

## Tables

	Fungal richness	Bacterial abundance	Nematode abundance	Earthworm diversity	Soil biodiversity potentials
	36%	21%	21%	21%	
1	Low	Low	Low	Low	Low
2	Low	Low	Low	Medium	Low
3	Low	Low	Low	High	Relatively low
4	Low	Low	Medium	Low	Low
5	Low	Low	Medium	Medium	Relatively low
6	Low	Low	Medium	High	Relatively low
7	Low	Low	High	Low	Relatively low
8	Low	Low	High	Medium	Relatively low
9	Low	Low	High	High	Medium
10	Low	Medium	Low	Low	Low
11	Low	Medium	Low	Medium	Relatively low
12	Low	Medium	Low	High	Relatively low
13	Low	Medium	Medium	Low	Relatively low
14	Low	Medium	Medium	Medium	Relatively low
15	Low	Medium	Medium	High	Medium
16	Low	Medium	High	Low	Relatively low
17	Low	Medium	High	Medium	Medium
18	Low	Medium	High	High	Medium
19	Low	High	Low	Low	Relatively low
20	Low	High	Low	Medium	Relatively low
21	Low	High	Low	High	Medium
22	Low	High	Medium	Low	Relatively low
23	Low	High	Medium	Medium	Medium
24	Low	High	Medium	High	Medium
25	Low	High	High	Low	Medium
26	Low	High	High	Medium	Medium
27	Low	High	High	High	Relatively high
28	Medium	Low	Low	Low	Relatively low
29	Medium	Low	Low	Medium	Relatively low
30	Medium	Low	Low	High	Medium
31	Medium	Low	Medium	Low	Relatively low
32	Medium	Low	Medium	Medium	Medium
33	Medium	Low	Medium	High	Medium
34	Medium	Low	High	Low	Medium
35	Medium	Low	High	Medium	Medium
36	Medium	Low	High	High	Medium
37	Medium	Medium	Low	Low	Relatively low
38	Medium	Medium	Low	Medium	Medium
39	Medium	Medium	Low	High	Medium
40	Medium	Medium	Medium	Low	Medium
41	Medium	Medium	Medium	Medium	Medium
42	Medium	Medium	Medium	High	Medium
43	Medium	Medium	High	Low	Medium
44	Medium	Medium	High	Medium	Medium
45	Medium	Medium	High	High	Relatively high
46	Medium	High	Low	Low	Medium
47	Medium	High	Low	Medium	Medium
48	Medium	High	Low	High	Medium
49	Medium	High	Medium	Low	Medium
50	Medium	High	Medium	Medium	Medium
51	Medium	High	Medium	High	Relatively high
52	Medium	High	High	Low	Medium
53	Medium	High	High	Medium	Relatively high
54	Medium	High	High	High	Relatively high
55	High	Low	Low	Low	Relatively low
56	High	Low	Low	Medium	Medium
57	High	Low	Low	High	Medium
58	High	Low	Medium	Low	Medium
59	High	Low	Medium	Medium	Medium
60	High	Low	Medium	High	Relatively high
61	High	Low	High	Low	Medium
62	High	Low	High	Medium	Relatively high
63	High	Low	High	High	Relatively high
64	High	Medium	Low	Low	Medium
65	High	Medium	Low	Medium	Medium
66	High	Medium	Low	High	Relatively high
67	High	Medium	Medium	Low	Medium

68	High	Medium	Medium	Medium	Relatively high
69	High	Medium	Medium	High	Relatively high
70	High	Medium	High	Low	Relatively high
71	High	Medium	High	Medium	Relatively high
72	High	Medium	High	High	High
73	High	High	Low	Low	Medium
74	High	High	Low	Medium	Relatively high
75	High	High	Low	High	Relatively high
76	High	High	Medium	Low	Relatively high
77	High	High	Medium	Medium	Relatively high
78	High	High	Medium	High	High
79	High	High	High	Low	Relatively high
80	High	High	High	Medium	High
81	High	High	High	High	High

