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## SUPPLEMENTARY MATERIAL

### Development of mass-rearing for African giant cricket (*Brachytrupes membranaceus* (Drury) (Orthoptera: Gryllidae)) based on plant material and by-product diets in the Republic of Benin

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**Supplementary Table 1. Effects of diet D1 on the weight of *Brachytrupes membranaceus*.**

Variables	Estimate	Standard error	t	p
(Intercept)	4.390	1.272	3.452	
Peanut shell	-0.097	0.267	-0.364	0.691
Palm kernel cake	0.255	0.079	3.201	0.001
Eggshell	0.870	0.702	1.195	0.221
Red cowpea leaf	0.297	0.159	1.865	0.075
Peanut shell × palm kernel cake	-0.104	0.233	-0.448	0.661
Peanut shell × eggshell	-0.931	1.341	-0.695	0.634
Peanut shell × red cowpea leaf	0.069	0.288	0.242	0.932
Palm kernel cake × eggshell	-0.744	0.385	-1.939	<0.001
Palm kernel cake × red cowpea leaf	-0.078	0.090	-0.868	0.005
Eggshell × red cowpea leaf	-0.545	0.942	-0.579	0.555
Peanut shell × palm kernel cake × eggshell × red cowpea leaf	-2.598	4.349	-0.597	0.006

R<sup>2</sup> marginal = 0.241; R<sup>2</sup> conditional = 0.352

**Supplementary Table 2. Effects of diet D1 on the size of *Brachytrupes membranaceus*.**

Variables	Estimation	Standard error	t	p
(Intercept)	34.436	4.884	7.050	
Peanut shell	-0.439	0.981	-0.448	0.632
Palm kernel cake	0.582	0.293	1.986	0.048
Eggshell	2.658	2.661	0.999	0.302
Red cowpea leaf	1.398	0.474	2.949	0.021
Peanut shell × palm kernel cake	-0.109	0.888	-0.123	0.797
Peanut shell × eggshell	-0.680	4.948	-0.198	0.783
Peanut shell × red cowpea leaf	0.482	1.023	0.471	0.872
Palm kernel cake × eggshell	-1.659	1.469	-1.129	0.039
Palm kernel cake × red cowpea leaf	-0.389	0.328	-1.189	0.107
Eggshell × red cowpea leaf	-0.619	3.409	-0.182	0.818
Peanut shell × palm kernel cake × eggshell × red cowpea leaf	-13.815	16.604	-0.832	0.398

R<sup>2</sup> marginal = 0.116; R<sup>2</sup> conditional = 0.248

**Supplementary Table 3. Effects of different ingredients of diet D2 and their interactions on the mean weight of *Brachytrupes membranaceus*.**

Variables	Estimate	Standard error	t	p
(Intercept)	-5.861	6.333	-0.926	
Cassava peelings	-0.118	0.059	-1.994	0.064
Cassava stem	0.374	0.106	3.507	<0.001
Smoked fish waste	1.770	0.252	7.020	<0.001
Cowpea leaves	0.386	0.193	2.002	0.043
Cassava peelings × cassava stem	-0.040	0.047	-0.862	0.227
Cassava peelings × smoked fish waste	0.267	0.138	1.936	0.011
Cassava peelings × cowpea leaves	-0.141	0.078	-1.791	0.030
Cassava stem × smoked fish waste	-0.421	0.152	-2.763	0.003
Cassava stem × cowpea leaves	-0.160	0.100	-1.600	<0.001
Smoked fish waste × cowpea leaves	0.125	0.220	0.570	<0.001
Cassava peelings × cassava stem × smoked fish waste × cowpea leaves	-0.727	0.547	-1.328	<0.001

R<sup>2</sup> marginal = 0.031; R<sup>2</sup> conditional = 0.713

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**Supplementary Table 4. Effects of diet D2 on the size of *Brachytrupes membranaceus*.**

Variables	Estimate	Standard error	t	p
(Intercept)	22.756	14.947	1.522	
Cassava peelings	-0.199	0.1123	-0.1618	0.122
Cassava stem	0.444	0.227	1.953	0.049
Smoked fish waste	2.653	0.563	4.708	< 0.001
Cowpea leaves	0.453	0.409	1.107	0.257
Cassava peelings × cassava stem	-0.103	0.100	-1.026	0.256
Cassava peelings × smoked fish waste	0.381	0.315	1.209	0.127
Cassava peelings × cowpea leaves	-0.331	0.166	-1.992	0.042
Cassava stem × smoked fish waste	-0.178	0.354	-0.502	0.671
Cassava stem × cowpea leaves	-0.442	0.215	-2.051	0.018
Smoked fish waste × cowpea leaves	0.335	0.492	0.682	<0.001
Cassava peelings × cassava stem × smoked fish waste × cowpea leaves	-1.237	1.291	-0.959	<0.001

R<sup>2</sup> marginal = 0.045; R<sup>2</sup> conditional = 0.701

**Supplementary Table 5. Effects of diet D1 on the mortality rate of *Brachytrupes membranaceus*.**

Variables	Estimate	Standard error	z	Pr (> z )
(Intercept)	3.058	11.464	0.267	
Peanut shell	10.114	2.967	3.409	<0.001
Palm kernel cake	-2.283	0.983	-2.325	0.019
Eggshell	37.929	7.806	4.859	<0.001
Cowpea leaves	8.273	1.996	4.145	<0.001
Peanut shell × palm kernel cake	11.158	2.365	4.717	<0.001
Peanut shell × eggshell	16.951	13.730	1.235	0.009
Peanut shell × cowpea leaves	9.368	2.744	3.414	<0.001
Palm kernel cake × eggshell	4.518	4.418	1.023	0.307
Palm kernel cake × cowpea leaves	-1.740	1.022	-1.702	0.006
Eggshell × cowpea leaves	-2.930	0.631	-0.304	<0.001
Peanut shell × palm kernel cake × eggshell × red cowpea leaf	17.724	35.346	0.501	<0.001

R<sup>2</sup> marginal = 0.202; R<sup>2</sup> conditional = 0.901

**Supplementary Table 6. Effects of different ingredients of diet D2 and their interactions on the mortality rate of *Brachytrupes membranaceus*.**

Variables	Estimation	Standard error	z	p
(Intercept)	-251.634	35.481	-7.092	
Cassava peelings	-0.911	0.708	1.285	0.217
Cassava stem	0.479	1.319	0.364	0.787
Smoked fish waste	33.958	1.982	17.134	<0.001
Cowpea leaves	5.997	2.295	2.613	0.021
Cassava peelings × cassava stem	-1.545	0.569	-2.715	0.010
Cassava peelings × smoked fish waste	-1.797	1.043	-1.723	<0.001
Cassava peelings × cowpea leaves	-2.483	0.921	-2.696	0.011
Cassava stem × smoked fish waste	-2.896	1.171	-2.474	<0.001
Cassava stem × cowpea leaves	1.172	1.172	-4.153	<0.001
Smoked fish waste × cowpea leaves	-9.277	1.417	-6.548	<0.001
Cassava peelings × cassava stem × smoked fish waste × cowpea leaves	14.996	-3.003	-4.994	<0.001

R<sup>2</sup> marginal = 0.206; R<sup>2</sup> conditional = 0.955

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