

**Table S1** key word list

Topic 1	Yield	
Topic 2	Organic materials type	Straw;  Biochar:  bio-carbon, chrol, biochar based fertilizer;  Animal manure:  cow dung, cow dropping, cow and bullock manure, cow manure, cow dung compost;  chicken manure, poultry dung, hen dung;  pig mannure;  Digestate: biogas residue, orthophosphate;
Topic 3	Reduced  synthetic fertilizer input	Reducing nitrogen rate, nitrogen fertilizer reduction, reducing chemical N fertilizer application, nitrogen application rates

**Table S2** Information of long-term field experiments in the published references.

No.	Site	Latitude, longitude	Regional distribution	Type of organic materials	Organic material replacement rate (%)	N fertilizer input (kg·hm <sup>-2</sup> )	Experimental duration (y <sup>-1</sup> )	Literature
1	Ningxia	106°38'20.4"N, 39°1'58.05"E	Northwest China	Chicken manure	66.7	540	4	[1]
2	Guangxi	24°43'N, 108°18'E	South Central China	Cow manure	30	200	5	[2]
3	Guangxi	24°43'N, 108°18'E	South Central China	Cow manure	60	200	5	[2]
4	Jiangsu	32°26'24"N, 120°29'24"E	East china	Pig manure	20	240	1	[3]
5	Shanxi	33°8'3"N, 107°0'40"E	East china	biogas residue	20	180	1	[4]
6	Shanxi	33°8'3"N, 107°0'40"E	East china	Rape straw	20	180	1	[4]
7	Shandong	36°57'N, 117°58'E	North China	Chicken manure	50	152	2	[5]
8	Gansu	35°29'42"N, 107°29'36"E	Northwest China	Cow manure	5.5	180	1	[6]

9	Gansu	35°29'42"N, 107°29'36"E	Northwest China	Cow manure	11	180	1	[6]
10	Gansu	35°29'42"N, 107°29'36"E	Northwest China	Cow manure	16.5	180	1	[6]
11	Hunan	27°57'23N, 113°18'46.3E	South Central China	Chicken manure	20	165	1	[7]
12	Hunan	27°57'23N, 113°18'46.3E	South Central China	Chicken manure	40	165	1	[7]
13	Hunan	27°57'23N, 113°18'46.3E	South Central China	Chicken manure	60	165	1	[7]
14	Gansu	35°28'26"N, 104°44'50"E	Northwest China	Cow manure	50	150	3	[8]
15	Gansu	27°57'23N, 113°18'46.3E	Northwest China	Cow manure	37.5	150	3	[8]
16	Gansu	27°57'23N, 113°18'46.3E	Northwest China	Cow manure	25	150	3	[8]
17	Gansu	27°57'23N, 113°18'46.3E	Northwest China	Cow manure	12.5	150	3	[8]
18	Jilin	44.80°N, 129.49°E	North China	Pig manure	42.6	225	1	[9]
19	Jilin	43°30'23"N, 124°48'33.9"E	North China	Pig manure	70	165	1	[10]
20	Jilin	43°30'23"N, 124°48'33.9"E	North China	Maize straw	32	165	1	[10]
21	Jiangxi	28°20'12"N, 116°05'3"E	East china	Pig manure (early)	14	150	1	[11]

22	Jiangxi	28°20'12"N, 116°05'3"E	East china	Pig manure (late)	14	150	1	[11]
23	Zhejiang	30°50'20"N, 120°42' 42"E	East china	straw	15.4	195	2	[12]
24	Zhejiang	30°50'20"N, 120°42' 42"E	East china	straw	11.1	270	2	[12]
25	Zhejiang	30°50'20"N, 120°42' 42"E	East china	straw	8.7	345	2	[12]
26	Shanxi	34°17'51"N, 108°00'48"E	Northwest China	Cow manure	25	345	3	[13]
27	Shanxi	34°17'51"N, 108°00'48"E	Northwest China	Cow manure	50	345	3	[13]
28	Shanxi	34°17'51"N, 108°00'48"E	Northwest China	Cow manure	70	345	3	[13]
29	Shanxi	34°17'51"N, 108°00'48"E	Northwest China	Cow manure	25	345	3	[13]
30	Shanxi	34°17'51"N, 108°00'48"E	Northwest China	Cow manure	50	345	3	[13]
31	Shanxi	34°17'51"N, 108°00'48"E	Northwest China	Cow manure	70	345	3	[13]
32	Gansu	35°34'50.16"N, 104°37'33.6"E	Northwest China	Cow manure	50	200	3	[14]
33	Gansu	35°34'50.16"N,	Northwest China	Cow manure	37.5	200	3	[14]