Climate	Soil (0–5 cm)	Fungal richness
67%	33%	
1	Unsuitable	Low
2	Unsuitable	General
3	Unsuitable	Suitable
4	General	Unsuitable
5	General	General
6	General	Suitable
7	Suitable	Unsuitable
8	Suitable	General
9	Suitable	Suitable

Arid/humid Region	Temperature Zone	Climate
43%	57%	
1	Arid region	Subfrigid/Cold-temp. zone
2	Arid region	Middle temp. zone
3	Arid region	Warm temp. zone
4	Arid region	Subtropical zone
5	Arid region	Tropical zone
6	Semi-arid region	Subfrigid/Cold-temp. zone
7	Semi-arid region	Middle temp. zone
8	Semi-arid region	Warm temp. zone
9	Semi-arid region	Subtropical zone
10	Semi-arid region	Tropical zone
11	Semi-humid region	Subfrigid/Cold-temp. zone
12	Semi-humid region	Middle temp. zone
13	Semi-humid region	Warm temp. zone
14	Semi-humid region	Subtropical zone
15	Semi-humid region	Tropical zone
16	Humid region	Subfrigid/Cold-temp. zone
17	Humid region	Middle temp. zone
18	Humid region	Warm temp. zone
19	Humid region	Subtropical zone
20	Humid region	Tropical zone

	pH (0–5 cm)	CEC (0–5 cm, cmol(+)/kg)	Total P (0–5 cm, g/kg)	Soil (0–5 cm)
	50%	25%	25%	
1	7.9–9.4	4.6–15.1	0.63–1.94	Unsuitable
2	7.9–9.4	4.6–15.1	0.49–0.63	Unsuitable
3	7.9–9.4	4.6–15.1	0.12–0.49	Unsuitable
4	7.9–9.4	15.1–24.2	0.63–1.94	Unsuitable
5	7.9–9.4	15.1–24.2	0.49–0.63	Unsuitable
6	7.9–9.4	15.1–24.2	0.12–0.49	General
7	7.9–9.4	24.2–98.5	0.63–1.94	Unsuitable
8	7.9–9.4	24.2–98.5	0.49–0.63	General
9	7.9–9.4	24.2–98.5	0.12–0.49	General
10	6.0–7.9	4.6–15.1	0.63–1.94	Unsuitable
11	6.0–7.9	4.6–15.1	0.49–0.63	General
12	6.0–7.9	4.6–15.1	0.12–0.49	General
13	6.0–7.9	15.1–24.2	0.63–1.94	General
14	6.0–7.9	15.1–24.2	0.49–0.63	General
15	6.0–7.9	15.1–24.2	0.12–0.49	General
16	6.0–7.9	24.2–98.5	0.63–1.94	General
17	6.0–7.9	24.2–98.5	0.49–0.63	General
18	6.0–7.9	24.2–98.5	0.12–0.49	Suitable
19	3.6–6.0	4.6–15.1	0.63–1.94	General
20	3.6–6.0	4.6–15.1	0.49–0.63	General
21	3.6–6.0	4.6–15.1	0.12–0.49	Suitable
22	3.6–6.0	15.1–24.2	0.63–1.94	General
23	3.6–6.0	15.1–24.2	0.49–0.63	Suitable
24	3.6–6.0	15.1–24.2	0.12–0.49	Suitable
25	3.6–6.0	24.2–98.5	0.63–1.94	Suitable
26	3.6–6.0	24.2–98.5	0.49–0.63	Suitable
27	3.6–6.0	24.2–98.5	0.12–0.49	Suitable

Climate	Soil (0–5 cm)	Bacterial abundance
33%	67%	
1	Unsuitable	Low
2	Unsuitable	General
3	Unsuitable	Suitable
4	General	Unsuitable
5	General	General
6	General	Suitable
7	Suitable	Unsuitable
8	Suitable	General
9	Suitable	Suitable

