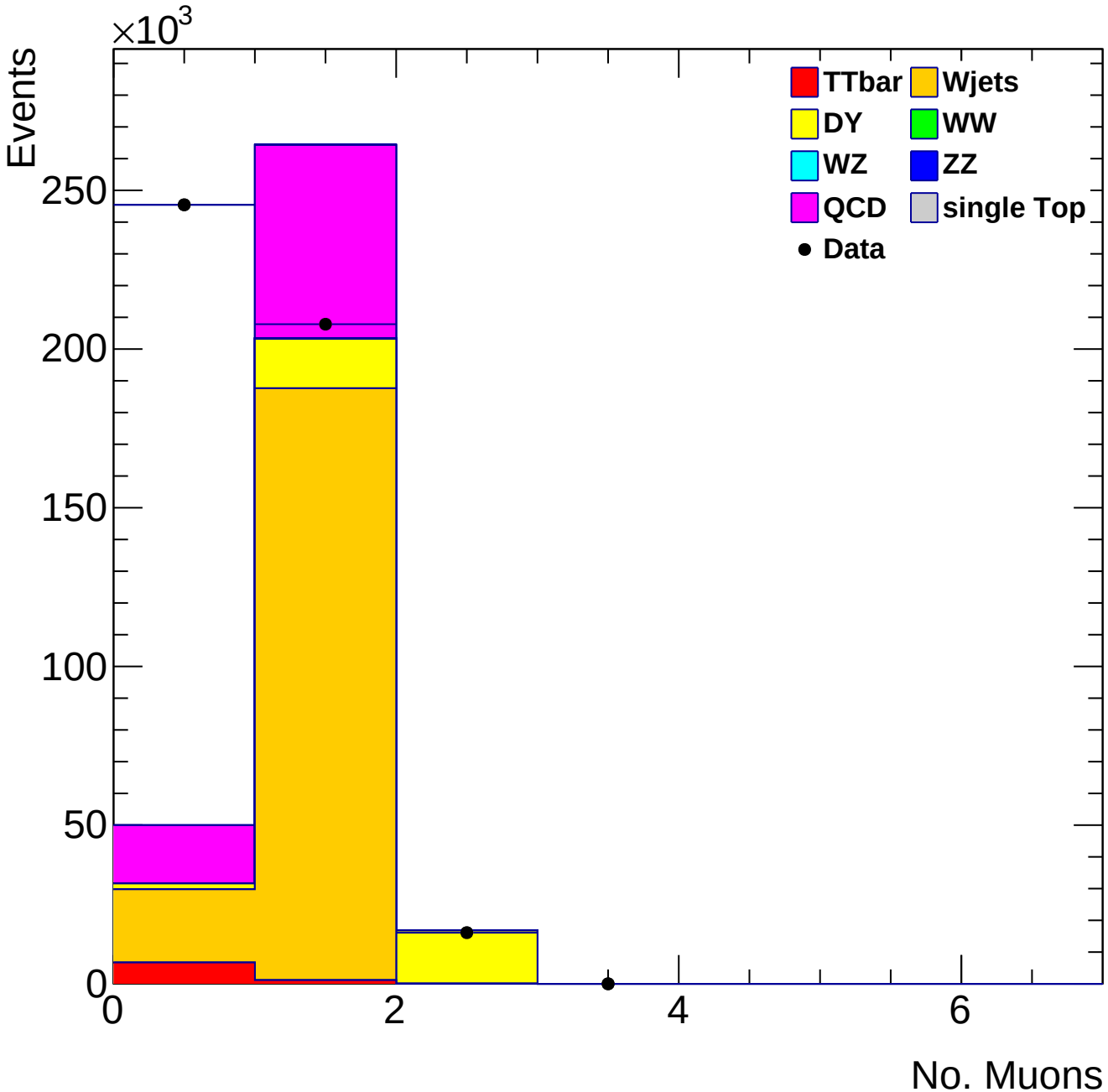
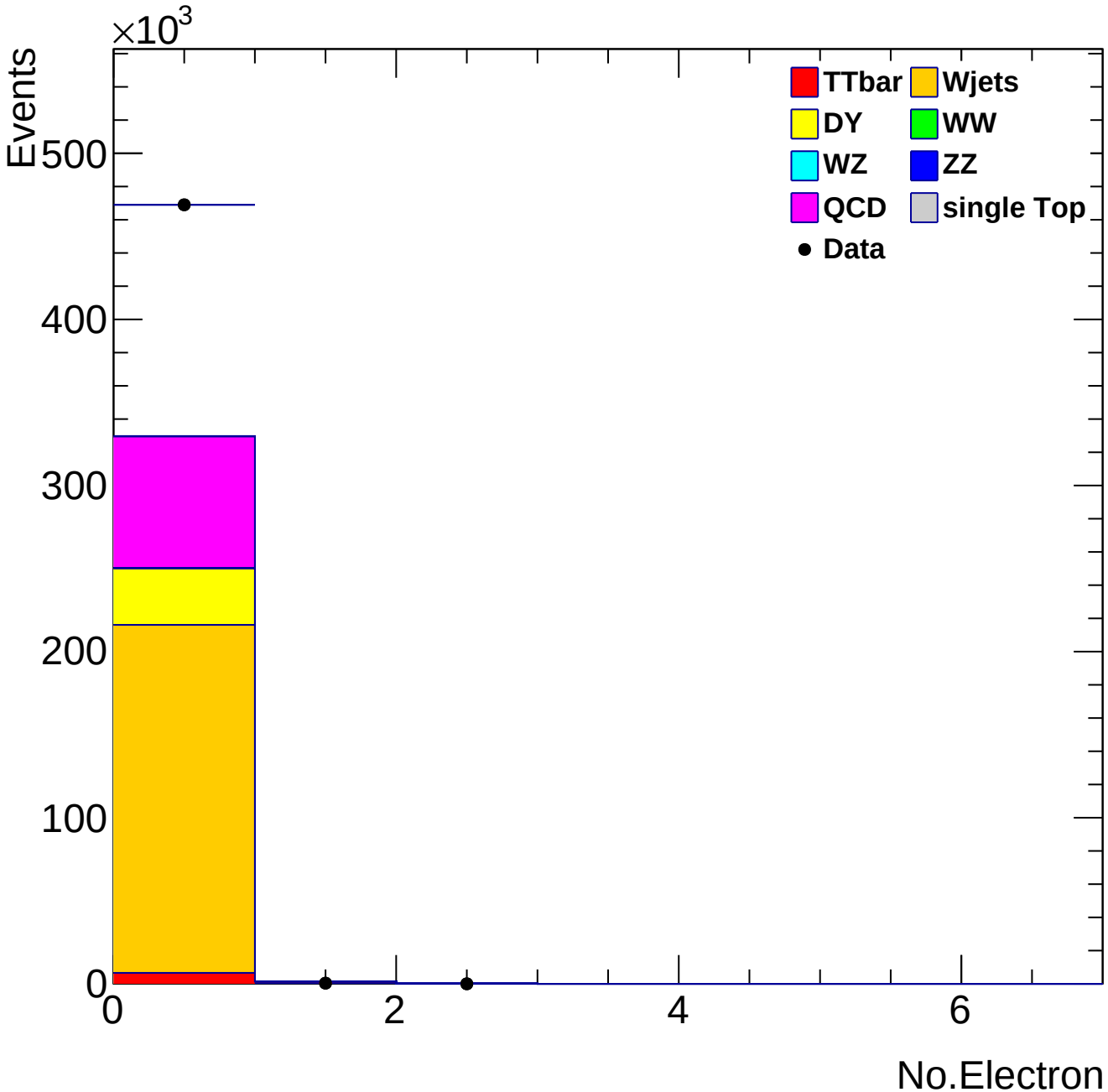
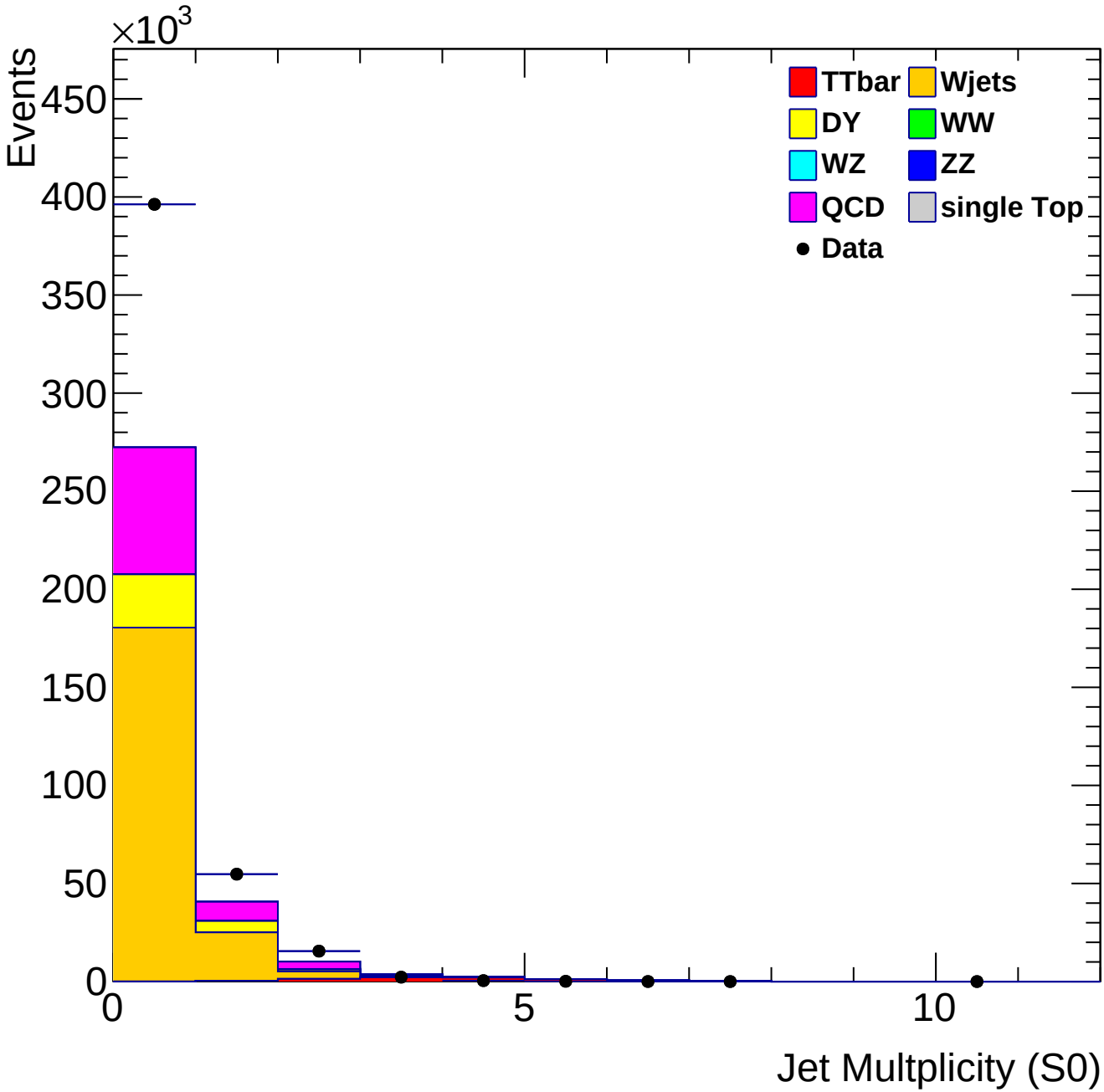
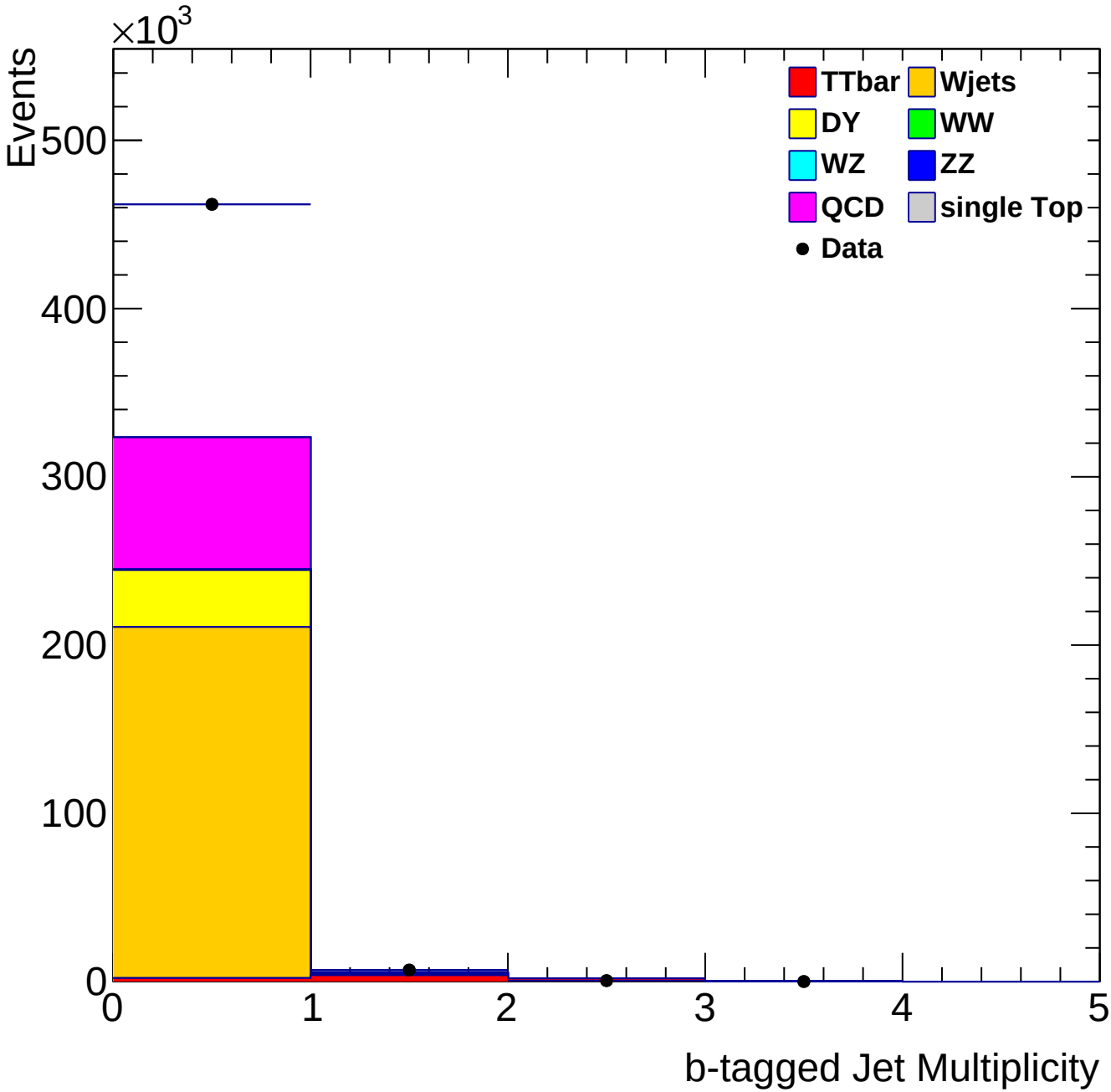
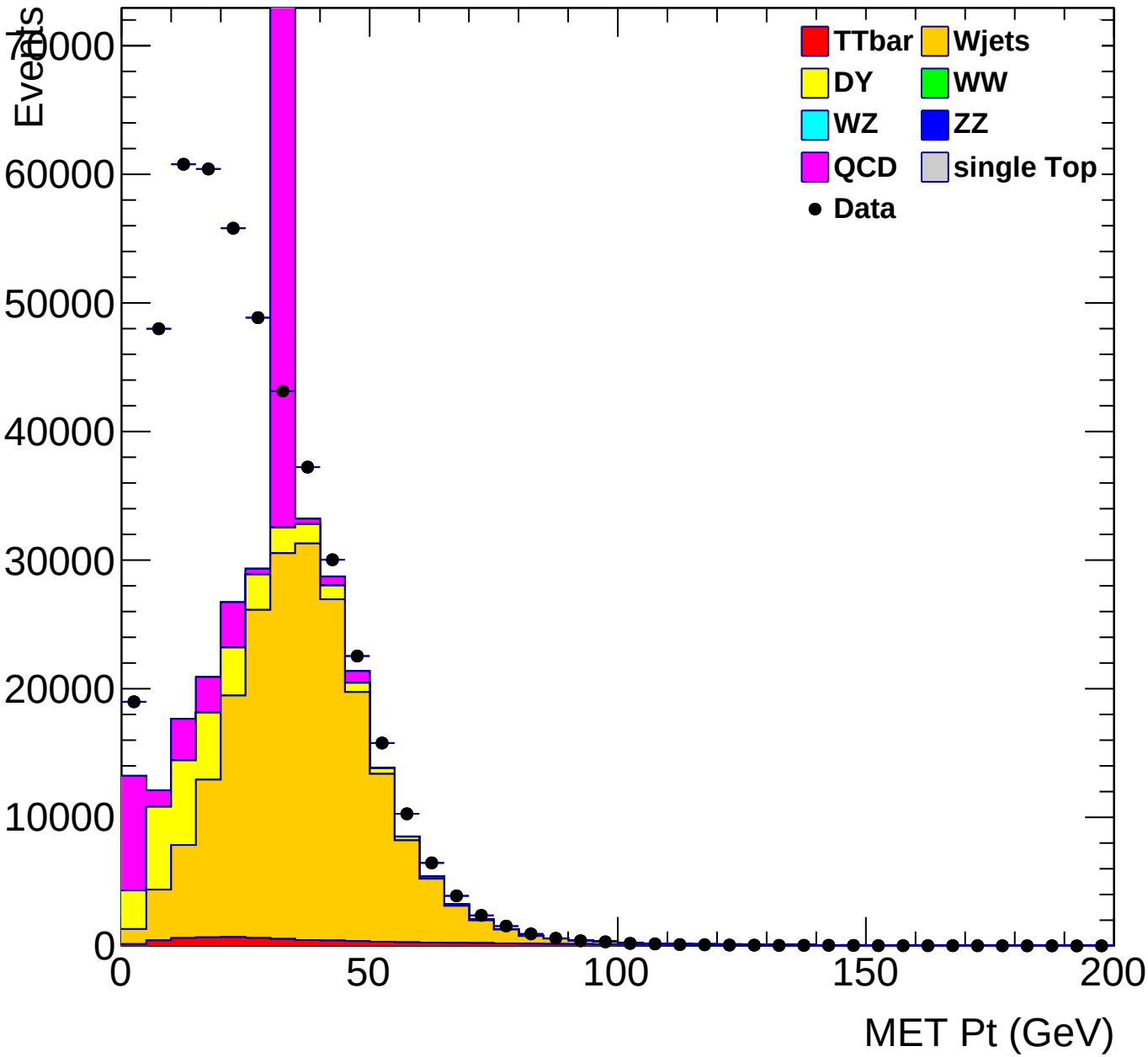
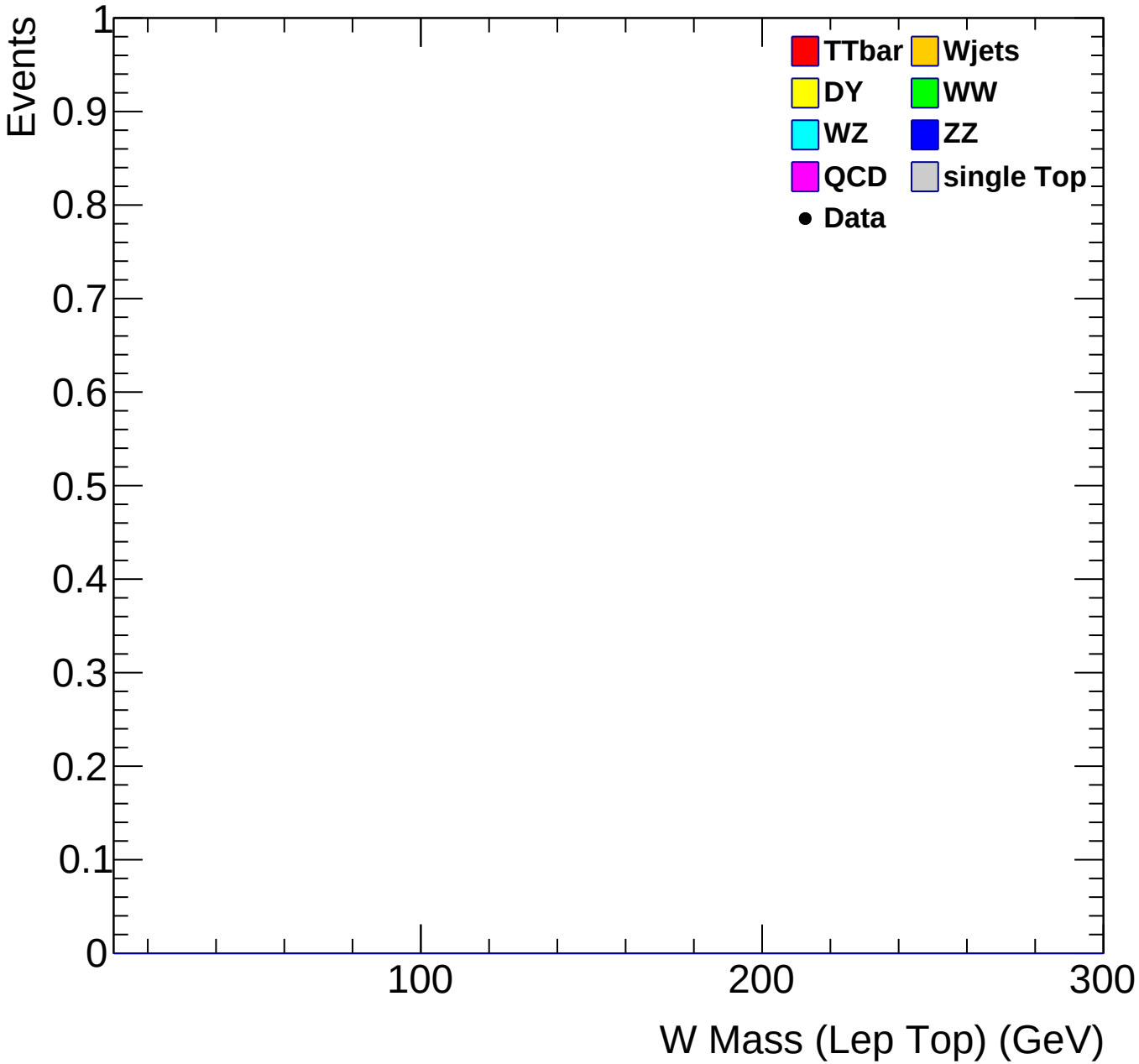

×10^3
Events
250
200
150
100
50
0
0
2
4
6
No. Muons
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

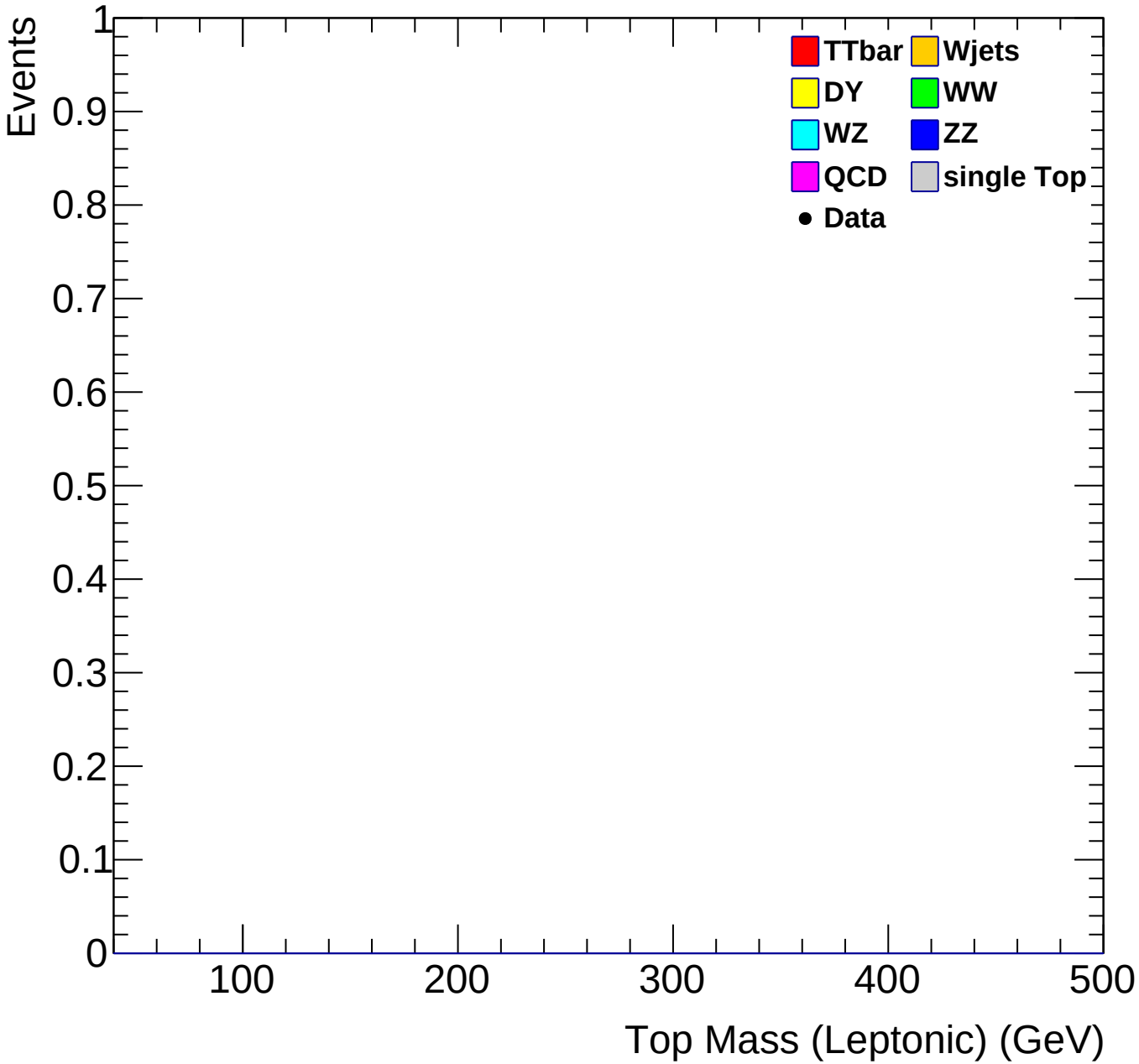

×10^3
Events
500
400
300
200
100
0
0
2
4
6
No.Electron
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

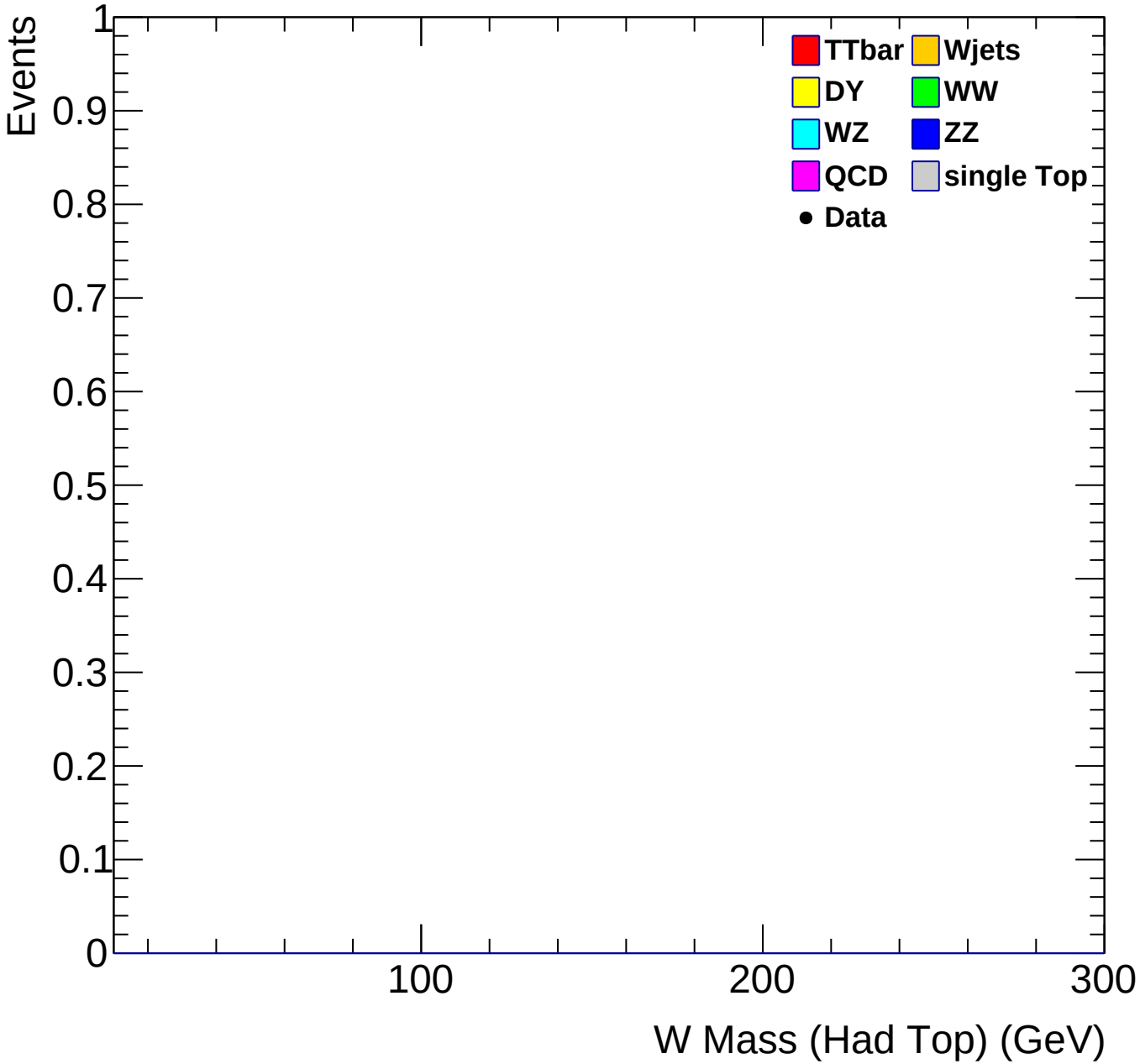

×10^3
Events
450
400
350
300
250
200
150
100
50
0
0
5
10
Jet Multplicity (S0)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