		104°37'33.6"E						
34	Gansu	35°34'50.16"N, 104°37'33.6"E	Northwest China	Cow manure	25	200	3	[14]
35	Gansu	35°34'50.16"N, 104°37'33.6"E	Northwest China	Cow manure	12.5	200	3	[14]
36	Sichuan	30°18'27N, 106°24'0.3"E	Southwest china	Pig manure	30	150	16	[15]
37	Sichuan	30°18'27N, 106°24'0.3"E	Southwest china	Pig manure	50	150	16	[15]
38	Sichuan	30°18'27N, 106°24'0.3"E	Southwest china	Pig manure	70	150	16	[15]
39	Shandong	34°50'38"N, 115°34'55"E	East china	Cow manure	50	210	5	[16]
40	Shandong	34°50'38"N, 115°34'55"E	East china	Cow manure	33.3	210	5	[16]
41	Shandong	34°50'38"N, 115°34'55"E	East china	Cow manure	25	210	5	[16]
42	Shandong	34°50'38"N, 115°34'55"E	East china	Cow manure	20	210	5	[16]
43	Chongqing	30°26'N, 106°26'E	Southwest china	Chicken manure	50	180	8	[17]

44	Shandong	35°26'34"N, 117°49'13"E	East china	Cow manure	75	150	3	[18]
45	Shandong	35°26'34"N, 117°49'13"E	East china	Cow manure	50	150	3	[18]
46	Shandong	35°26'34"N, 117°49'13"E	East china	Cow manure	25	150	3	[18]
47	Shandong	35°26'34"N, 117°49'13"E	East china	Cow manure	75	225	3	[18]
48	Shandong	35°26'34"N, 117°49'13"E	East china	Cow manure	50	225	3	[18]
49	Shandong	35°26'34"N, 117°49'13"E	East china	Cow manure	25	225	3	[18]
50	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	15	180	1	[19]
51	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	29	180	1	[19]
52	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	34	180	1	[19]
53	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	44	180	1	[19]
54	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	15	240	1	[19]
55	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	29	240	1	[19]
56	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	34	240	1	[19]

57	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	44	240	1	[19]
58	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	15	270	1	[19]
59	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	29	270	1	[19]
60	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	34	270	1	[19]
61	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	44	270	1	[19]
62	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	15	300	1	[19]
63	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	29	300	1	[19]
64	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	34	300	1	[19]
65	Jiangsu	120°45'10"E, 31°39'12.96"N	East china	Pig manure	44	300	1	[19]
66	Gansu	104°44'27"E, 35°28'3"N	Northwest China	Cow manure	50	200	3	[20]
67	Gansu	104°44'27"E, 35°28'3"N	Northwest China	Cow manure	37.5	200	3	[20]
68	Gansu	104°44'27"E, 35°28'3"N	Northwest China	Cow manure	25	200	3	[20]
69	Gansu	104°44'27"E, 35°28'3"N	Northwest China	Cow manure	12.5	200	3	[20]

