

Table S1. BLUEs for saccharification efficiency, stover yield and grain yield.

Genotype	SaccEff	Stover yield	Grain yield
4550.INBRED	142.483488	22.3036777	25.6495778
4562INBRED	150.711633	20.07109	18.0197764
4578INBRED	156.796633	57.11509	72.5897764
52220	152.561633	55.68709	94.9847764
58610A632(Meth)Bc5S4	159.106633	59.80309	61.0997764
58613B73(Meth)Bc5S4	158.886633	92.64709	24.6197764
58801InbredMo17	169.016633	69.37909	78.8347764
676A-348-68(B)	153.656633	45.35509	37.8047764
764	143.751633	55.85509	62.8047764
78371A	157.071633	87.35509	142.979776
789	151.431633	39.13909	52.2047764
89S4110	171.374892	124.251838	96.5710856
89S4125	140.849892	86.6198378	93.4010856
89S4154	140.209892	109.467838	85.0210856
90	160.981633	47.45509	50.6147764
991	159.678488	50.7796777	80.3995778
A165	154.769892	27.3158378	44.7010856
A295	157.639892	42.7718378	41.7810856
A310	172.334892	40.1678378	55.9760856
A321	153.009892	32.0198378	
A407	163.534892	37.3958378	74.5110856
A495	155.709892	25.7198378	37.3510856
A499	146.044892	28.5758378	35.5310856
A508	166.404892	30.4238378	42.9060856
A509	169.054892	26.7278378	45.5210856
A548	159.404892	30.4238378	32.0260856
A554	182.399892	43.5278378	63.1210856
A618	146.634892	66.7118378	25.6560856
A619	159.969908	63.5626176	64.5157601
A619HT	163.375766	68.8134378	95.3648405
A619Ht1	154.250766	57.8094378	62.4698405
A619_g	162.289892	55.1198378	65.2360856
A624	166.100766	75.7014378	81.4598405
A628	198.020766	77.3814378	80.8748405
A631	162.065766	33.2814378	53.7098405
A632	161.823223	96.7506751	104.089016
A632.75A1A2C1R1-rB1P11	99.0507663	53.6094378	23.2248405
A632_g	149.445766	103.673438	96.7898405
A637	151.940766	22.5294378	16.7598405
A645	148.378687	81.8038731	
A652	168.930766	52.3494378	64.8948405
A659	148.165766	49.4094378	72.3648405
A662_g	170.715689	14.2905663	30.0453968
A665	159.939444	59.8536817	74.9807822
A670	157.258687	72.0598731	38.3939515
A672	151.443687	63.9118731	78.0589515

A677	162.375766	46.4694378	55.4598405
A7	159.535766	41.1774378	47.3348405
A71	153.568687	84.7438731	74.8739515
ABPI4	159.030597	32.5347815	46.8700478
AD11DS	181.400597	74.9547815	41.7950478
AD188L	166.155597	41.8587815	45.4300478
AD330	160.723518	64.0052168	31.4391589
AD363-1	188.425597	65.7147815	61.3950478
ADSA3	156.908518	63.9212168	50.3291589
ADsg1501	163.363518	60.4772168	59.1091589
ADsg1501-1	161.920597	67.5627815	58.1350478
AR276	167.678518	82.4852168	103.294159
AusTRCF305819	163.648518	41.8292168	53.9941589
AusTRCF305829	155.088518	67.1972168	82.2791589
AusTRCF305831	163.573075	98.1242583	88.4923033
AusTRCF305846	161.668075	76.7042583	76.8373033
AusTRCF305849	161.233518	87.5252168	97.0241589
AusTRCF306065	157.668518	109.533217	73.4741589
AusTRCF306235	166.343075	91.9082583	69.2323033
AusTRCF306238	172.448168	82.9040431	71.9176523
AusTRCF306240	170.65861	67.0130016	53.4445078
AusTRCF306294	149.72861	53.6570016	38.9195078
AusTRCF306295	175.568168	60.4760431	71.4576523
AusTRCF306296	160.563168	72.6560431	67.5826523
AusTRCF306333	159.25861	68.6090016	64.9995078
AusTRCF306348	158.03361	70.3730016	42.4045078
B100	155.028168	71.9000431	87.0326523
B102	151.52361	83.3930016	71.5745078
B103	158.36361	86.5010016	97.8445078
B107	165.92361	64.8290016	37.7995078
B55	159.34361	114.641002	113.509508
B73HT	147.862595	106.775912	85.7521838
B75	148.152153	60.6749537	40.0403283
B93	147.147595	45.3719122	64.4121838
BR-28INBR.FR.YEL.PEARL	161.002595	41.4239122	27.4721838
Bei10=North10	146.182595	69.3119122	70.9221838
C102	158.792595	76.3679122	25.3771838
C103	166.947153	86.8829537	95.2653283
C123	152.487153	83.6069537	91.0753283
C14	147.862595	36.8039122	43.9371838
C27	149.792153	40.8509537	18.1403283
C8pseudo	155.487595	25.7159122	
CH753-4	161.582153	68.7389537	57.1953283
CH9	159.952595	81.4919122	40.7771838
CHAN11INBRED	156.937595	90.2279122	106.667184
CHI-69INB.	152.122153	39.4229537	18.8403283
CI40A	159.492595	53.9399122	34.3521838
CI92	134.264004	74.1963746	54.3772879
CMV3	164.439004	14.1363746	