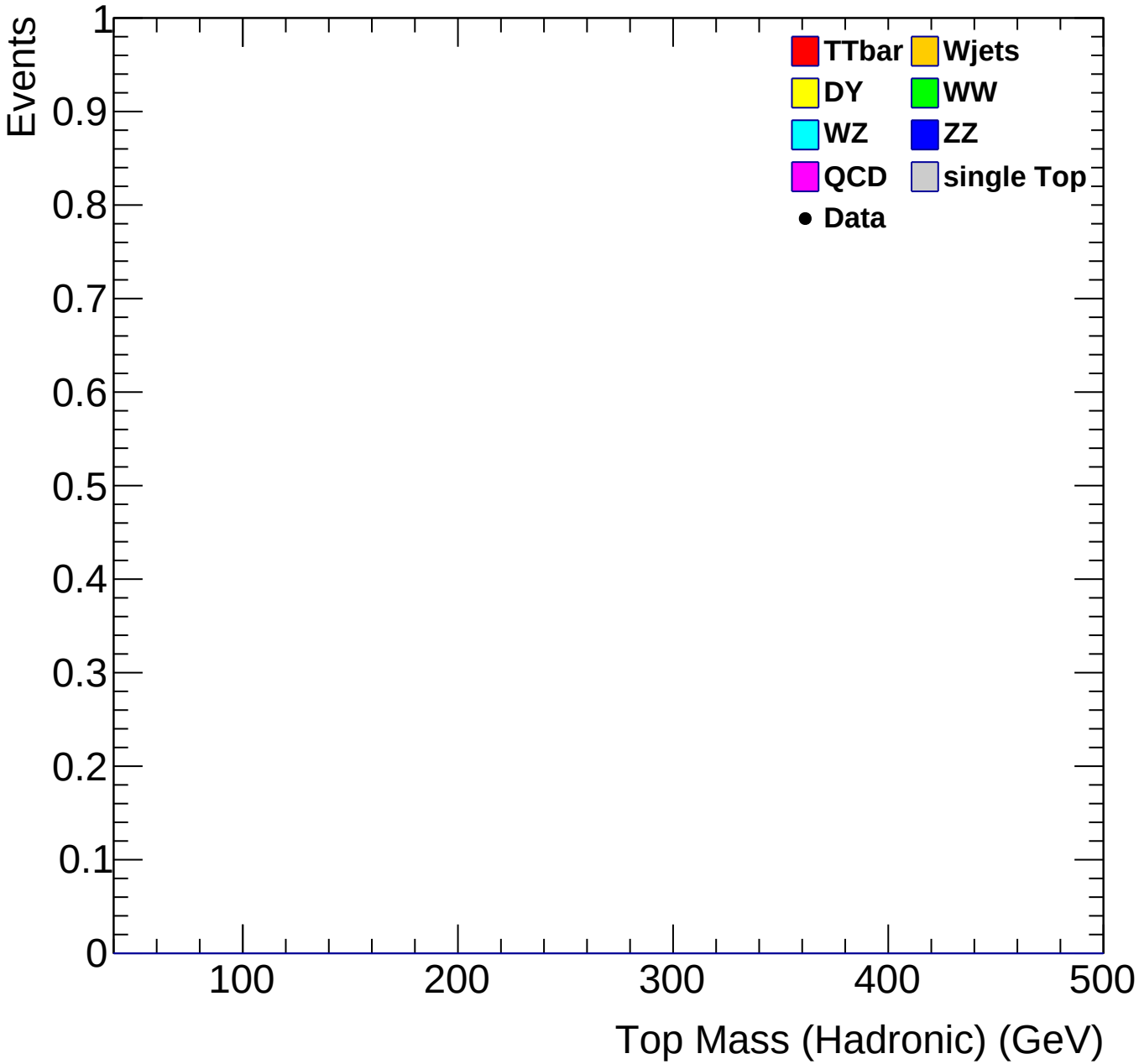

×10^3
Events
500
400
300
200
100
0
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

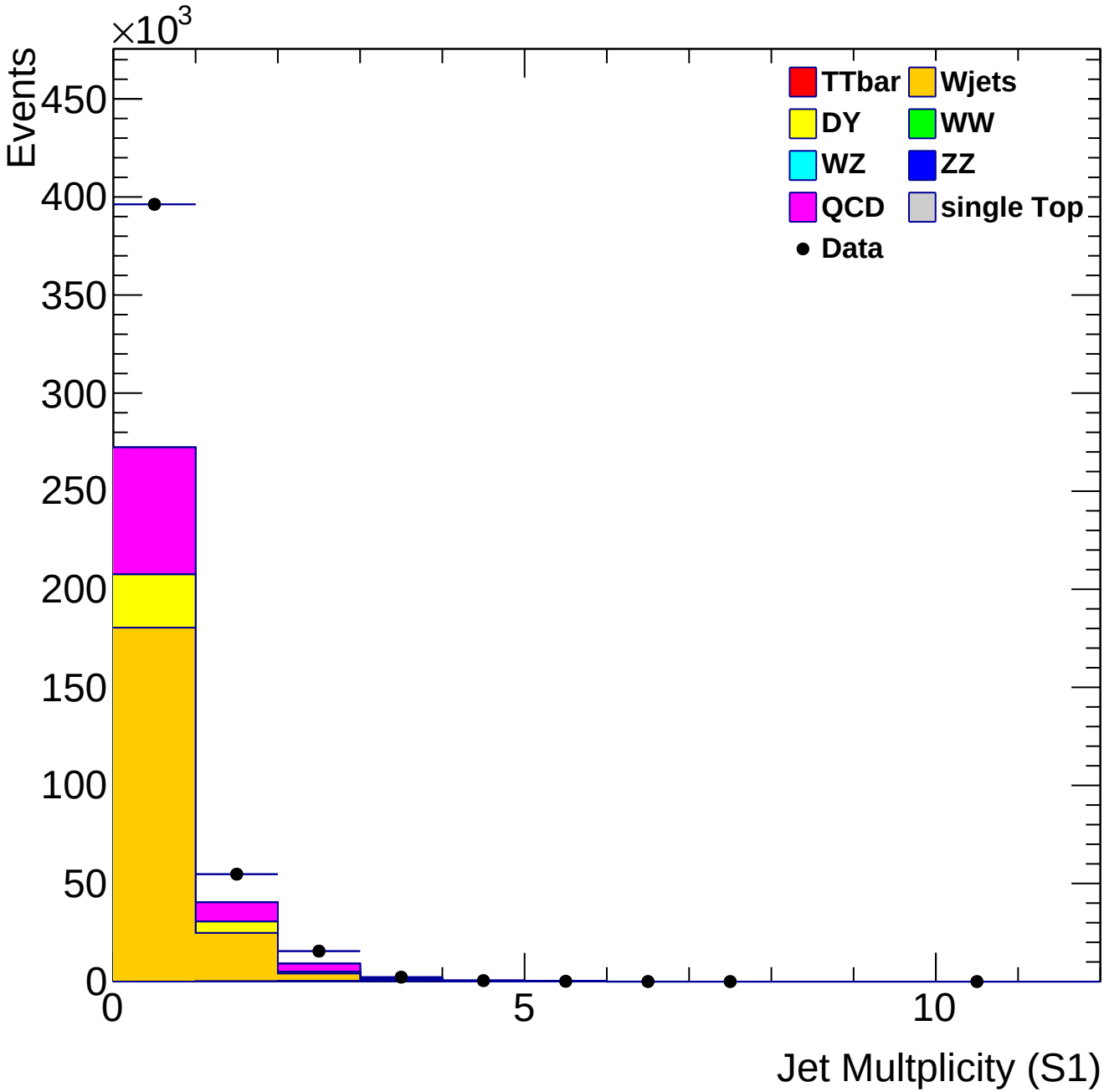

Events
70000
60000
50000
40000
30000
20000
10000
0
0
50
100
150
200
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

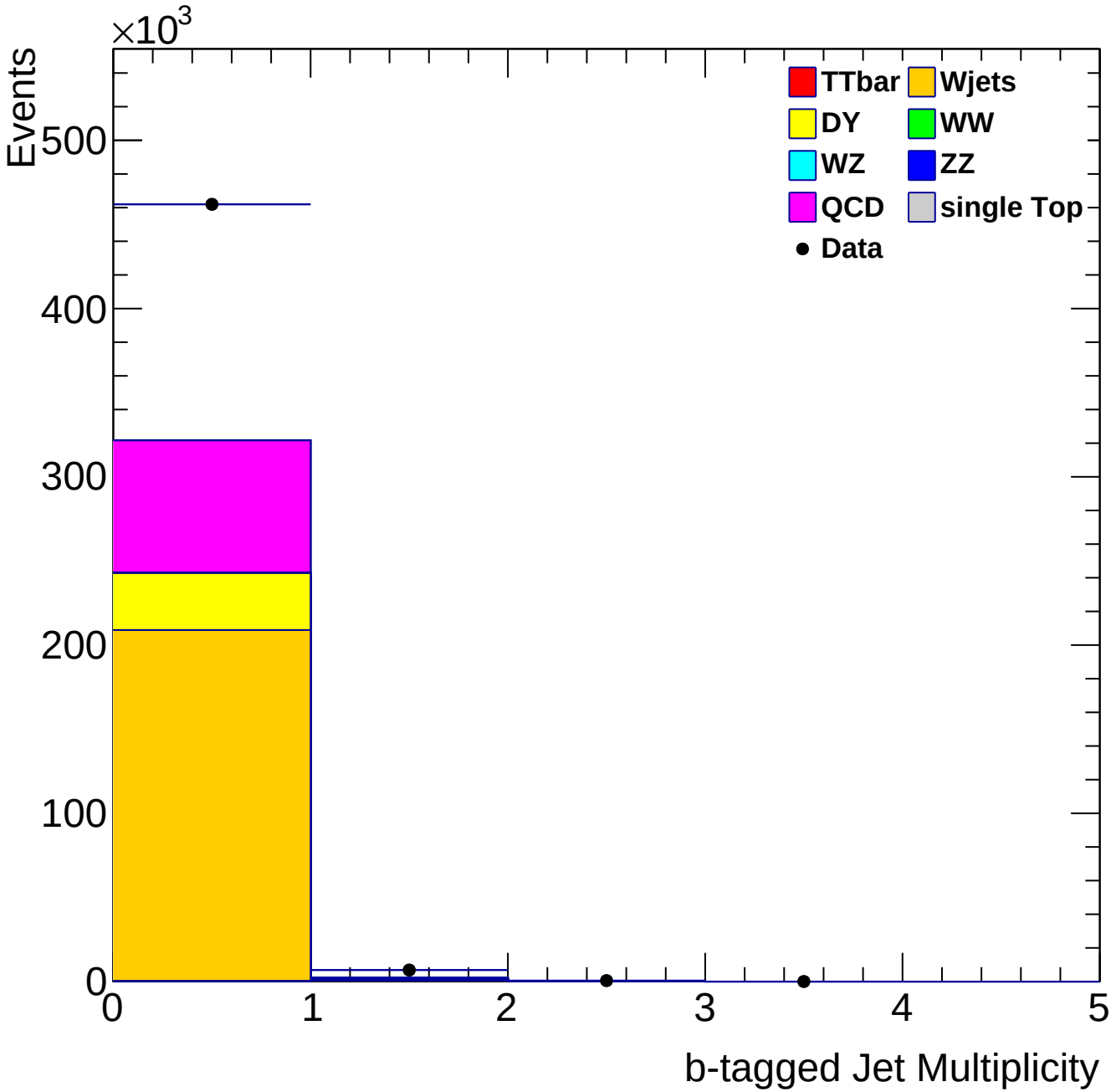

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

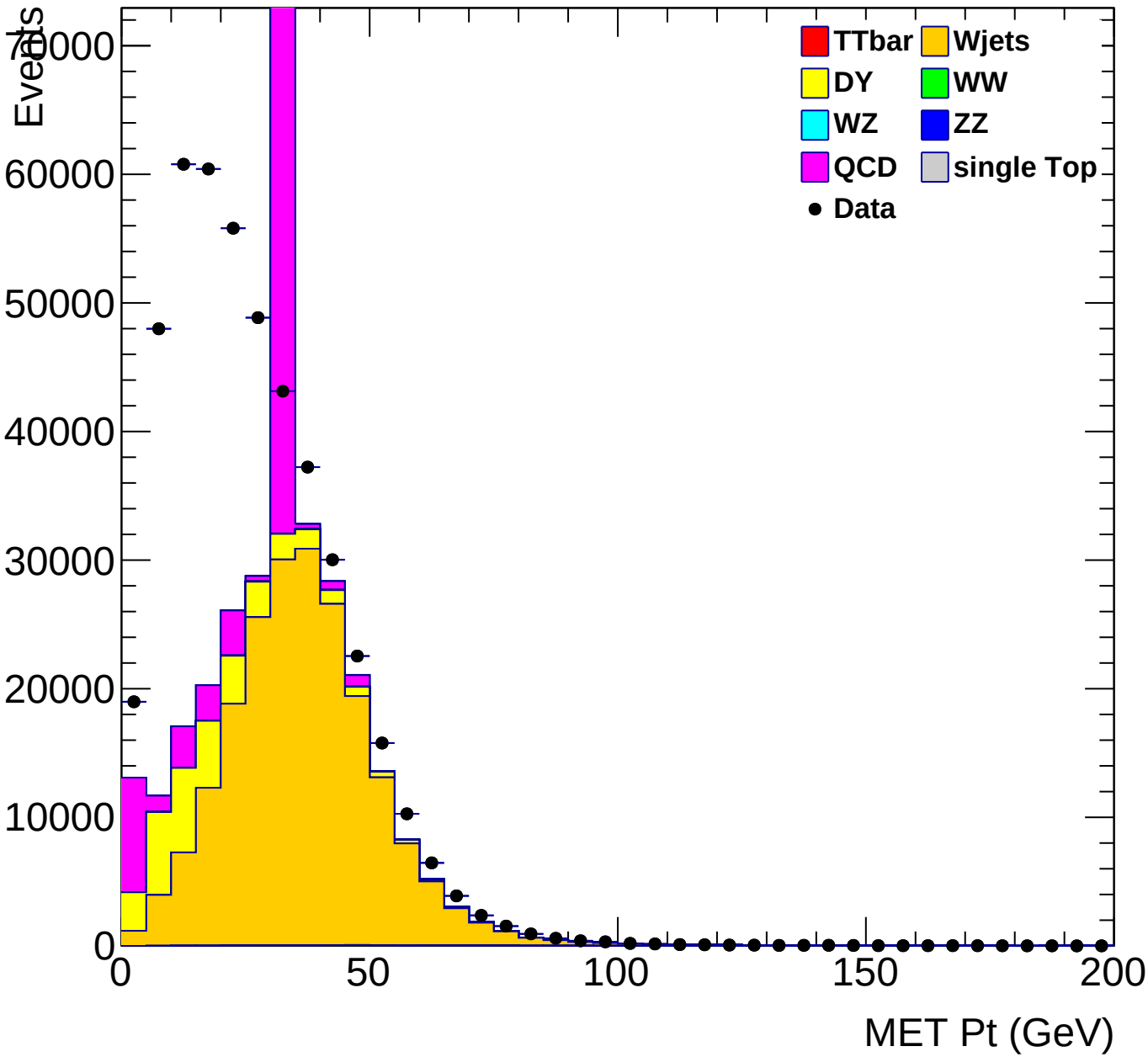

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

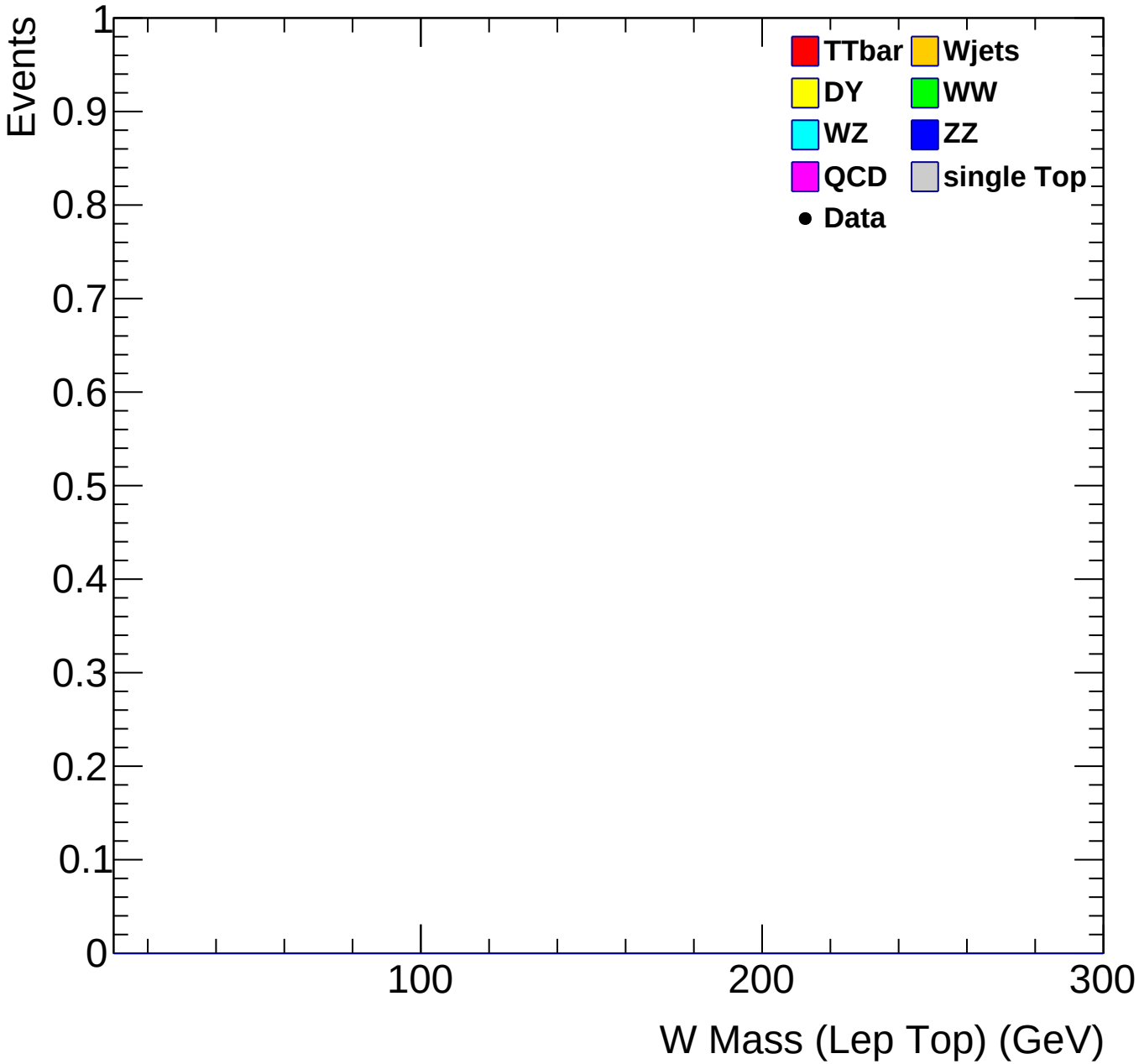

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

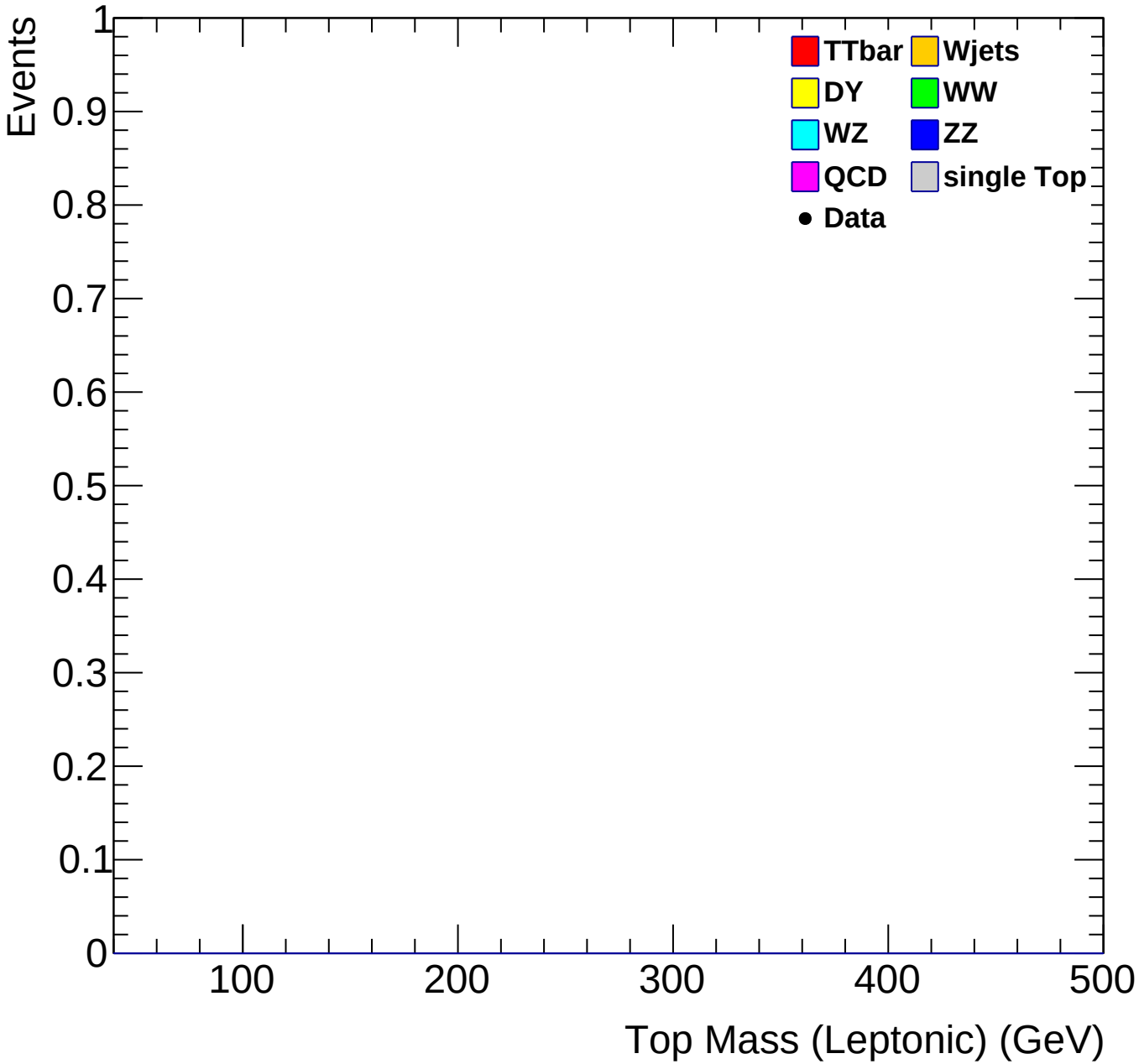

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

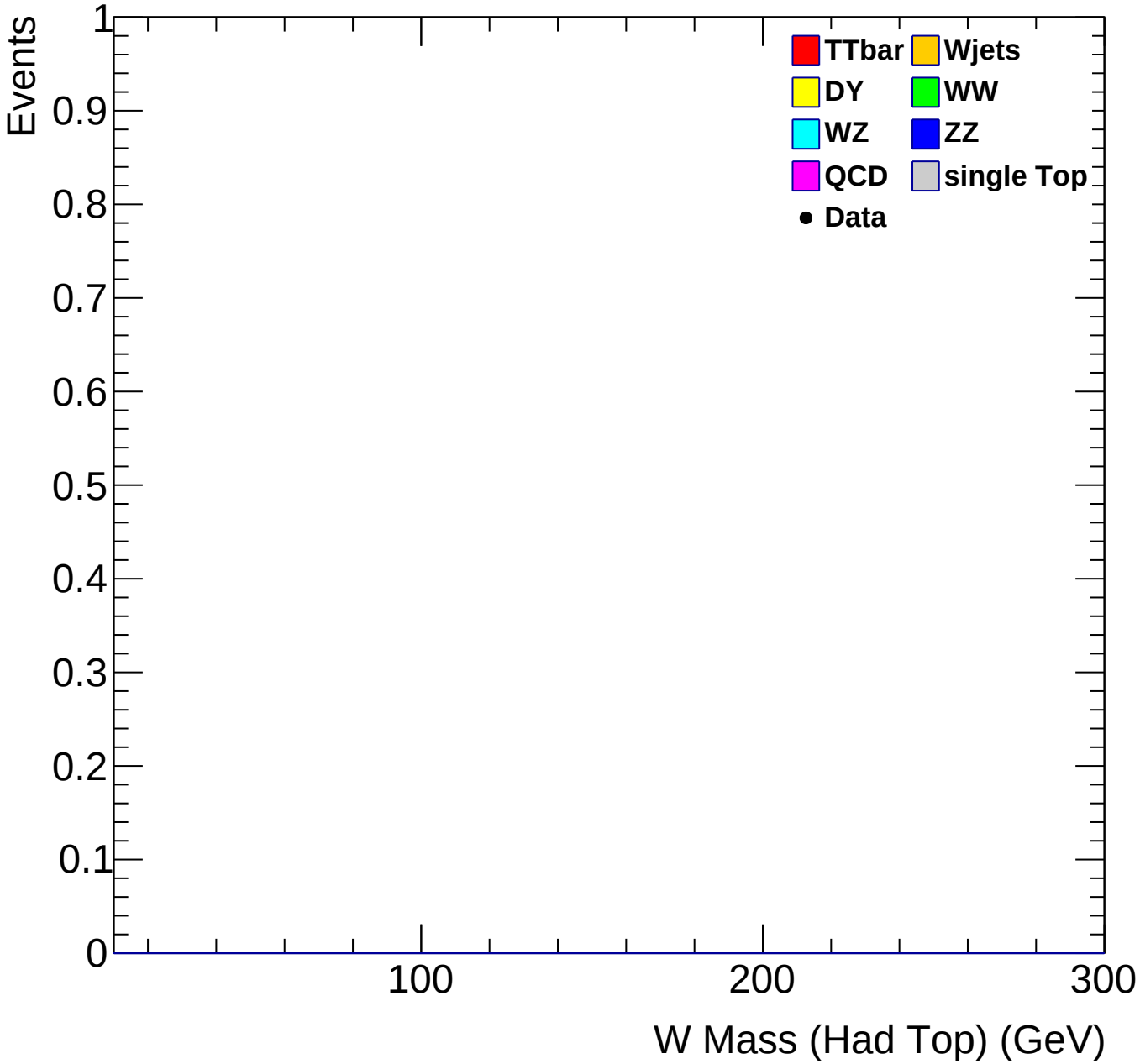

×10^3
Events
450
400
350
300
250
200
150
100
50
0
0
5
10
Jet Multplicity (S1)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

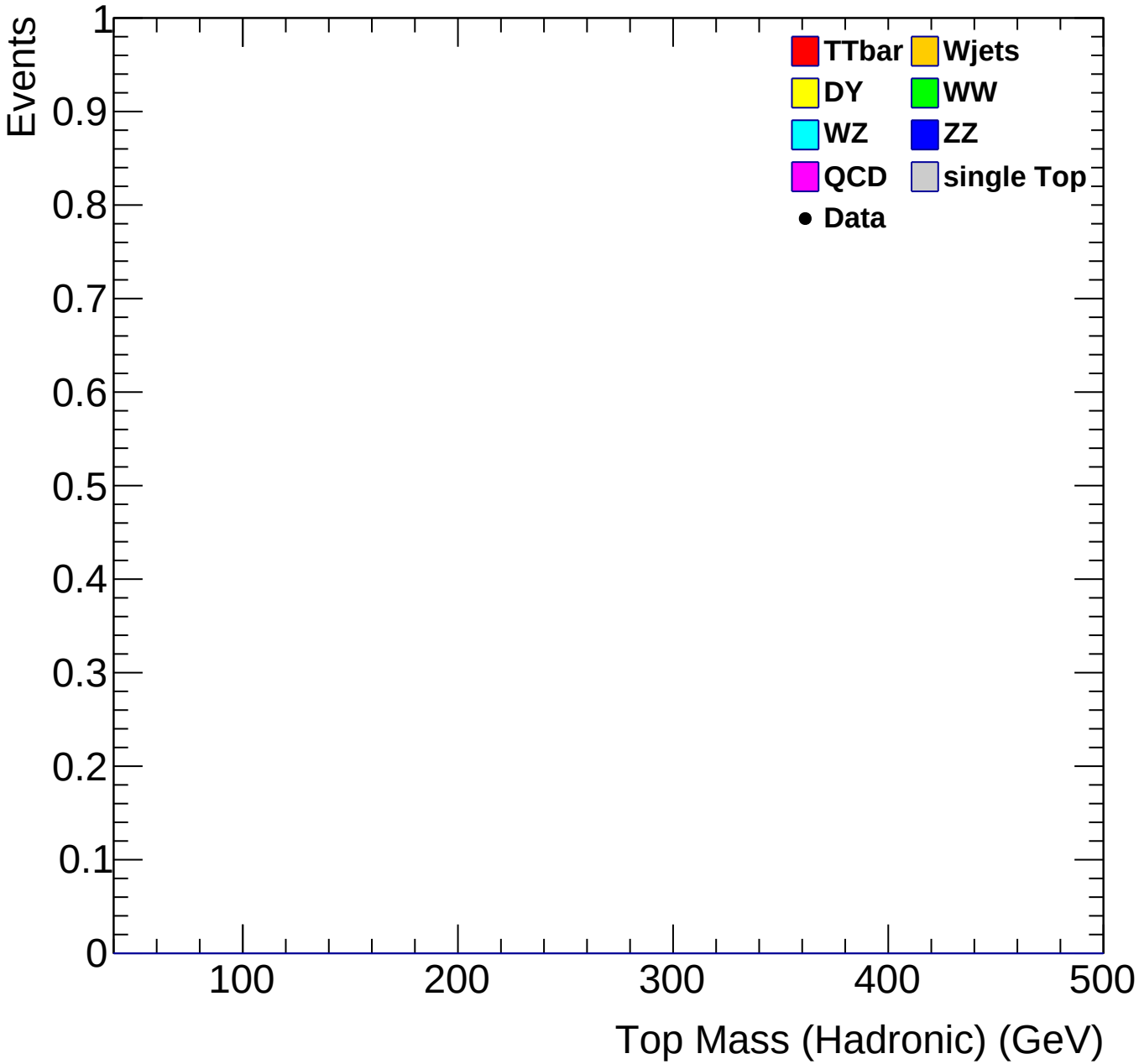

×10^3
Events
500
400
300
200
100
0
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