70	Hunan	111°52'37.3"E, 26°45'21.6"N	South Central China	Pig manure	50	150	1	[21]
71	Beijing	40°13'N, 116°15'E	North China	Pig manure	50	240	5	[22]
72	Hebei	37. 8°N, 114. 7°E	North China	Cow manure	20	250	3	[23]
73	Hebei	37. 8°N, 114. 7°E	North China	Cow manure	35	250	3	[23]
74	Hebei	37. 8°N, 114. 7°E	North China	Cow manure	50	250	3	[23]
75	Gansu	35°29'42"N, 107°29'36"E	Northwest China	Wheat straw	30.2	180	11	[24]
76	Jiangsu	31°39'34"N, 120°45'34"E	East china	Pig manure	7.86	330	1	[25]
77	Jiangsu	31°39'34"N, 120°45'34"E	East china	Pig manure	15.7	330	1	[25]
78	Jiangsu	31°39'34"N, 120°45'34"E	East china	Pig manure	23.6	330	1	[25]
79	Jiangsu	31°39'34"N, 120°45'34"E	East china	Pig manure	31.5	330	1	[25]
80	Hunan	26°45'36"N, 111°52'12"E	South Central China	Pig manure	50	150	6	[26]
81	Sichuan	28°50'32"N, 104°58'35"E	Southwest china	Chicken manure	15	240	1	[27]
82	Sichuan	28°50'32"N, 104°58'35"E	Southwest china	Chicken manure	30	240	1	[27]



83	Hubei	30°22'54.5"N, 112°37'21.5"E	South Central China	Chicken manure	50	160	2	[28]
84	Hubei	30°22'54.5"N, 112°37'21.5"E	South Central China	Chicken manure	50	180	2	[28]
85	Shandong	35°26'21"N, 117°50'11"E	East china	Cow manure	25	375	5	[29]
86	Shandong	35°26'21"N, 117°50'11"E	East china	Cow manure	50	375	5	[29]
87	Shandong	35°26'21"N, 117°50'11"E	East china	Cow manure	75	375	5	[29]
88	Shanghai	30°53'N, 121°23'E	East china	straw		225	5	[30]
89	Changping	40°13'12"N, 116°15'23"E	Central China	Pig manure	70	150	15	[31]
90	Zhengzhou	34°47'25"N, 113°40'42"E	Central China	Horse&Cow manure	70	165	15	[31]
91	Yangling	34°17'51"N, 108°00'48"E	Central China	Cow manure	70	165	15	[31]
92	Qiyang	26°45'12"N, 111°52'32"E	South China	Pig manure	70	190	15	[31]
93	Shanxi	34°42'N, 108°09'E	Northwest China	Pig manure	30	120	2	[32]
94	Shanxi	34°42'N, 108°09'E	Northwest China	Pig manure	50	120	2	[32]
95	Guizhou	27°45'35"N, 108°11'35"E	Southwest china	Biochar	10	150	1	[33]

96	Guizhou	27°45'35"N, 108°11'35"E	Southwest china	Biochar	20	150	1	[33]
97	Guizhou	27°45'35"N, 108°11'35"E	Southwest china	Biochar	30	150	1	[33]
98	Guizhou	27°45'35"N, 108°11'35"E	Southwest china	Biochar	40	150	1	[34]
99	Jiangsu	31°43'14"N, 118°46'12"E	East china	Chicken manure	30		1	[34]
100	Jiangsu	31°43'14"N, 118°46'12"E	East china	Pig manure	30		1	[34]
101	Jiangxi	28°57'N, 115°94'E	East china	Pig manure	30	180	10	[34]
102	Jiangxi	28°57'N, 115°94'E	East china	Pig manure	50	180	10	[35]
103	Jiangxi	28°57'N, 115°94'E	East china	Pig manure	70	180	10	[35]
104	Hunan	28°33'04"N, 113°19'52"E	South Central China	Pig manure (early)	50	120	2	[36]
105	Hunan	28°33'04"N, 113°19'52"E	South Central China	Pig manure (late)	50	120	2	[36]
106	Shanghai	30°54'6"N, 121°40'31"E	East china	Pig manure	21.4	262.95	1	[36]
107	Shanghai	30°54'6"N, 121°40'31"E	East china	Pig manure	50	262.95	1	[37]
108	Shanghai	30°54'6"N, 121°40'31"E	East china	Pig manure	75	262.95	1	[37]

