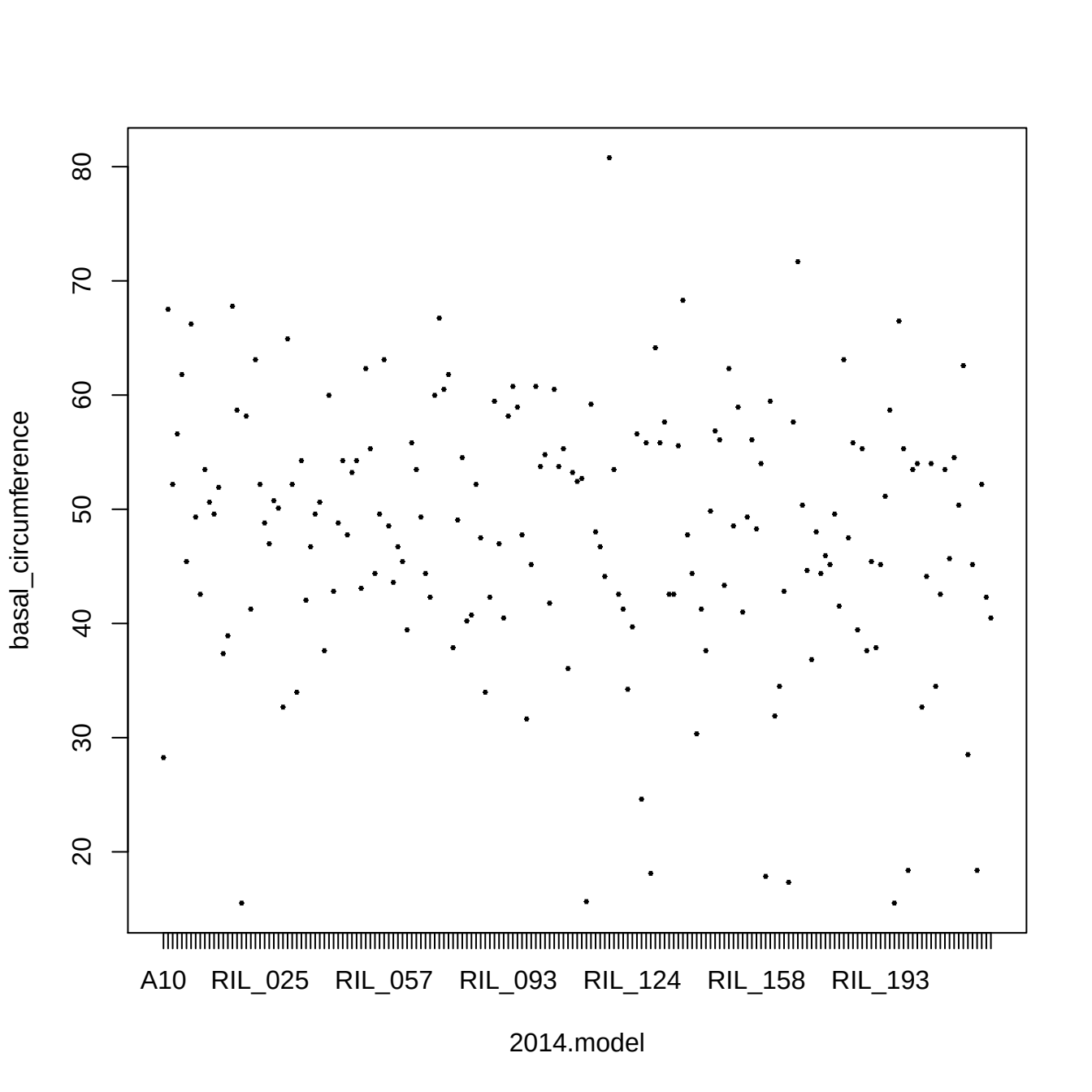
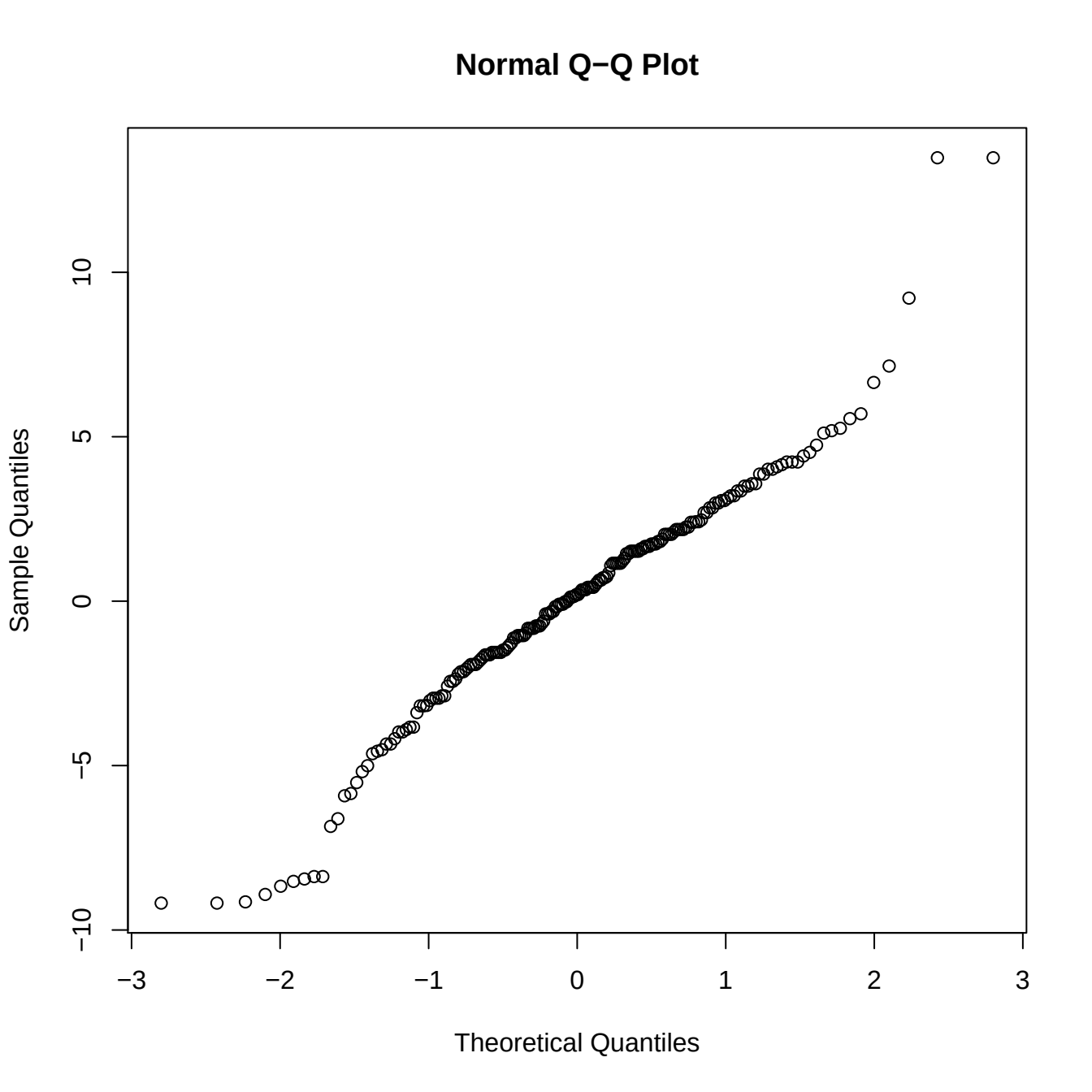
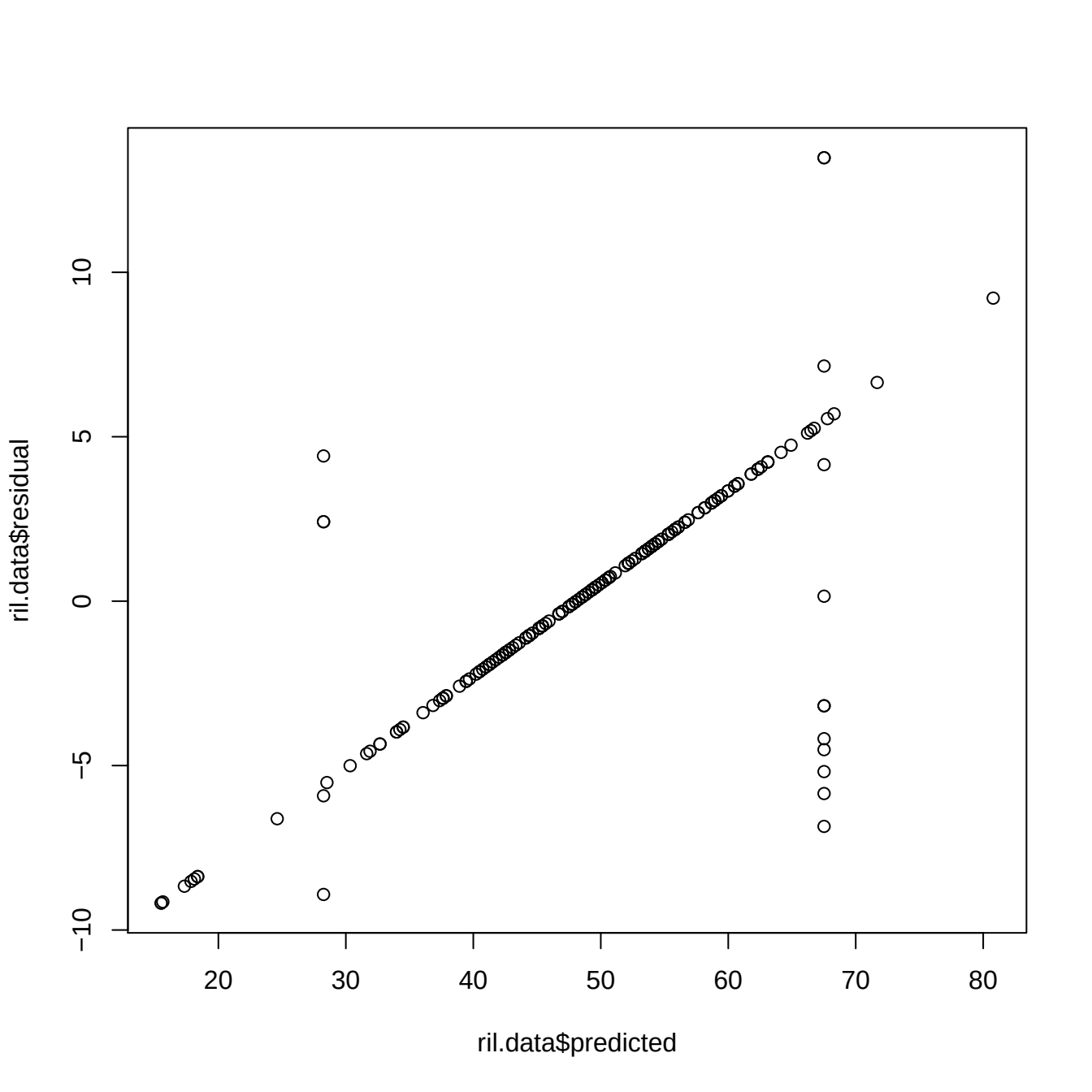
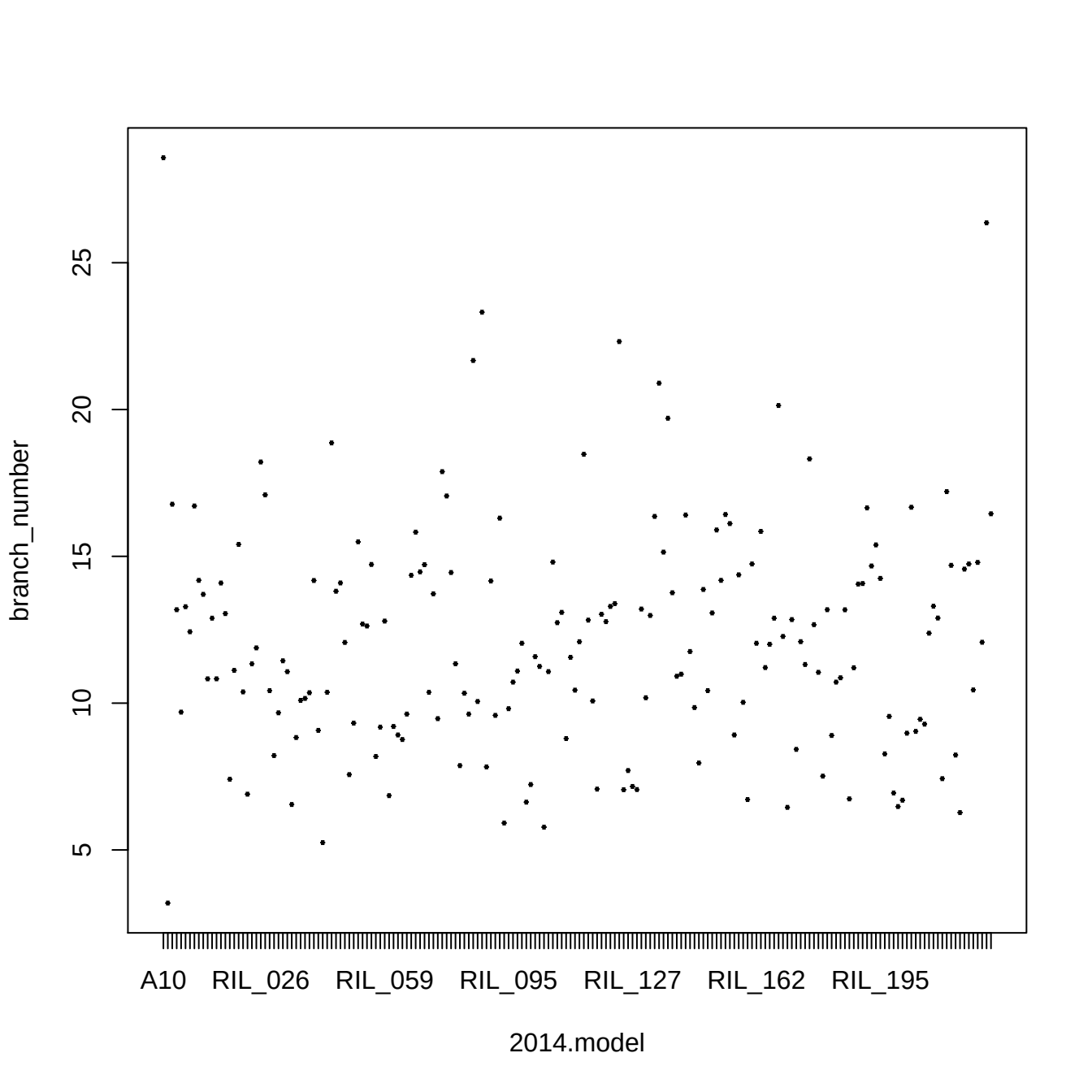
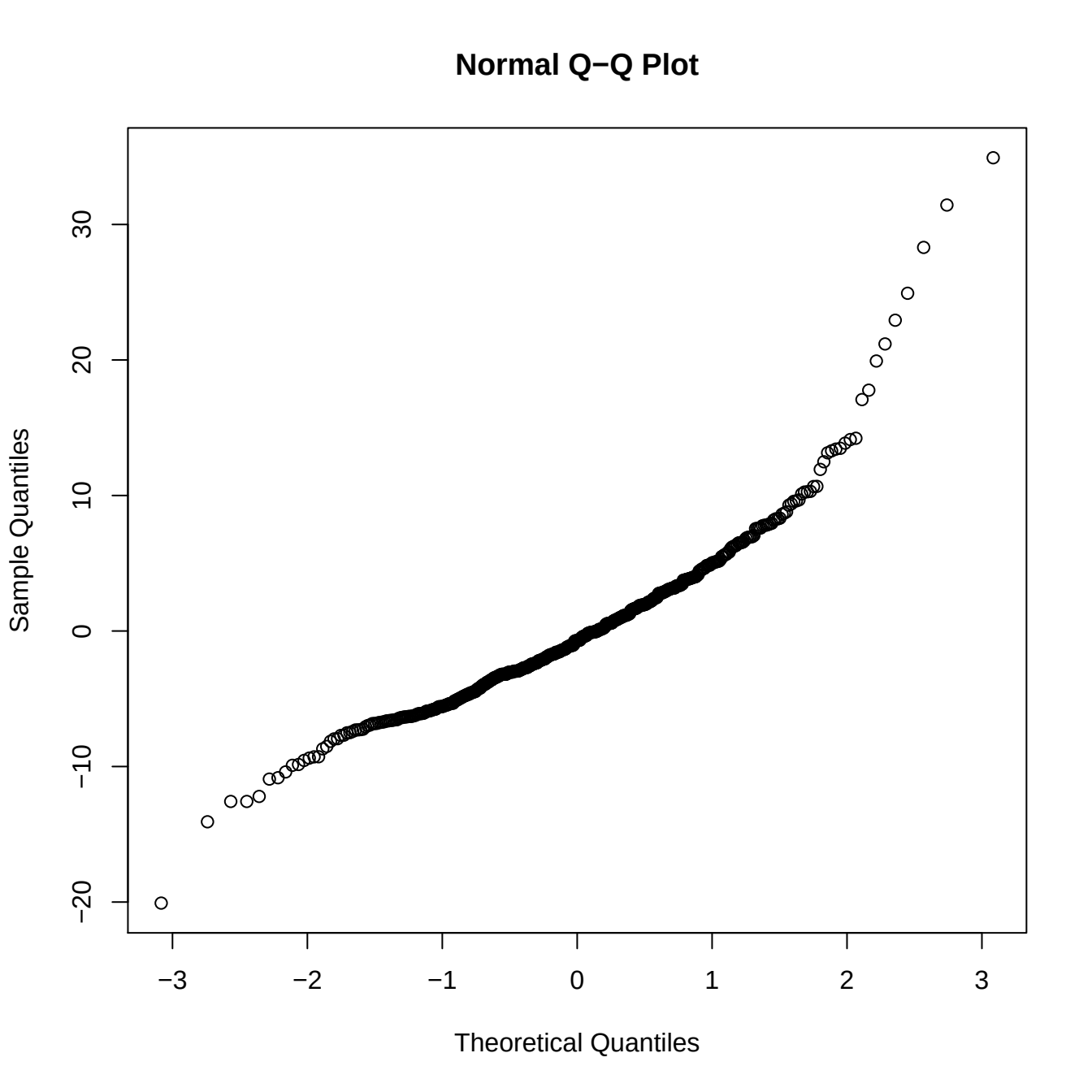
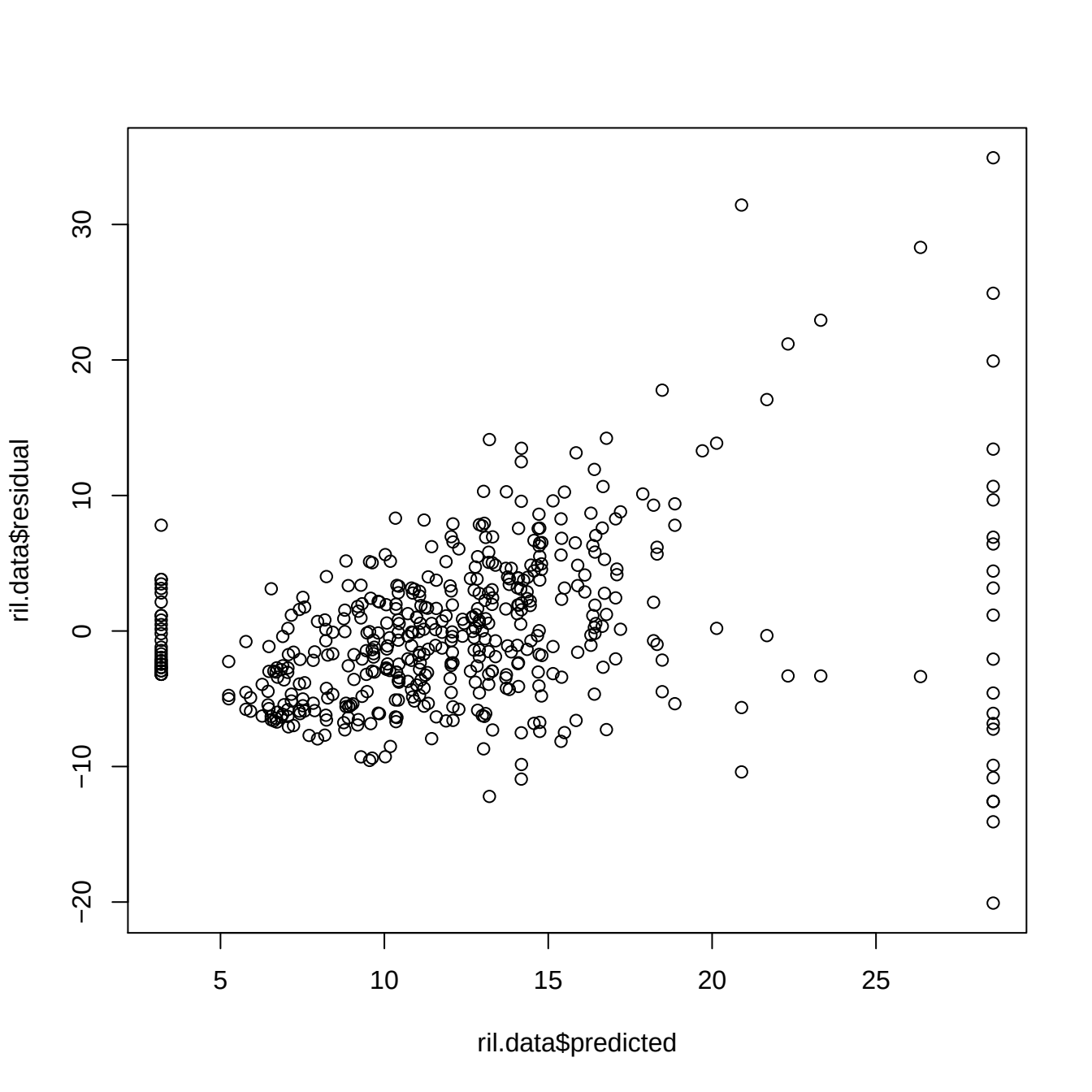

basal_circumference
20
30
40
50
60
70
80
A10
RIL_025
RIL_057
RIL_093
RIL_124
RIL_158
RIL_193
2014.model

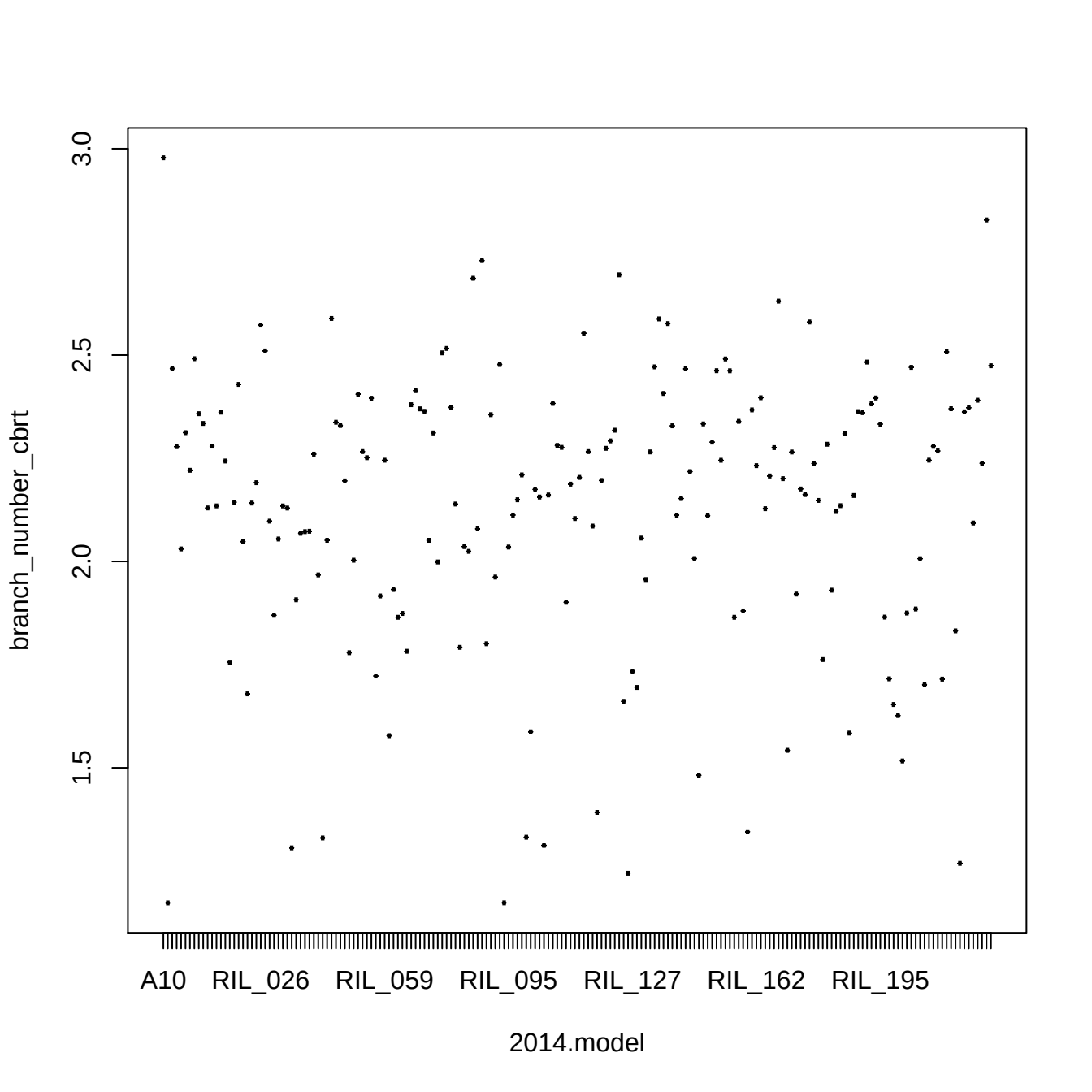

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−10
−5
0
5
10
−3
−2
−1
0
1
2
3

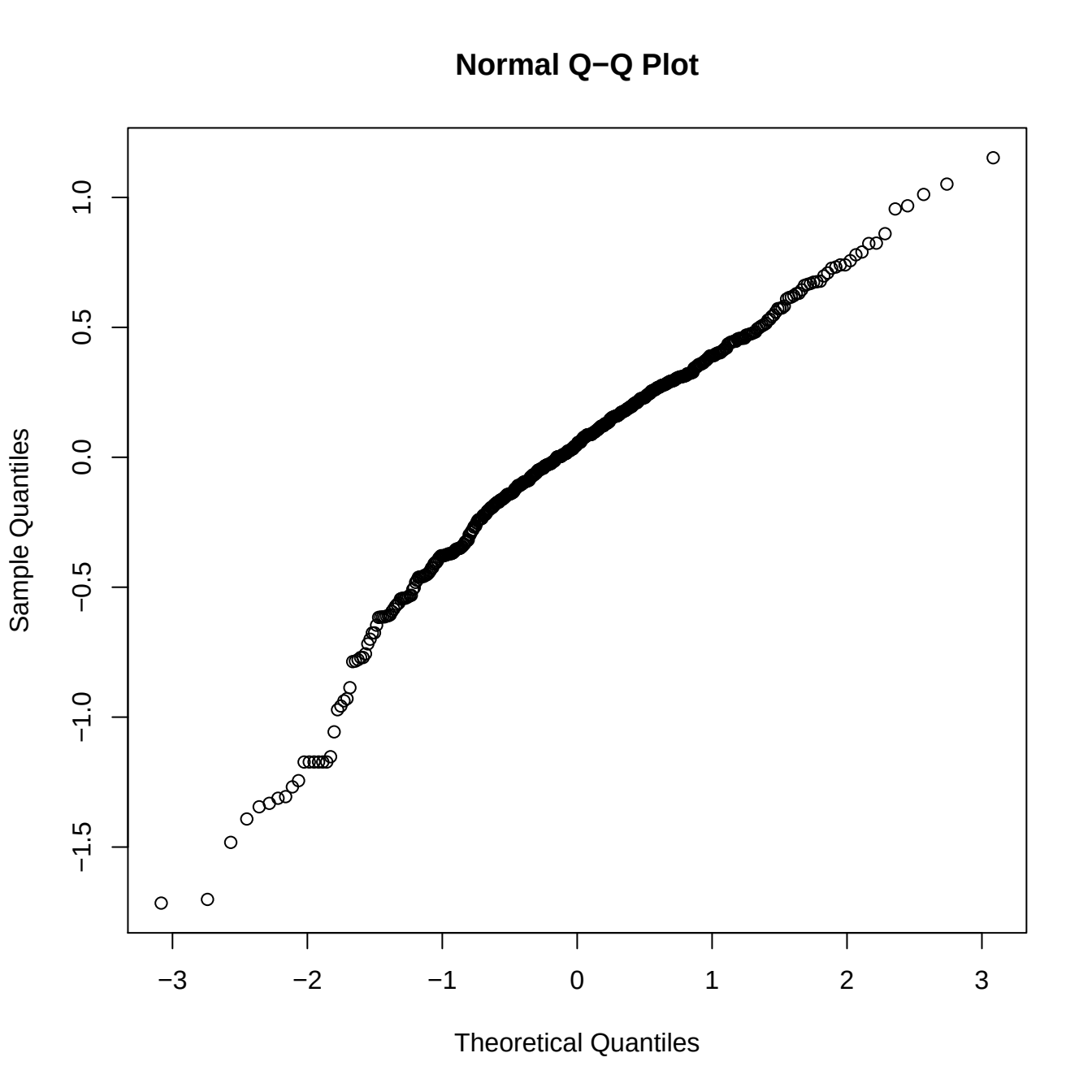

ril.data$residual
10
5
0
−5
−10
20
30
40
50
60
70
80
ril.data$predicted

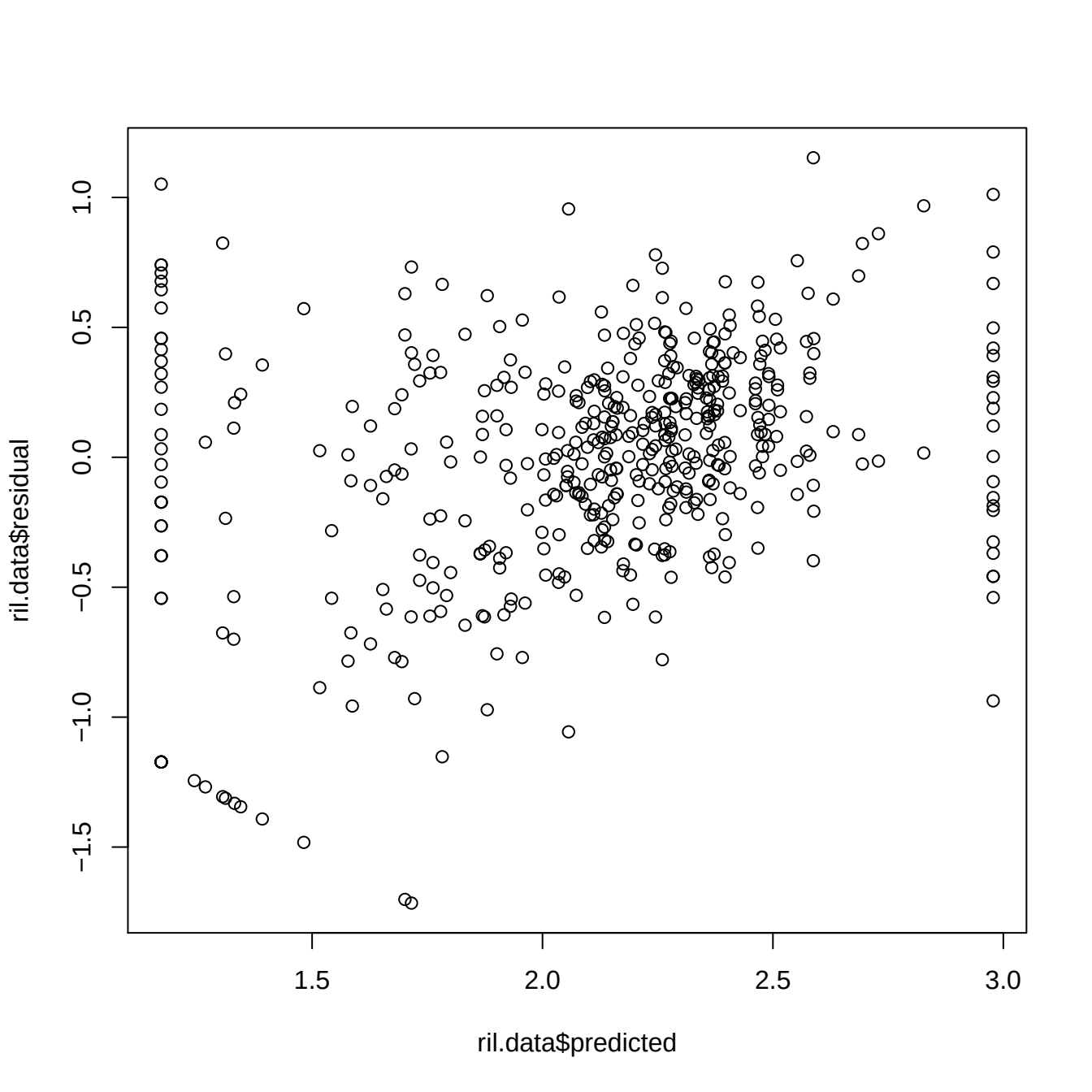

branch_number
5
10
15
20
25
A10
RIL_026
RIL_059
RIL_095
RIL_127
RIL_162
RIL_195
2014.model

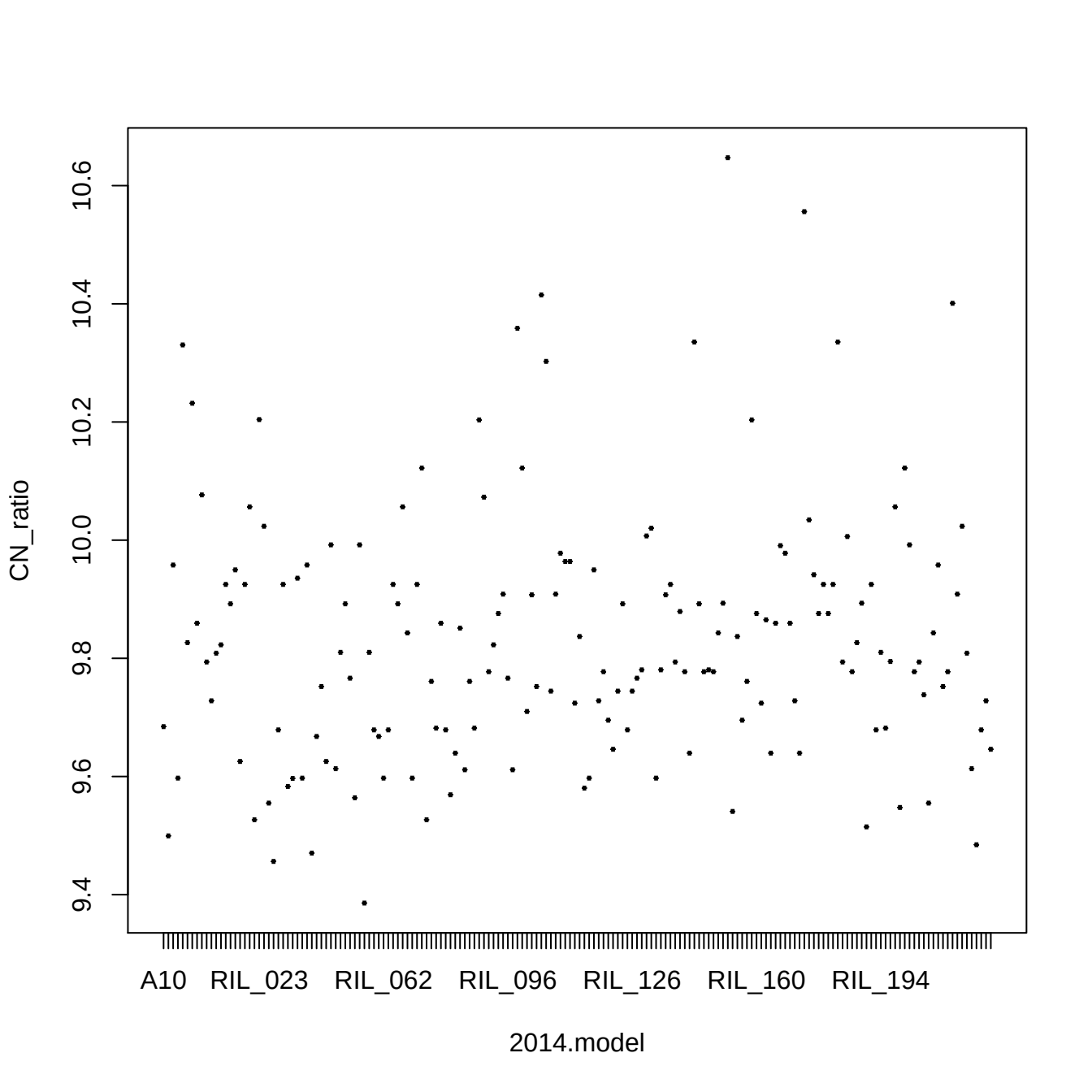

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
30
20
10
0
−10
−20
−3
−2
−1
0
1
2
3

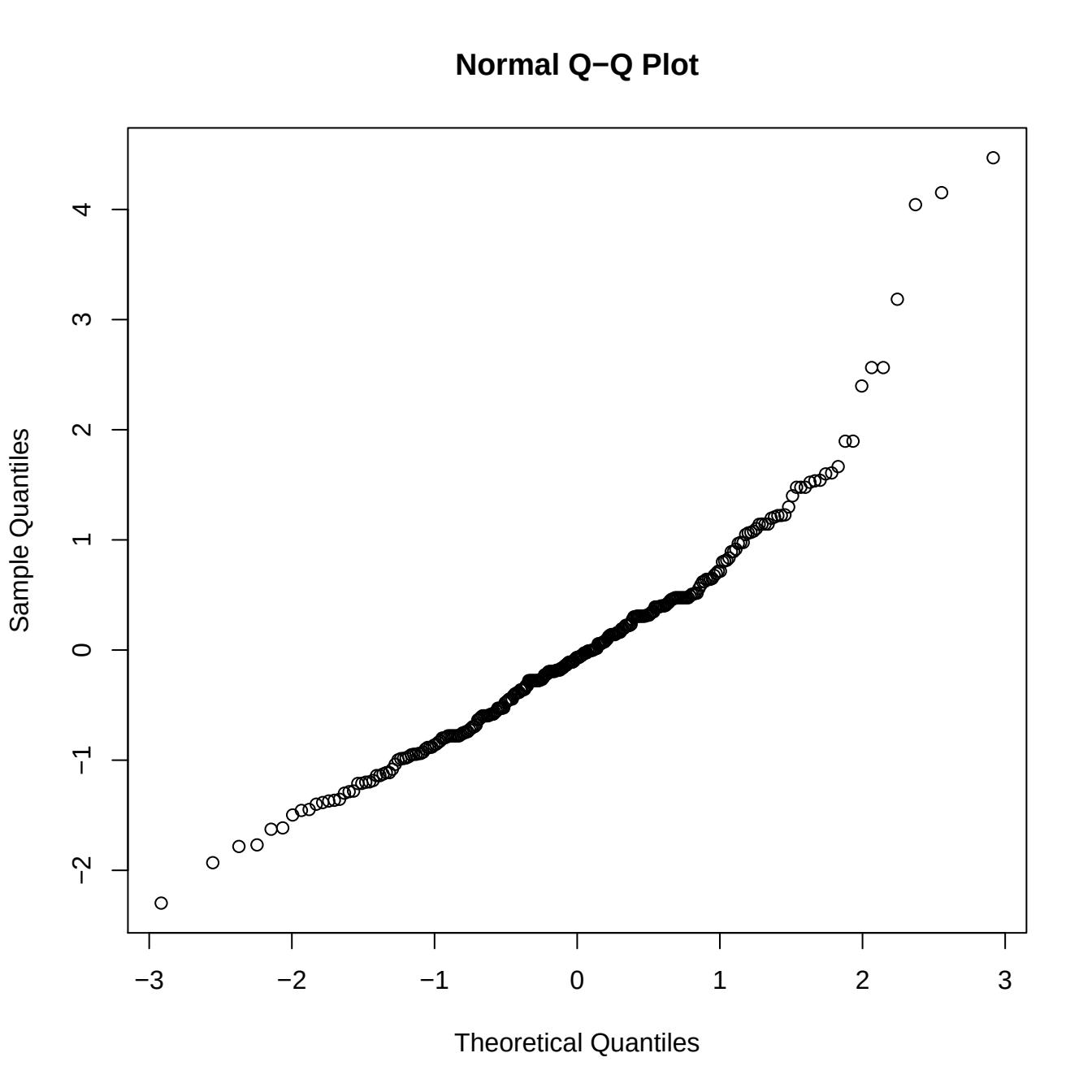

ril.data$residual
ril.data$predicted
30
20
10
0
−10
−20
5
10
15
20
25

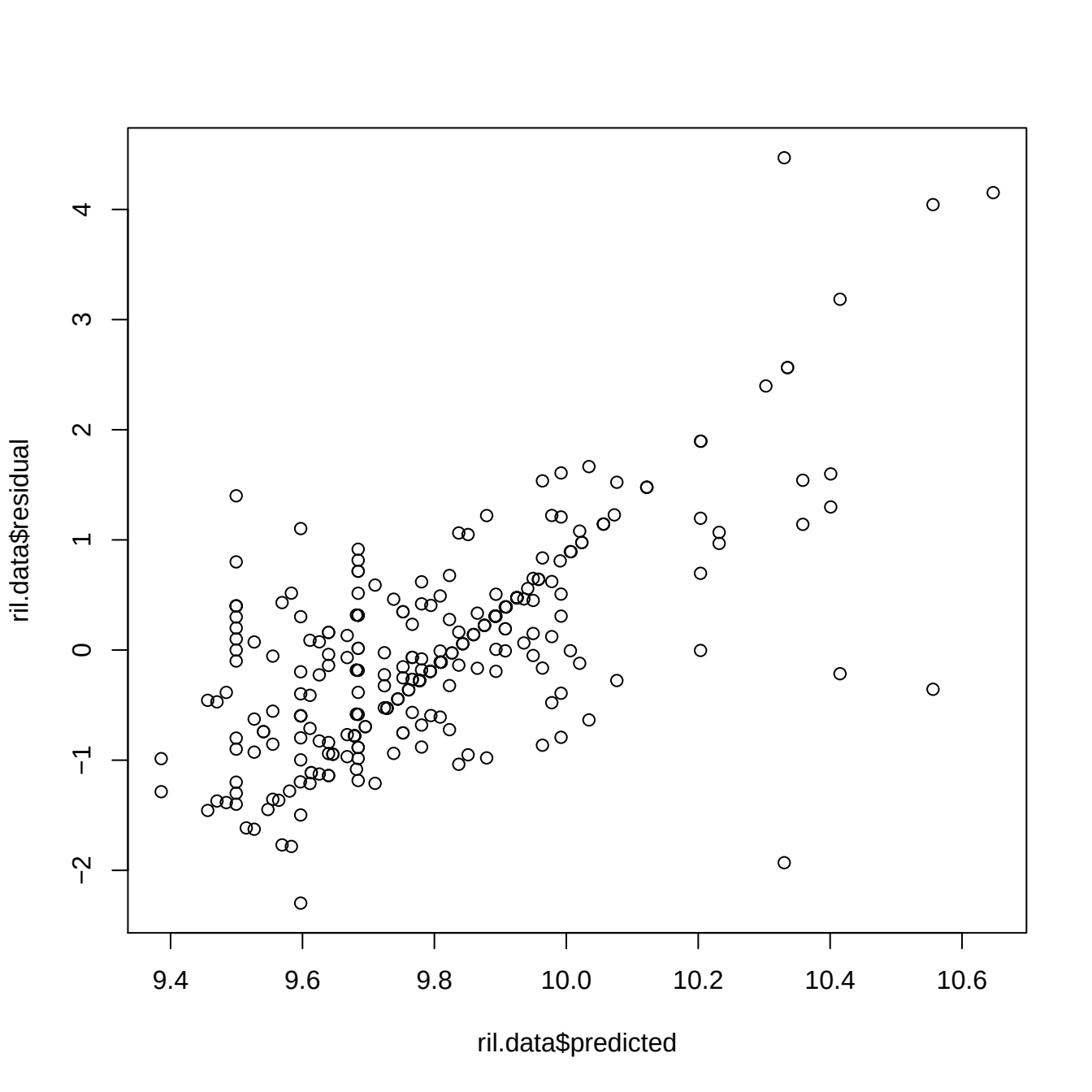

branch_number_cbrt
3.0
2.5
2.0
1.5
A10
RIL_026
RIL_059
RIL_095
RIL_127
RIL_162
RIL_195
2014.model

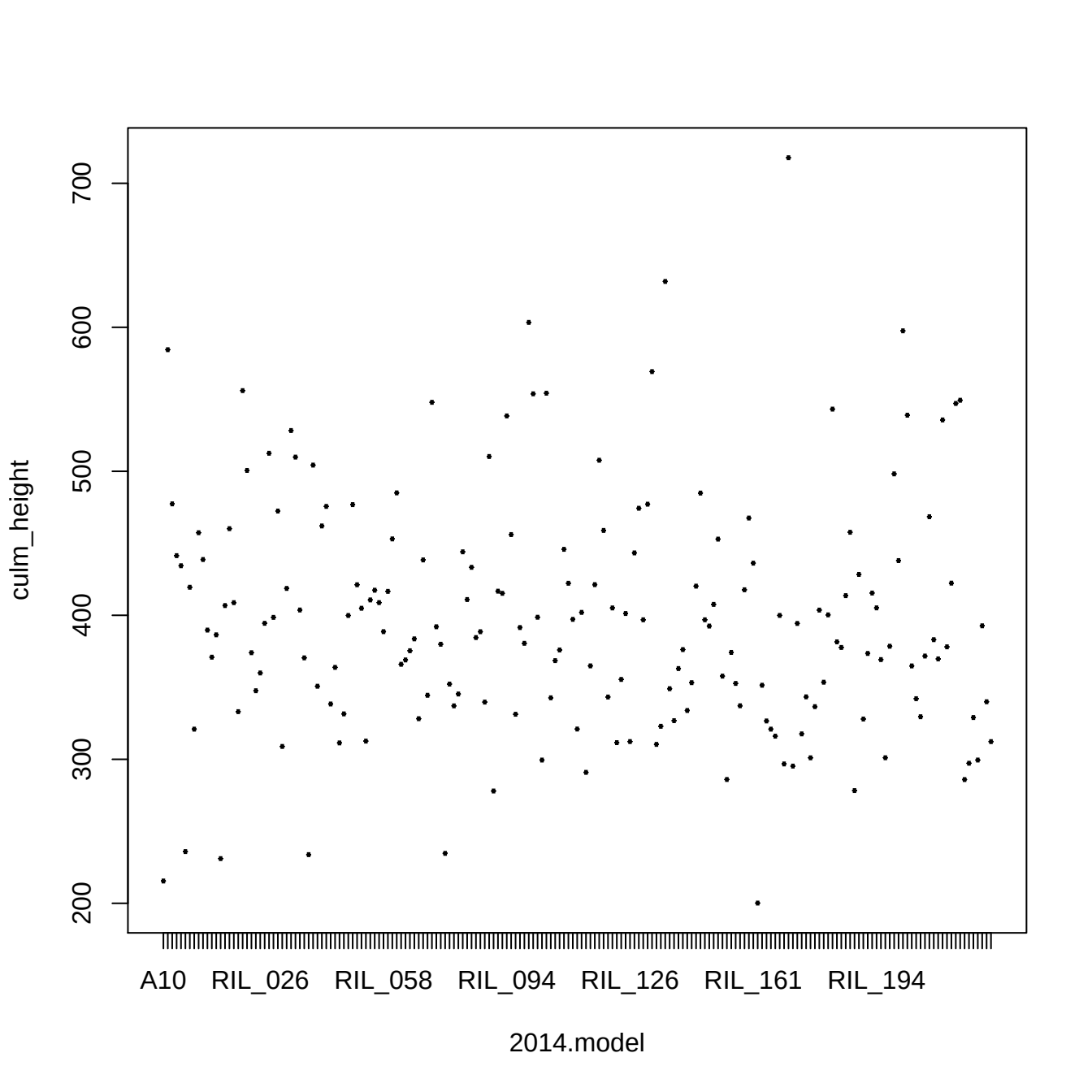

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−1.5
−1.0
−0.5
0.0
0.5
1.0
−3
−2
−1
0
1
2
3

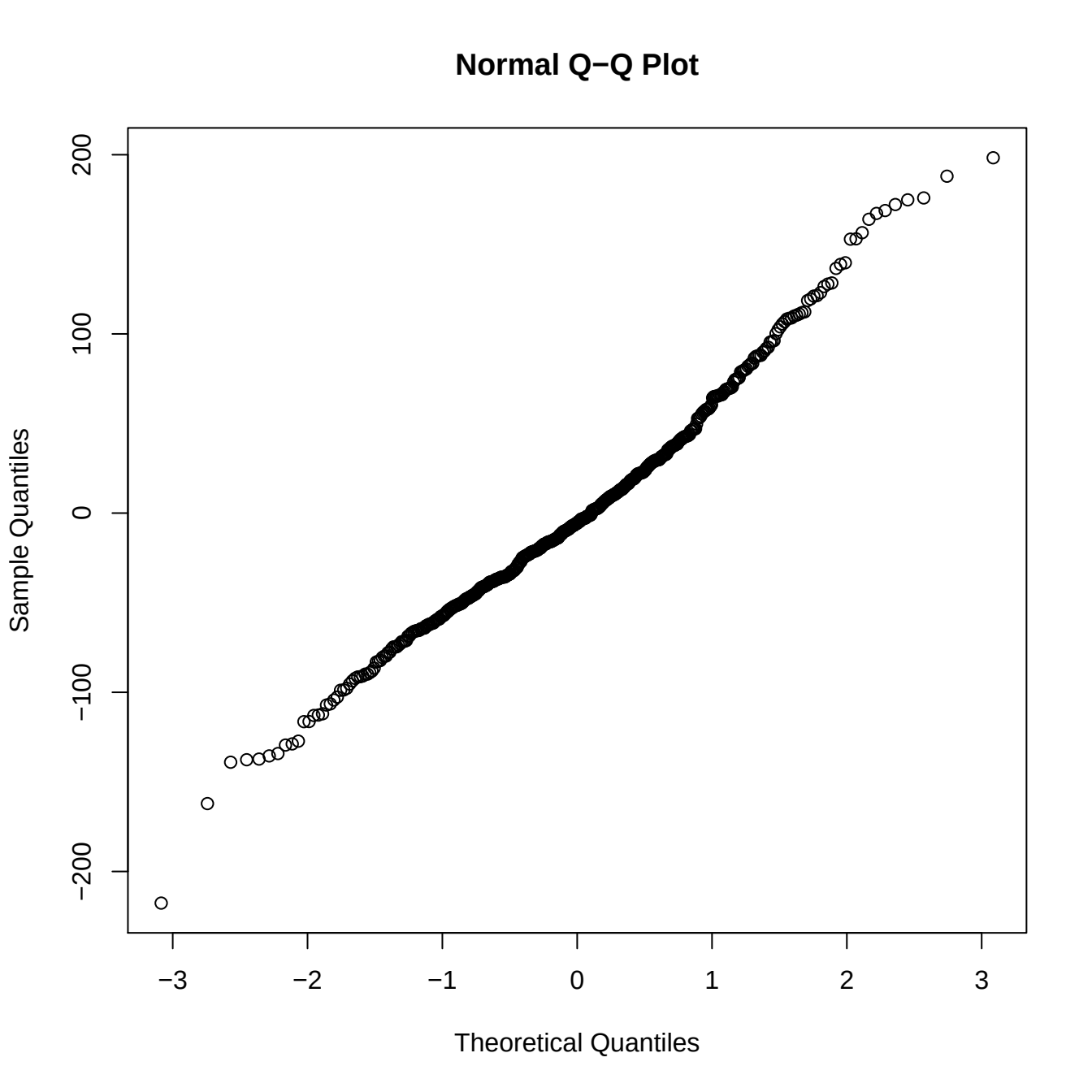

ril.data$residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
1.5
2.0
2.5
3.0
ril.data$predicted

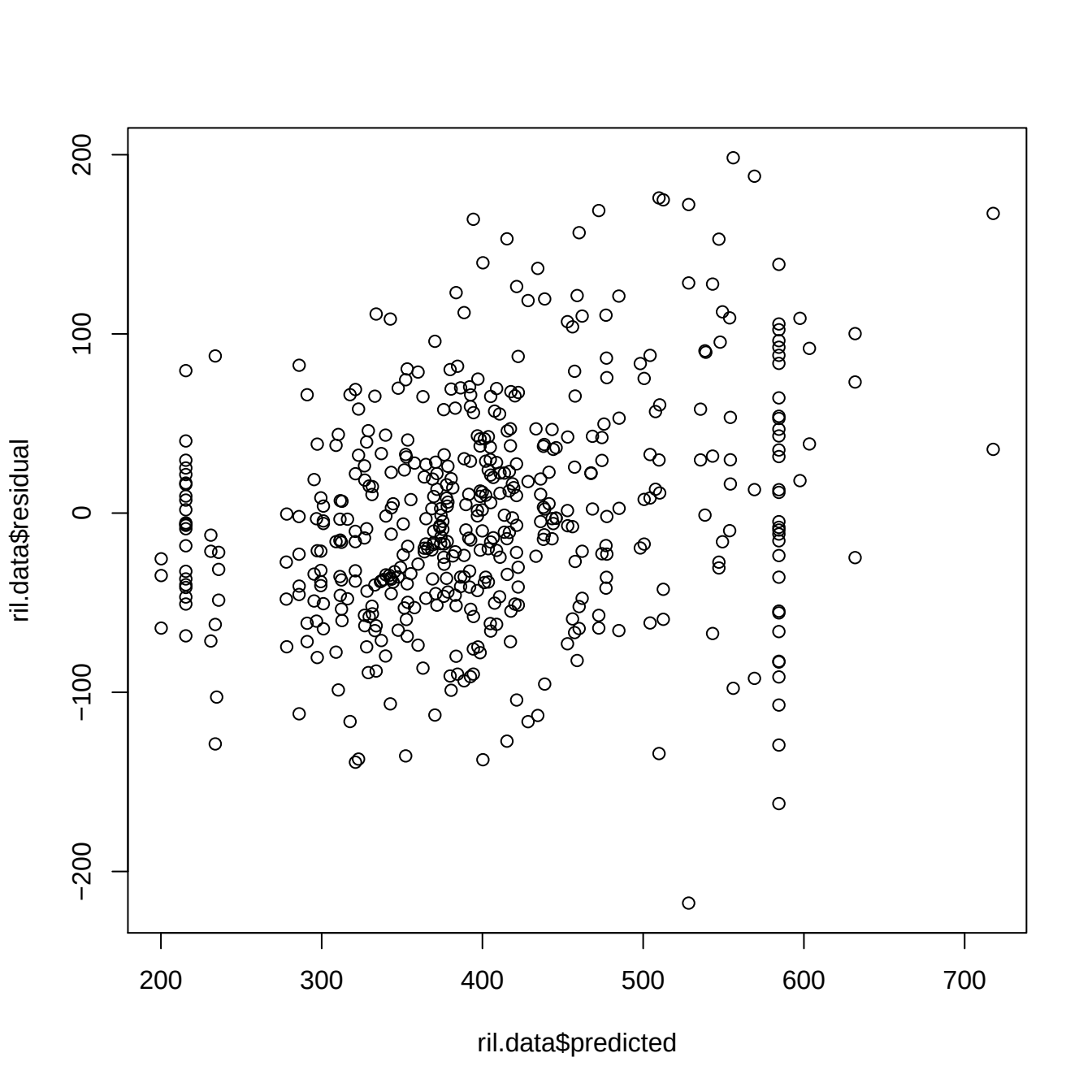

CN_ratio
10.6
10.4
10.2
10.0
9.8
9.6
9.4
A10
RIL_023
RIL_062
RIL_096
RIL_126
RIL_160
RIL_194
2014.model

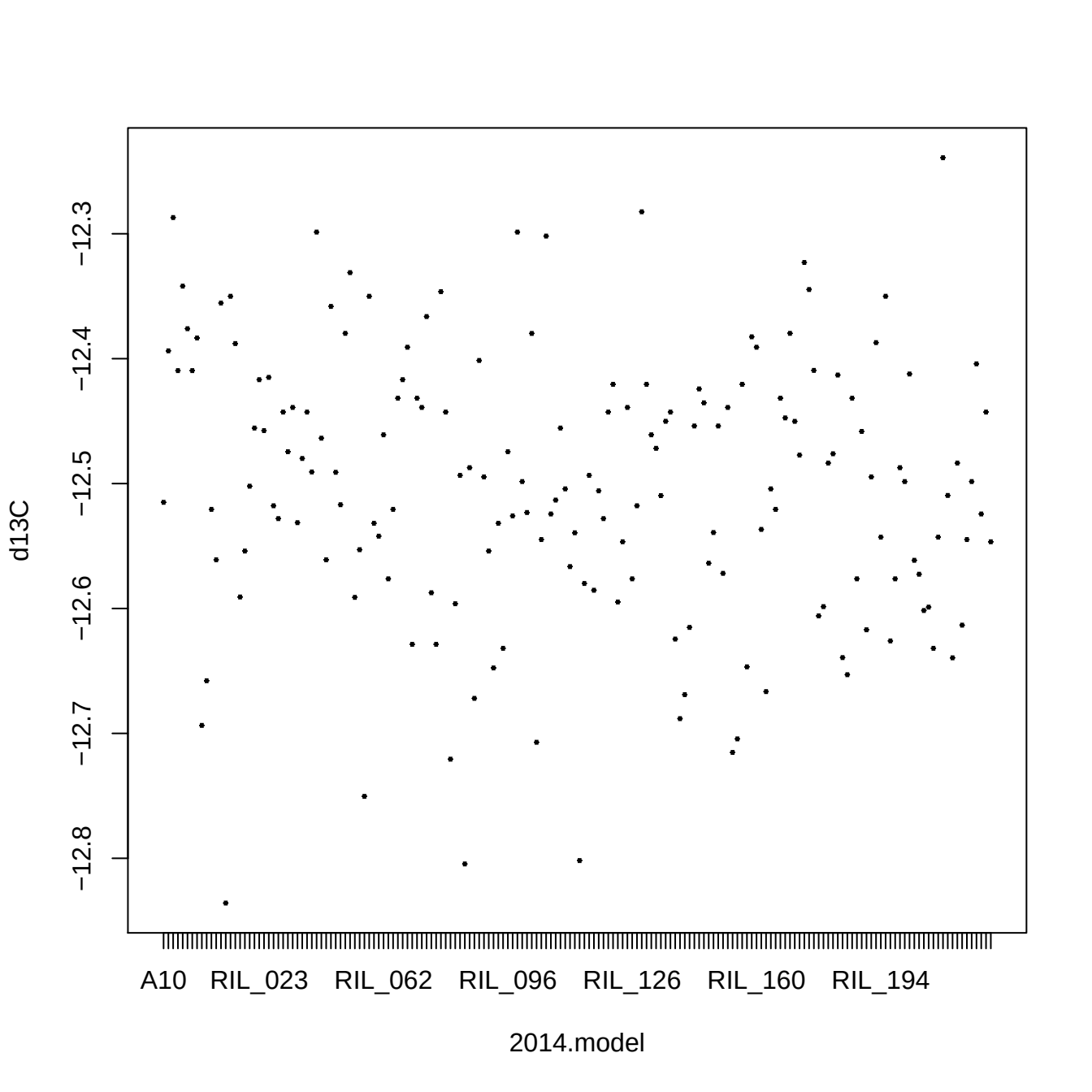

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−3
−2
−1
0
1
2
3
−2
−1
0
1
2
3
4

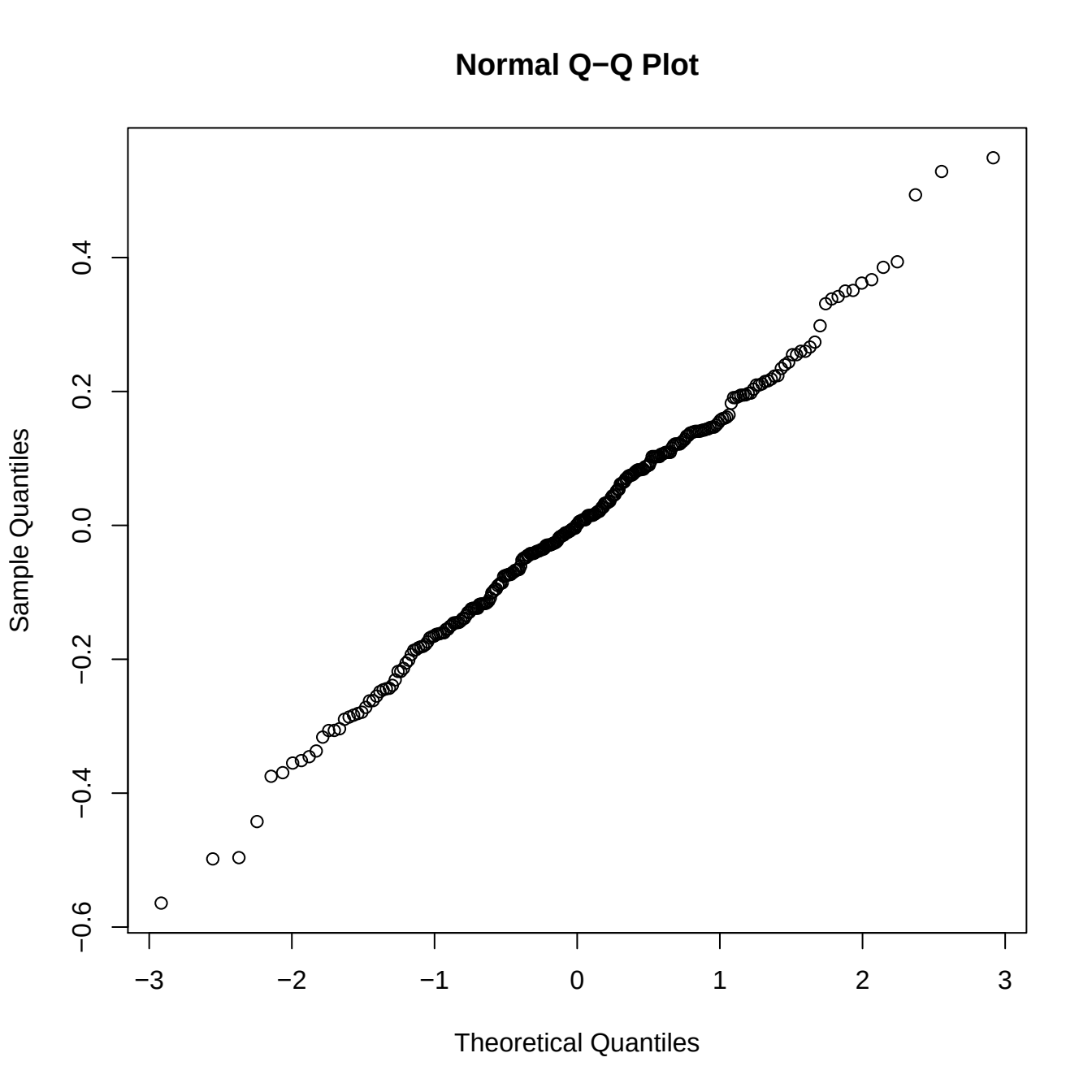

ril.data$residual
ril.data$predicted
−2
−1
0
1
2
3
4
9.4
9.6
9.8
10.0
10.2
10.4
10.6

