



FPInnovations

INFO NOTE

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OPTIMIZING TRACTOR / TRAILER SPECIFICATIONS

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When purchasing a new truck and/or trailer combination, getting the right vehicle for the job can have a significant impact on profitability. The combination must be able to reach maximum payloads to be efficient. Trucking rates are generally based on payload carried, and optimizing tare weights will allow for larger payloads, thereby increasing the hourly rate and profit.

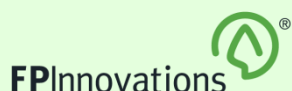
FPInnovations has conducted a number of truck configuration analyses. Recent findings include:

- Each tonne of additional payload delivered is worth \$7 000 per year (based on a \$3.50/tonne hour rate, working 2 000 hours per year).
- An analysis conducted for a member in the Prince George area showed a difference in tare weight between the lightest and heaviest trucks for the same configuration of 3 000 kg, which represents \$21 000 in lost earnings/profit per year.

Many options are available when purchasing new equipment that will reduce tare weight. Most options cost more than their heavier counterparts, so a return-on-investment analysis must be done to determine if buying the lighter option is a worthwhile investment. Assuming that each tonne of payload is worth \$7 000 per year, a simple calculation can be done to determine the payback period. Most options have payback periods ranging from immediate, if the lighter-weight option is less expensive, to 3.4 years. Table 1 provides a brief summary of the weight savings from various options:

Table 1. Weight savings from options to reduce tare weight

Item	Weight savings (kg)
Move the battery box from outside the truck to underneath the passenger seat	50
Replace all steel wheels with aluminum	131
Replace steel air tanks with aluminum	36
Replace dual exhaust stacks with a single stack	40
Move the air cleaner under the hood	18
Use three batteries instead of four	30
Reduce the fuel tank size from 758 L (200 US gal) to 605 L (160 US gal)	130
Utilize lightweight bunks (only increase bunk width if the larger bunks are needed to achieve payload)	136
Specify lightweight trailer hubs and drums	164
Switch trailer tires from 11R24.5 to 11R22.5	180
Adopt lightweight cab guards that meet the same WorkSafeBC requirements	83
Eliminate sleepers	200



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