CO109	152.629447	57.549333	27.1141434
CO150	145.914004	42.1083746	74.7022879
CO158	154.264004	48.1563746	64.4822879
CO216	168.484004	82.1763746	65.3672879
CO236	177.934004	31.7763746	40.3022879
DAJINDING(JI0018)	165.019447	118.281333	142.314143
E8501	166.314447	115.173333	111.174143
EP42	161.83085	64.1029511	46.3449817
F39	173.494447	84.765333	44.7441434
FR19	166.873217	67.1780106	65.3558402
G80	148.980313	93.6846069	79.0603271
GTS1	145.095313	74.2806069	30.5503271
H106w	153.255313	88.0566069	51.9053271
H111	149.759526	114.890243	70.7688795
H123	152.345755	89.5535654	80.0071827
H19	158.150755	69.5615654	32.2021827
H27w	163.895313	72.3486069	
H29w	155.705313	70.5006069	34.7503271
H41		48.8135654	21.6171827
H42	173.640755	108.705565	86.8121827
H49	156.325755	109.041565	45.8021827
H5	170.080755	48.4775654	37.3421827
H84	164.284526	84.2302429	110.92888
H95	176.610755	78.3815654	46.1471827
H98	161.334526	107.414243	39.2488795
HY2	169.84889	84.9744164	67.8884257
Hi33	139.650313	83.6886069	35.5103271
Hi47	168.219526	83.8942429	103.17888
IBB15	167.56389	59.7744164	71.3784257
IBC2	160.71389	81.0264164	101.633426
IP39	168.444677	27.6487804	
II101T	166.424677	49.7407804	37.5898734
III.Hy	159.48012	91.1377389	68.576729
J8606	160.00889	87.7464164	70.2734257
K55	164.44512	69.6337389	44.046729
L	163.59389	118.826416	126.363426
L127	153.33889	87.8304164	76.6034257
L135	176.09889	106.310416	86.7634257
LH61	175.414278	60.1510125	84.2501755
LH85	185.830065	82.8773764	61.2866231
MS1	183.500065	44.4053764	45.9216231
MS100	167.775065	78.7613764	59.3966231
MS106	152.935508	52.5383349	51.3234787
MS1334	149.175065	26.9333764	13.2966231
MS141	148.620065	60.2813764	50.3416231
MS153	161.976745	67.5281419	95.8796045
MS211	175.191745	62.4881419	29.1296045
MS215	166.352188	38.7851004	50.3564601
MS74	167.051745	34.6841419	29.4996045