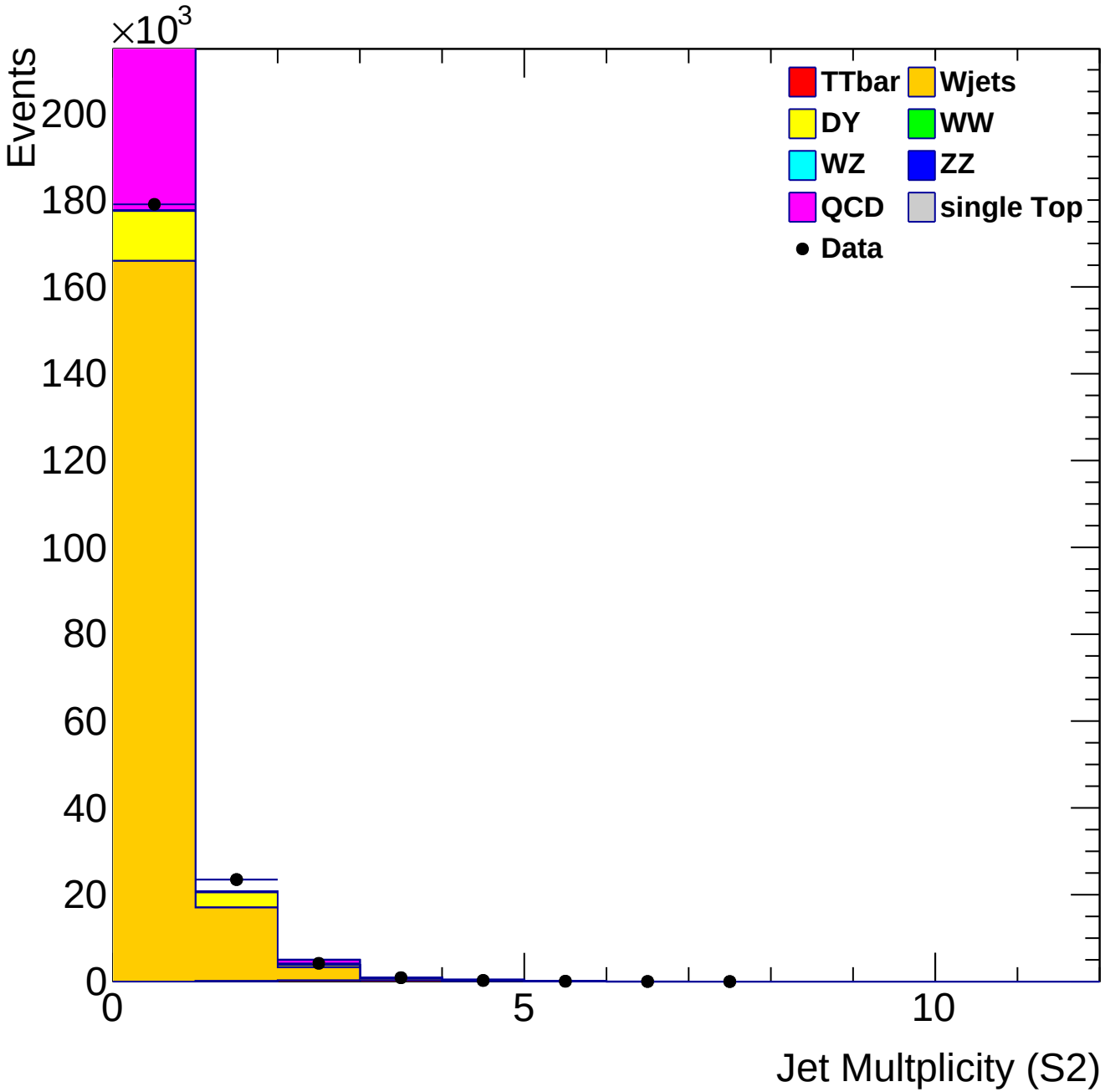

Events
70000
60000
50000
40000
30000
20000
10000
0
0
50
100
150
200
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

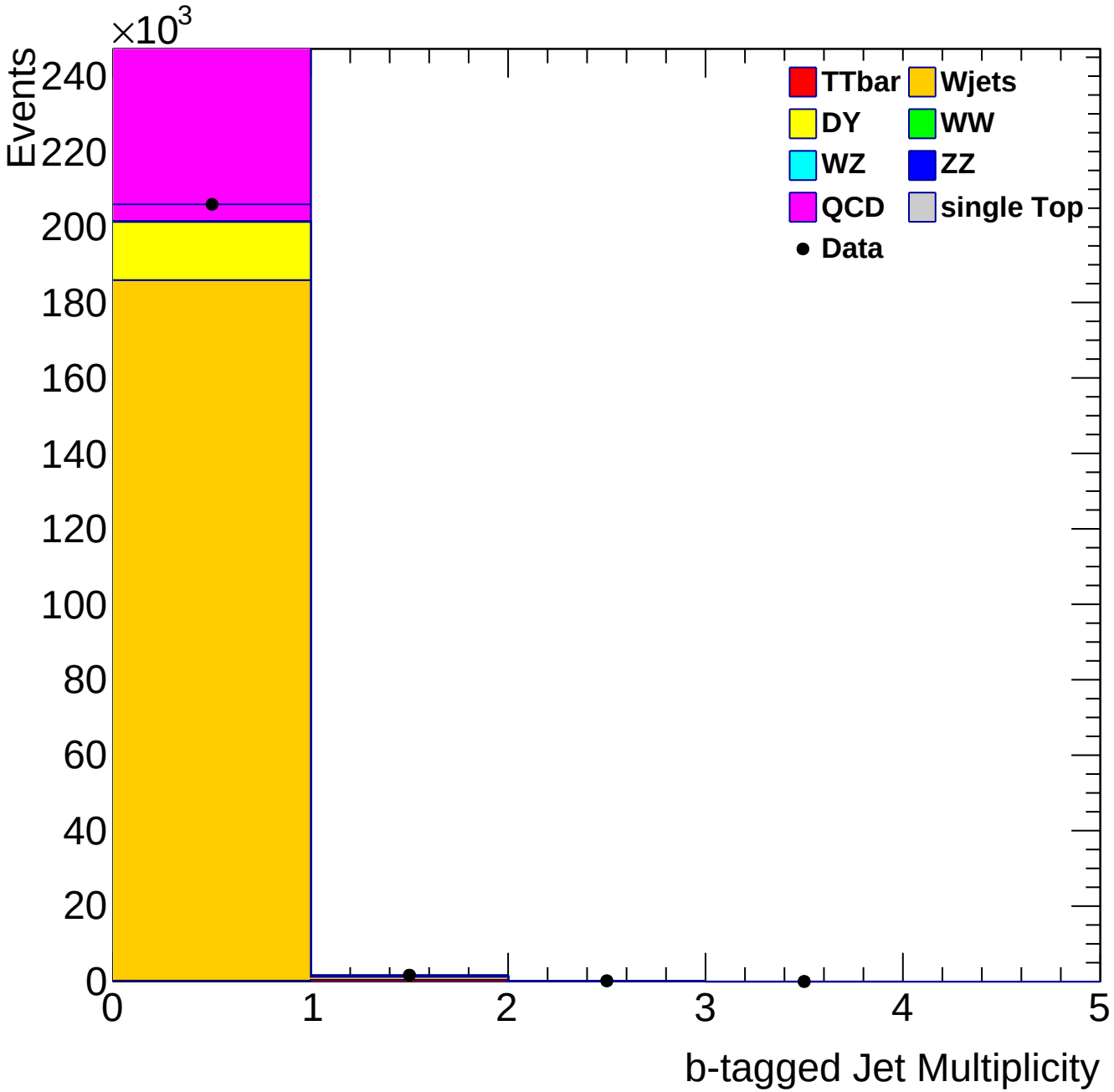

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

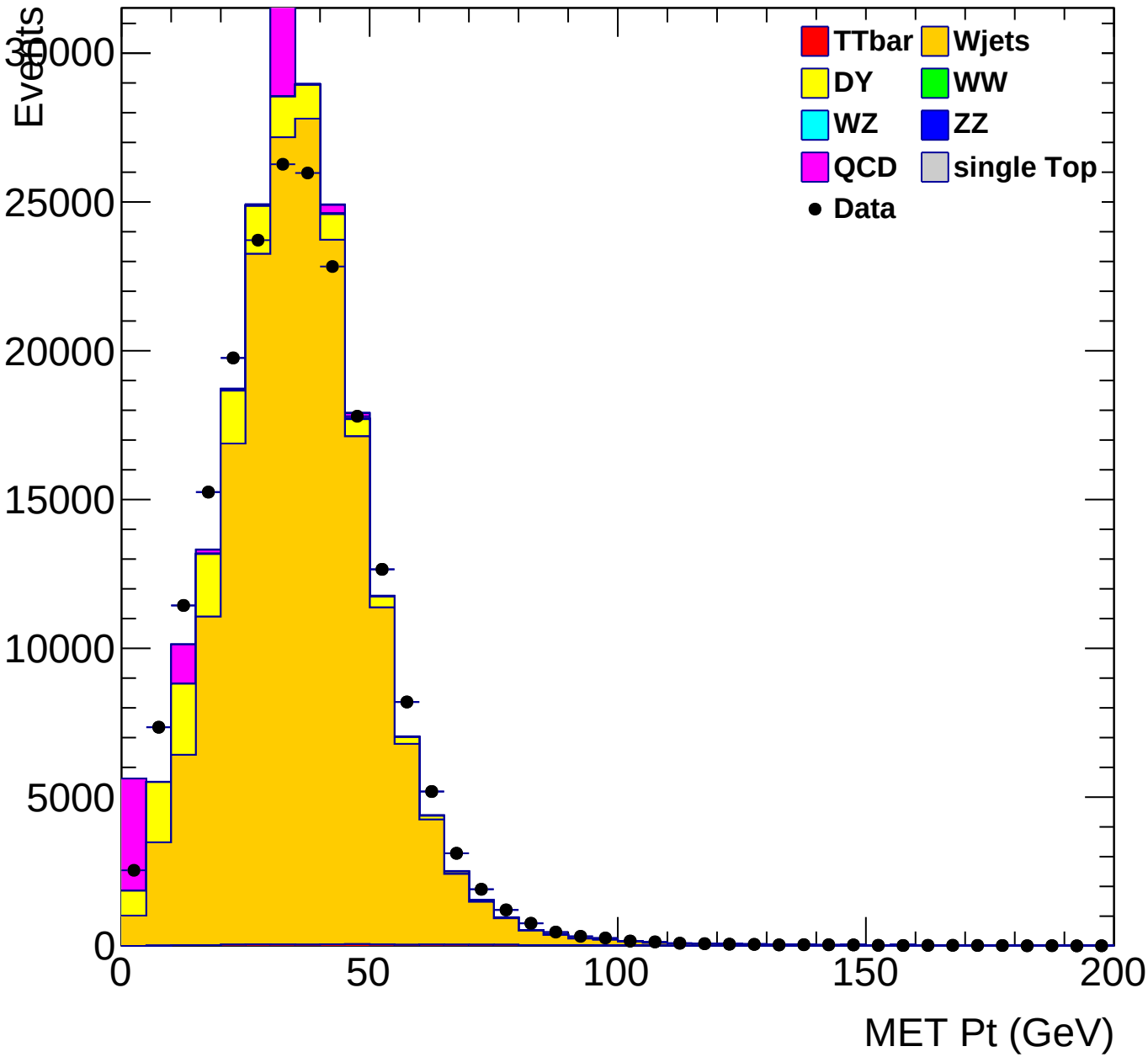

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

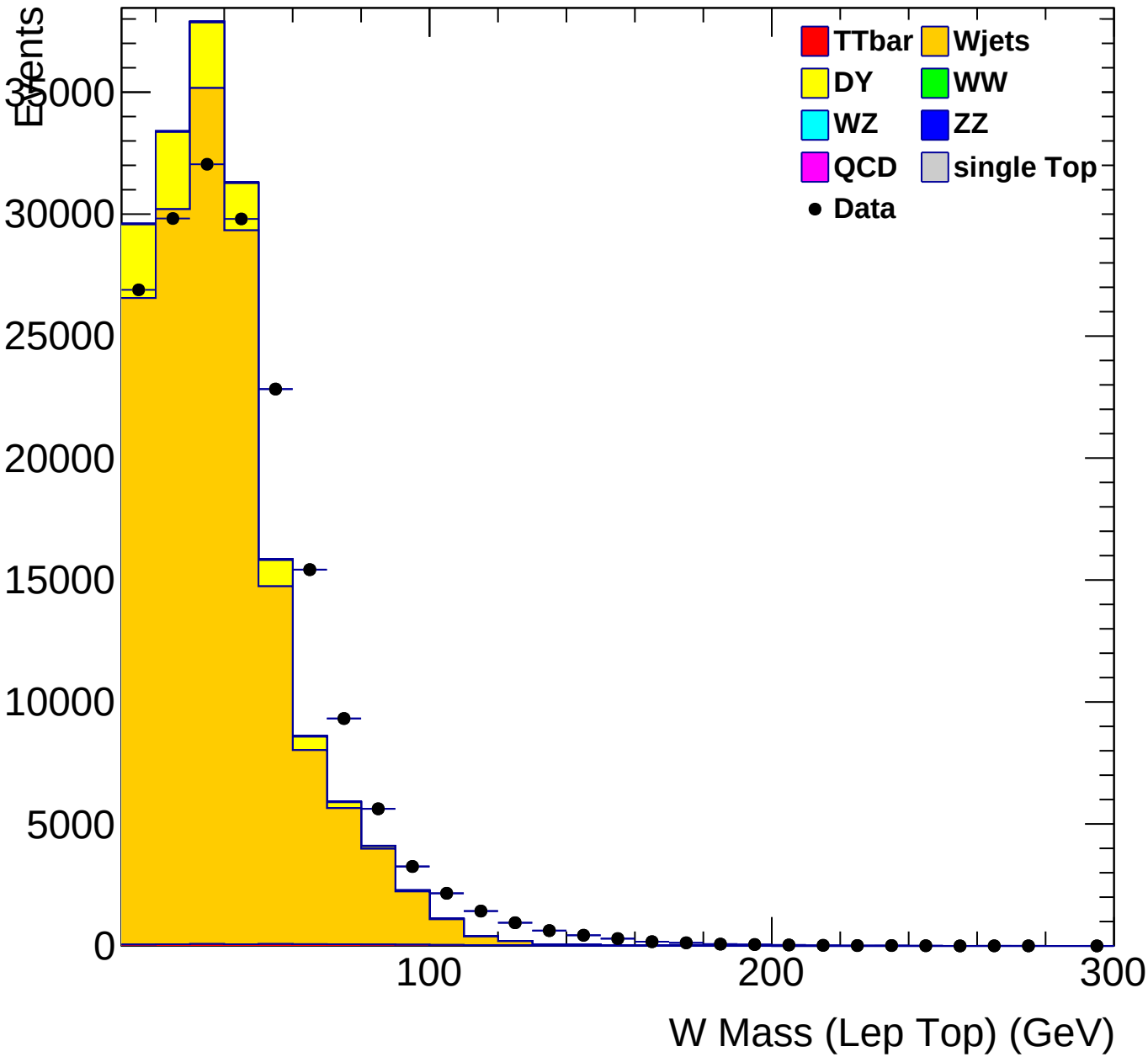

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

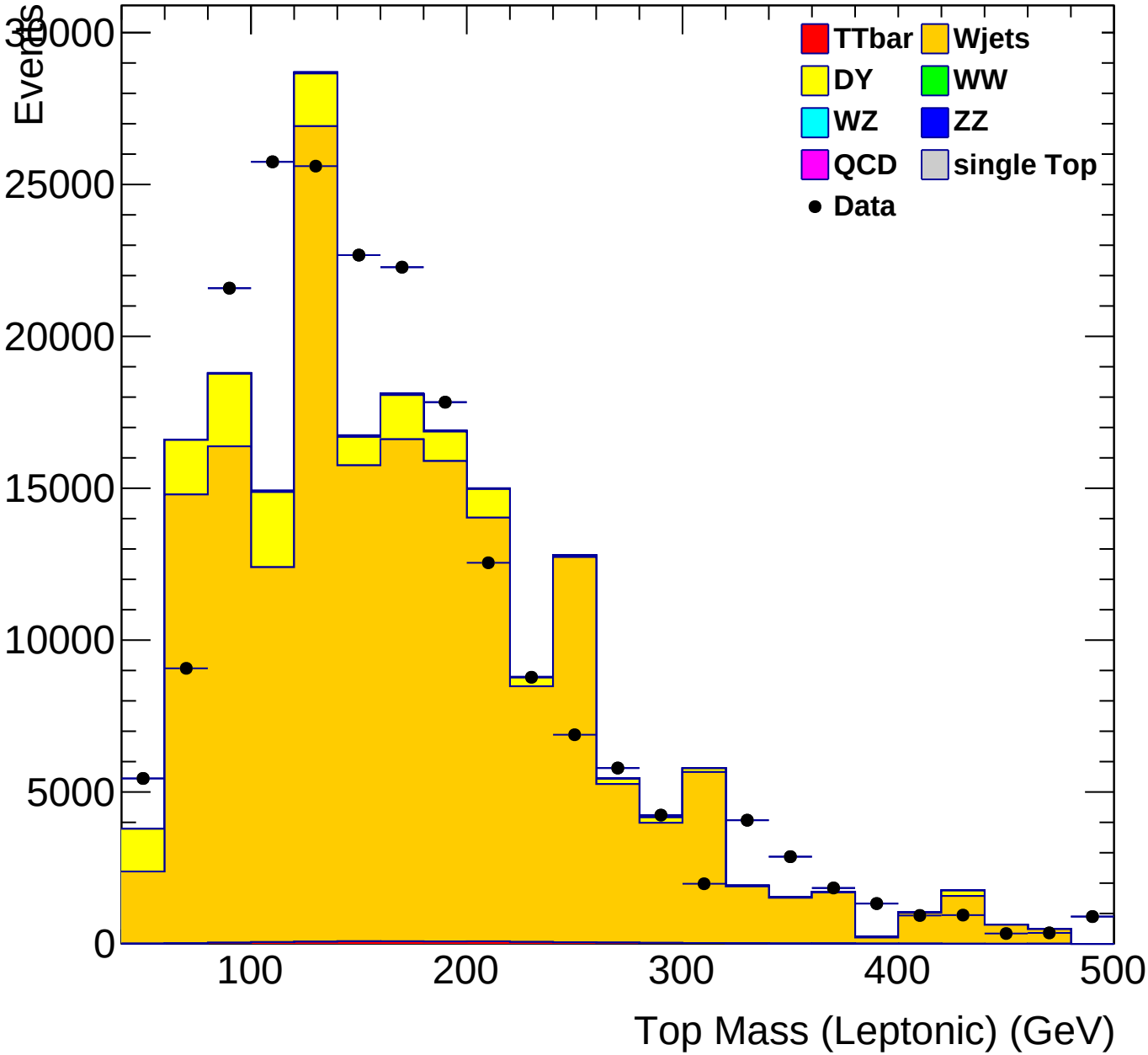

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

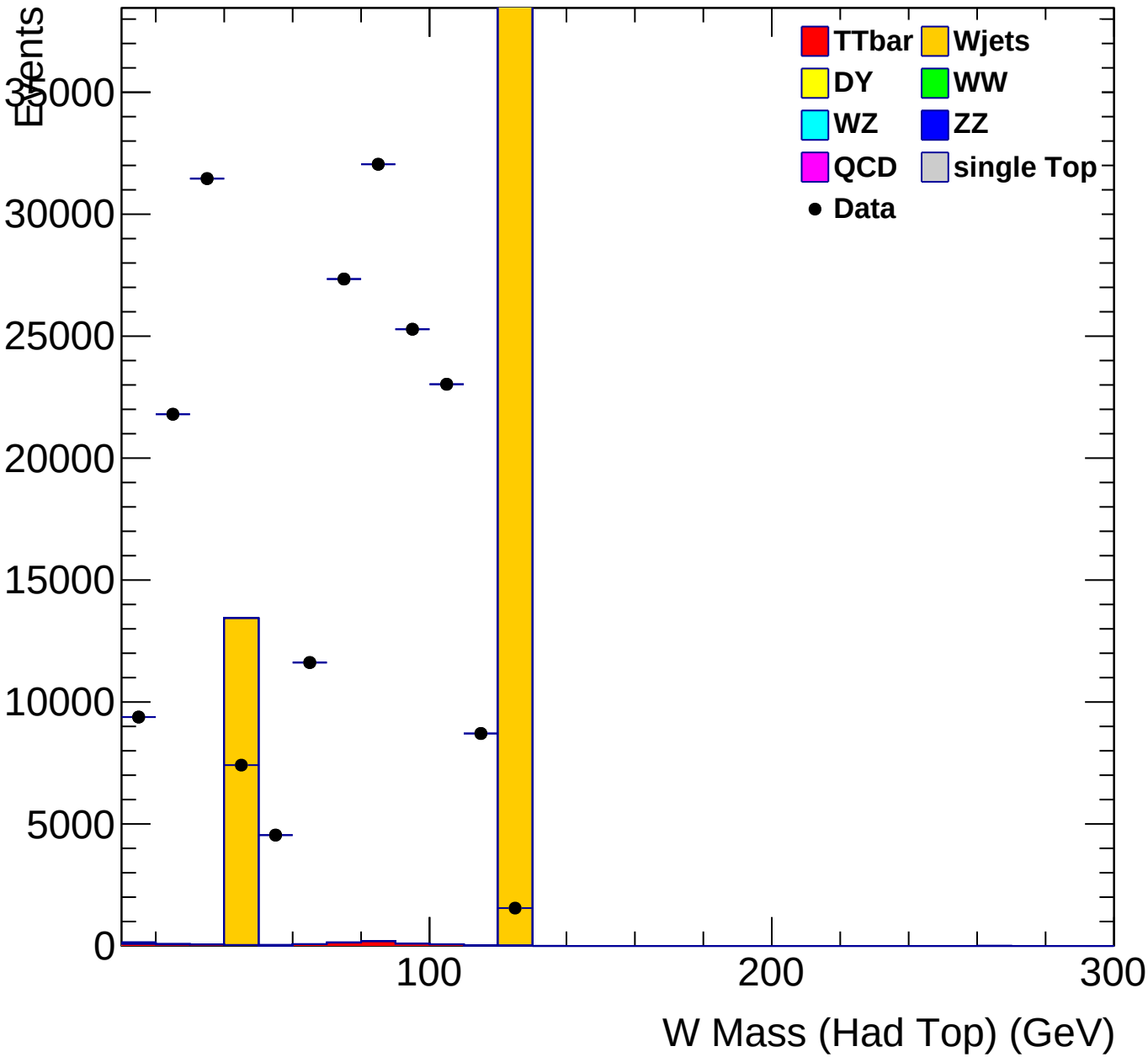

×10^3
Events
200
180
160
140
120
100
80
60
40
20
0
0
5
10
Jet Multplicity (S2)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

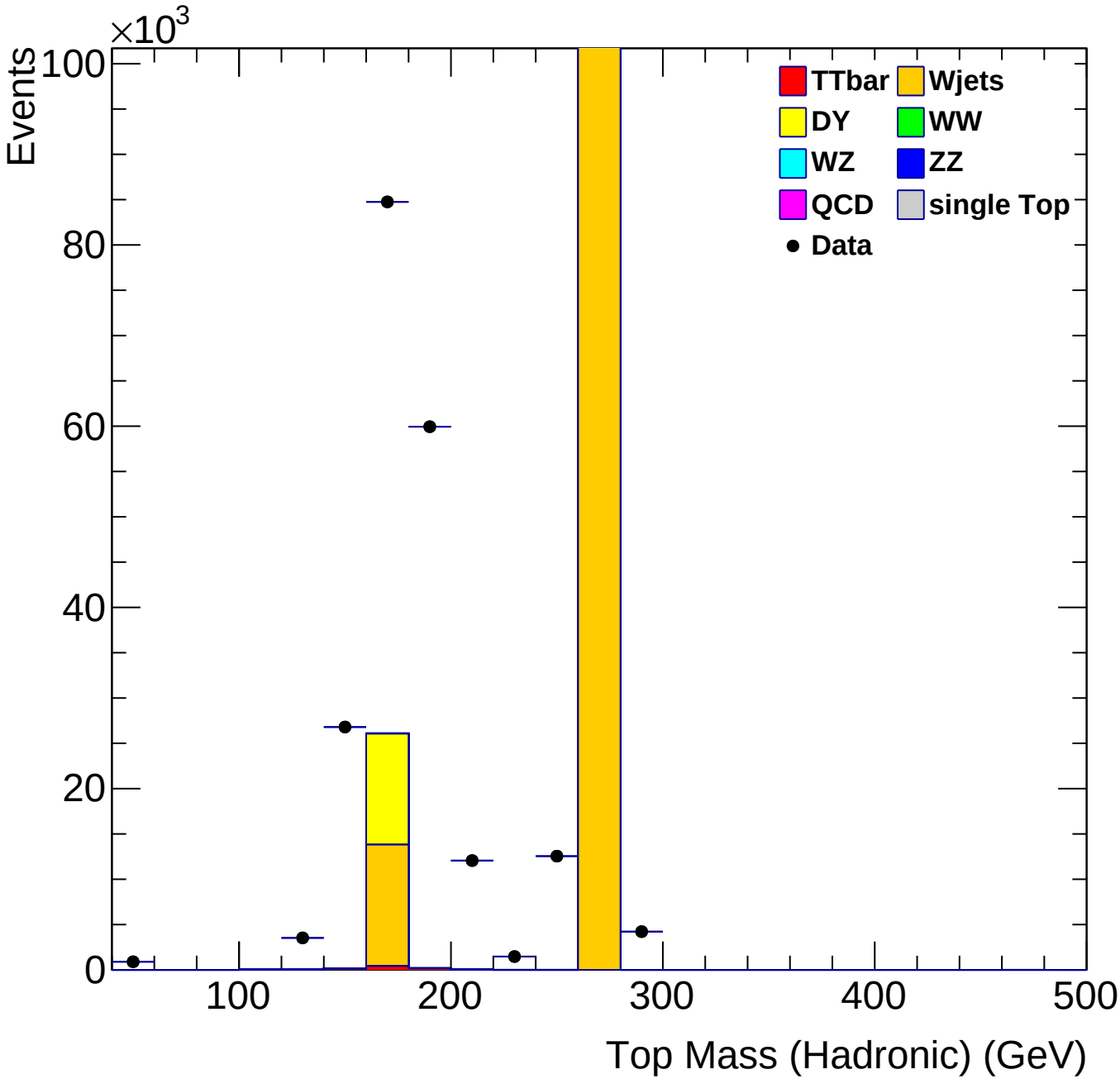

×10^3
Events
240
220
200
180
160
140
120
100
80
60
40
20
0
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

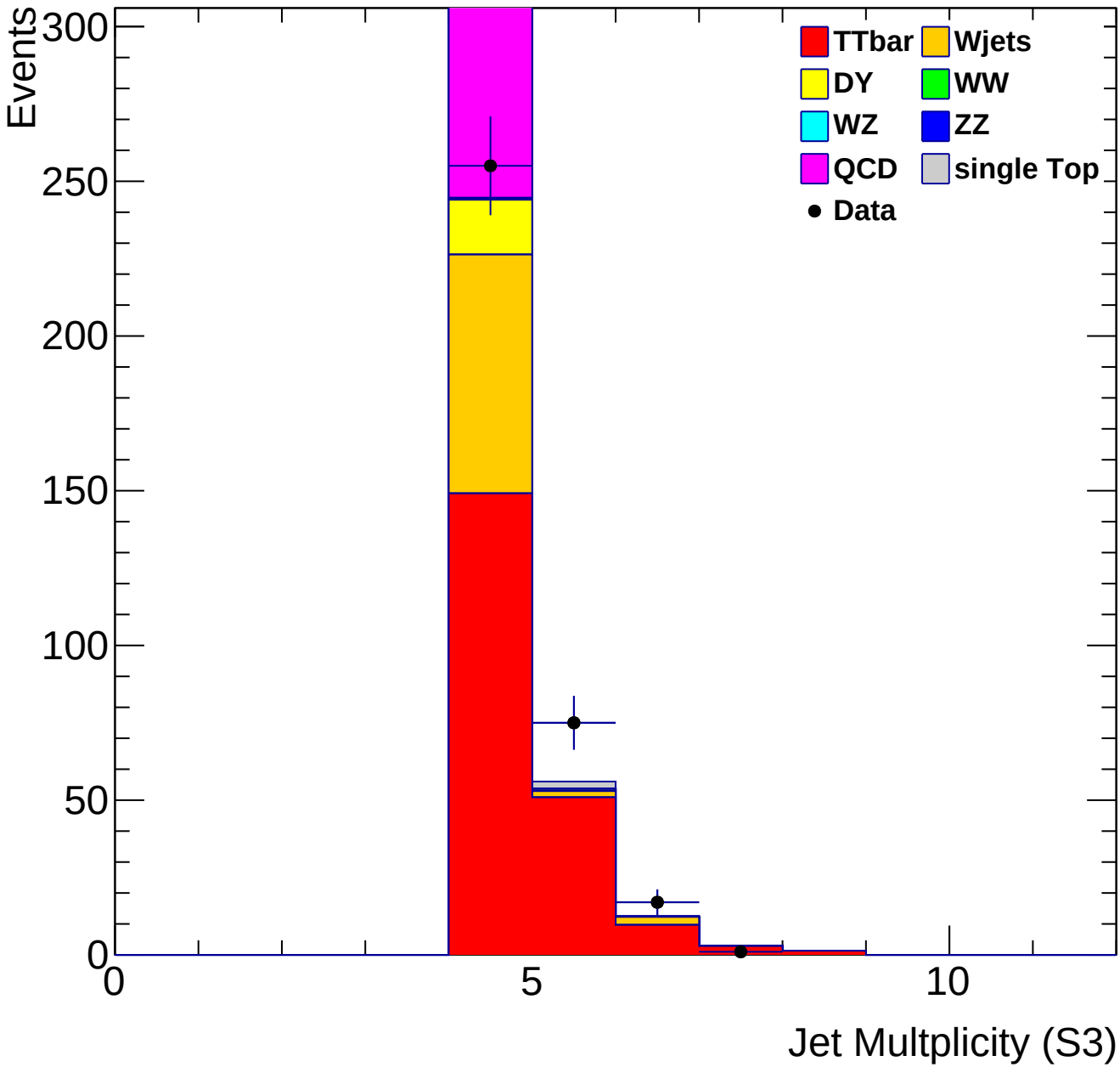

Events
30000
25000
20000
15000
10000
5000
0
0
50
100
150
200
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

