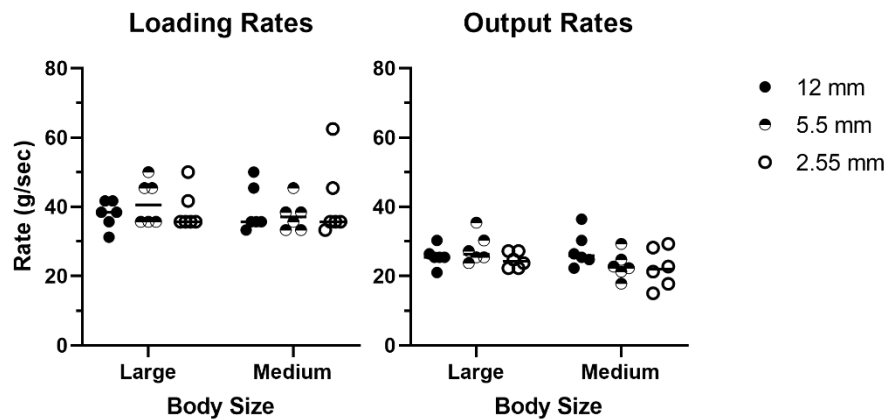## Frequency distribution

1

2 **Figure S1. Mass ranges of the 7 DOL (day-old-larvae), medium, large, and 23-24 DOL black**

3 **soldier fly larvae (BSFL) used in the razor cuts experiments to determine proportion of**

4 **instantaneous death.**

5

6 **Fig S2. Processing rate of black soldier fly larvae (BSFL) in grams per second using the**

7 **grinding technique.** (left) estimated grams of large and medium larvae loaded per second into the

8 hopper of the grinder. Larvae were loaded at a rate of 39.41 ± 6.53 g/s across all conditions. (right)

9   Estimated larval output rate for large-sized and medium-sized larvae. The larval output rate was

10   25.22 ± 4.41 g/s across all conditions.

11

12
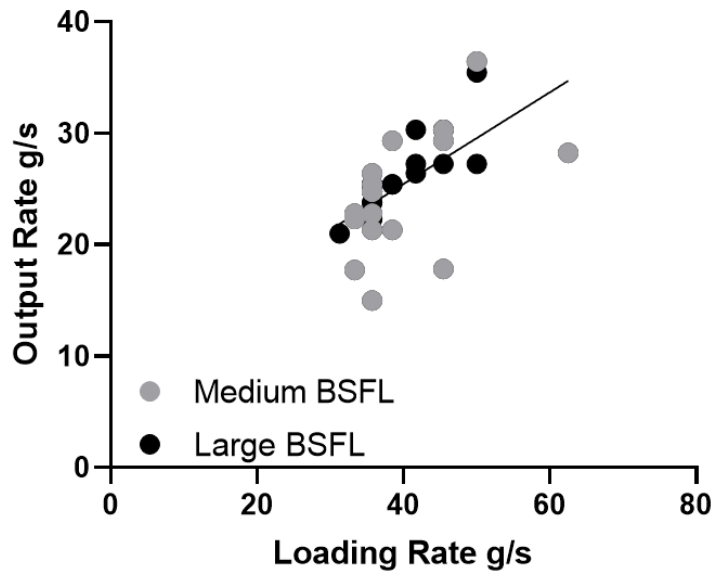
13

14   **Figure S3. Relationship between black soldier fly larvae (BSFL) loading and output rates**

15   **(g/s).** Larval output rates were always slower than loading rates (mixed-effect model: $X^2 = 11.16$, df

16   $= 1$, p $= 0.0008$; Sidak's MCT: large: t $= 18.02$, df $= 17$, p < 0.0001; medium: t $= 9.59$, df $= 17$, p $<$

17   0.0001). Larval output rate $= 0.41$ [larval loading rate] $+ 9.02$ (regression indicated by black line; F $=$

18   19.91, df $= 34$, p < 0.0001; $R^2 = 0.37$).

19

20

21

22

23

24 **Table S1. Proportion of black soldier fly larvae that died instantly based on body size and**

25 **body segment cut.**

Segment	7 DAY-OLD-LARVAE	MEDIUM	LARGE	23-24 DAY-OLD-LARVAE
Control	0	0	0	0
S1	0	0	0	0
S2	0	0	0	0
S3	0.3	0	0	0
S4	0.2	0	0.1	0
S5	0.5	0.5	0.3	0
S6	0	0	0	0.1
S7	0	0.1	0	0
S8	0	0	0	0
S9	0	0	0	0
S10	0	0	0	0
S11	0	0	0	0
S12	0	0	0	0

26

27 **Table S2. Proportion of black soldier fly larvae that died at 90 s based on body size and body**

28 **segment cut.**

Segment	7 DAY-OLD-LARVAE	MEDIUM	LARGE	23-24 DAY-OLD-LARVAE
Control	0	0	0	0
S1	0	0	0	0
S2	0.3	0	0.2	0
S3	0.7	0	0.2	0
S4	0.8	0.3	0.2	0
S5	0.5	0.7	0.3	0
S6	0	0.2	0.1	0.1
S7	0.3	0.2	0	0
S8	0	0	0	0
S9	0	0	0	0
S10	0	0	0	0
S11	0	0	0	0
S12	0	0	0	0

29