## Supplementary Material

### Table S1. Details on each Isolates based on selected farms

| Farm   | Sample | Isolate            | Antibiotic resistance | Total antibiotic | Resistance percentage | MAR index | Usage of antibiotic                      |
|--------|--------|---------------------|------------------------|------------------|-----------------------|-----------|-----------------------------------------|
| Farm 1 | Soil   | Aeromonas spp.      | 2                      | 12               | 16.67                 | 0.17      | amoxicillin, neomycin, norfloxacin, lincomycin |
|        | Soil   | Aeromonas spp.      | 3                      | 11               | 27.27                 | 0.27      |                                          |
|        | Soil   | Enterobacter spp.   | 7                      | 18               | 38.89                 | 0.39      |                                          |
|        | Soil   | Enterobacter spp.   | 6                      | 18               | 33.33                 | 0.33      |                                          |
|        | Soil   | Enterobacter spp.   | 6                      | 18               | 33.33                 | 0.33      |                                          |
|        | Soil   | Klebsiella pneumoniae | 1                      | 19               | 5.26                  | 0.05      |                                          |
|        | Soil   | Klebsiella pneumoniae | 1                      | 19               | 5.26                  | 0.05      |                                          |
|        | Soil   | Klebsiella pneumoniae | 2                      | 19               | 10.53                 | 0.11      |                                          |
| Farm 2 | Water  | Aeromonas spp.      | 1                      | 12               | 8.33                  | 0.08      | amoxicillin                             |
|        | Water  | Aeromonas spp.      | 3                      | 12               | 25                    | 0.25      |                                          |
|        | Water  | Enterobacter spp.   | 6                      | 17               | 35.29                 | 0.35      |                                          |
|        | Water  | Enterobacter spp.   | 7                      | 18               | 38.89                 | 0.39      |                                          |
|        | Water  | Klebsiella pneumoniae | 3                      | 20               | 15                    | 0.15      |                                          |
|        | Soil   | Klebsiella pneumoniae | 1                      | 19               | 5.26                  | 0.05      |                                          |
|        | Water  | Sphingomonas paucimobilis | 0                      | 12               | 0                    | 0        |                                          |
|        | Soil   | Sphingomonas paucimobilis | 1                      | 11               | 9.09                 | 0.09      |                                          |
| Farm 3 | Soil   | Aeromonas spp.      | 3                      | 12               | 25                    | 0.25      | not mentioned                           |
|        | Soil   | Aeromonas spp.      | 4                      | 12               | 33.33                 | 0.33      |                                          |
|        | Water  | Enterobacter spp.   | 7                      | 18               | 38.89                 | 0.39      |                                          |
|        | Water  | Klebsiella pneumoniae | 1                      | 19               | 5.26                  | 0.05      |                                          |
|        | Soil   | Klebsiella pneumoniae | 5                      | 19               | 26.32                 | 0.26      |                                          |
|        | Soil   | Klebsiella pneumoniae | 5                      | 19               | 26.32                 | 0.26      |                                          |
|        | Water  | Providencia spp.    | 4                      | 19               | 21.05                 | 0.21      |                                          |