109	Ningxia	38°03'16"N, 106°12'03"E	Northwest China	Cow manure	30	330	2	[38]
110	Ningxia	38°03'16"N, 106°12'03"E	Northwest China	Cow manure	21.8	240	2	[38]
111	Hunan	28°31'6"N, 113°22'32"E	South Central China	Pig&Chicken manure	15	180	1	[38]
112	Hunan	28°31'6"N, 113°22'32"E	South Central China	Pig&Chicken manure	30	180	1	[39]
113	Hunan	28°31'6"N, 113°22'32"E	South Central China	Pig&Chicken manure	45	180	1	[39]
114	Hunan	28°31'6"N, 113°22'32"E	South Central China	Pig&Chicken manure	60	180	1	[40]
115	Shanxi	34°19'44"N, 108°42'21"E	Northwest China	Chicken manure	18.1		2	[40]
116	Shanxi	34°19'44"N, 108°42'21"E	Northwest China	Pig manure	19.4		2	[40]
117	Shanxi	34°19'44"N, 108°42'21"E	Northwest China	Chicken manure	18.1		2	[40]
118	Shanxi	34°19'44"N, 108°42'21"E	Northwest China	Pig manure	19.4		2	[41]
119	Gansu	37°41'4"N, 102°51'24"E	Northwest China	Horse&Cow manure & straw	30	184	2	[41]
120	Gansu	43°50'37"N, 125°14'49"E	Northwest China	Chicken manure	10	230	2	[41]
121	Gansu	43°50'37"N, 125°14'49"E	Northwest China	Chicken manure	20	230	2	[41]

122	Gansu	43°50'37"N, 125°14'49"E	Northwest China	Chicken manure	30	230	2	[42]
123	Shanxi	36°13.2'N, 111°33.7'E	North China	Chicken manure	30	300	3	[43]
124	Shanxi	36°13.2'N, 111°33.7'E	North China	Chicken manure	30	225	3	[43]
125	Shanxi	36°26'16.62"N, 111°32'4"E	North China	Chicken manure	45	150	6	[43]
126	Anhui	117°40'59"E, 31°39'43"N	East china	Pig manure	30	192	1	[44]
127	Anhui	117°40'59"E, 31°39'43"N	East china	Pig manure	50	192	1	[44]
128	Anhui	117°40'59"E, 31°39'43"N	East china	straw	30	192	1	[45]
129	Anhui	117°40'59"E, 31°39'43"N	East china	straw	50	192	1	[46]
130	Jiangxi	28°45'44"N, 115°49'59"E	East china	biogas residue		240	20	[46]
131	Jiangxi	28°45'44"N, 115°49'59"E	East china	biogas residue		270	20	[46]
132	Sichuan	30°57'0.99"N, 103°44'3.69"E	Southwest china	Pig manure	75	180	1	[46]
133	Sichuan	30°57'0.99"N, 103°44'3.69"E	Southwest china	Pig manure	50	180	1	[47]
134	Sichuan	30°57'0.99"N, 103°44'3.69"E	Southwest china	Pig manure	75	180	1	[47]

135	Sichuan	30°57'0.99"N, 103°44'3.69"E	Southwest china	Pig manure	50	180	1	[48]
136	Shenyang	41°49'36.3"N, 123°34'11.1"E	Northeast china	Pig manure	10	240	2	[48]
137	Shenyang	41°49'36.3"N, 123°34'11.1"E	Northeast china	Pig manure	20	240	2	[48]
138	Shenyang	41°49'36.3"N, 123°34'11.1"E	Northeast china	Pig manure	30	240	2	[48]
139	jiangxi	28°33'92"N, 115°56'25"E	East china	Pig manure	30	180		[49]
140	Jiangxi	28°33'92"N, 115°56'25"E	East china	Pig manure	50	180		[49]
141	Jiangxi	28°33'92"N, 115°56'25"E	East china	Pig manure	70	180		[49]
142	jiangsu	31° 27' N, 120°25'E	East china	Pig manure	25	300	1	[50]
143	Jiangsu	31° 27' N, 120°25'E	East china	Pig manure	50	300	1	[50]
144	Jiangsu	31° 27' N, 120°25'E	East china	Pig manure	75	300	1	[50]
145	Yunnan	25°31'07"N, 103°16'41"E	Southwest china	Pig manure	10	240	1	[51]
146	Yunnan	25°31'07"N, 103°16'41"E	Southwest china	Pig manure	20	240	1	[51]
147	Yunnan	25°31'07"N, 103°16'41"E	Southwest china	Pig manure	30	240	1	[51]