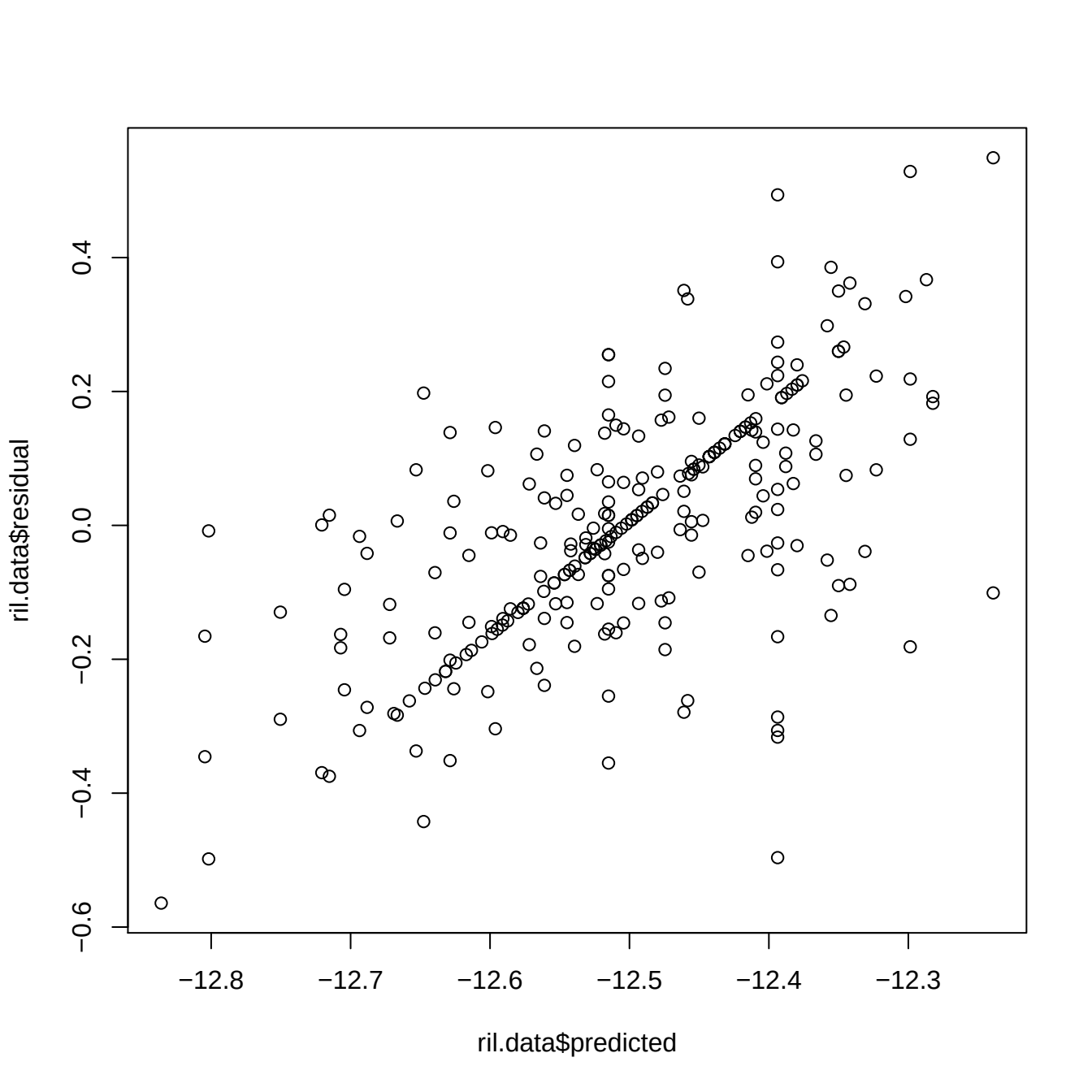

culm_height
700
600
500
400
300
200
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

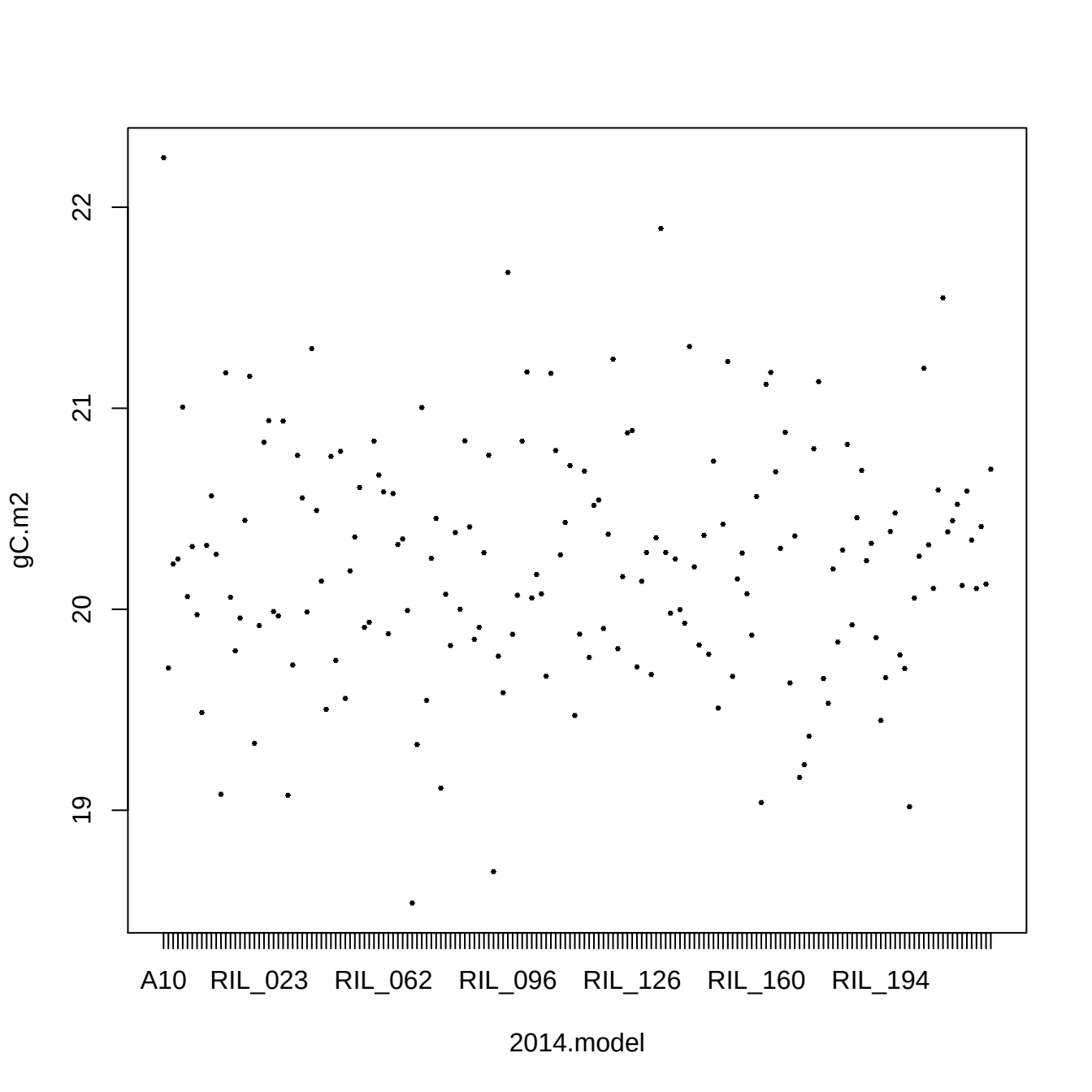

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
200
100
0
−100
−200
−3
−2
−1
0
1
2
3

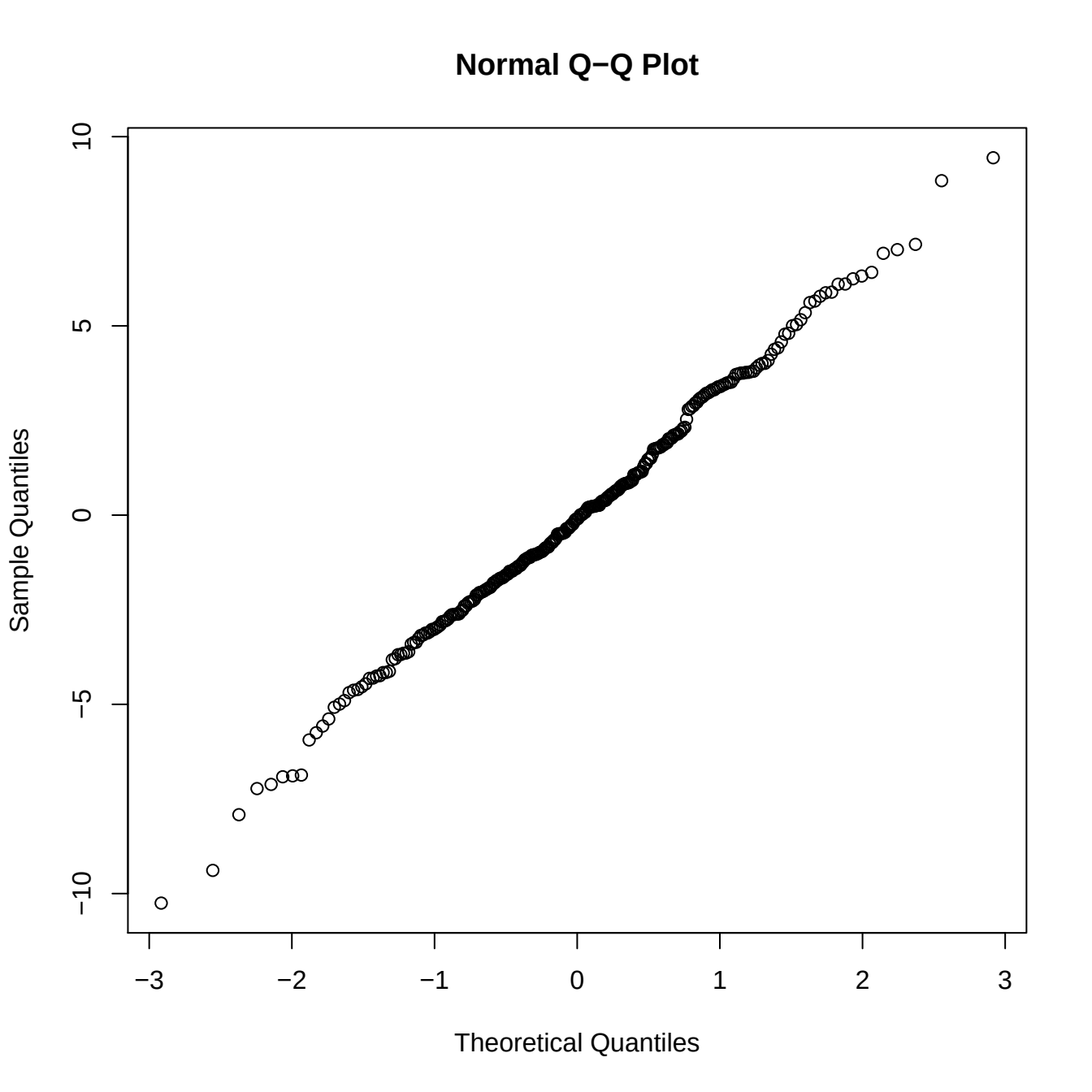

ril.data$residual
200
100
0
−100
−200
200
300
400
500
600
700
ril.data$predicted

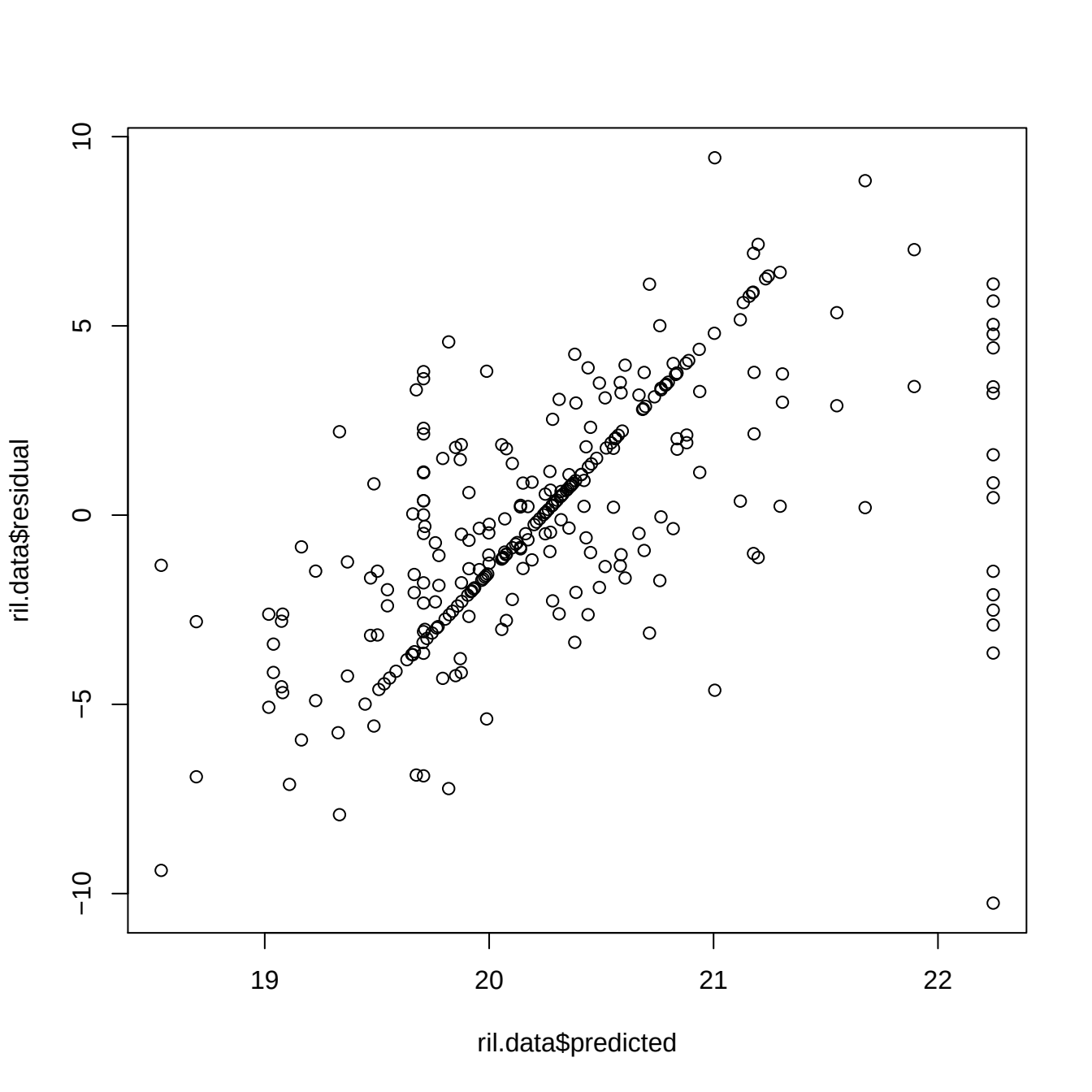

d13C
−12.3
−12.4
−12.5
−12.6
−12.7
−12.8
A10
RIL_023
RIL_062
RIL_096
RIL_126
RIL_160
RIL_194
2014.model

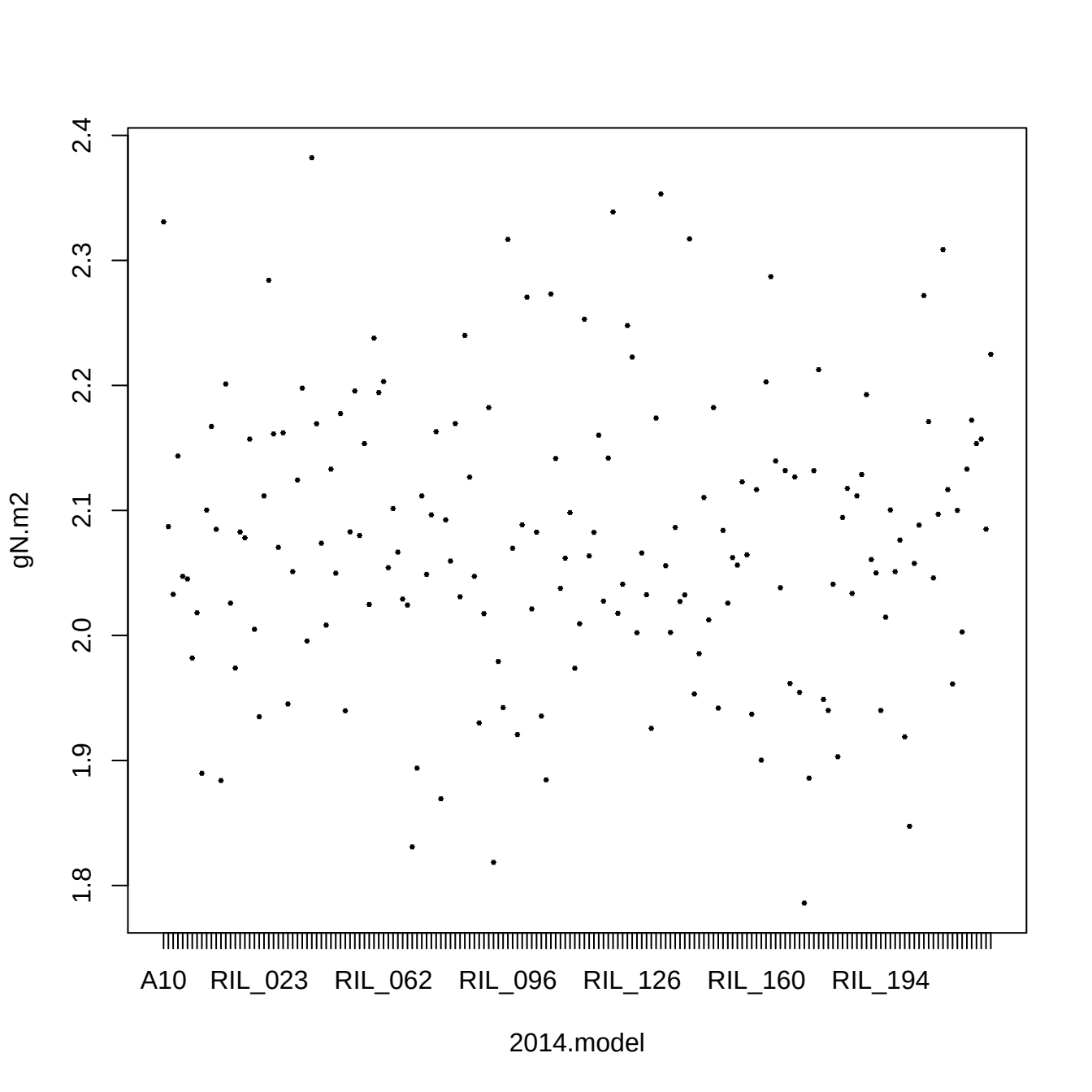

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−0.6
−0.4
−0.2
0.0
0.2
0.4
−3
−2
−1
0
1
2
3

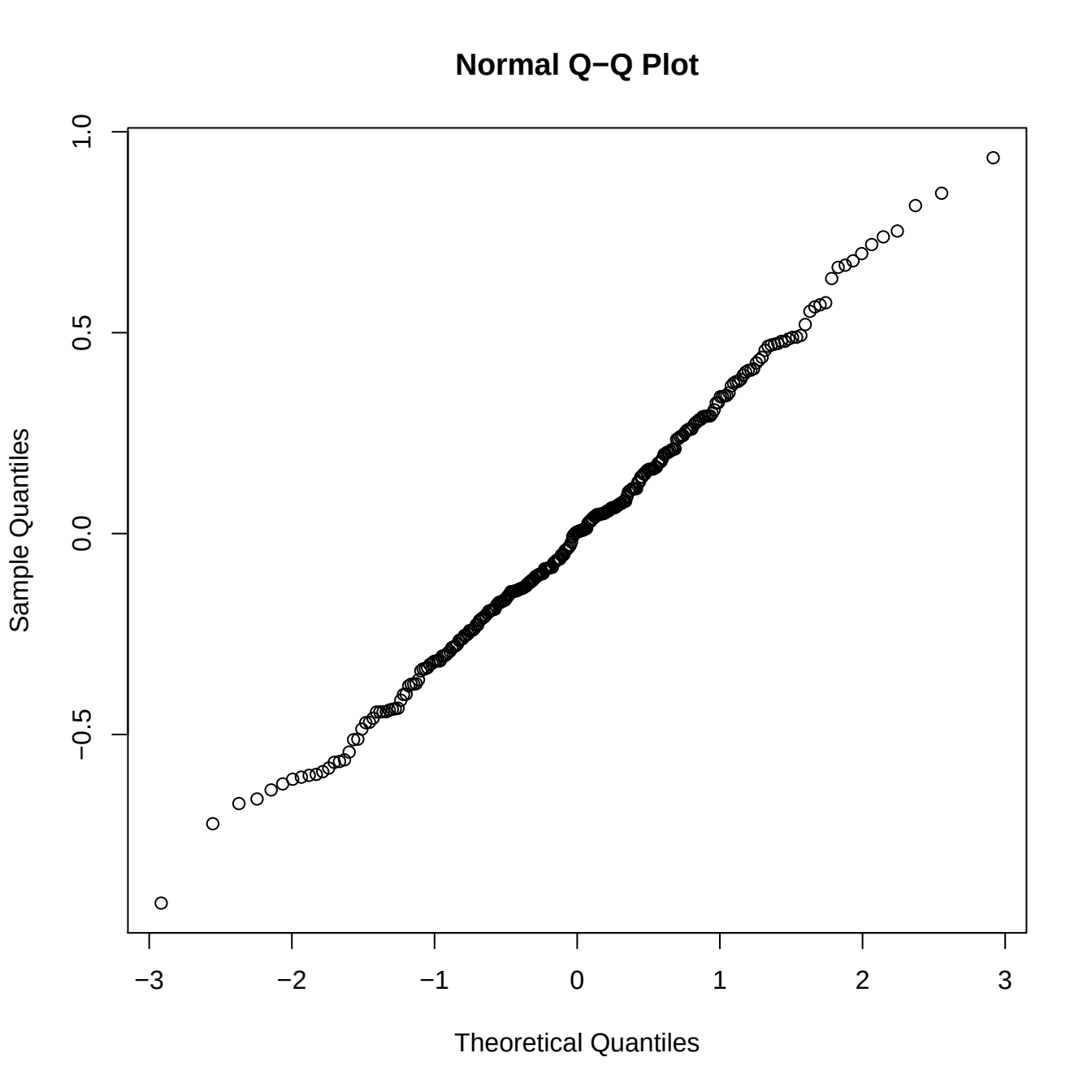

ril.data$residual
0.4
0.2
0.0
−0.2
−0.4
−0.6
−12.8
−12.7
−12.6
−12.5
−12.4
−12.3
ril.data$predicted

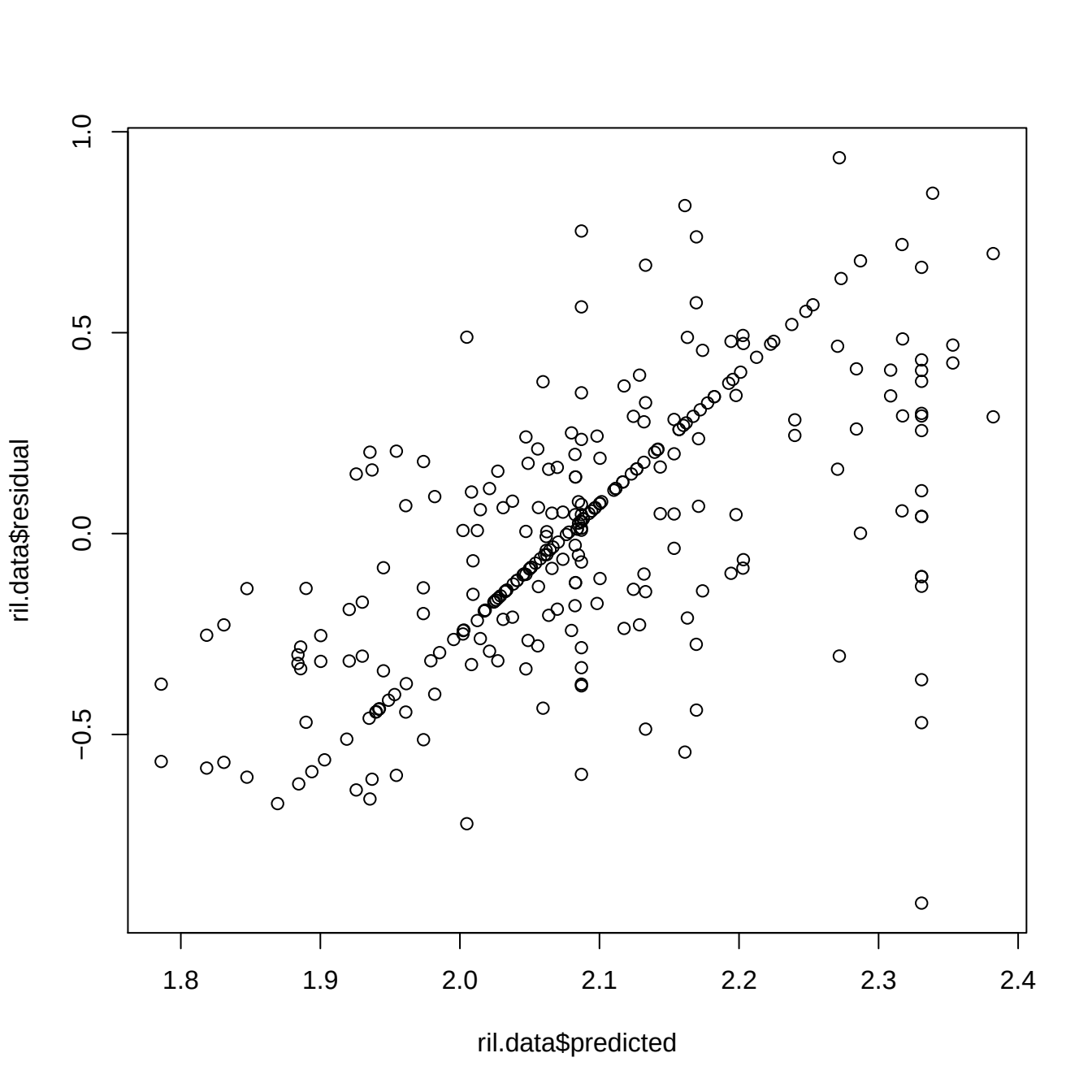

gC.m2
19
20
21
22
A10
RIL_023
RIL_062
RIL_096
RIL_126
RIL_160
RIL_194
2014.model

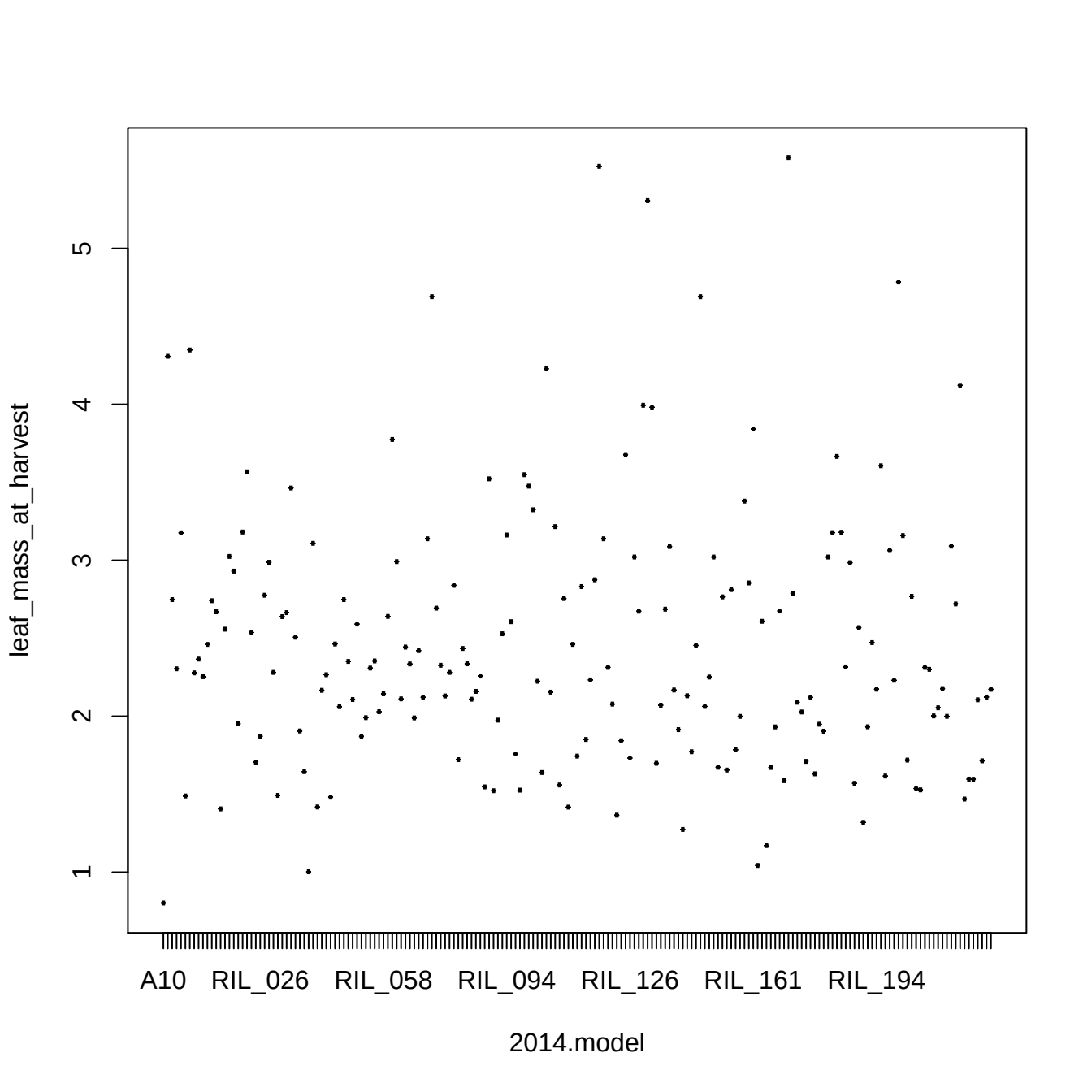

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
10
5
0
−5
−10
−3
−2
−1
0
1
2
3

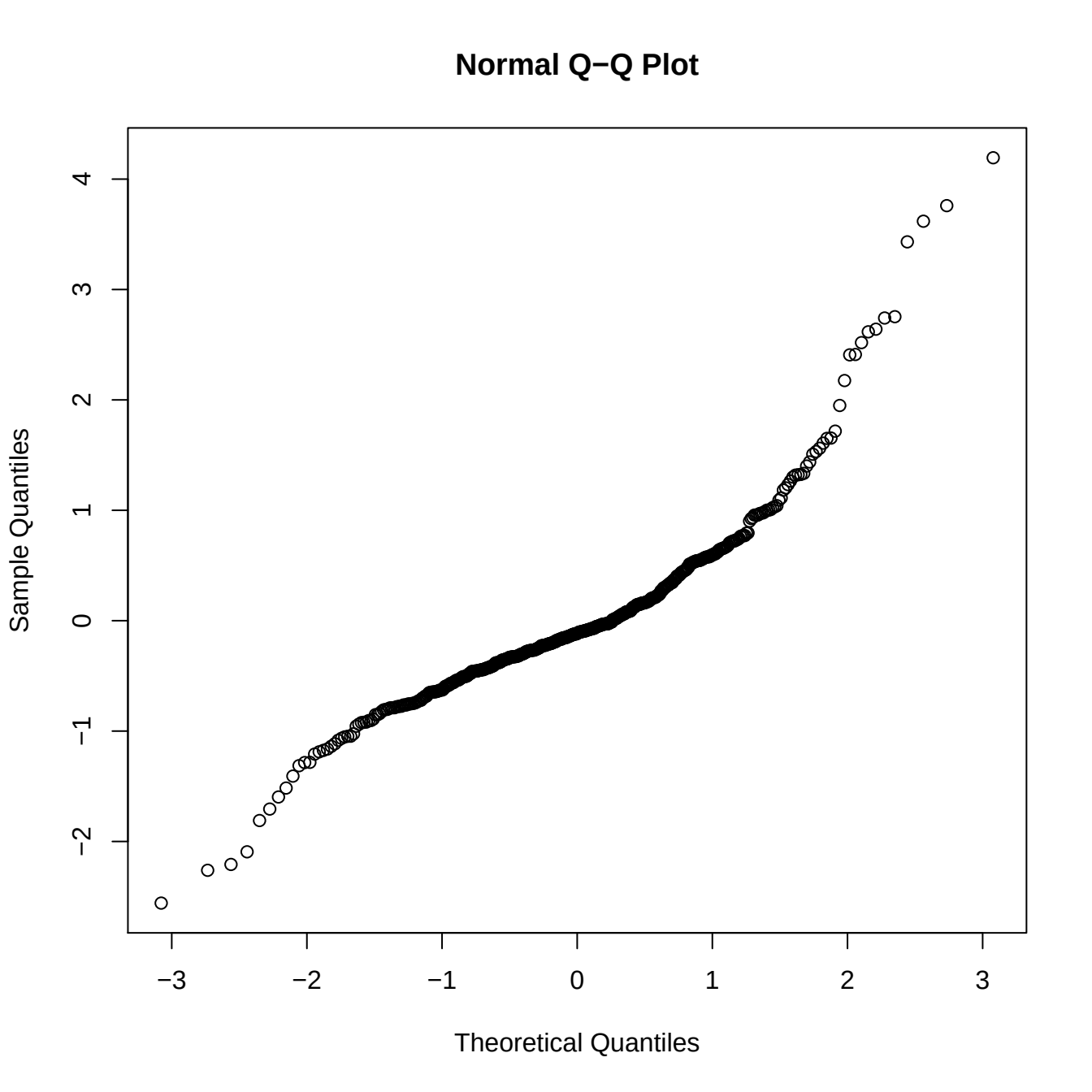

ril.data$residual
10
5
0
−5
−10
19
20
21
22
ril.data$predicted

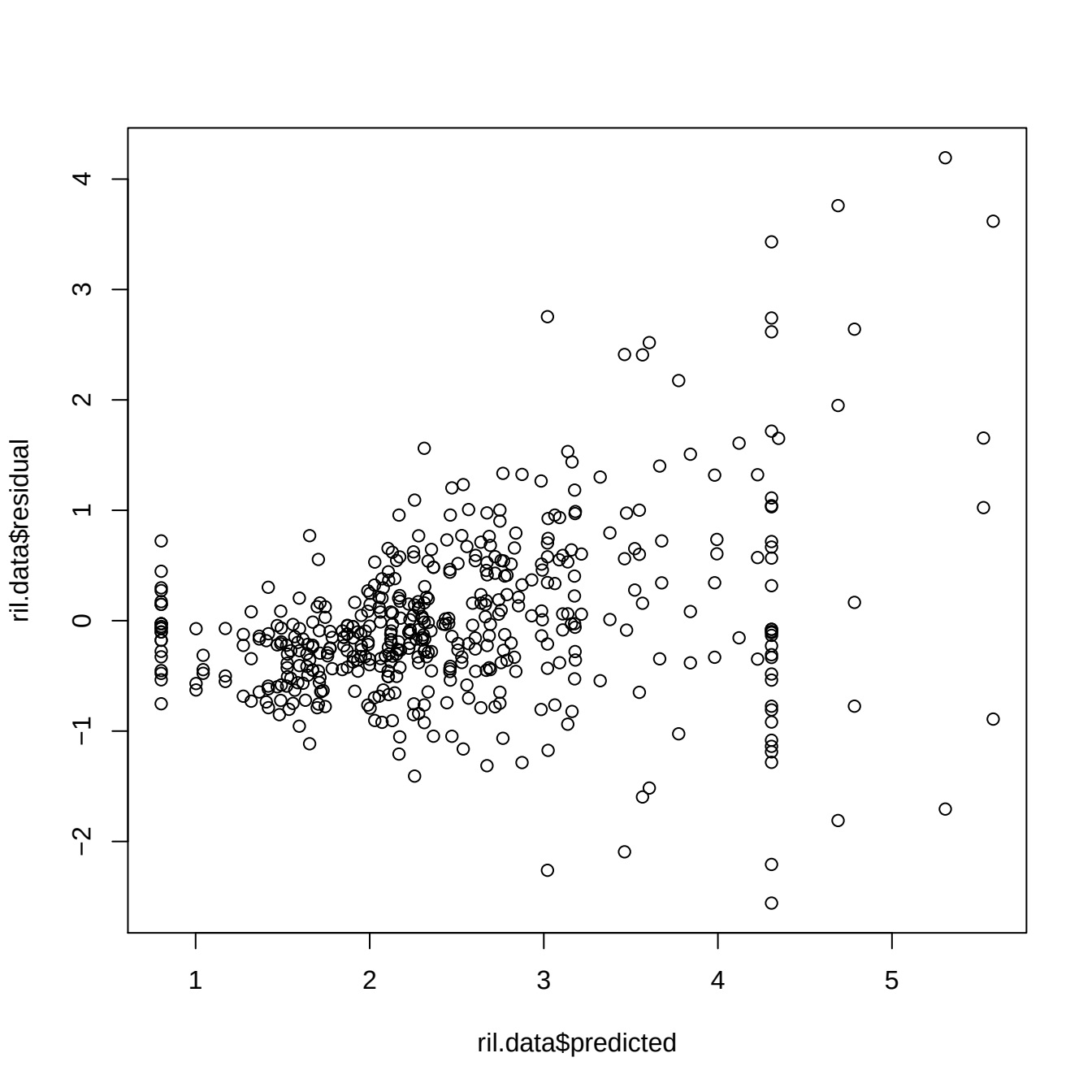

gN.m2
2.4
2.3
2.2
2.1
2.0
1.9
1.8
A10
RIL_023
RIL_062
RIL_096
RIL_126
RIL_160
RIL_194
2014.model

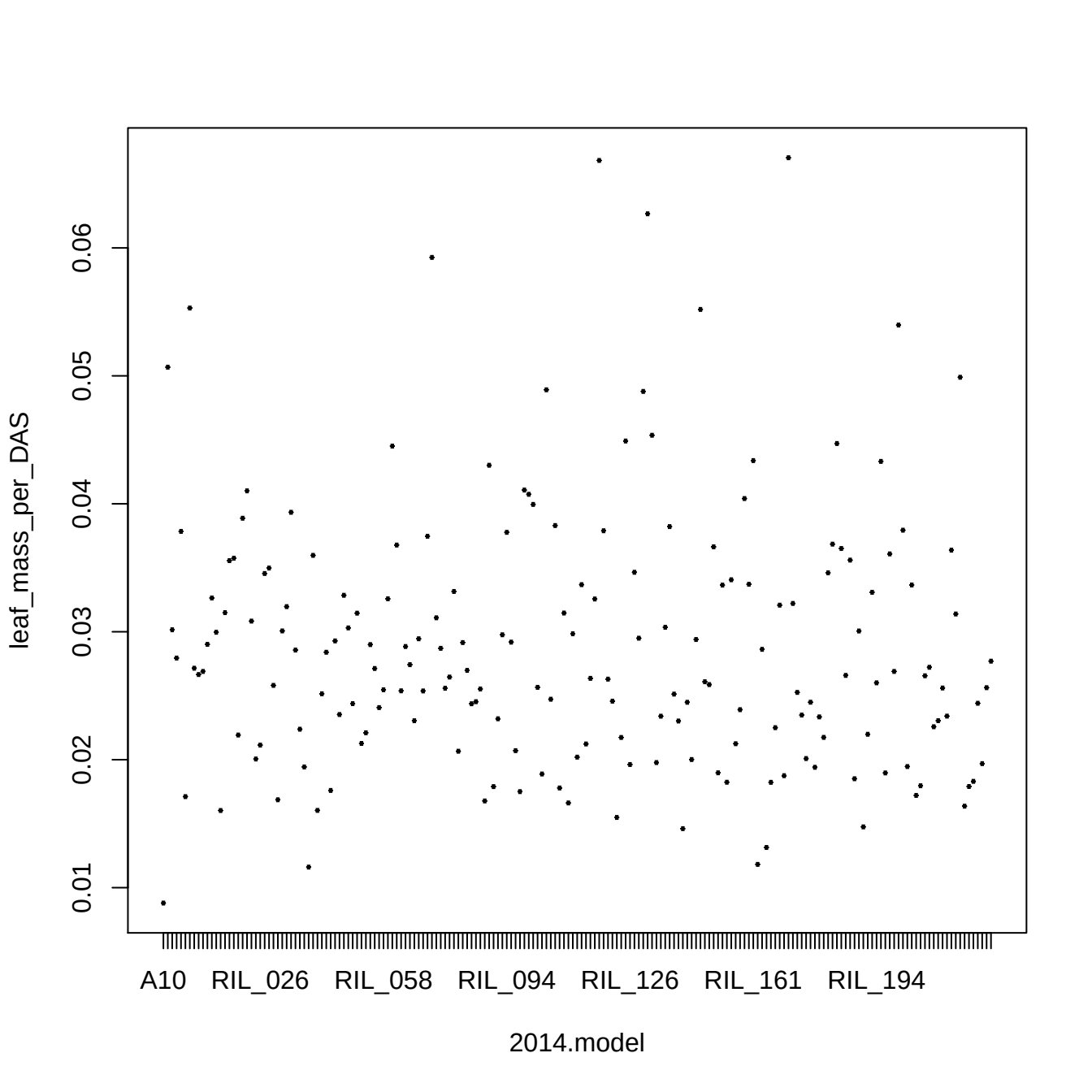

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
1.0
0.5
0.0
−0.5
−3
−2
−1
0
1
2
3

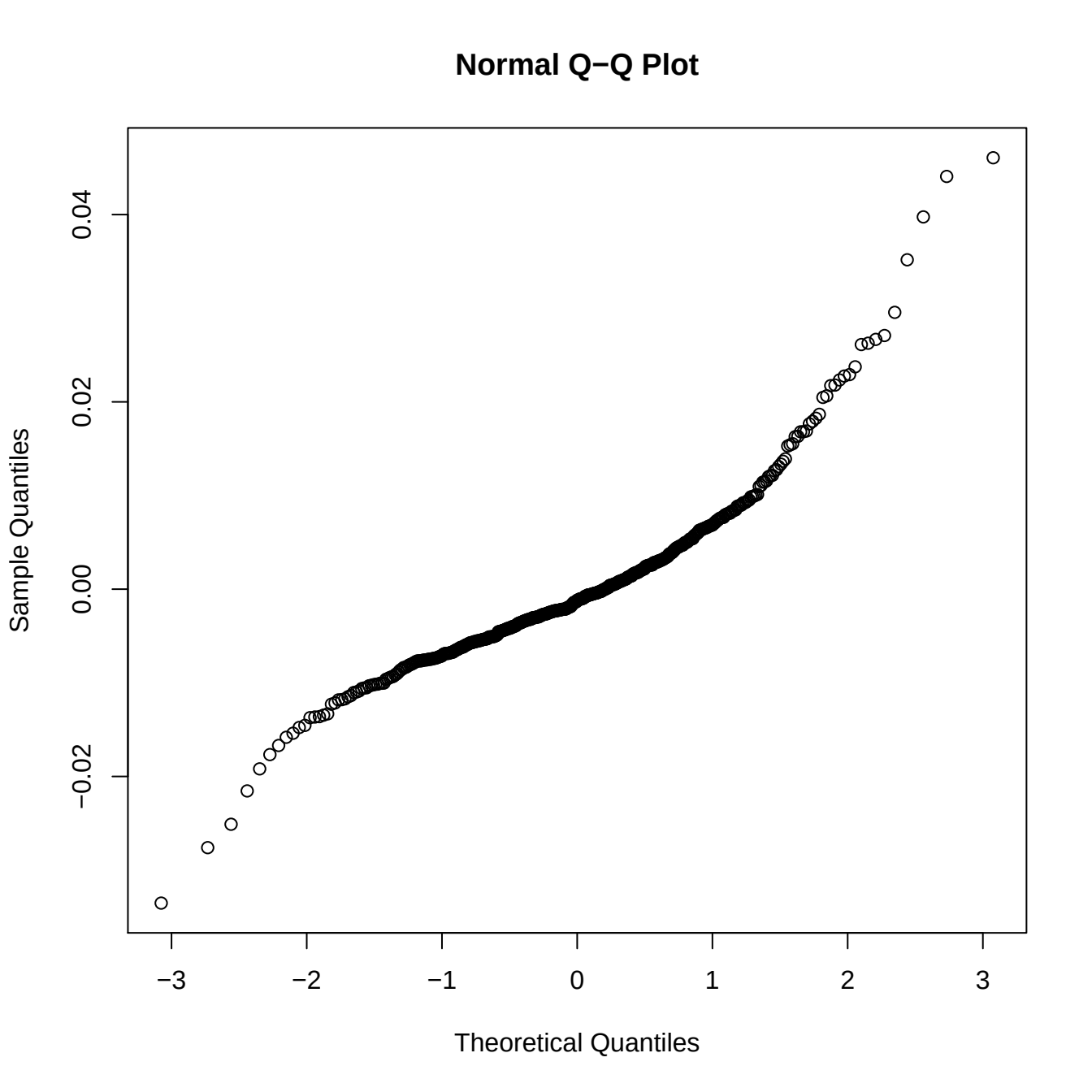

ril.data$residual
1.0
0.5
0.0
−0.5
1.8
1.9
2.0
2.1
2.2
2.3
2.4
ril.data$predicted

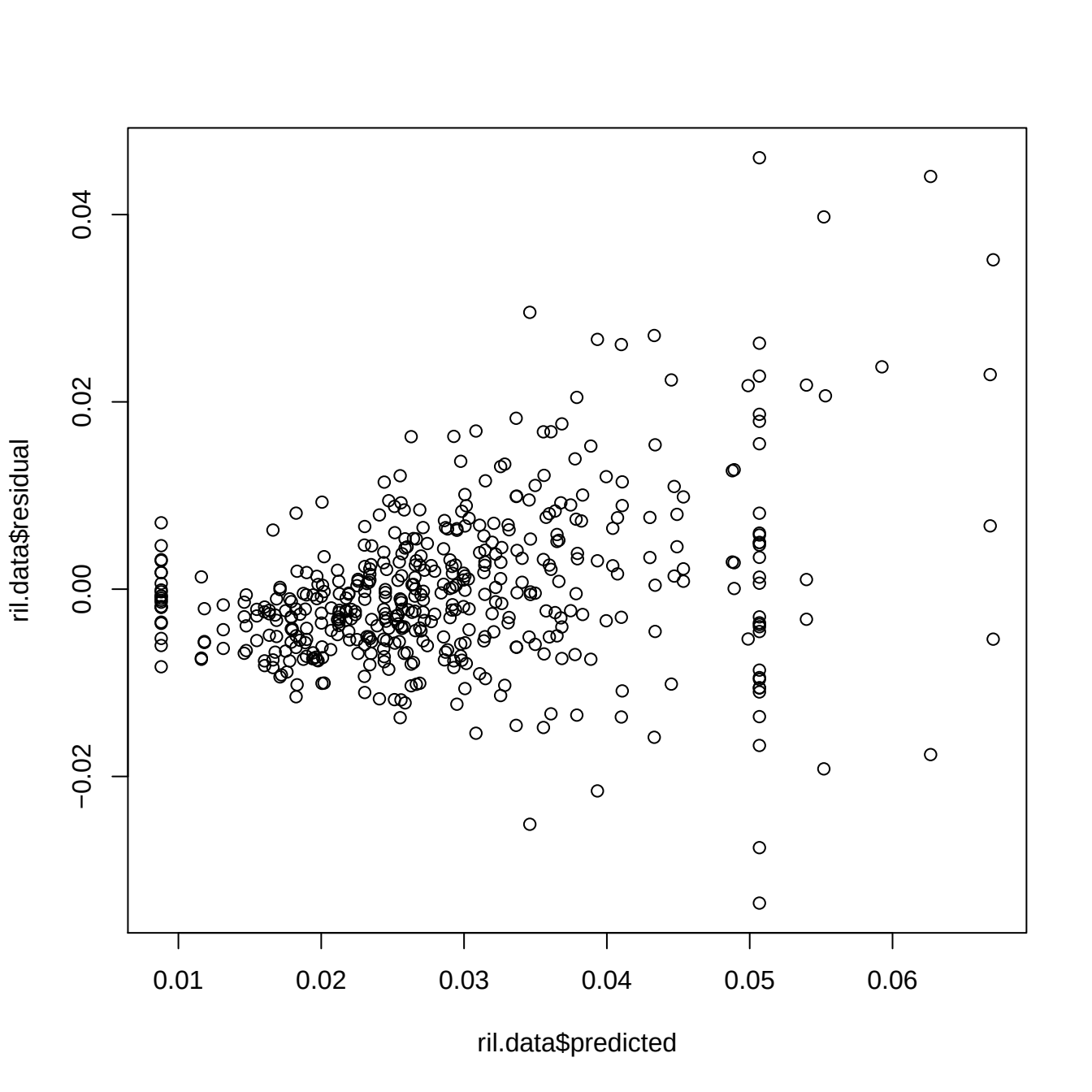

leaf_mass_at_harvest
1
2
3
4
5
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

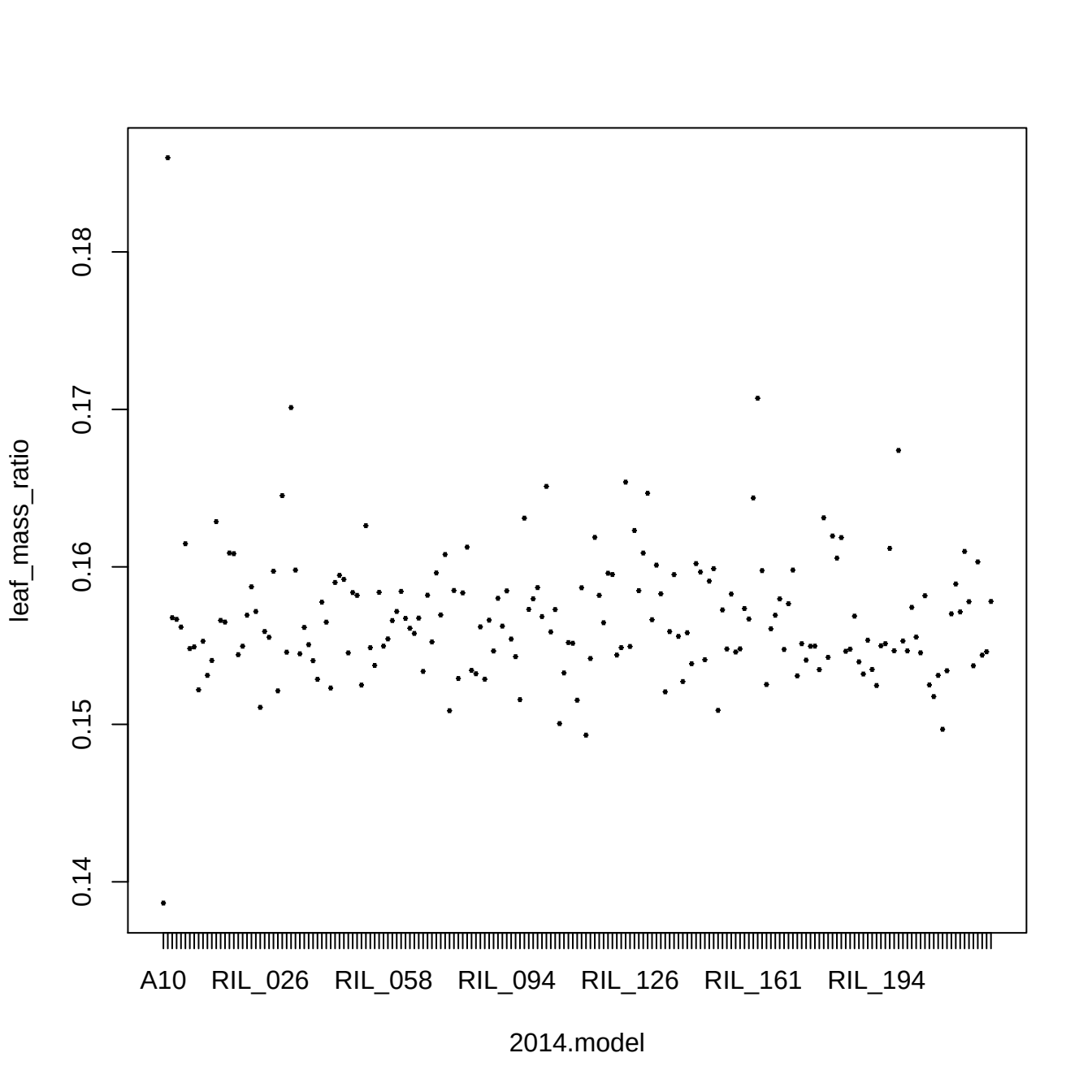

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−3
−2
−1
0
1
2
3
4

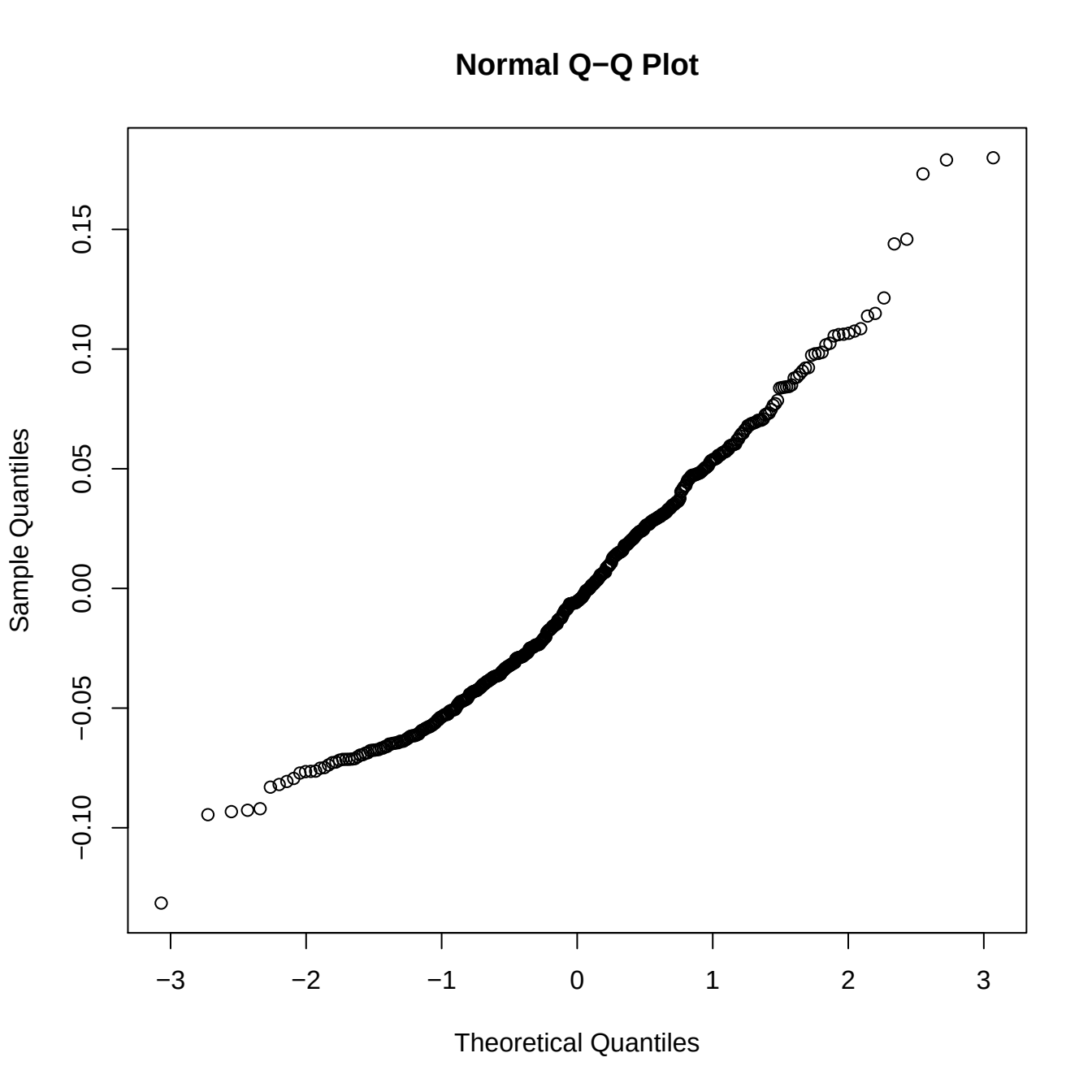

ril.data$residual
ril.data$predicted
4
3
2
1
0
−1
−2
1
2
3
4
5

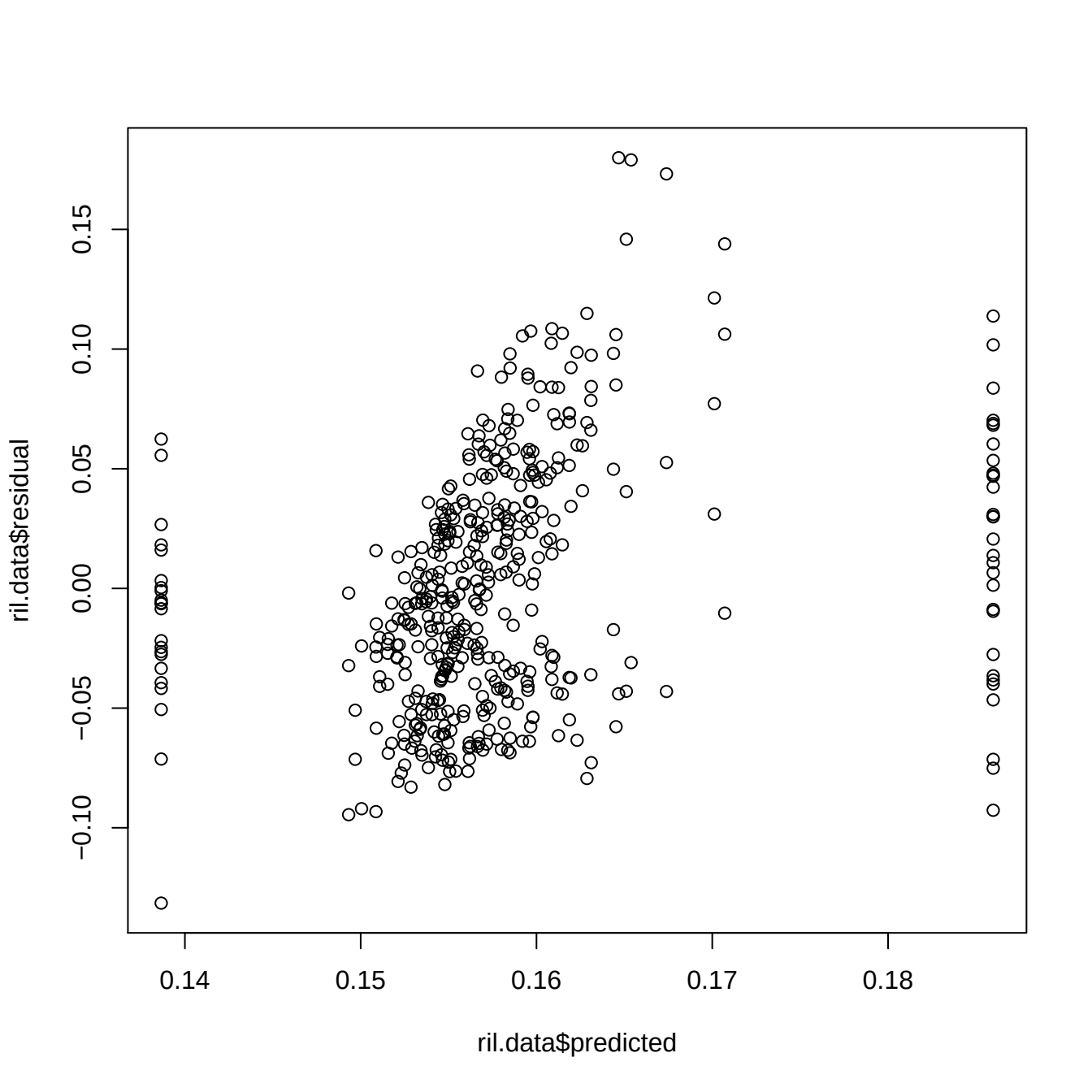

leaf_mass_per_DAS
0.01
0.02
0.03
0.04
0.05
0.06
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

