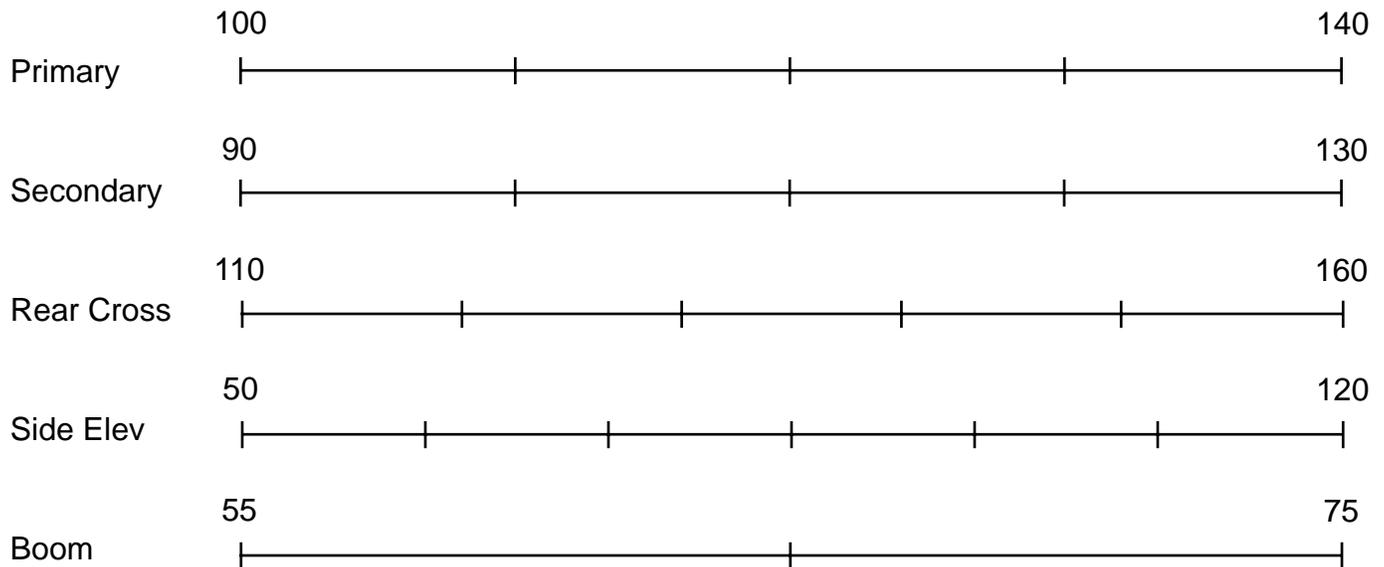
Most bruise damage occurs during transfer from one bed to another. It is even more dramatic where the beds change direction. In Maine conditions,

the rear cross and the air head are the two most frequent places where impacts occur. Speed of the beds in relation to each other is important for proper transfer of potatoes from one belt to the next belt. In all cases, any use of shakers on the primary bed increases the impacts on the primary and the secondary bed. The increase in impacts is proportional to the amount of agitation performed by the shakers.

Often, improper transfer on a particular bed is a result of the previous harvester bed not being adjusted properly. For example, a rear cross that is tilted dramatically and is moving very quickly to avoid pulling potatoes underneath the secondary may be the result of the secondary traveling too slowly. Treating the symptoms may not fix the cause of the problem.

This calibration chart is suitable for Maine conditions.

**Harvester Bed Speed (feet per minute)**



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