|        | Water  | Pseudomonas spp.    | 0                      | 11               | 0                    | 0        |                                          |
| Farm 4 | Soil   | Aeromonas spp.      | 3                      | 12               | 25                    | 0.25      | used when needed but never specify      |
| Field  | Environment | Organism                     | Count | Total | CFU/mL | log CFU/mL |
|--------|-------------|------------------------------|-------|-------|--------|------------|
| Farm 5 | Water       | Aeromonas spp.               | 3     | 12    | 25     | 0.25       |
|        | Soi         | Enterobacter spp.            | 7     | 18    | 38.89  | 0.39       |
|        | Soil        | Klebsiella pneumoniae        | 1     | 19    | 5.26   | 0.05       |
|        | Soil        | Pseudomonas spp.             | 3     | 11    | 27.27  | 0.27       |
|        | Soil        | Pseudomonas spp.             | 2     | 11    | 18.18  | 0.18       |
|        | Soil        | Sphingomonas paucimobilis    | 0     | 11    | 0      | 0          |
|        | Soil        | Sphingomonas paucimobilis    | 2     | 12    | 16.67  | 0.17       |
| Farm 5 | Water       | Aeromonas spp.               | 3     | 12    | 25     | 0.25       |
|        | Water       | Aeromonas spp.               | 4     | 12    | 33.33  | 0.33       |
|        | Soi         | Aeromonas spp.               | 4     | 12    | 33.33  | 0.33       |
|        | Soil        | Klebsiella pneumoniae        | 2     | 19    | 10.53  | 0.11       |
|        | Water       | Proteus spp.                 | 2     | 19    | 10.53  | 0.11       |
|        | Water       | Providencia spp.             | 5     | 19    | 26.32  | 0.26       |
|        | Soil        | Sphingomonas paucimobilis    | 0     | 12    | 0      | 0          |
|        | Soil        | Sphingomonas paucimobilis    | 0     | 12    | 0      | 0          |
| Farm 6 | Water       | Aeromonas spp.               | 4     | 12    | 33.33  | 0.33       |
|        | Water       | Aeromonas spp.               | 2     | 12    | 16.67  | 0.17       |
|        | Water       | Enterobacter spp.            | 7     | 18    | 38.89  | 0.39       |
|        | Water       | Enterobacter spp.            | 8     | 18    | 44.44  | 0.44       |
|        | Water       | Sphingomonas paucimobilis    | 0     | 12    | 0      | 0          |
|        | Soil        | Sphingomonas paucimobilis    | 1     | 12    | 8.33   | 0.08       |
|        | Soil        | Sphingomonas paucimobilis    | 1     | 12    | 8.33   | 0.08       |
|        | Soil        | Sphingomonas paucimobilis    | 1     | 11    | 9.09   | 0.09       |
| Farm 7 | Water       | Aeromonas spp.               | 3     | 12    | 25     | 0.25       |
|        | Soil        | Aeromonas spp.               | 4     | 12    | 33.33  | 0.33       |
|        | Soil        | Aeromonas spp.               | 5     | 12    | 41.67  | 0.42       |
|        | Water       | Enterobacter spp.            | 6     | 18    | 33.33  | 0.33       |
|        | Water       | Enterobacter spp.            | 6     | 18    | 33.33  | 0.33       |
|        | Soil        | Proteus spp.                 | 7     | 20    | 35     | 0.35       |
|        | Water       | Sphingomonas paucimobilis    | 0     | 12    | 0      | 0          |
|        | Water       | Sphingomonas paucimobilis    | 0     | 10    | 0      | 0          |
| Farm 8 | Water  | Aeromonas spp. | 2    | 12    | 16.67 | 0.17 | not mentioned |
|--------|--------|----------------|------|-------|--------|------|---------------|
| Water  | Aeromonas spp. | 8    | 20   | 40    | 0.4  |     |               |
| Soil   | Aeromonas spp. | 5    | 12   | 41.67 | 0.42 |     |               |
| Water  | Enterobacter spp. | 7    | 18   | 38.89 | 0.39 |     |               |
| Water  | Enterobacter spp. | 7    | 18   | 38.89 | 0.39 |     |               |
| Water  | Enterobacter spp. | 6    | 18   | 33.33 | 0.33 |     |               |
| Soil   | Proteus spp. | 5    | 20   | 25    | 0.25 |     |               |
| Soil   | Sphingomonas paucimobilis | 2    | 12   | 16.67 | 0.17 |     |               |