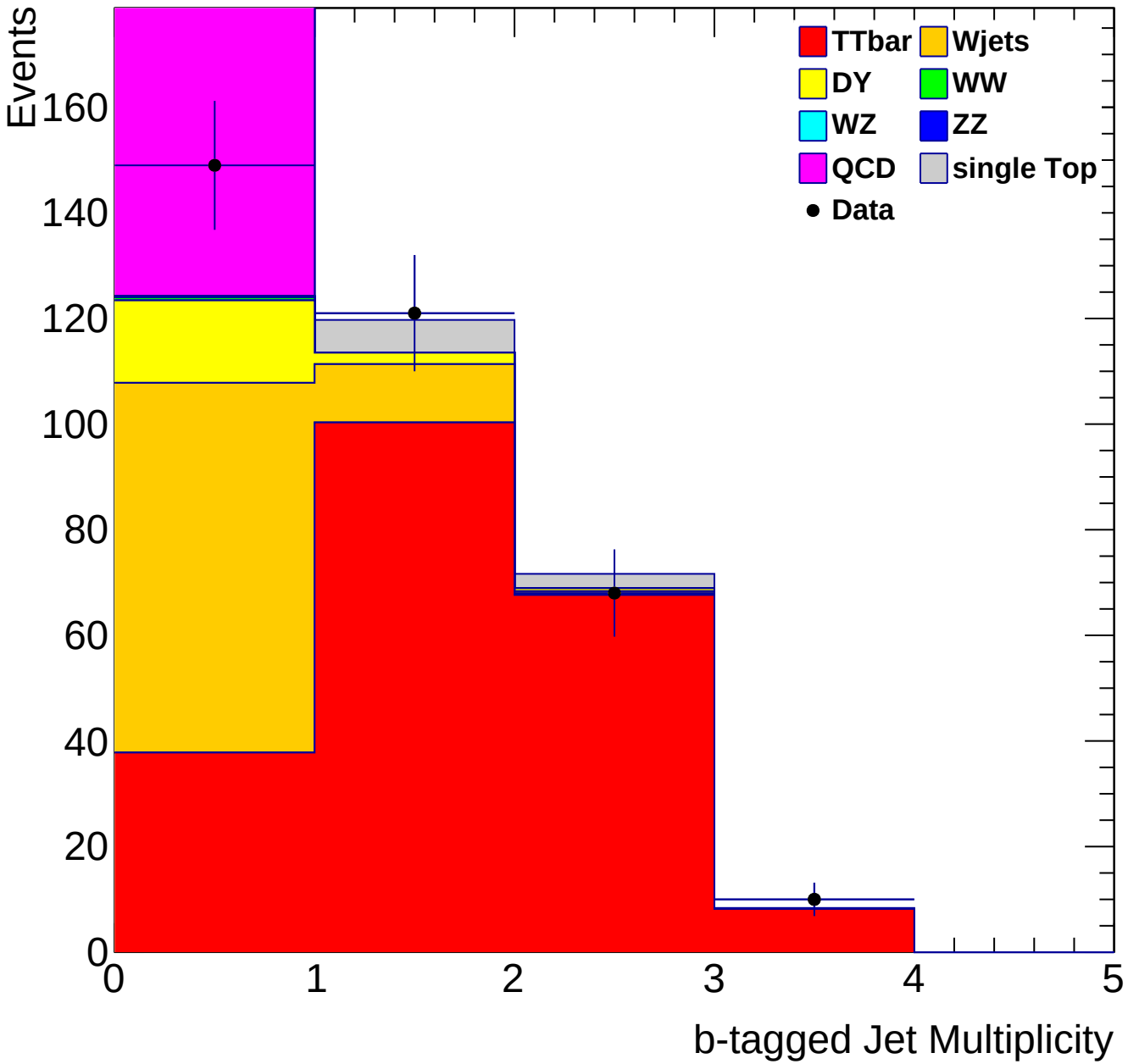

Events
35000
30000
25000
20000
15000
10000
5000
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

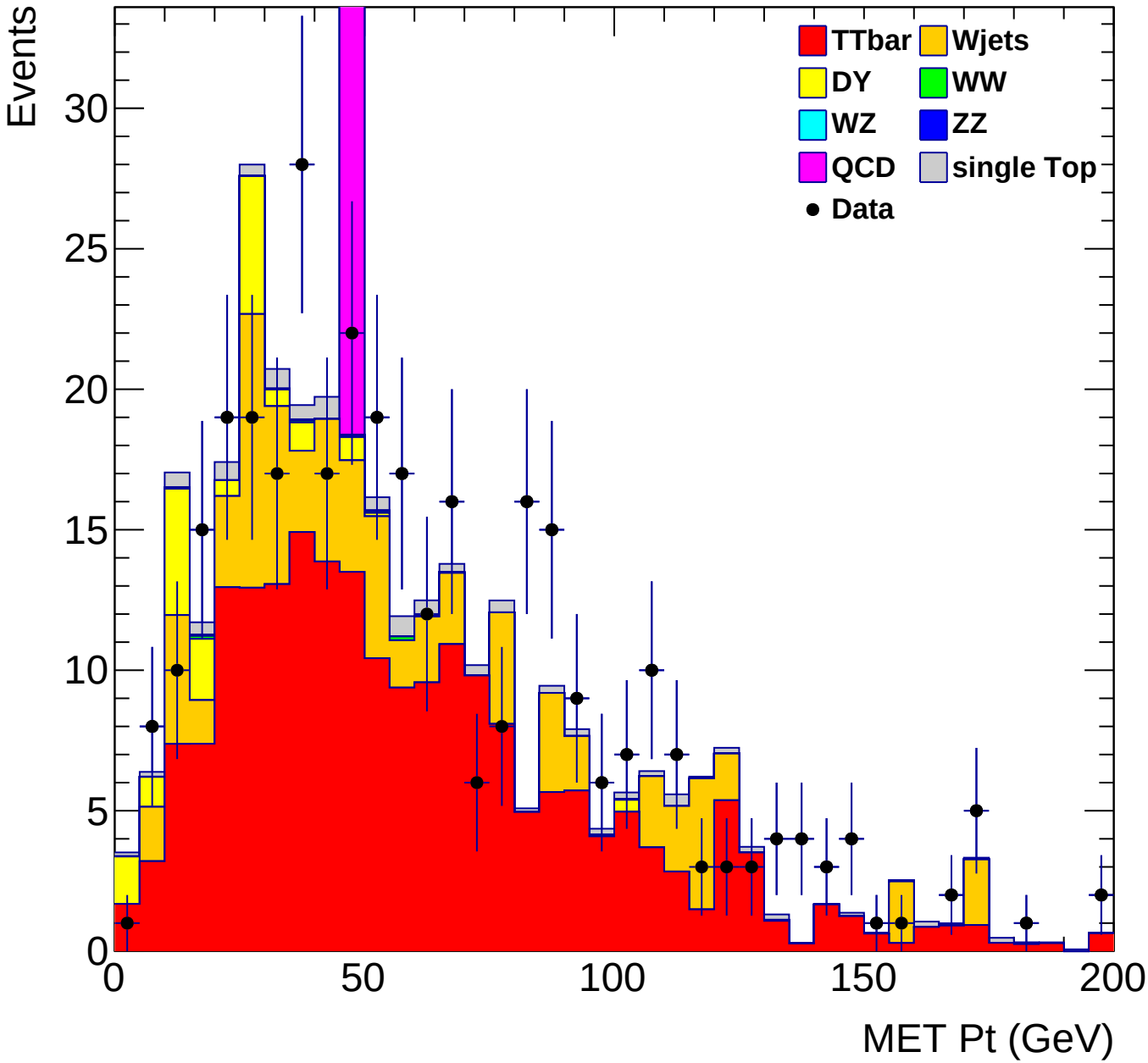

Events
30000
25000
20000
15000
10000
5000
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

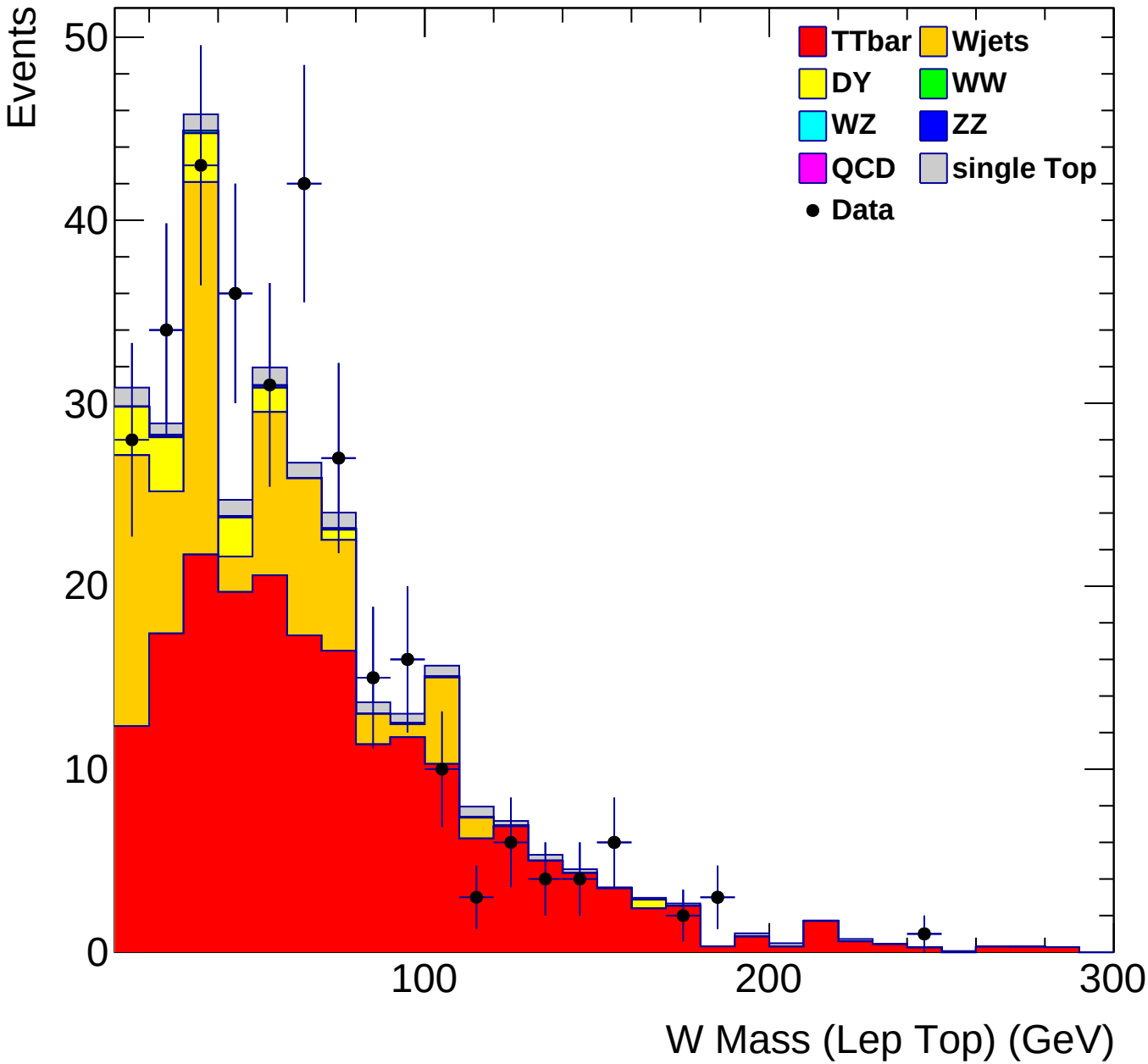

Events
35000
30000
25000
20000
15000
10000
5000
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

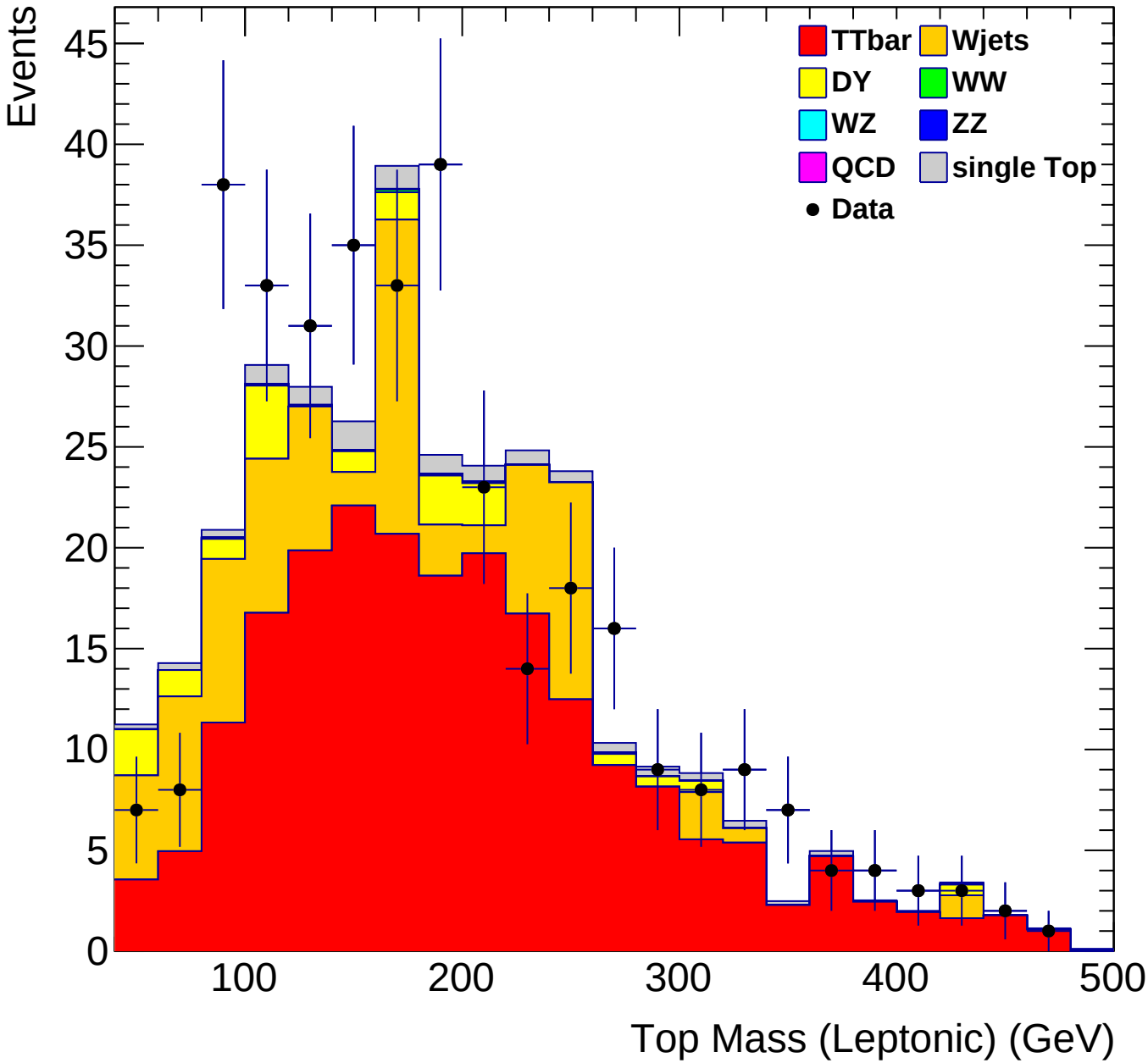

×10^3
Events
100
80
60
40
20
0
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

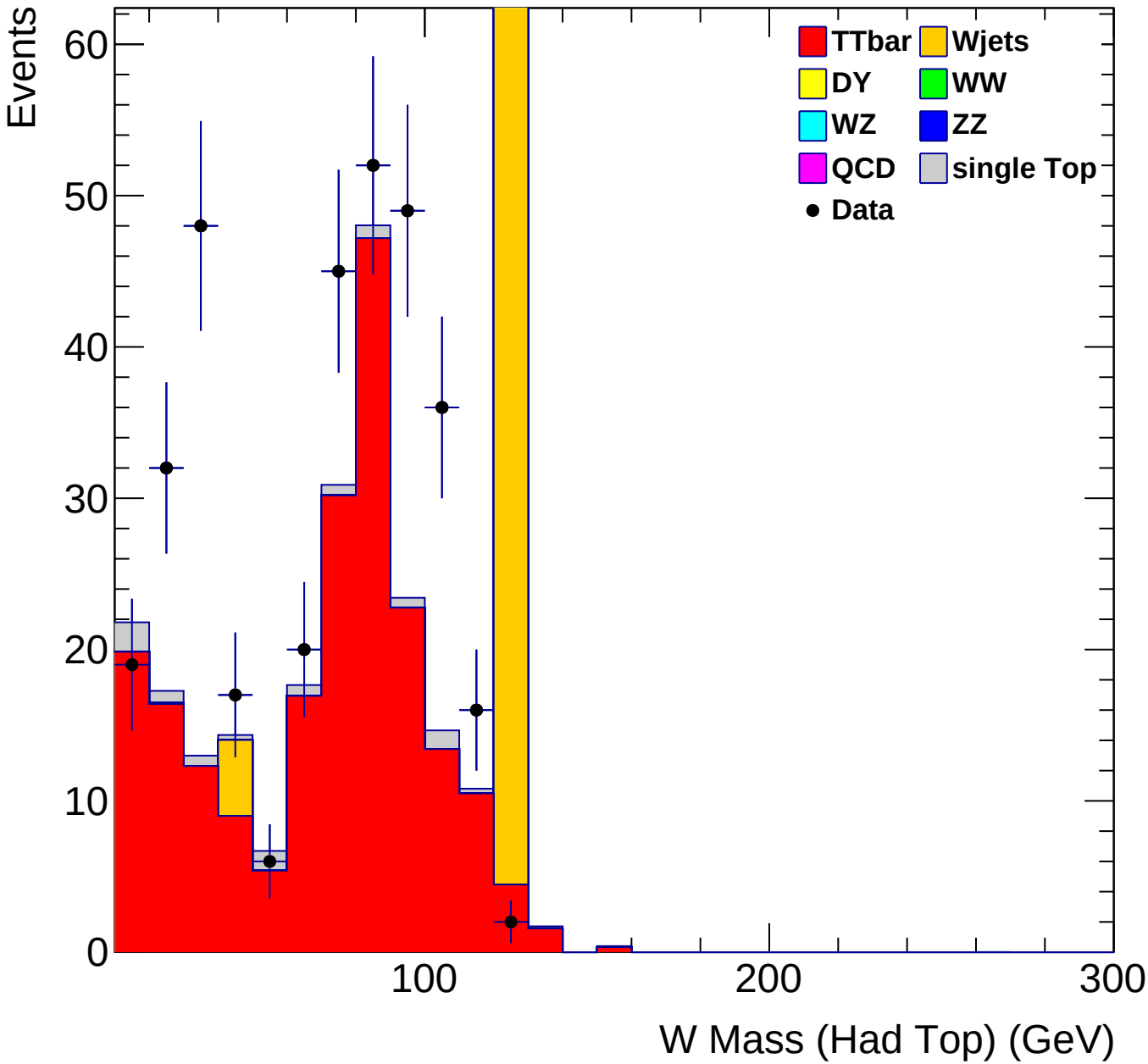

Events
300
250
200
150
100
50
0
0
5
10
Jet Multplicity (S3)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

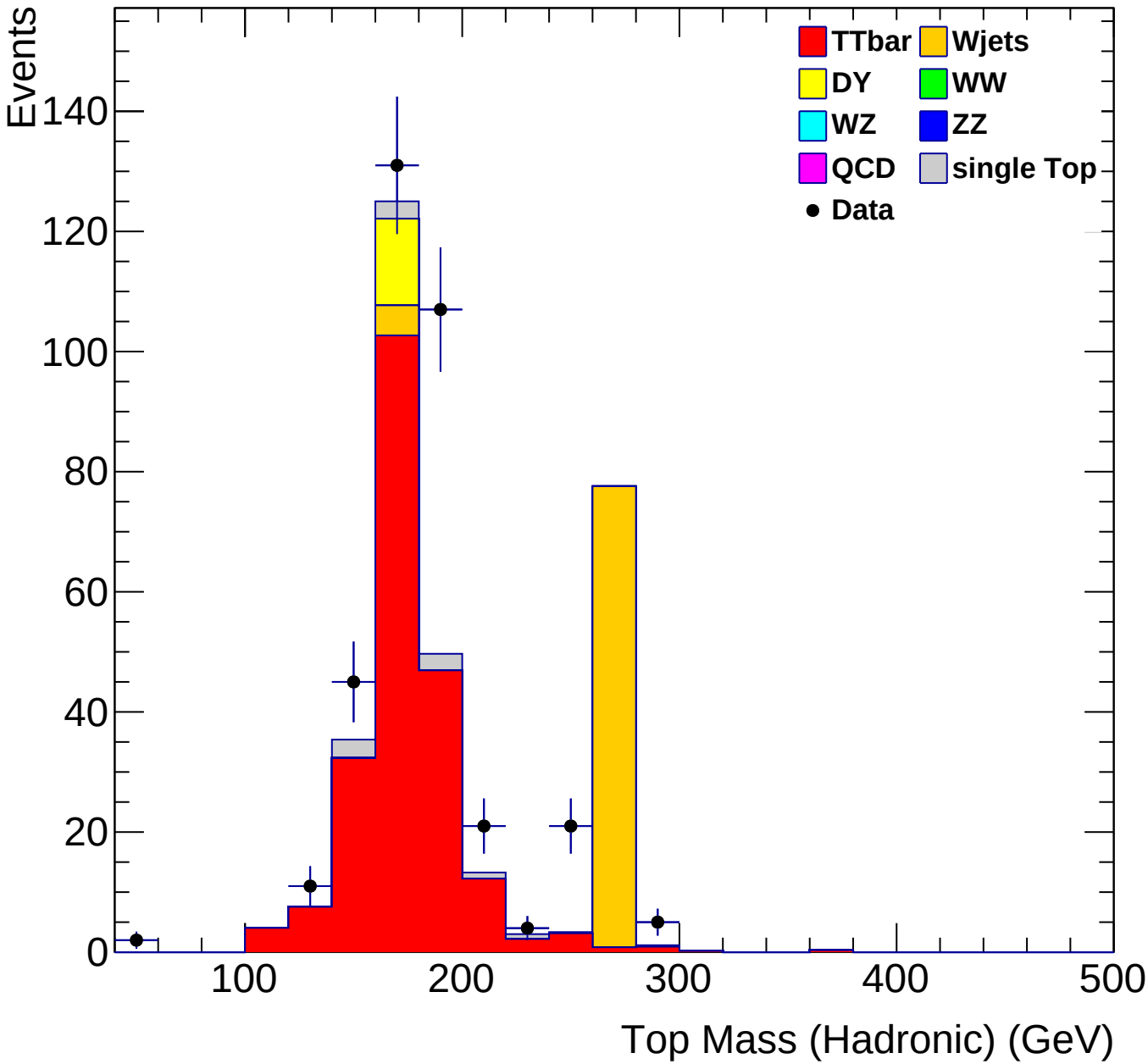

Events
0
20
40
60
80
100
120
140
160
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

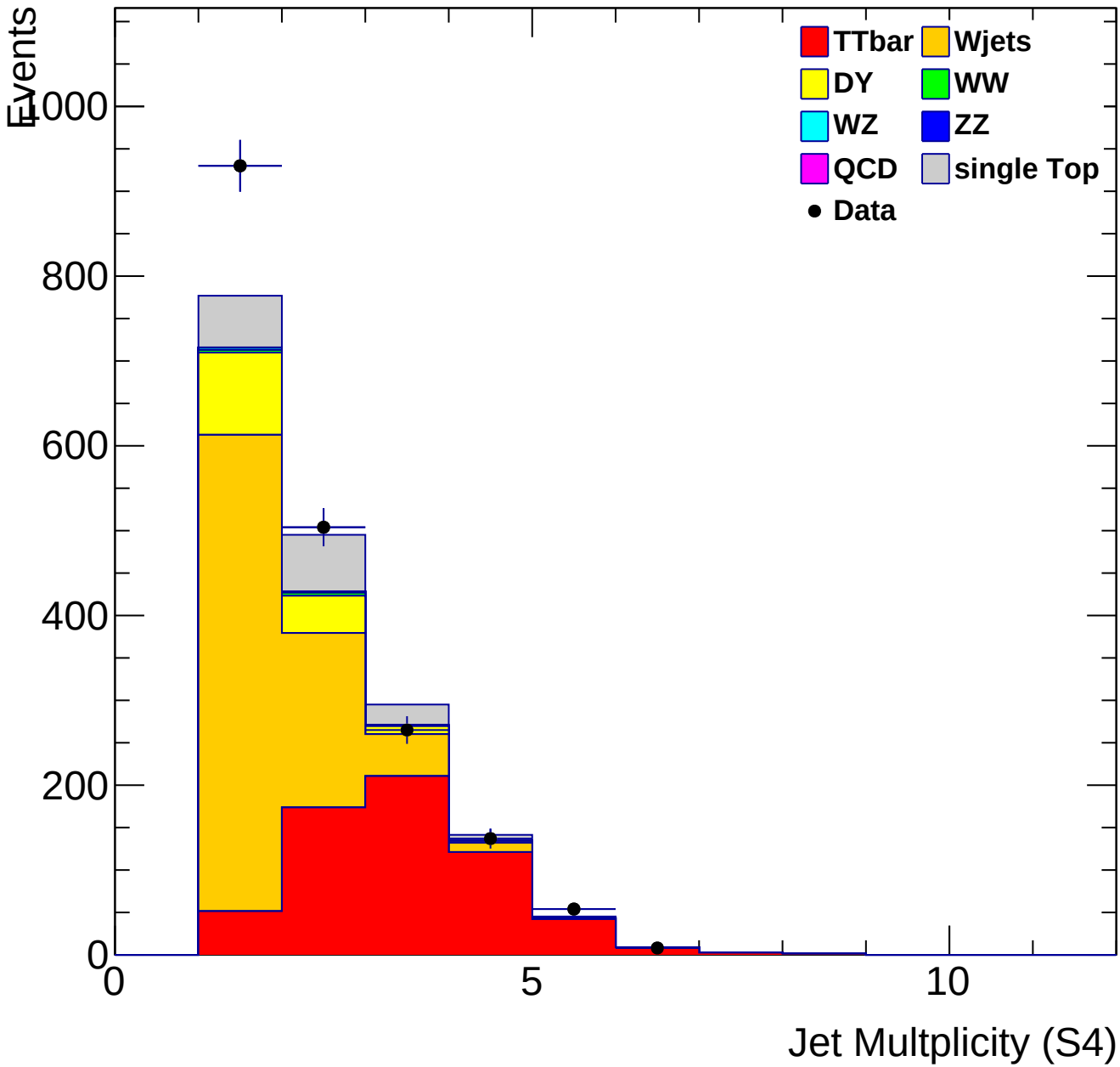

Events
30
25
20
15
10
5
0
0
50
100
150
200
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

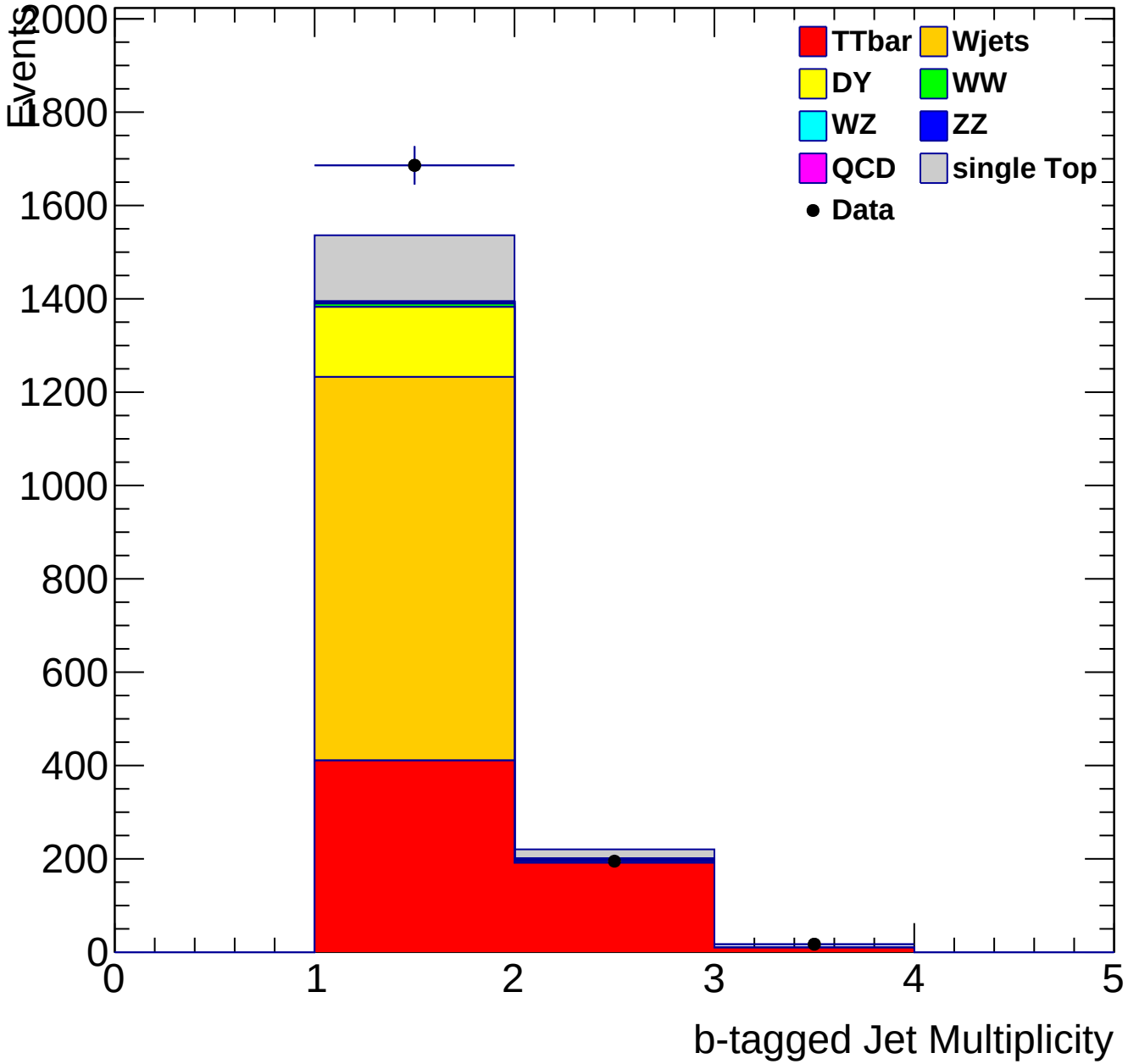

Events
50
40
30
20
10
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

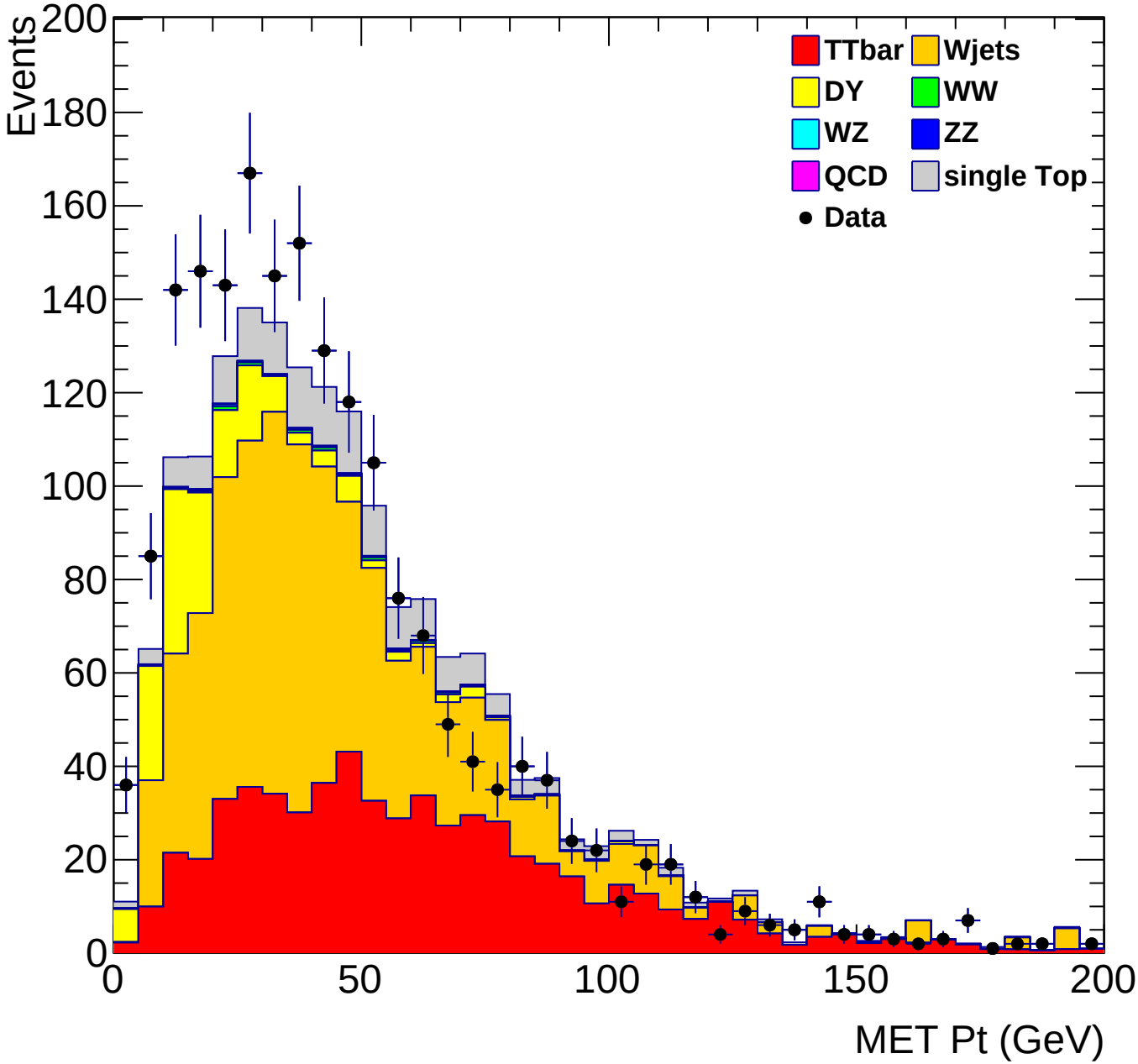

Events
45
40
35
30
25
20
15
10
5
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