148	yunnan	25°31'07"N, 103°16'41"E	Southwest china	Pig manure	40	240	1	[52]
149	Nanjing	32°1'4.152"N, 118°51'25"E	East china	Pig manure	55.5	180	1	[52]
150	Nanjing	32°1'4.152"N, 118°51'25"E	East china	Chicken manure	55.5	180	1	[52]
151	Jiangxi	27°48'0.5"N, 115°21'18"E	East china	Pig manure	16.3	165	2	[52]
152	jiangxi	27°48'0.5"N, 115°21'18"E	East china	Pig manure	20.5	165	2	[53]
153	Jiangxi	27°48'0.5"N, 115°21'18"E	East china	Pig manure	24.6	165	2	[53]
154	Xinjiang	86°3'31"N, 44°18'47"E	Northwest China	Cow manure	16	300	1	[54]
155	Xinjiang	86°3'31"N, 44°18'47"E	Northwest China	Sheep manure	16	300	1	[54]
156	Xinjiang	86°3'31"N, 44°18'47"E	Northwest China	maize straw	16	300	1	[54]
157	Ningxia	38°5'45"N, 105°56'17"E	Northwest China	Cow manure	50			[55]
158	Ningxia	38°5'45"N, 105°56'17"E	Northwest China	Cow manure	33			[55]
159	Ningxia	38°5'45"N, 105°56'17"E	Northwest China	Cow manure	25			[55]
160	Ningxia	38°5'45"N, 105°56'17"E	Northwest China	Cow manure	20			[56]

161	Sichuan	30°37'28"N, 104°6'27"E	Southwest china	Pig manure	30	150	1	[56]
162	Sichuan	30°37'28"N, 104°6'27"E	Southwest china	Pig manure	50	150	1	[56]
163	Shandong	37°26'23"N, 121°31'15"E	Northeast china	Chicken manure	40	595.5	1	[56]
164	Shandong	40°0'37"N, 116°21'51"E	Northeast china	Chicken manure	60	595.5	1	[57]
165	Shandong	40°0'37"N, 116°21'51"E	Northeast china	Chicken manure	80	595.5	1	[57]
166	Hunan	28°19'N, 113°49'E	South Central China	Pig manure	20	120	1	[58]
167	Hunan	28°19'N, 113°49'E	South Central China	biogas residue	20	120	1	[58]
168	Hunan	28°19'N, 113°49'E	South Central China	Pig manure	20	120	1	[58]
169	Jiangxi	116° 8' E, 28° 58' N	East china	Pig manure (earle)	25	180	2	[59]
170	Jiangxi	116° 8' E, 28° 58' N	East china	Pig manure (earle)	50	180	2	[59]
171	Jiangxi	116° 8' E, 28° 58' N	East china	Pig manure (earle)	75	180	2	[59]
172	Jiangxi	116° 8' E, 28° 58' N	East china	Pig manure (late)	25	225	2	[60]
173	Jiangxi	116° 8' E, 28° 58' N	East china	Pig manure (late)	50	225	2	[60]

174	Jiangxi	116° 8' E, 28° 58' N	East china	Pig manure (late)	75	225	2	[60]
175	Yunnan	25°50' N, 100° 07' E	Southwest china	Cow manure	30	160	1	[60]
176	Yunnan	25°50' N, 100° 07' E	Southwest china	Cow manure	50	160	1	[60]
177	Yunnan	25°50' N, 100° 07' E	Southwest china	Cow manure	70	160	1	[60]
178	Shandong	36°09'N, 117°09'E	East china	Cow manure	50	180	2	[61]
179	Shandong	36°09'N, 117°09'E	East china	Cow manure	50	200	2	[61]
180	Jilin	43°18'26"N, 124°20'10"E	Northeast china	Pig manure	25	240	1	[61]
181	jilin	43°18'26"N, 124°20'10"E	Northeast china	Cow manure	25	240	1	[62]
182	jilin	43°18'26"N, 124°20'10"E	Northeast china	Chicken manure	25	240	1	[62]
183	Hunan	28°22'16"N, 113°49'3"E	South Central China	Pig manure	20	120	1	[63]
184	Hunan	28°22'16"N, 113°49'3"E	South Central China	biogas residue	20	120	1	[63]
185	Hunan	28°22'16"N, 113°49'3"E	South Central China	Pig manure	20	120	1	[63]
186	Hunan	28°22'16"N, 113°49'3"E	South Central China	Straw	20	120	1	[64]