Arid/humid Region	Temperature Zone	Climate
62%	38%	
1	Arid region	Subfrigid/Cold-temp. zone
2	Arid region	Middle temp. zone
3	Arid region	Warm temp. zone
4	Arid region	Subtropical zone
5	Arid region	Tropical zone
6	Semi-arid region	Subfrigid/Cold-temp. zone
7	Semi-arid region	Middle temp. zone
8	Semi-arid region	Warm temp. zone
9	Semi-arid region	Subtropical zone
10	Semi-arid region	Tropical zone
11	Semi-humid region	Subfrigid/Cold-temp. zone
12	Semi-humid region	Middle temp. zone
13	Semi-humid region	Warm temp. zone
14	Semi-humid region	Subtropical zone
15	Semi-humid region	Tropical zone
16	Humid region	Subfrigid/Cold-temp. zone
17	Humid region	Middle temp. zone
18	Humid region	Warm temp. zone
19	Humid region	Subtropical zone
20	Humid region	Tropical zone

pH (0–5 cm)	Nutrient (0–5 cm)	Texture (0–5 cm, USDA)	Soil (0–5 cm)
42%	39%	19%	
1 3.6–5.3	Unsuitable	Sand, Loam sand, Sandy loam	Unsuitable
2 3.6–5.3	Unsuitable	Silt, Loam, Silt loam	Unsuitable
3 3.6–5.3	Unsuitable	Others	Unsuitable
4 3.6–5.3	General	Sand, Loam sand, Sandy loam	Unsuitable
5 3.6–5.3	General	Silt, Loam, Silt loam	Unsuitable
6 3.6–5.3	General	Others	General
7 3.6–5.3	Suitable	Sand, Loam sand, Sandy loam	General
8 3.6–5.3	Suitable	Silt, Loam, Silt loam	General
9 3.6–5.3	Suitable	Others	General
10 5.3–6.3	Unsuitable	Sand, Loam sand, Sandy loam	Unsuitable
11 5.3–6.3	Unsuitable	Silt, Loam, Silt loam	General
12 5.3–6.3	Unsuitable	Others	General
13 5.3–6.3	General	Sand, Loam sand, Sandy loam	General
14 5.3–6.3	General	Silt, Loam, Silt loam	General
15 5.3–6.3	General	Others	General
16 5.3–6.3	Suitable	Sand, Loam sand, Sandy loam	General
17 5.3–6.3	Suitable	Silt, Loam, Silt loam	General
18 5.3–6.3	Suitable	Others	General
19 8.0–9.4	Unsuitable	Sand, Loam sand, Sandy loam	General
20 8.0–9.4	Unsuitable	Silt, Loam, Silt loam	General
21 8.0–9.4	Unsuitable	Others	General
22 8.0–9.4	General	Sand, Loam sand, Sandy loam	General
23 8.0–9.4	General	Silt, Loam, Silt loam	General
24 8.0–9.4	General	Others	General
25 8.0–9.4	Suitable	Sand, Loam sand, Sandy loam	General
26 8.0–9.4	Suitable	Silt, Loam, Silt loam	General
27 8.0–9.4	Suitable	Others	Suitable
28 6.3–8.0	Unsuitable	Sand, Loam sand, Sandy loam	General
29 6.3–8.0	Unsuitable	Silt, Loam, Silt loam	General
30 6.3–8.0	Unsuitable	Others	General
31 6.3–8.0	General	Sand, Loam sand, Sandy loam	General
32 6.3–8.0	General	Silt, Loam, Silt loam	Suitable
33 6.3–8.0	General	Others	Suitable
34 6.3–8.0	Suitable	Sand, Loam sand, Sandy loam	Suitable
35 6.3–8.0	Suitable	Silt, Loam, Silt loam	Suitable
36 6.3–8.0	Suitable	Others	Suitable