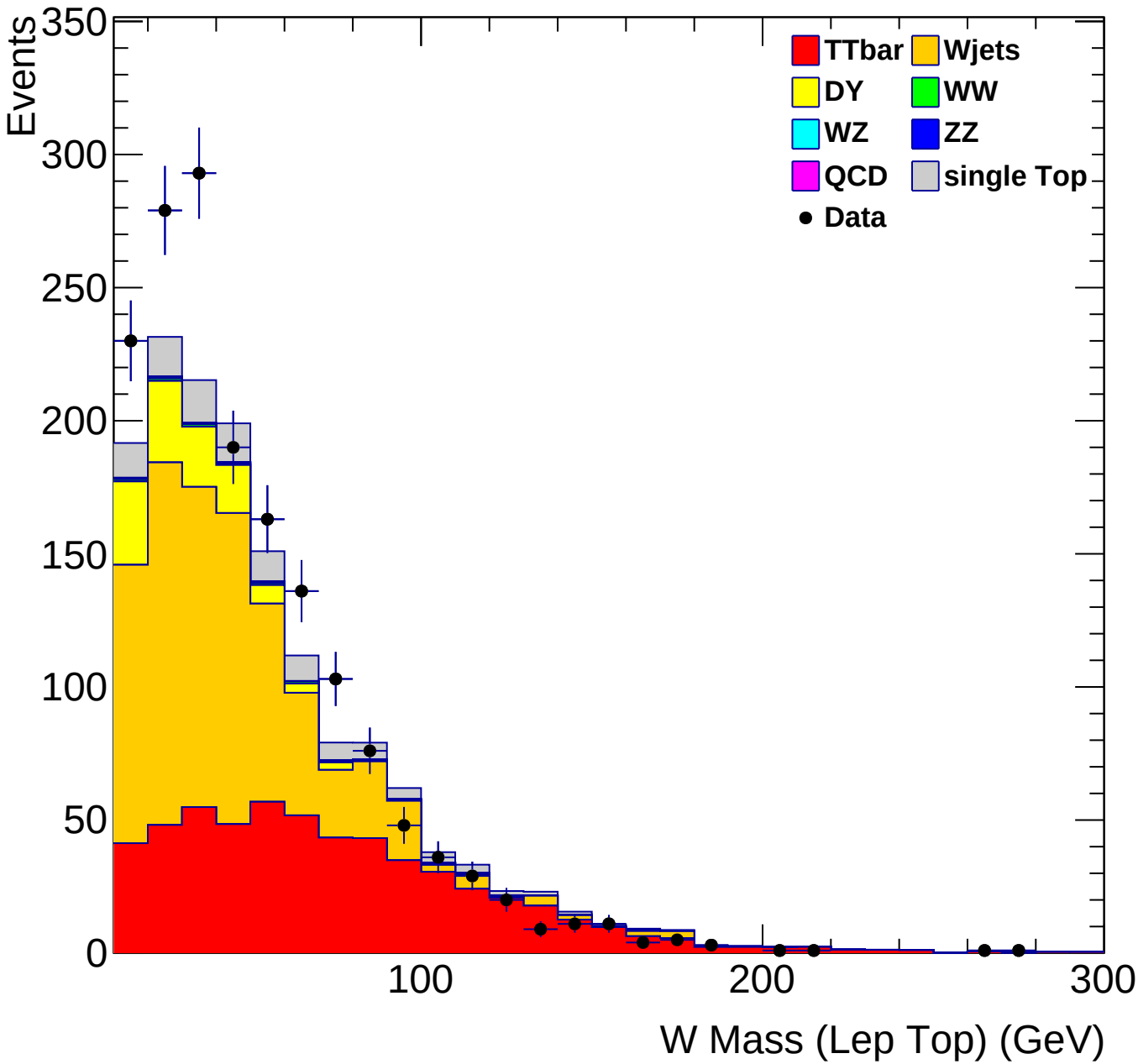

Events
60
50
40
30
20
10
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

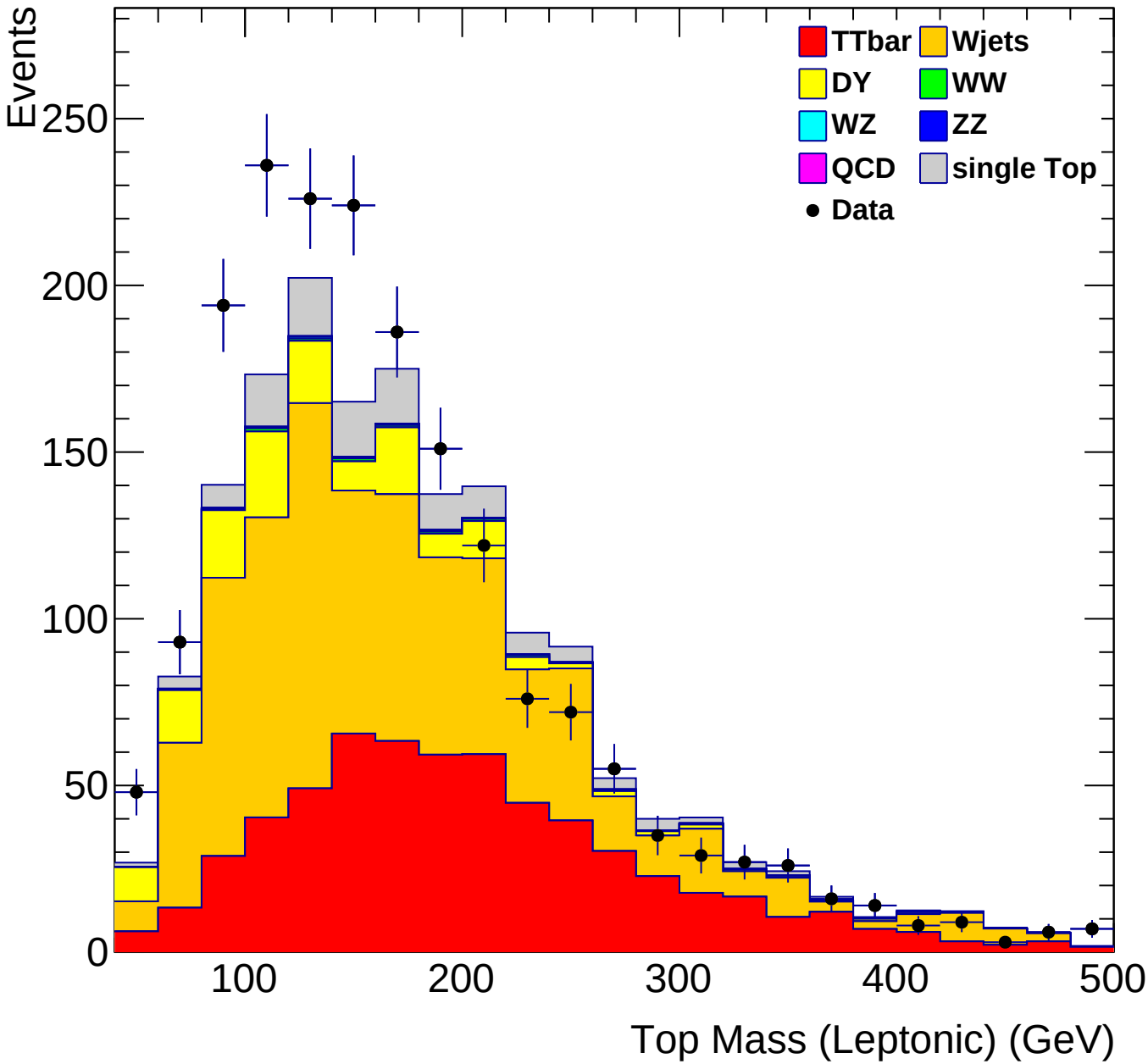

Events
0
20
40
60
80
100
120
140
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

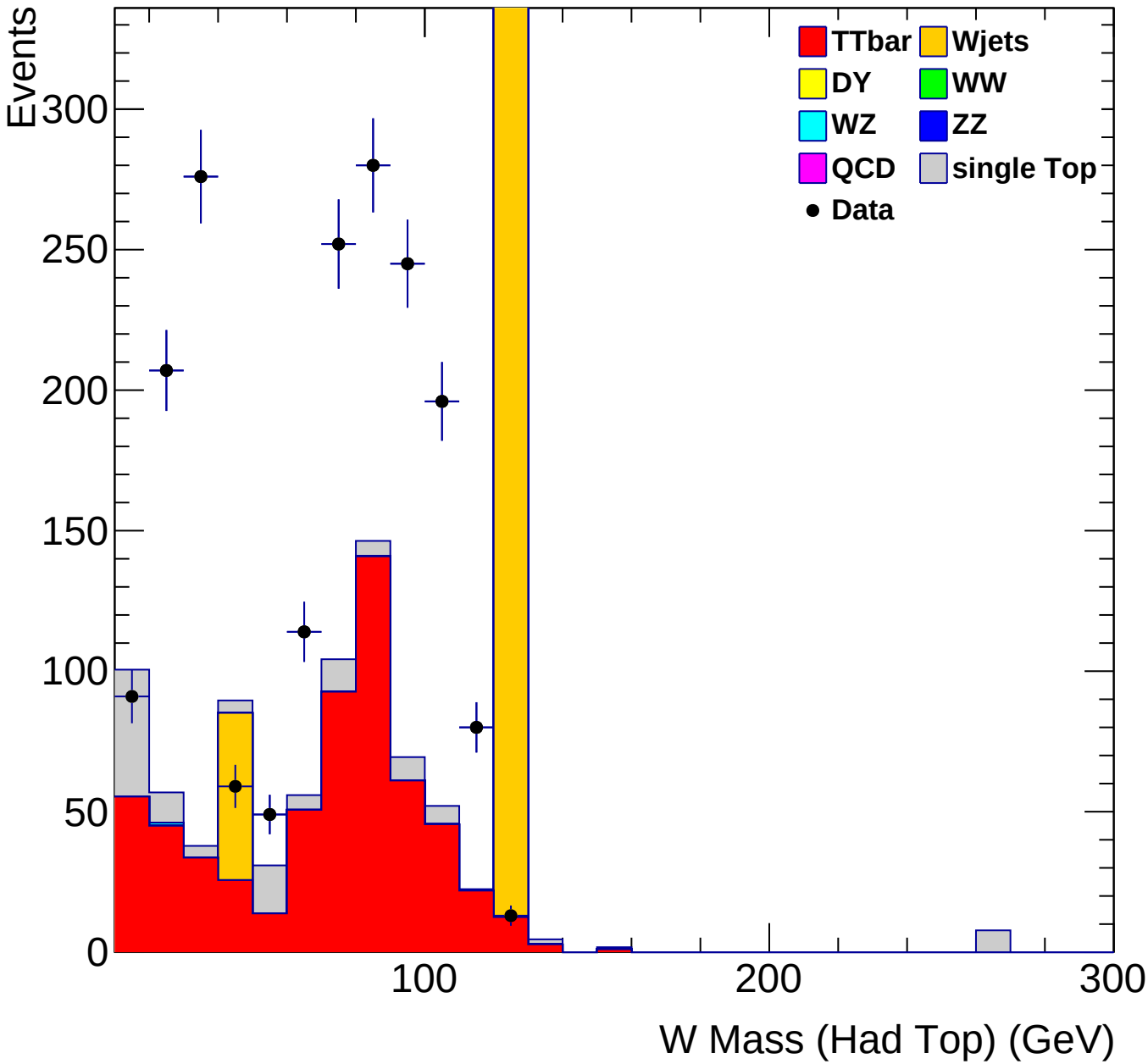

Events
1000
800
600
400
200
0
0
5
10
Jet Multplicity (S4)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

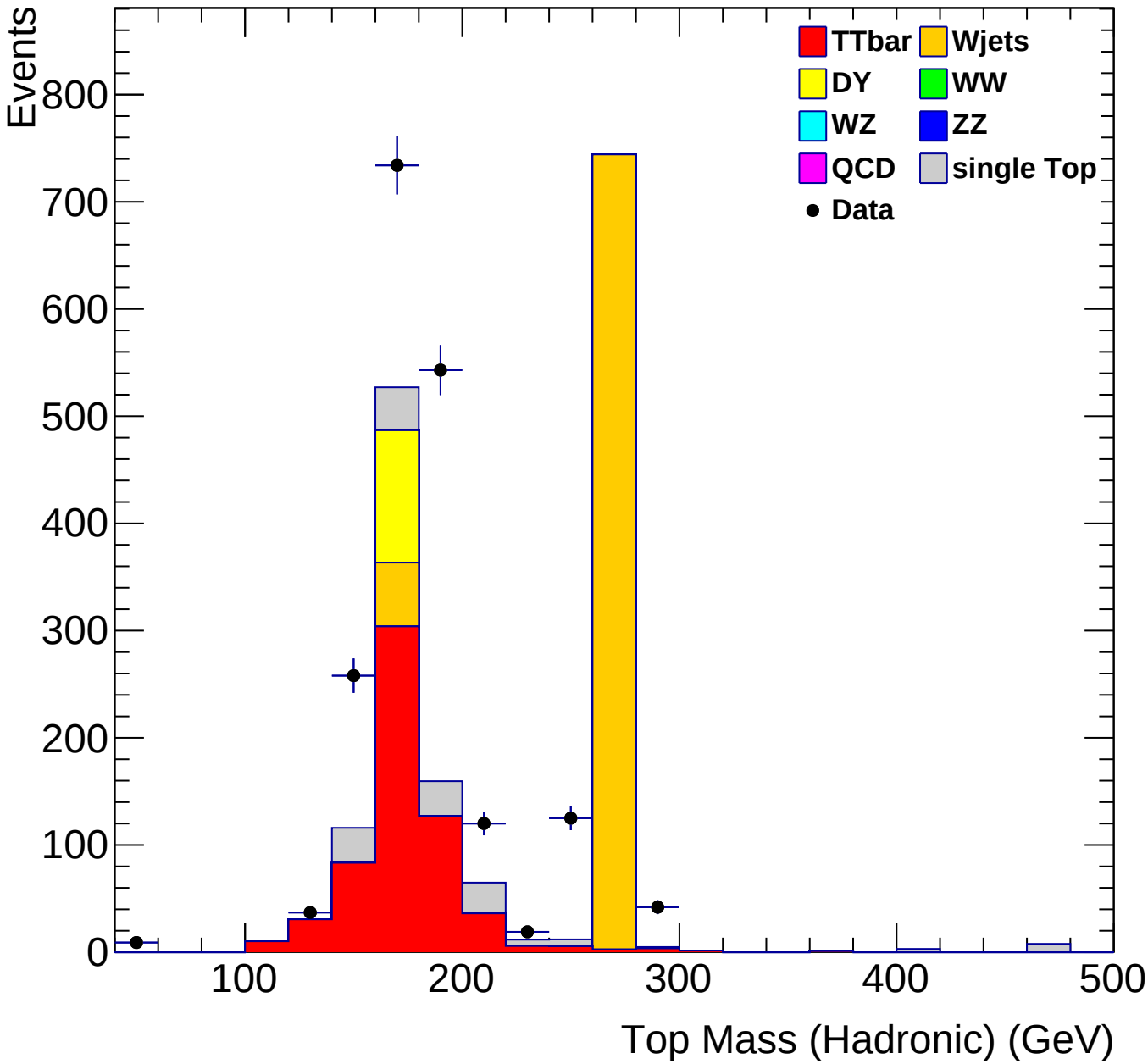

Events
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

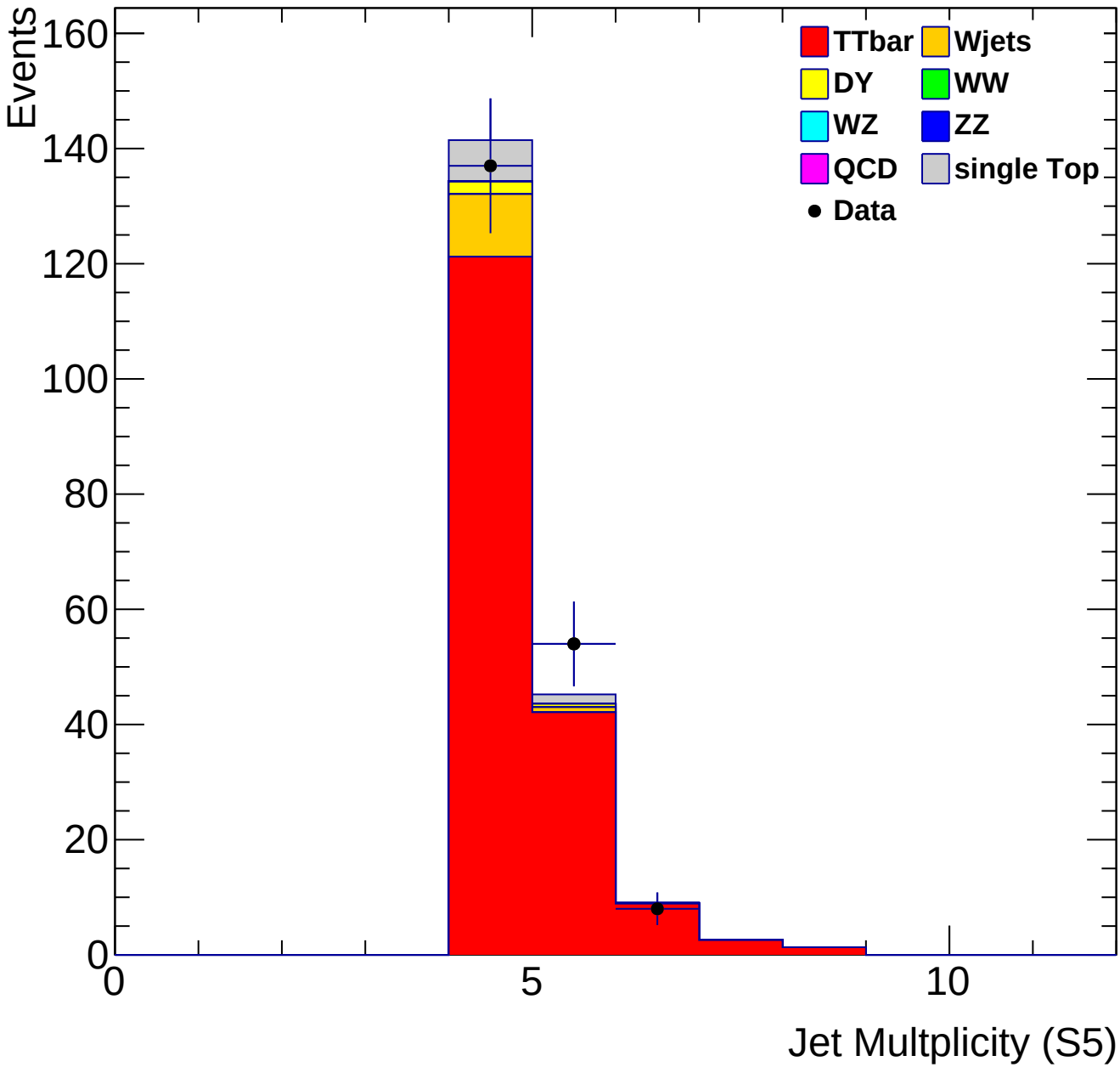

Events
200
180
160
140
120
100
80
60
40
20
0
0
50
100
150
200
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

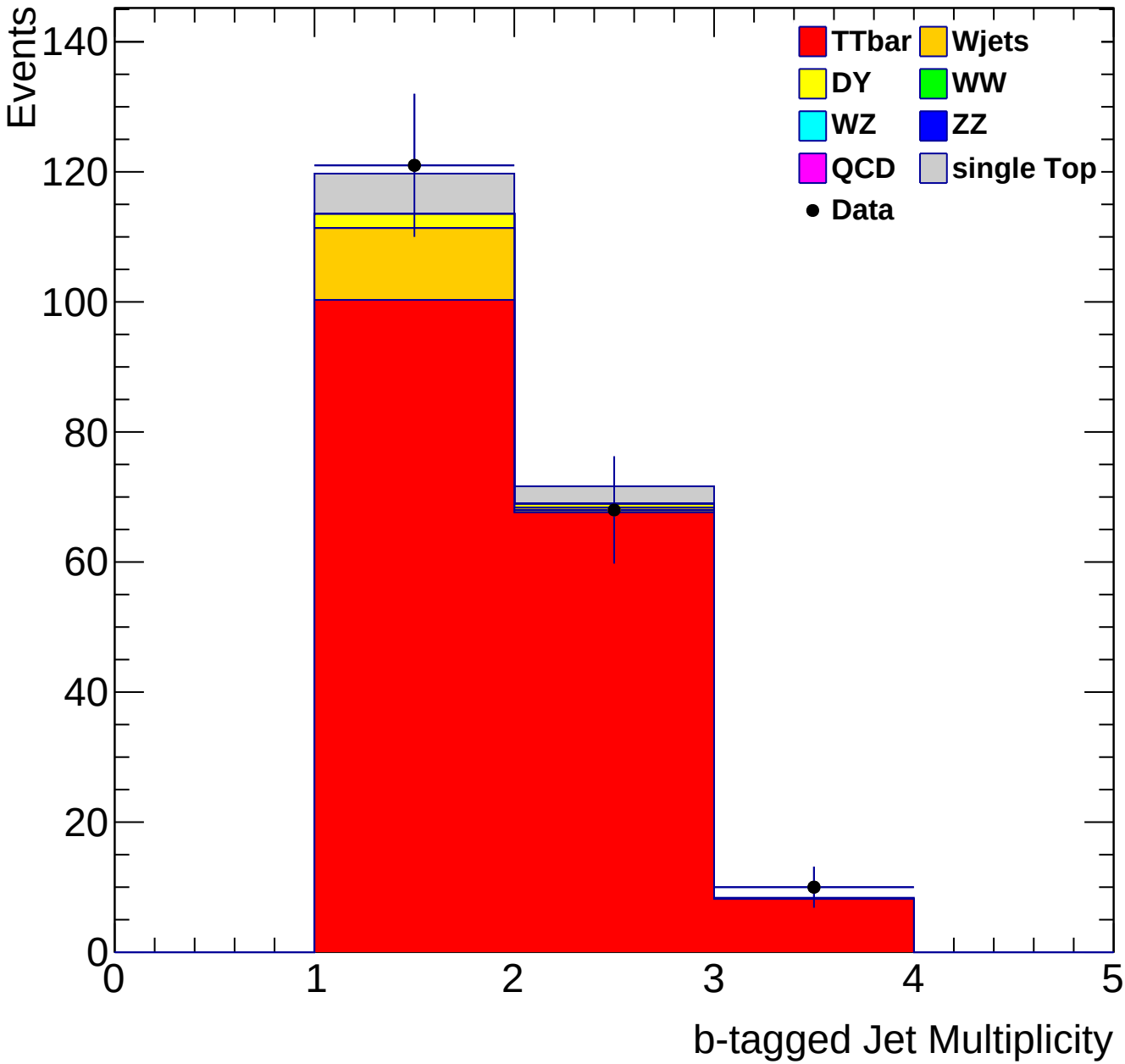

Events
350
300
250
200
150
100
50
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

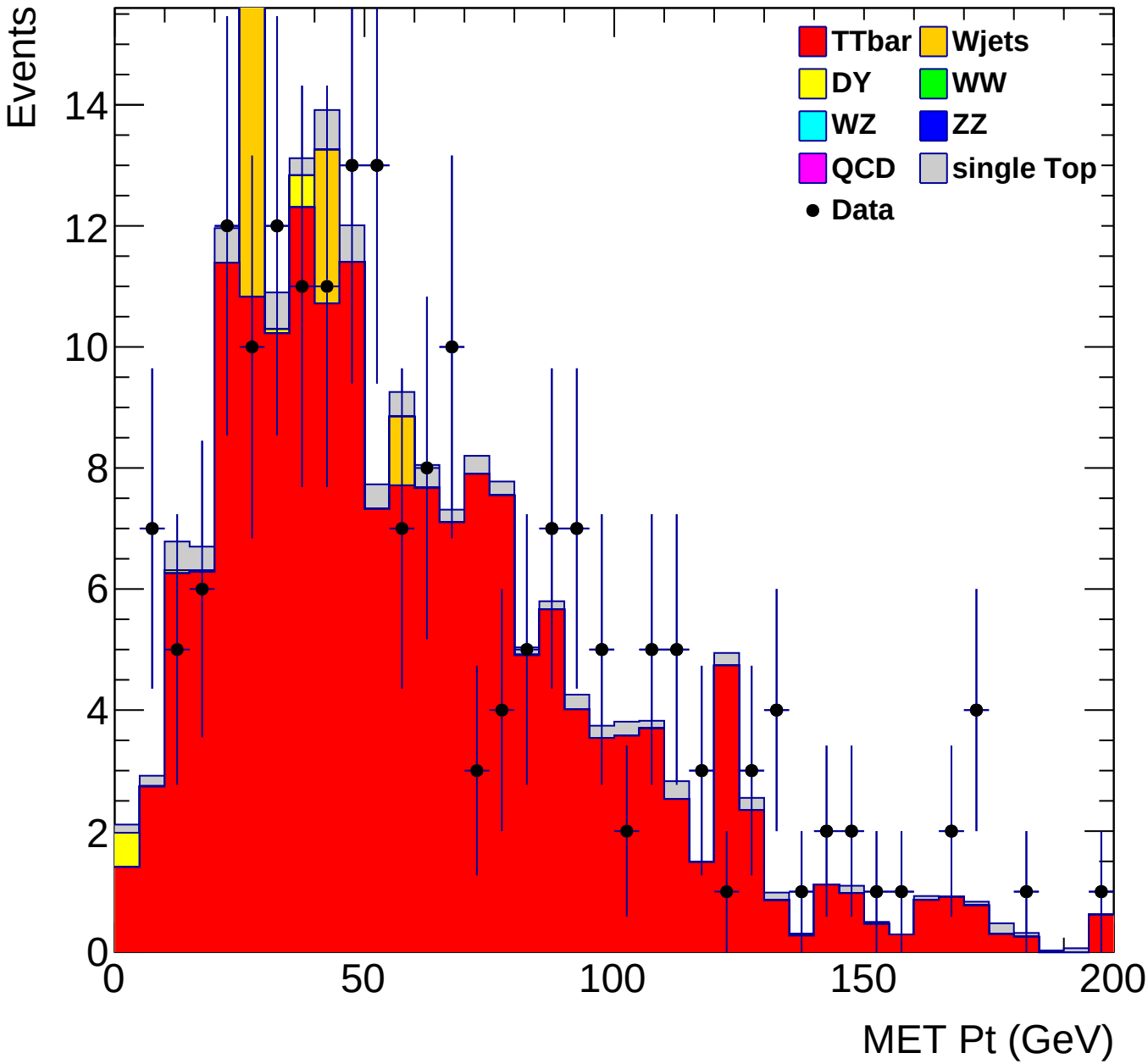

Events
250
200
150
100
50
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

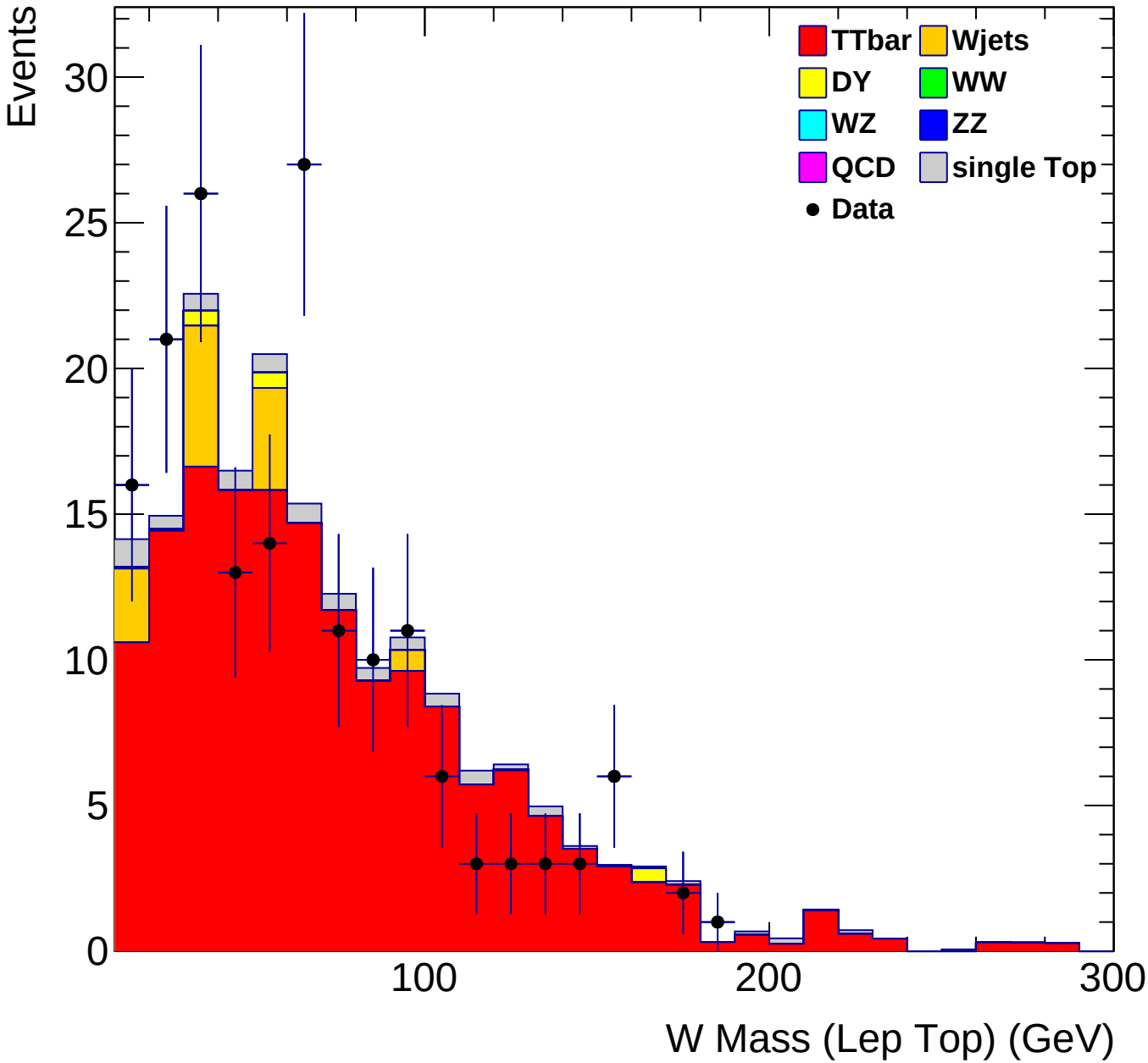

Events
300
250
200
150
100
50
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