| Farm 9 | Water  | Aeromonas spp. | 1    | 12    | 8.33  | 0.08 | use as prophylactics but never specify |
|--------|--------|----------------|------|-------|-------|------|---------------------------------------|
| Water  | Aeromonas spp. | 2    | 12   | 16.67 | 0.17 |     |                                       |
| Soil   | Aeromonas spp. | 2    | 12   | 16.67 | 0.17 |     |                                       |
| Water  | Klebsiella pneumoniae | 3    | 19   | 15.79 | 0.16 |     |                                       |
| Soil   | Klebsiella pneumoniae | 15   | 20   | 75    | 0.75 |     |                                       |
| Water  | Klebsiella pneumoniae | 16   | 21   | 76.19 | 0.76 |     |                                       |
| Soil   | Sphingomonas paucimobilis | 0    | 12   | 0     | 0    |     |                                       |
| Soil   | Sphingomonas paucimobilis | 2    | 11   | 18.18 | 0.18 |     |                                       |

| Farm 10 | Water  | Acinetobacter spp. | 1    | 11    | 9.09  | 0.09 | not mentioned |
|---------|--------|---------------------|------|-------|-------|------|---------------|
| Water   | Acinetobacter spp. | 2    | 10   | 20    | 0.2  |     |               |
| Soil    | Acinetobacter spp. | 0    | 11   | 0     | 0    |     |               |
| Soil    | Klebsiella pneumoniae | 1    | 19   | 5.26  | 0.05 |     |               |
| Water   | Klebsiella pneumoniae | 1    | 19   | 5.26  | 0.05 |     |               |
| Soil    | Klebsiella pneumoniae | 2    | 19   | 10.53 | 0.11 |     |               |
| Water   | Klebsiella pneumoniae | 2    | 19   | 10.53 | 0.11 |     |               |
| Water   | Providencia spp. | 4    | 19   | 21.05 | 0.21 |     |               |

| Farm 11 | Water  | Aeromonas spp. | 1    | 11    | 9.09  | 0.09 | not mentioned |
|---------|--------|----------------|------|-------|-------|------|---------------|
| Water   | Aeromonas spp. | 3    | 12   | 25    | 0.25 |     |               |
| Soil    | Enterobacter spp. | 6    | 18   | 33.33 | 0.33 |     |               |
| Water   | Proteus spp. | 3    | 19   | 15.79 | 0.16 |     |               |
| Water   | Pseudomonas spp. | 2    | 11   | 18.18 | 0.18 |     |               |
| Water   | Pseudomonas spp. | 2    | 11   | 18.18 | 0.18 |     |               |
| Water   | Pseudomonas spp. | 2    | 11   | 18.18 | 0.18 |     |               |
| Source        | Species                        | Count | Sample Size | Count % | Sample % |
|---------------|--------------------------------|-------|-------------|---------|---------|
| Soil          | Sphingomonas paucimobilis      | 1     | 12          | 8.33    | 0.08    |
| Soil          | Acinetobacter spp.             | 2     | 12          | 16.67   | 0.17    | used when needed but never specify |
| Soil          | Aeromonas spp.                 | 3     | 12          | 25      | 0.25    |
| Water         | Aeromonas spp.                 | 4     | 11          | 36.36   | 0.36    |
| Soil          | Klebsiella pneumoniae          | 1     | 19          | 5.26    | 0.05    |
| Soil          | Klebsiella pneumoniae          | 15    | 20          | 75      | 0.75    |
| Soil          | Pseudomonas spp.               | 2     | 9           | 22.22   | 0.22    |
| Soil          | Pseudomonas spp.               | 1     | 11          | 9.09    | 0.09    |
| Soil          | Sphingomonas paucimobilis      | 1     | 12          | 8.33    | 0.08    |
| Water         | Aeromonas spp.                 | 8     | 12          | 66.67   | 0.67    | used when needed but never specify |
| Soil          | Enterobacter spp.              | 6     | 18          | 33.33   | 0.33    |
| Water         | Enterobacter spp.              | 8     | 18          | 44.44   | 0.44    |
| Water         | Klebsiella pneumoniae          | 2     | 19          | 10.53   | 0.11    |
| Water         | Klebsiella pneumoniae          | 2     | 19          | 10.53   | 0.11    |
| Soil          | Pseudomonas spp.               | 2     | 11          | 18.18   | 0.18    |
| Soil          | Sphingomonas paucimobilis      | 1     | 12          | 8.33    | 0.08    |
| Water         | Sphingomonas paucimobilis      | 1     | 11          | 9.09    | 0.09    |