C/N (0–5 cm)	SOC (0–5 cm, g/kg)	Nutrient (0–5 cm)
50%	50%	
1 2–10	0.8–9.9	Unsuitable
2 2–10	9.9–26.9	Unsuitable
3 2–10	26.9–131.2	General
4 10–12	0.8–9.9	Unsuitable
5 10–12	9.9–26.9	General
6 10–12	26.9–131.2	Suitable
7 12–38	0.8–9.9	General
8 12–38	9.9–26.9	Suitable
9 12–38	26.9–131.2	Suitable

Climate	Soil (0–15 cm)	Nematode abundance
33%	67%	
1 Unsuitable	Unsuitable	Low
2 Unsuitable	General	Medium
3 Unsuitable	Suitable	Medium
4 General	Unsuitable	Low
5 General	General	Medium
6 General	Suitable	High
7 Suitable	Unsuitable	Medium
8 Suitable	General	Medium
9 Suitable	Suitable	High

Arid/humid Region	Temperature Zone	Climate
67%	33%	
1 <b>Arid region</b>	<b>Tropical zone</b>	<b>Unsuitable</b>
2 <b>Arid region</b>	Subtropical zone	<b>Unsuitable</b>
3 <b>Arid region</b>	Warm temp. zone	<b>Unsuitable</b>
4 <b>Arid region</b>	Middle temp. zone	<b>Unsuitable</b>
5 <b>Arid region</b>	<b>Subfrigid/Cold-temp. zone</b>	General
6 Semi-arid region	<b>Tropical zone</b>	<b>Unsuitable</b>
7 Semi-arid region	Subtropical zone	General
8 Semi-arid region	Warm temp. zone	General
9 Semi-arid region	Middle temp. zone	General
10 Semi-arid region	<b>Subfrigid/Cold-temp. zone</b>	General
11 Semi-humid region	<b>Tropical zone</b>	General
12 Semi-humid region	Subtropical zone	General
13 Semi-humid region	Warm temp. zone	<b>Suitable</b>
14 Semi-humid region	Middle temp. zone	<b>Suitable</b>
15 Semi-humid region	<b>Subfrigid/Cold-temp. zone</b>	<b>Suitable</b>
16 <b>Humid region</b>	<b>Tropical zone</b>	General
17 <b>Humid region</b>	Subtropical zone	General
18 <b>Humid region</b>	Warm temp. zone	<b>Suitable</b>
19 <b>Humid region</b>	Middle temp. zone	<b>Suitable</b>
20 <b>Humid region</b>	<b>Subfrigid/Cold-temp. zone</b>	<b>Suitable</b>