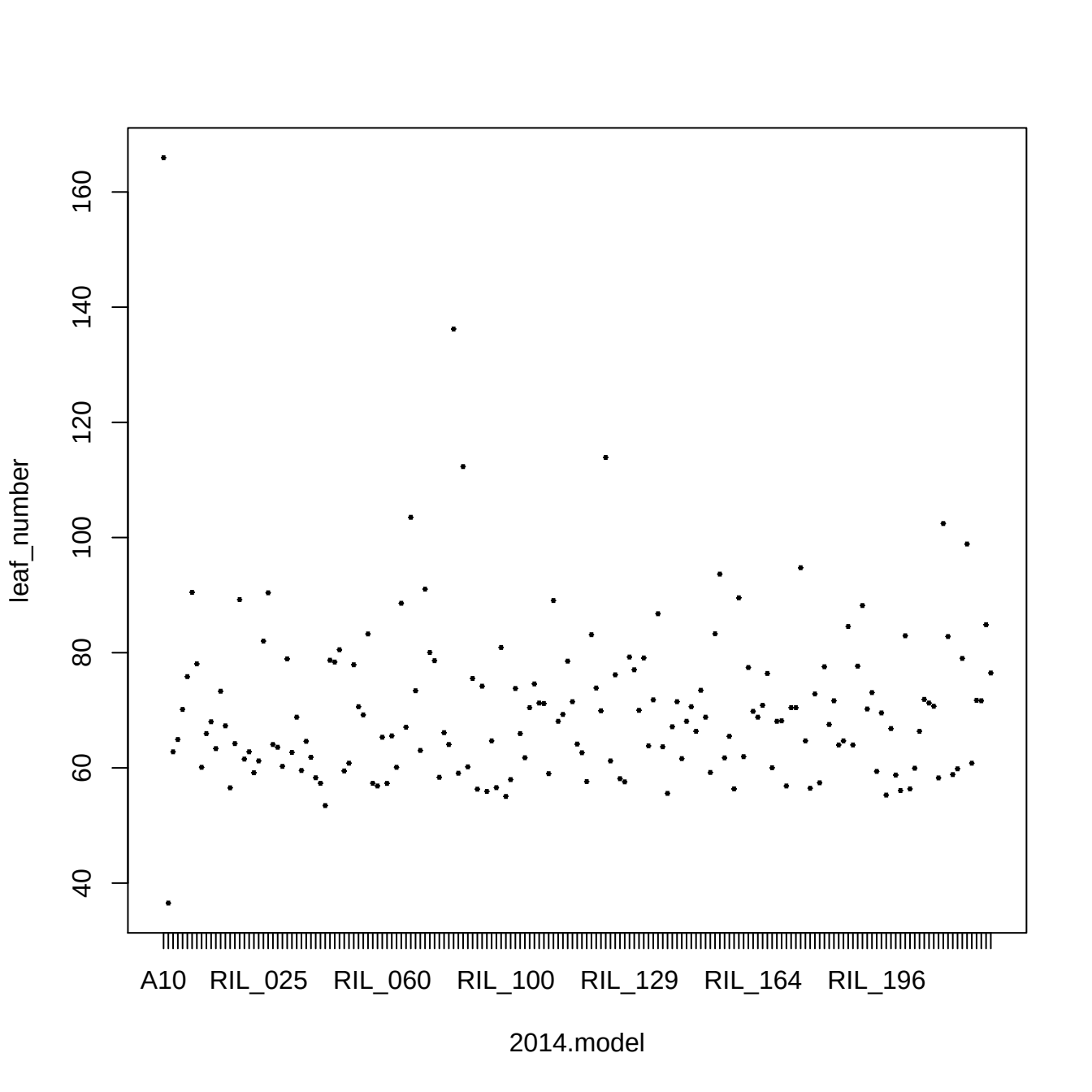

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
0.04
0.02
0.00
−0.02
−3
−2
−1
0
1
2
3

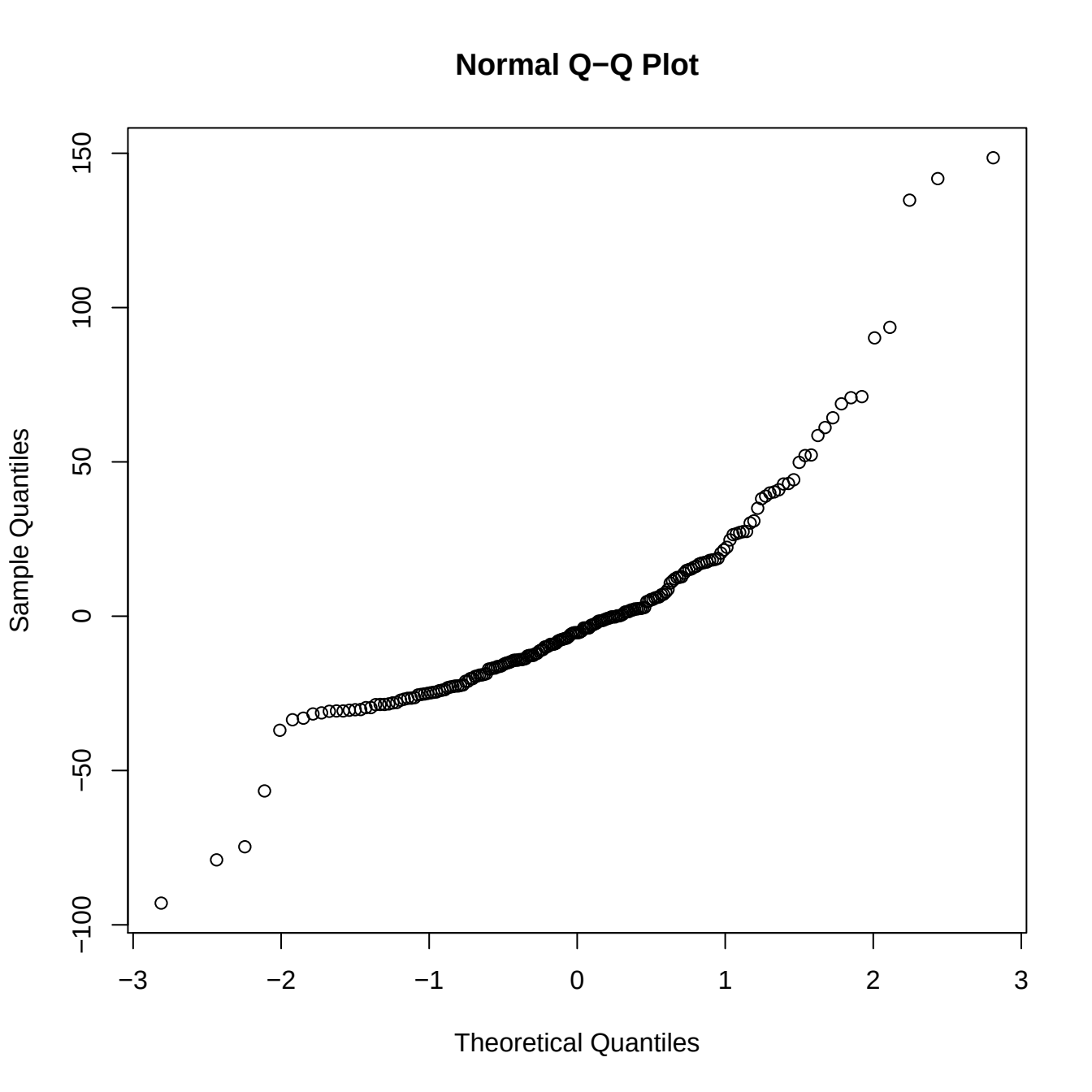

ril.data$residual
0.04
0.02
0.00
−0.02
0.01
0.02
0.03
0.04
0.05
0.06
ril.data$predicted

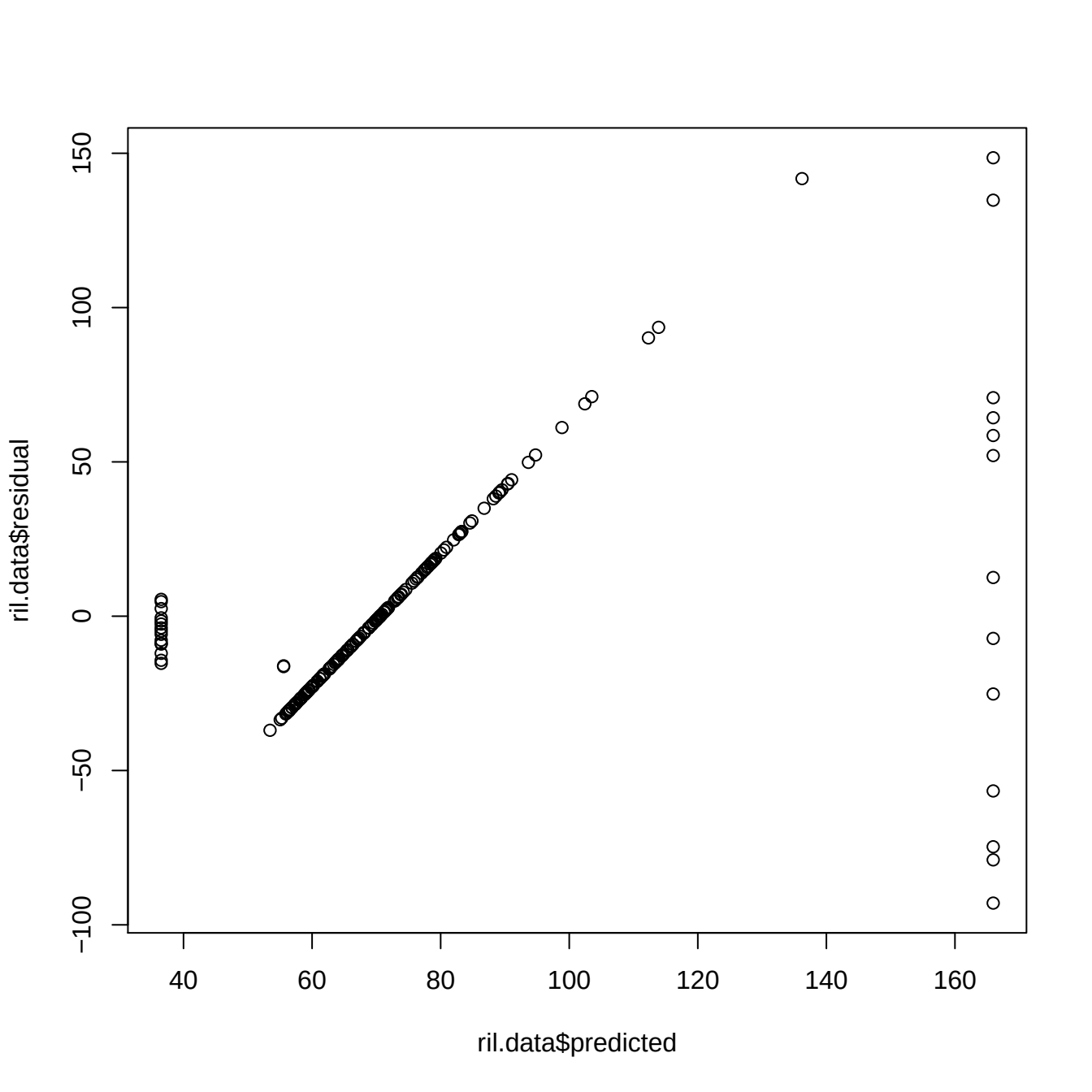

leaf_mass_ratio
0.14
0.15
0.16
0.17
0.18
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

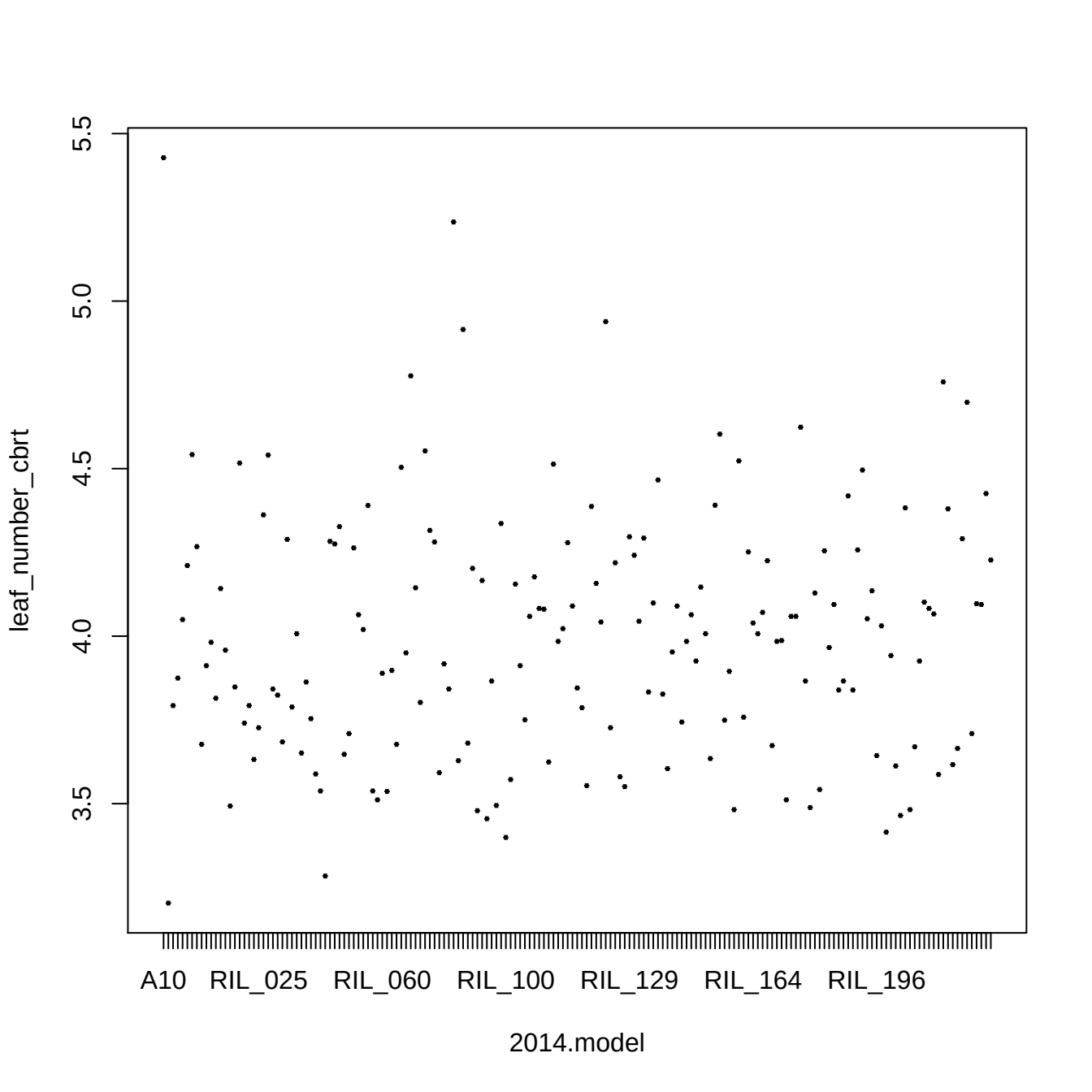

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
0.15
0.10
0.05
0.00
−0.05
−0.10
−3
−2
−1
0
1
2
3

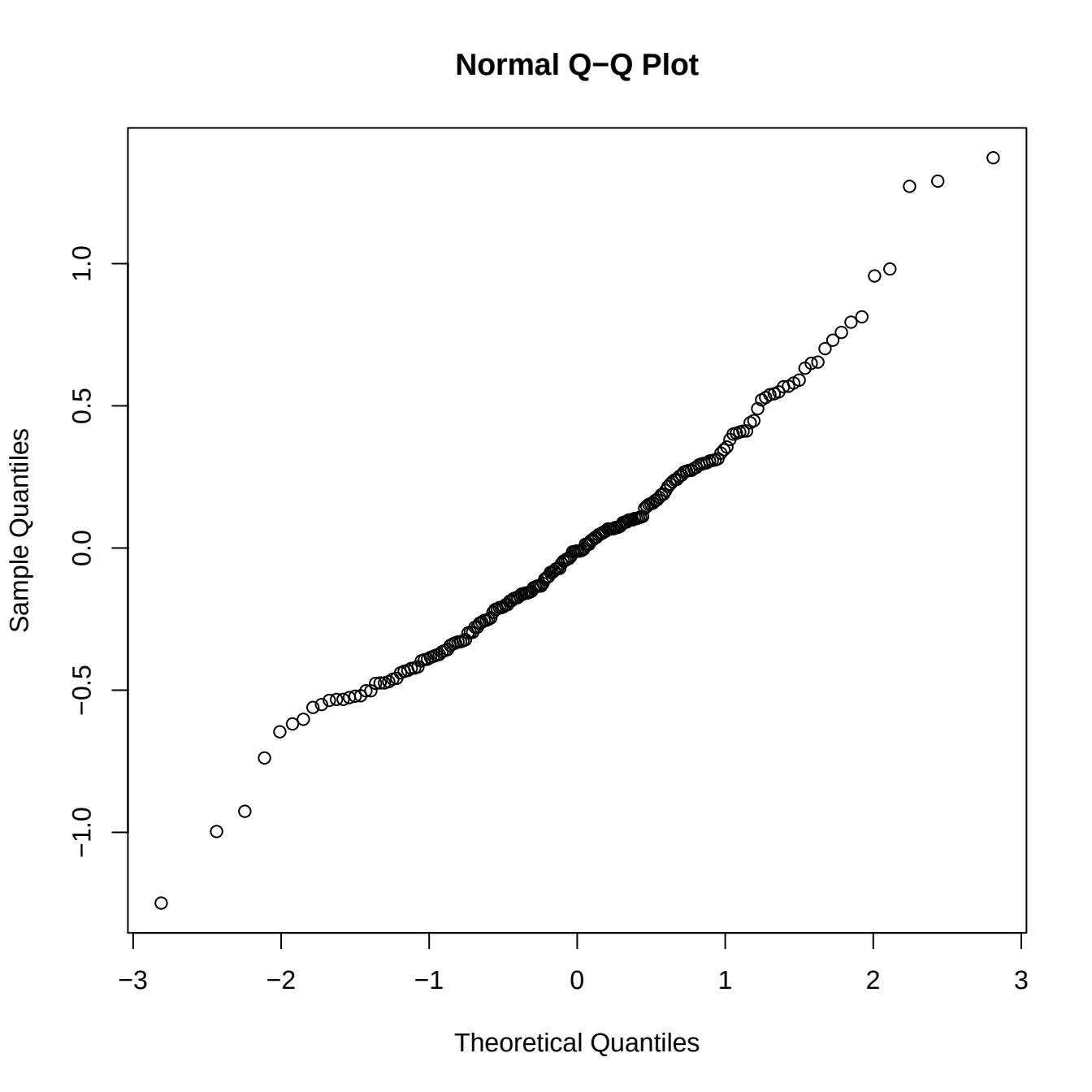

ril.data$residual
0.15
0.10
0.05
0.00
−0.05
−0.10
0.14
0.15
0.16
0.17
0.18
ril.data$predicted

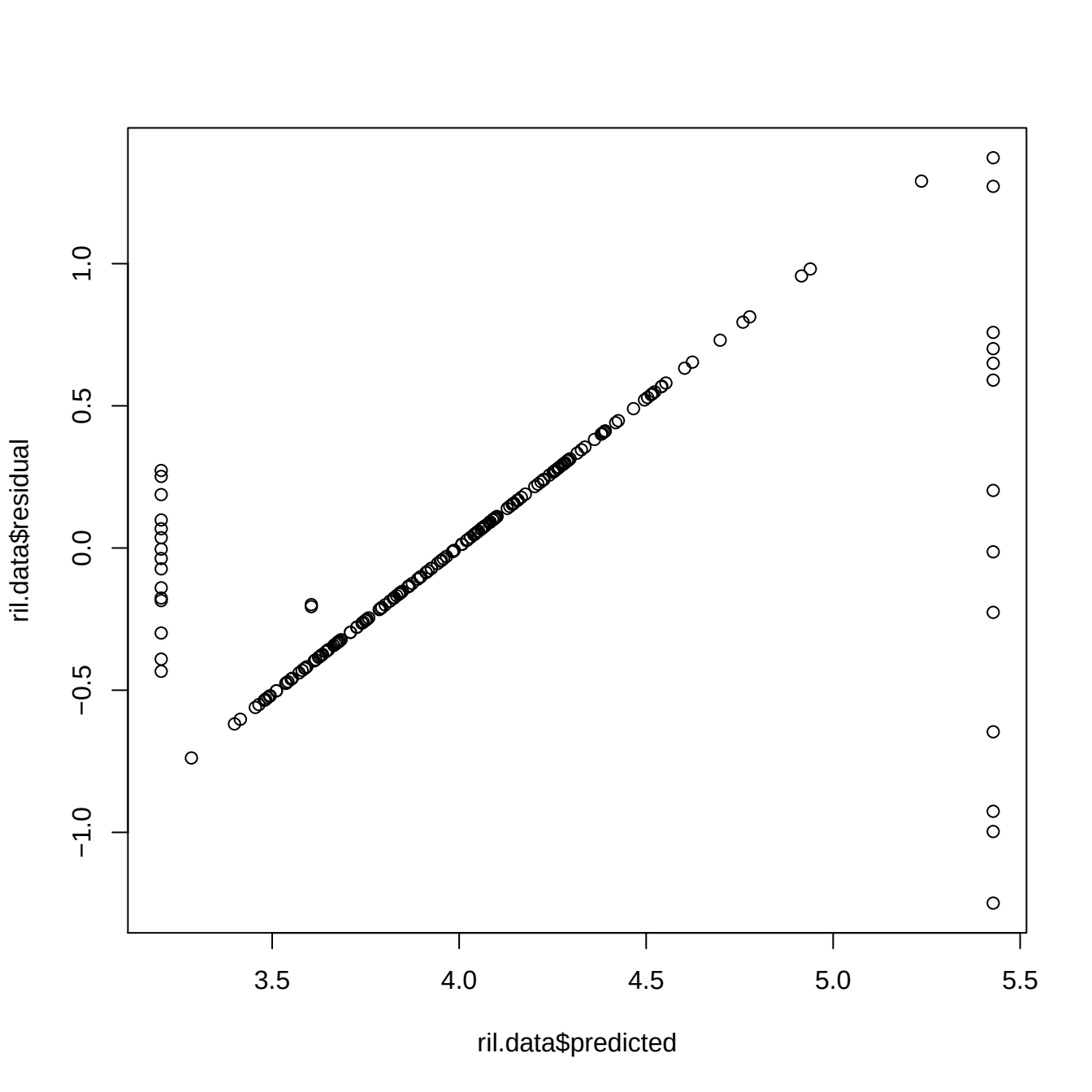

leaf_number
40
60
80
100
120
140
160
A10
RIL_025
RIL_060
RIL_100
RIL_129
RIL_164
RIL_196
2014.model

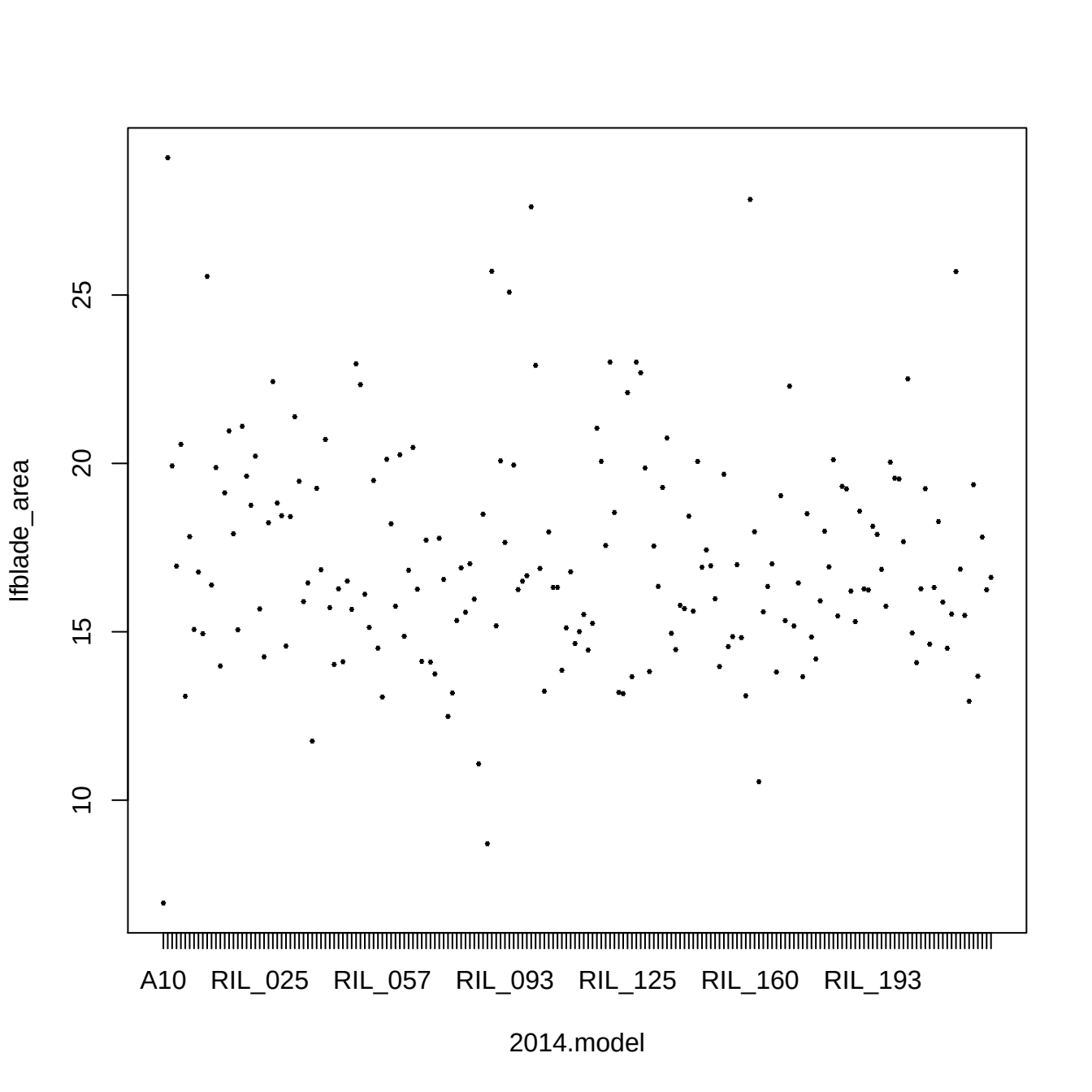

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
150
100
50
0
−50
−100
−3
−2
−1
0
1
2
3

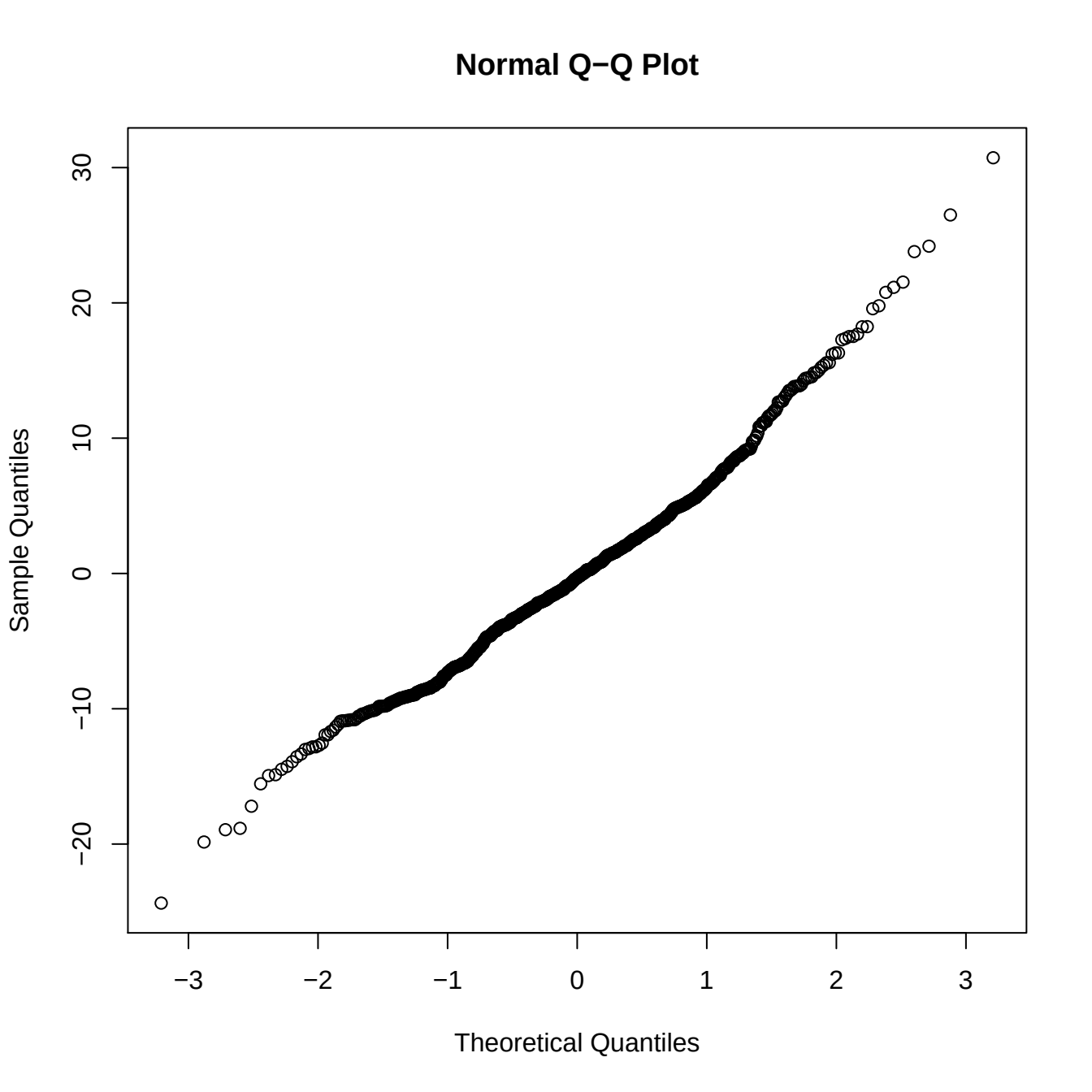

ril.data$residual
150
100
50
0
−50
−100
40
60
80
100
120
140
160
ril.data$predicted

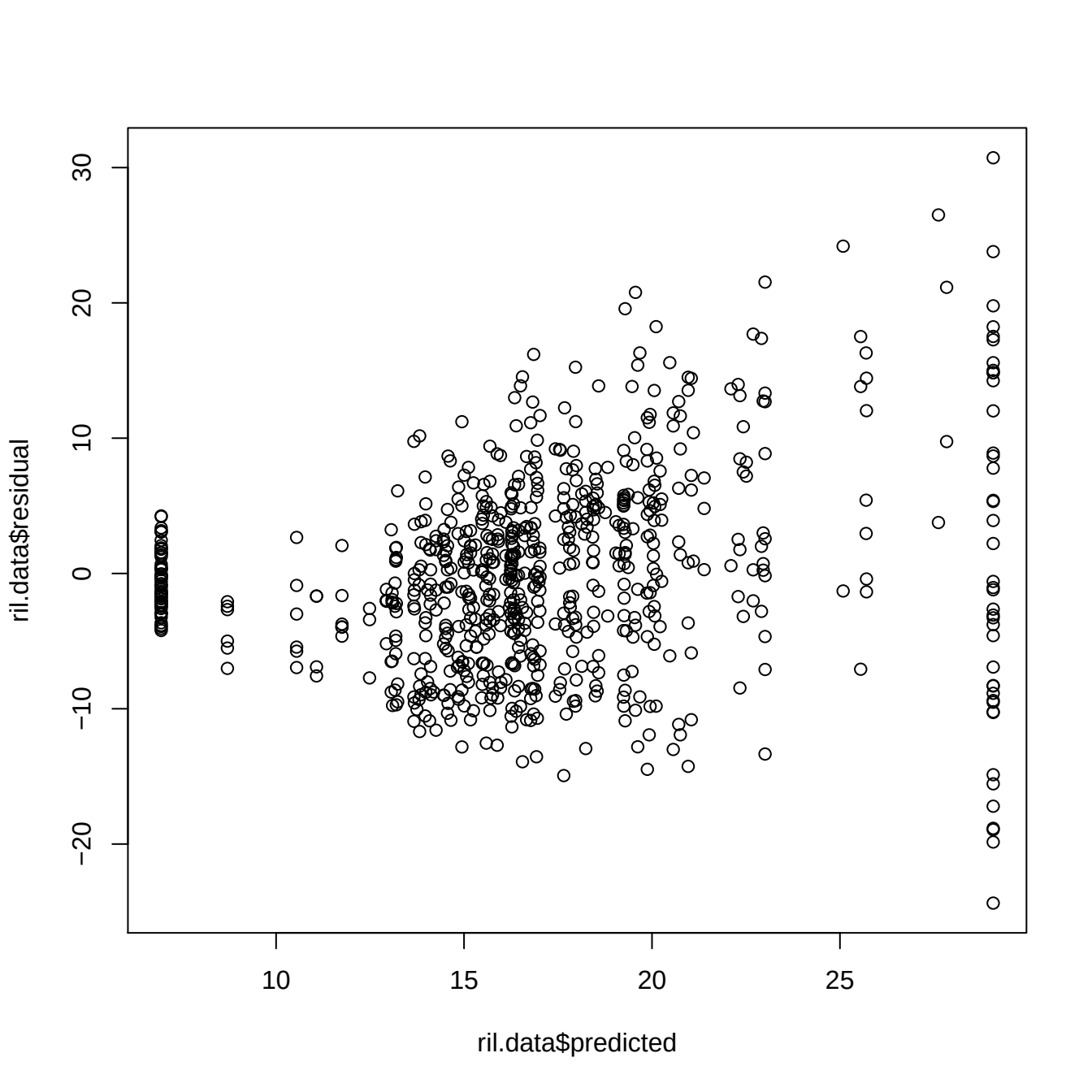

leaf_number_cbrt
5.5
5.0
4.5
4.0
3.5
A10
RIL_025
RIL_060
RIL_100
RIL_129
RIL_164
RIL_196
2014.model

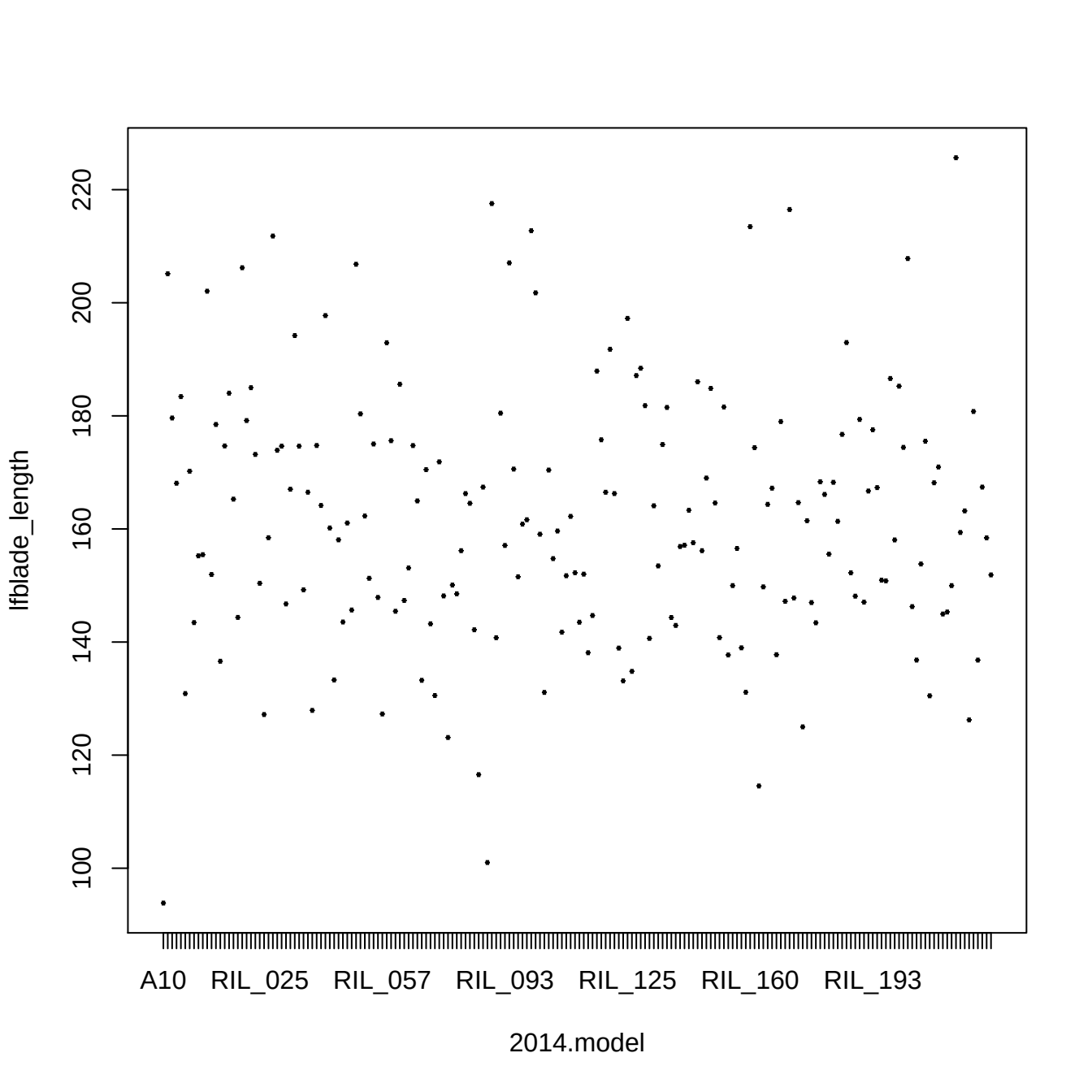

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−1.0
−0.5
0.0
0.5
1.0
−3
−2
−1
0
1
2
3

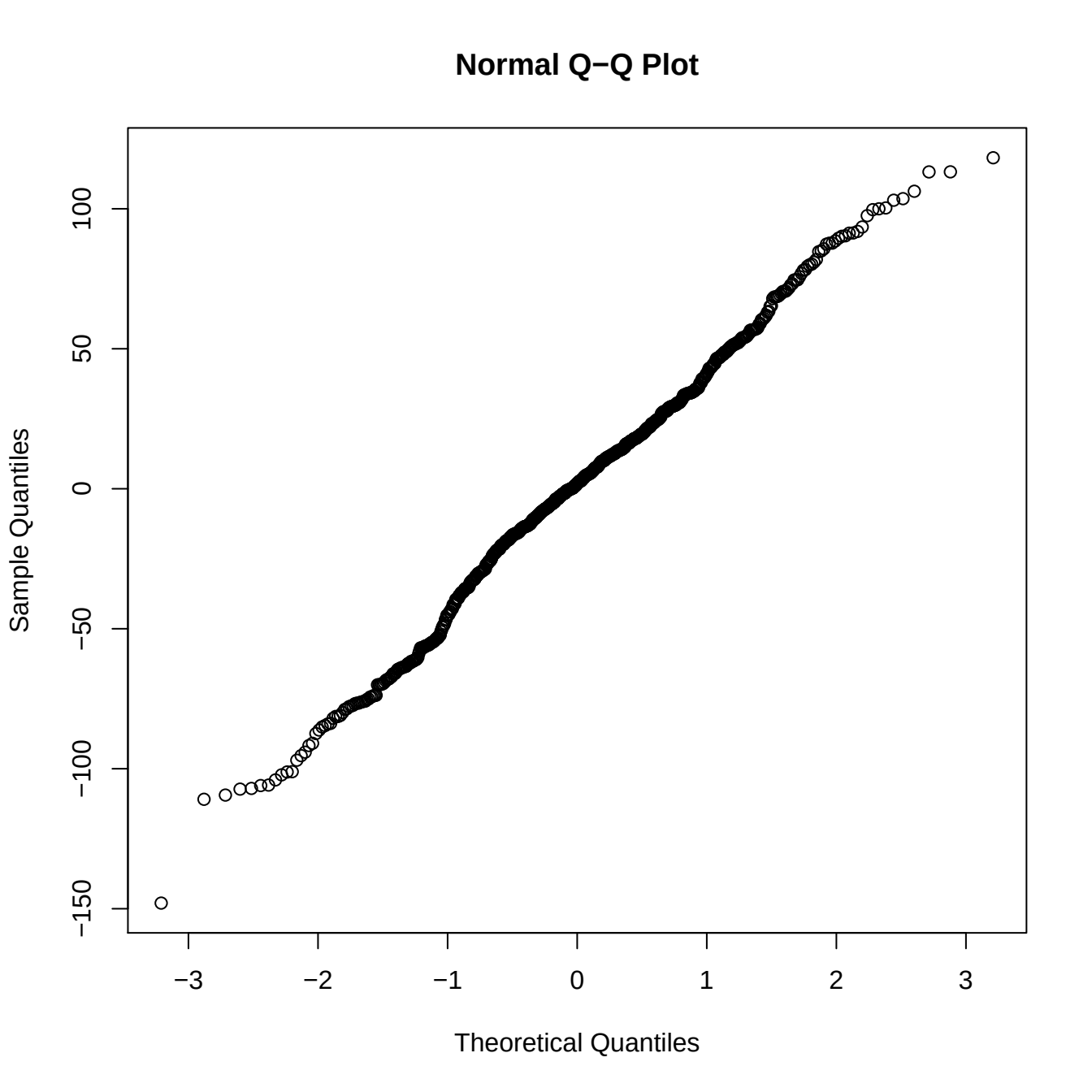

ril.data$residual
1.0
0.5
0.0
−0.5
−1.0
3.5
4.0
4.5
5.0
5.5
ril.data$predicted

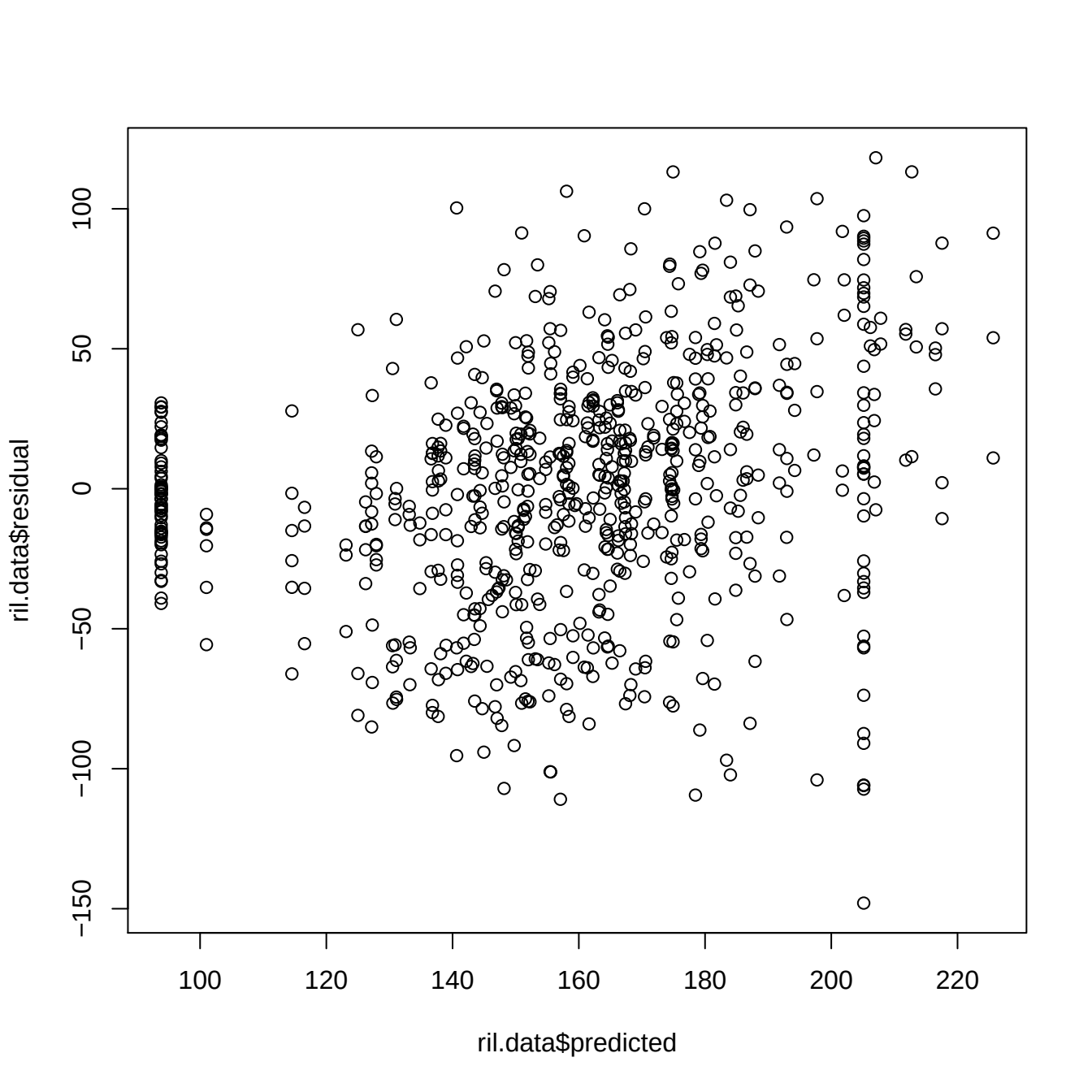

lfblade_area
10
15
20
25
A10
RIL_025
RIL_057
RIL_093
RIL_125
RIL_160
RIL_193
2014.model

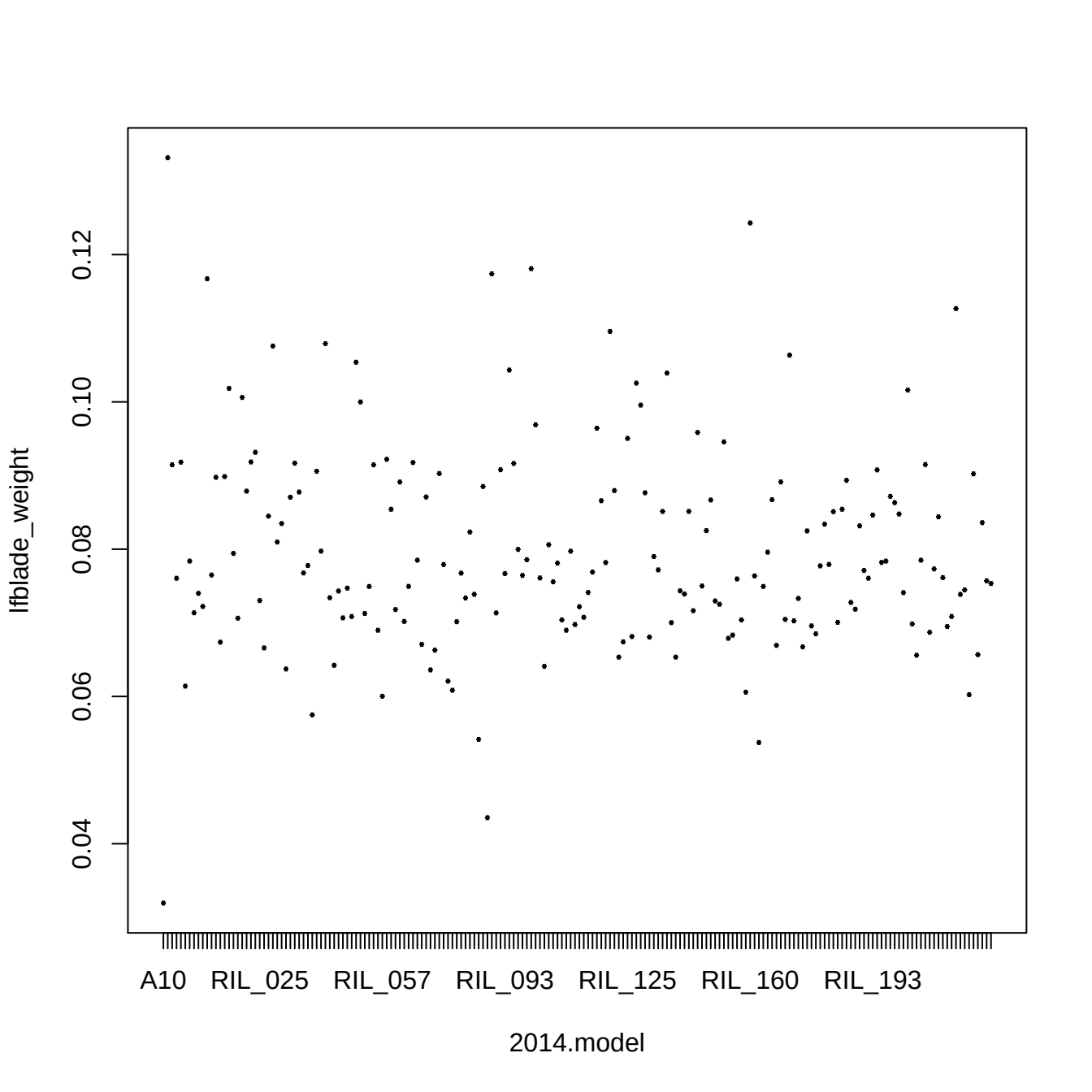

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
30
20
10
0
−10
−20
−3
−2
−1
0
1
2
3

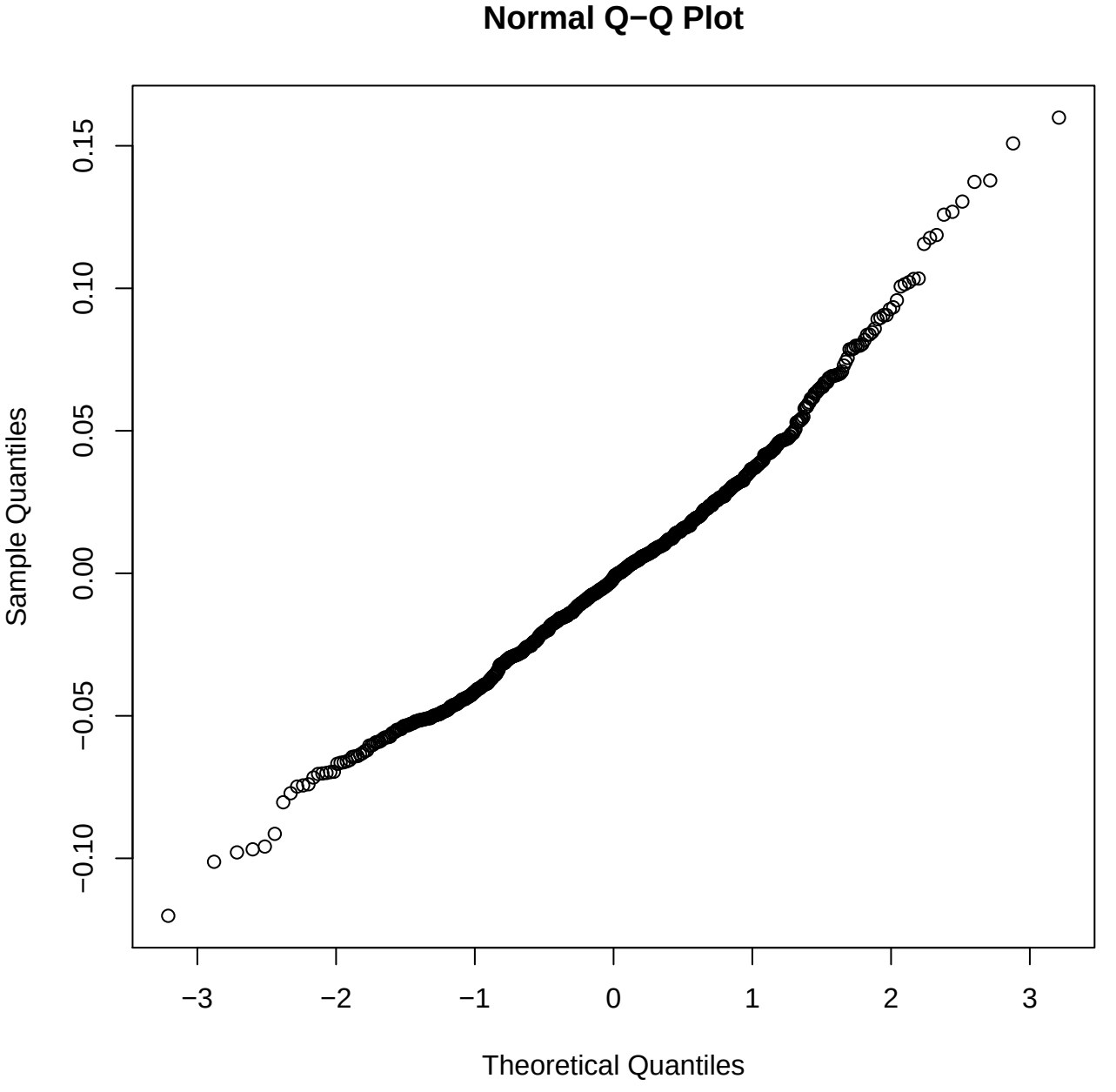

ril.data$residual
30
20
10
0
−10
−20
10
15
20
25
ril.data$predicted

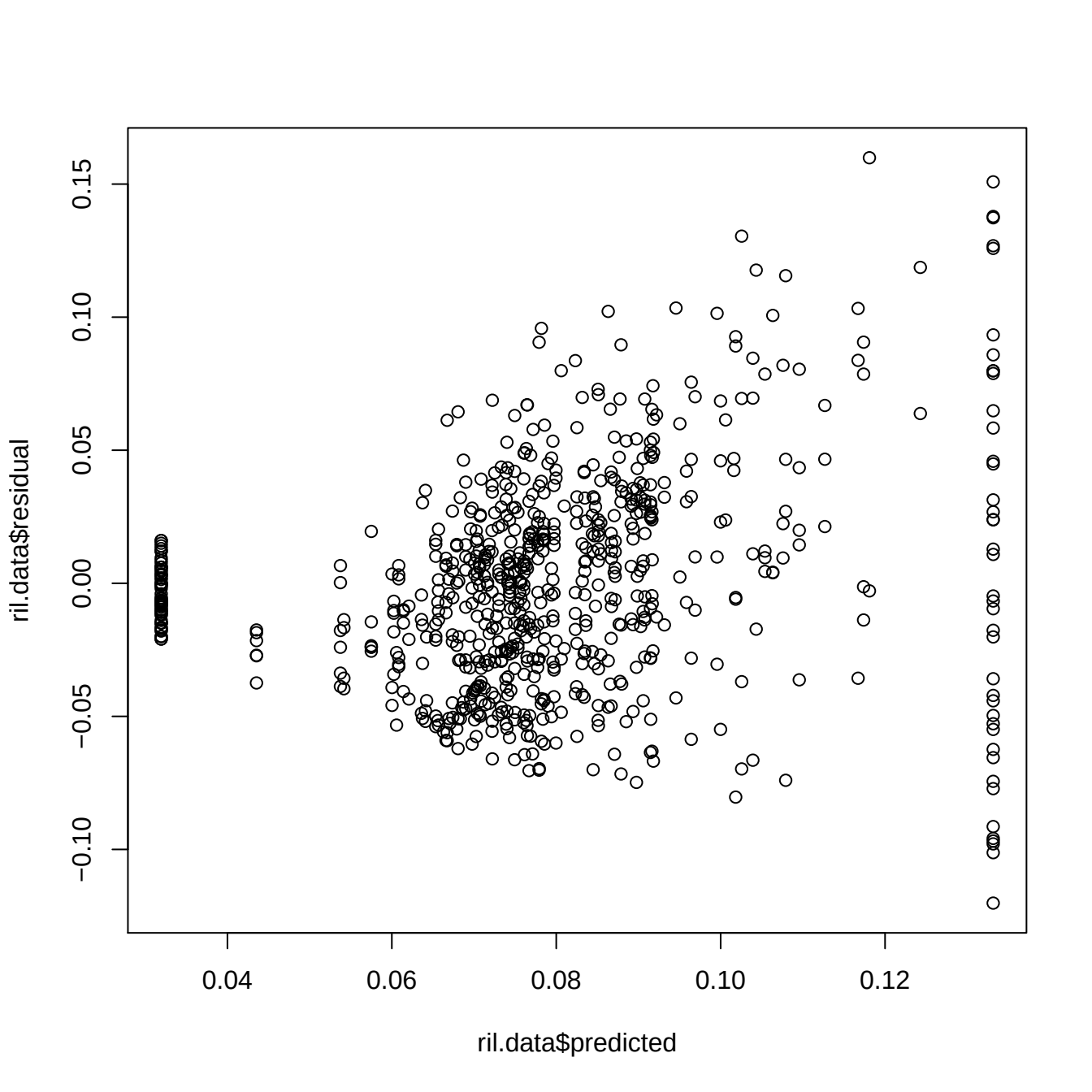

lfblade_length
100
120
140
160
180
200
220
A10
RIL_025
RIL_057
RIL_093
RIL_125
RIL_160
RIL_193
2014.model

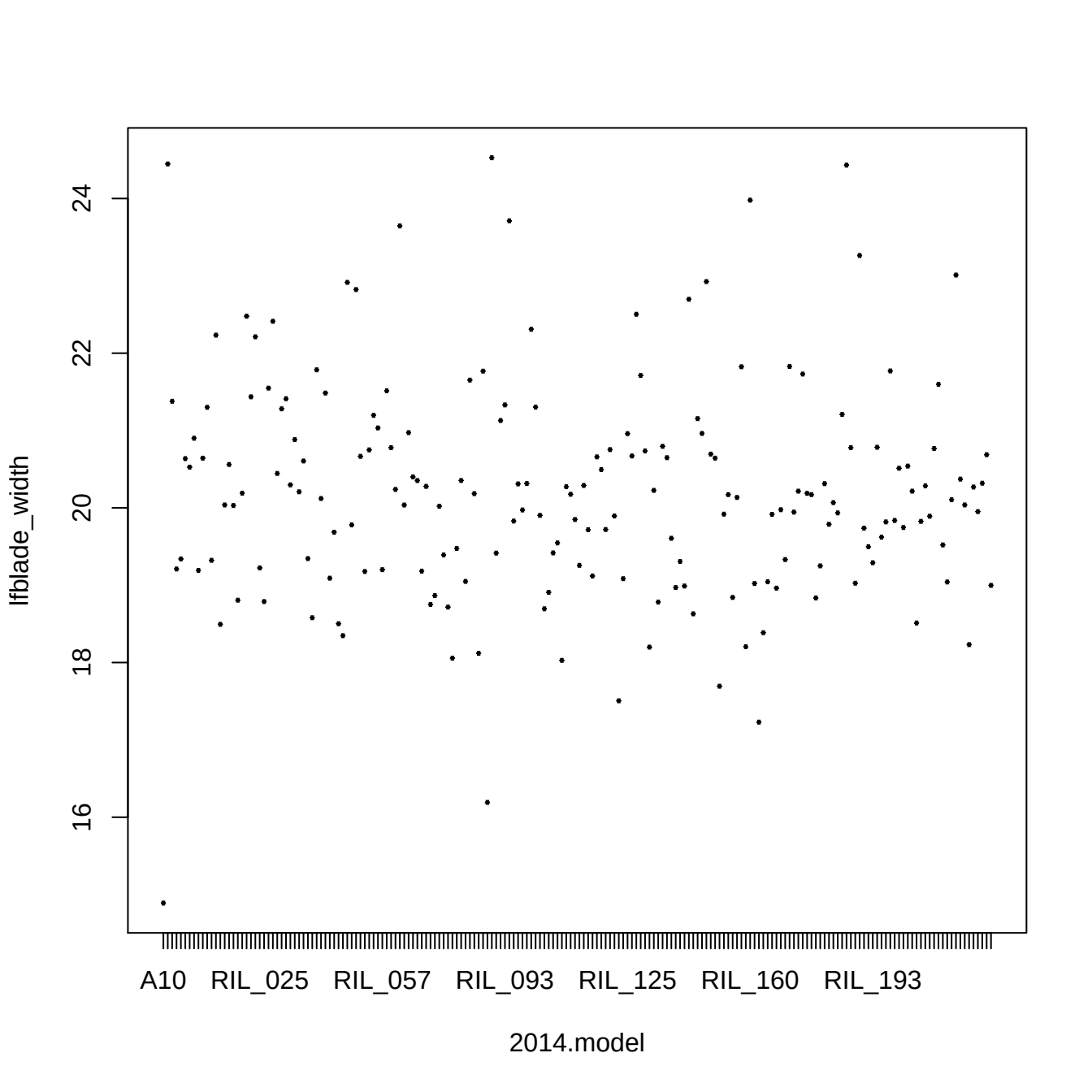

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
100
50
0
−50
−100
−150
−3
−2
−1
0
1
2
3

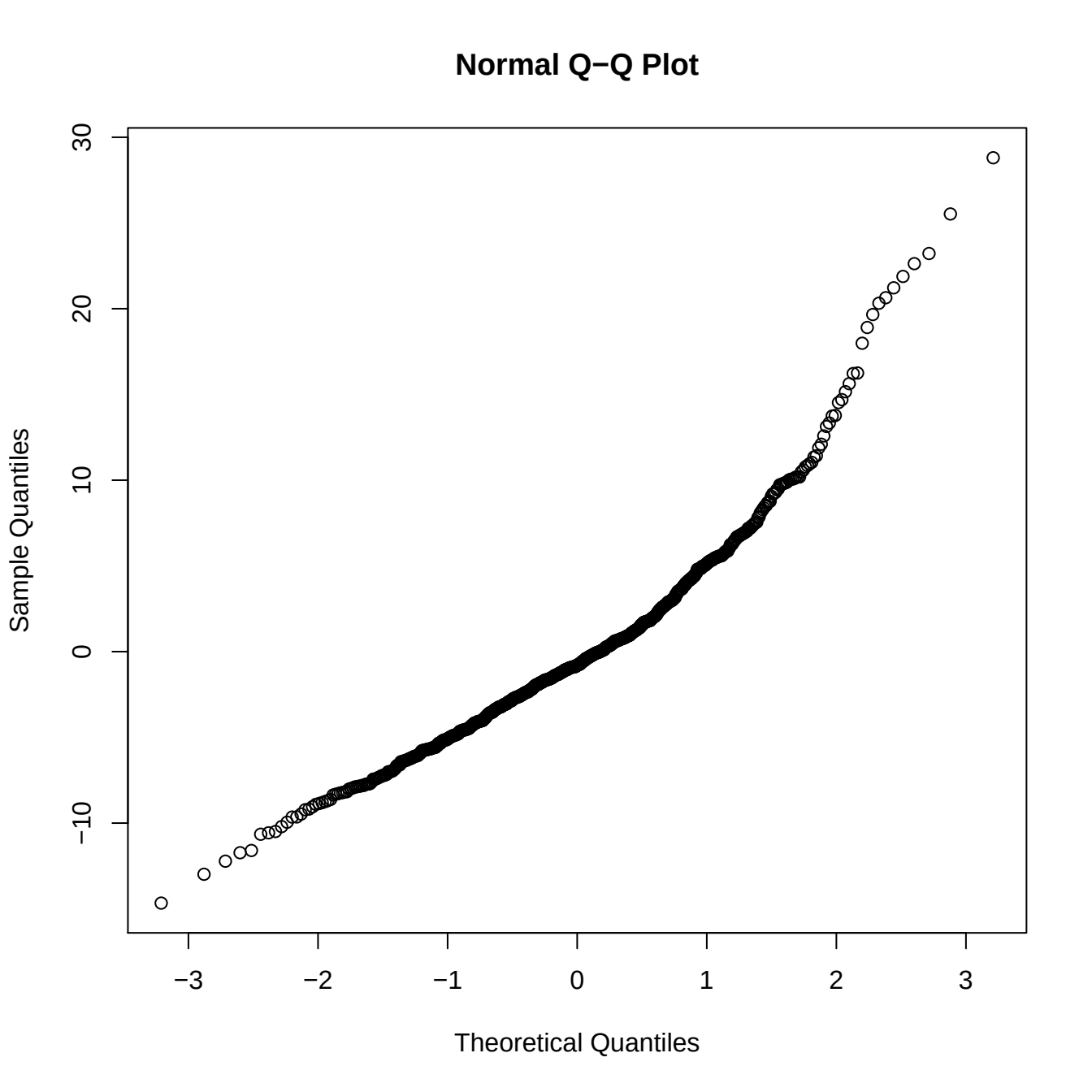

ril.data$residual
100
50
0
−50
−100
−150
100
120
140
160
180
200
220
ril.data$predicted

