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Accuracy of Log Truck Onboard Weigh Scales

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One vision
Global competitiveness

Introduction

1. **Background**
2. **Study site**
3. **Methodology**
4. **Results**
5. **Summary**

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Background

Study Objective

To assess the accuracy of log truck onboard weigh scales.

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Study Objective

Why assess the accuracy of log truck onboard weigh scales?

It was recognized as the first step in evaluating onboard truck scales as a substitute for platform scales.

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Background

Some advantages of using onboard scales in place of platform scales are:

- **Enable direct delivery of logs from the harvest site to the final destination.**
- **Reduce weigh scaling costs.**
- **Improve truck cycle time.**
- **Allow flexible work hours.**

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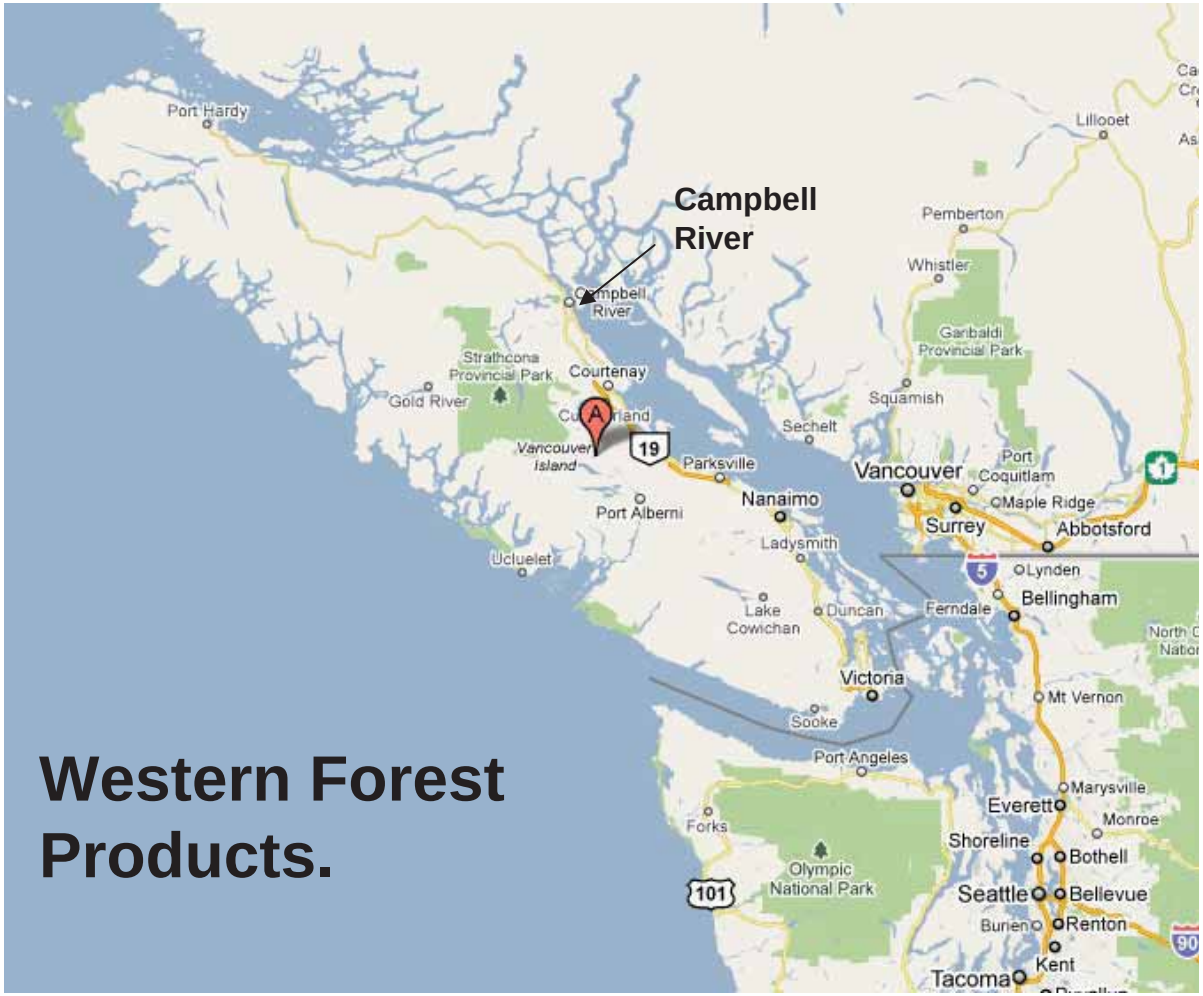
Study location and co-operating company



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Platform scale

•Study conducted June/July 2009

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Study log trucks

12 tridem tractor-tridem pole configured trucks participated in the trial.

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Onboard scales

Each truck equipped with a Vishay SI Technologies 9100 GW digital onboard weighing system.