pH (0–15 cm)	CEC (0–15 cm, cmol(+)/kg)	SOC (0–15 cm, g/kg)	Soil (0–15 cm)
31%	35%	35%	
1 <b>3.7–5.4</b>	<b>4.9–15.0</b>	<b>0.8–10.2</b>	<b>Unsuitable</b>
2 <b>3.7–5.4</b>	<b>4.9–15.0</b>	10.2–26.2	<b>Unsuitable</b>
3 <b>3.7–5.4</b>	<b>4.9–15.0</b>	<b>26.2–121.7</b>	General
4 <b>3.7–5.4</b>	15.0–23.6	<b>0.8–10.2</b>	<b>Unsuitable</b>
5 <b>3.7–5.4</b>	15.0–23.6	10.2–26.2	General
6 <b>3.7–5.4</b>	15.0–23.6	<b>26.2–121.7</b>	General
7 <b>3.7–5.4</b>	<b>23.6–97.4</b>	<b>0.8–10.2</b>	General
8 <b>3.7–5.4</b>	<b>23.6–97.4</b>	10.2–26.2	General
9 <b>3.7–5.4</b>	<b>23.6–97.4</b>	<b>26.2–121.7</b>	General
10 5.4–6.3	<b>4.9–15.0</b>	<b>0.8–10.2</b>	<b>Unsuitable</b>
11 5.4–6.3	<b>4.9–15.0</b>	10.2–26.2	General
12 5.4–6.3	<b>4.9–15.0</b>	<b>26.2–121.7</b>	General
13 5.4–6.3	15.0–23.6	<b>0.8–10.2</b>	General
14 5.4–6.3	15.0–23.6	10.2–26.2	General
15 5.4–6.3	15.0–23.6	<b>26.2–121.7</b>	General
16 5.4–6.3	<b>23.6–97.4</b>	<b>0.8–10.2</b>	General
17 5.4–6.3	<b>23.6–97.4</b>	10.2–26.2	General
18 5.4–6.3	<b>23.6–97.4</b>	<b>26.2–121.7</b>	General
19 7.9–9.4	<b>4.9–15.0</b>	<b>0.8–10.2</b>	General
20 7.9–9.4	<b>4.9–15.0</b>	10.2–26.2	General
21 7.9–9.4	<b>4.9–15.0</b>	<b>26.2–121.7</b>	General
22 7.9–9.4	15.0–23.6	<b>0.8–10.2</b>	General
23 7.9–9.4	15.0–23.6	10.2–26.2	General
24 7.9–9.4	15.0–23.6	<b>26.2–121.7</b>	General
25 7.9–9.4	<b>23.6–97.4</b>	<b>0.8–10.2</b>	General
26 7.9–9.4	<b>23.6–97.4</b>	10.2–26.2	General
27 7.9–9.4	<b>23.6–97.4</b>	<b>26.2–121.7</b>	<b>Suitable</b>
28 <b>6.3–7.9</b>	<b>4.9–15.0</b>	<b>0.8–10.2</b>	General
29 <b>6.3–7.9</b>	<b>4.9–15.0</b>	10.2–26.2	General
30 <b>6.3–7.9</b>	<b>4.9–15.0</b>	<b>26.2–121.7</b>	General
31 <b>6.3–7.9</b>	15.0–23.6	<b>0.8–10.2</b>	General
32 <b>6.3–7.9</b>	15.0–23.6	10.2–26.2	General
33 <b>6.3–7.9</b>	15.0–23.6	<b>26.2–121.7</b>	<b>Suitable</b>
34 <b>6.3–7.9</b>	<b>23.6–97.4</b>	<b>0.8–10.2</b>	General
35 <b>6.3–7.9</b>	<b>23.6–97.4</b>	10.2–26.2	<b>Suitable</b>
36 <b>6.3–7.9</b>	<b>23.6–97.4</b>	<b>26.2–121.7</b>	<b>Suitable</b>

Climate	Soil (0–30 cm)	Earthworm diversity
50%	50%	
1 <b>Unsuitable</b>	<b>Unsuitable</b>	<b>Low</b>
2 <b>Unsuitable</b>	General	<b>Low</b>
3 <b>Unsuitable</b>	<b>Suitable</b>	Medium
4 General	<b>Unsuitable</b>	<b>Low</b>
5 General	General	Medium
6 General	<b>Suitable</b>	<b>High</b>
7 <b>Suitable</b>	<b>Unsuitable</b>	Medium
8 <b>Suitable</b>	General	<b>High</b>
9 <b>Suitable</b>	<b>Suitable</b>	<b>High</b>

Arid/humid Region	Temperature Zone	Climate
62%	38%	
1 <b>Arid region</b>	<b>Subfrigid/Cold-temp. zone</b>	<b>Unsuitable</b>
2 <b>Arid region</b>	Middle temp. zone	<b>Unsuitable</b>
3 <b>Arid region</b>	Warm temp. zone	<b>Unsuitable</b>
4 <b>Arid region</b>	Subtropical zone	General
5 <b>Arid region</b>	<b>Tropical zone</b>	General
6 Semi-arid region	<b>Subfrigid/Cold-temp. zone</b>	<b>Unsuitable</b>
7 Semi-arid region	Middle temp. zone	General
8 Semi-arid region	Warm temp. zone	General
9 Semi-arid region	Subtropical zone	General
10 Semi-arid region	<b>Tropical zone</b>	General
11 Semi-humid region	<b>Subfrigid/Cold-temp. zone</b>	General
12 Semi-humid region	Middle temp. zone	General
13 Semi-humid region	Warm temp. zone	General
14 Semi-humid region	Subtropical zone	General
15 Semi-humid region	<b>Tropical zone</b>	<b>Suitable</b>
16 <b>Humid region</b>	<b>Subfrigid/Cold-temp. zone</b>	General
17 <b>Humid region</b>	Middle temp. zone	General
18 <b>Humid region</b>	Warm temp. zone	<b>Suitable</b>
19 <b>Humid region</b>	Subtropical zone	<b>Suitable</b>
20 <b>Humid region</b>	<b>Tropical zone</b>	<b>Suitable</b>