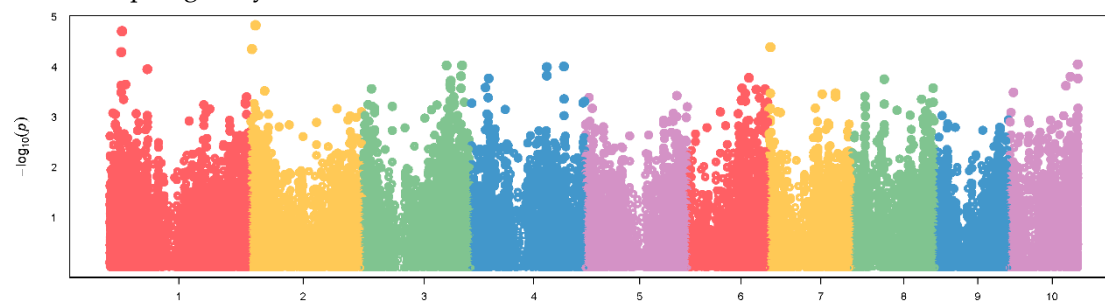
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Mo48	142.825065	79.3493764	55.8916231
N194	158.735959	76.805778	106.463157
N505	144.021122	81.4512528	52.5321504
N507	149.321122	111.859253	8.82715036
N508	151.471122	71.7072528	31.5971504
N509	151.321122	126.139253	74.6871504
N510	165.341122	86.6592528	84.2621504
N520	145.880959	127.625778	90.1681569
N521	144.815959	103.265778	67.9431569
N522	153.561122	108.499253	55.2821504
N523	151.275959	148.373778	
N534	139.695959	116.705778	92.6131569
N541	156.597528	122.09548	90.871108
N543	153.592692	90.6209545	91.2851015
N546	134.457528	64.7234797	74.576108
NC282	163.392692	57.1049545	67.5901015
NC288	168.697692	56.7689545	75.3551015
NC306	152.353315	120.293844	56.0575556
ND230	175.32389	24.7027638	49.7753781
ND250	153.608315	25.3738436	49.7875556
ND254	186.32889	23.8627638	35.7553781
ND255	162.593315	38.7298436	68.6125556
ND256	166.428315	28.9018436	38.5275556
ND257	160.26889	27.0547638	49.0003781
ND261	157.19389	27.8947638	31.4953781
NO.380	154.99271	62.6100564	74.8027381
NY121(NevahYaar)	149.171348	69.7867722	51.688468
NY364(NevahYaar)	158.522135	95.7891362	103.649916
OC10	144.21271	89.2380564	80.9077381
OC19	141.781348	55.0027722	42.598468
Oh33	149.296348	89.1067722	50.923468
Oh40B	159.531348	55.7587722	76.503468
Oh422	135.236348	62.4787722	16.718468
Oh43E	149.29771	59.5020564	73.6227381
Oh51A	158.11271	55.0500564	59.1177381
P39Goodman-Buckler	151.792281	26.9530614	22.4257679
P39M96	157.327281	59.0410614	69.5857679
P51	156.600919	47.4017772	31.2014977
P51wx	162.257281	50.8090614	33.3257679
PH207	153.626783	78.7543783	95.3775662
PHJ75	153.917281	58.5370614	80.7657679
PHK42	152.416083	67.419252	87.6004912
PHN37	165.547281	41.1490614	50.3157679
PHP02	153.591083	56.583252	83.7104912
PHP55	152.256083	89.595252	105.780491
Pa392	138.482281	78.1930614	72.3207679
Pa759	138.896083	126.135252	87.1104912
Pa91	158.011083	80.859252	97.1154912

