Table 1. Proximate composition and amino acid and fatty acid profiles of the yellow mealworm protein meal (IPM) and fishmeal (FM) (expressed as % or MJ/kg of fresh product). SFA (saturated fatty acids), MUFA (monounsaturated fatty acids), PUFA (polyunsaturated fatty acids).

| Proximate          | Unit   | IPM  | FM    | Fatty acids  | Unit | IPM  | FM    |
|--------------------|--------|------|-------|--------------|------|------|-------|
| Moisture           | %      | 5.32 | 6.62  | C12:0        | %    | 0.06 | 0.00  |
| Crude protein      | %      | 67.09| 71.44 | C14:0        | %    | 0.42 | 0.34  |
| Crude fat          | %      | 13.6 | 6.9   | C16:0        | %    | 2.24 | 1.52  |
| Crude ash          | %      | 3.21 | 12.74 | C18:0        | %    | 0.36 | 0.22  |
| Total phosphorus   | %      | 0.75 | 1.68  | Other SFA    | %    | 0.09 | 0.04  |
| Energy             | MJ/kg  | 23.74| 19.68 | C16:1n-7     | %    | 0.58 | 0.39  |
|                     |        |      |       | C18:1n-7     | %    | 0.04 | 0.23  |
| Essential amino acids | Unit   | IPM  | FM    | C18:1n-9     | %    | 5.26 | 1.12  |
| Arginine           | %      | 2.56 | 4.73  | Other MUFA   | %    | 0.07 | 0.06  |
| Histidine          | %      | 1.39 | 1.71  | C18:2n-6     | %    | 4.13 | 0.16  |
| Isoleucine         | %      | 3.99 | 5.08  | C18:3n-3     | %    | 0.17 | 0.73  |
| Leucine            | %      | 3.32 | 6.03  | C20:5n-3     | %    | 0.00 | 0.66  |
| Lysine             | %      | 1.87 | 3.52  | C22:6n-3     | %    | 0.00 | 0.97  |
| Threonine          | %      | 2.91 | 3.21  | Other PUFA   | %    | 0.03 | 0.21  |
| Methionine         | %      | 1.43 | 2.58  | %            |      |      |       |
| Cysteine           | %      | 0.63 | 0.33  | %            |      |      |       |
| Phenylalanine      | %      | 1.98 | 3.37  | %            |      |      |       |
| Tyrosine           | %      | 2.68 | 2.58  | %            |      |      |       |
| Dispensable amino acids | Unit   | IPM  | FM    | Aspartic acid + Asparagine | % | 4.51 | 6.92  |
| Glutamic acid + Glutamine | % | 6.36 | 8.92  |
| Alanine            | %      | 3.83 | 4.38  |              |      |      |       |
| Glycine            | %      | 2.54 | 2.80  |              |      |      |       |
| Proline            | %      | 3.18 | 2.92  |              |      |      |       |
| Serine             | %      | 2.94 | 3.15  |              |      |      |       |
Table 2. Amino acid and selected fatty acid profile (expressed as % fed feed) of each experimental diet (Control: CTRL, and test diets with 5, 7.5, 15, or 25% insect protein meal (IPM), respectively IPM5, IPM7.5, IPM15, and IPM25).