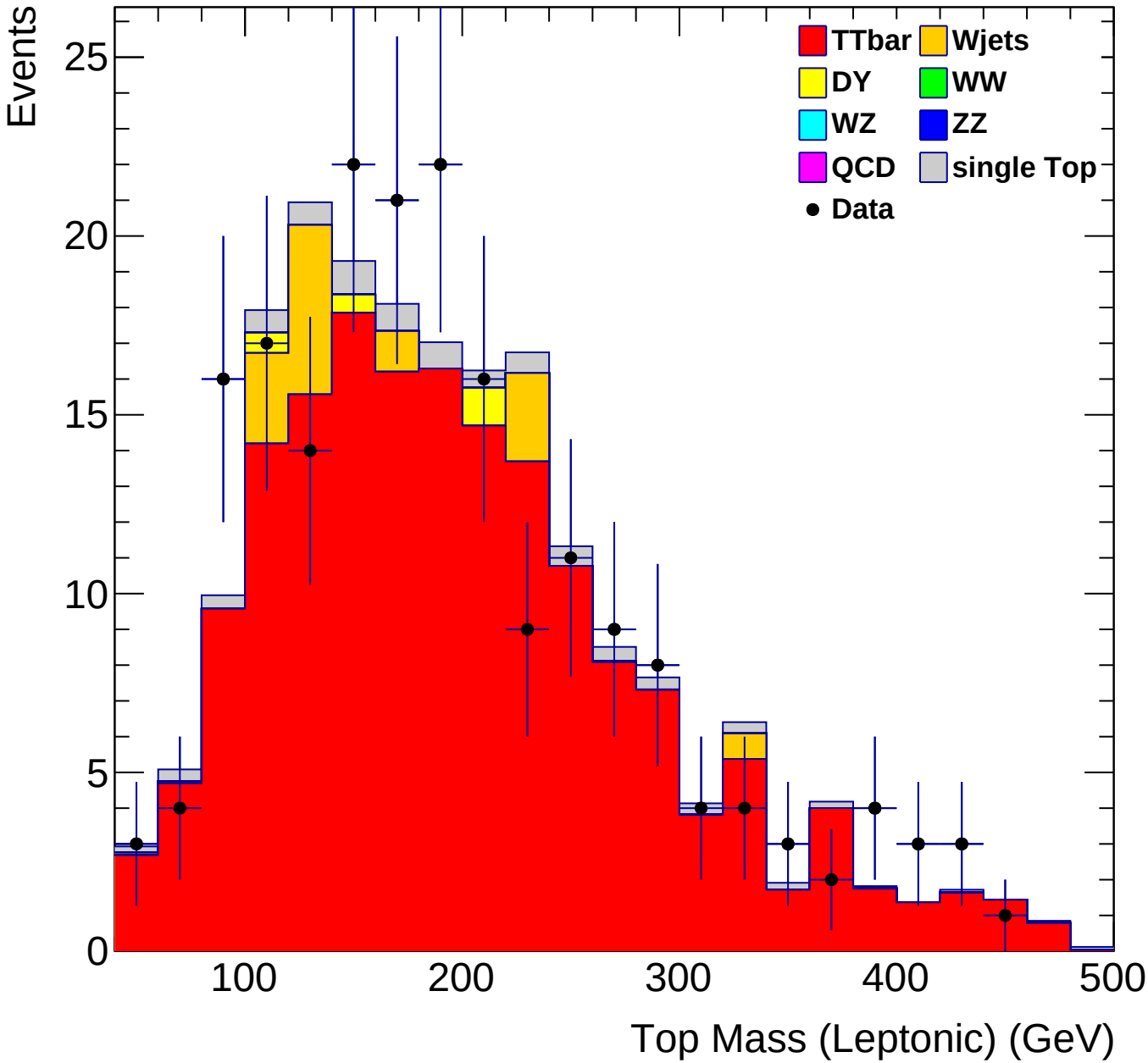

Events
800
700
600
500
400
300
200
100
0
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

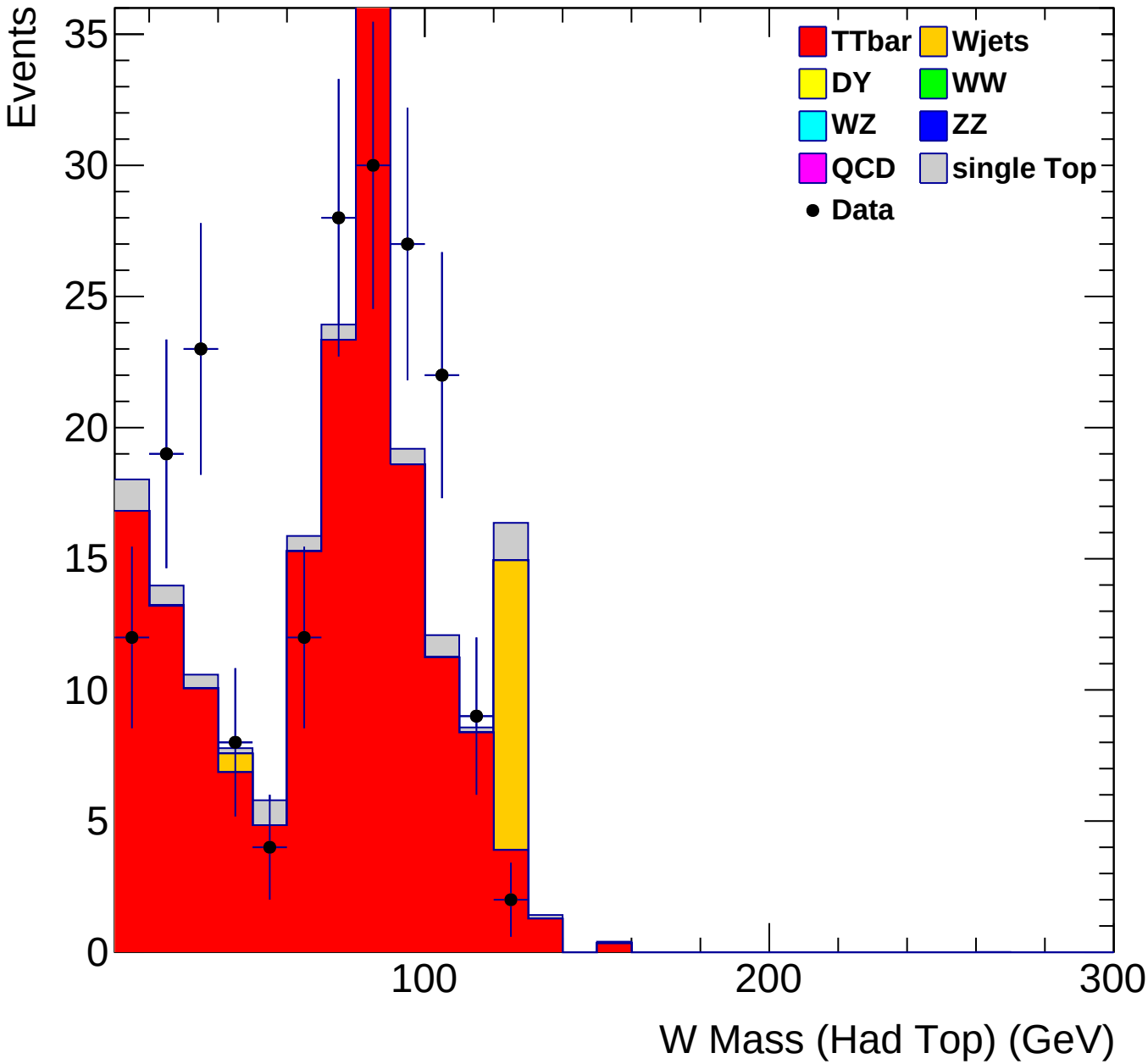

Events
160
140
120
100
80
60
40
20
0
0
5
10
Jet Multplicity (S5)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

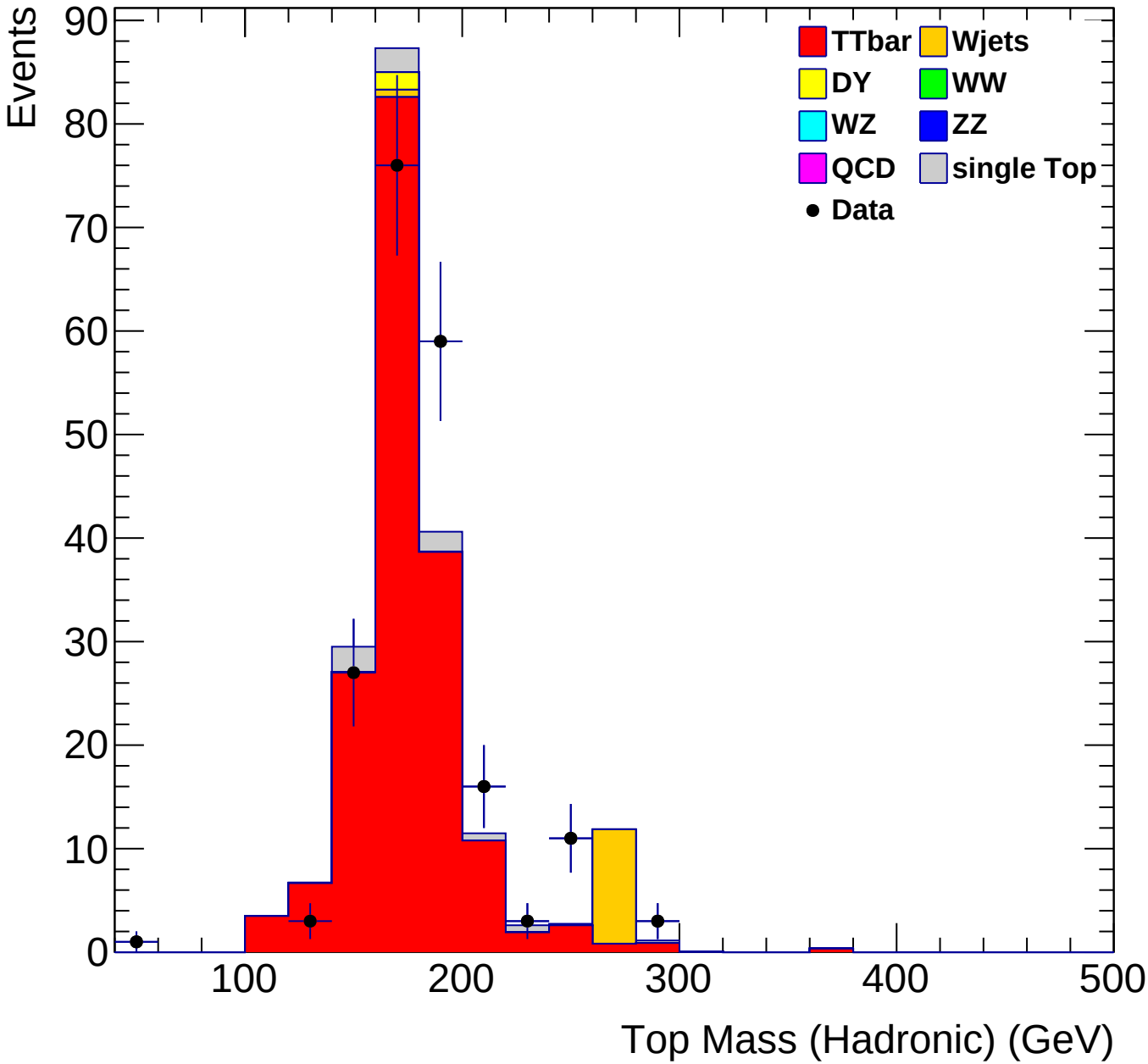

Events
140
120
100
80
60
40
20
0
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

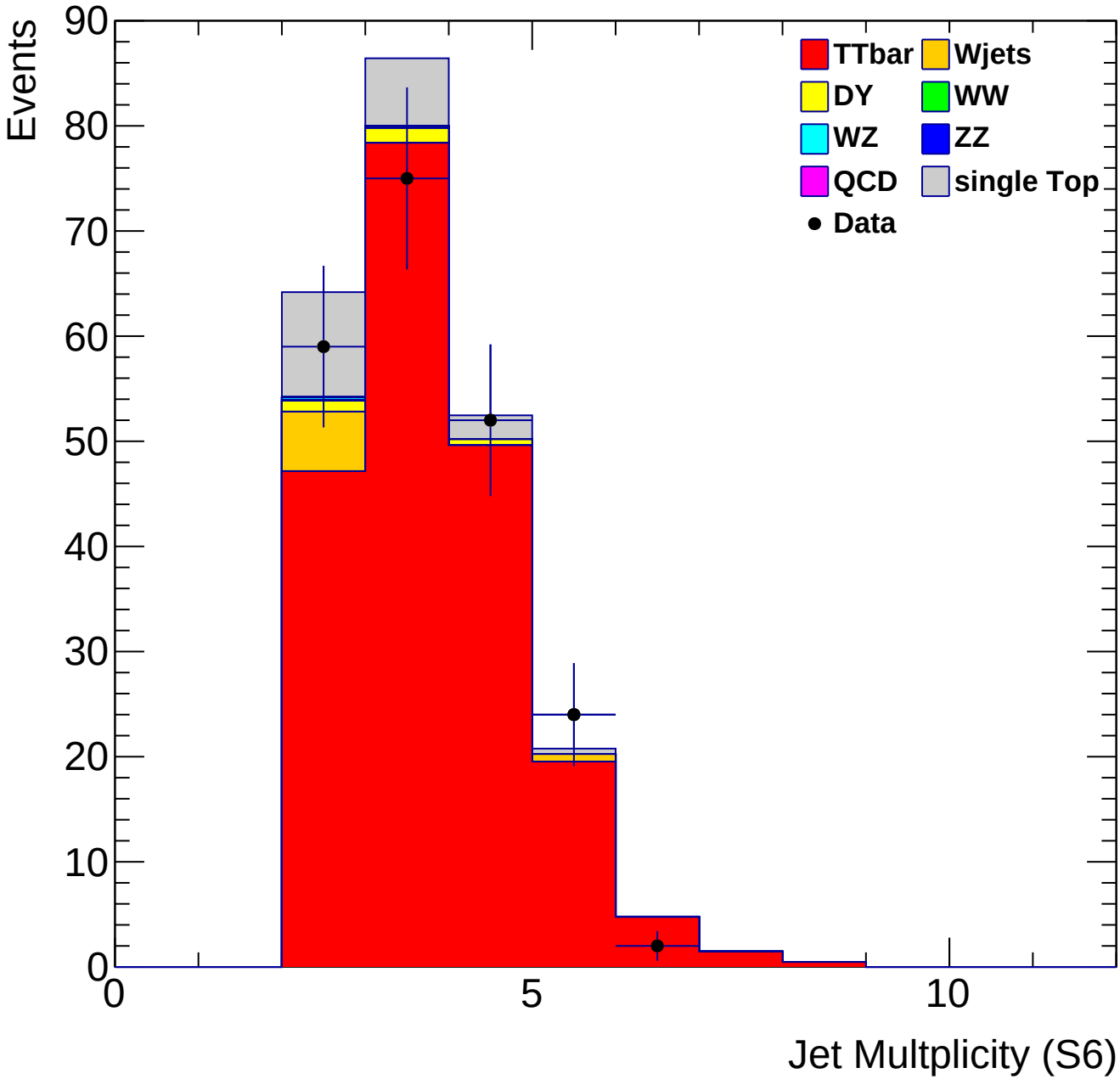

Events
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data
0
2
4
6
8
10
12
14
0
50
100
150
200

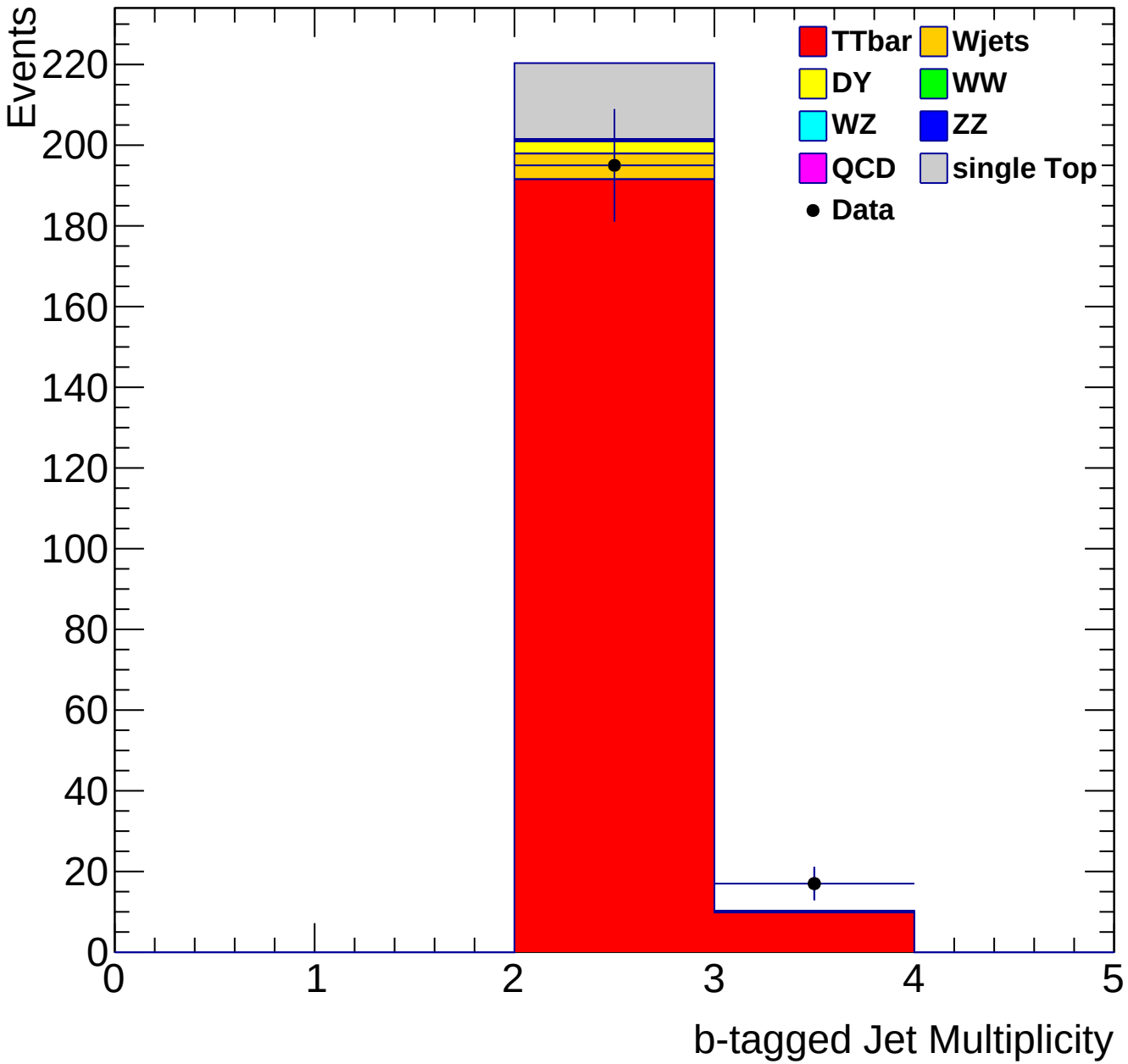

Events
30
25
20
15
10
5
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

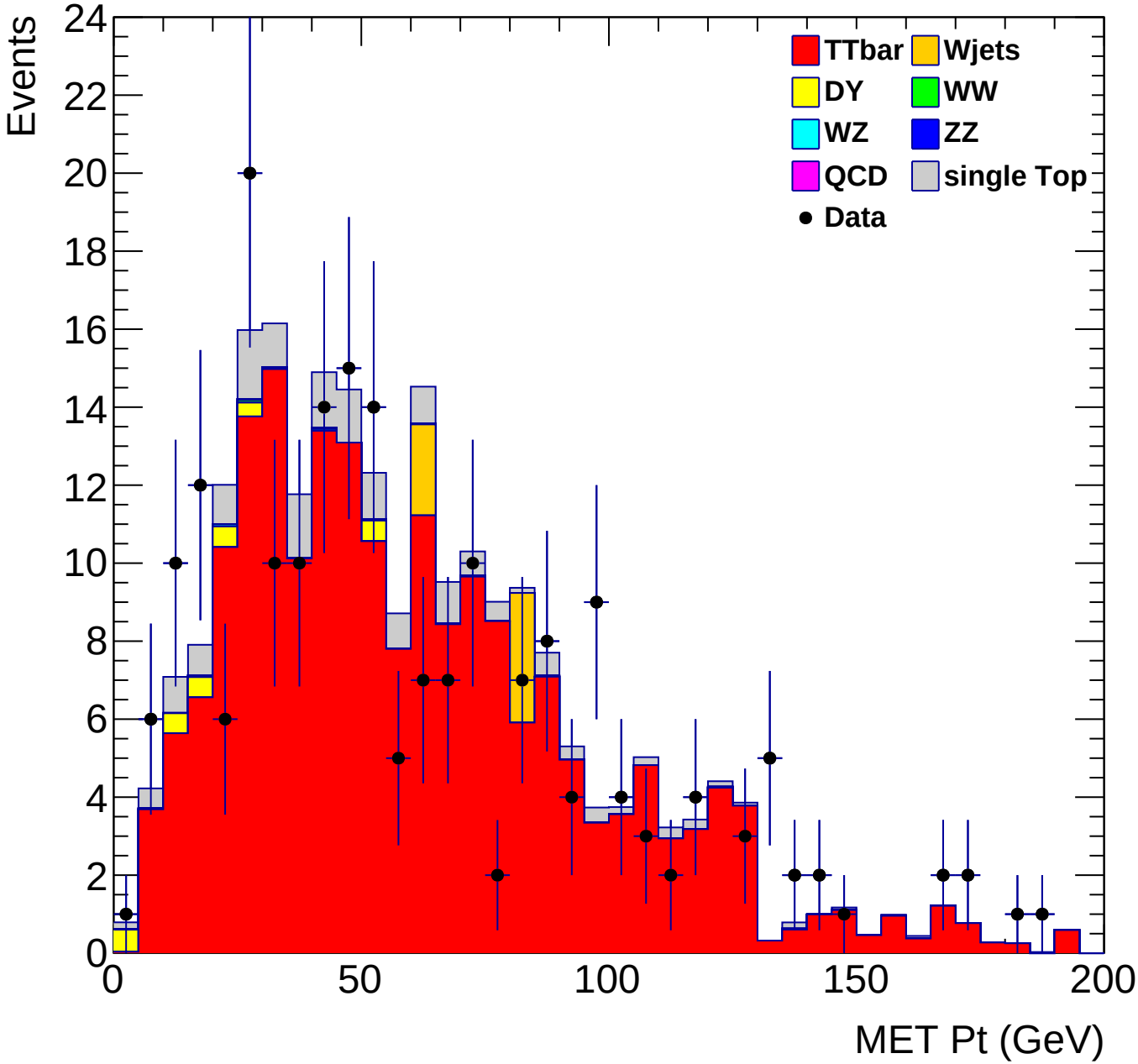

Events
25
20
15
10
5
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

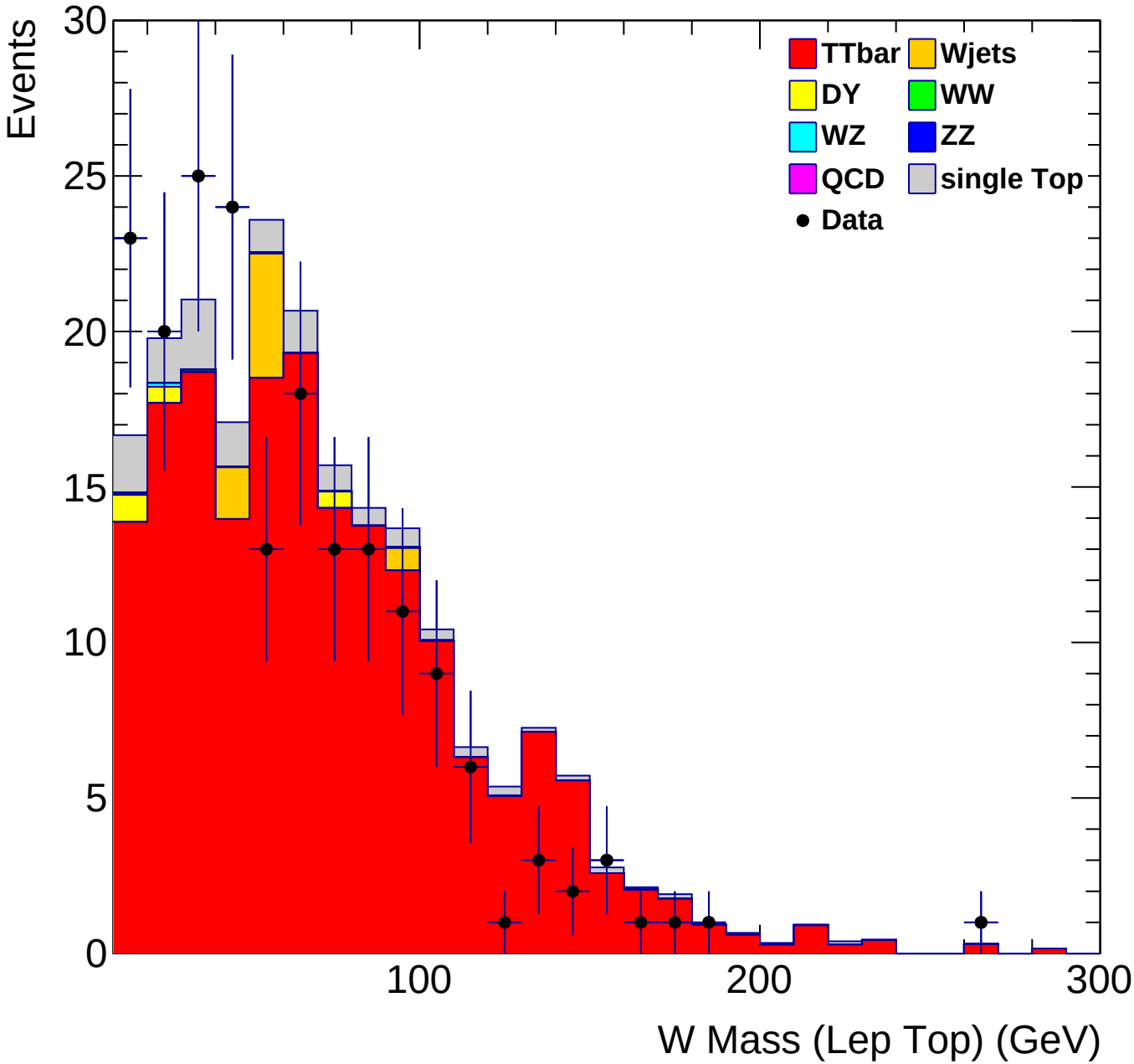

Events
35
30
25
20
15
10
5
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

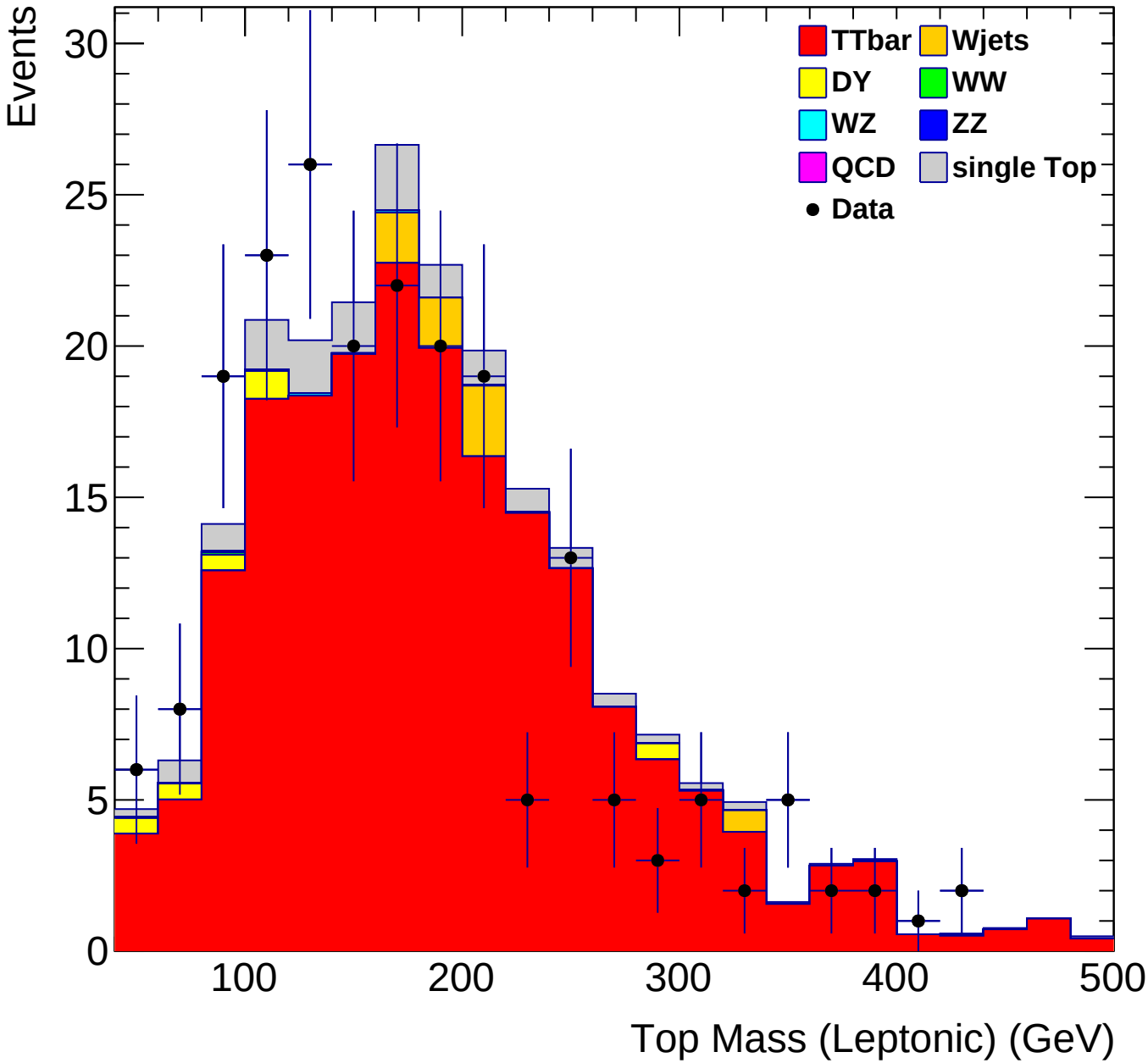

Events
90
80
70
60
50
40
30
20
10
0
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