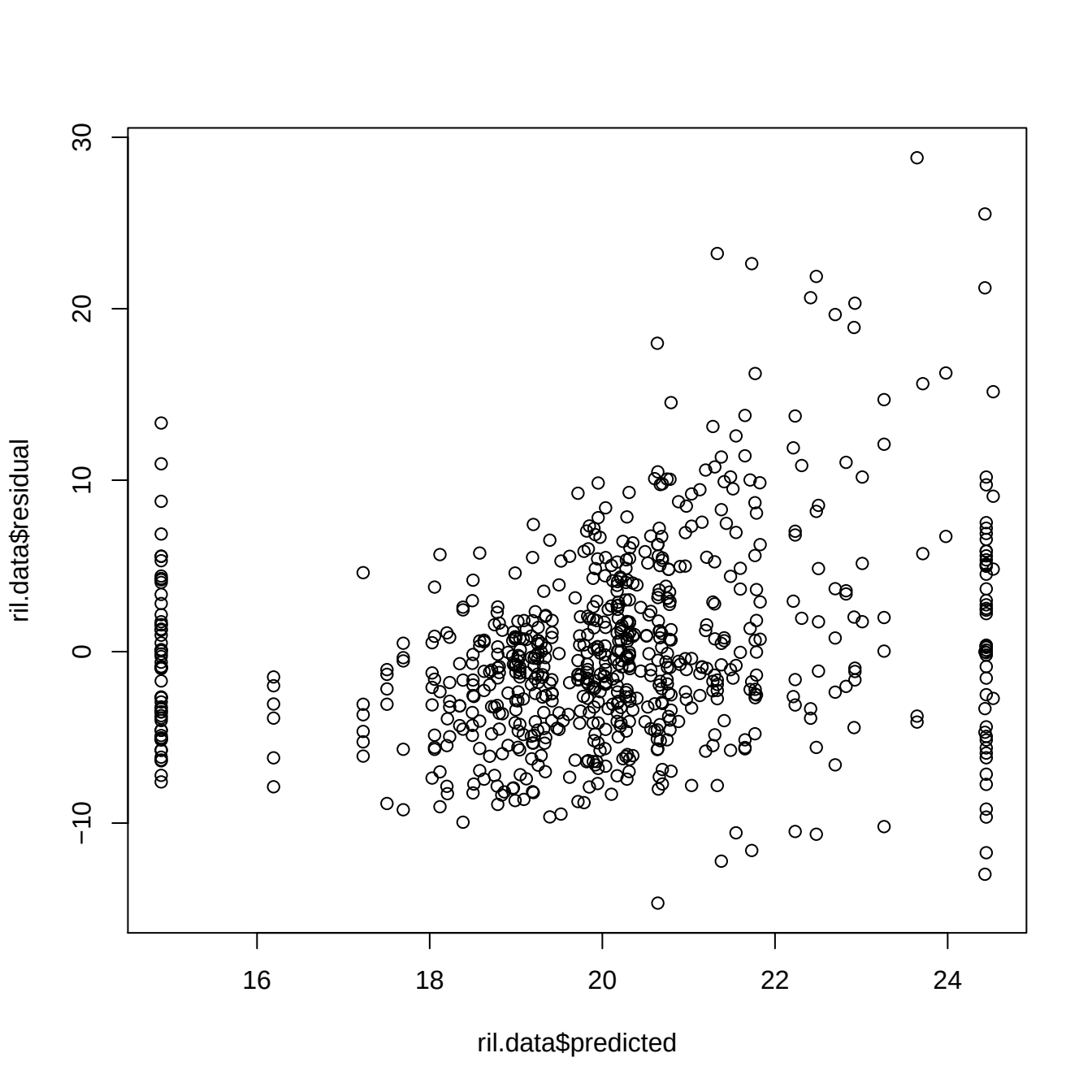

lfblade_weight
0.04
0.06
0.08
0.10
0.12
A10
RIL_025
RIL_057
RIL_093
RIL_125
RIL_160
RIL_193
2014.model

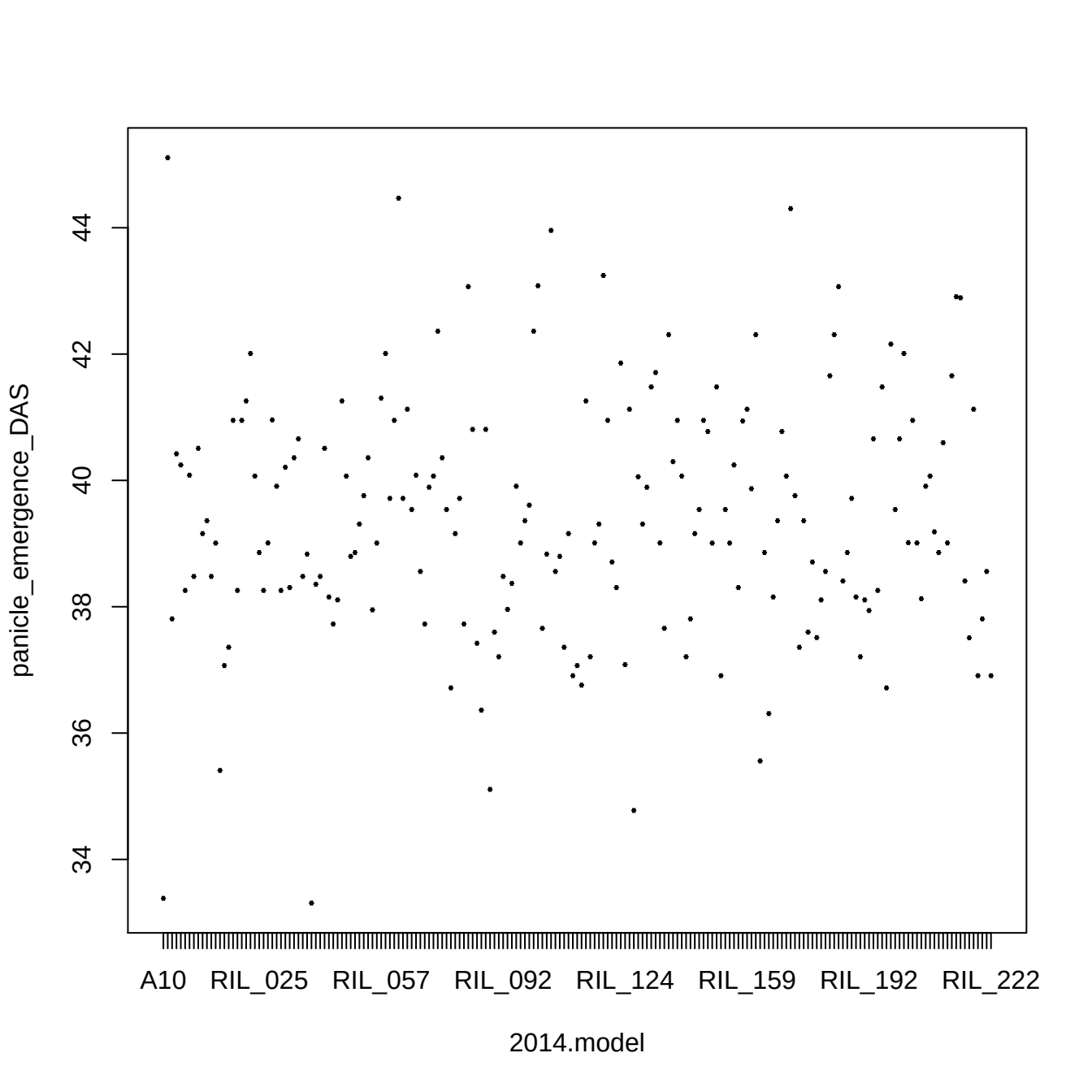

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
0.15
0.10
0.05
0.00
−0.05
−0.10
−3
−2
−1
0
1
2
3

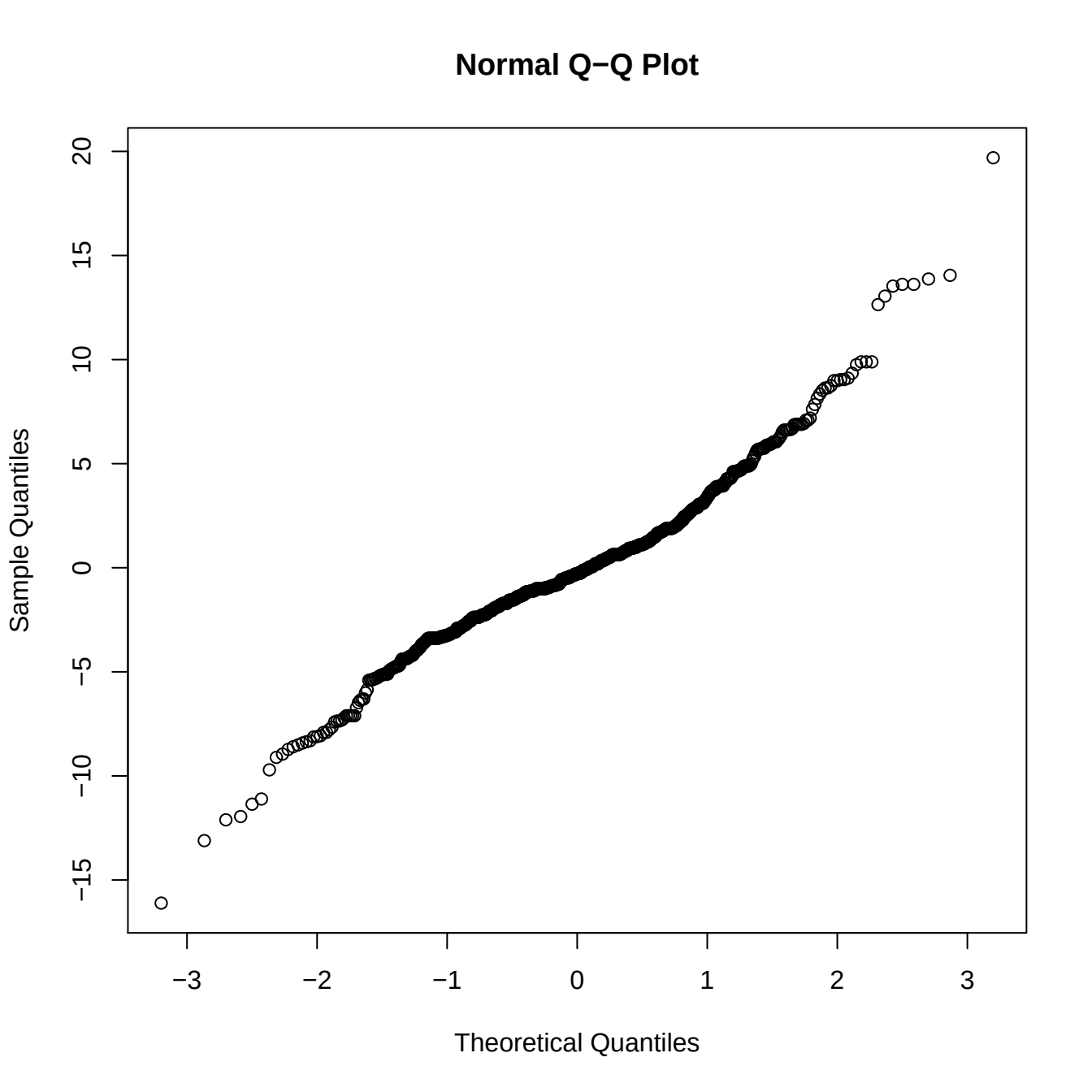

ril.data$residual
0.15
0.10
0.05
0.00
−0.05
−0.10
0.04
0.06
0.08
0.10
0.12
ril.data$predicted

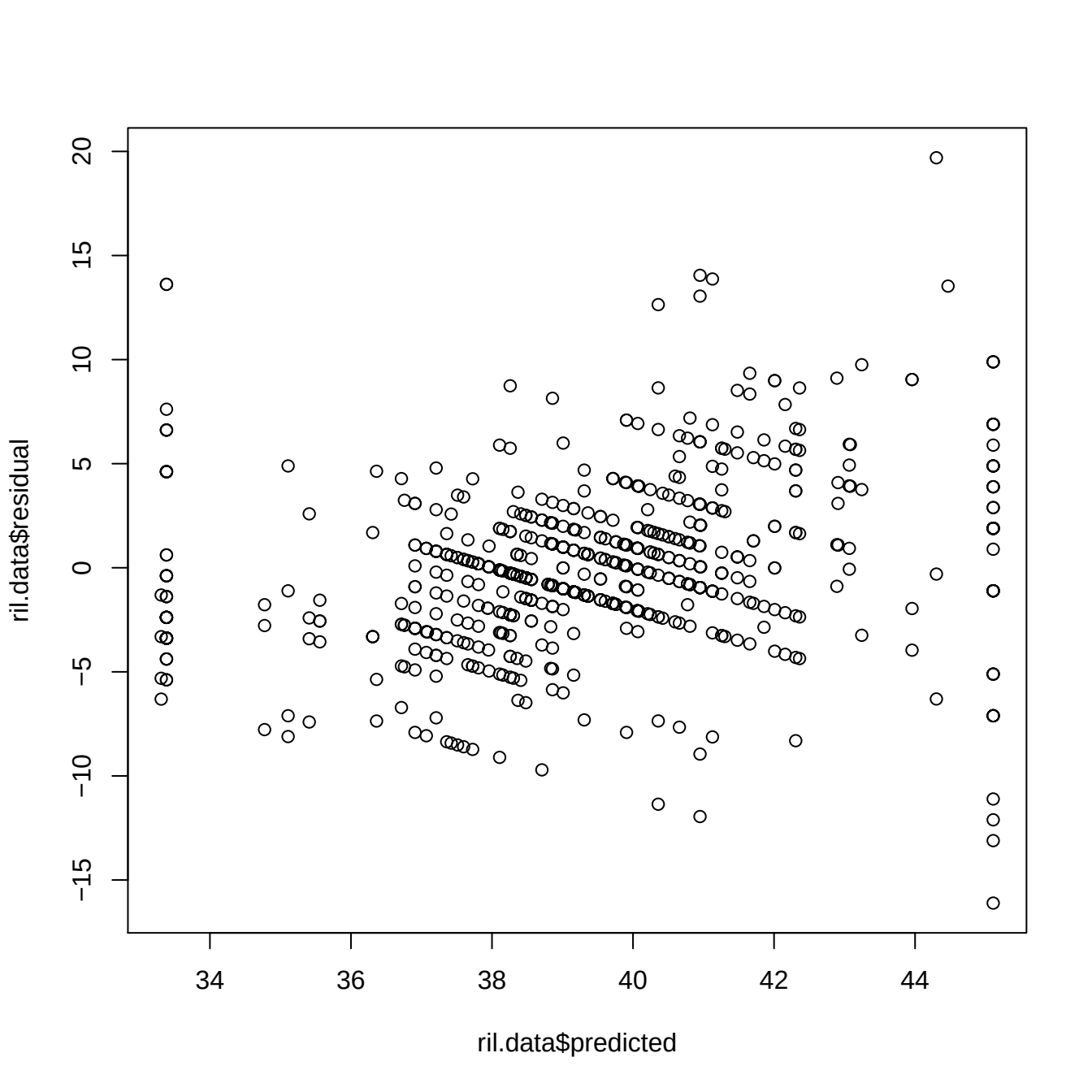

lfblade_width
16
18
20
22
24
A10
RIL_025
RIL_057
RIL_093
RIL_125
RIL_160
RIL_193
2014.model

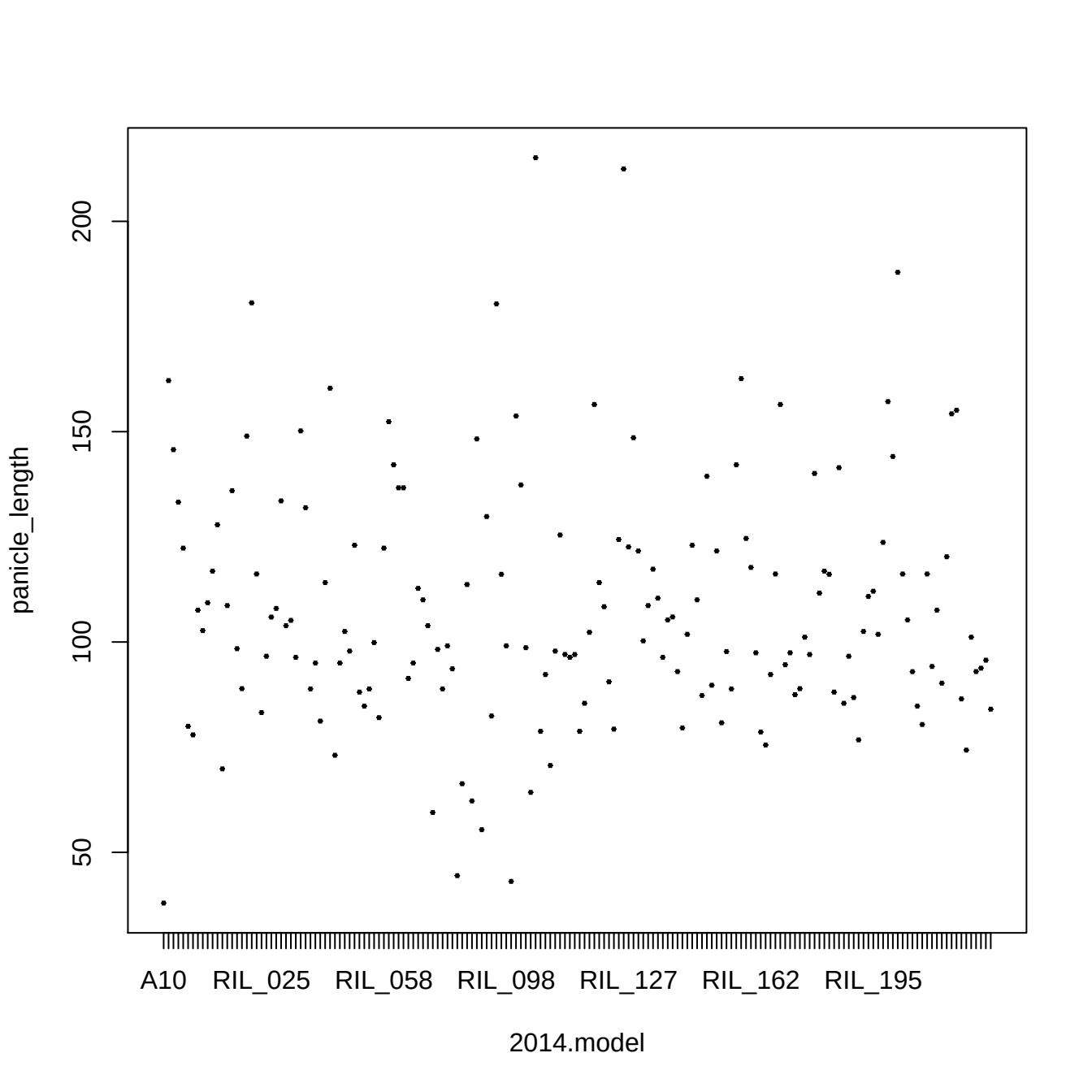

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
30
20
10
0
−10
−3
−2
−1
0
1
2
3

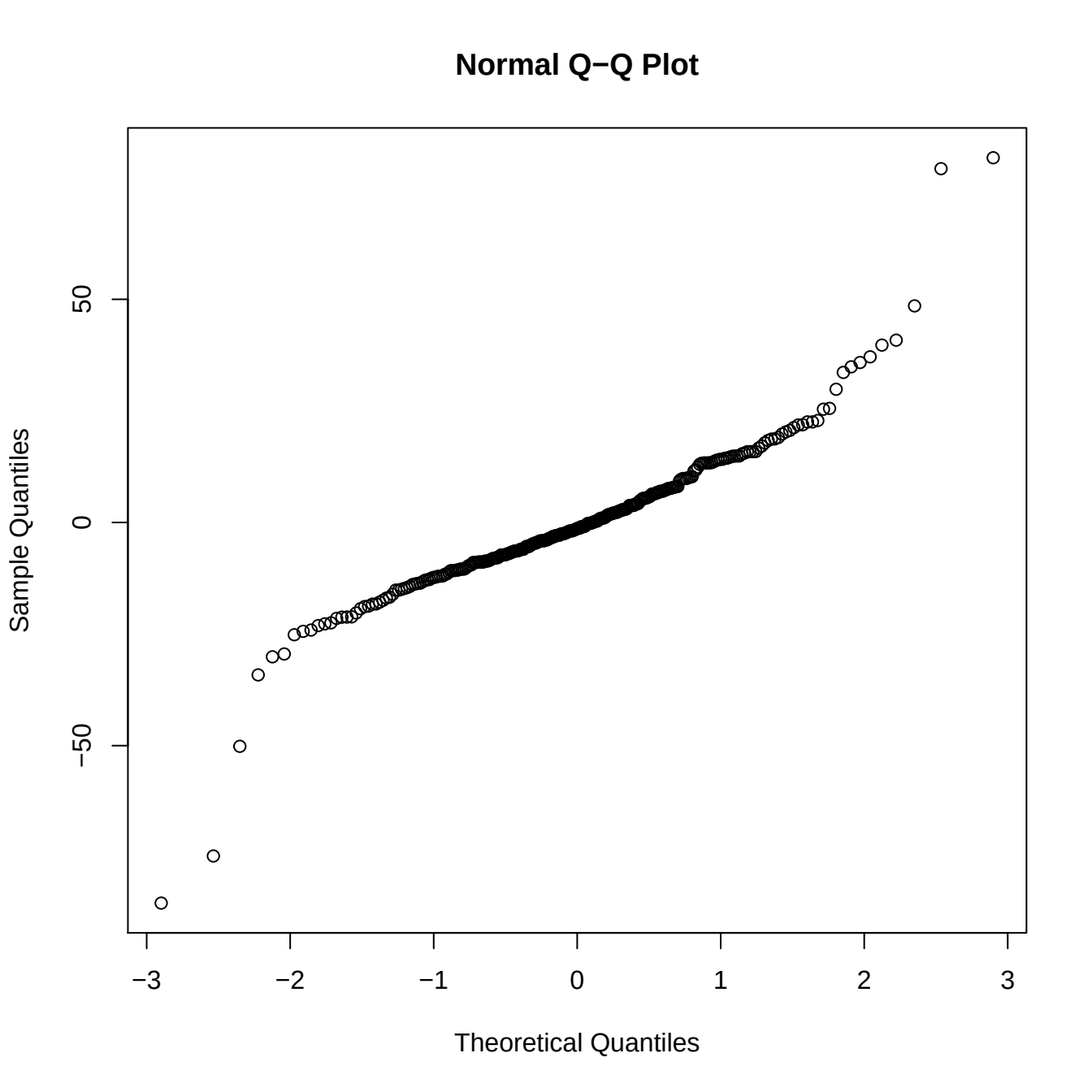

ril.data$residual
30
20
10
0
−10
16
18
20
22
24
ril.data$predicted

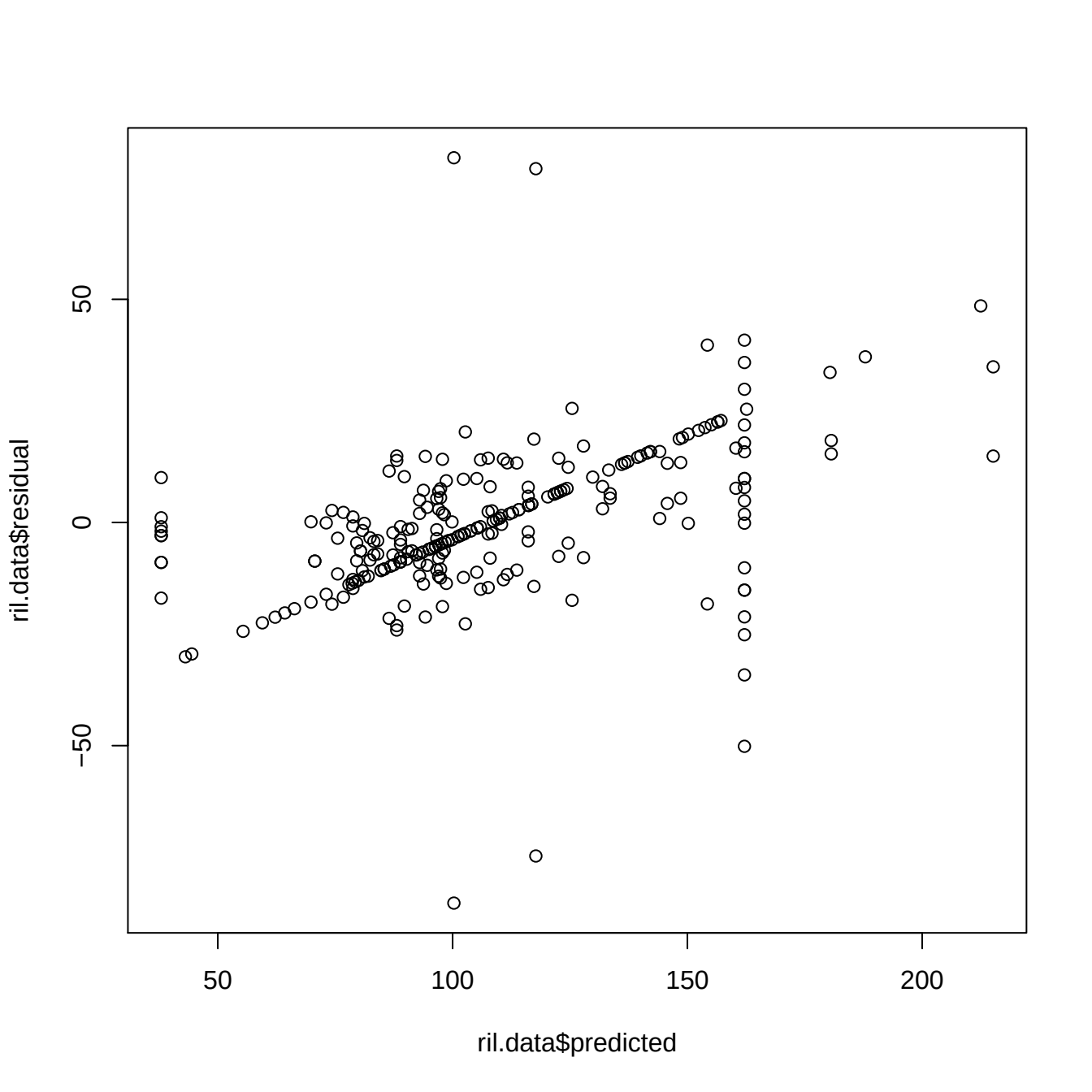

panicle_emergence_DAS
34
36
38
40
42
44
A10
RIL_025
RIL_057
RIL_092
RIL_124
RIL_159
RIL_192
RIL_222
2014.model

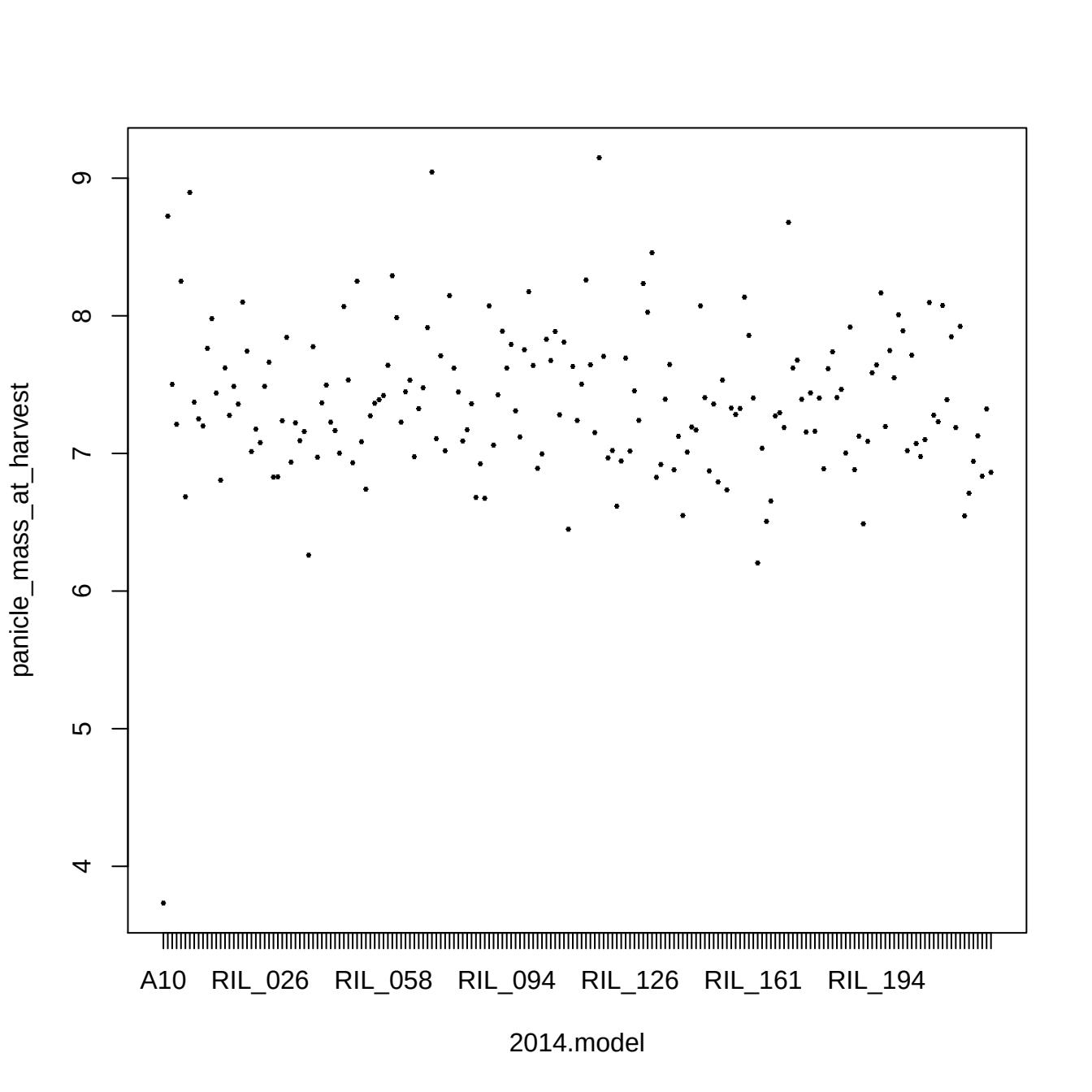

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
20
15
10
5
0
−5
−10
−15
−3
−2
−1
0
1
2
3

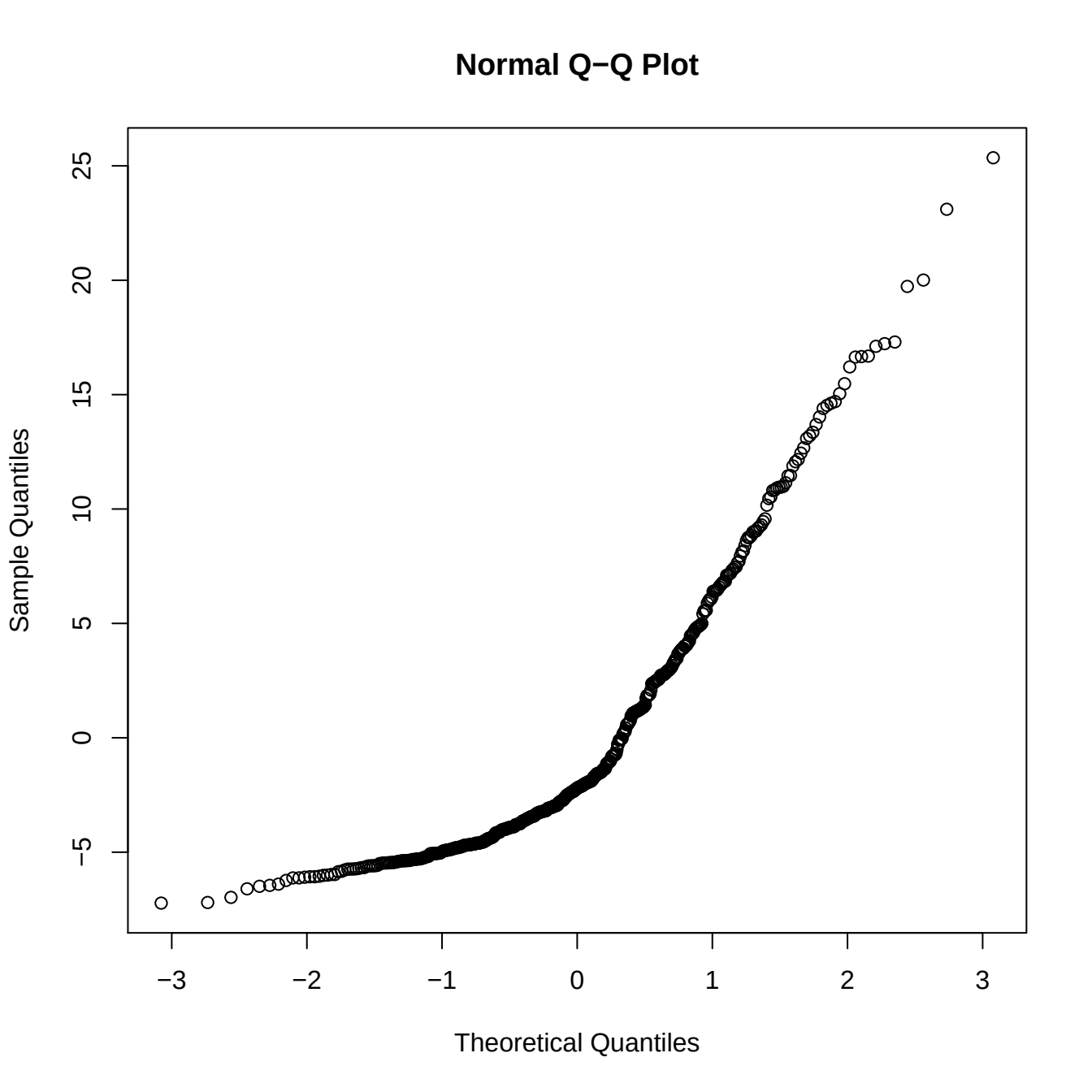

ril.data$residual
20
15
10
5
0
−5
−10
−15
34
36
38
40
42
44
ril.data$predicted

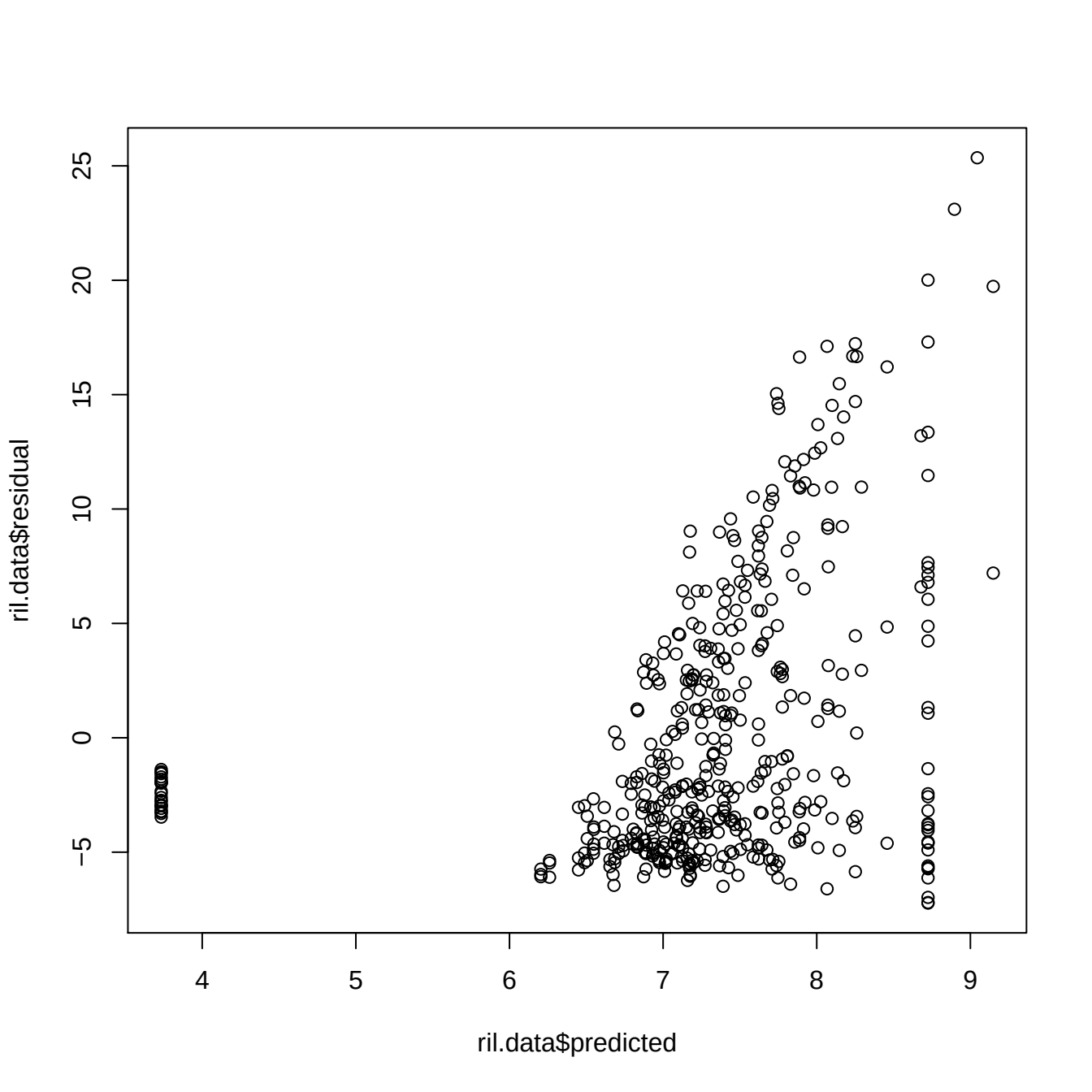

panicle_length
50
100
150
200
A10
RIL_025
RIL_058
RIL_098
RIL_127
RIL_162
RIL_195
2014.model

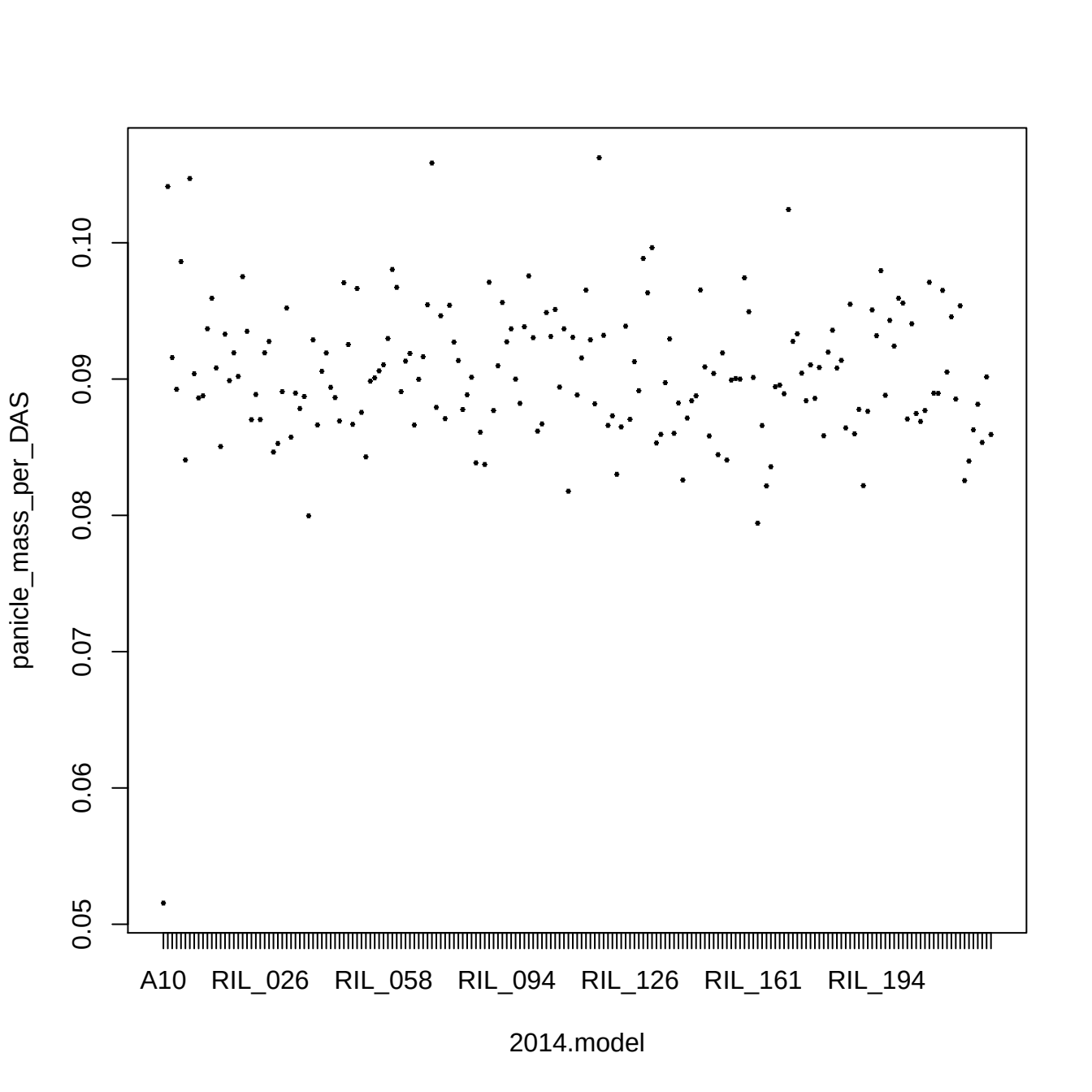

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
50
0
−50
−3
−2
−1
0
1
2
3

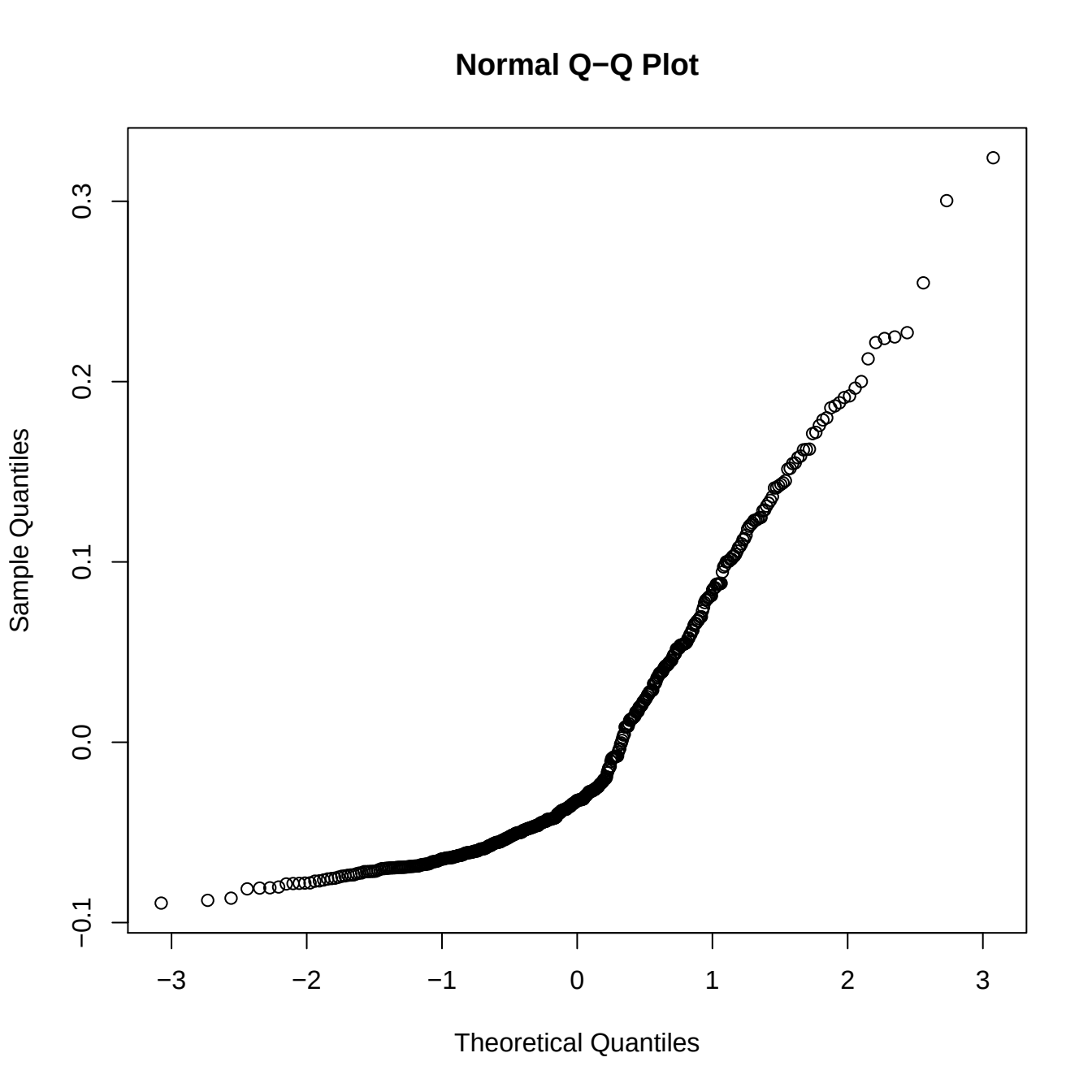

ril.data$residual
50
0
−50
50
100
150
200
ril.data$predicted

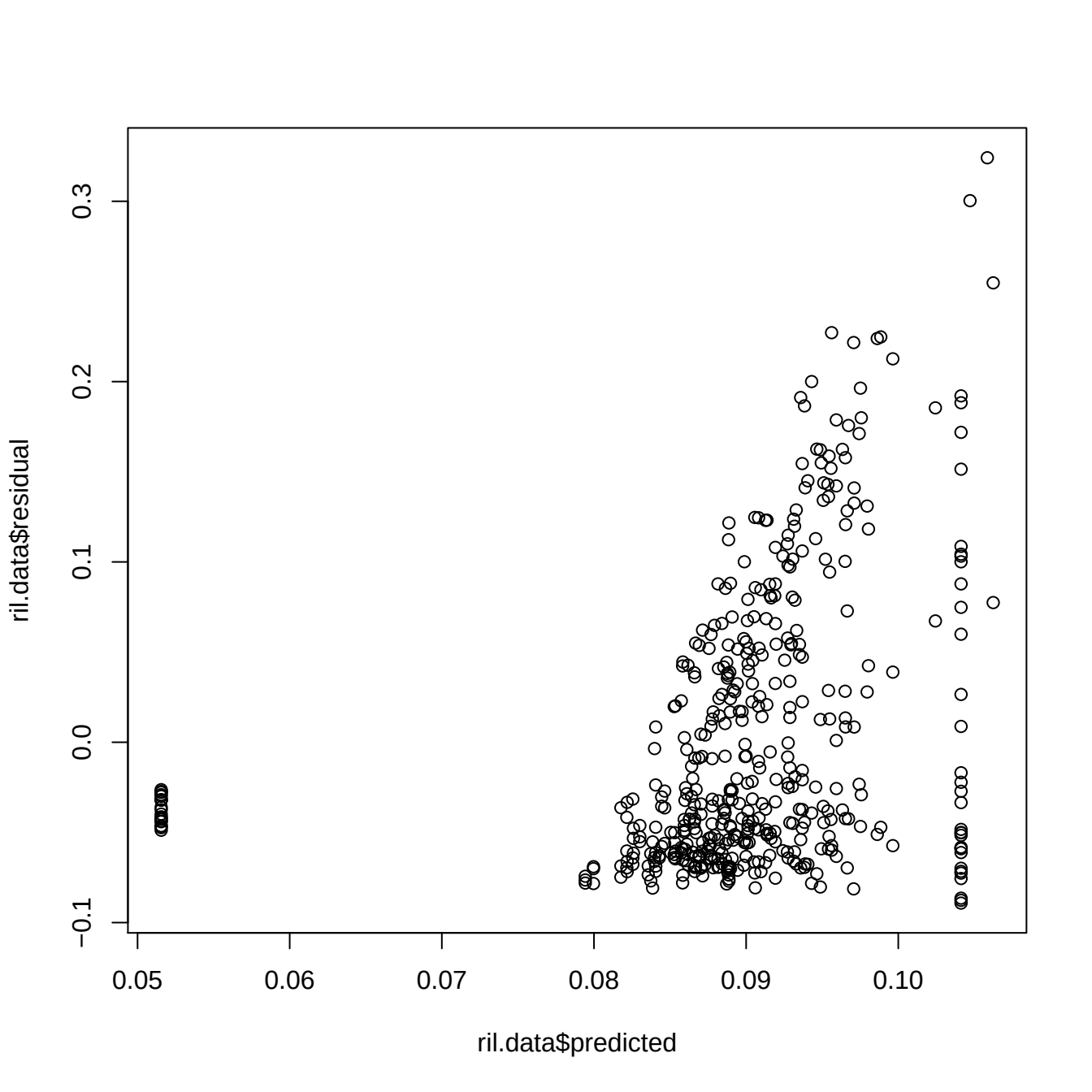

panicle_mass_at_harvest
9
8
7
6
5
4
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

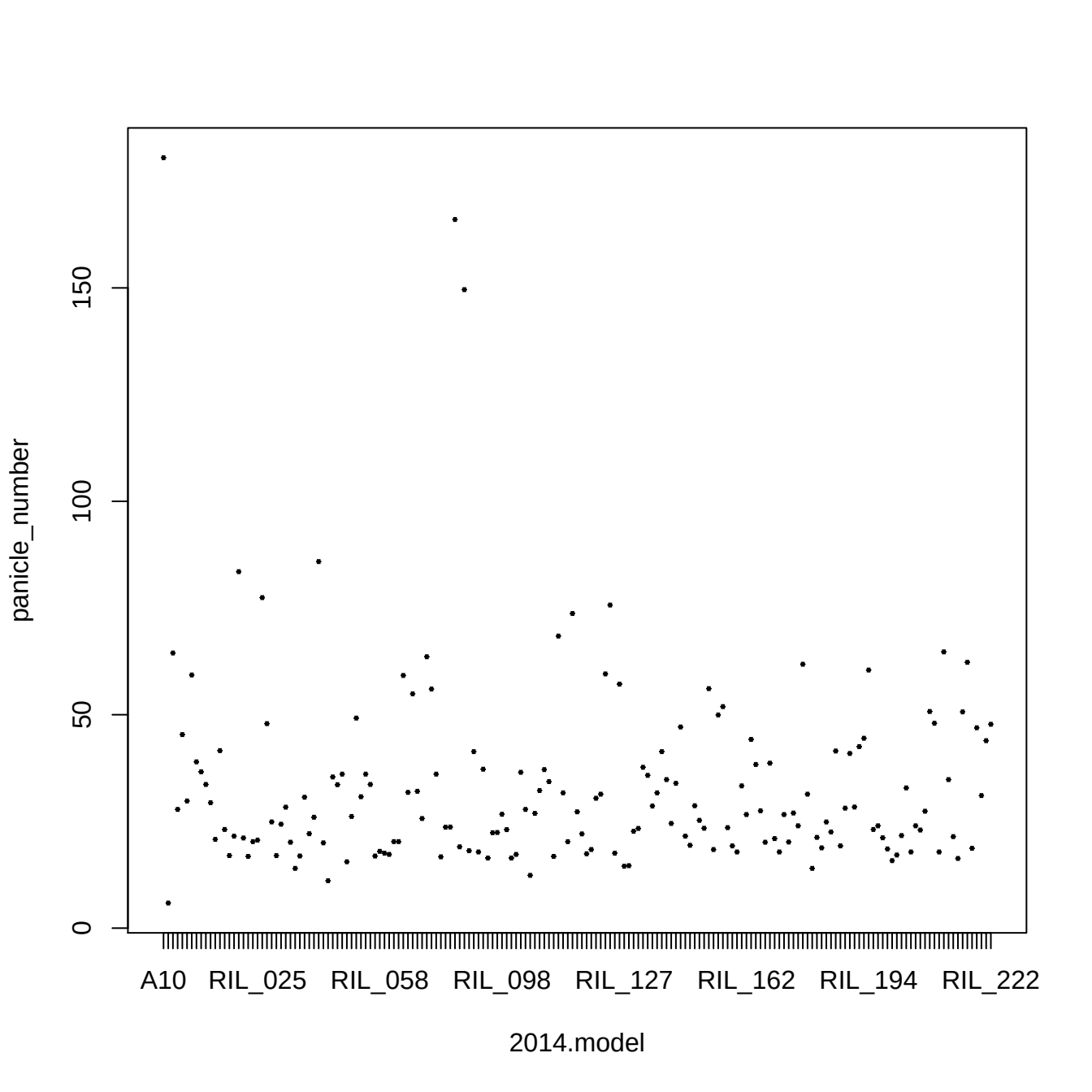

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
25
20
15
10
5
0
−5
−3
−2
−1
0
1
2
3

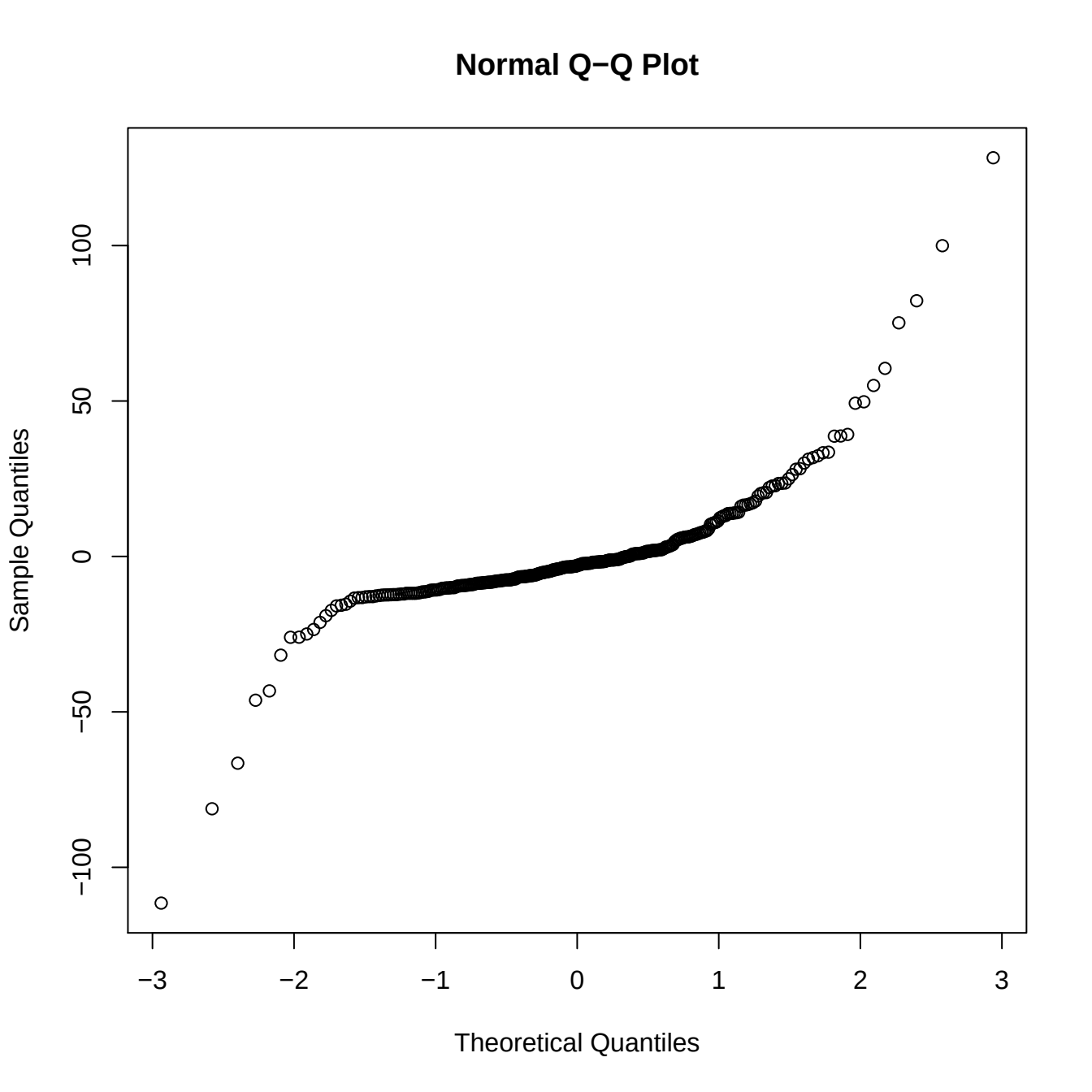

ril.data$residual
25
20
15
10
5
0
−5
4
5
6
7
8
9
ril.data$predicted

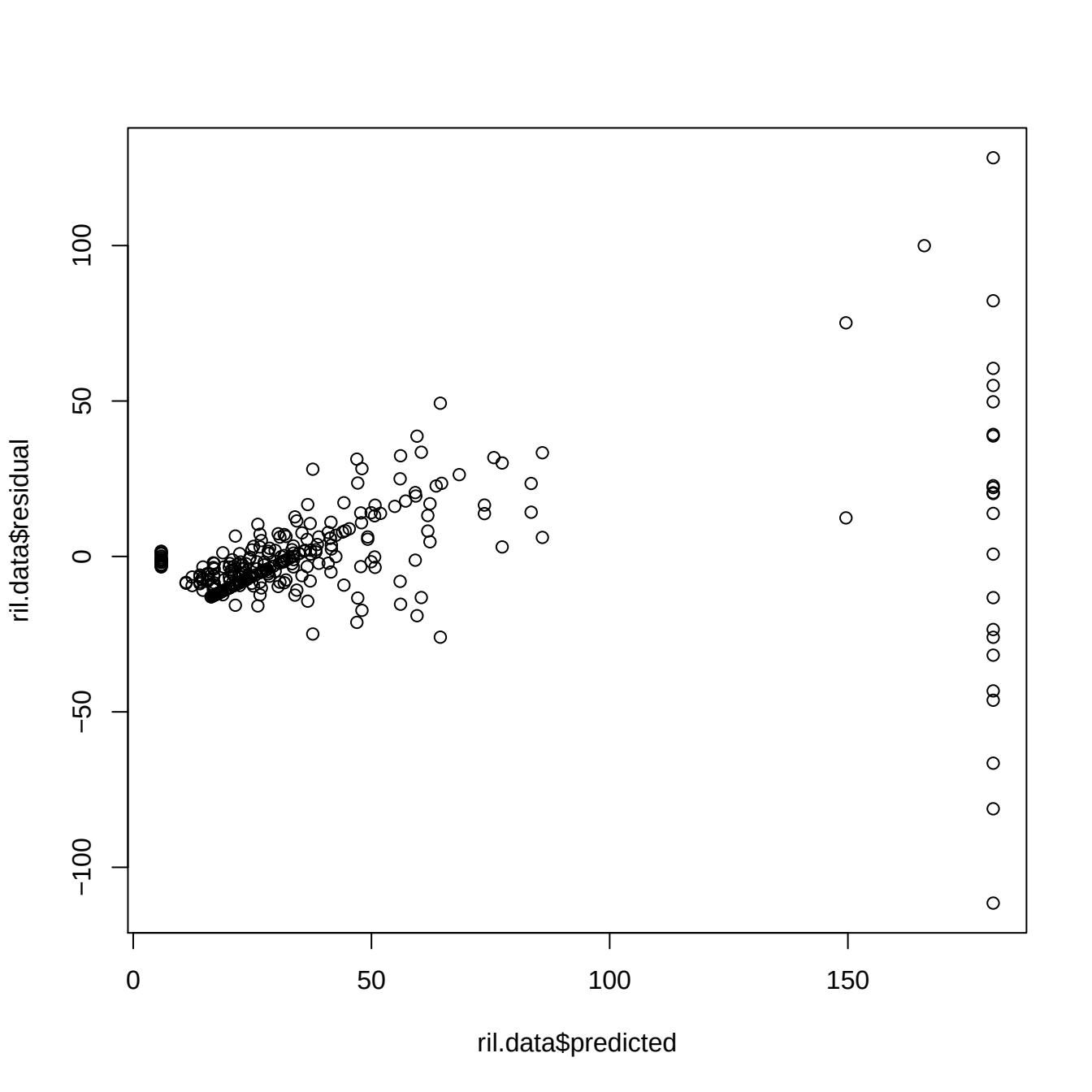

panicle_mass_per_DAS
0.05
0.06
0.07
0.08
0.09
0.10
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

