

Design and Fabrication of Self-Propelled Agricultural Spraying Machine for Small Scale Farmers

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Spraying of crops by small scale farmers in Ghana
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Goal / Approach / Comparison

Goal: improving safety and reducing the labour requirement and stress of farmers

Approach: 3 years of investigating the stress and effects imposed on farmers when they mount spraying machine at their back, analyzing and deducing solution to curb the problem through manufacturing of self – driven machine

Comparison of the self propelled spraying machine with existing manual spraying machine



Methodology

- ❖ Materials preparation, fabrication and assembly of frame
- ❖ Installation of tires, hub and motor
- ❖ Integration of the 12v pumps to the electrical and spraying system
- ❖ Connection of pumps to spraying nozzles and integration with motor system
- ❖ Integration of battery with the electrical system



Results

Fig 1:Fatigue scores of the manufactured self-propelled spraying machine compared to the conventional spraying machine

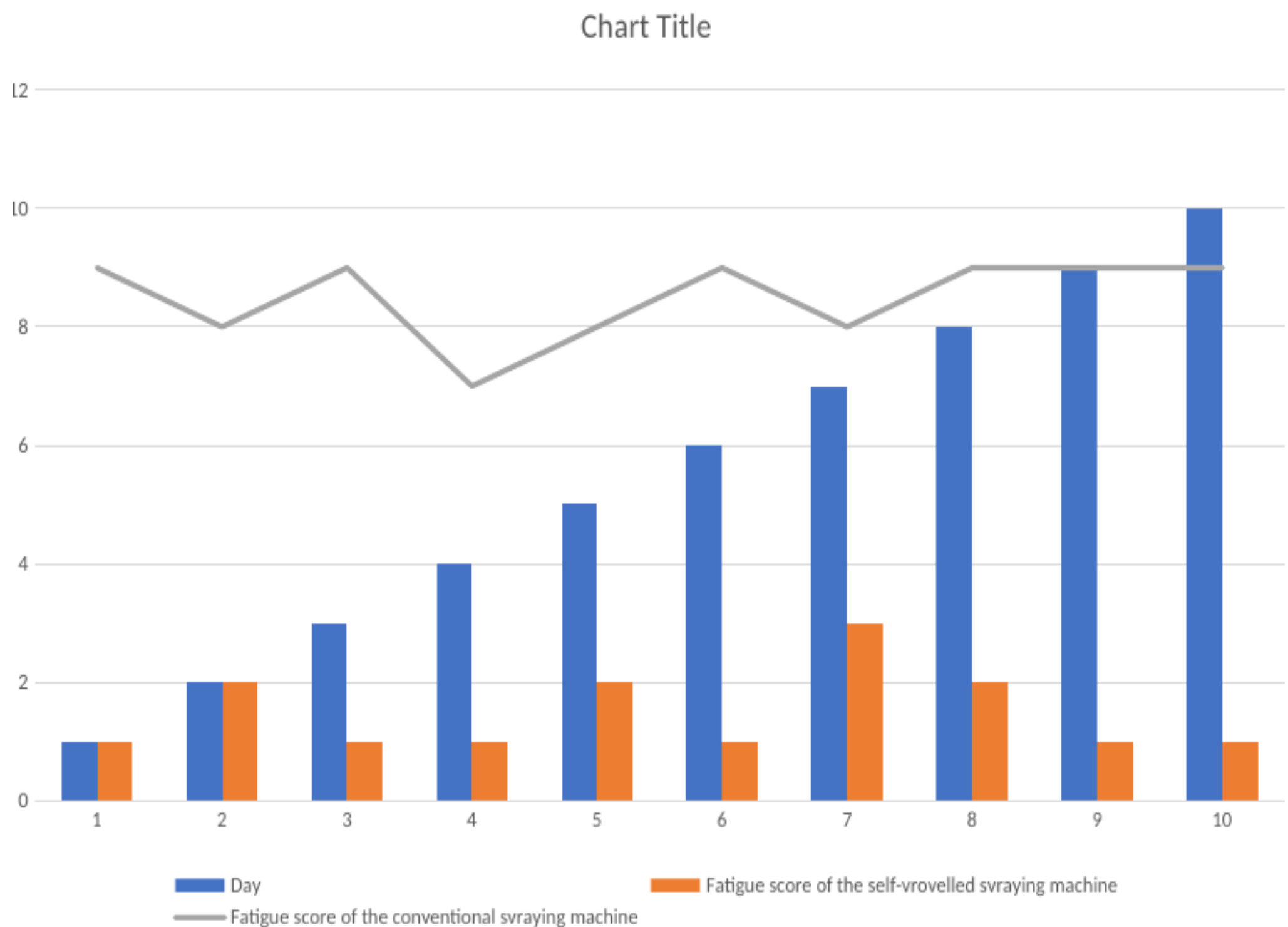


Table 1: The volume of chemical utilization of the developed machine compared to conventional spraying machine on maize farms of the same size of 0.5ha

Parameter	Developed spraying machine (16L)	Conventional spraying machine (16L)
Volume of chemical loaded	16	16
Volume of chemical residue	8	3
Volume of chemical discharged	8	13

Conclusions

- ❖ The developed machine ensures that the farmer is safe when using it.
- ❖ No or minimal chemical spillage during operation
- ❖ The machine ensures that the farmer is free from stress
- ❖ Effective chemical utilization