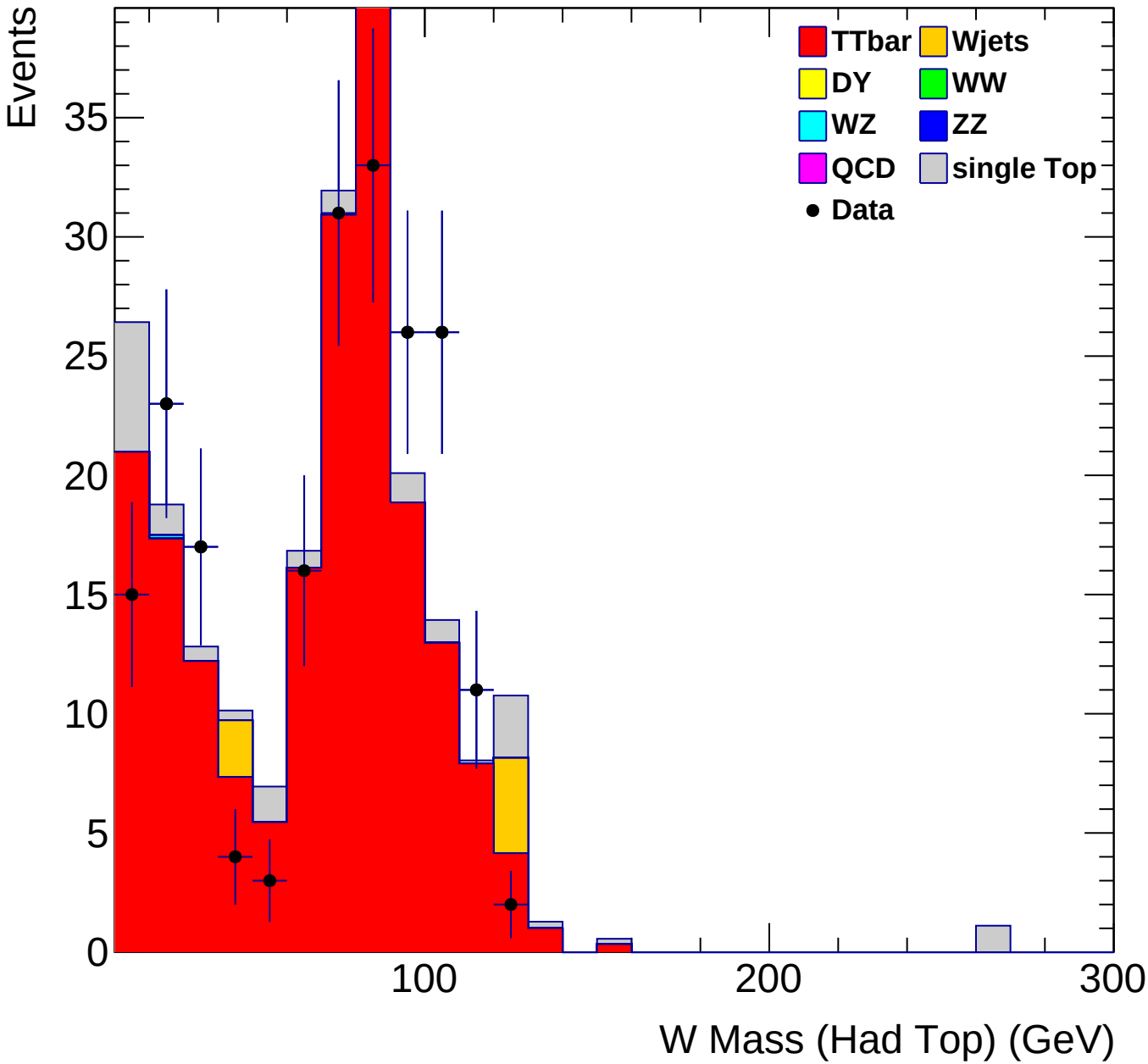

Events
90
80
70
60
50
40
30
20
10
0
0
5
10
Jet Multplicity (S6)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

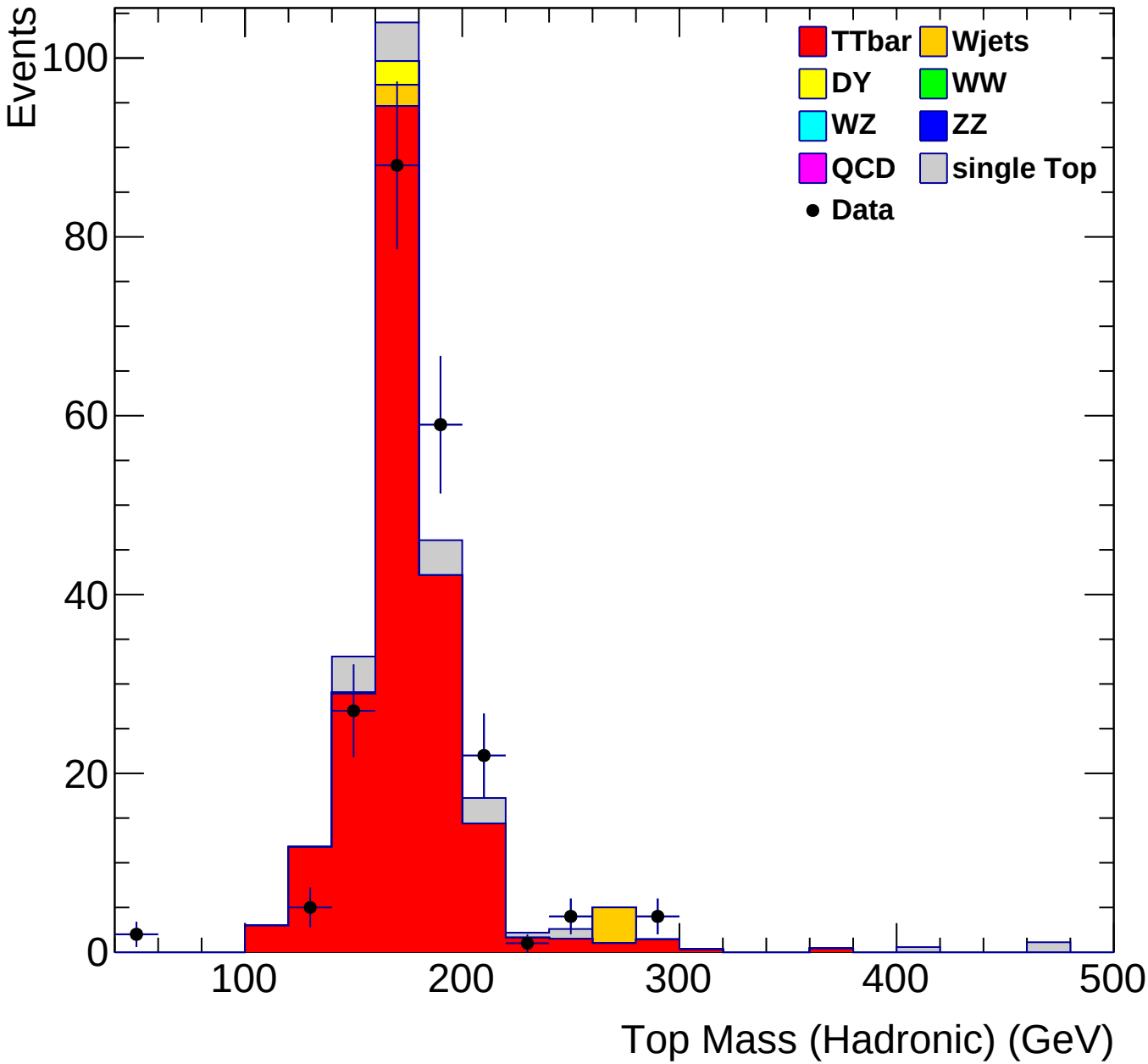

Events
220
200
180
160
140
120
100
80
60
40
20
0
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

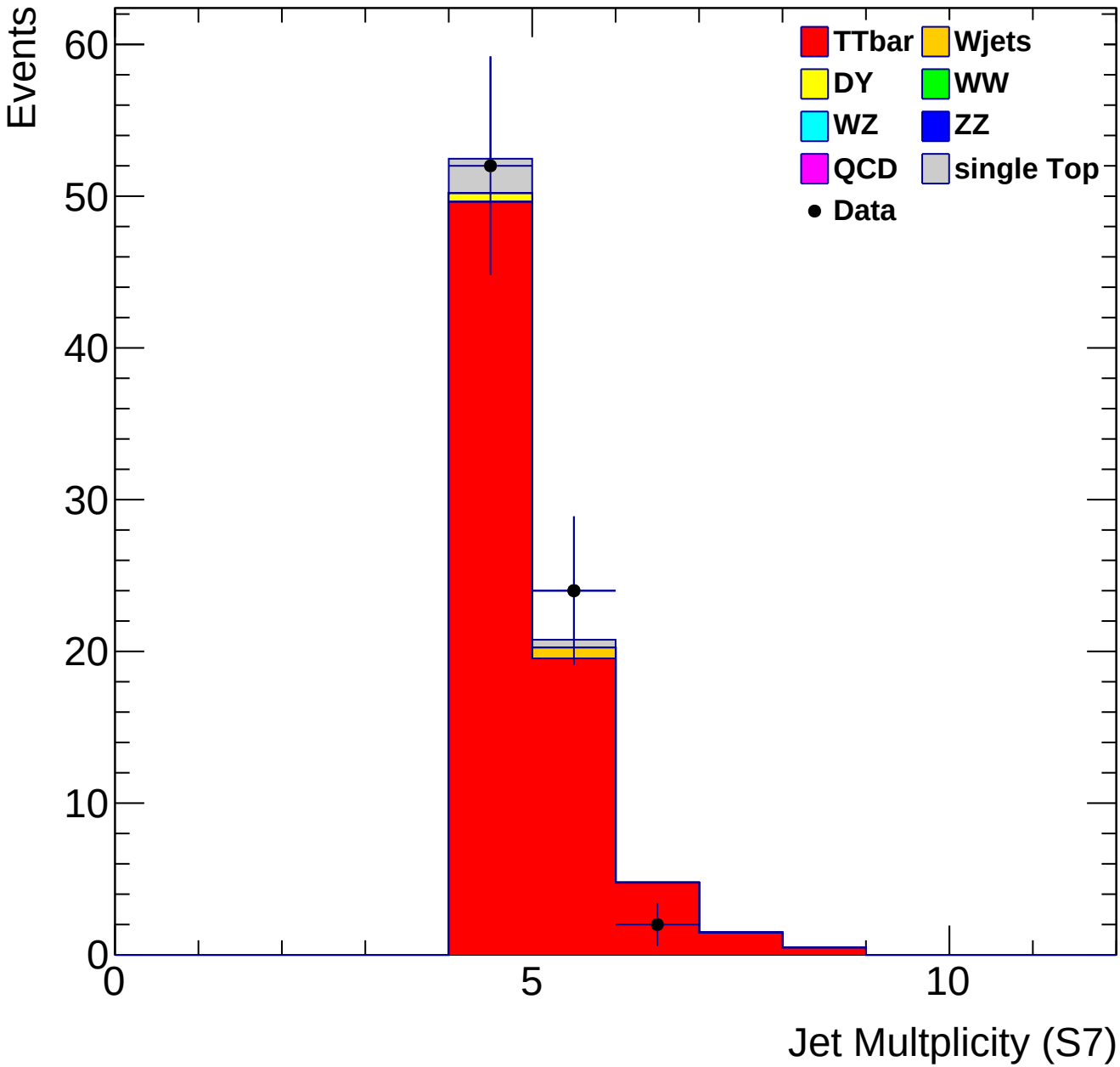

Events
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data
0
2
4
6
8
10
12
14
16
18
20
22
24
0
50
100
150
200

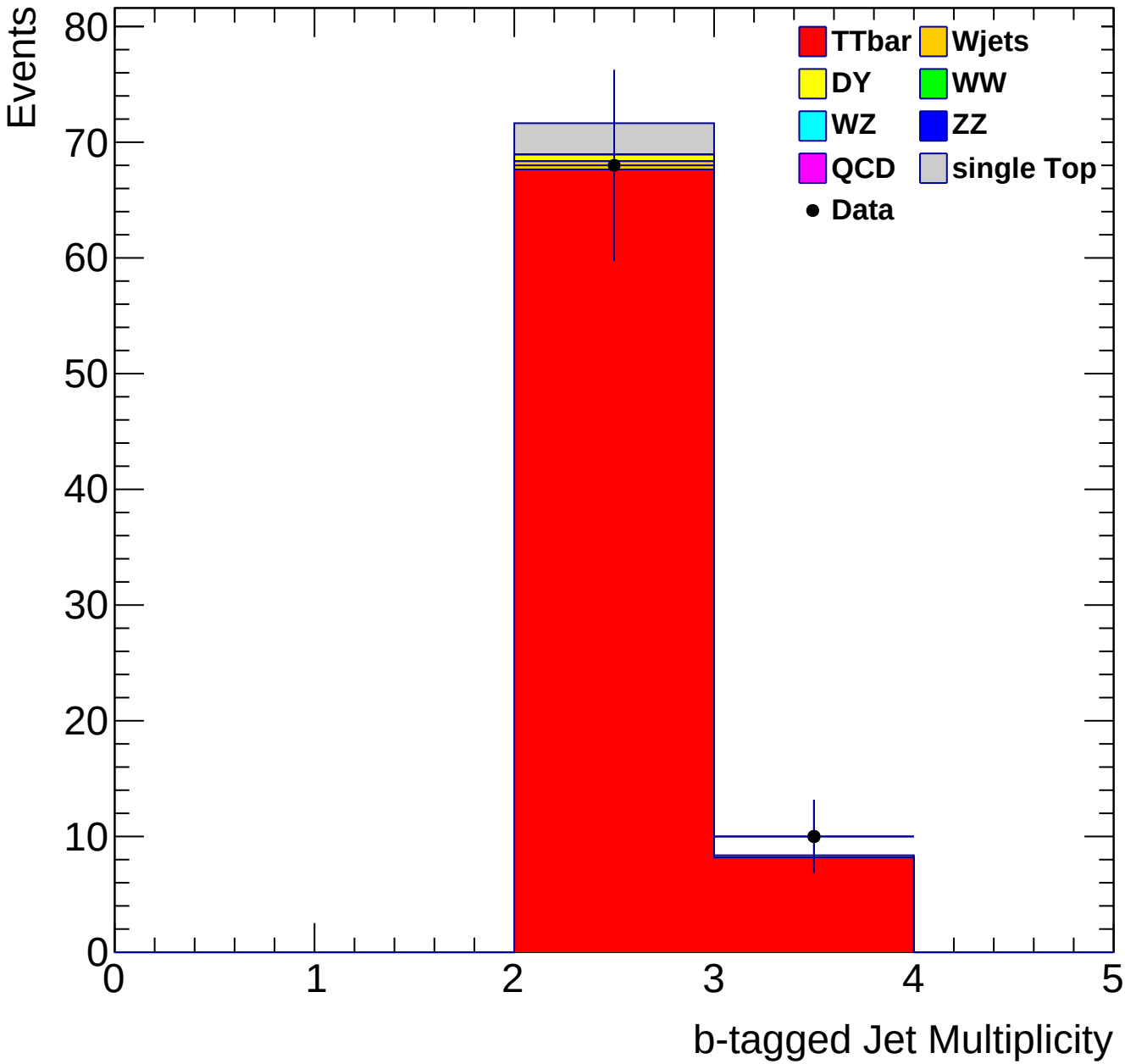

Events
30
25
20
15
10
5
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

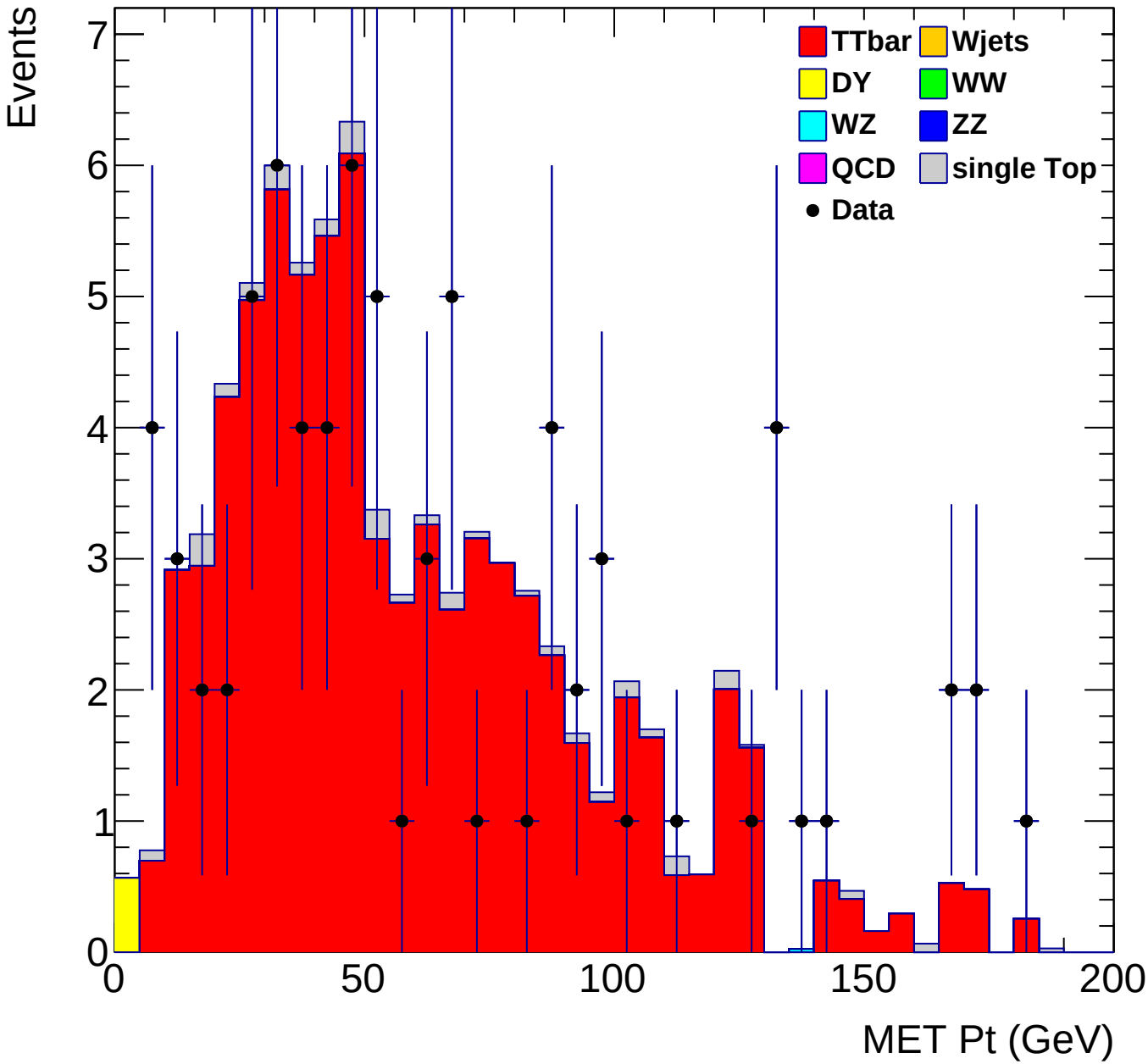

Events
30
25
20
15
10
5
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

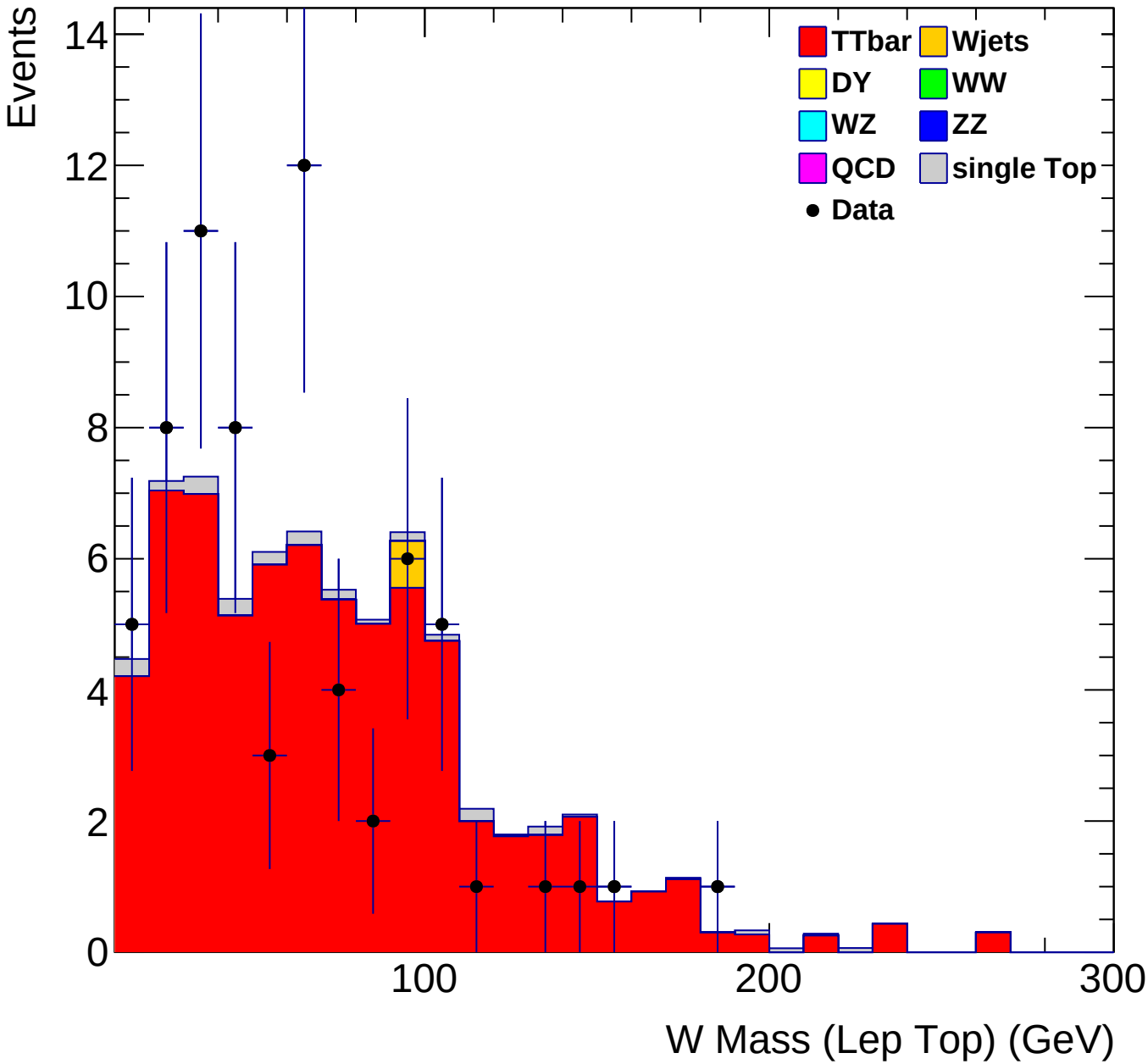

Events
35
30
25
20
15
10
5
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

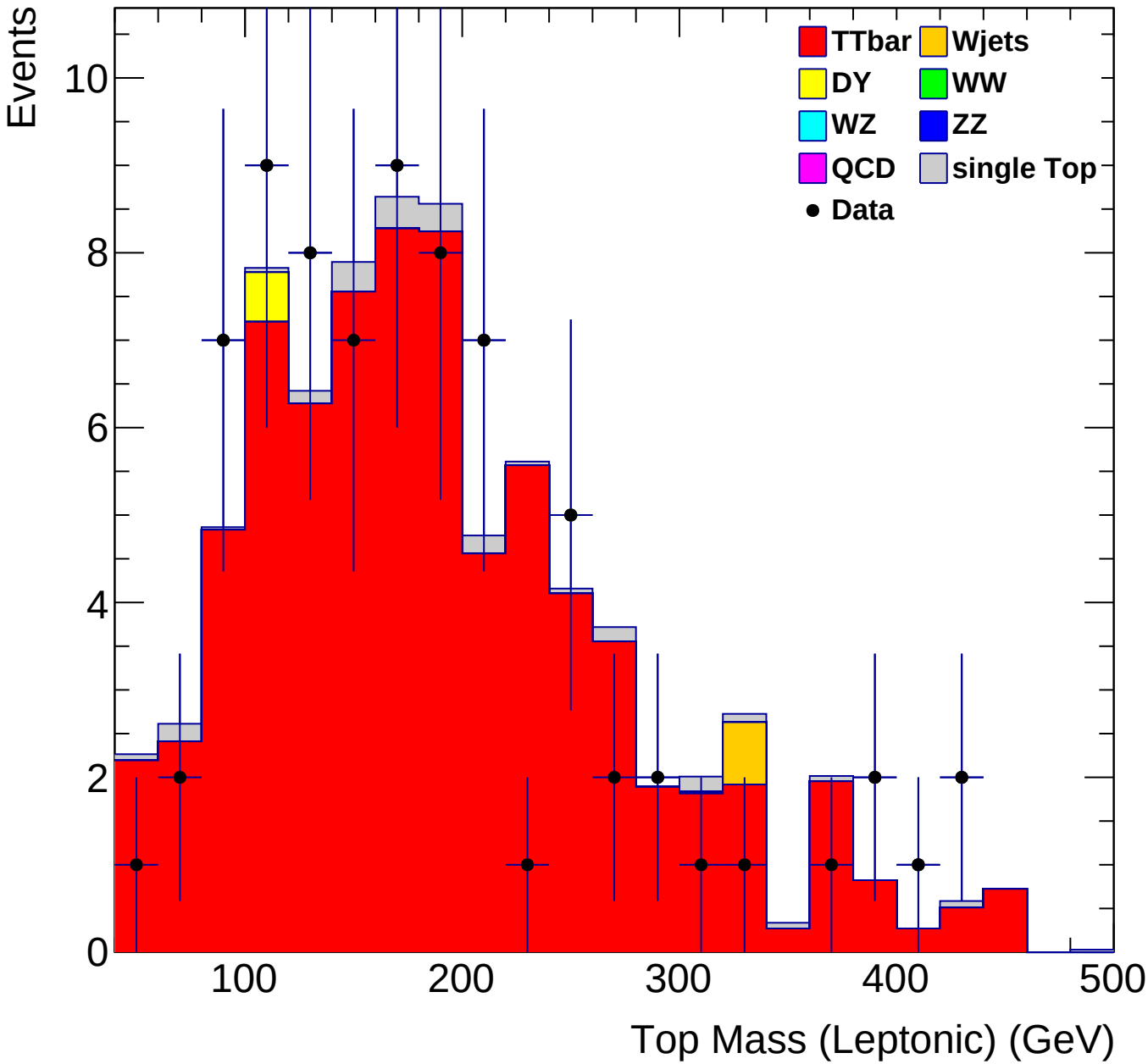

Events
100
80
60
40
20
0
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

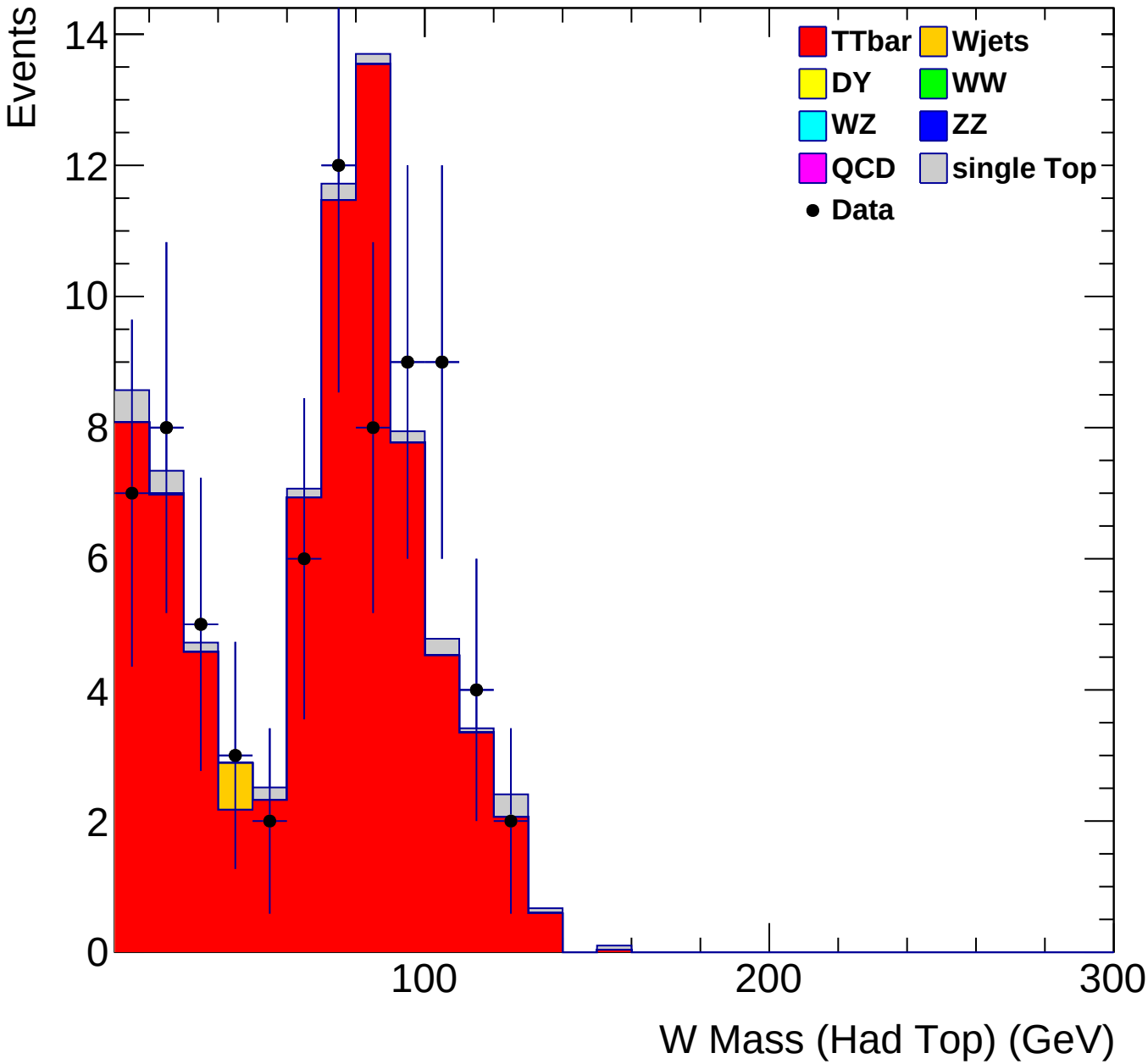

Events
60
50
40
30
20
10
0
0
5
10
Jet Multplicity (S7)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