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Study Methodology

Prior to starting the trial researchers calibrated the onboard truck scales.

At the platform scale:

- **Recorded onboard scale readings for each truckload.**
- **Weighed each truckload on the platform scale.**

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Onboard scale accuracy of total payload

Truck Id	No. Loads	Onboard weight (tons)	Difference (Platform-onboard) tons	Difference [1] (%)	Volume difference (board feet)
234	18	701	-1.3	-0.2	-353
236	22	881	-6.7	-0.8	-1,700
238	25	961	5.7	0.6	1,501
240	18	652	-0.9	-0.1	-243
242	26	1,025	-4.7	-0.5	-1,258
244	32	1,052	7.1	0.7	1,943
246	15	573	5.0	0.9	1,325
Total of all 12 trucks	**280**	**10,644**	**4.9**	**0.05**	**1,457**

[1](platform-onboard)/platform

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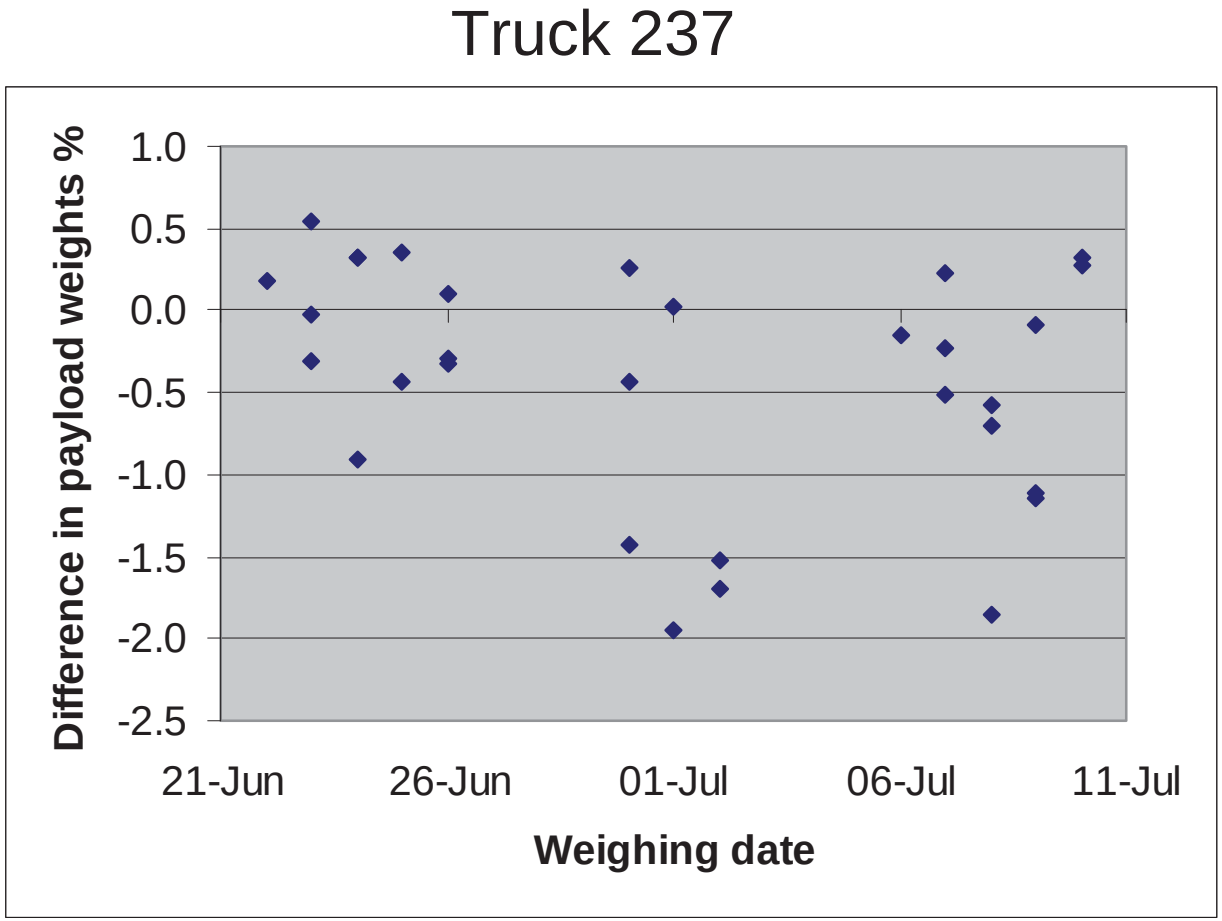
Onboard scale accuracy of individual loads



