**Research Paper:**

**Effect of terrain conditions on vibration of power tillers**

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**ABSTRACT**

Power tiller is a multi purpose hand tractor designed primarily for rotary tilling and other farm operations. This paper deals with machine vibration of walking and riding type power tillers during stationary mode as well as during rototilling in untilled and tilled fields and in transport mode on farm and bitumen roads. The results indicate that machine vibration increased with increase in engine speed and major excitation of the vibration of the power tiller was the unbalanced inertia force of the engine. In field operation and transport mode the increase in forward speed of operation resulted in increased values of acceleration. The magnitude of handle vibration was more in the untilled field than in the tilled field for both power tillers. The peak acceleration on the handle and underneath the seat was higher on farm road than in bitumen road (tar road). Among the power tillers the vibration induced in walking type power tiller was higher during field operation whereas in transport mode power tiller (8.95 kW) exhibited higher values with same trailer attachment.

**Key words:** Walking type power tiller, Riding type power tiller, Machine vibration