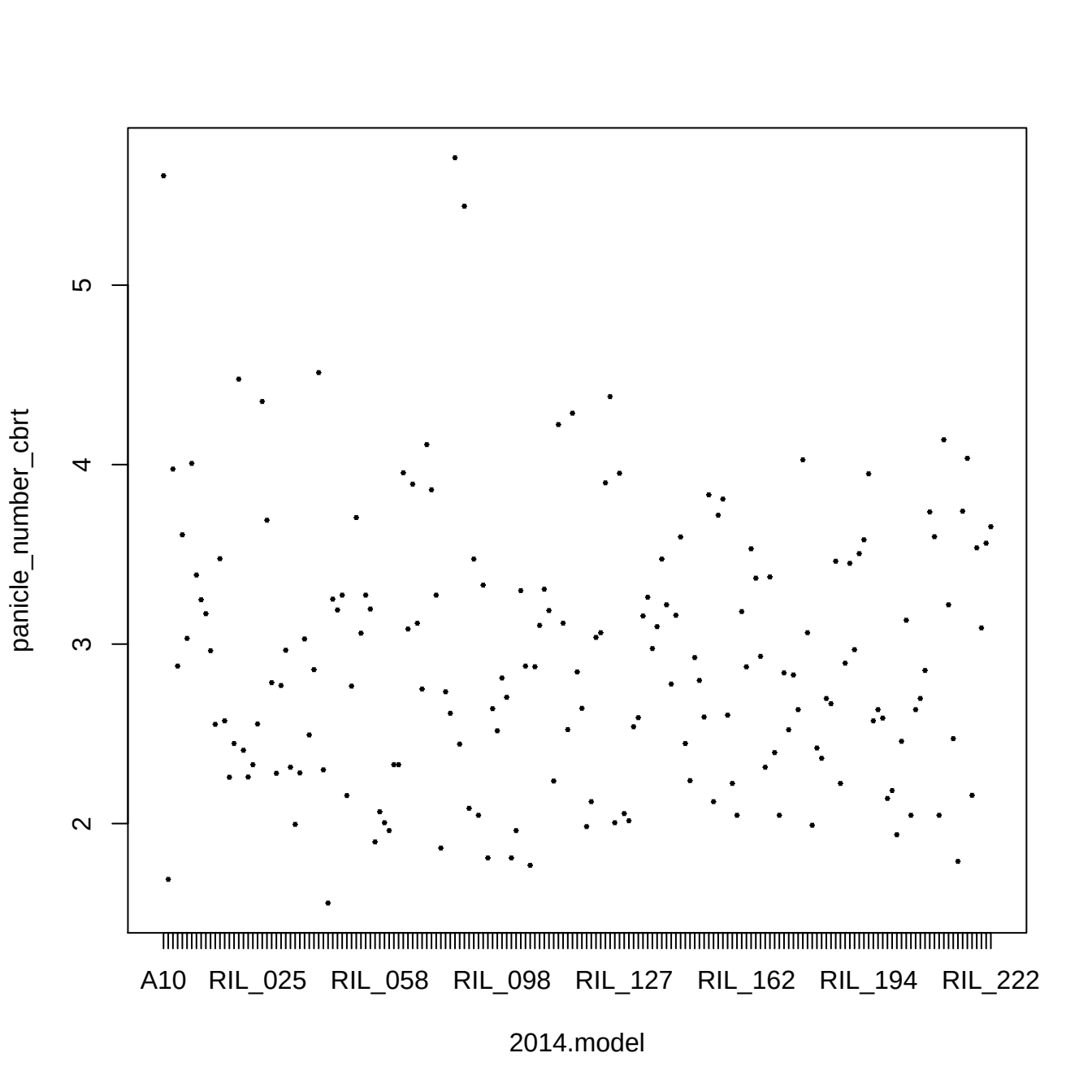

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−0.1
0.0
0.1
0.2
0.3
−3
−2
−1
0
1
2
3

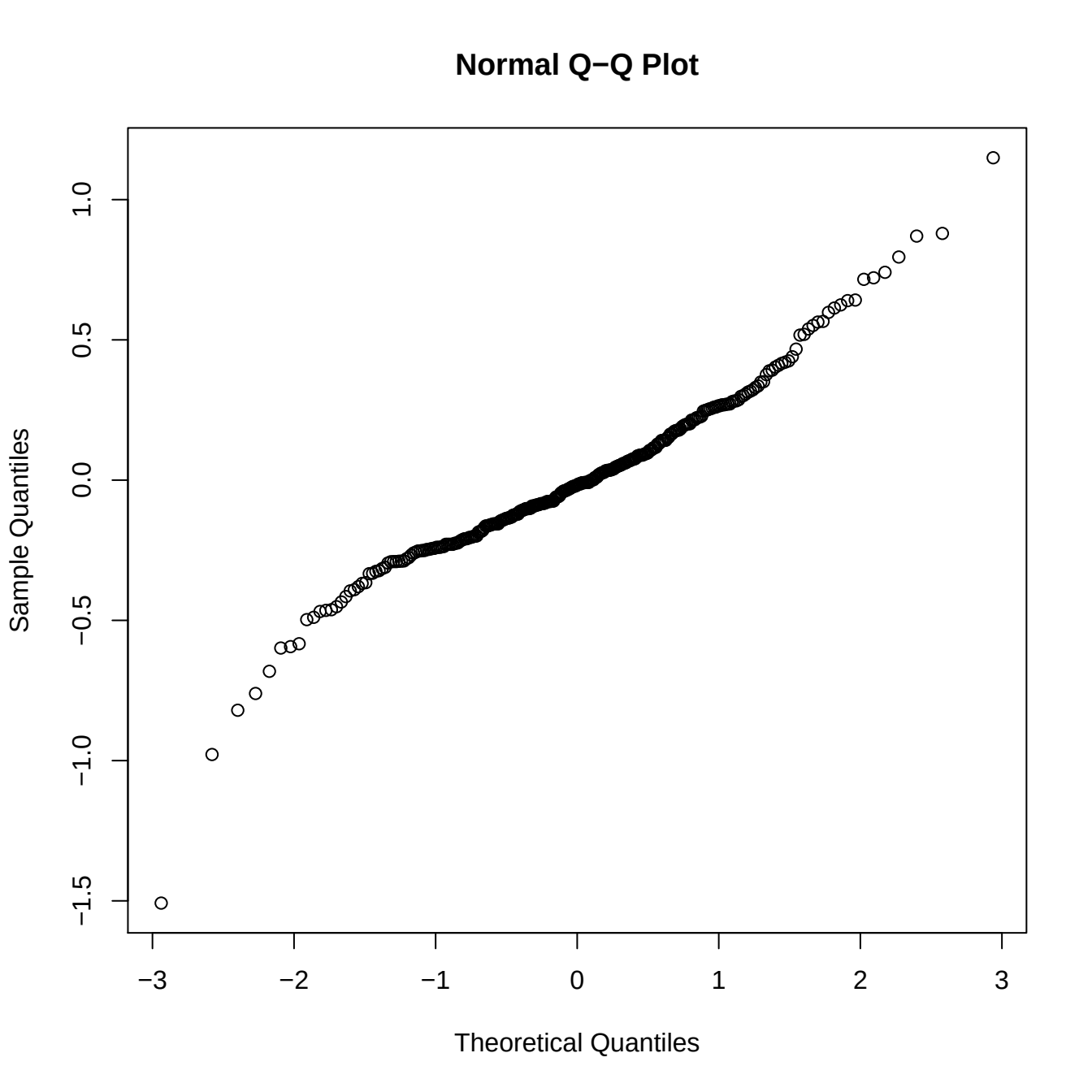

ril.data$residual
0.3
0.2
0.1
0.0
−0.1
0.05
0.06
0.07
0.08
0.09
0.10
ril.data$predicted

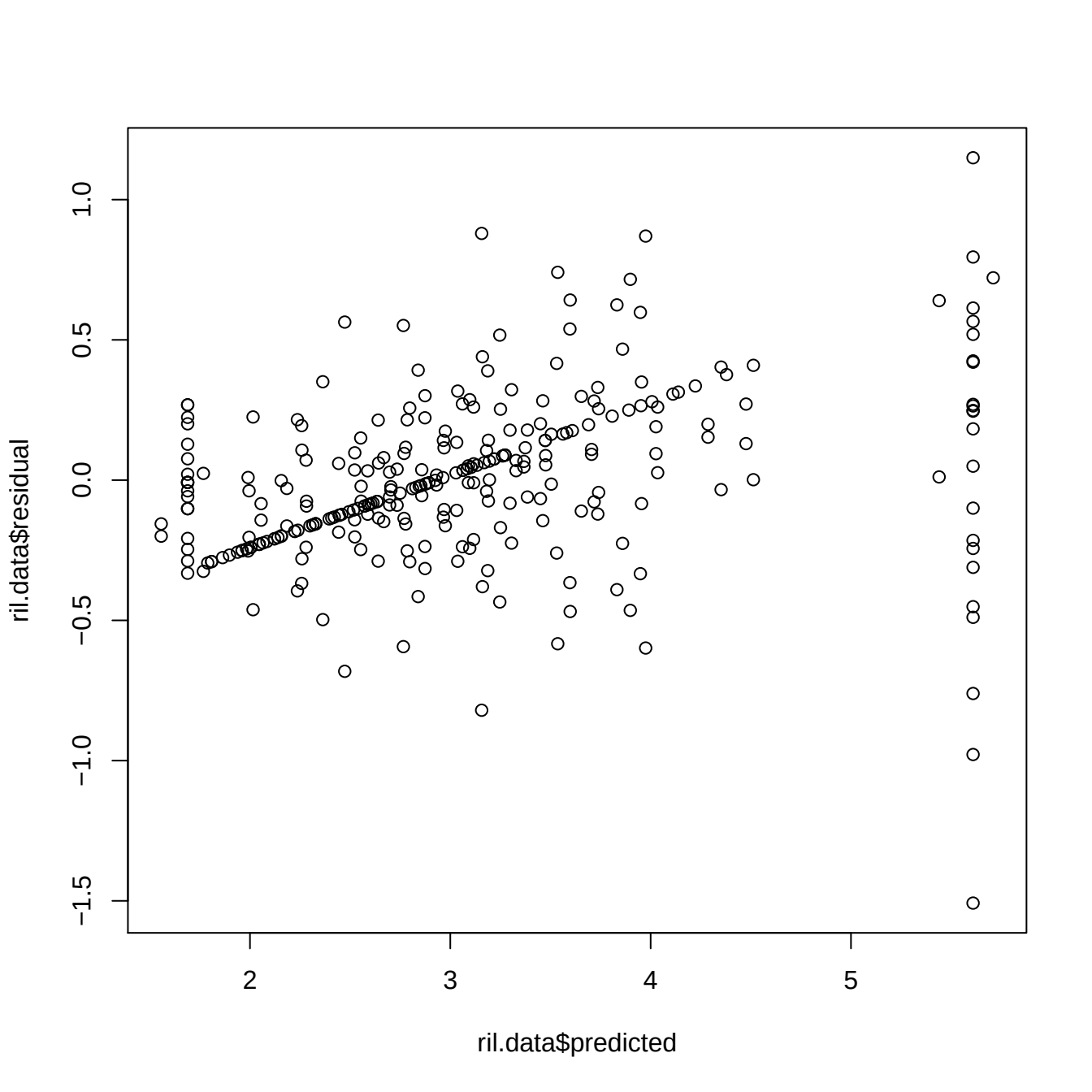

panicle_number
0
50
100
150
A10
RIL_025
RIL_058
RIL_098
RIL_127
RIL_162
RIL_194
RIL_222
2014.model

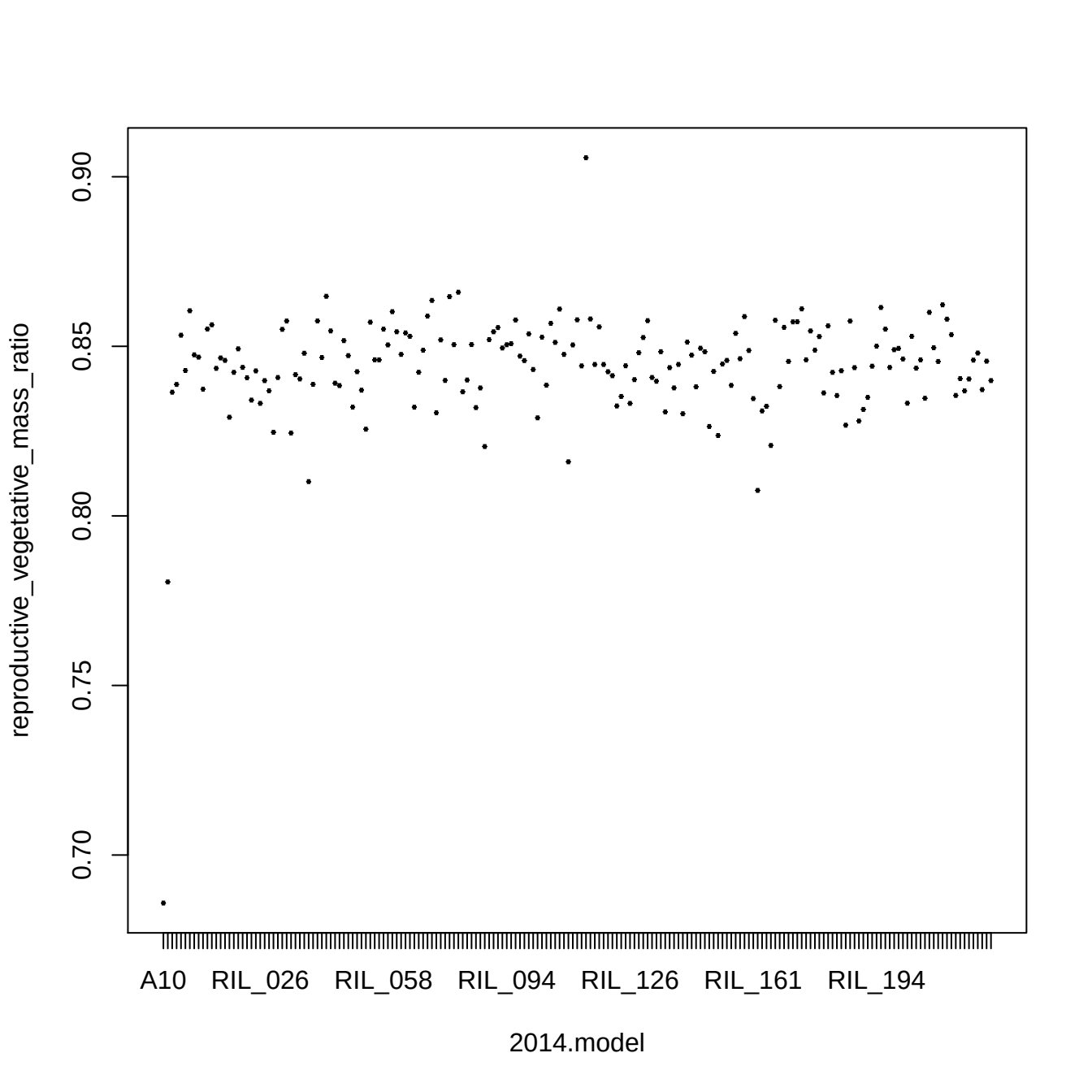

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
100
50
0
−50
−100
−3
−2
−1
0
1
2
3

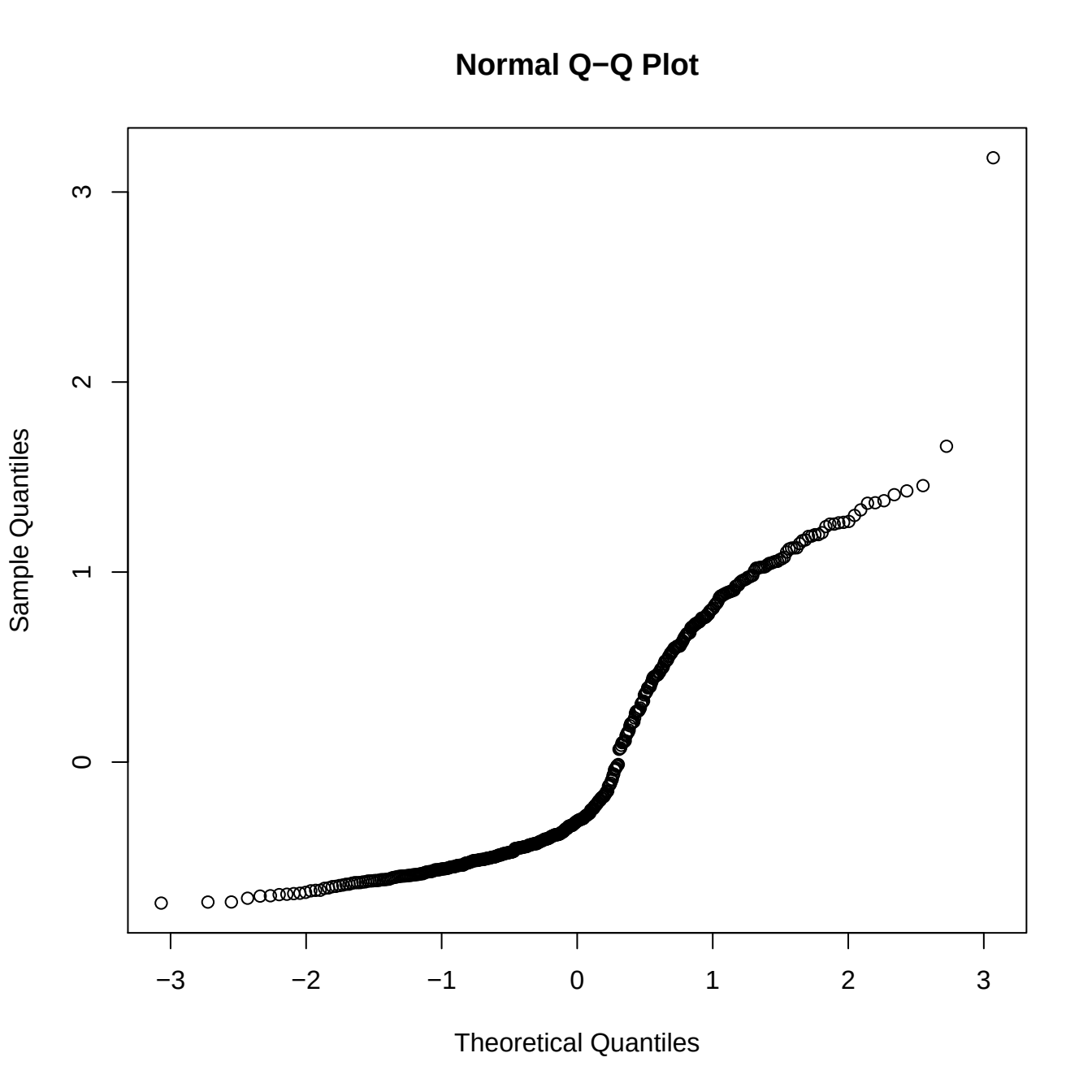

ril.data$residual
100
50
0
−50
−100
0
50
100
150
ril.data$predicted

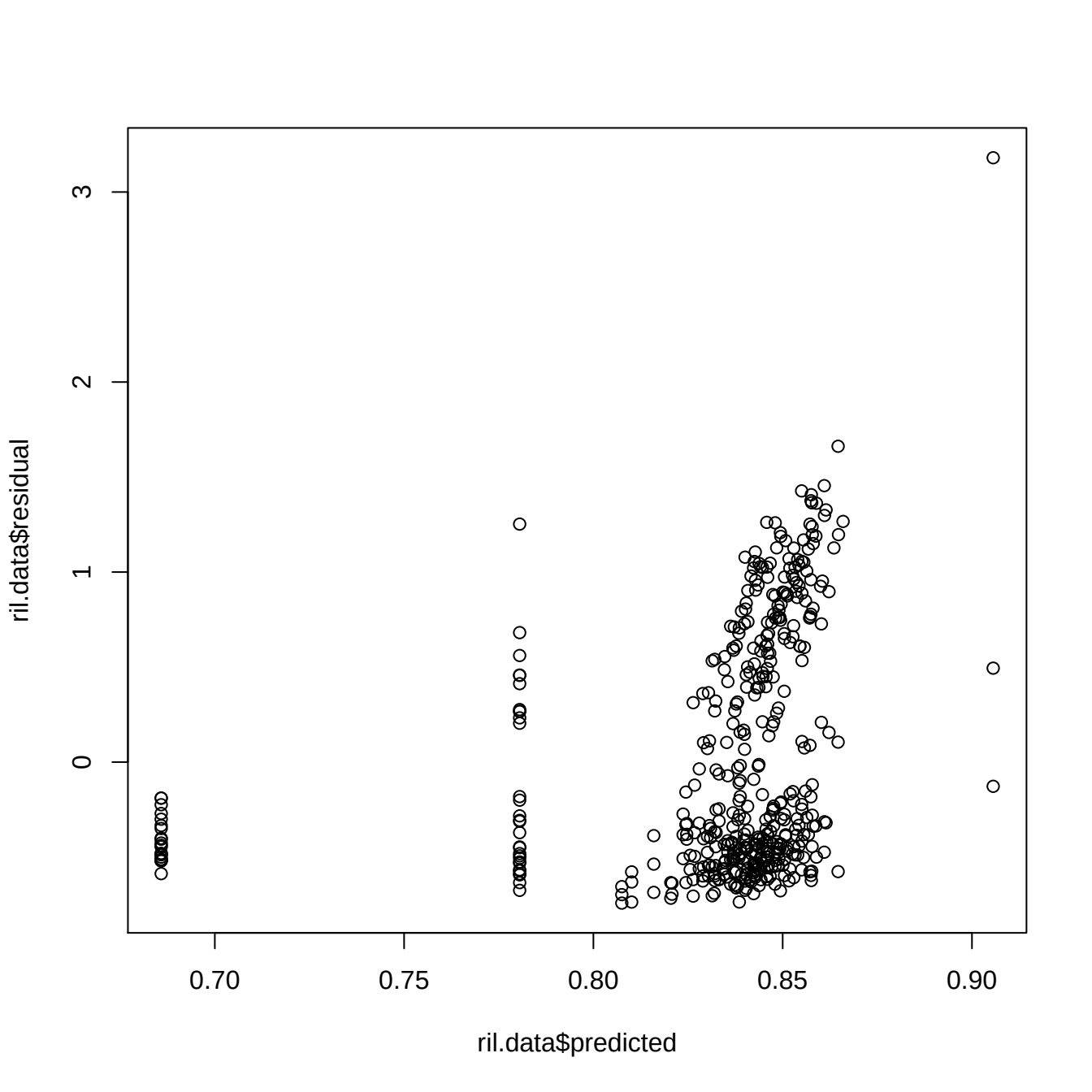

panicle_number_cbrt
2
3
4
5
A10
RIL_025
RIL_058
RIL_098
RIL_127
RIL_162
RIL_194
RIL_222
2014.model

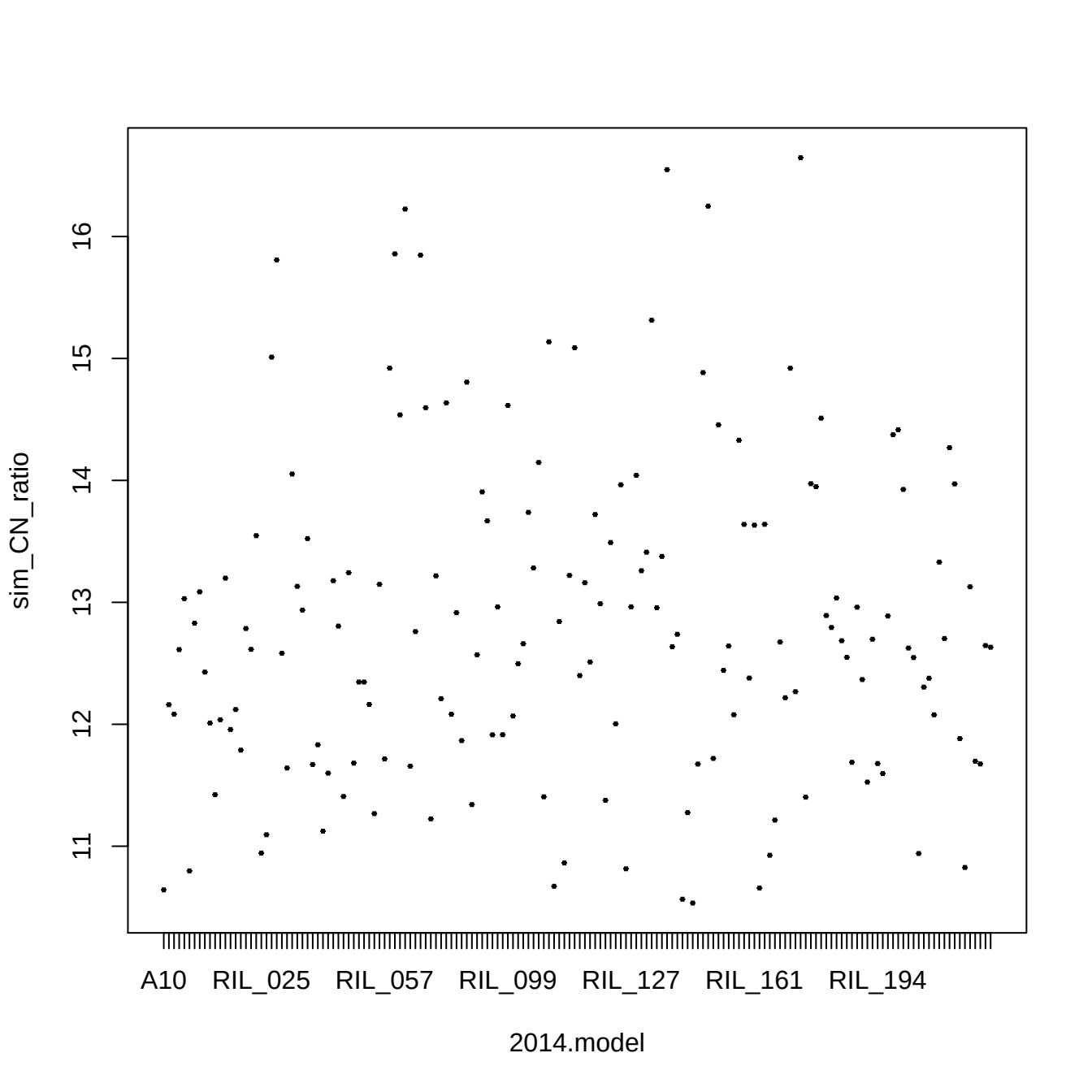

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−1.5
−1.0
−0.5
0.0
0.5
1.0
−3
−2
−1
0
1
2
3

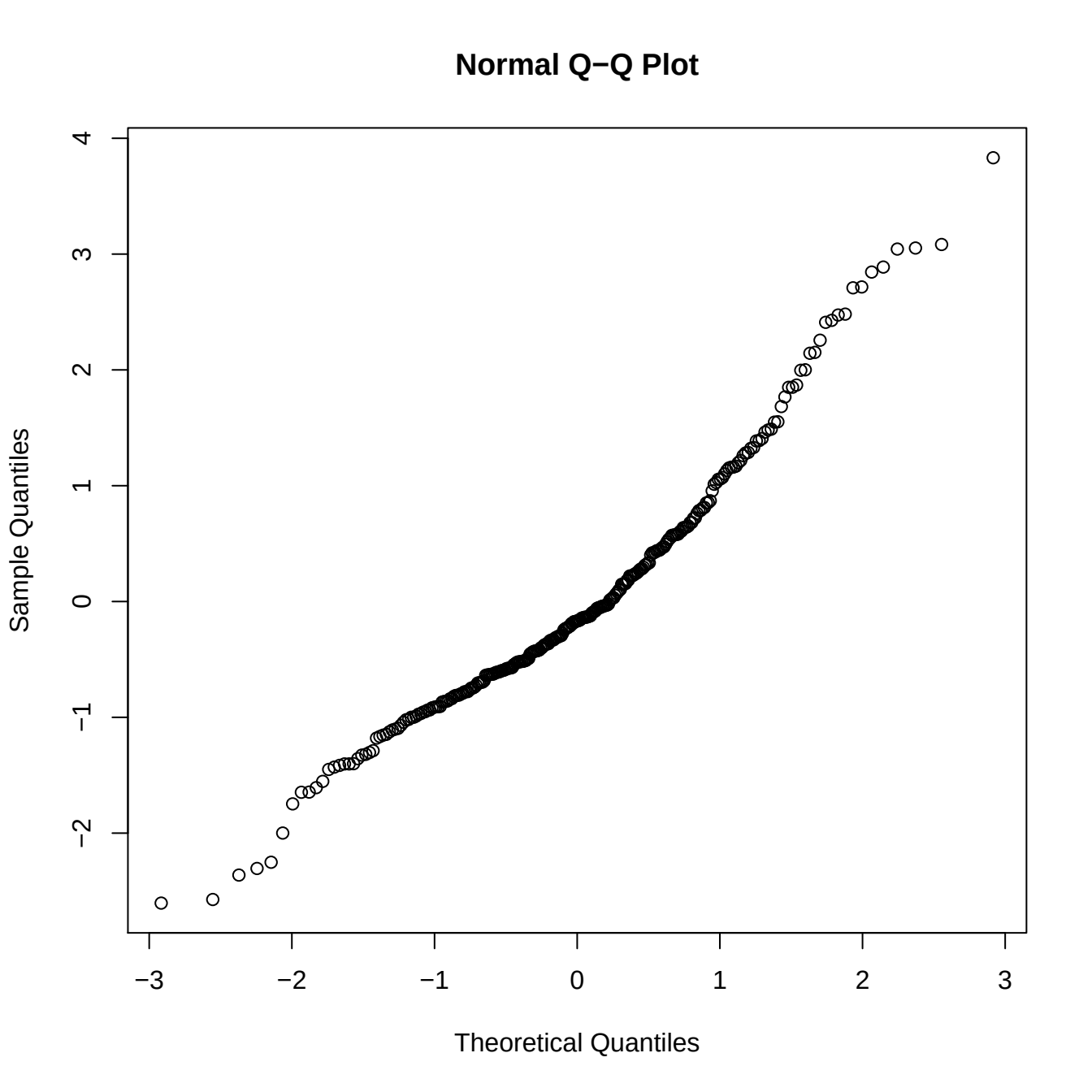

ril.data$residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
2
3
4
5
ril.data$predicted

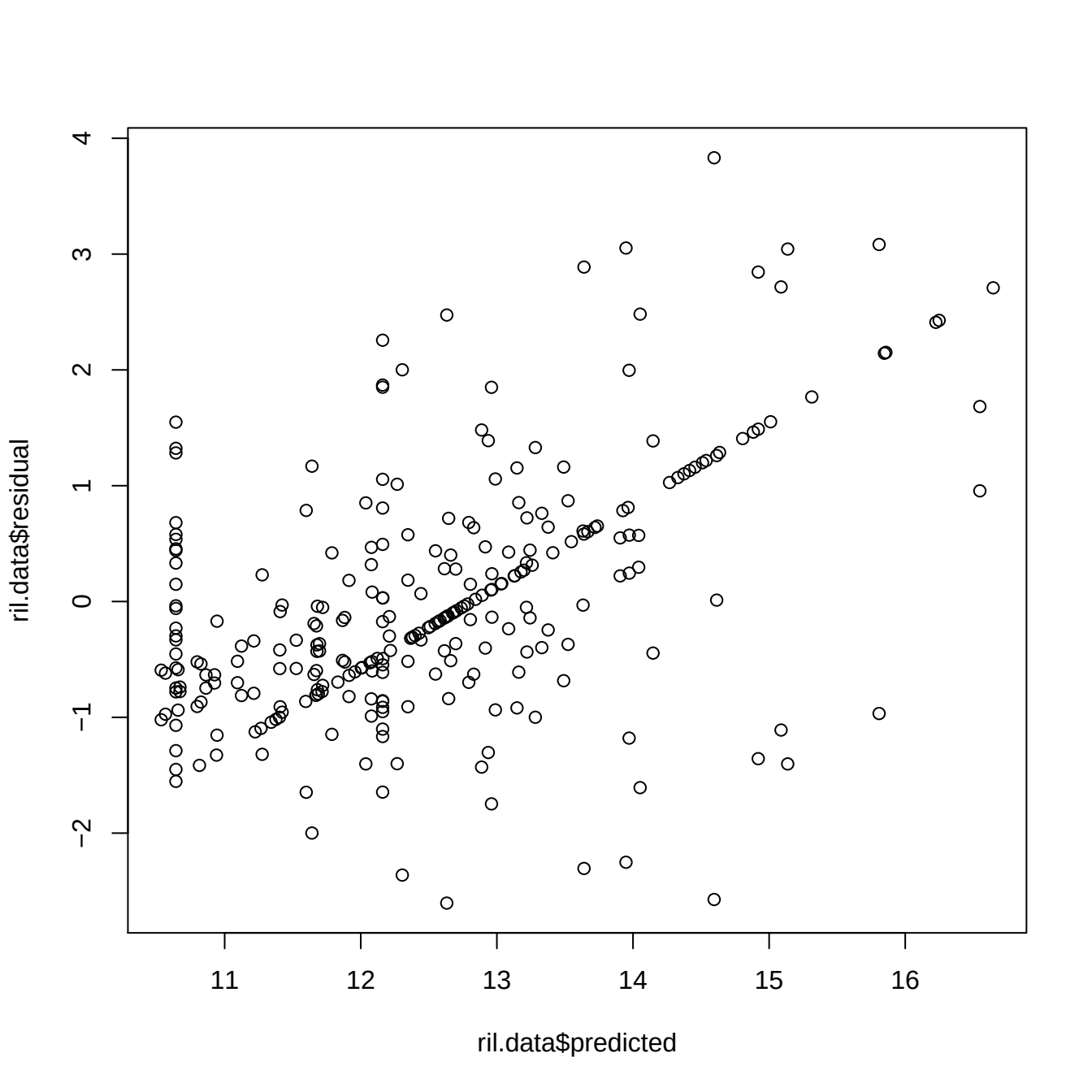

reproductive_vegetative_mass_ratio
0.90
0.85
0.80
0.75
0.70
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

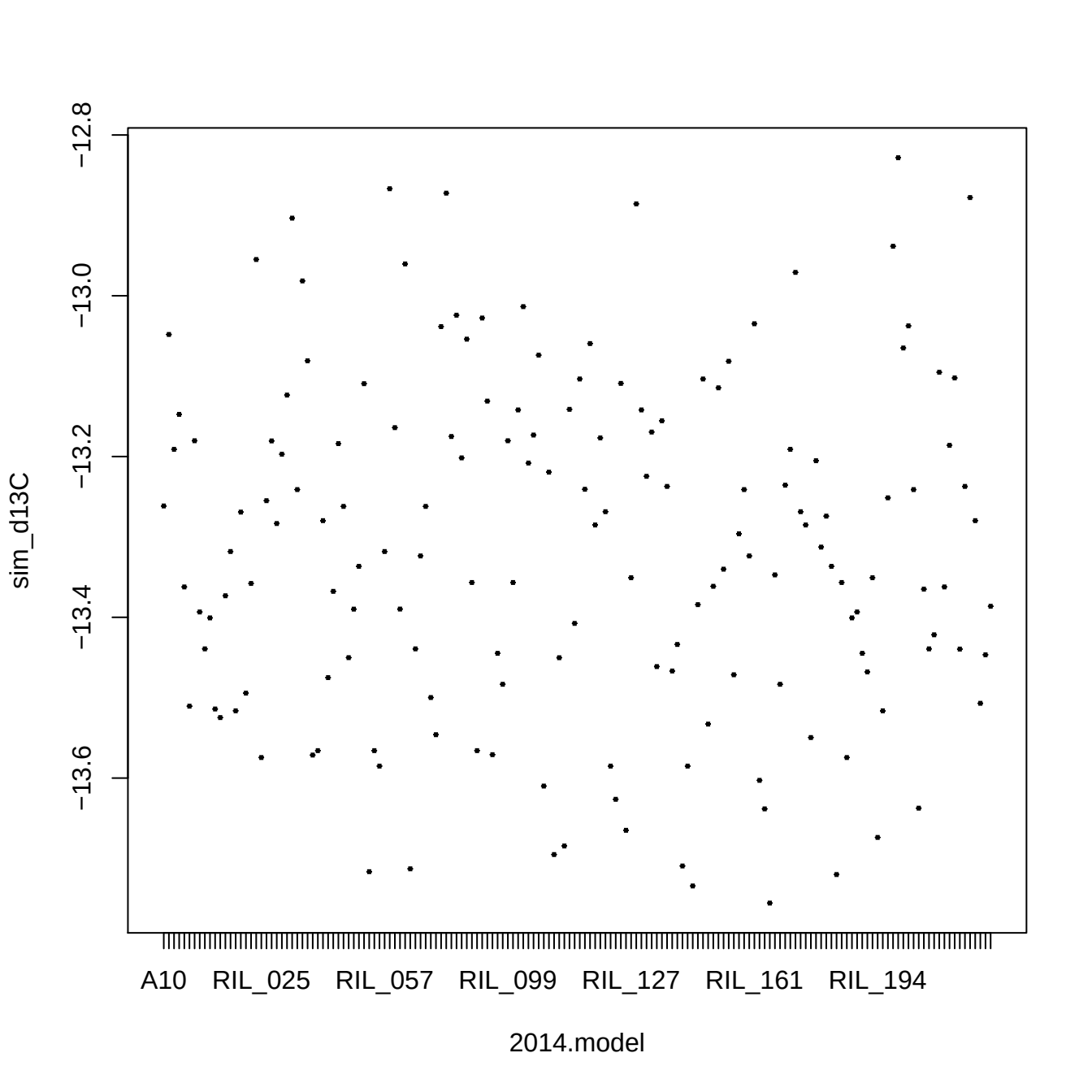

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
3
2
1
0
−3
−2
−1
0
1
2
3

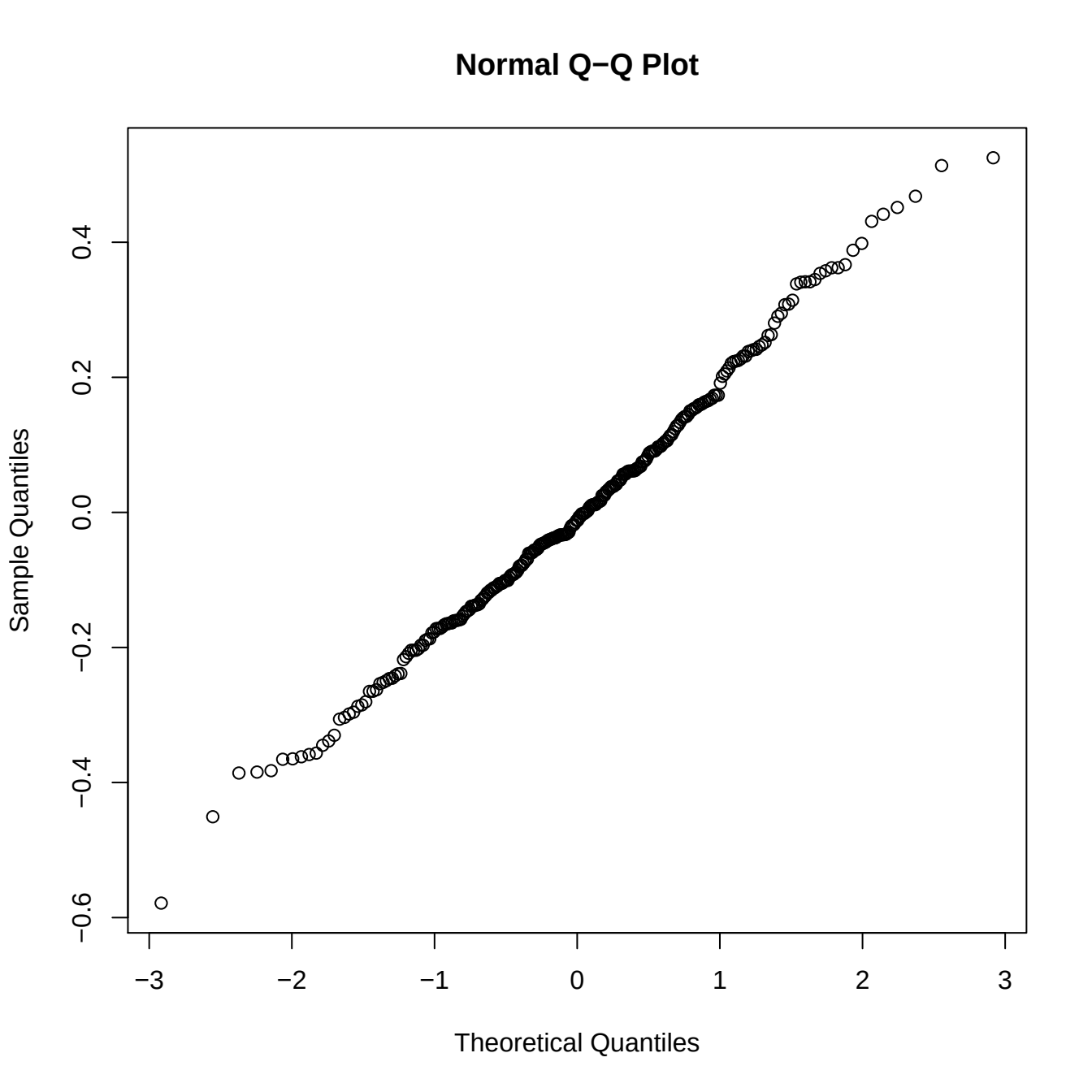

ril.data$residual
3
2
1
0
0.70
0.75
0.80
0.85
0.90
ril.data$predicted

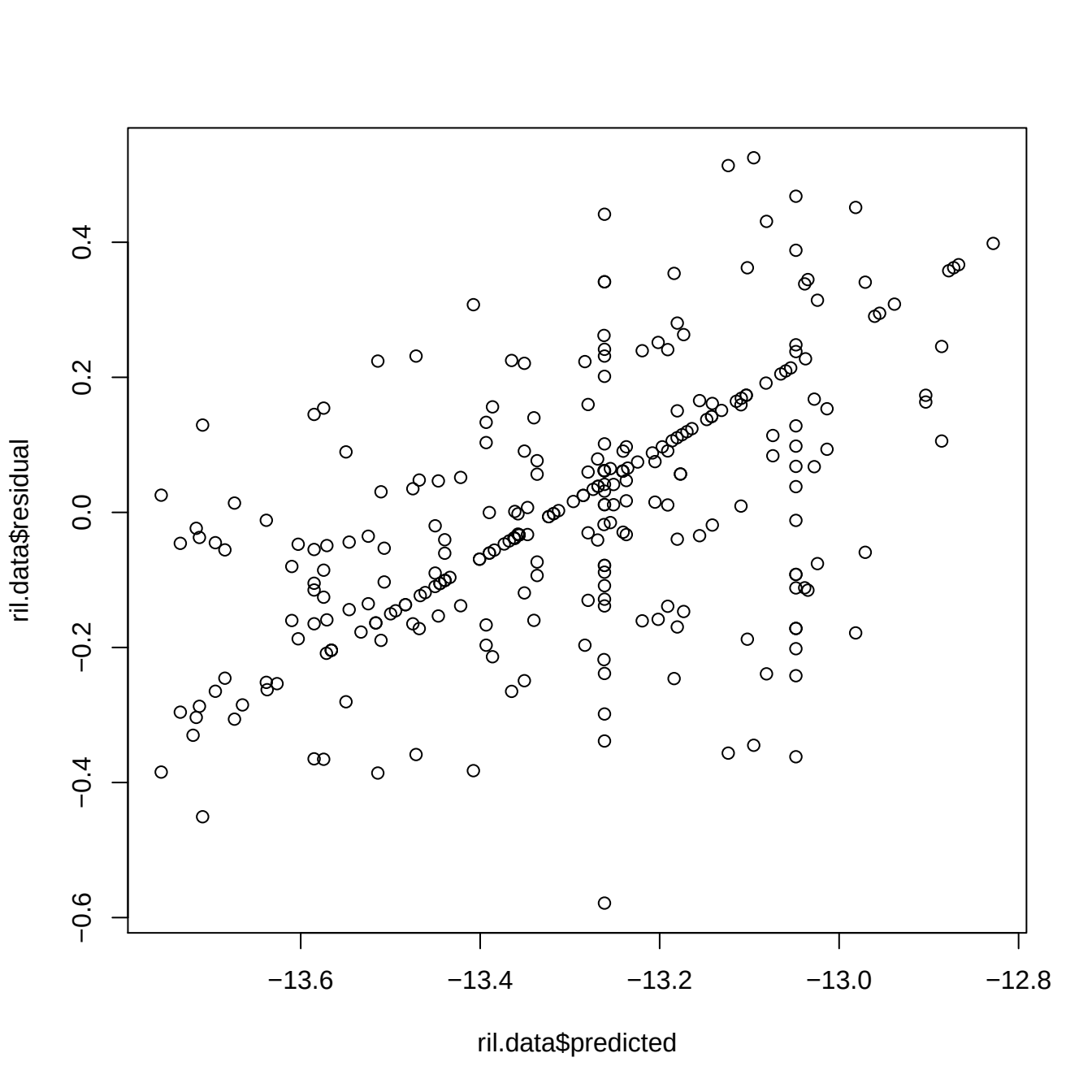

sim_CN_ratio
11
12
13
14
15
16
A10
RIL_025
RIL_057
RIL_099
RIL_127
RIL_161
RIL_194
2014.model

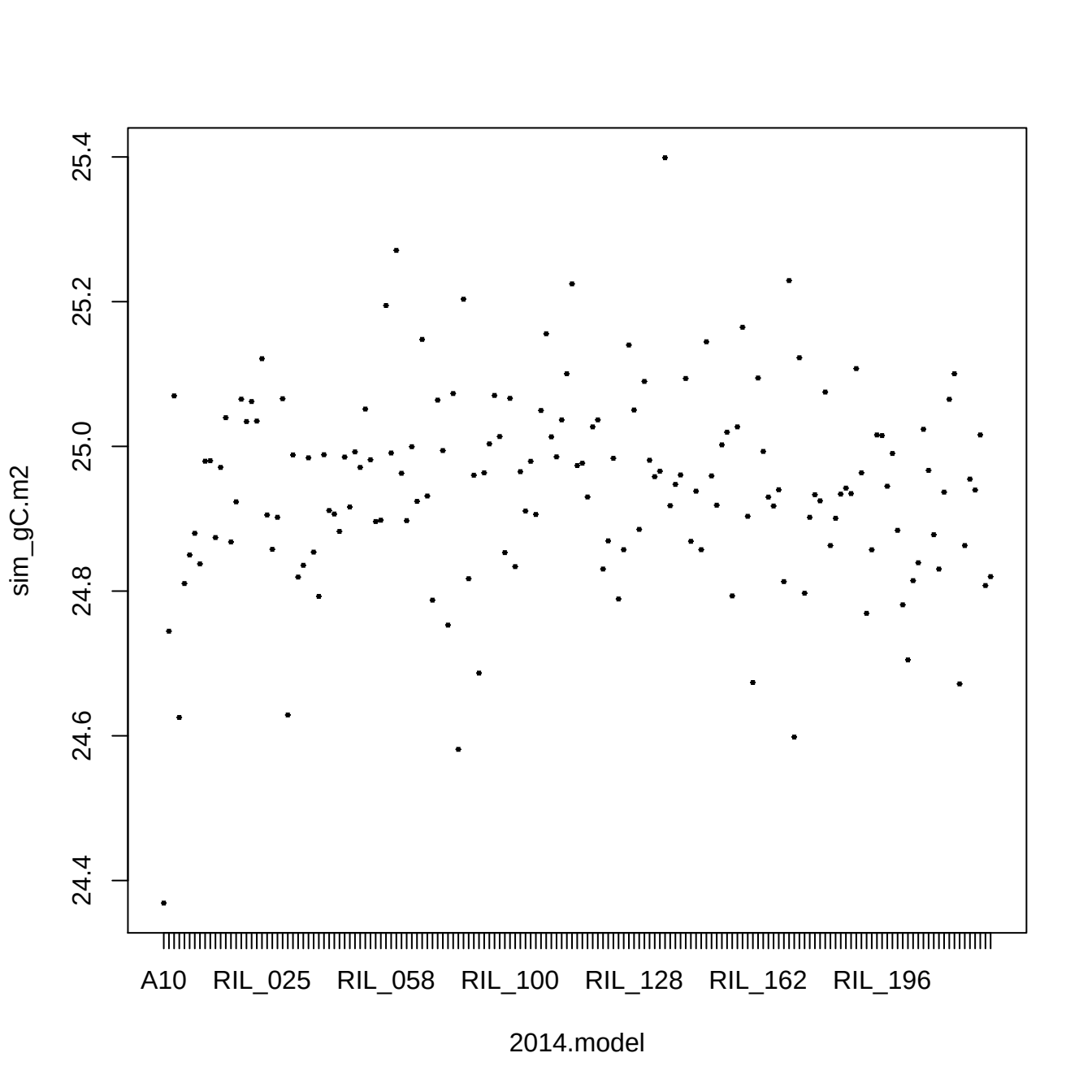

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
4
3
2
1
0
−1
−2
−3
−2
−1
0
1
2
3

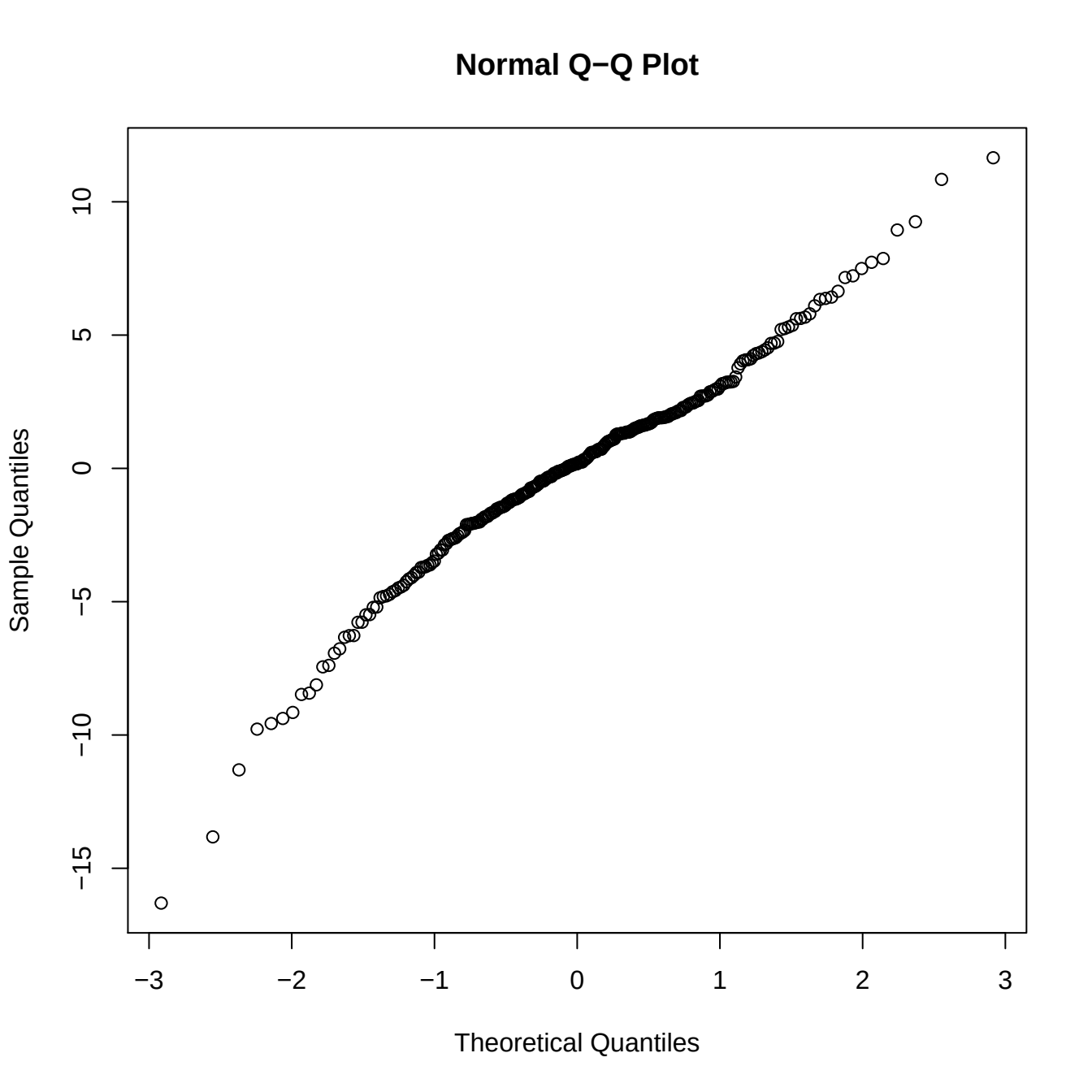

ril.data$residual
4
3
2
1
0
−1
−2
11
12
13
14
15
16
ril.data$predicted

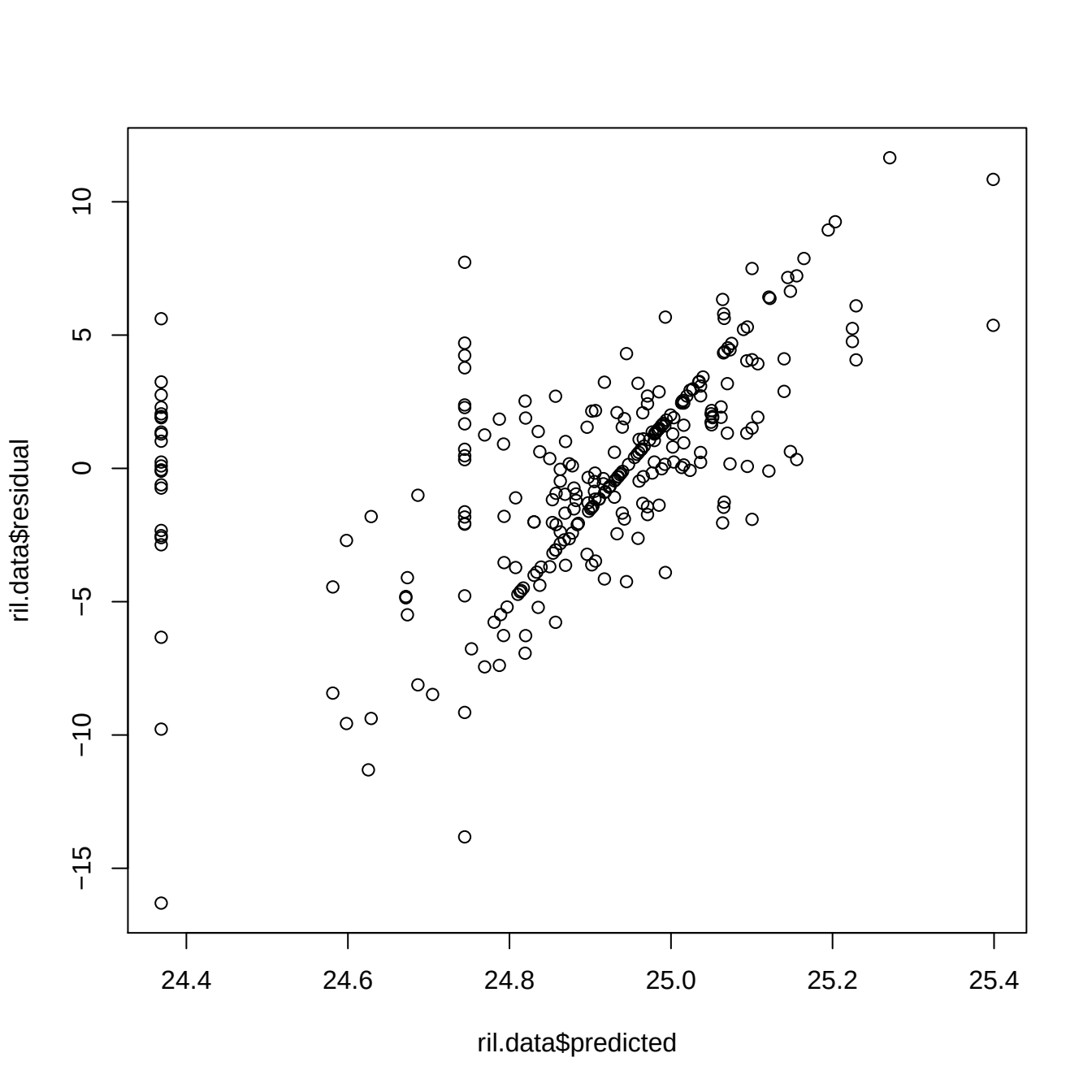

sim_d13C
−12.8
−13.0
−13.2
−13.4
−13.6
A10
RIL_025
RIL_057
RIL_099
RIL_127
RIL_161
RIL_194
2014.model

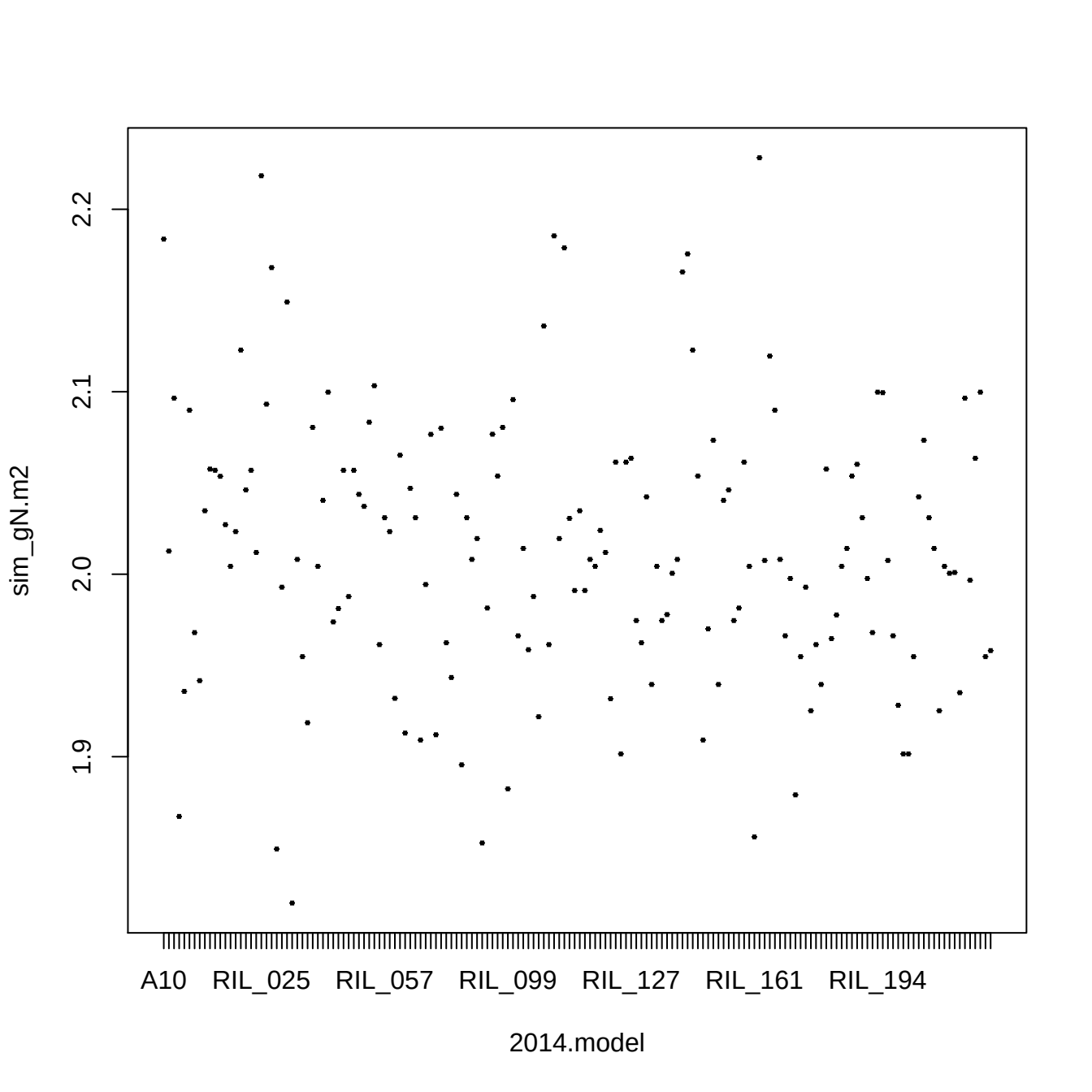

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−0.6
−0.4
−0.2
0.0
0.2
0.4
−3
−2
−1
0
1
2
3

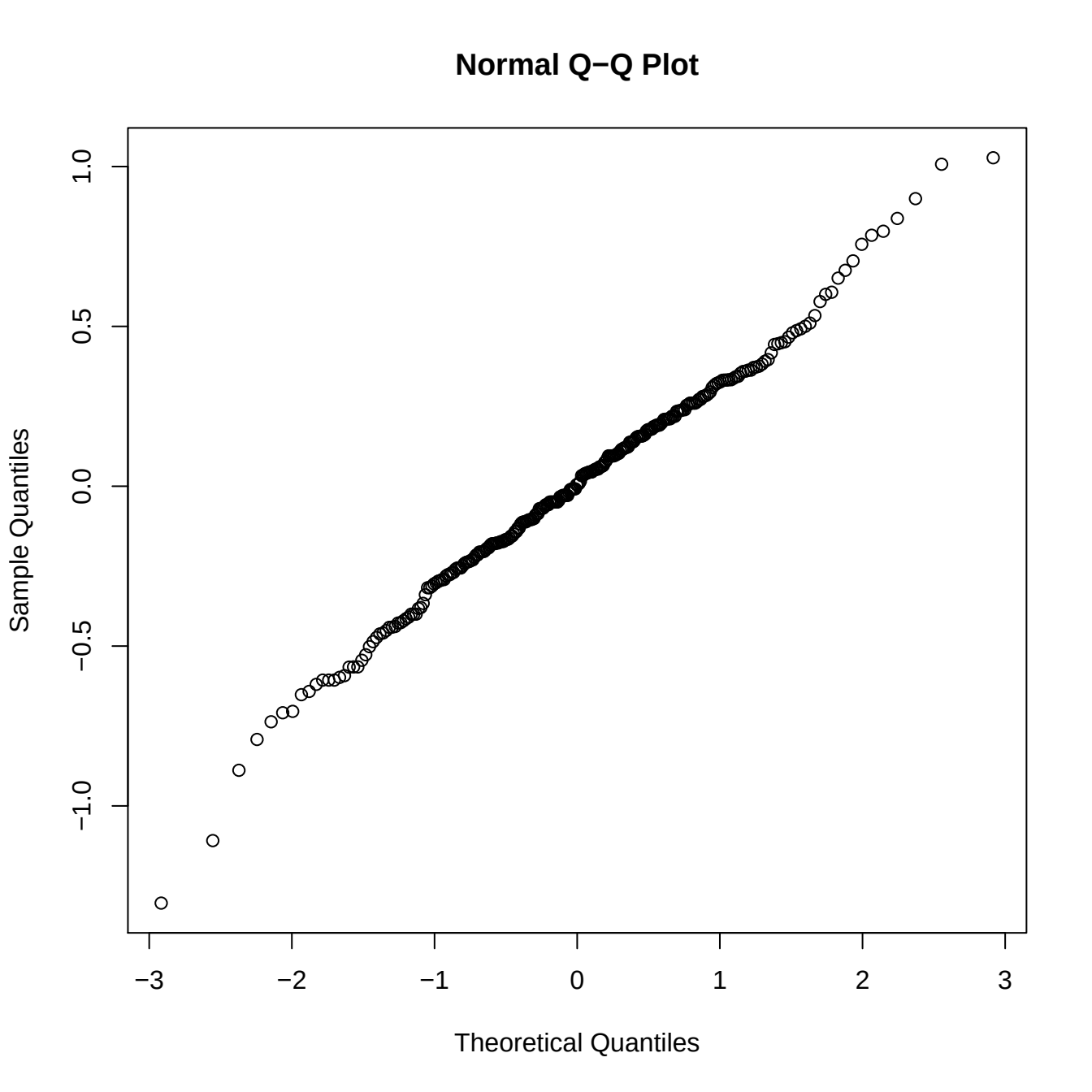

ril.data$residual
0.4
0.2
0.0
−0.2
−0.4
−0.6
−13.6
−13.4
−13.2
−13.0
−12.8
ril.data$predicted