Each point is one load

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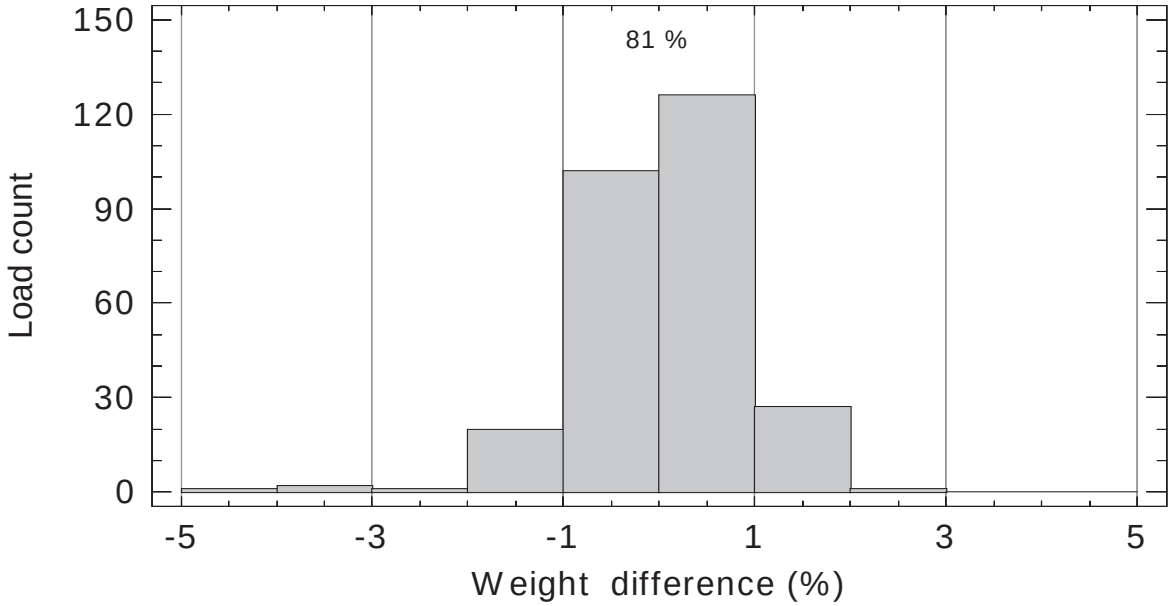
Accuracy of payload weights onboard scale



- 81% (227) of the onboard scale payload weights were within ±1% of platform weight.
- 1% (3) fell outside the range of ± 3%.

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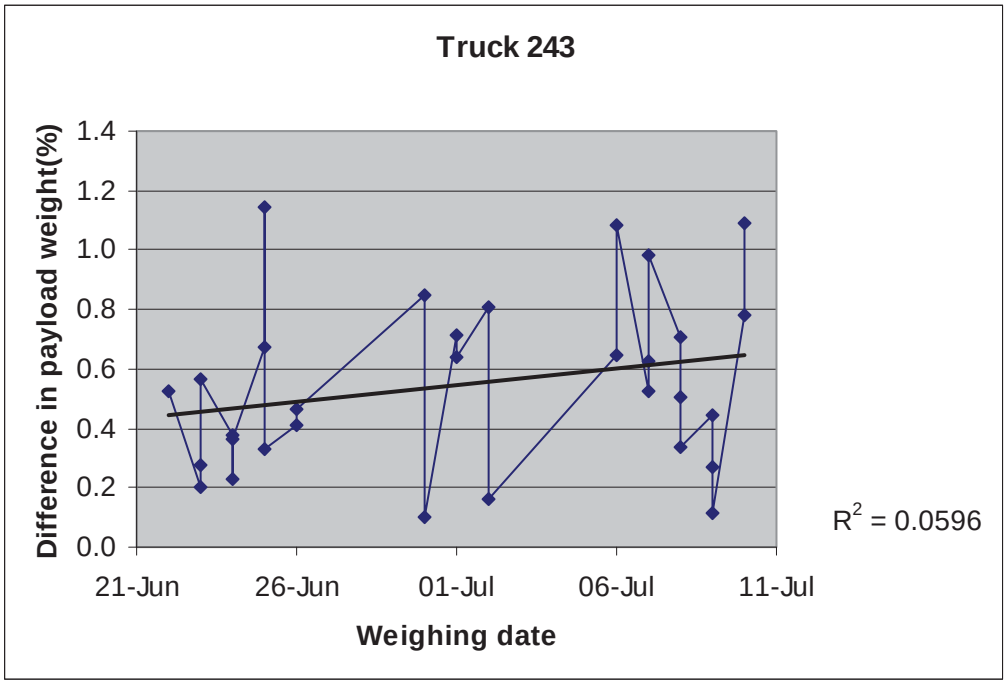
On board scale accuracy over time



- Shows typical trend line over time.
- Not a statistically significant relationship between onboard scale accuracy and date.

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Summary

- **A comparison of the platform and scale weights of each truck's total payload showed the difference varied from -0.1% to 0.9%.**

- **In 81% of the loads the difference in payload weights between the platform and onboard scales was within ±1%.**

- **The difference between the weighing systems of total payload weight (280 truckloads) was 4.9 tons (0.05%) or 1457 board feet.**

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