**Title:**

**Effects of frass from larvae of black soldier fly (*Hermetia illucens*) and yellow mealworm (*Tenebrio molitor*) on growth and insect resistance in field mustard (*Brassica rapa*): differences between insect species and frass treatments**

Shaphan Y. Chia\*, Joop J.A. van Loonand Marcel Dicke

Laboratory of Entomology, Wageningen University & Research, P.O. Box 16, 6700 AA Wageningen, the Netherlands.

**Short title:**

**Frass as a sustainable soil amendment, enhancing plant growth and herbivore resistance**

**\*Corresponding author:**

S.Y. Chia, e-mail: shaphan.chia@wur.nl, mobile tel.: +31620409215

**Key words:**

Insect production, Insect residual streams, Soil amendment, Organic fertiliser, Incubated frass, Composted frass, Raw frass, Sustainable agriculture, Pest management, *Delia radicum, Plutella xylostella,* Insect herbivory