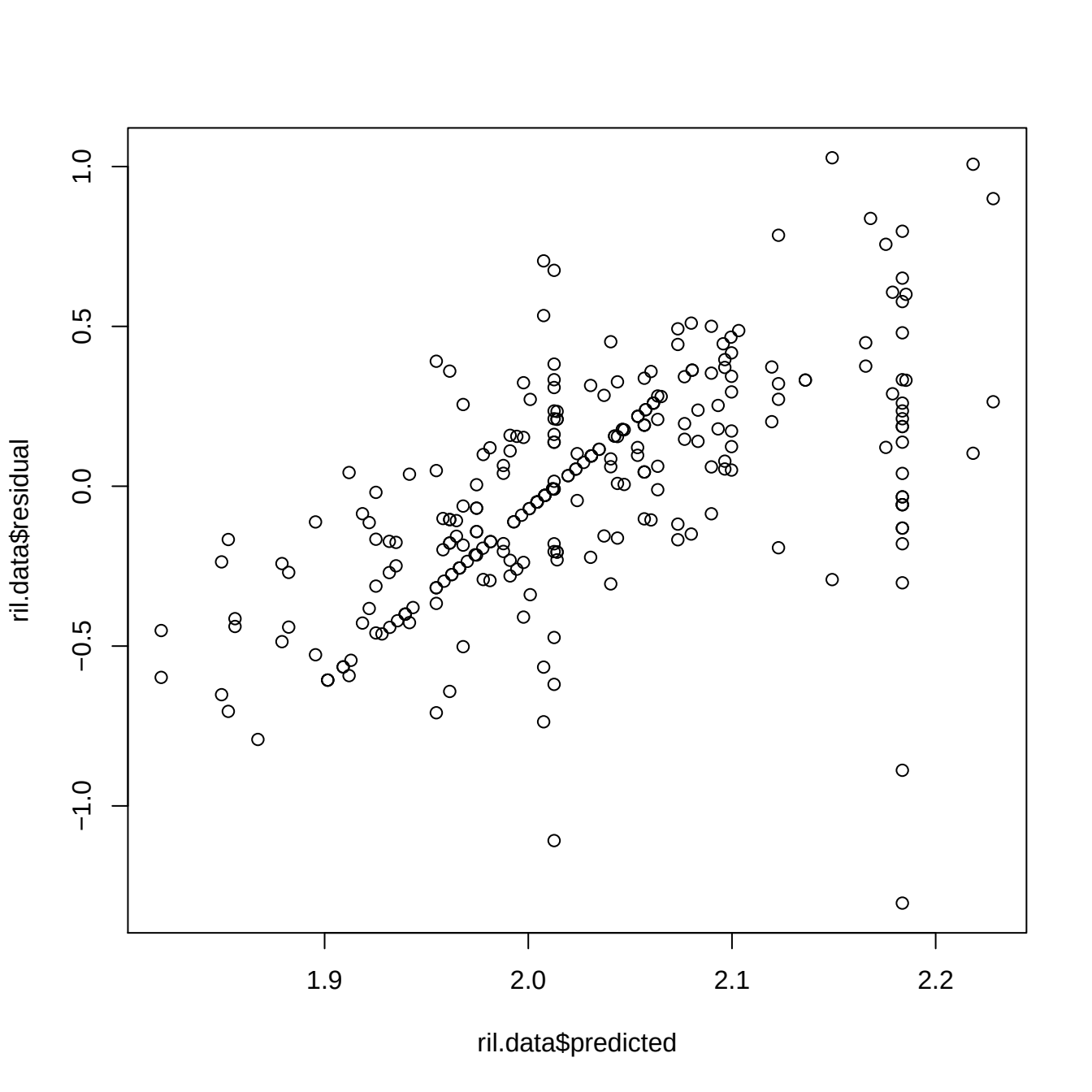

sim_gC.m2
25.4
25.2
25.0
24.8
24.6
24.4
A10
RIL_025
RIL_058
RIL_100
RIL_128
RIL_162
RIL_196
2014.model

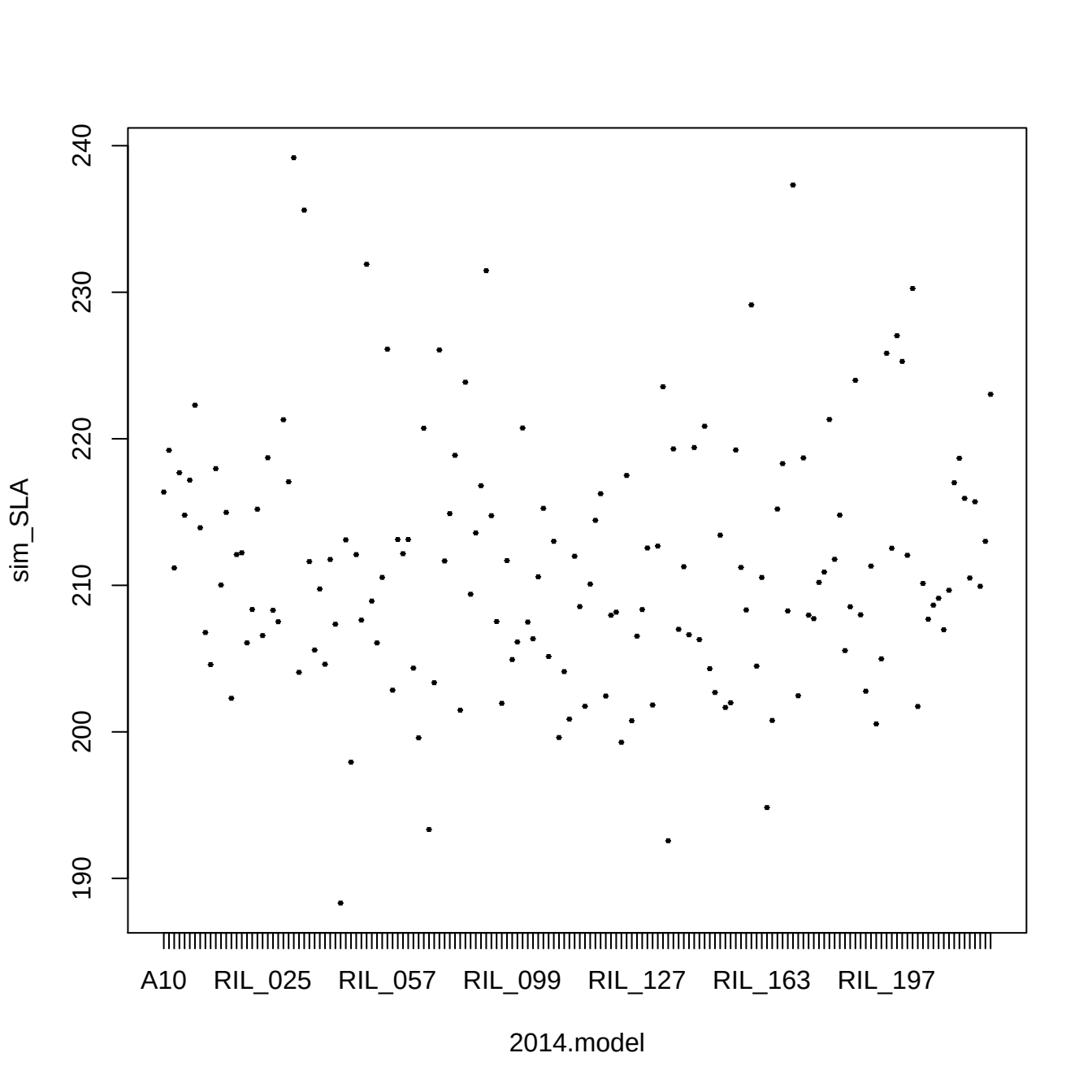

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
10
5
0
−5
−10
−15
−3
−2
−1
0
1
2
3

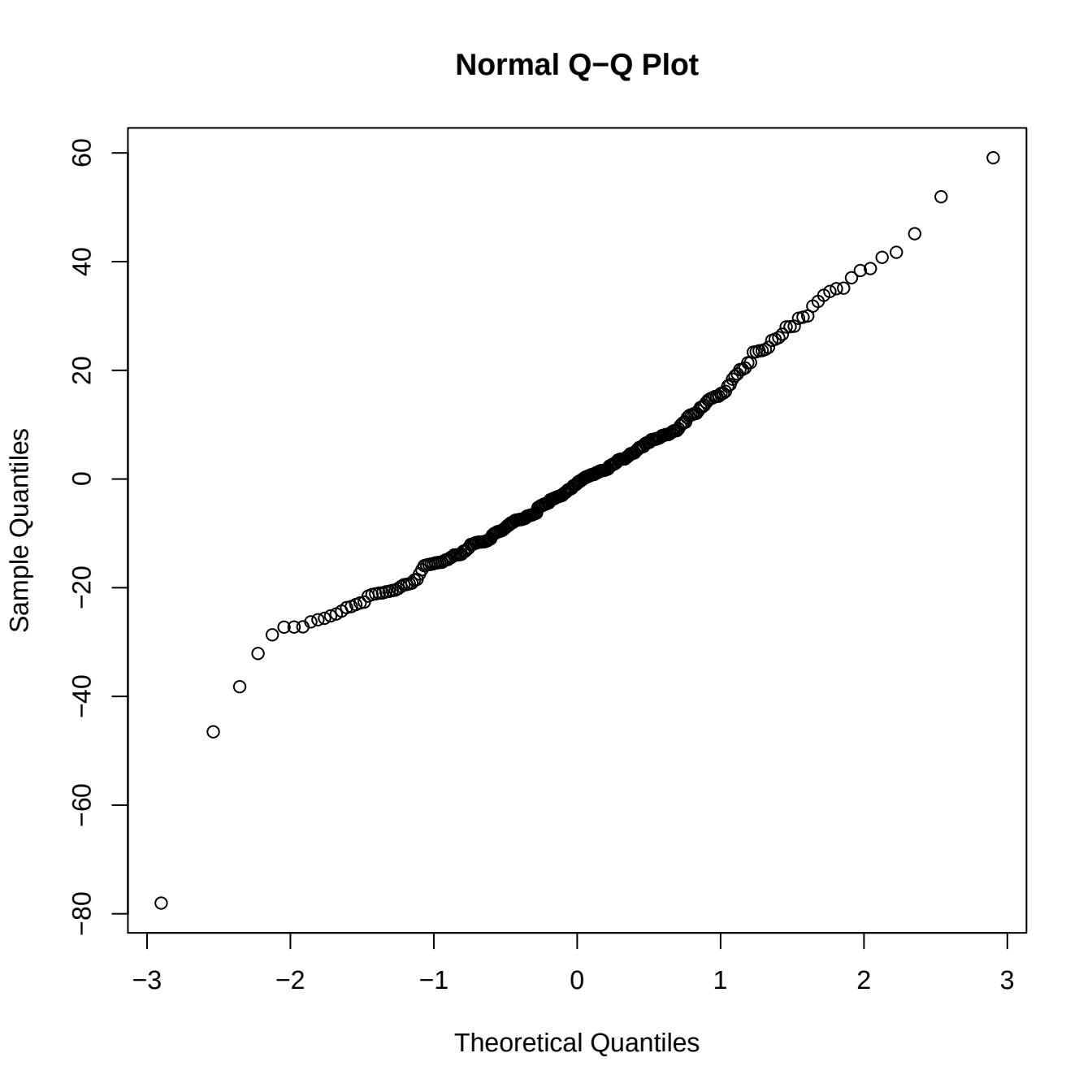

ril.data$residual
10
5
0
−5
−10
−15
24.4
24.6
24.8
25.0
25.2
25.4
ril.data$predicted

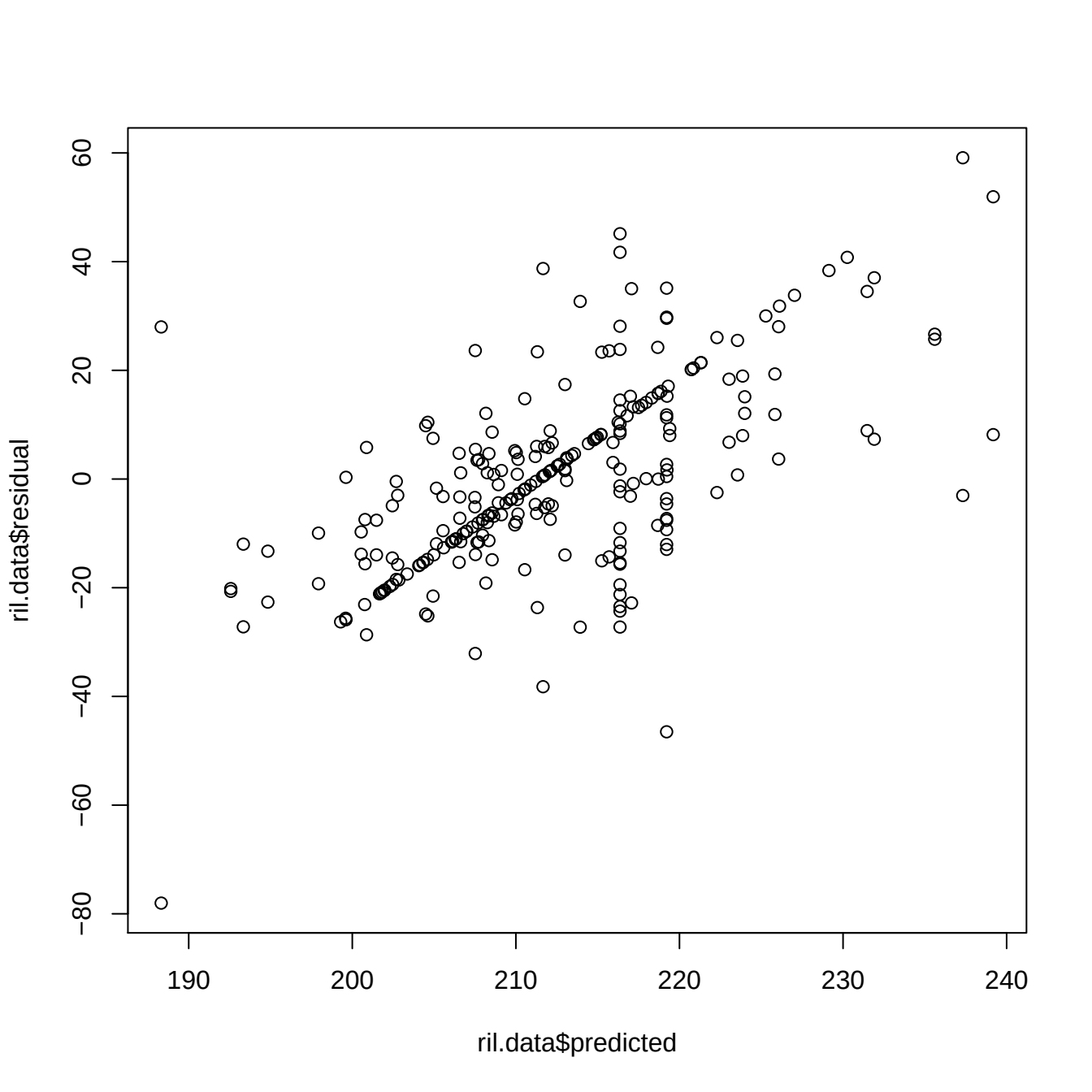

sim_gN.m2
1.9
2.0
2.1
2.2
A10
RIL_025
RIL_057
RIL_099
RIL_127
RIL_161
RIL_194
2014.model

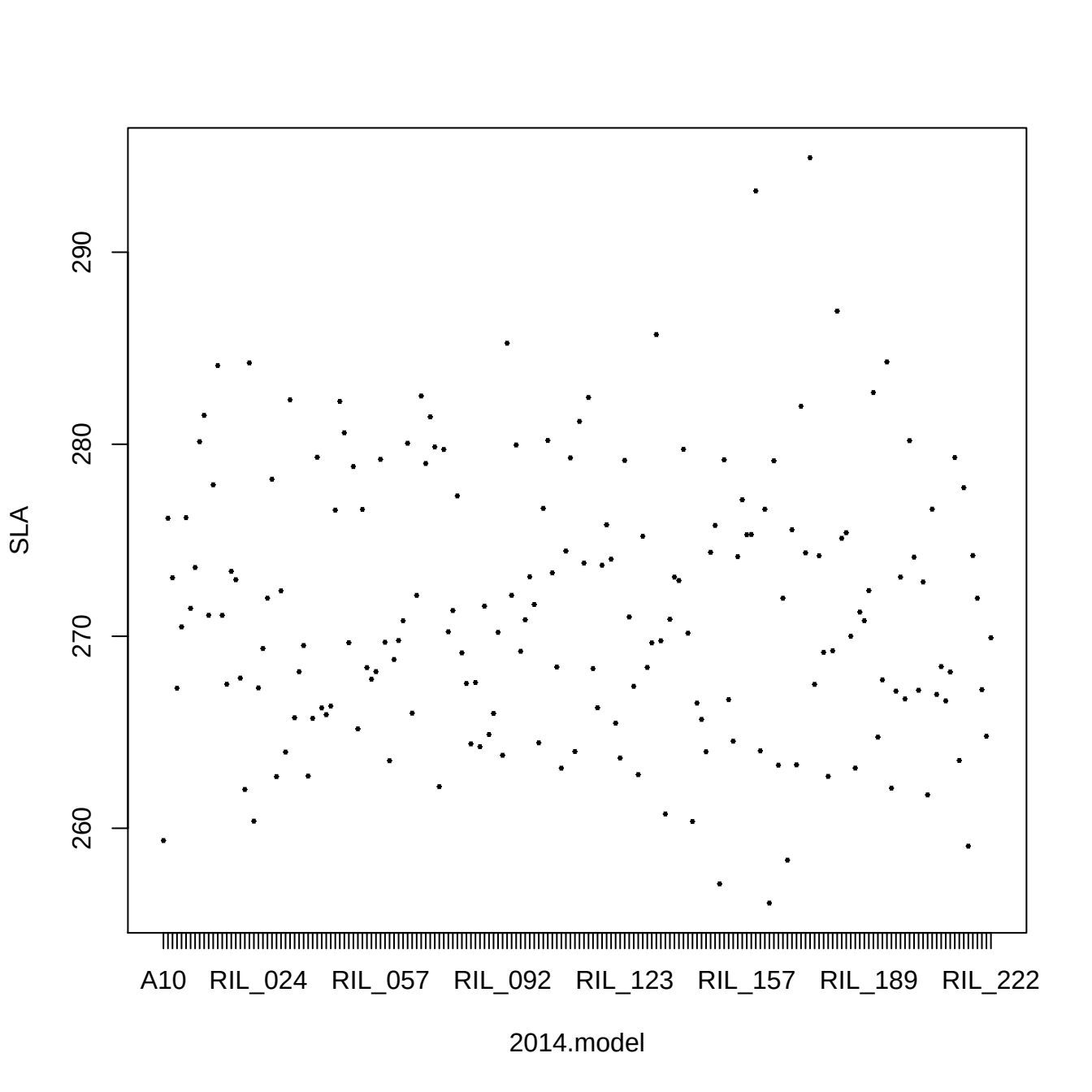

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
1.0
0.5
0.0
−0.5
−1.0
−3
−2
−1
0
1
2
3

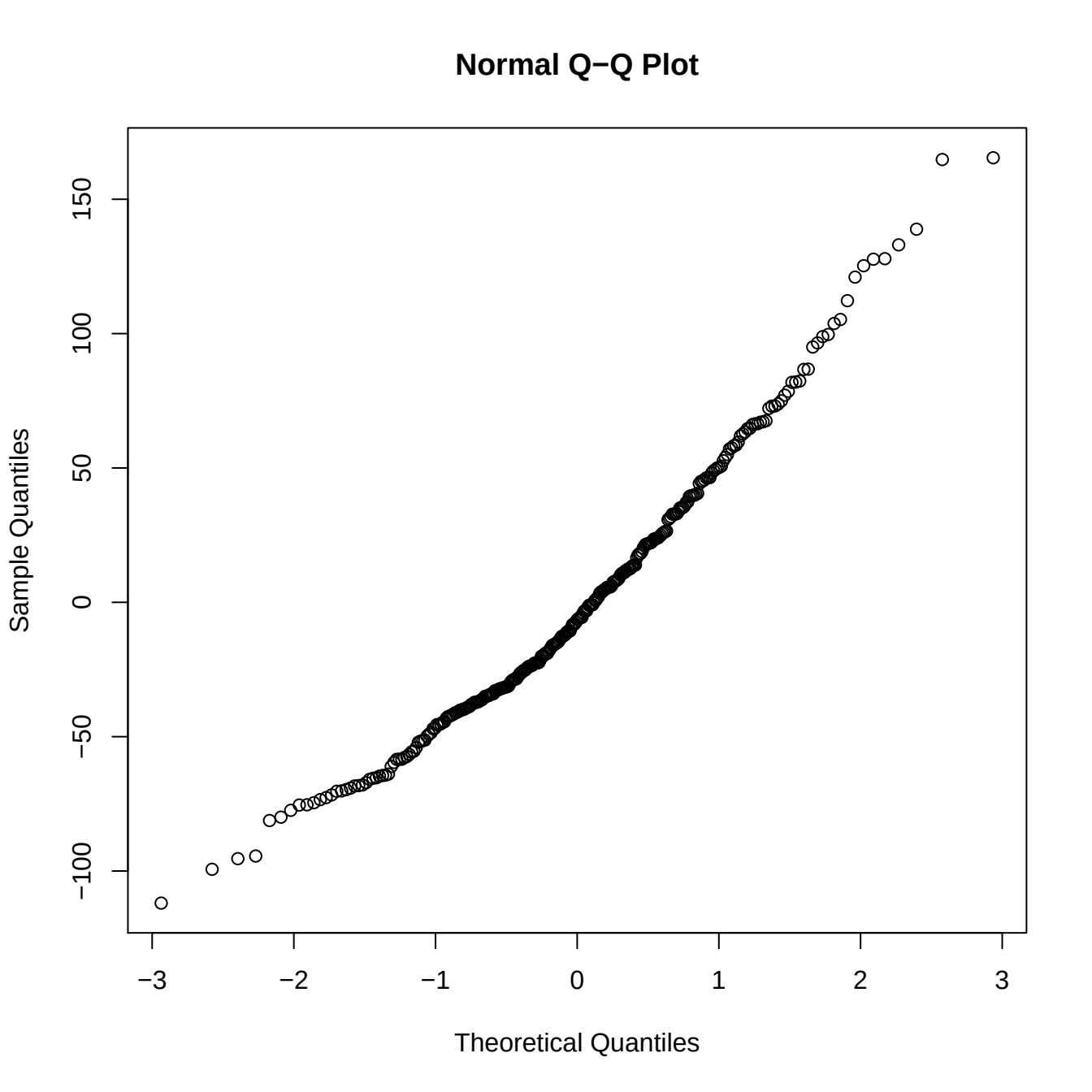

ril.data$residual
1.0
0.5
0.0
−0.5
−1.0
1.9
2.0
2.1
2.2
ril.data$predicted

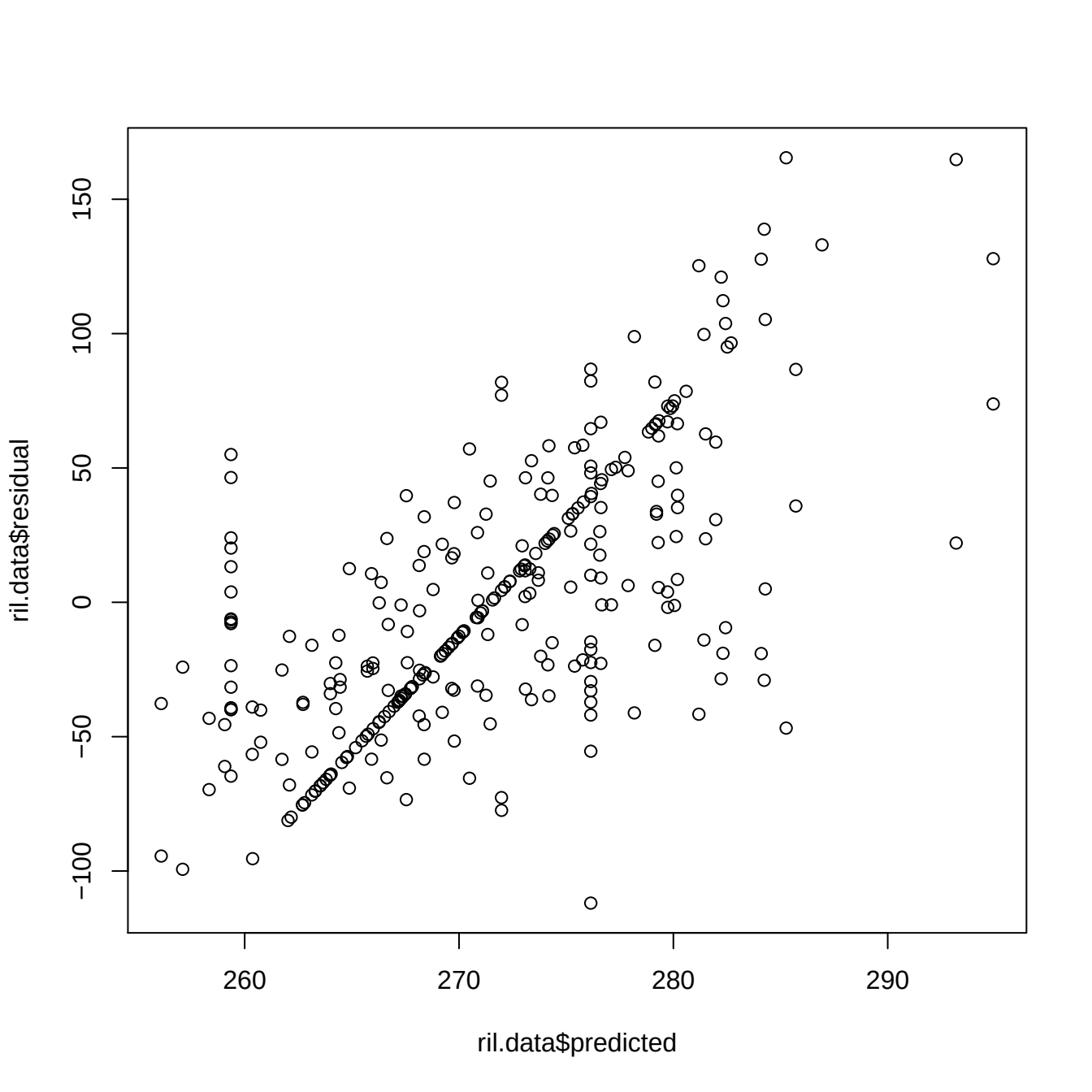

sim_SLA
240
230
220
210
200
190
A10
RIL_025
RIL_057
RIL_099
RIL_127
RIL_163
RIL_197
2014.model

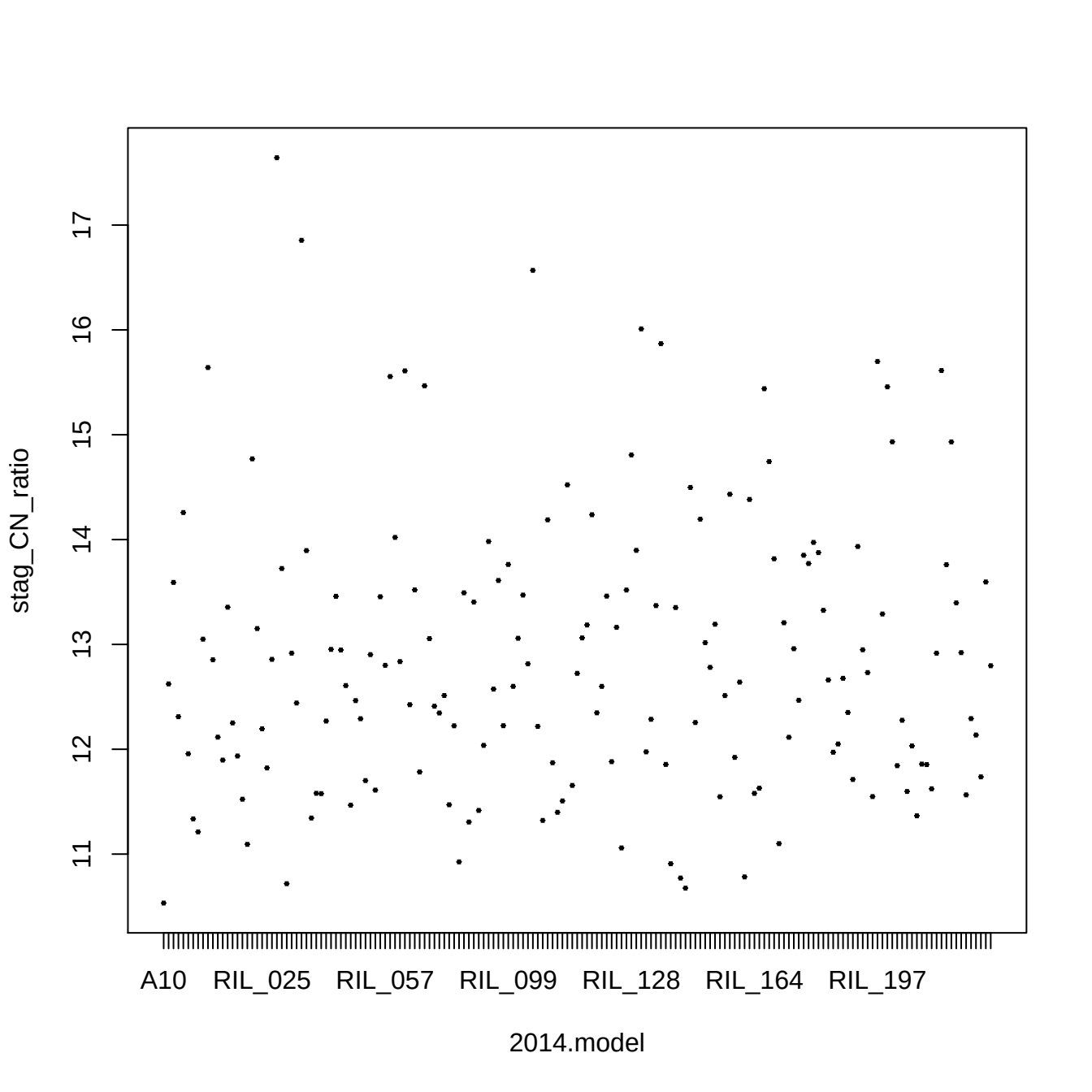

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
60
40
20
0
−20
−40
−60
−80
−3
−2
−1
0
1
2
3

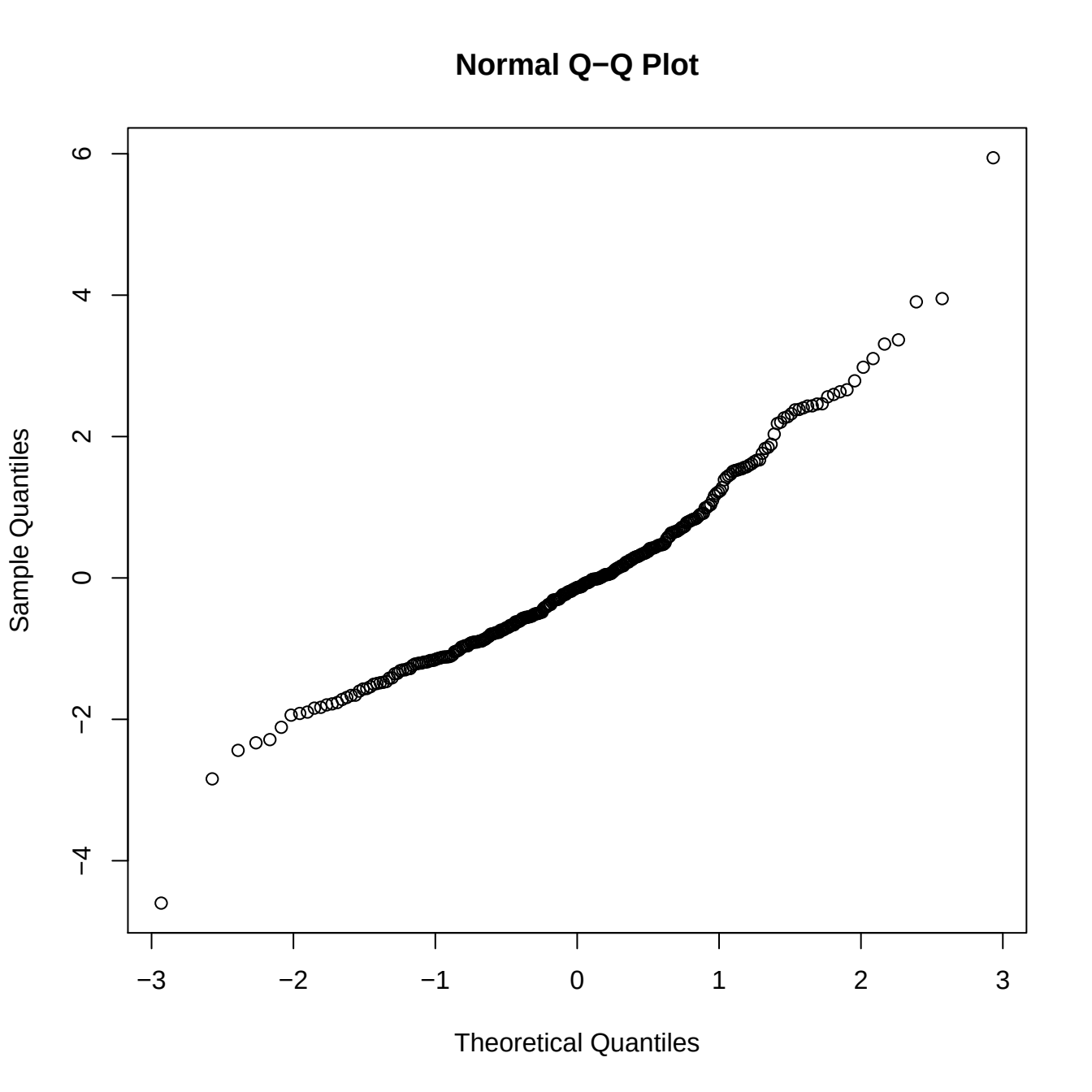

ril.data$residual
60
40
20
0
−20
−40
−60
−80
190
200
210
220
230
240
ril.data$predicted

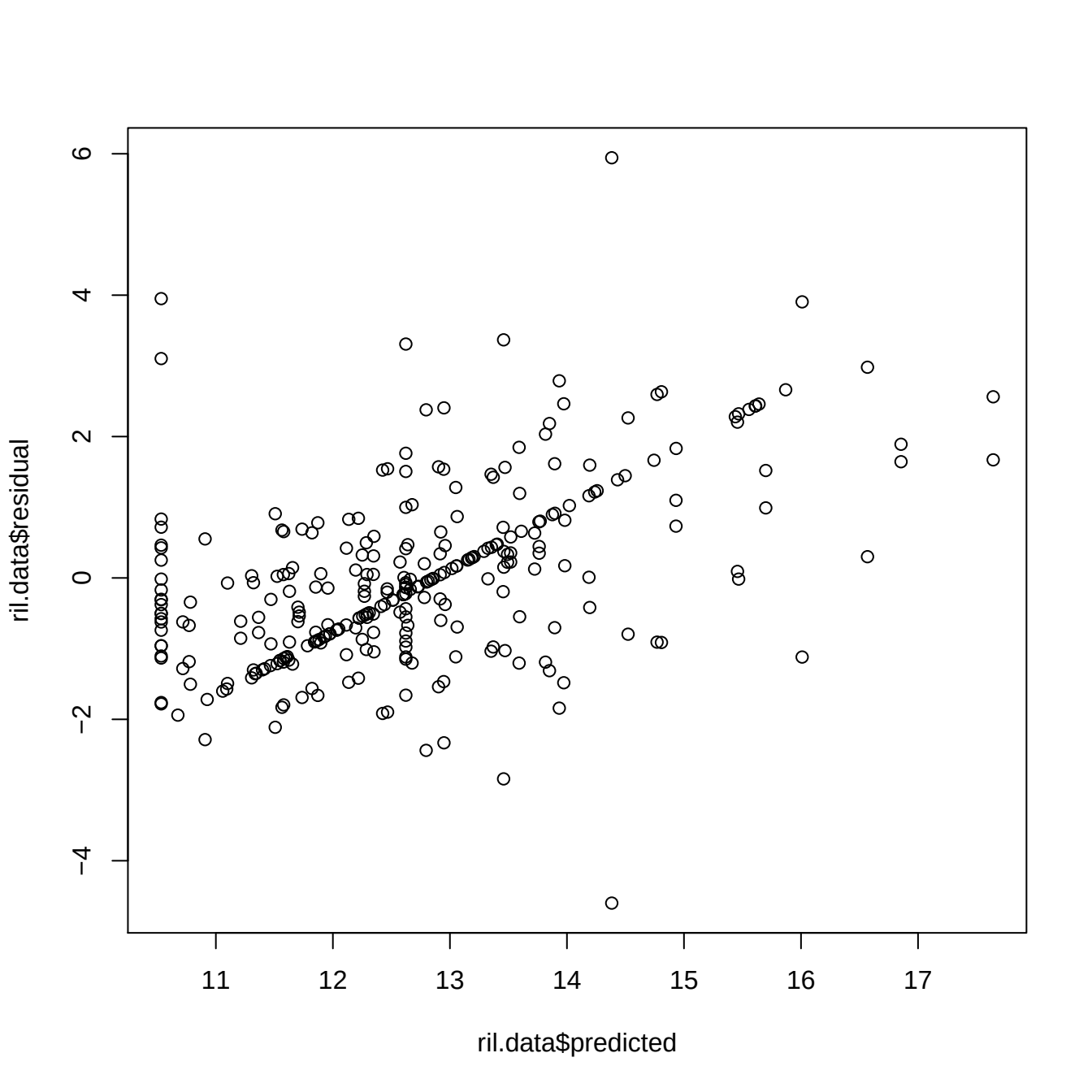

SLA
260
270
280
290
A10
RIL_024
RIL_057
RIL_092
RIL_123
RIL_157
RIL_189
RIL_222
2014.model

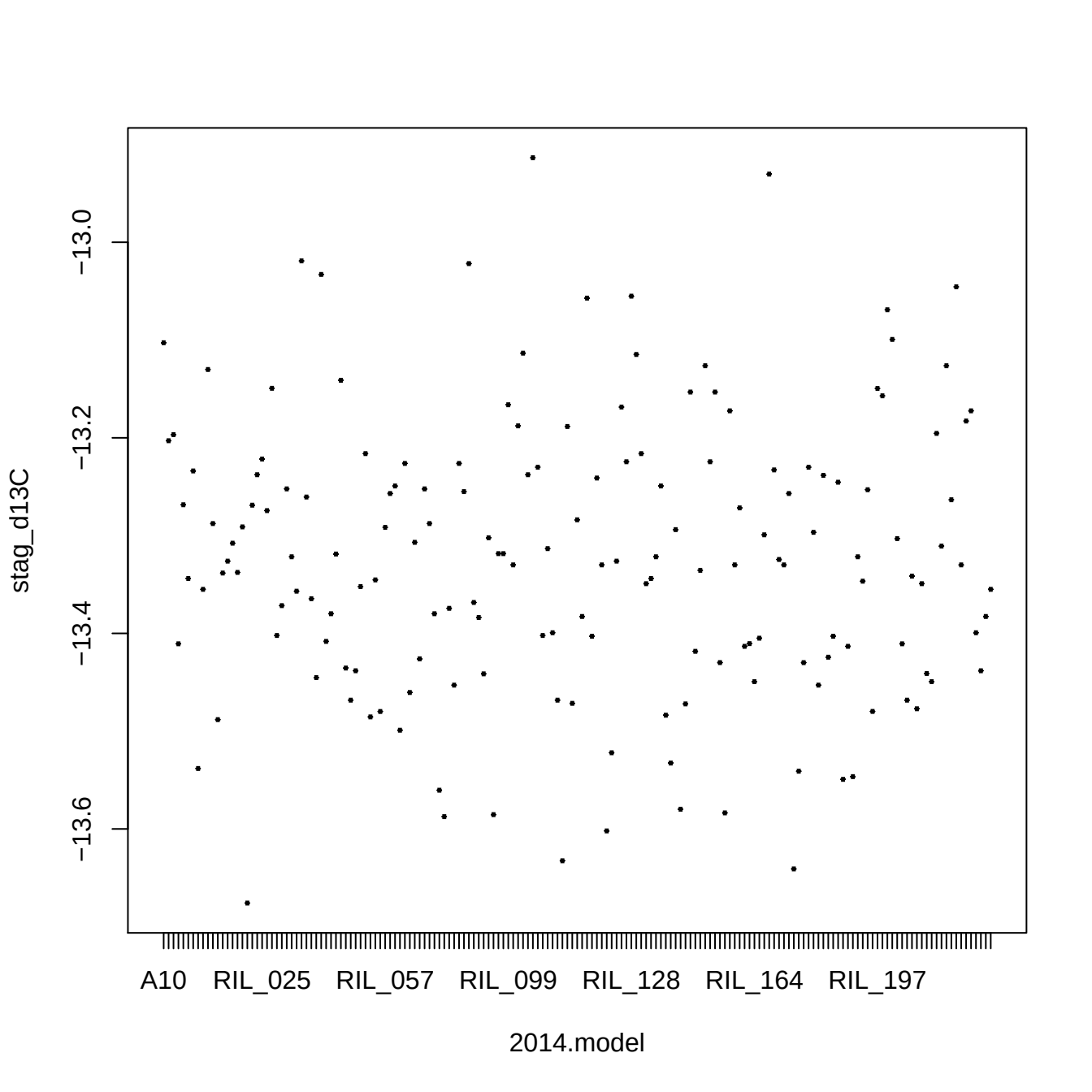

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
150
100
50
0
−50
−100
−3
−2
−1
0
1
2
3

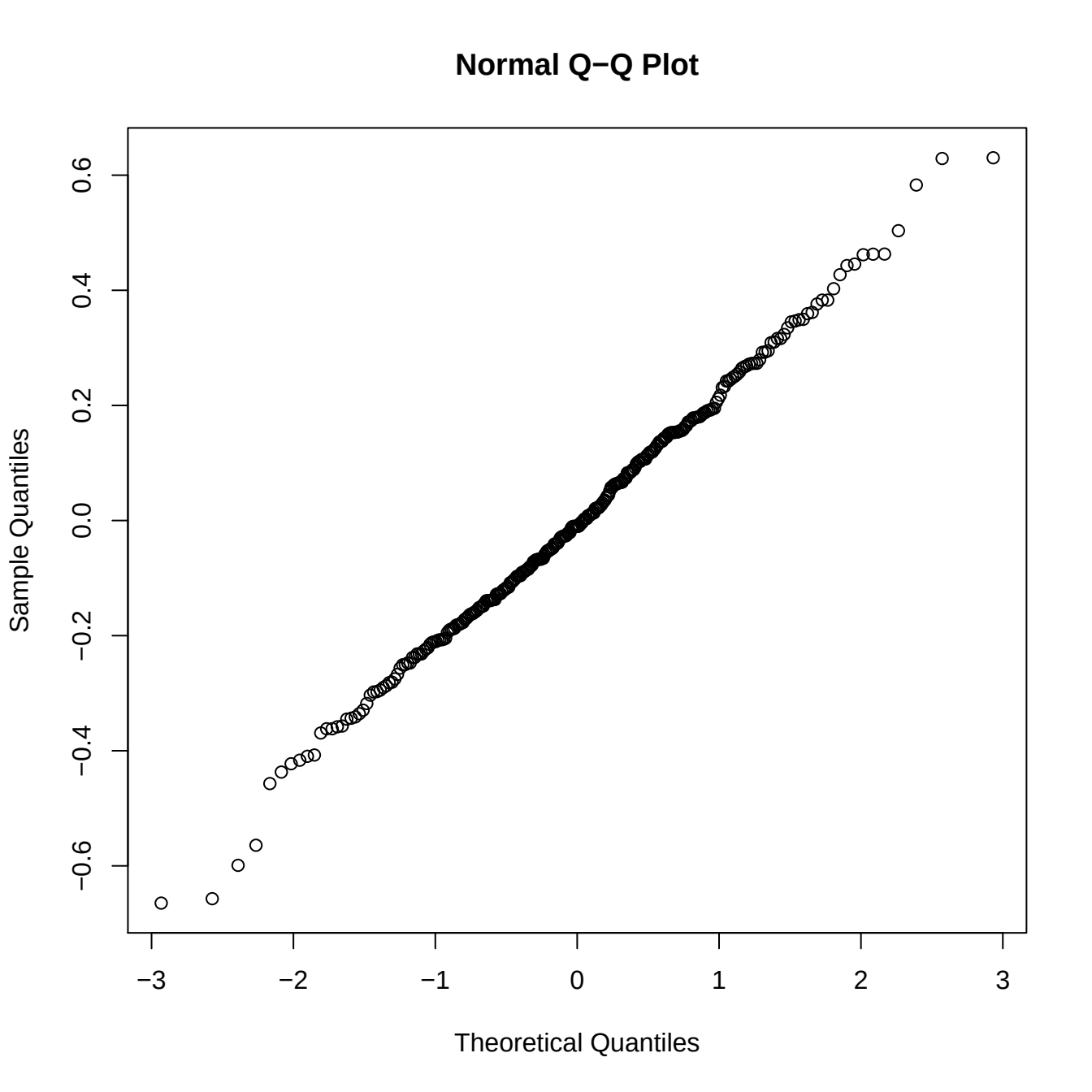

ril.data$residual
150
100
50
0
−50
−100
260
270
280
290
ril.data$predicted

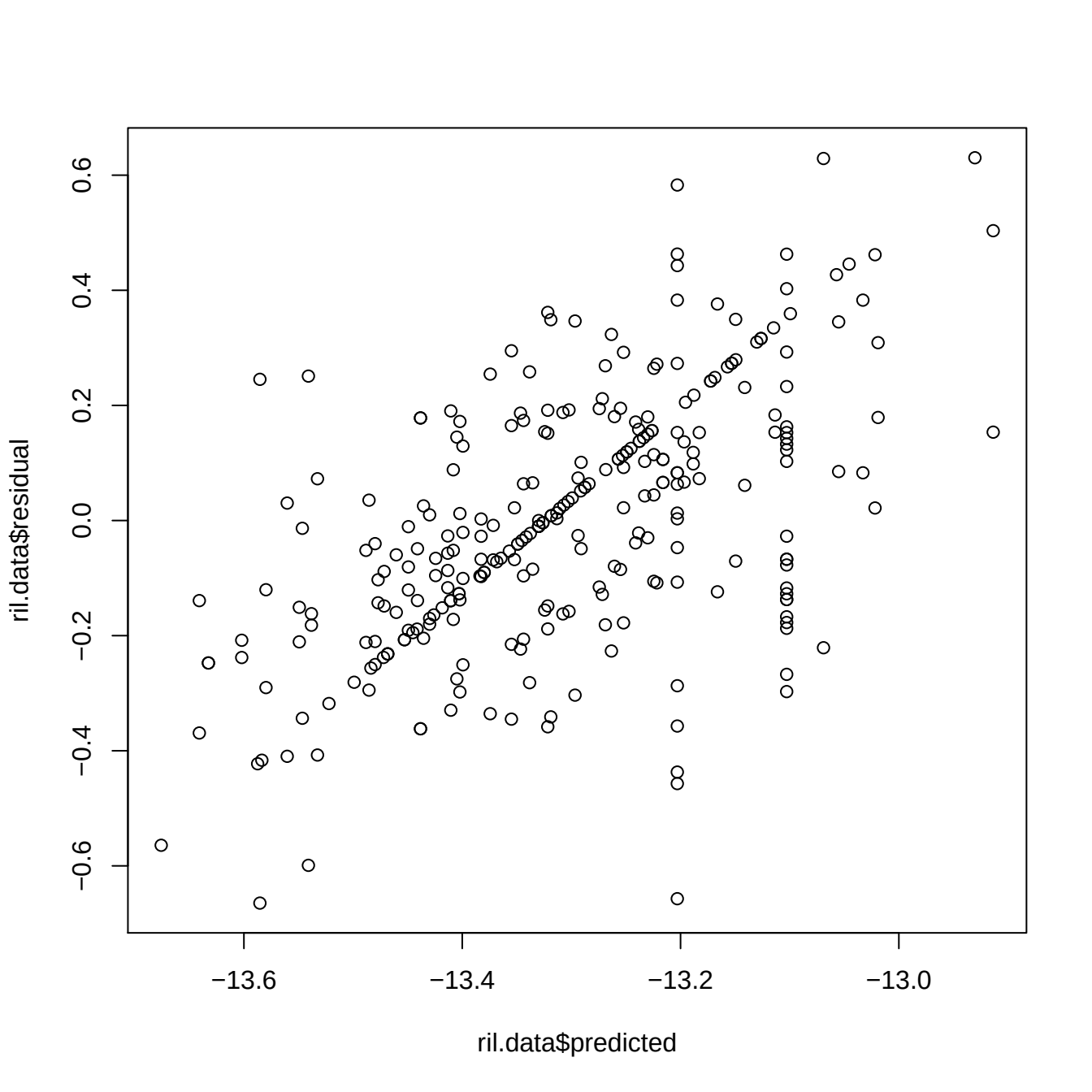

stag_CN_ratio
11
12
13
14
15
16
17
A10
RIL_025
RIL_057
RIL_099
RIL_128
RIL_164
RIL_197
2014.model

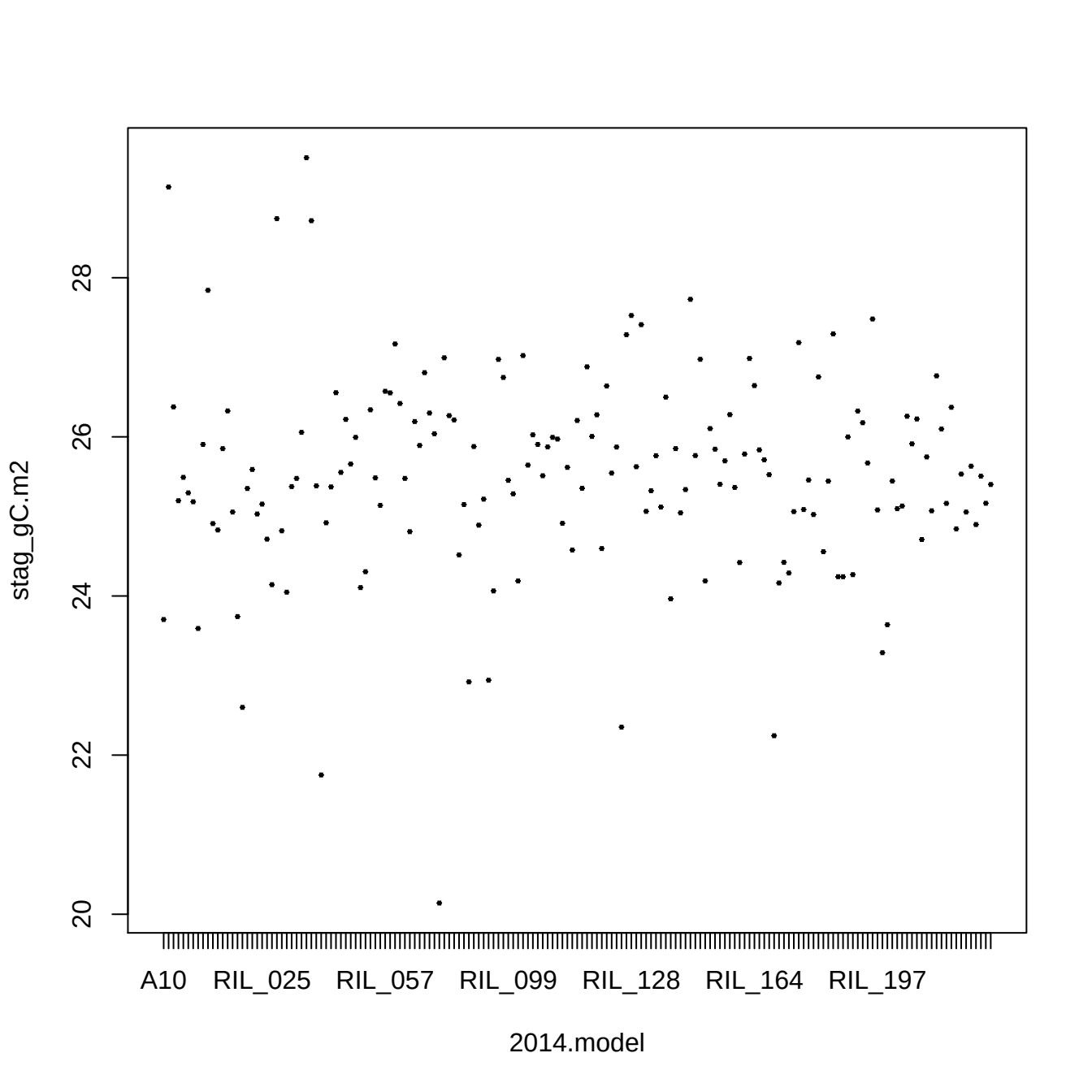

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
6
4
2
0
−2
−4
−3
−2
−1
0
1
2
3

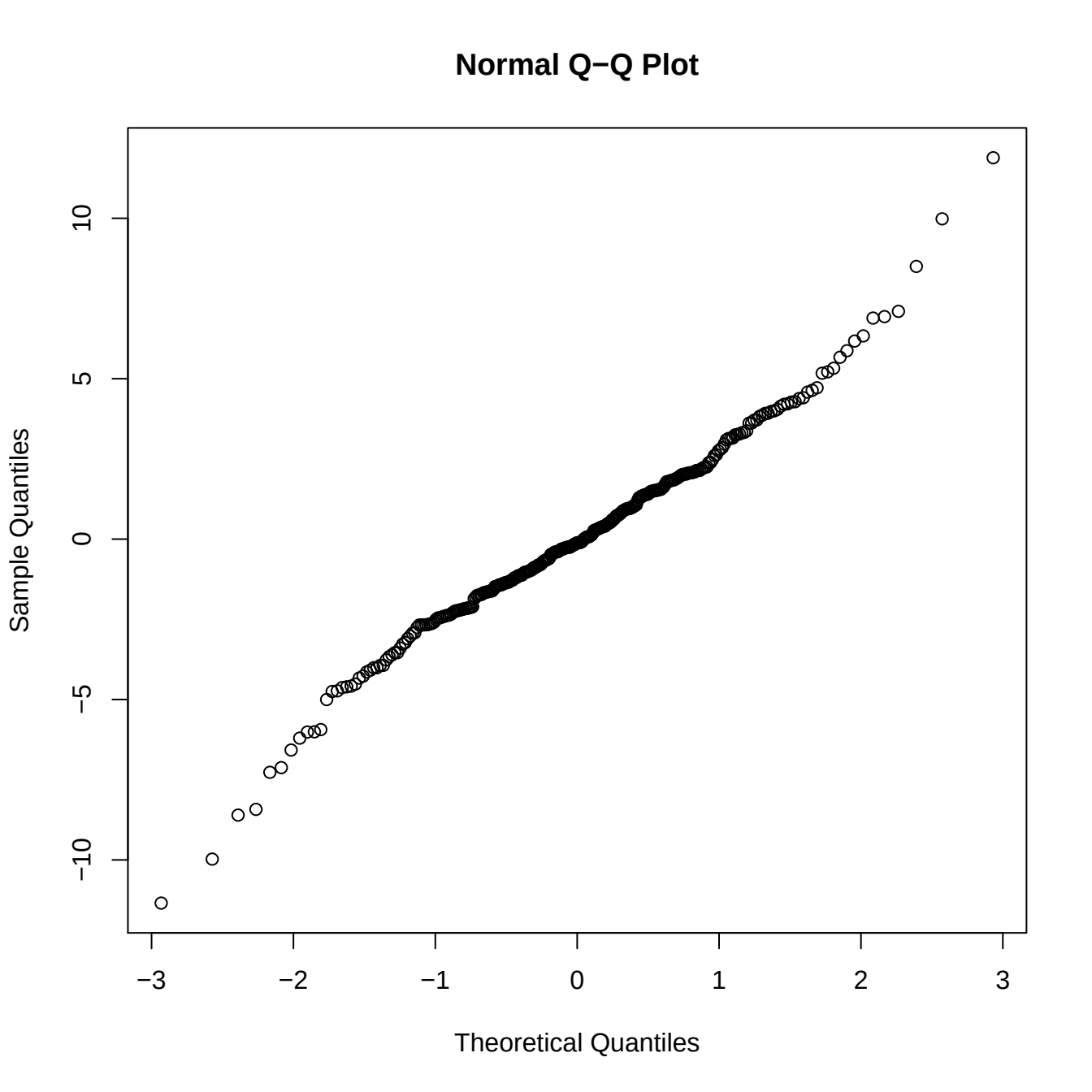

ril.data$residual
6
4
2
0
−2
−4
11
12
13
14
15
16
17
ril.data$predicted

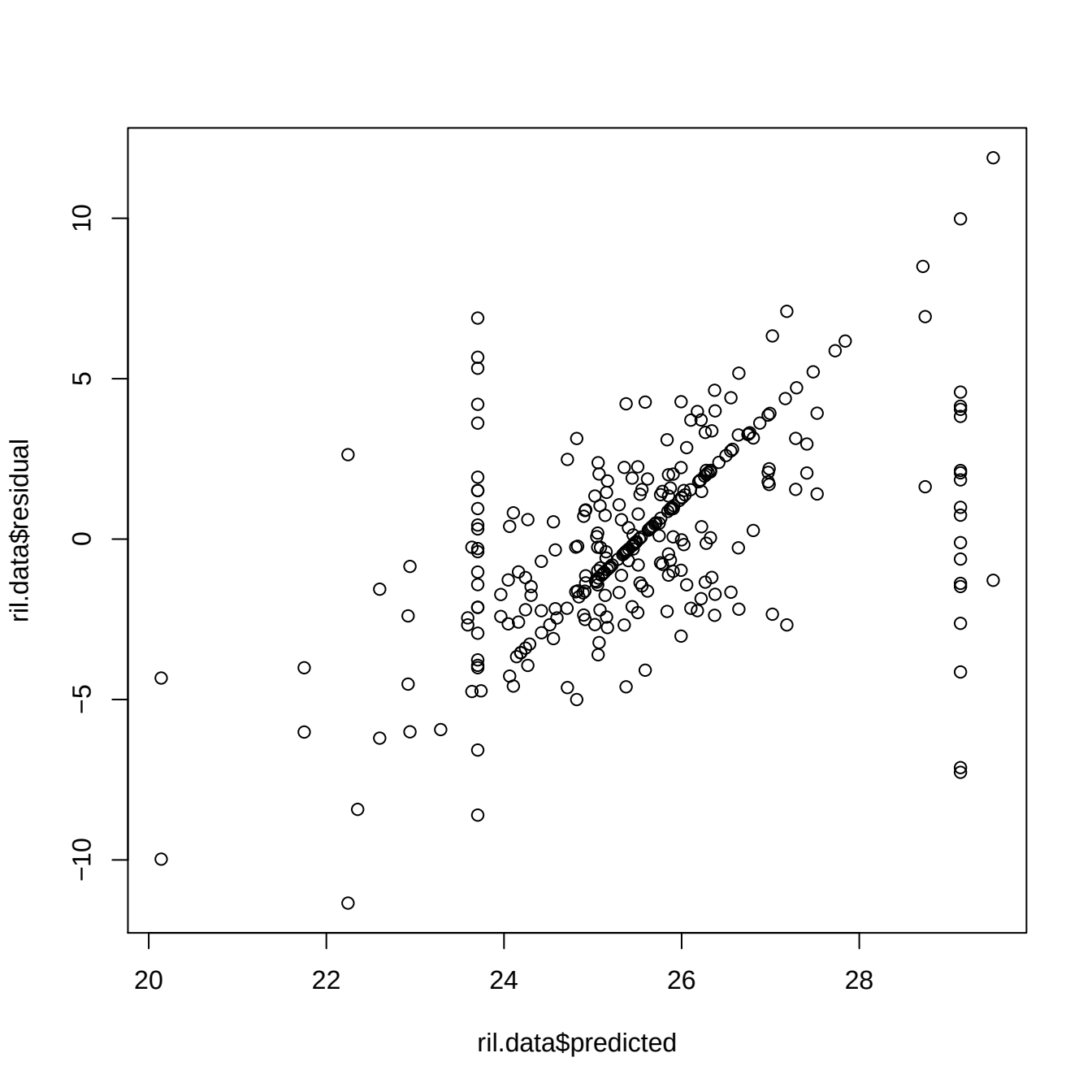

stag_d13C
−13.0
−13.2
−13.4
−13.6
A10
RIL_025
RIL_057
RIL_099
RIL_128
RIL_164
RIL_197
2014.model