| Amino acids | Unit | CTRL | IPM5 | IPM7.5 | IPM15 | IPM25 |
|-------------|------|------|------|--------|-------|-------|
| Arginine    | %    | 4.62 ± 0.23 | 4.53 ± 0.02 | 4.49 ± 0.23 | 4.27 ± 0.09 | 3.89 ± 0.09 |
| Histidine   | %    | 1.47 ± 0.11 | 1.56 ± 0.02 | 1.54 ± 0.09 | 1.46 ± 0.07 | 1.50 ± 0.08 |
| Isoleucine  | %    | 2.31 ± 0.01 | 2.52 ± 0.01 | 2.53 ± 0.01 | 2.46 ± 0.02 | 2.49 ± 0.00 |
| Leucine     | %    | 4.51 ± 0.08 | 4.44 ± 0.01 | 4.68 ± 0.05 | 4.46 ± 0.02 | 4.56 ± 0.01 |
| Lysine      | %    | 3.09 ± 0.19 | 3.09 ± 0.01 | 3.02 ± 0.17 | 2.94 ± 0.01 | 2.97 ± 0.03 |
| Threonine   | %    | 2.32 ± 0.03 | 2.37 ± 0.00 | 2.31 ± 0.03 | 2.14 ± 0.05 | 2.15 ± 0.02 |
| Valine      | %    | 2.75 ± 0.00 | 2.87 ± 0.02 | 3.00 ± 0.03 | 3.08 ± 0.01 | 3.18 ± 0.01 |
| Methionine  | %    | 1.71 ± 0.15 | 1.71 ± 0.01 | 1.75 ± 0.06 | 1.74 ± 0.02 | 1.63 ± 0.02 |
| Cysteine    | %    | 0.35 ± 0.02 | 0.34 ± 0.00 | 0.31 ± 0.02 | 0.33 ± 0.00 | 0.34 ± 0.00 |
| Phenylalanine | % | 3.30 ± 0.00 | 3.06 ± 0.01 | 2.92 ± 0.15 | 2.85 ± 0.01 | 2.56 ± 0.00 |
| Tyrosine    | %    | 2.44 ± 0.11 | 2.48 ± 0.00 | 2.67 ± 0.14 | 2.92 ± 0.04 | 3.14 ± 0.12 |

| Fatty acids | Unit | CTRL | IPM5 | IPM7.5 | IPM15 | IPM25 |
|------------|------|------|------|--------|-------|-------|
| C14:0      | %    | 0.40 ± 0.00 | 0.40 ± 0.00 | 0.38 ± 0.00 | 0.43 ± 0.00 | 0.38 ± 0.00 |
| C16:0      | %    | 1.86 ± 0.01 | 1.89 ± 0.01 | 1.82 ± 0.02 | 2.11 ± 0.01 | 1.94 ± 0.02 |
| C16:1n-7   | %    | 0.48 ± 0.00 | 0.48 ± 0.00 | 0.44 ± 0.00 | 0.50 ± 0.00 | 0.42 ± 0.01 |
| C18:0      | %    | 0.49 ± 0.00 | 0.50 ± 0.01 | 0.47 ± 0.01 | 0.54 ± 0.00 | 0.50 ± 0.01 |
| C18:1n-9   | %    | 1.62 ± 0.01 | 1.74 ± 0.01 | 1.69 ± 0.01 | 2.08 ± 0.01 | 2.06 ± 0.02 |
| C18:1n-7   | %    | 0.26 ± 0.00 | 0.25 ± 0.00 | 0.23 ± 0.00 | 0.25 ± 0.00 | 0.21 ± 0.00 |
| C18:2n-6   | %    | 0.79 ± 0.00 | 0.94 ± 0.01 | 1.05 ± 0.01 | 1.36 ± 0.01 | 1.53 ± 0.02 |
| C18:3n-3   | %    | 0.13 ± 0.00 | 0.13 ± 0.00 | 0.13 ± 0.00 | 0.14 ± 0.00 | 0.12 ± 0.00 |
| C18:4n-3   | %    | 0.10 ± 0.00 | 0.10 ± 0.00 | 0.09 ± 0.00 | 0.10 ± 0.00 | 0.08 ± 0.00 |
| C20:1n-9   | %    | 0.20 ± 0.00 | 0.19 ± 0.00 | 0.17 ± 0.00 | 0.18 ± 0.00 | 0.14 ± 0.00 |
| C20:4n-6   | %    | 0.14 ± 0.00 | 0.13 ± 0.00 | 0.12 ± 0.00 | 0.14 ± 0.00 | 0.12 ± 0.00 |
| C20:5n-3   | %    | 0.72 ± 0.00 | 0.71 ± 0.01 | 0.65 ± 0.00 | 0.70 ± 0.00 | 0.57 ± 0.01 |
| C22:1n-11  | %    | 0.14 ± 0.00 | 0.13 ± 0.00 | 0.11 ± 0.00 | 0.12 ± 0.00 | 0.08 ± 0.00 |
| C22:5n-3   | %    | 0.14 ± 0.00 | 0.13 ± 0.00 | 0.12 ± 0.00 | 0.13 ± 0.00 | 0.10 ± 0.00 |
| C22:6n-3   | %    | 1.45 ± 0.01 | 1.44 ± 0.01 | 1.33 ± 0.01 | 1.46 ± 0.01 | 1.21 ± 0.02 |