187	Hunan	28°22'16"N, 113°49'3"E	South Central China	Pig manure	20	135	1	[64]
188	Hunan	28°22'16"N, 113°49'3"E	South Central China	biogas residue	20	135	1	[64]
189	Hunan	28°22'16"N, 113°49'3"E	South Central China	Pig manure	20	135	1	[64]
190	Hunan	28°22'16"N, 113°49'3"E	South Central China	Straw	20	135	1	[64]
191	Hunan	28°40'24"N, 112°48'4"E	South Central China	Pig manure (early)	20	127.5	1	[64]
192	Hunan	28°40'24"N, 112°48'4"E	South Central China	Pig manure (early)	20	127.5	1	[64]
193	Hunan	28°40'24"N, 112°48'4"E	South Central China	biogas residue (early)	20	127.5	1	[64]
194	Hunan	28°40'24"N, 112°48'4"E	South Central China	Pig manure (late)	20	150	1	[65]
195	Hunan	28°40'24"N, 112°48'4"E	South Central China	Pig manure (late)	20	150	1	[65]
196	Hunan	28°40'24"N, 112°48'4"E	South Central China	biogas residue (late)	20	150	1	[65]
197	Shandong	37°22'55"N, 117°58'15"E	East china	Cow manure	30	150	15	[65]
198	Shandong	37°22'55"N, 117°58'15"E	East china	Cow manure	50	150	15	[65]
199	Shandong	37°22'55"N, 117°58'15"E	East china	Cow manure	70	150	15	[65]

200	Hunan	28°43'38"N, 112°52'28E	South Central China	Pig manure	20	241.5	2	[66]
201	Hunan	28°43'38"N, 112°52'28E	South Central China	Pig manure	20	241.5	2	[66]
202	Hunan	28°43'38"N, 112°52'28E	South Central China	biogas residue	20	241.5	2	[66]
203	Hunan	28°43'38"N, 112°52'28E	South Central China	Pig manure	10	241.5	2	[67]
204	Hunan	28°43'38"N, 112°52'28E	South Central China	Pig manure	30	241.5	2	[67]
205	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Pig manure (early)	10	171.02	1	[67]
206	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Pig manure (early)	20	171.02	1	[67]
207	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Pig manure (early)	30	171.02	1	[67]
208	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Pig manure (early)	20	171.02	1	[68]
209	Hunan	28°46'12N, 112°53'8.52"E	South Central China	biogas residue (early)	20	171.02	1	[68]
210	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Straw (early)	10	171.02	1	[68]
211	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Pig manure (late)	10	178.52	1	[68]
212	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Pig manure (late)	20	178.52	1	[68]

213	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Pig manure (late)	30	178.52	1	[68]
214	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Pig manure (late)	20	178.52	1	[68]
215	Hunan	28°46'12N, 112°53'8.52"E	South Central China	biogas residue (late)	20	178.52	1	[68]
216	Hunan	28°46'12N, 112°53'8.52"E	South Central China	Straw (late)	10	178.52	1	[68]
217	Henan	34°47'9.924"N, 113°39'46"E	South Central China	Chicken manure	50	180	3	[68]
218	Henan	34°47'9.924"N, 113°39'46"E	South Central China	Cow manure	50	180	3	[68]
219	Henan	35°5'37"N, 115°33'22"E	South Central China	Horse manure			7	[68]
220	Henan	35°5'37"N, 115°33'22"E	South Central China	Horse manure			7	[69]
221	Henan	35°5'37"N, 115°33'22"E	South Central China	Wheat straw			7	[69]
222	Henan	35°5'37"N, 115°33'22"E	South Central China	Wheat straw			7	[70]
223	Henan	35°5'37"N, 115°33'22"E	South Central China	Wheat straw			7	[70]
224	Beijing	40°6'21N, 116°44'56.4"E	North China	Cow manure	30	210	1	[70]
225	Beijing	40°6'21N, 116°44'56.4"E	North China	Cow manure	60	210	1	[70]