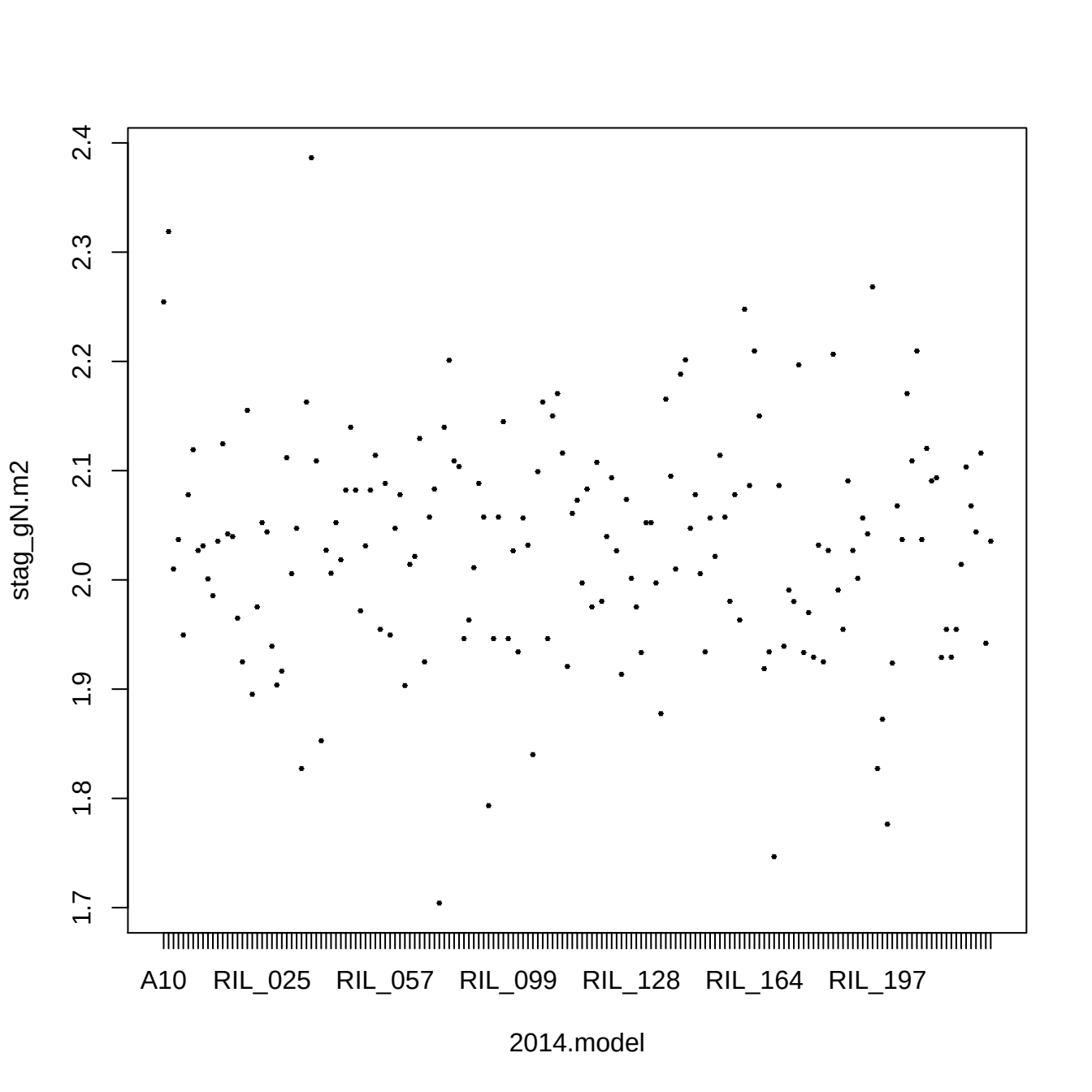

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−0.6
−0.4
−0.2
0.0
0.2
0.4
0.6
−3
−2
−1
0
1
2
3

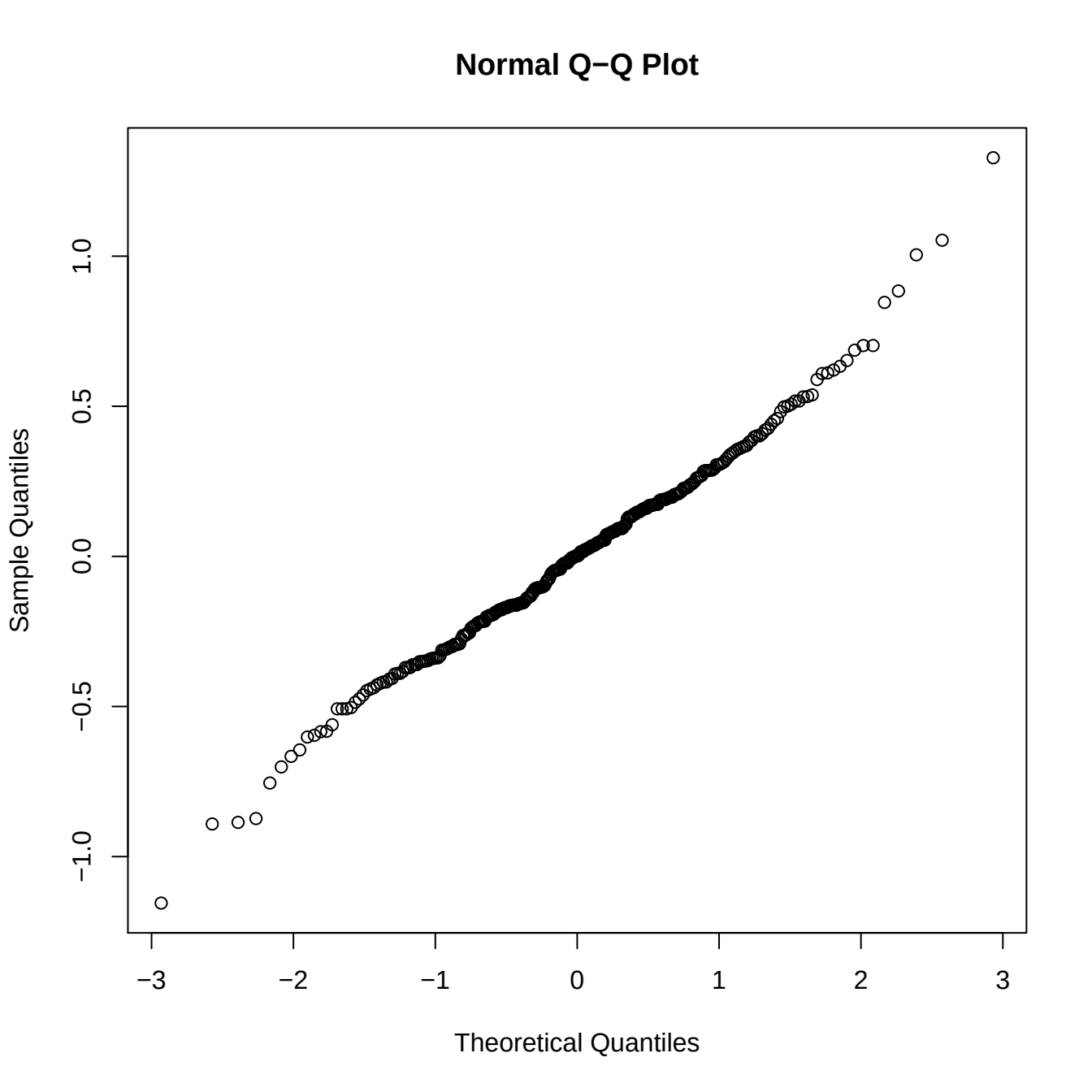

ril.data$residual
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
−13.6
−13.4
−13.2
−13.0
ril.data$predicted

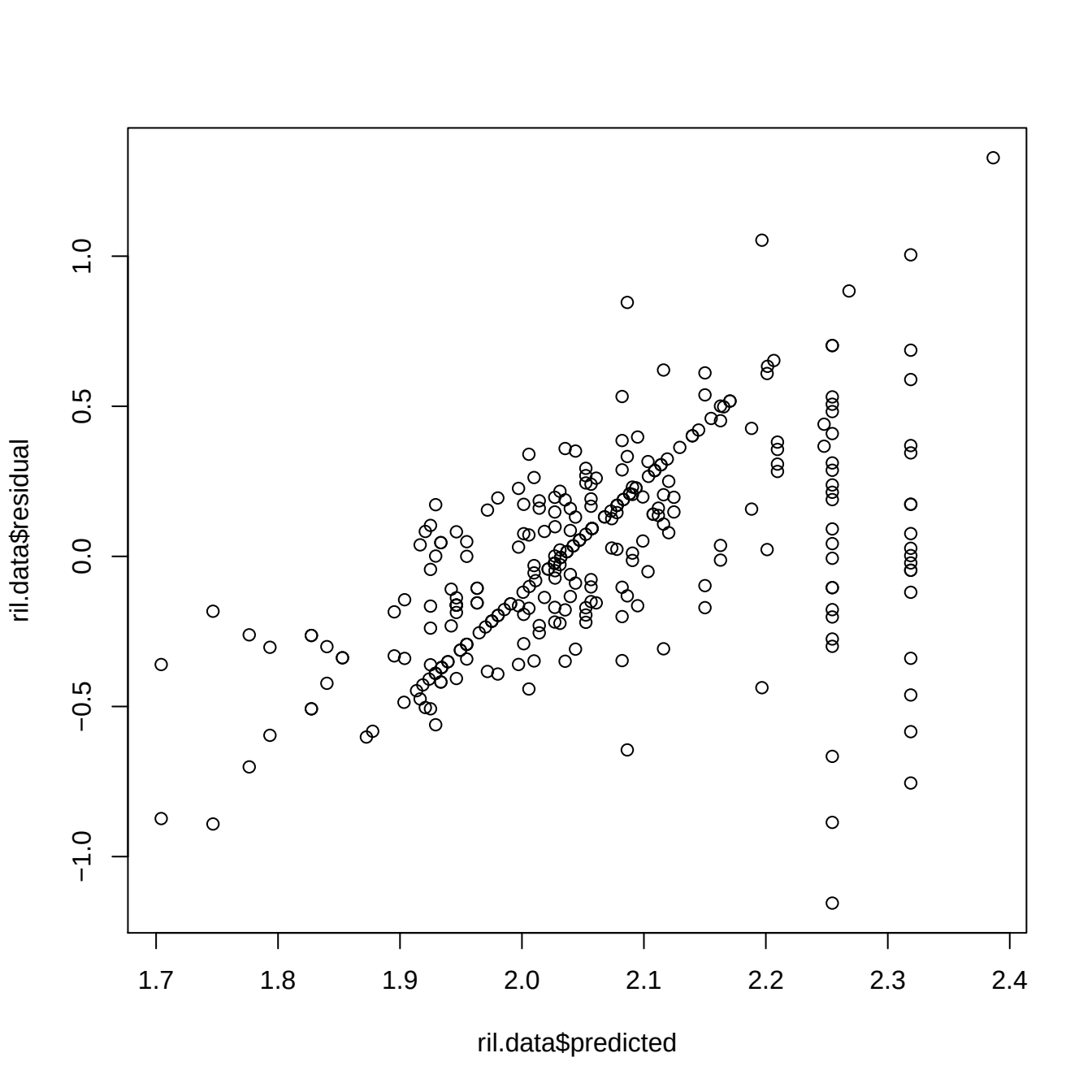

stag_gC.m2
20
22
24
26
28
A10
RIL_025
RIL_057
RIL_099
RIL_128
RIL_164
RIL_197
2014.model

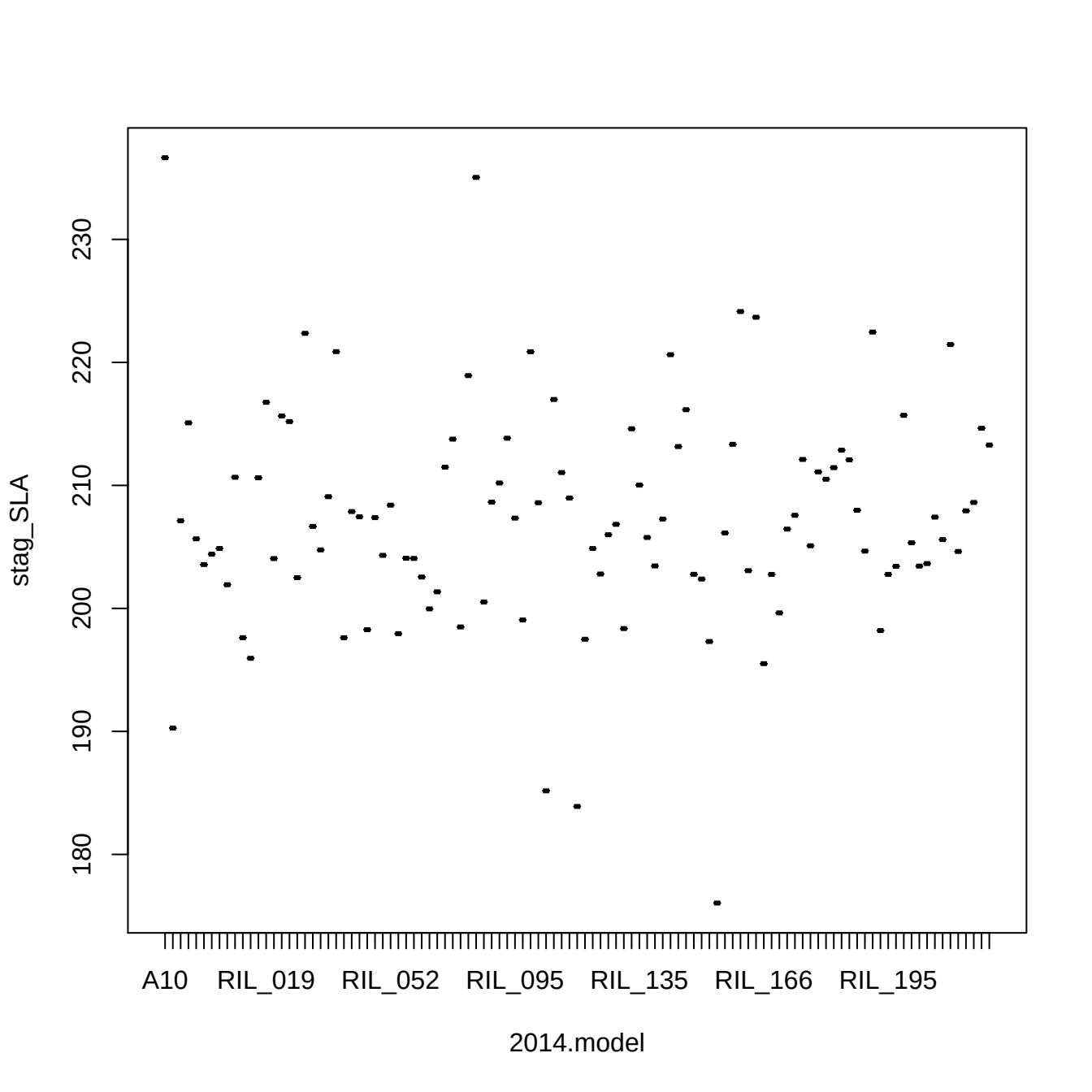

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
10
5
0
−5
−10
−3
−2
−1
0
1
2
3

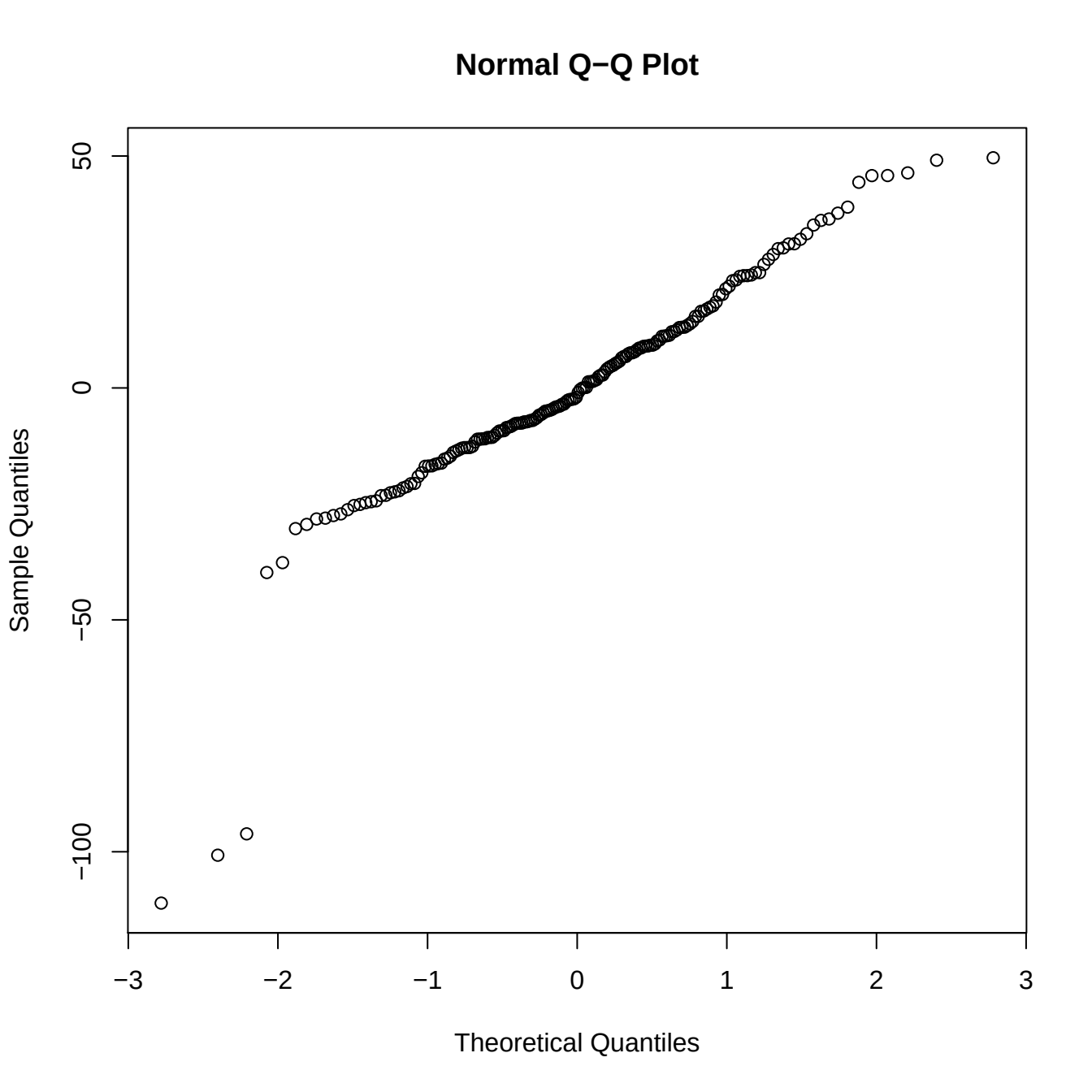

ril.data$residual
10
5
0
−5
−10
20
22
24
26
28
ril.data$predicted

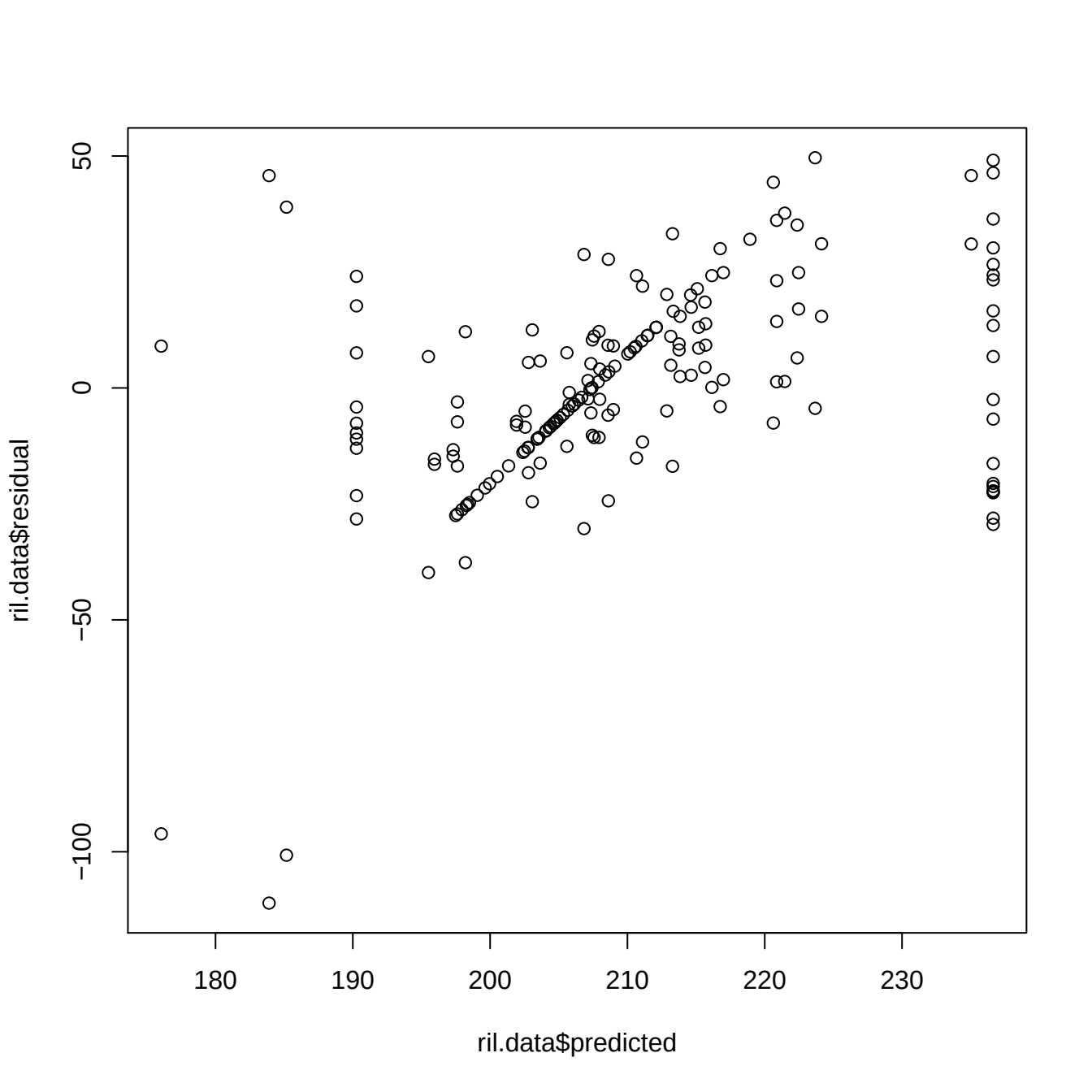

stag_gN.m2
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
A10
RIL_025
RIL_057
RIL_099
RIL_128
RIL_164
RIL_197
2014.model

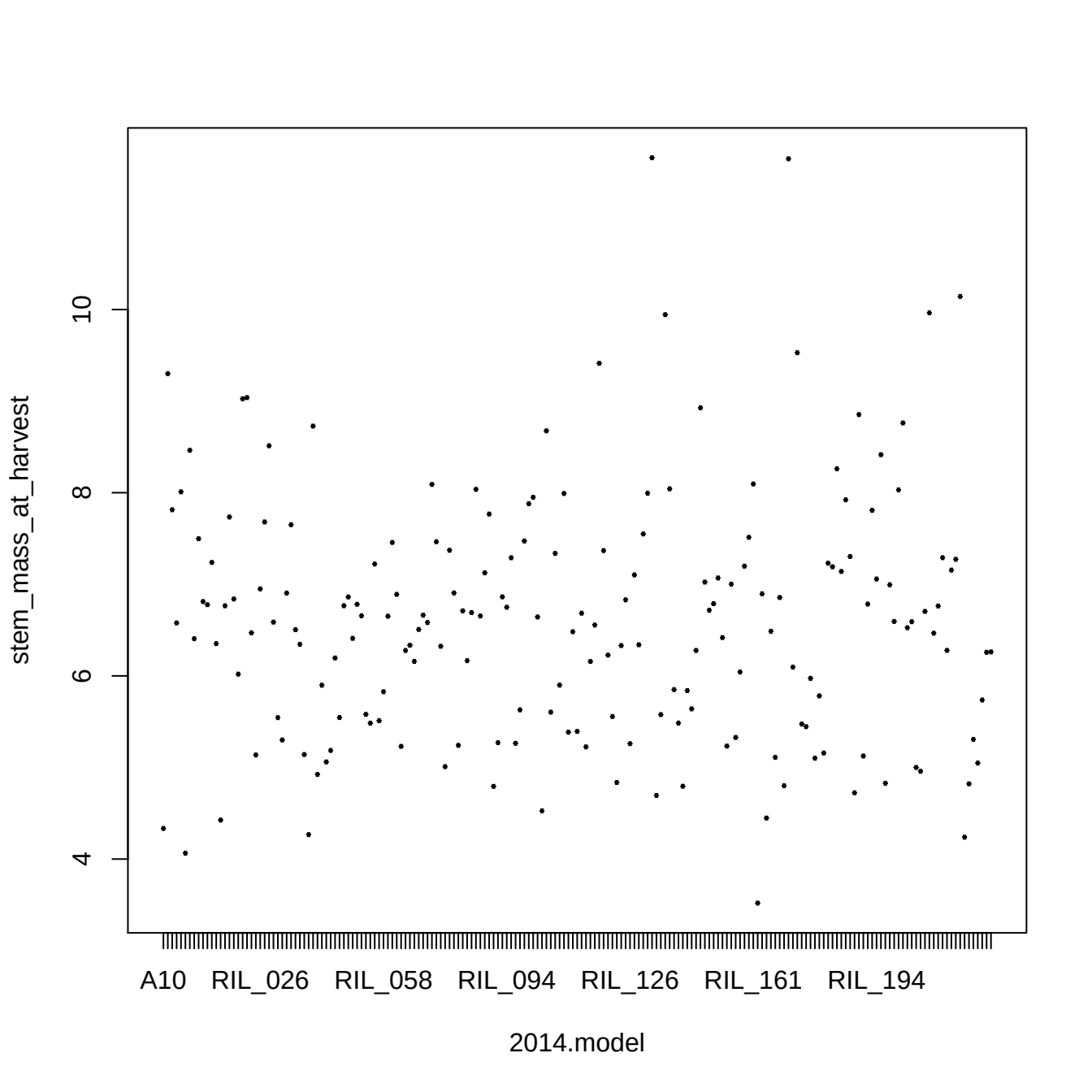

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−1.0
−0.5
0.0
0.5
1.0
−3
−2
−1
0
1
2
3

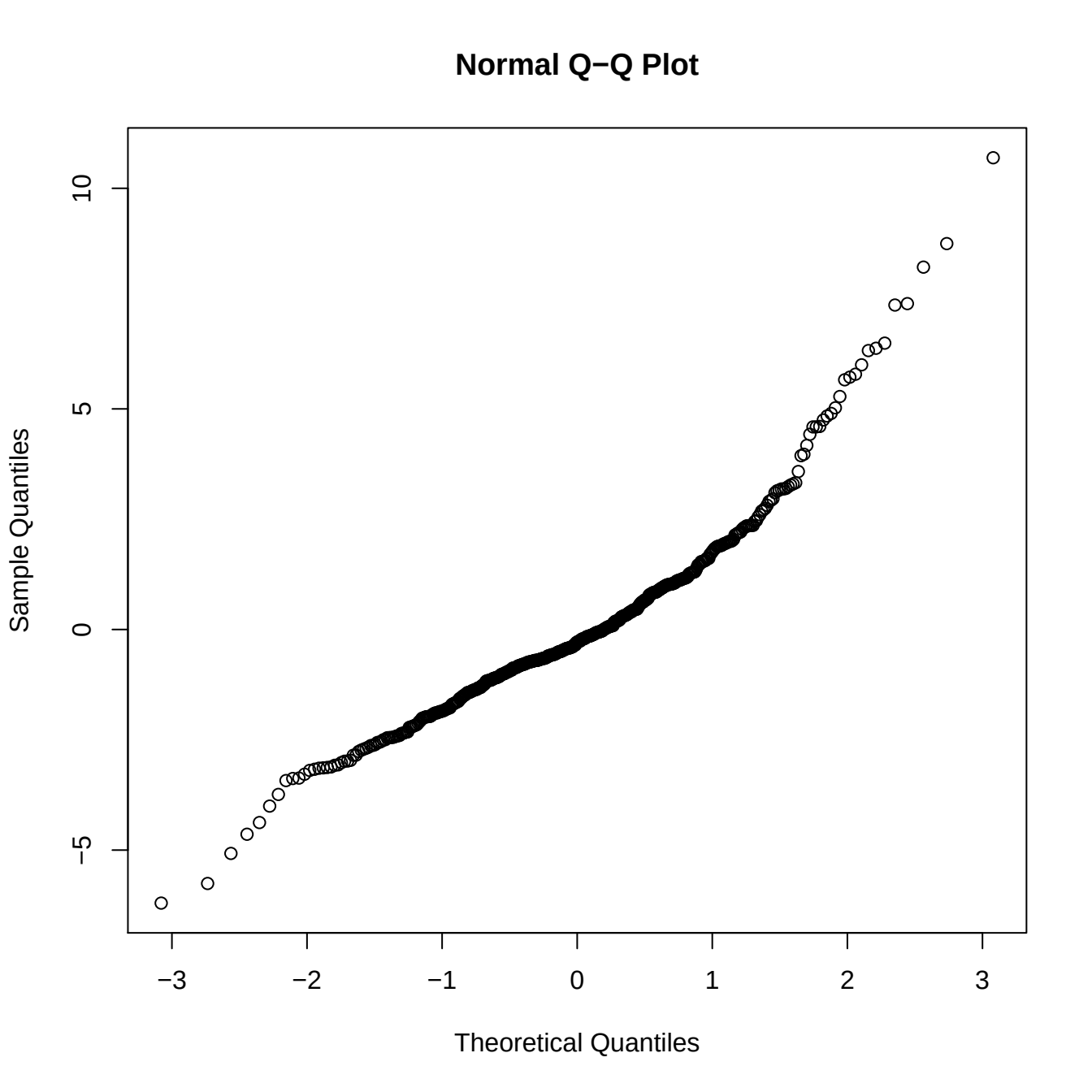

ril.data$residual
1.0
0.5
0.0
−0.5
−1.0
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
ril.data$predicted

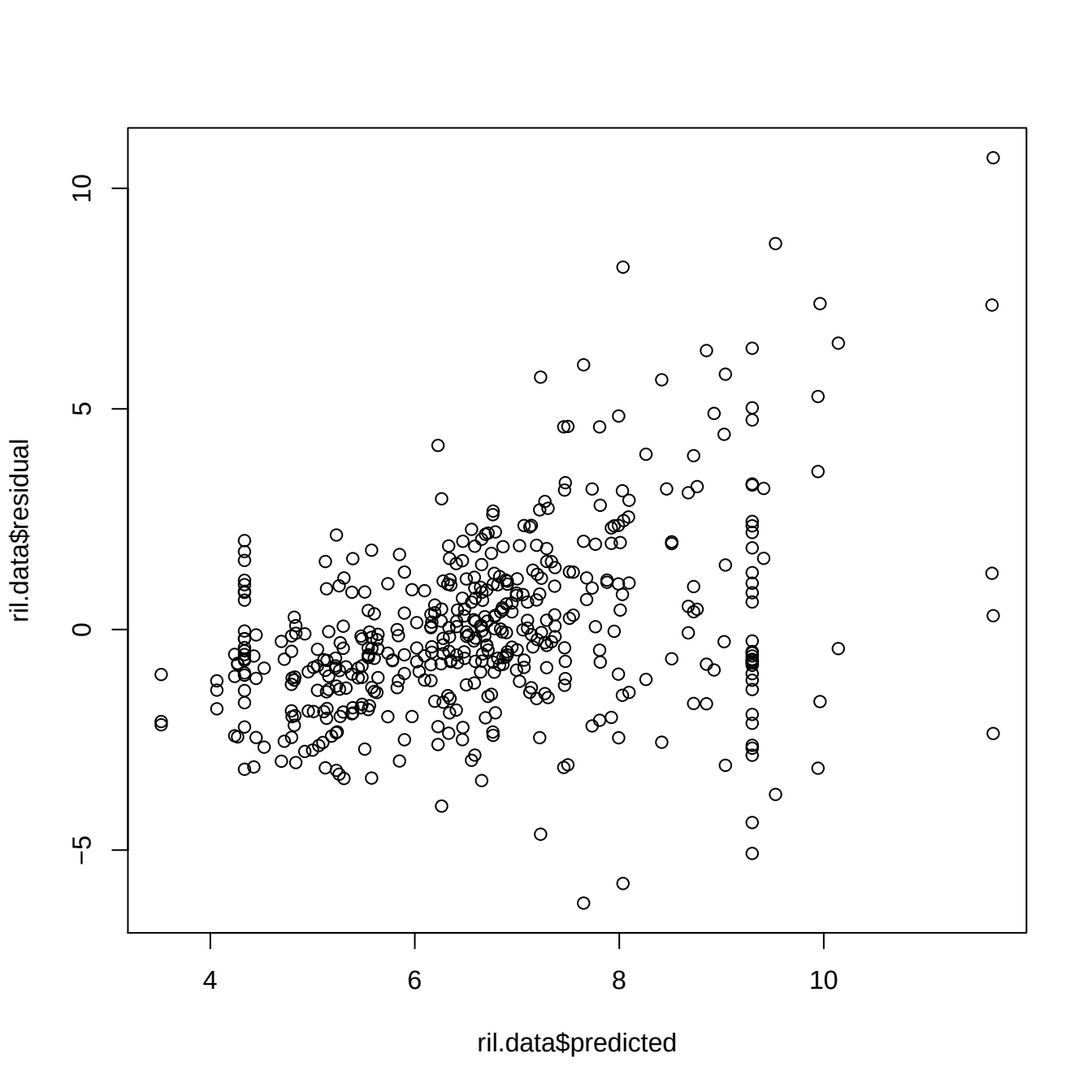

stag_SLA
180
190
200
210
220
230
A10
RIL_019
RIL_052
RIL_095
RIL_135
RIL_166
RIL_195
2014.model

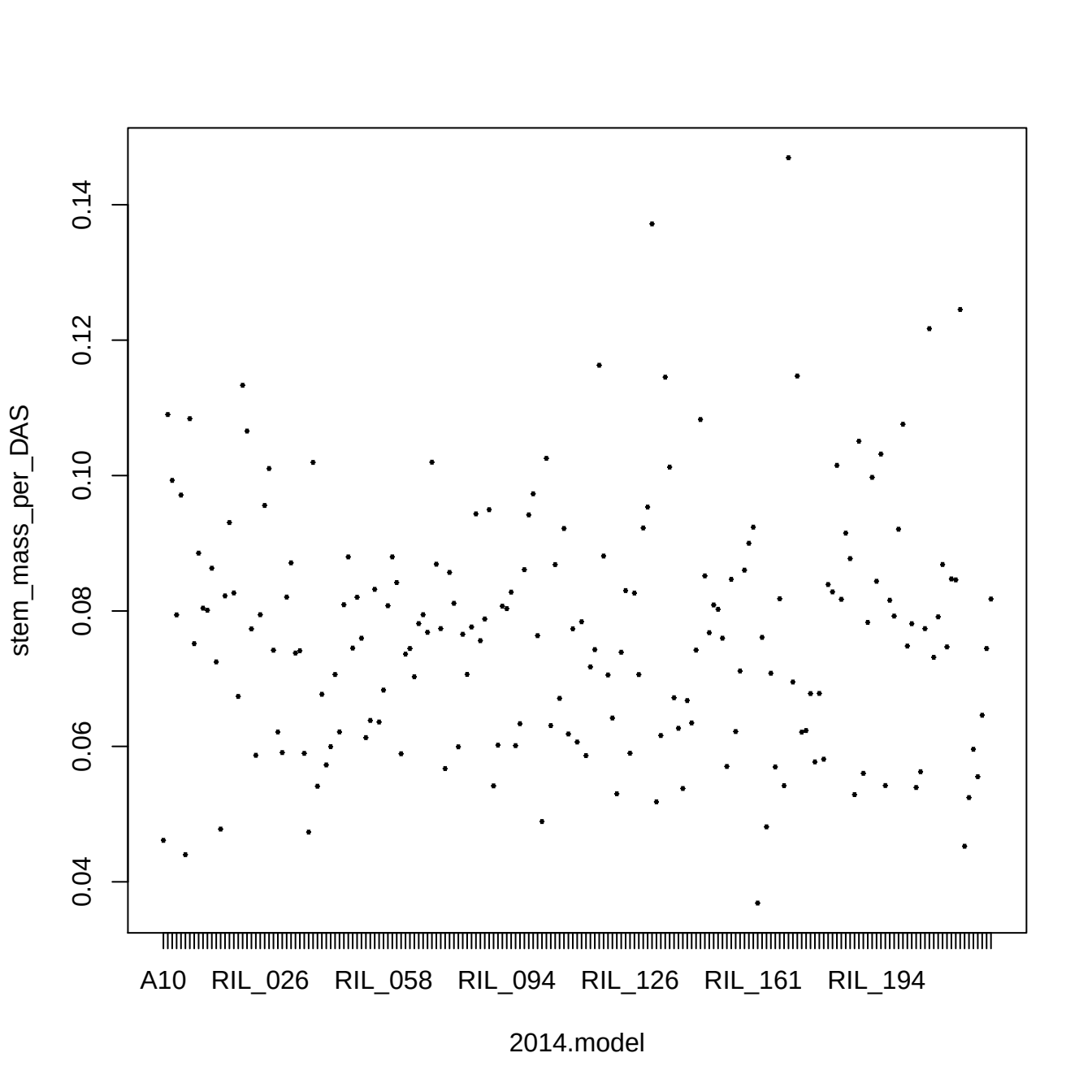

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
50
0
−50
−100
−3
−2
−1
0
1
2
3

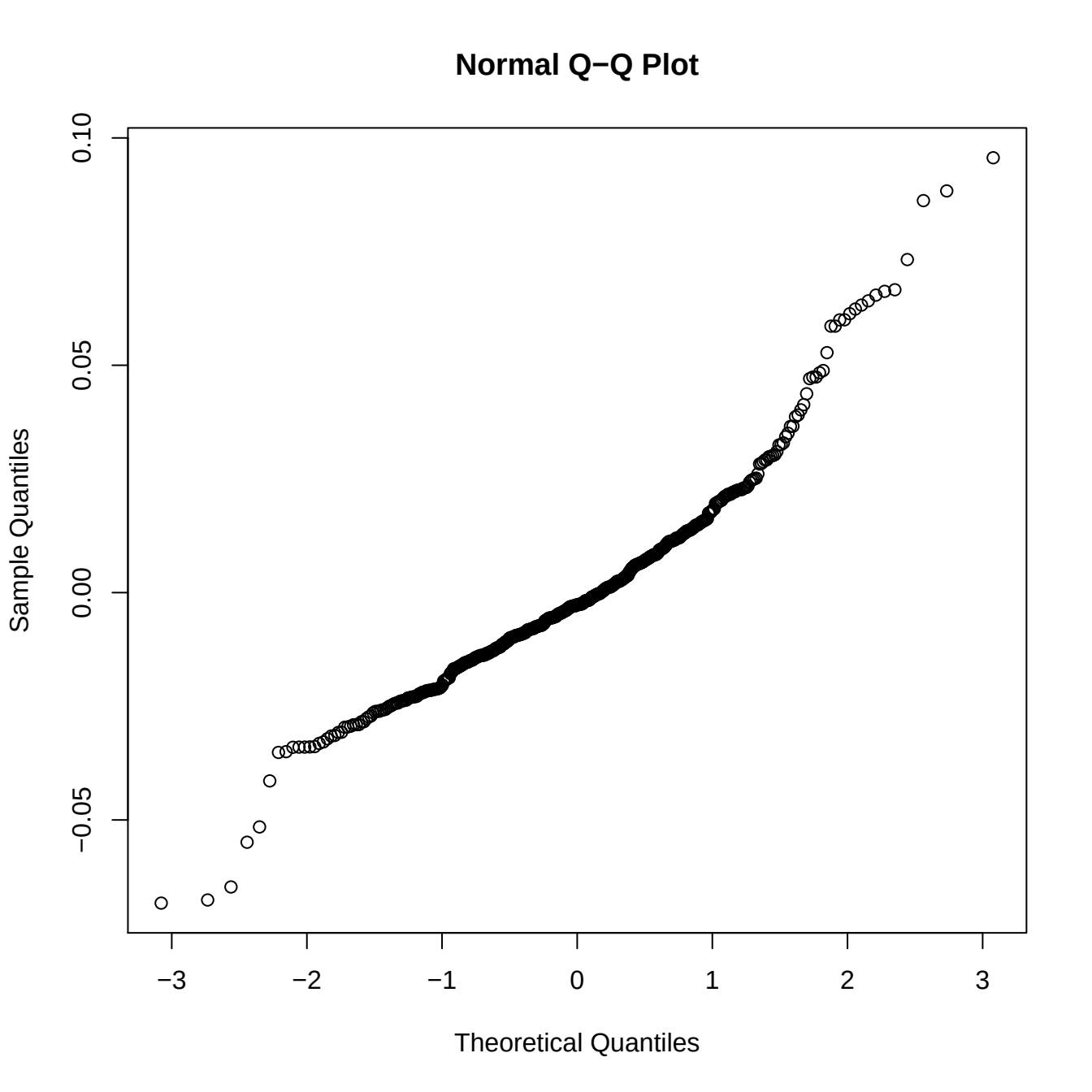

ril.data$residual
50
0
−50
−100
180
190
200
210
220
230
ril.data$predicted

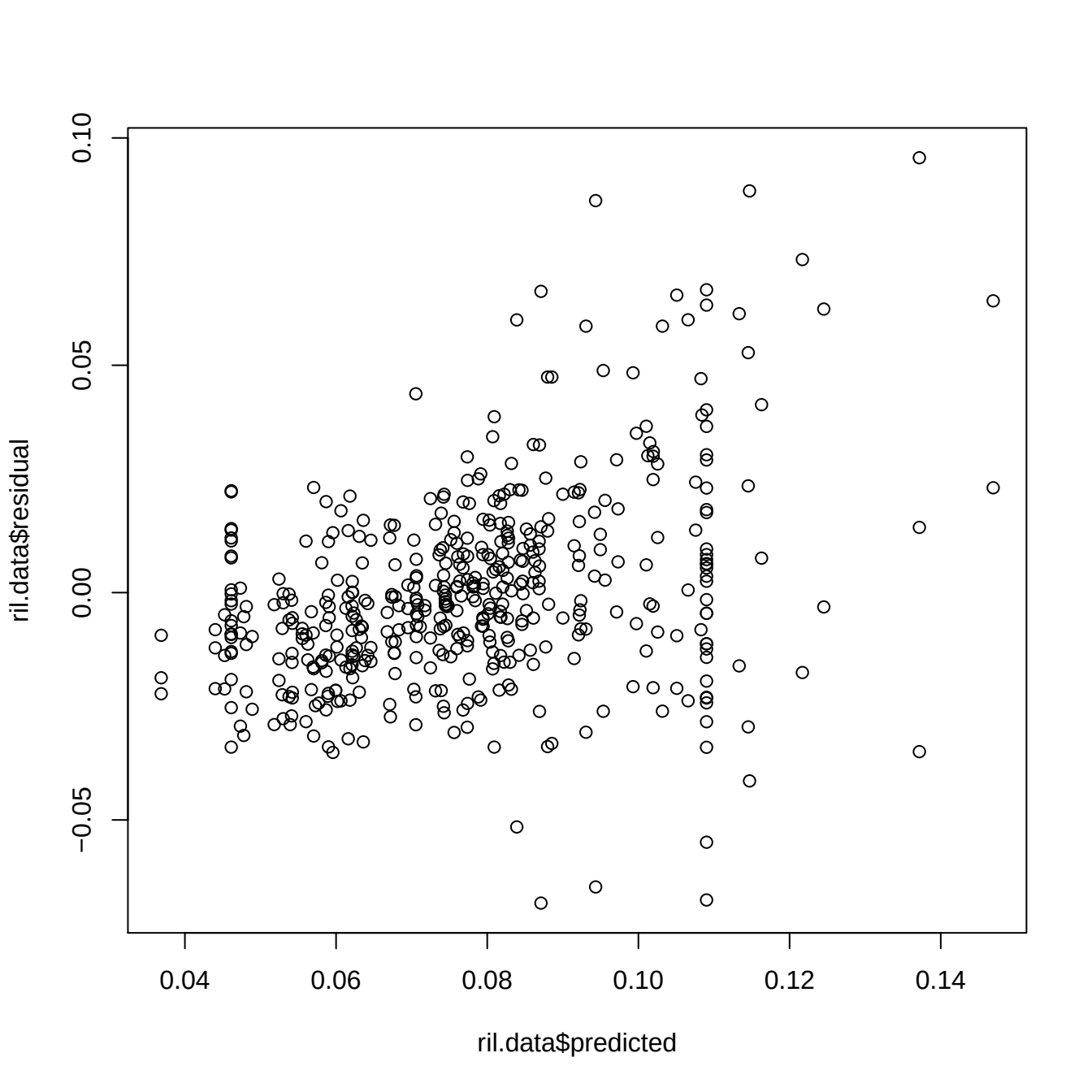

stem_mass_at_harvest
4
6
8
10
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

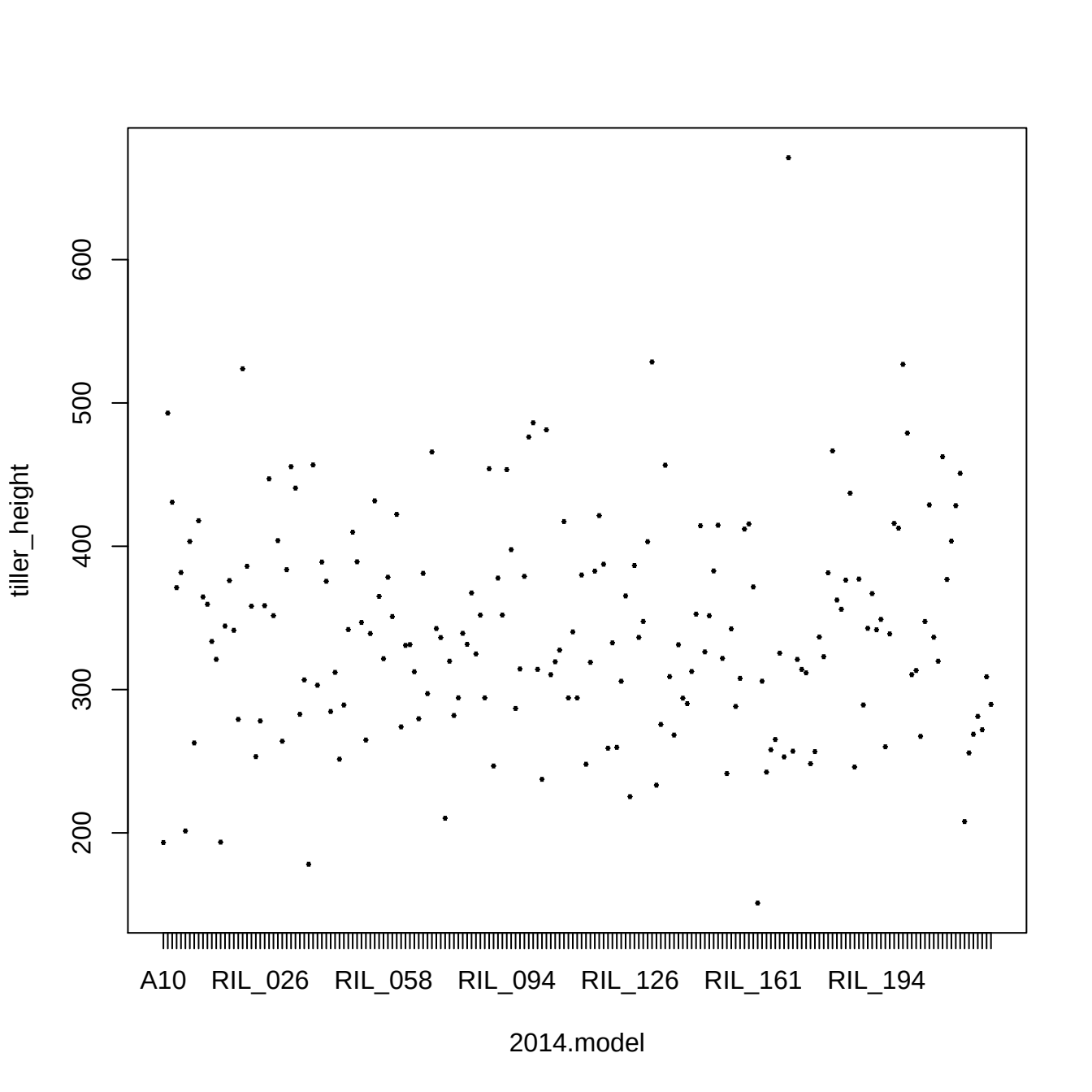

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
10
5
0
−5
−3
−2
−1
0
1
2
3

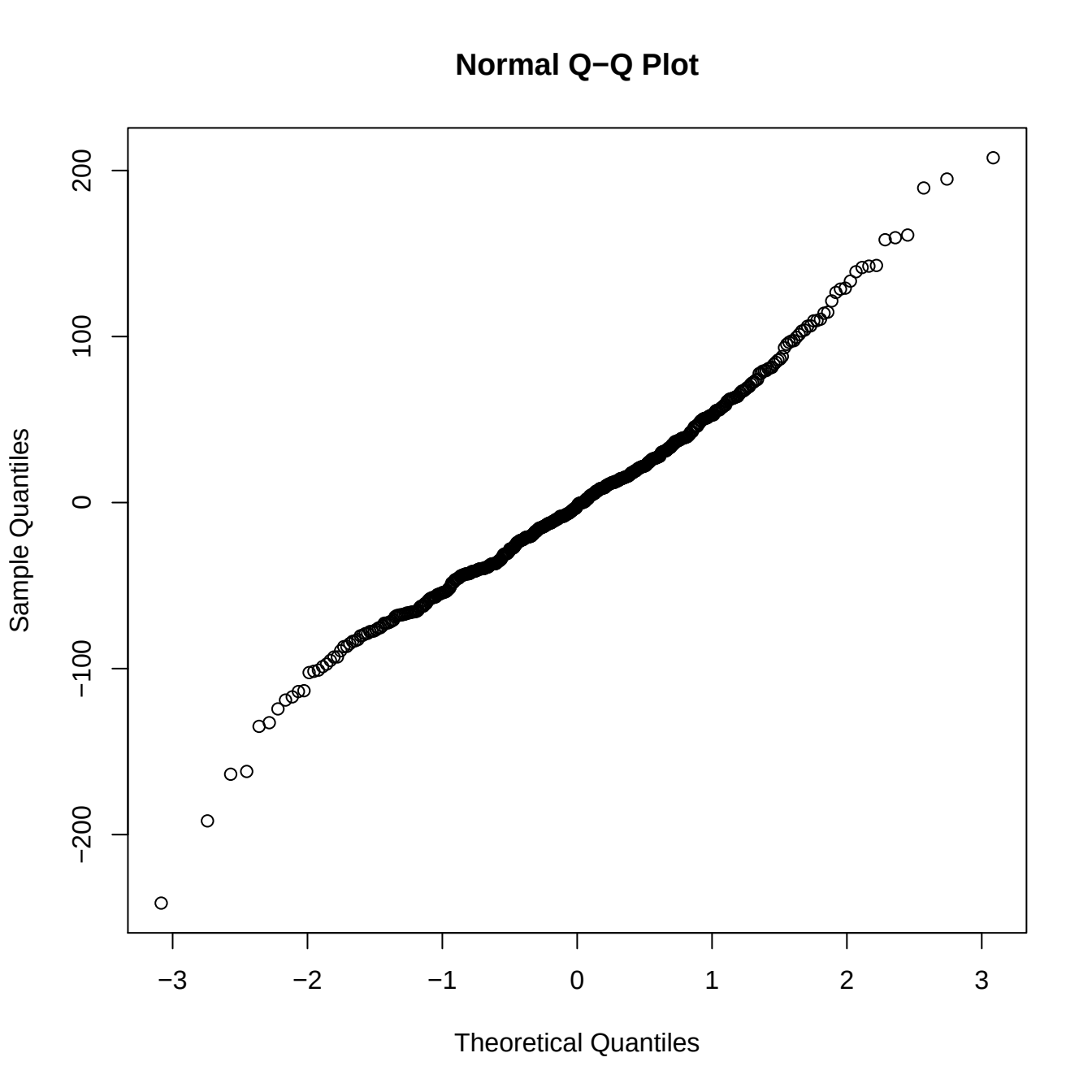

ril.data$residual
10
5
0
−5
4
6
8
10
ril.data$predicted

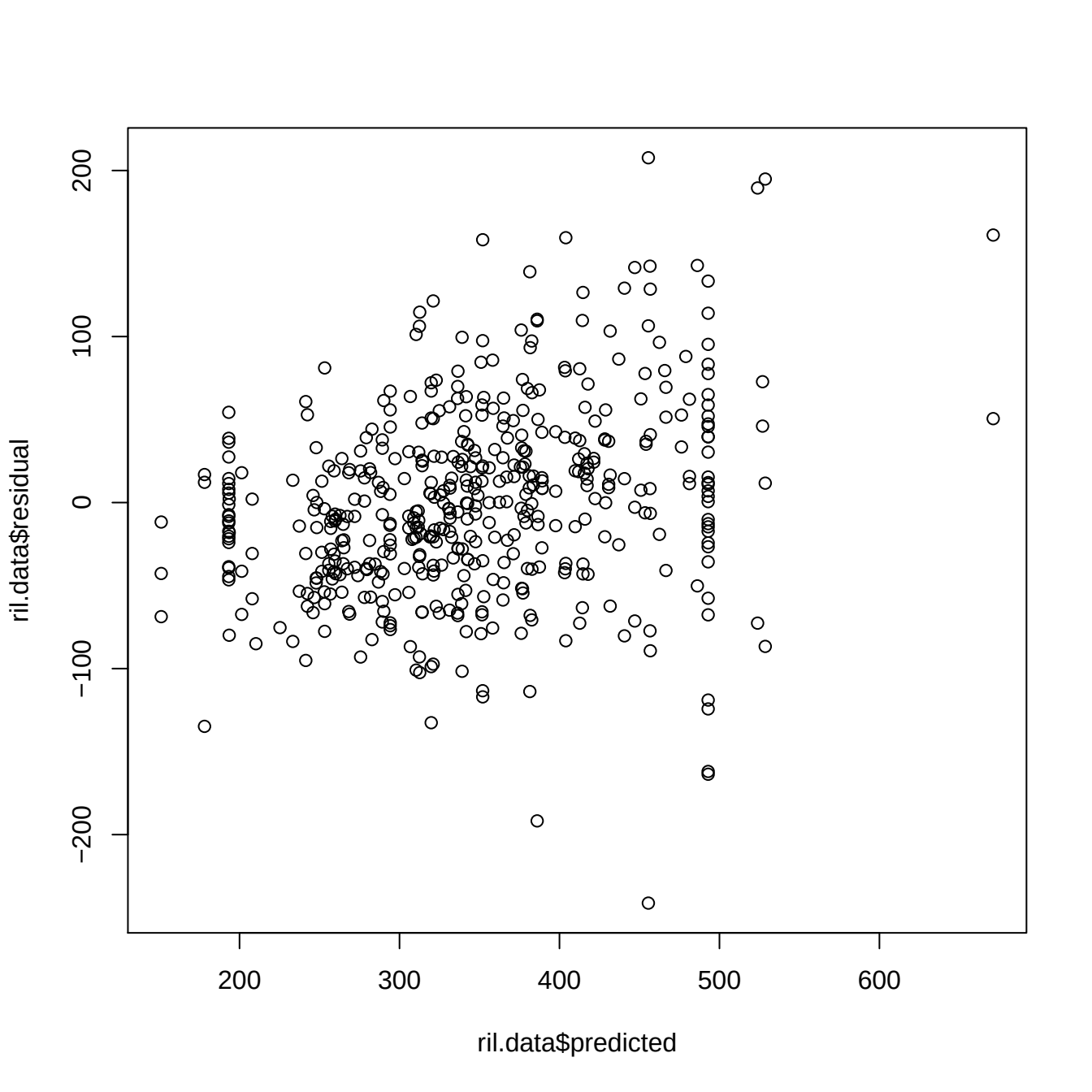

stem_mass_per_DAS
0.04
0.06
0.08
0.10
0.12
0.14
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

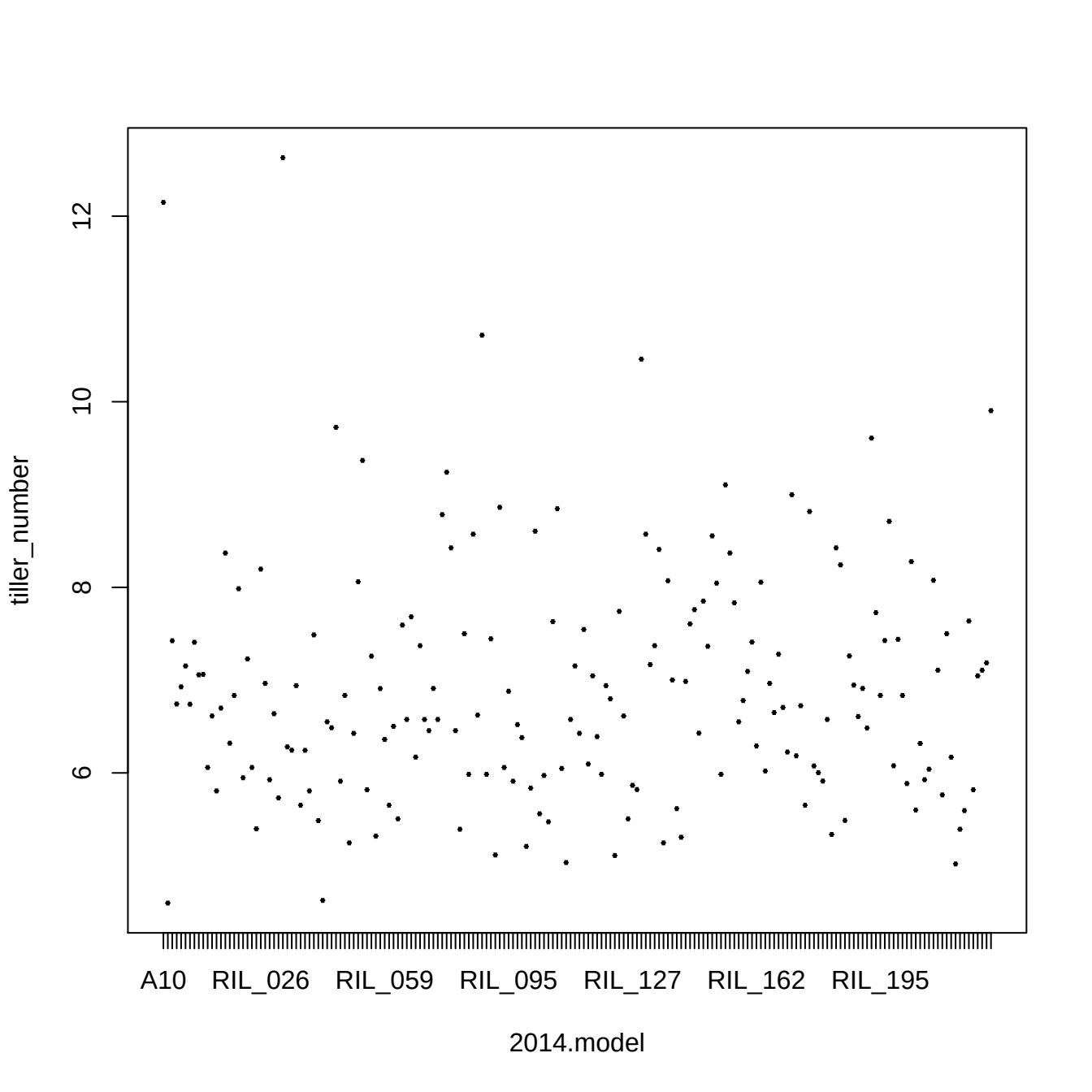

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
0.10
0.05
0.00
−0.05
−3
−2
−1
0
1
2
3

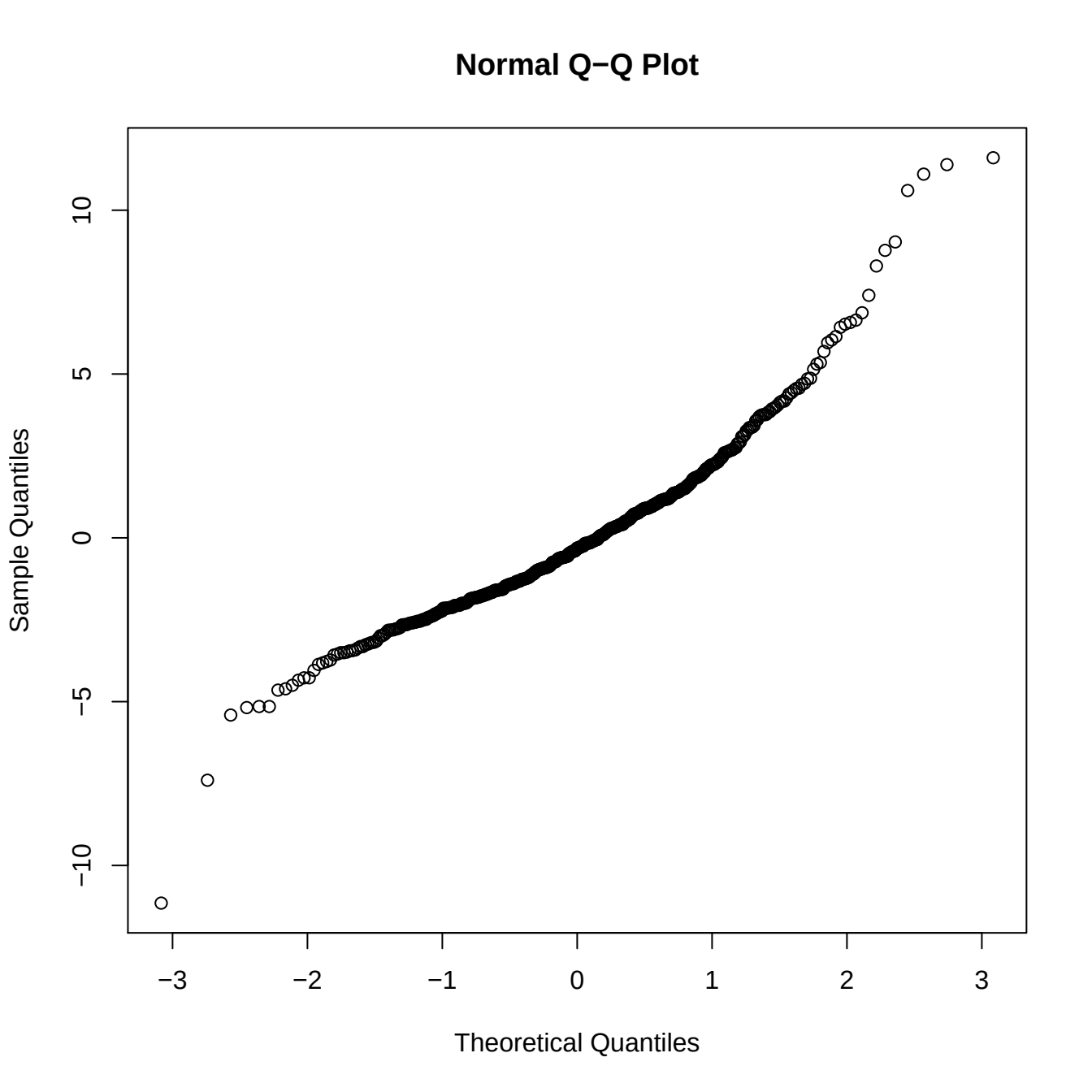

0.10
0.05
0.00
−0.05
ril.data$residual
0.04
0.06
0.08
0.10
0.12
0.14
ril.data$predicted