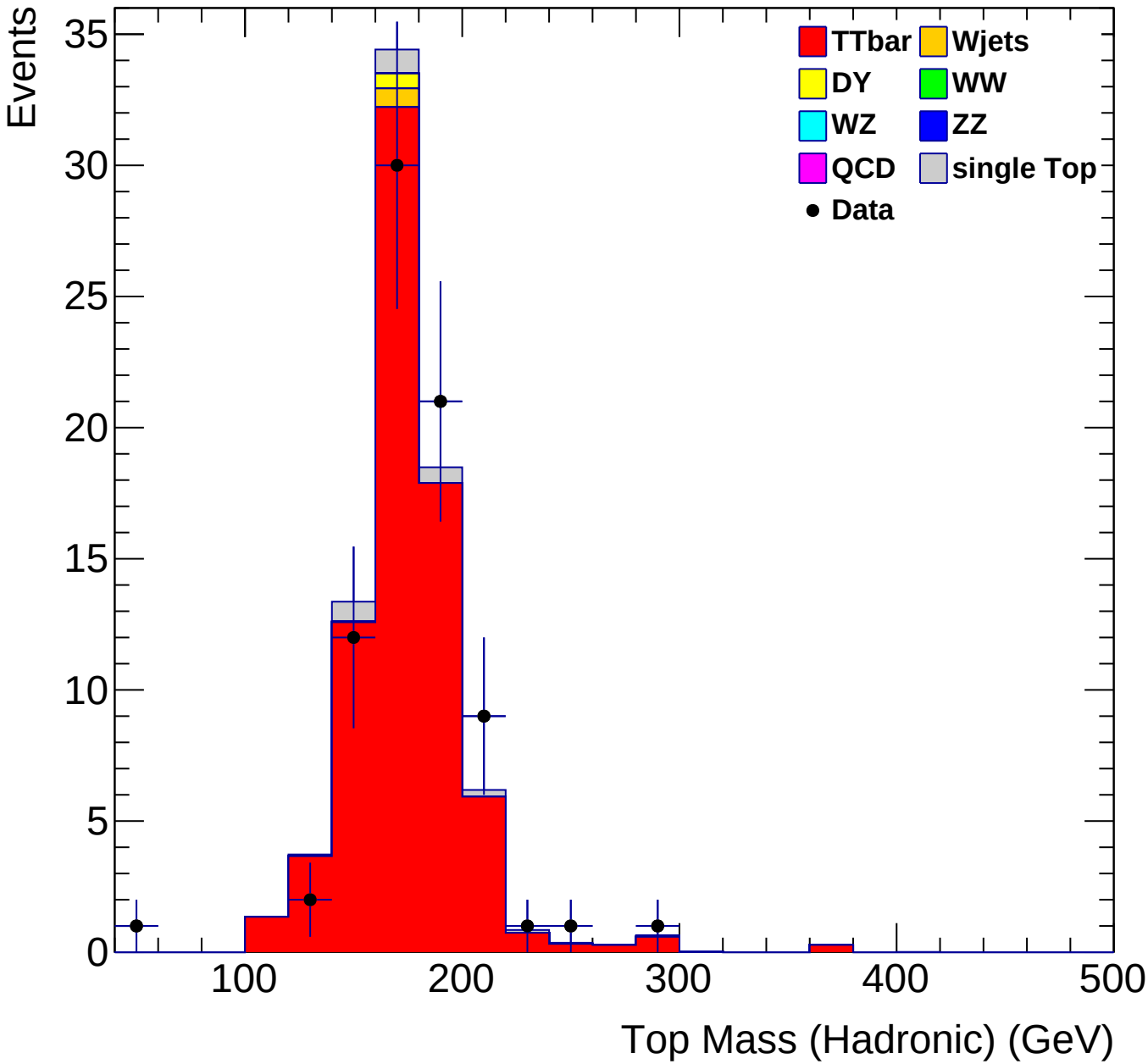

Events
80
70
60
50
40
30
20
10
0
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

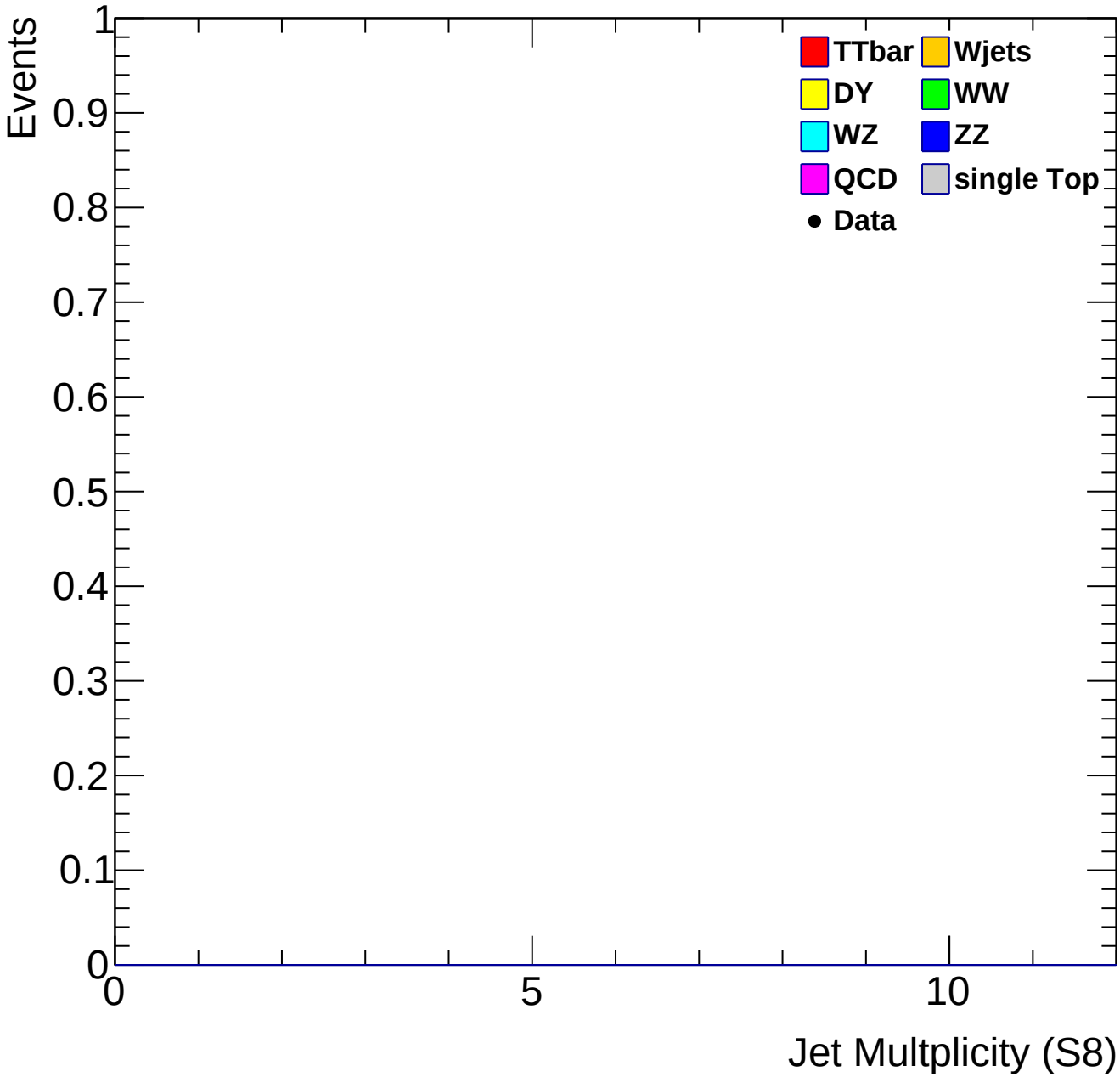

Events
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data
0
1
2
3
4
5
6
7
0
50
100
150
200

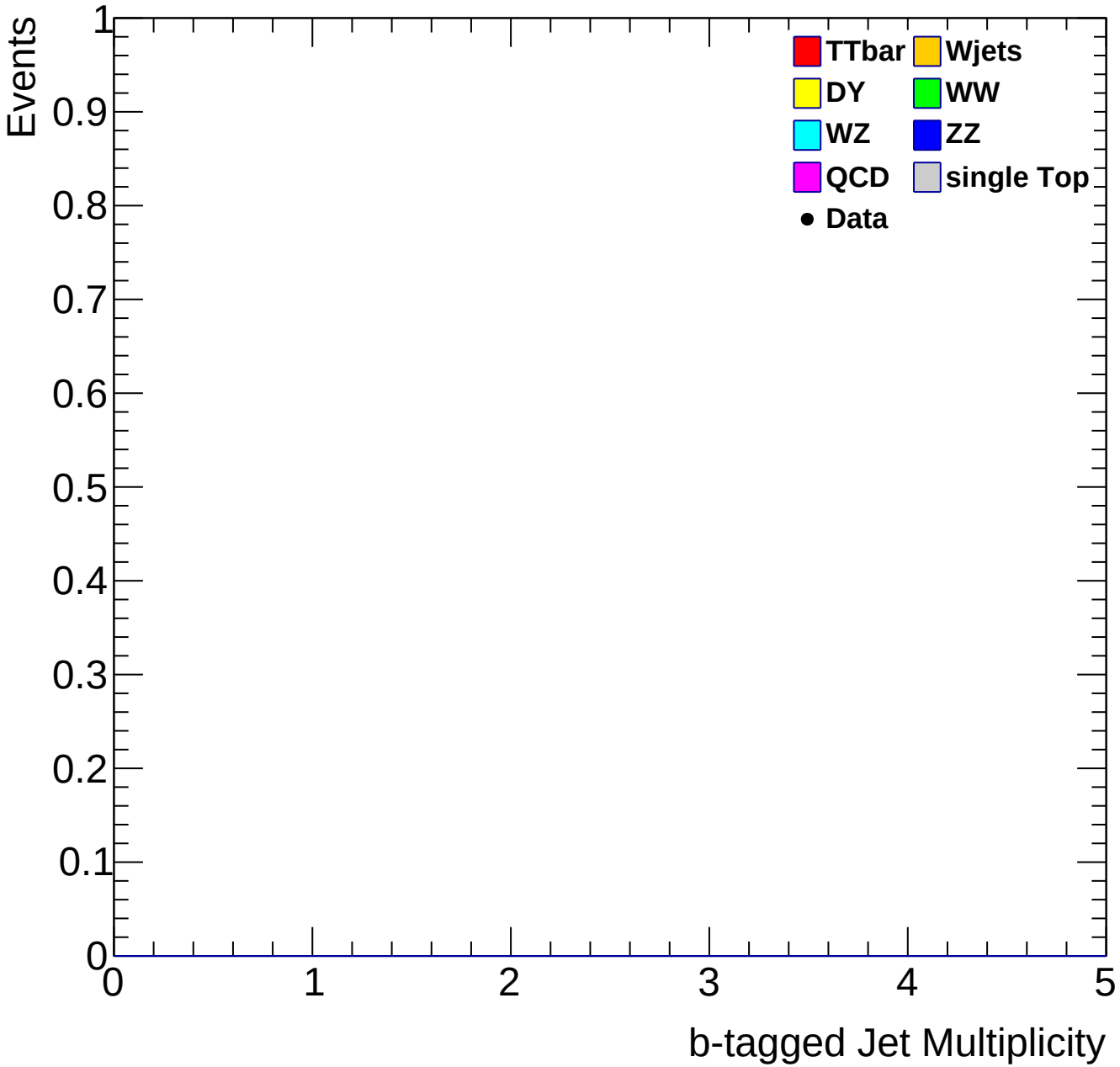

Events
14
12
10
8
6
4
2
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

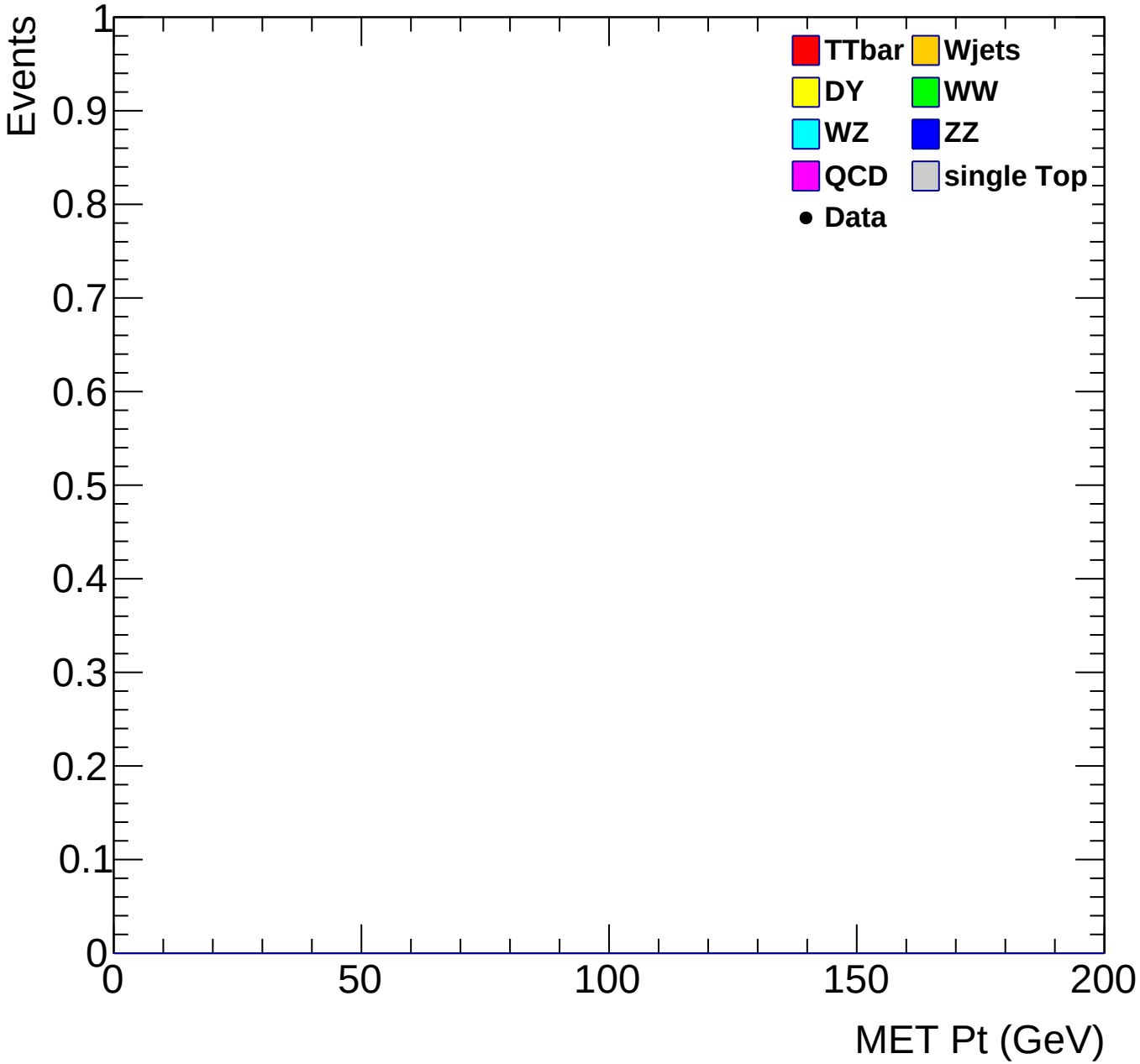

Events
10
8
6
4
2
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

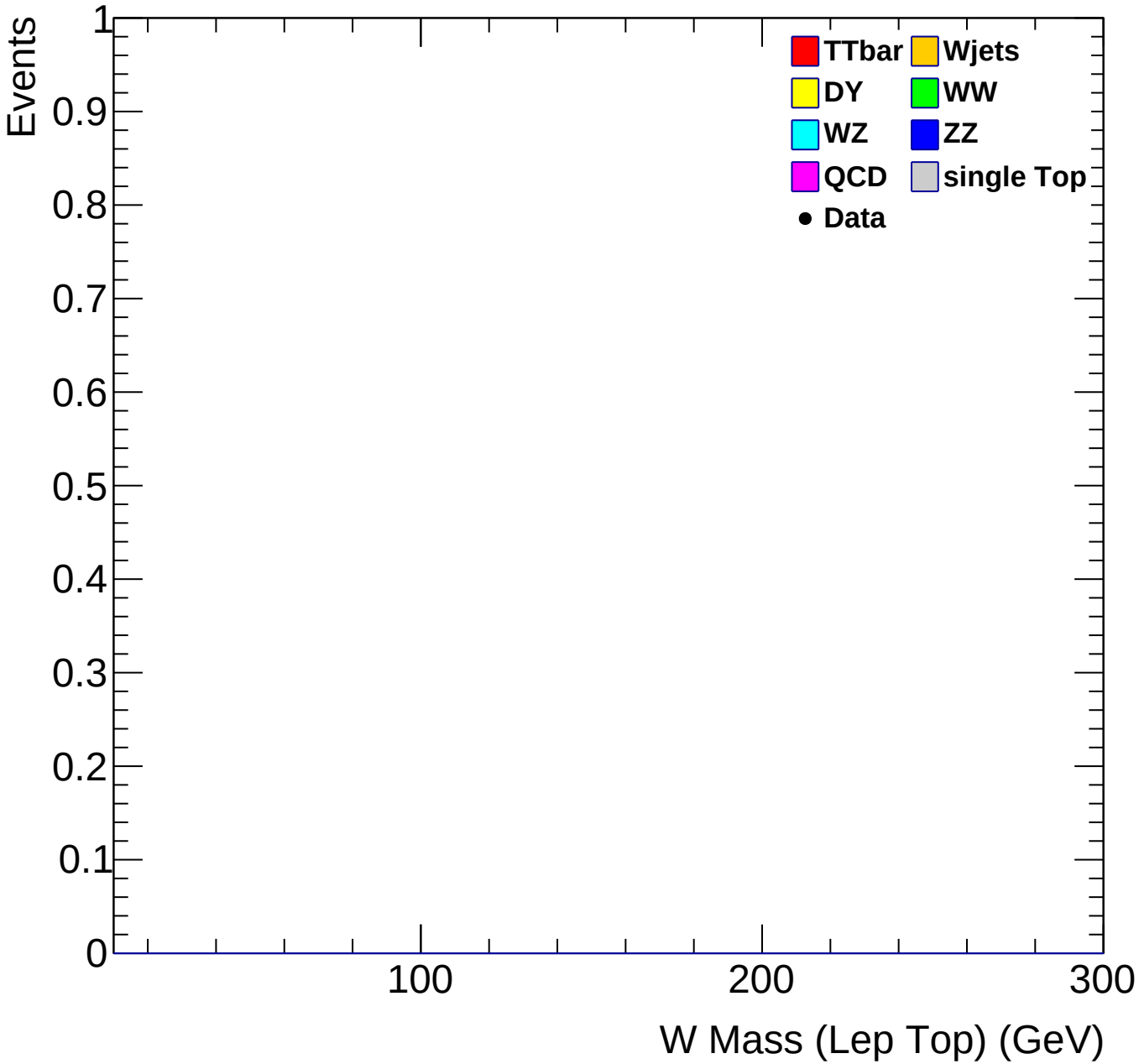

Events
14
12
10
8
6
4
2
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

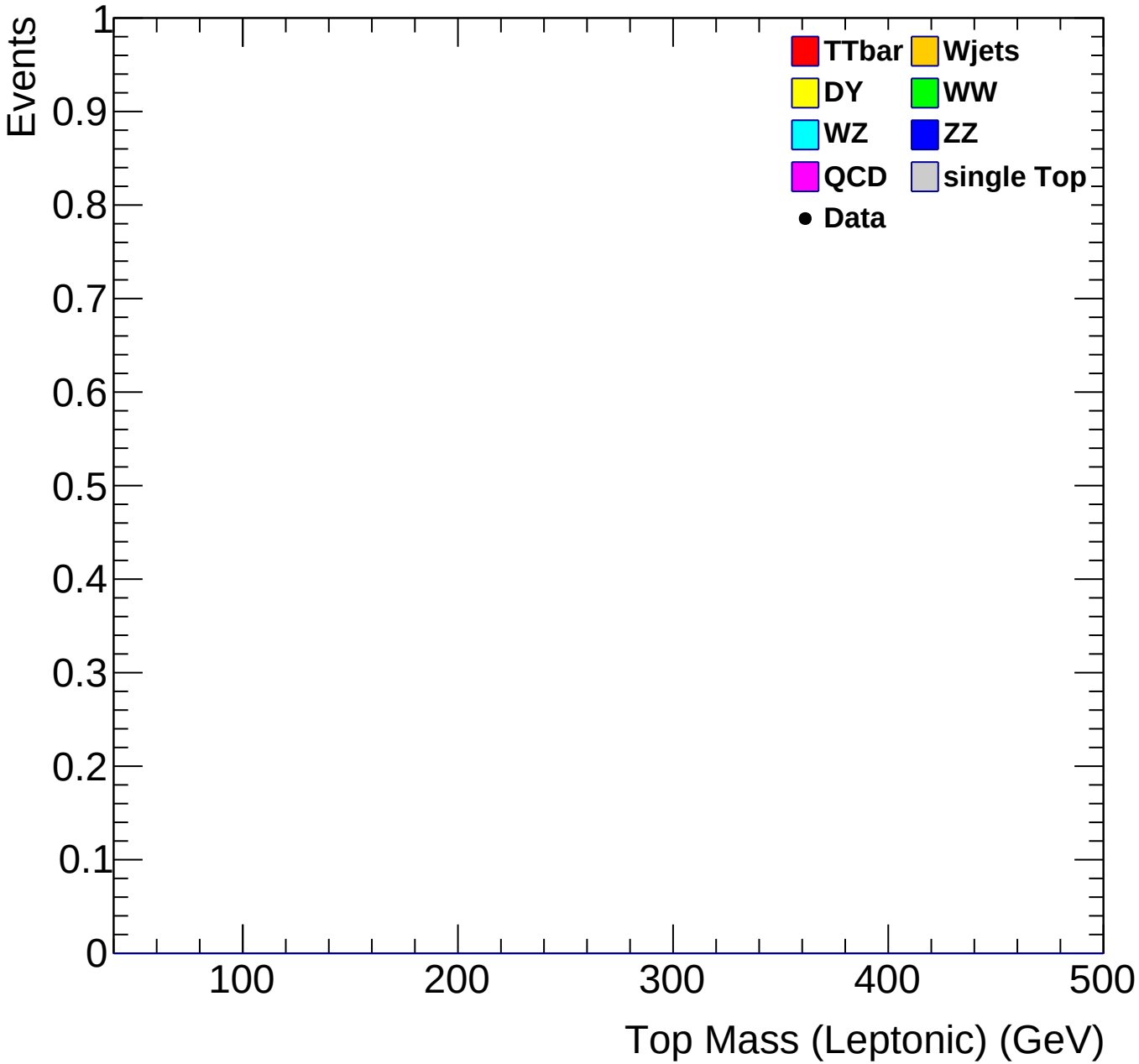

Events
35
30
25
20
15
10
5
0
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

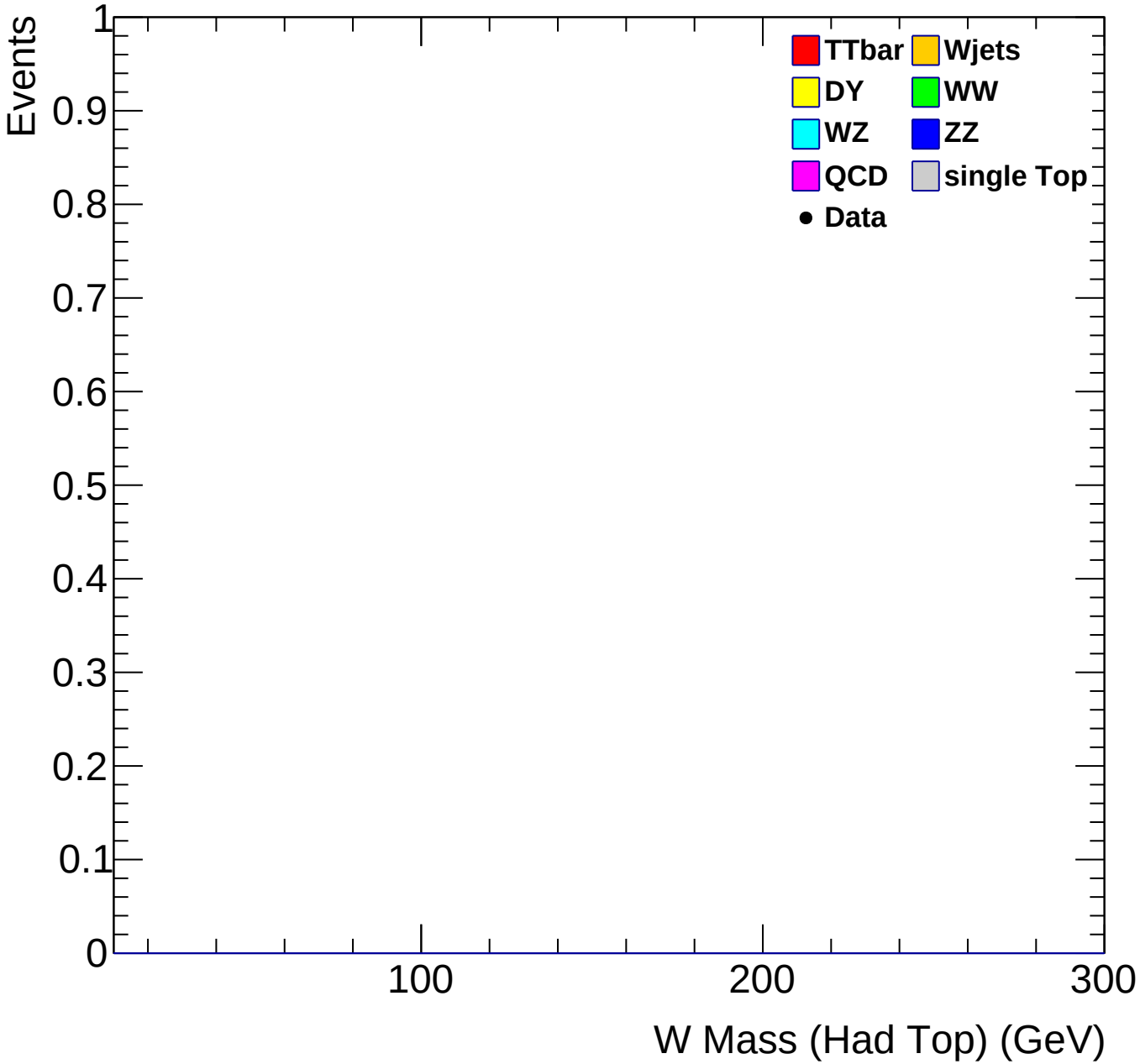

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
Jet Multplicity (S8)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data

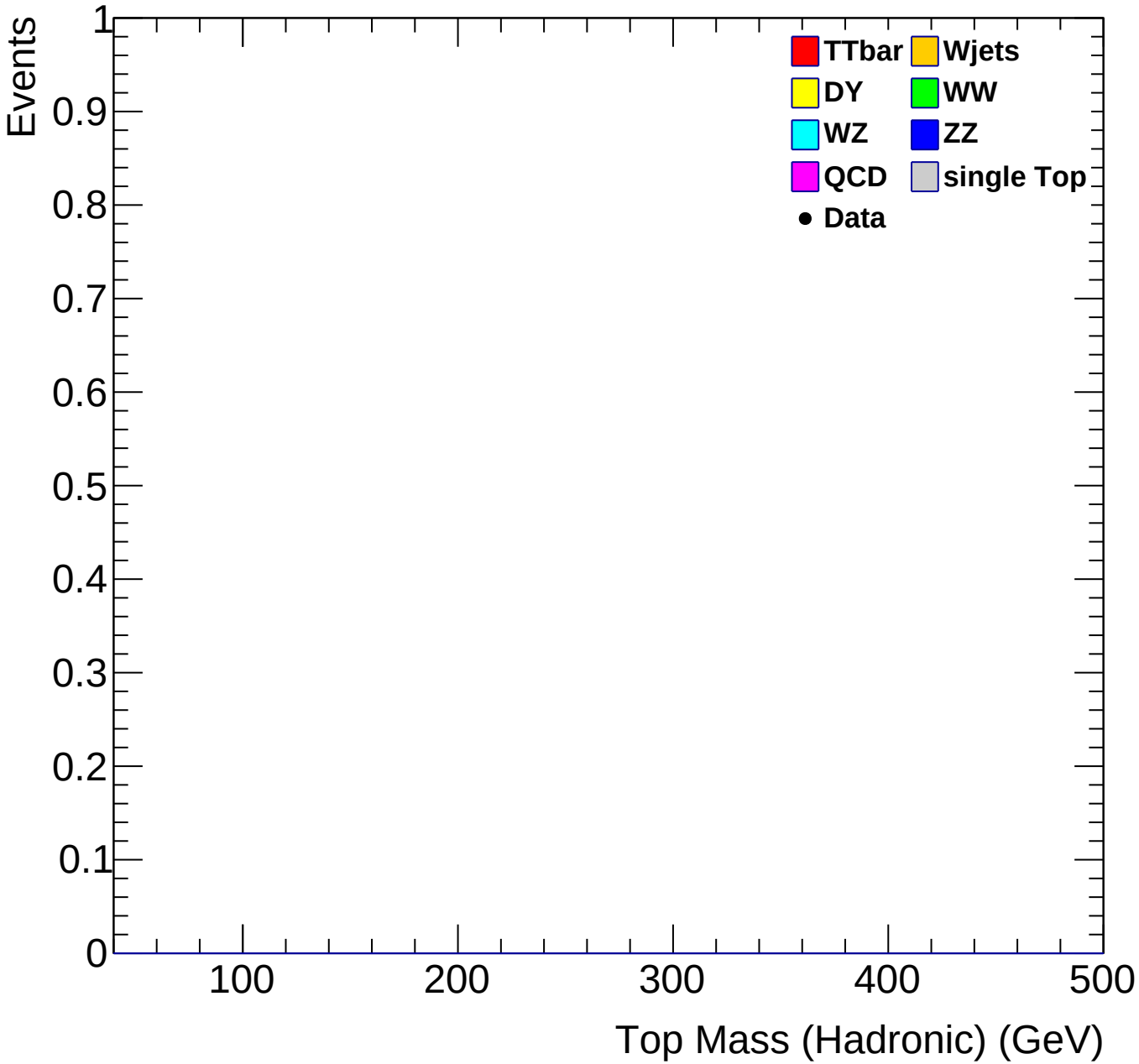

Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
b-tagged Jet Multiplicity
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data


Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
50
100
150
200
MET Pt (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data


Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
W Mass (Lep Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data


Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
400
500
Top Mass (Leptonic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data


Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
W Mass (Had Top) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data


Events
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
400
500
Top Mass (Hadronic) (GeV)
TTbar
Wjets
DY
WW
WZ
ZZ
QCD
single Top
Data