226	Hebei	38°14.29'N, 114°34.5'E	North China	biogas residue	10	300	1	[70]
227	Hunan	113°19'52"E, 28°33'04"N	South Central China	Straw(early)		120	6	[71]
228	Hunan	113°19'52"E, 28°33'04"N	South Central China	Straw(early)		120	6	[71]
229	Hunan	113°19'52"E, 28°33'04"N	South Central China	Straw(late)		150	6	[72]
230	Hunan	113°19'52"E, 28°33'04"N	South Central China	Straw(late)		150	6	[73]
231	Henan	35°09'N, 113°51'E	South Central China	Biochar	40	225		[73]
232	Jilin	43°49'N, 125°23'56"E	Northeast china	Biochar	25	240	2	[73]
233	Jilin	43°49'N, 125°23'56"E	Northeast china	Biochar	50	240	2	[73]
234	Jilin	43°49'N, 125°23'56"E	Northeast china	Biochar	75	240	2	[74]
235	Jilin	43°49'N, 125°23'56"E	Northeast china	Cow manure	25	240	2	[75]
236	Jilin	43°49'N, 125°23'56"E	Northeast china	Cow manure	50	240	2	[75]
237	Jilin	43°49'N, 125°23'56"E	Northeast china	Cow manure	75	240	2	[75]
238	Jilin	43°49'N, 125°23'56"E	Northeast china	Chicken manure	25	240	2	[75]

239	Jilin	43°49'N, 125°23'56"E	Northeast china	Chicken manure	50	240	2	[75]
240	Jilin	43°49'N, 125°23'56"E	Northeast china	Chicken manure	75	240	2	[75]
241	Shandong	37°220'N, 118°10'E	East china	biogas residue	70	226	2	[75]
242	Shandong	37°220'N, 118°10'E	East china	biogas residue	35	226	2	[75]
243	Shandong	37°220'N, 118°10'E	East china	biogas residue	15	226	2	[75]
244	Shandong	37°220'N, 118°10'E	East china	biogas residue	70	226	2	[75]
245	Shandong	37°220'N, 118°10'E	East china	biogas residue	35	226	2	[75]
246	Shandong	37°220'N, 118°10'E	East china	biogas residue	15	226	2	[75]
247	Gansu	35°29'42"N, 107°29'36"E	Northwest China	Wheat straw	50	180	10	[75]
248	Hebei	37°41'N, 116°36'E	North China	Cow manure	50	157.5	3	[75]
249	Hebei	37°41'N, 116°36'E	North China	Cow manure	50	178.5	3	[75]
250	Shandong	35°26'21"N, 117°50'11"E	East china	Cow manure	75	263.25	1	[76]
251	Shandong	35°26'21"N, 117°50'11"E	East china	Cow manure	50	263.25	1	[77]

252	Shandong	35°26'21"N, 117°50'11"E	East china	Cow manure	75	263.25	1	[77]
253	Shandong	35°26'21"N, 117°50'11"E	East china	Cow manure	50	263.25	1	[78]
254	Hunan	27°57'23N, 113°18'46.3E	South Central China	Chicken manure	20	180	1	[78]
255	Hunan	27°57'23N, 113°18'46.3E	South Central China	Chicken manure	40	180	1	[78]
256	Hunan	27°57'23N, 113°18'46.3E	South Central China	Chicken manure	60	180	1	[78]
257	Shanghai	30°53'N, 121°23'E	East china	straw		225	5	[30]
258	Shanghai	30°54'6"N, 121°40'31"E	East china	Pig manure	75	262.95	1	[38]
259	Jiangxi	28°45'44"N, 115°49'59"E	East china	biogas residue		240	20	[27]
260	Jiangxi	28°45'44"N, 115°49'59"E	East china	biogas residue		270	20	[27]
261	Jiangxi	27°48'0.5"N, 115°21'18"E	East china	Pig manure	16.3	165	2	[54]
262	jiangxi	27°48'0.5"N, 115°21'18"E	East china	Pig manure	20.5	165	2	[54]
263	Jiangxi	27°48'0.5"N, 115°21'18"E	East china	Pig manure	24.6	165	2	[54]

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