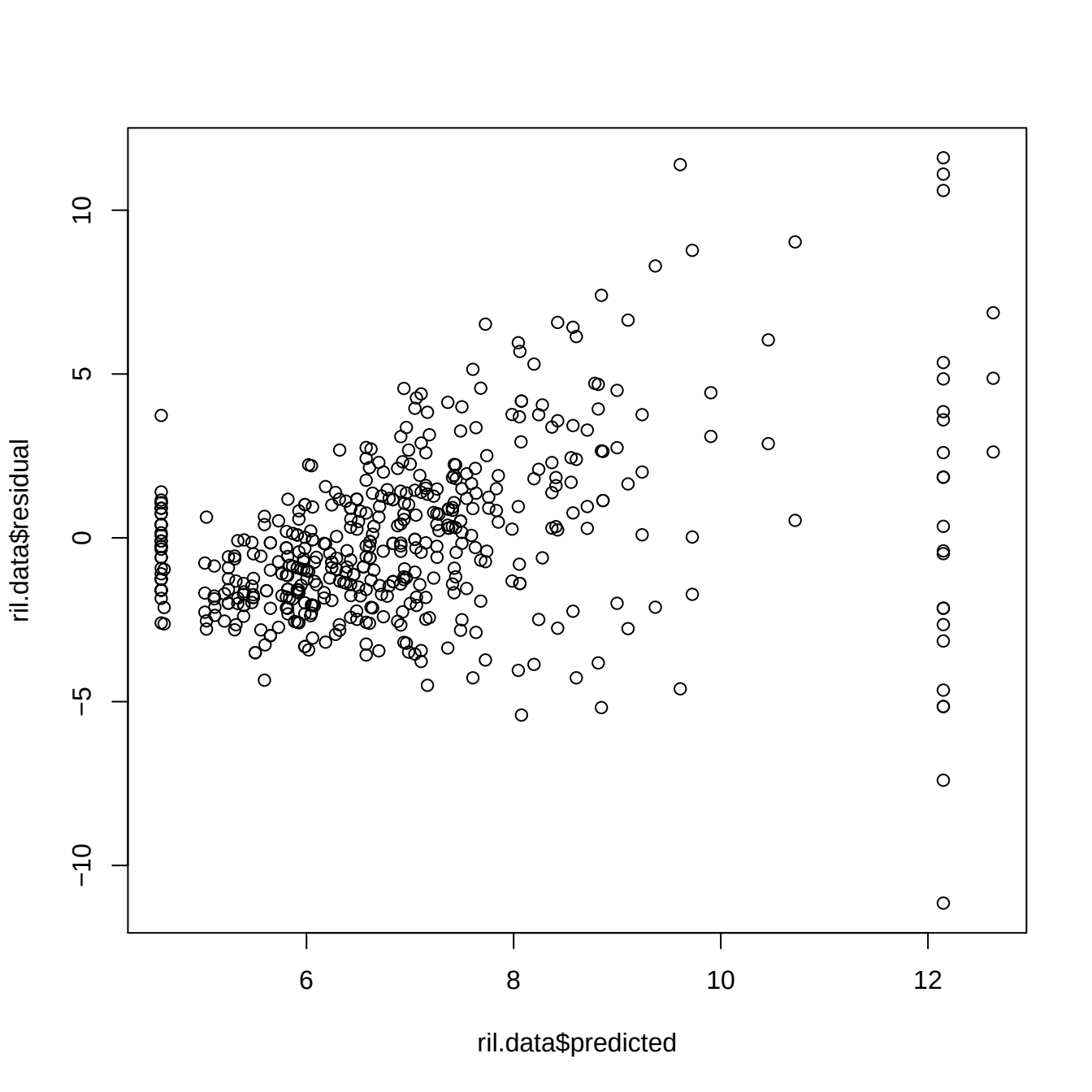

tiller_height
200
300
400
500
600
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

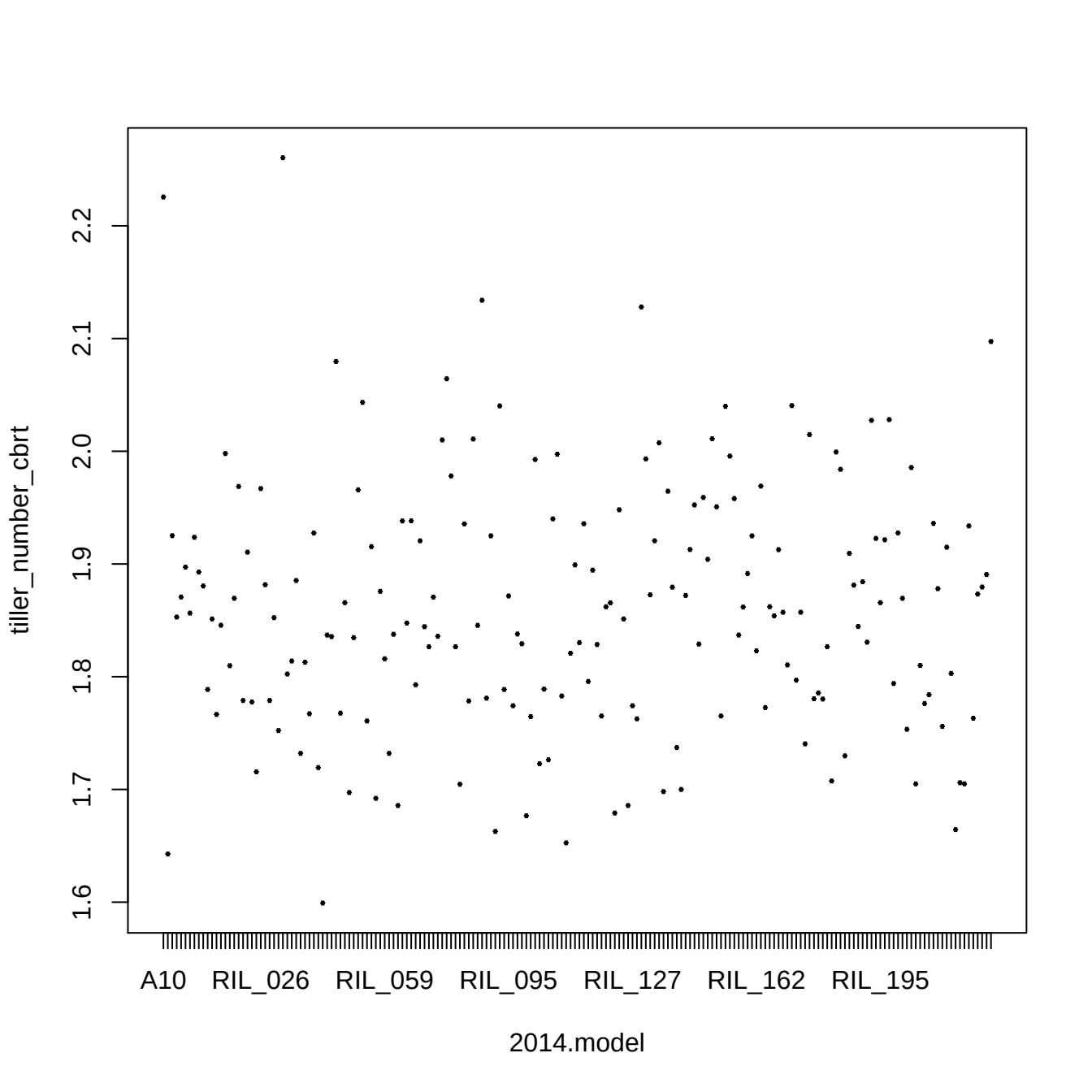

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
200
100
0
−100
−200
−3
−2
−1
0
1
2
3

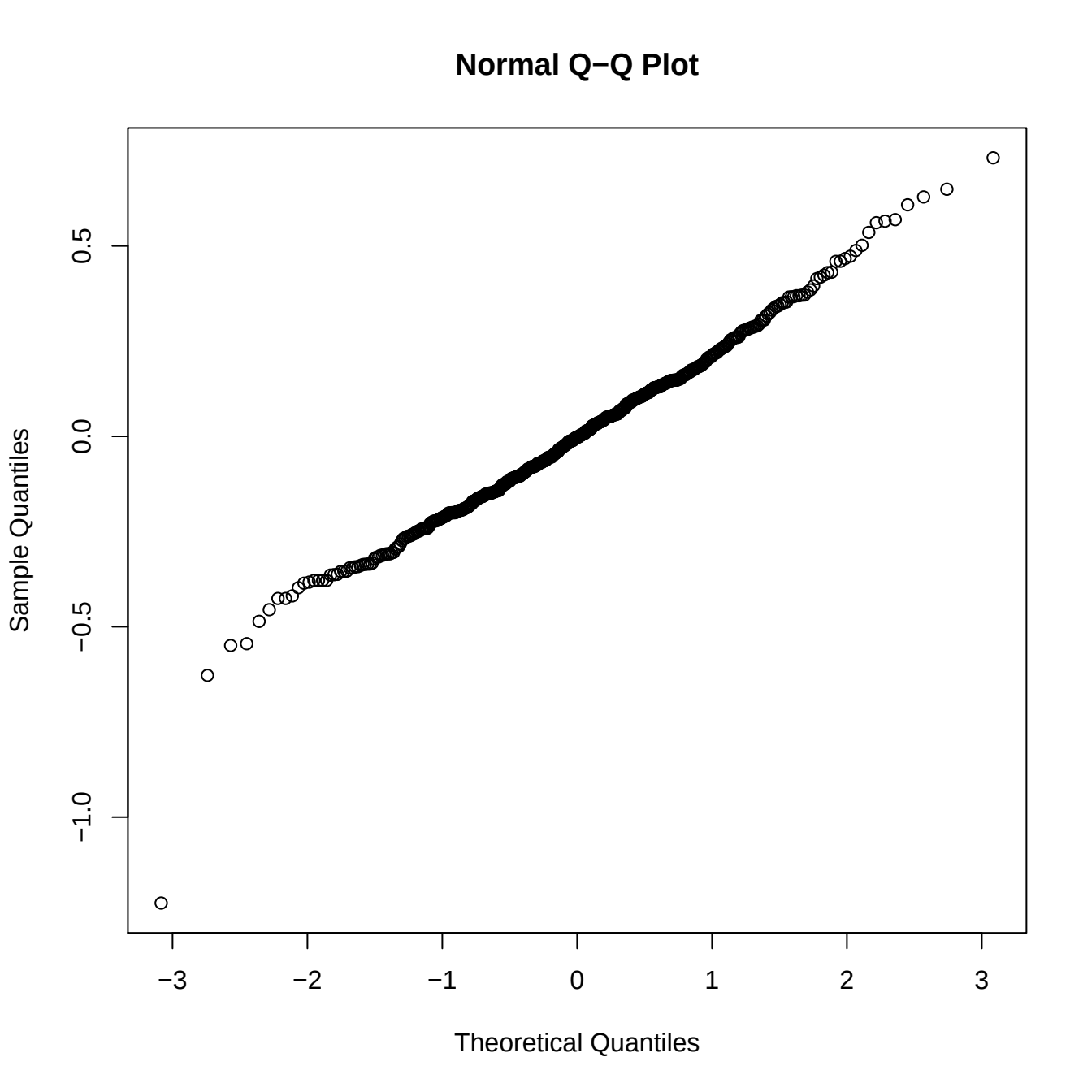

ril.data$residual
200
100
0
−100
−200
200
300
400
500
600
ril.data$predicted

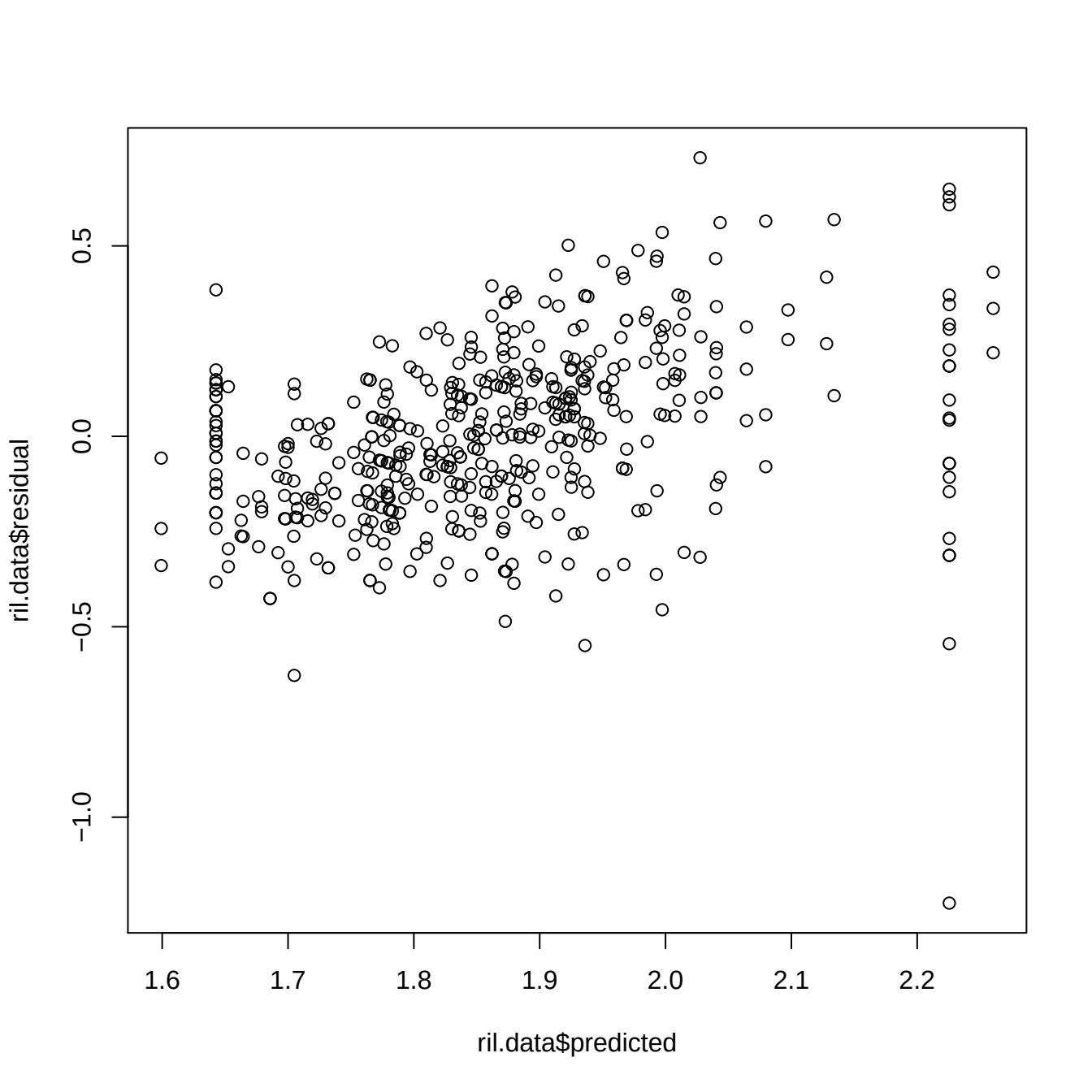

tiller_number
6
8
10
12
A10
RIL_026
RIL_059
RIL_095
RIL_127
RIL_162
RIL_195
2014.model

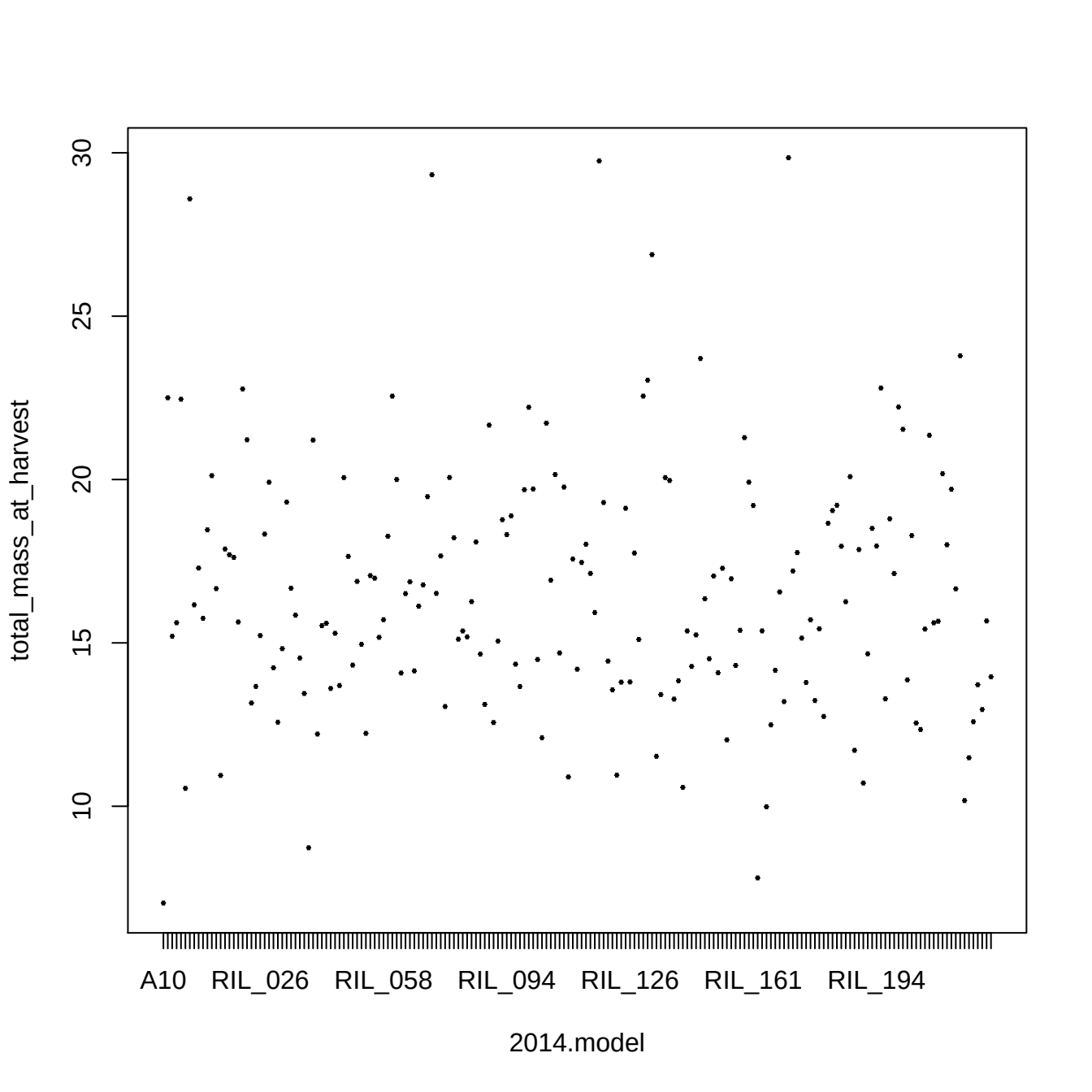

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
10
5
0
−5
−10
−3
−2
−1
0
1
2
3

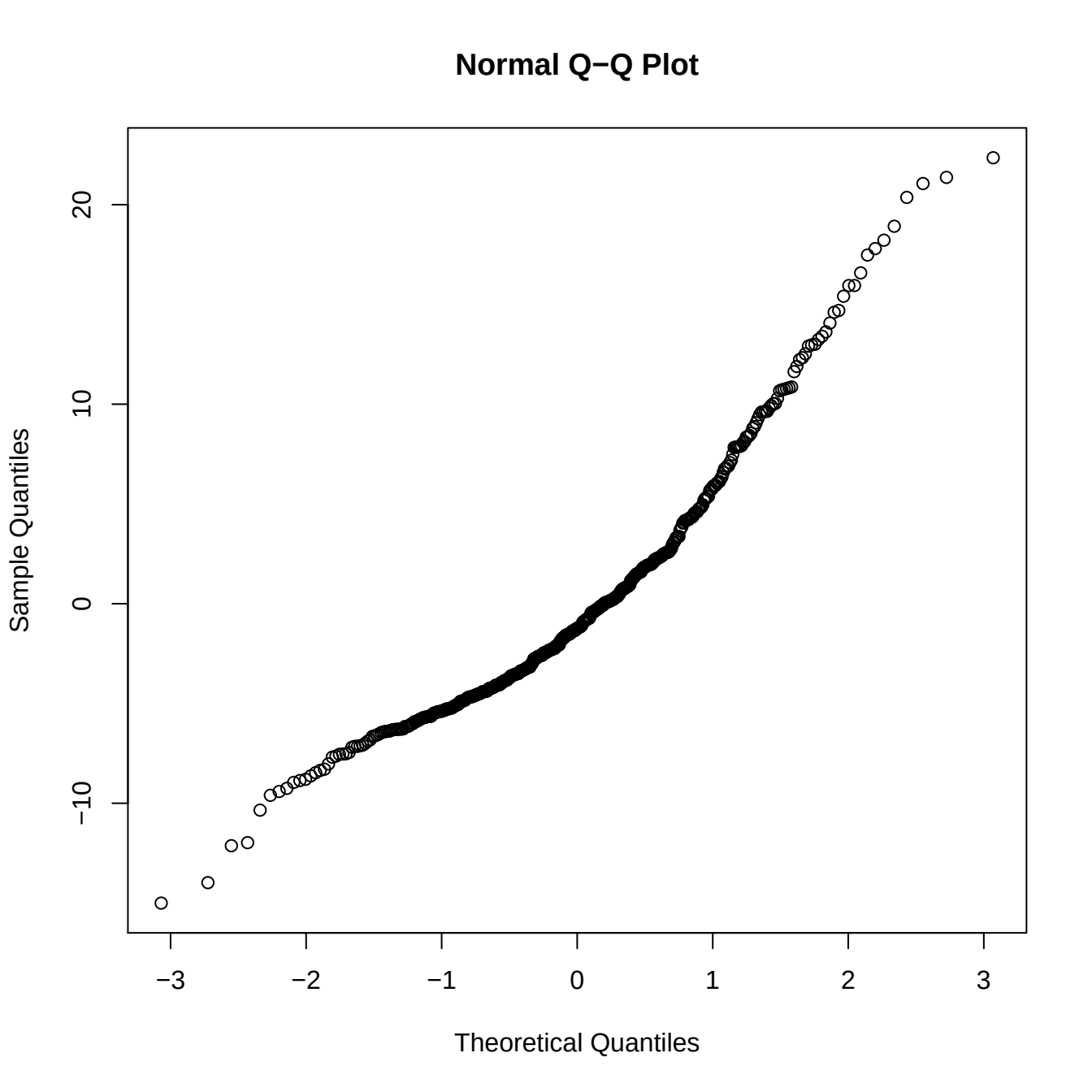

ril.data$residual
10
5
0
−5
−10
6
8
10
12
ril.data$predicted

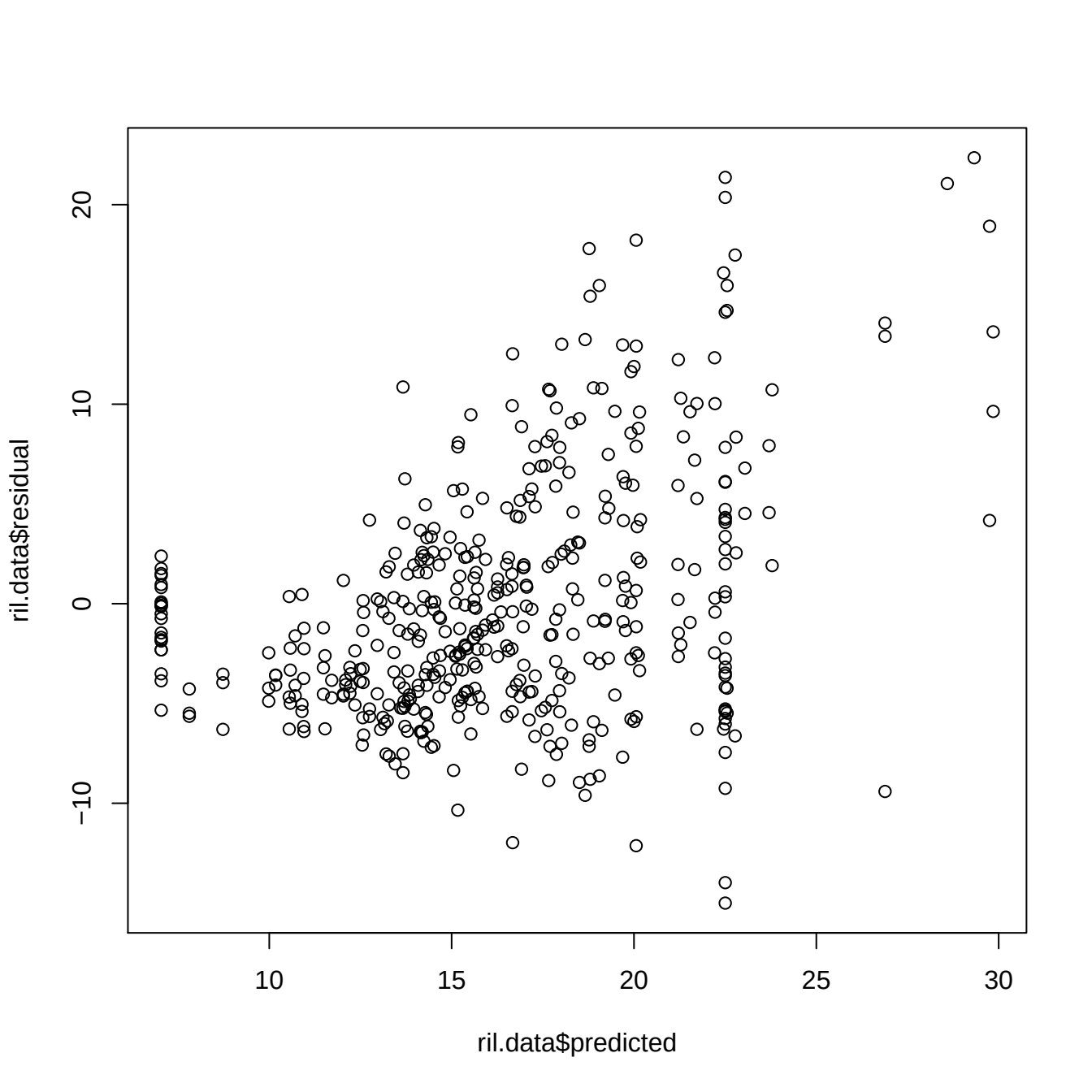

tiller_number_cbrt
1.6
1.7
1.8
1.9
2.0
2.1
2.2
A10
RIL_026
RIL_059
RIL_095
RIL_127
RIL_162
RIL_195
2014.model

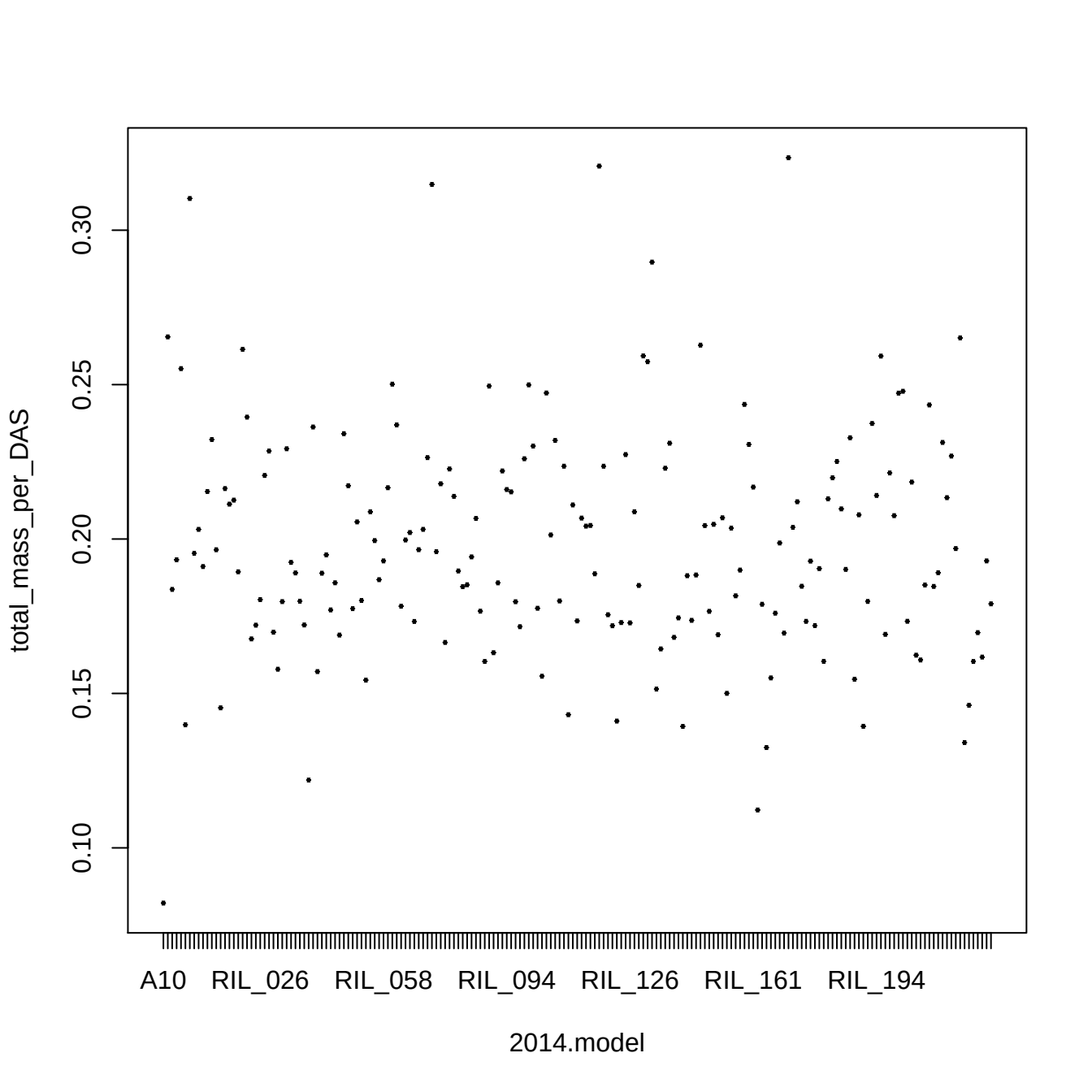

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
0.5
0.0
−0.5
−1.0
−3
−2
−1
0
1
2
3

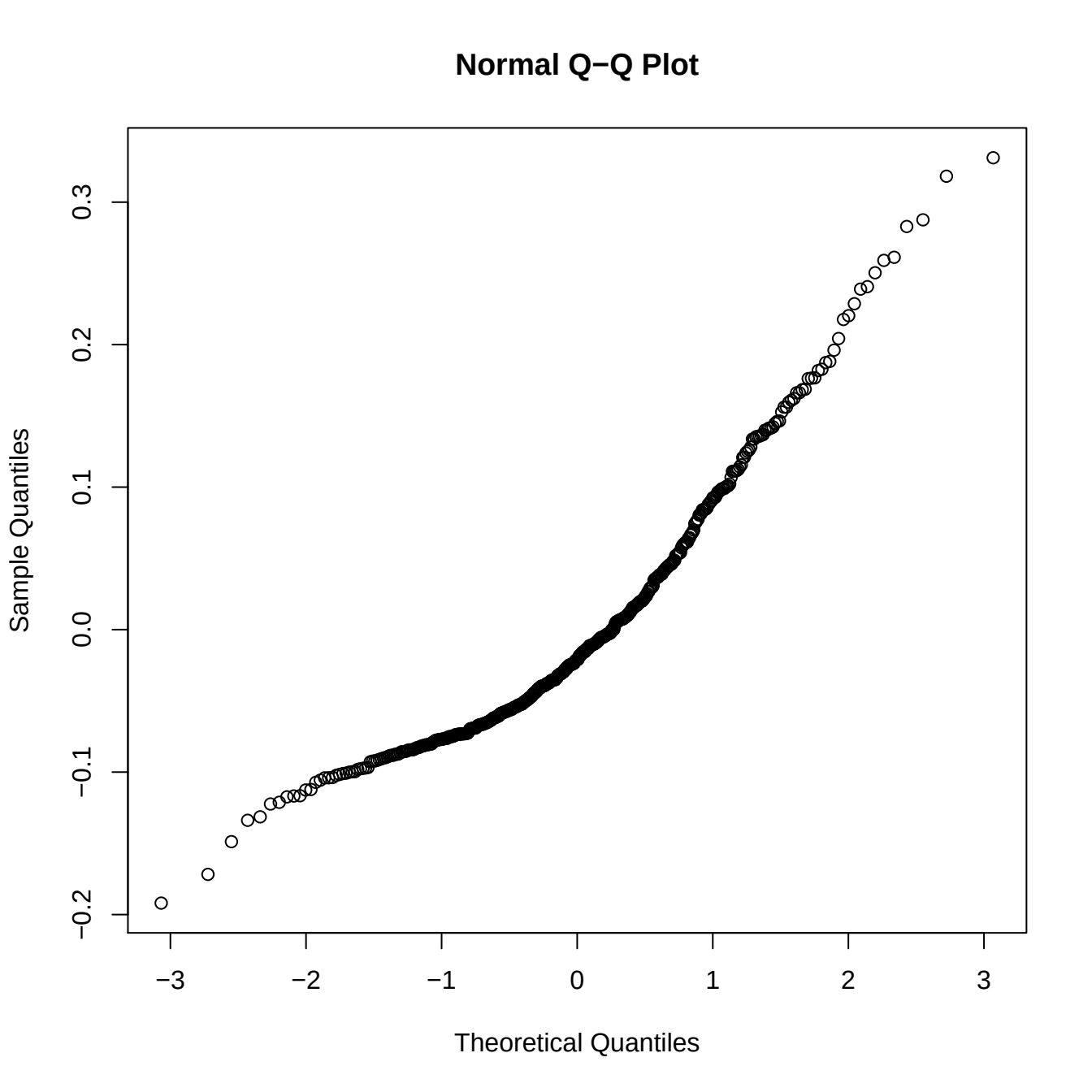

ril.data$residual
0.5
0.0
−0.5
−1.0
1.6
1.7
1.8
1.9
2.0
2.1
2.2
ril.data$predicted

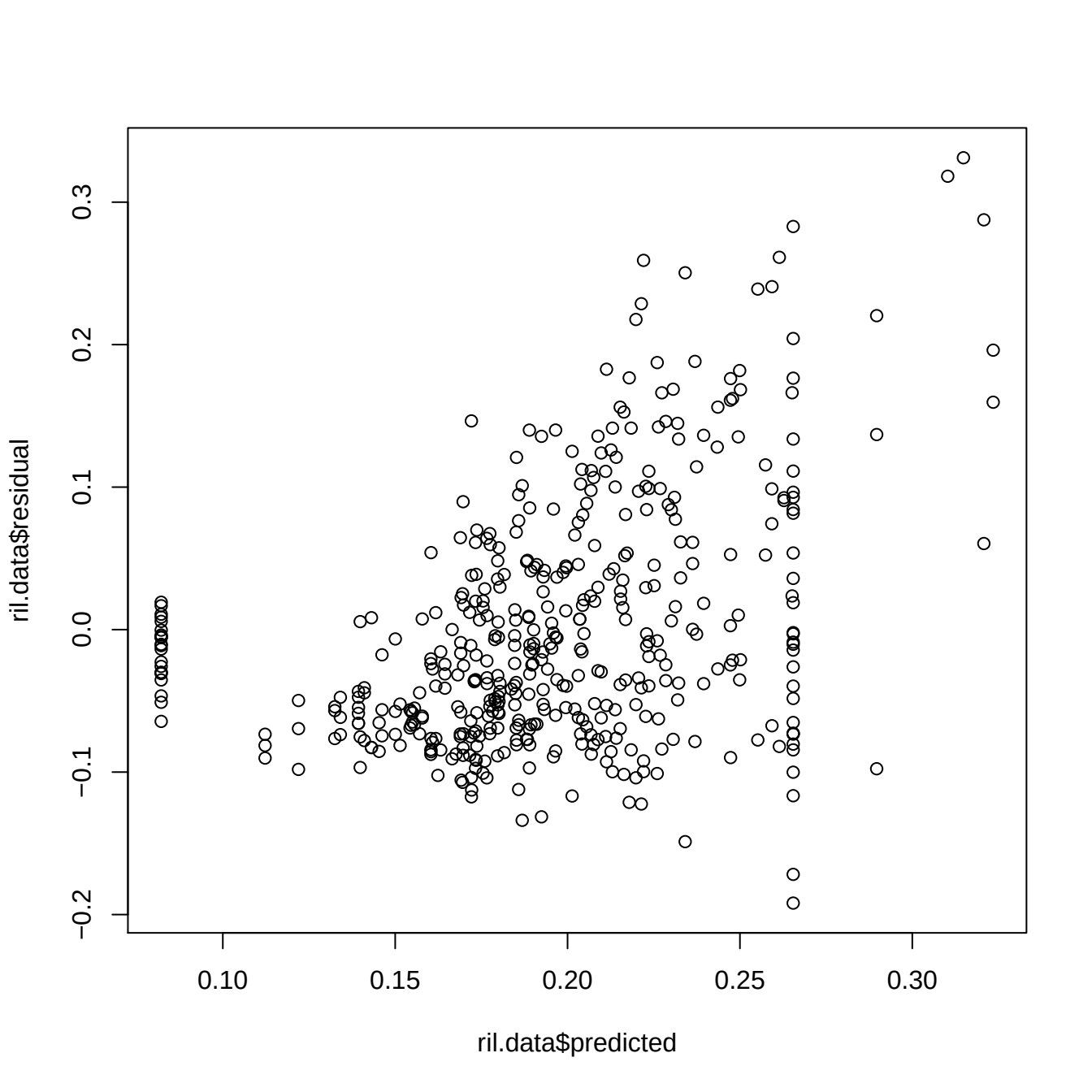

total_mass_at_harvest
10
15
20
25
30
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

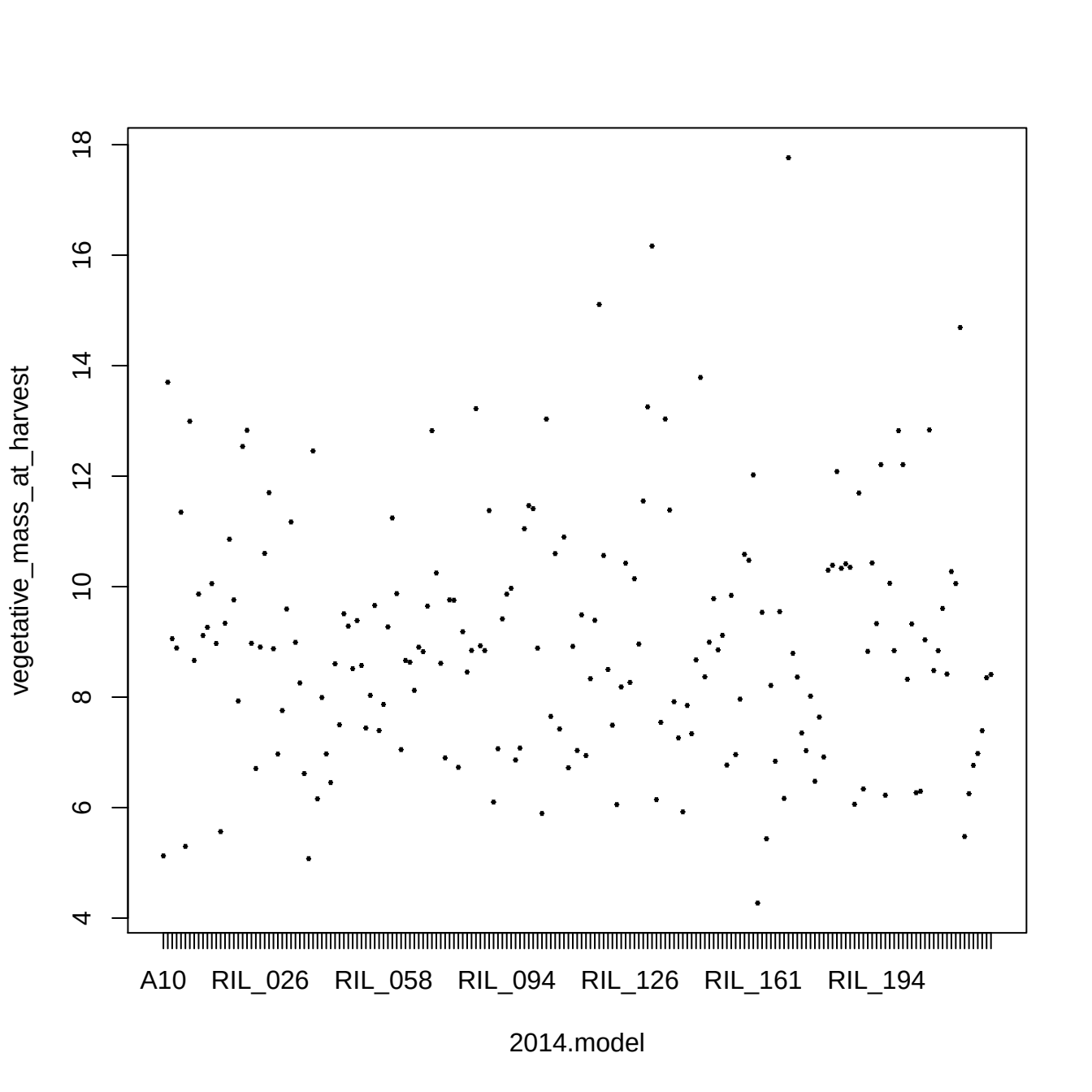

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
20
10
0
−10
−3
−2
−1
0
1
2
3

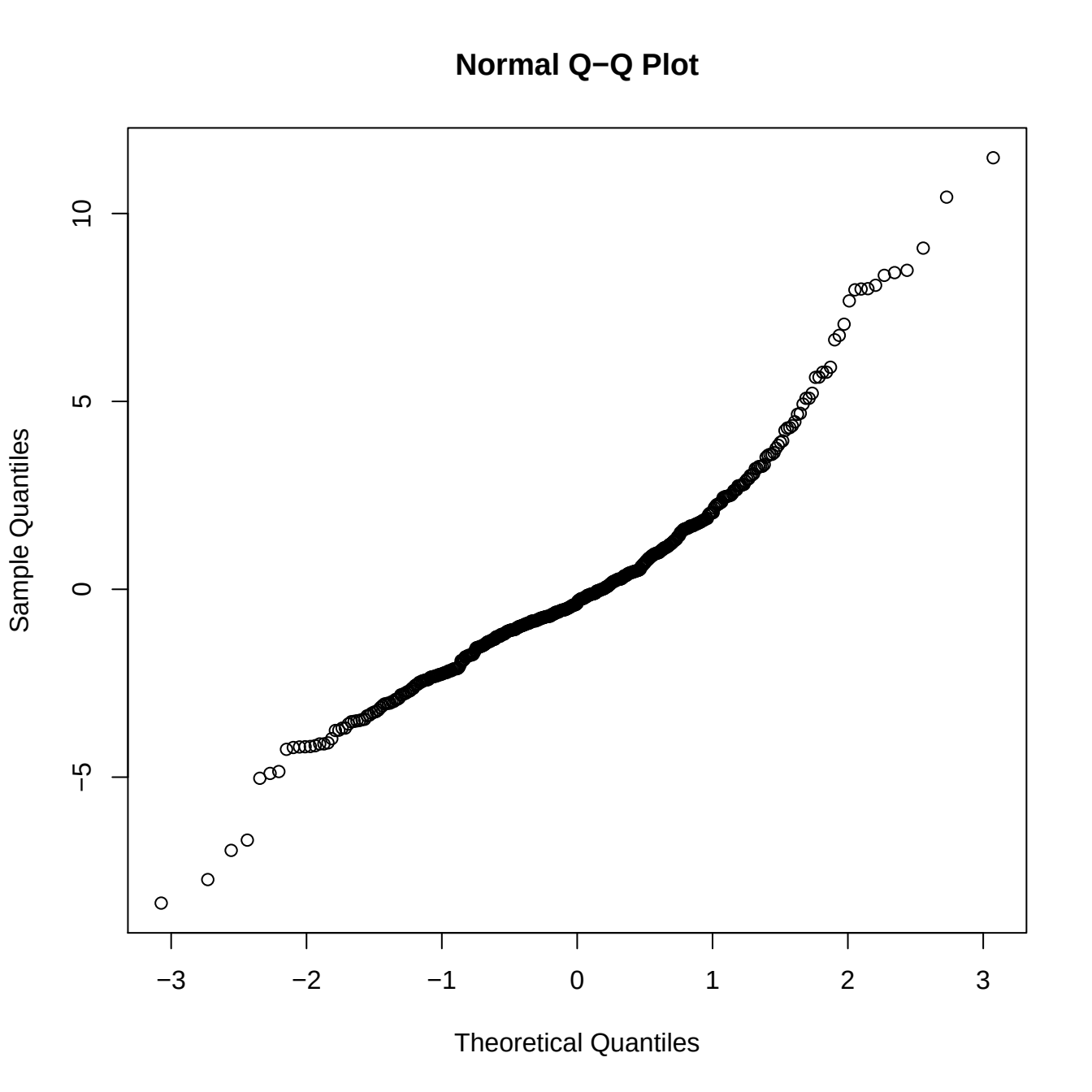

ril.data$residual
20
10
0
−10
10
15
20
25
30
ril.data$predicted

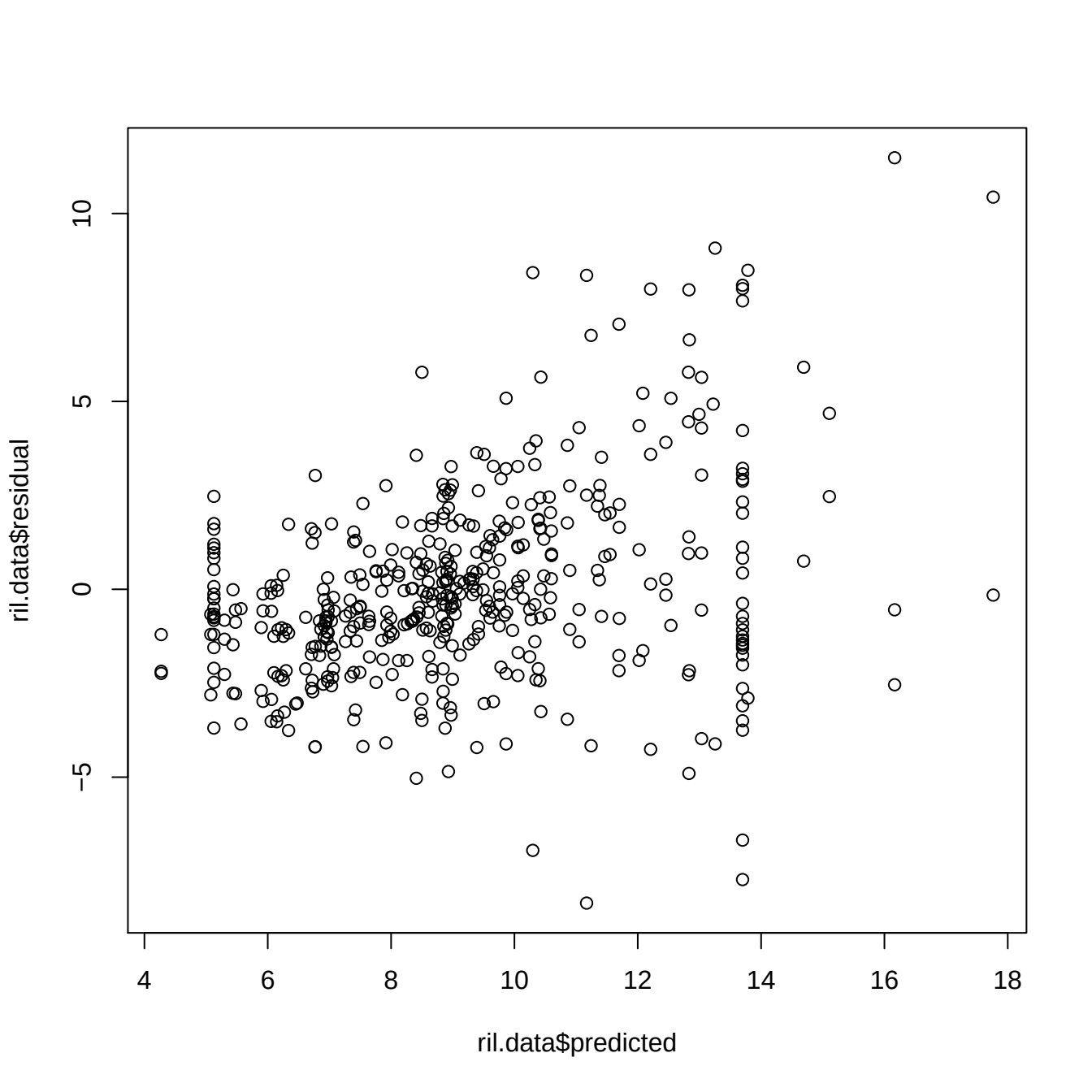

total_mass_per_DAS
0.10
0.15
0.20
0.25
0.30
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model

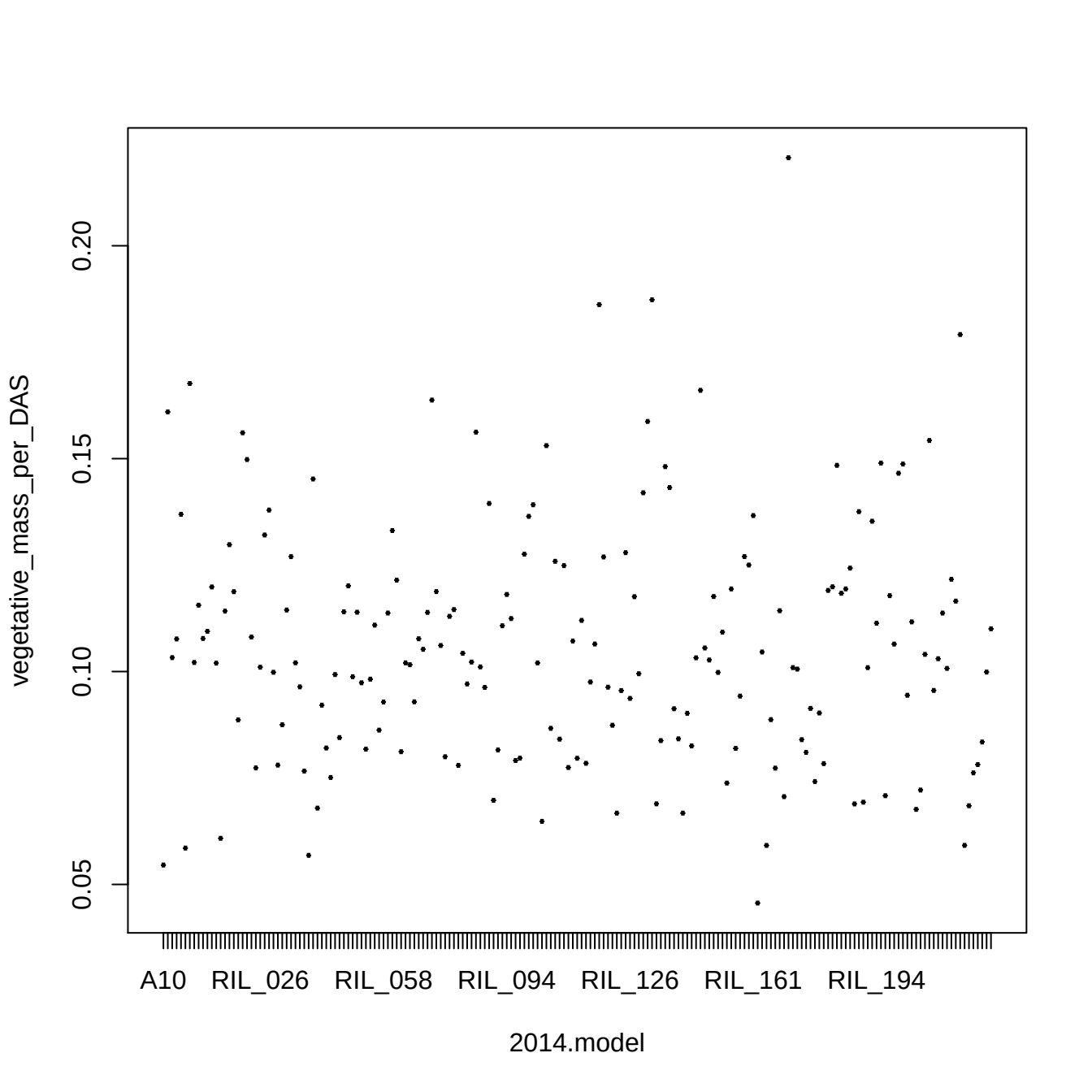

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−0.2
−0.1
0.0
0.1
0.2
0.3
−3
−2
−1
0
1
2
3

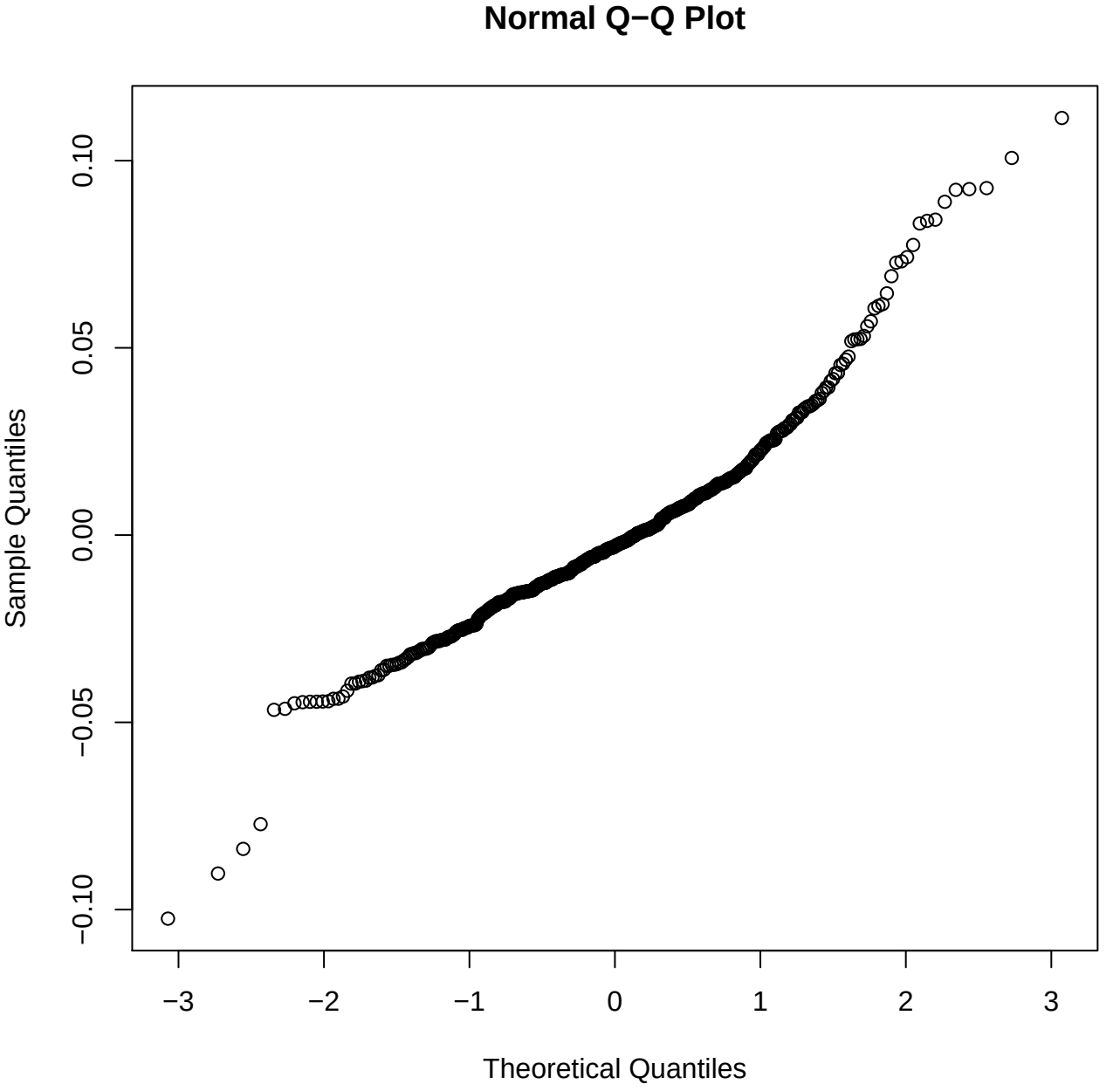

ril.data$residual
0.3
0.2
0.1
0.0
−0.1
−0.2
0.10
0.15
0.20
0.25
0.30
ril.data$predicted

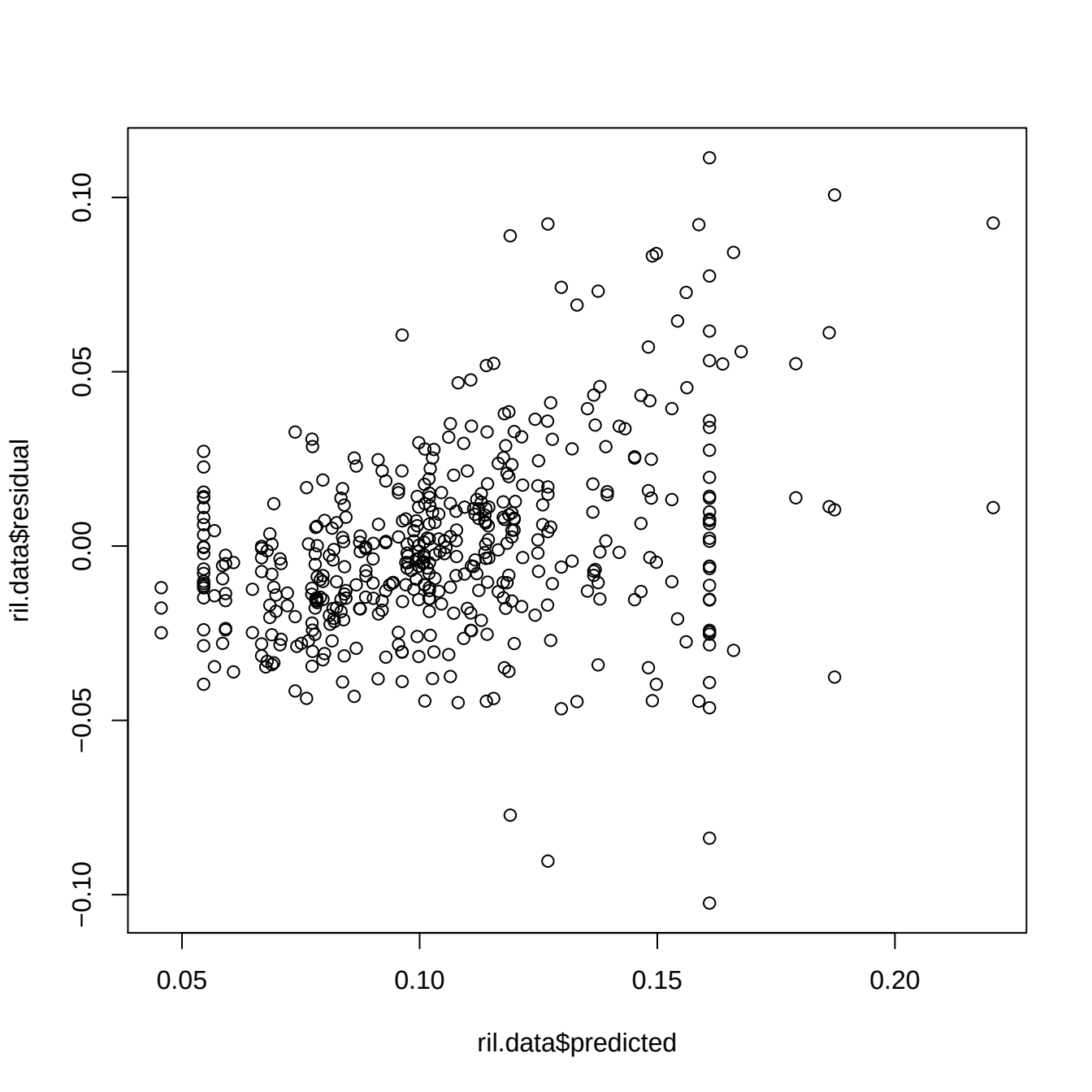

vegetative_mass_at_harvest
4
6
8
10
12
14
16
18
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model


Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
10
5
0
−5
−3
−2
−1
0
1
2
3


ril.data$residual
10
5
0
−5
4
6
8
10
12
14
16
18
ril.data$predicted


vegetative_mass_per_DAS
0.05
0.10
0.15
0.20
A10
RIL_026
RIL_058
RIL_094
RIL_126
RIL_161
RIL_194
2014.model


Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
0.10
0.05
0.00
−0.05
−0.10
−3
−2
−1
0
1
2
3


ril.data$residual
0.10
0.05
0.00
−0.05
−0.10
0.05
0.10
0.15
0.20
ril.data$predicted