pH (0–30 cm)	SOC (0–30 cm, g/kg)	Texture (0–30 cm, USDA)	Soil (0–30 cm)
33%	33%	33%	
1 <b>8.0–9.5</b>	<b>1.2–8.7</b>	<b>Sand, Loam sand, Sandy loam</b>	<b>Unsuitable</b>
2 <b>8.0–9.5</b>	<b>1.2–8.7</b>	Sandy clay, Silt clay, Clay	<b>Unsuitable</b>
3 <b>8.0–9.5</b>	<b>1.2–8.7</b>	<b>Others</b>	General
4 <b>8.0–9.5</b>	8.7–21.5	<b>Sand, Loam sand, Sandy loam</b>	<b>Unsuitable</b>
5 <b>8.0–9.5</b>	8.7–21.5	Sandy clay, Silt clay, Clay	General
6 <b>8.0–9.5</b>	8.7–21.5	<b>Others</b>	General
7 <b>8.0–9.5</b>	<b>21.5–107.8</b>	<b>Sand, Loam sand, Sandy loam</b>	General
8 <b>8.0–9.5</b>	<b>21.5–107.8</b>	Sandy clay, Silt clay, Clay	General
9 <b>8.0–9.5</b>	<b>21.5–107.8</b>	<b>Others</b>	General
10 3.9–6.1	<b>1.2–8.7</b>	<b>Sand, Loam sand, Sandy loam</b>	<b>Unsuitable</b>
11 3.9–6.1	<b>1.2–8.7</b>	Sandy clay, Silt clay, Clay	General
12 3.9–6.1	<b>1.2–8.7</b>	<b>Others</b>	General
13 3.9–6.1	8.7–21.5	<b>Sand, Loam sand, Sandy loam</b>	General
14 3.9–6.1	8.7–21.5	Sandy clay, Silt clay, Clay	General
15 3.9–6.1	8.7–21.5	<b>Others</b>	General
16 3.9–6.1	<b>21.5–107.8</b>	<b>Sand, Loam sand, Sandy loam</b>	General
17 3.9–6.1	<b>21.5–107.8</b>	Sandy clay, Silt clay, Clay	General
18 3.9–6.1	<b>21.5–107.8</b>	<b>Others</b>	<b>Suitable</b>
19 <b>6.1–8.0</b>	<b>1.2–8.7</b>	<b>Sand, Loam sand, Sandy loam</b>	General
20 <b>6.1–8.0</b>	<b>1.2–8.7</b>	Sandy clay, Silt clay, Clay	General
21 <b>6.1–8.0</b>	<b>1.2–8.7</b>	<b>Others</b>	General
22 <b>6.1–8.0</b>	8.7–21.5	<b>Sand, Loam sand, Sandy loam</b>	General
23 <b>6.1–8.0</b>	8.7–21.5	Sandy clay, Silt clay, Clay	General
24 <b>6.1–8.0</b>	8.7–21.5	<b>Others</b>	<b>Suitable</b>
25 <b>6.1–8.0</b>	<b>21.5–107.8</b>	<b>Sand, Loam sand, Sandy loam</b>	General
26 <b>6.1–8.0</b>	<b>21.5–107.8</b>	Sandy clay, Silt clay, Clay	<b>Suitable</b>
27 <b>6.1–8.0</b>	<b>21.5–107.8</b>	<b>Others</b>	<b>Suitable</b>