Pa91HT3	146.826083	97.827252	76.7954912
Q381	154.731083	52.467252	48.7054912
R-53-1INBR.FR.YELPEARL	180.806698	61.8414549	57.824824
R192	152.481698	82.2534549	30.554824
R216	151.622896	41.5352643	65.1801006
R219	158.467896	75.9752643	85.1501006
R74	183.591698	109.637455	86.079824
R851	154.527896	60.5192643	
R853	147.737896	26.4992643	19.9251006
R906	162.566698	47.9814549	63.949824
R907	151.056698	56.1294549	47.974824
R914	145.286698	42.7734549	49.229824
S37	158.022896	42.1232643	58.5901006
S48	153.117896	53.6312643	38.9601006
S8	175.502896	33.8072643	66.6001006
S8324	151.026698	87.8814549	101.939824
SD15	167.212896	61.2752643	69.5551006
SD59	163.38473	56.3438196	58.0959213
SD69	153.890928	54.349629	52.5611979
STRAINT35-388-68(A)	164.555928	48.805629	49.6911979
STRAINT36(101T)-394-68	180.04473	78.6878196	40.2309213
SeagullSeventeen	173.33973	86.5838196	73.0959213
T270	144.330928	117.517629	124.516198
T62S	159.45473	89.5238196	27.8659213
Va14A	166.19973	98.9318196	79.3909213
Va18A	138.12973	86.2478196	70.3409213
Va21A	173.37473	78.1838196	91.8009213
Va24	164.245928	71.233629	69.5561979
Va26	142.67973	84.3158196	99.6409213
Va35C	170.57473	73.3118196	88.0409213
Va36A	149.41473	83.8958196	45.4809213
Va52	157.615701	51.56712	39.8969244
Va59	142.129503	74.4773106	54.9616477
Va91	144.840701	79.70712	77.4119244
VaW6	174.654503	52.4693106	44.8266477
W117	163.520701	42.49512	39.0219244
W117HT	167.495701	22.08312	37.6419244
W22	158.574503	75.9053106	97.9016477
W401	141.685701	57.78312	73.5219244
W5543	165.585701	50.47512	38.8619244
W59E	174.255701	22.75512	101.996924
W8555	164.329503	93.6293106	75.4616477
WIL900	152.454503	92.9573106	94.5816477
WIL901	158.945701	107.17512	100.556924
WX38-11	163.024503	88.5893106	59.5816477
WXI205	155.864503	71.2853106	64.5566477
WXW22	156.489503	101.945311	52.3416477
YANG	169.740701	52.40712	46.5619244
YE-CHI-HUNG	137.959503	142.517311	117.031648

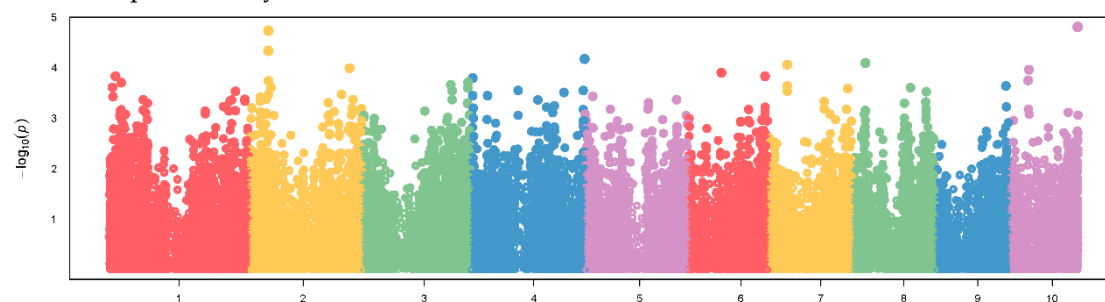
YING-55	161.080701	57.44712	78.0919244
Yu796_NS	164.574503	91.5293106	94.4816477
ZS01250	158.040701	51.31512	49.5419244

Figure S1. Manhattan and Q-Q plot for grain and stover yield and saccharification efficiency.

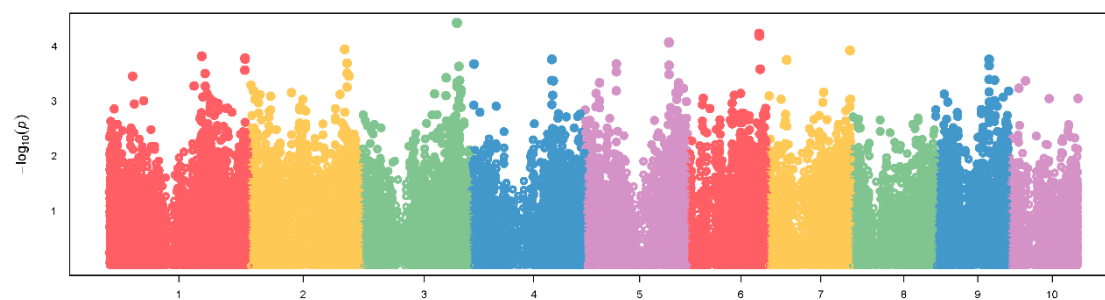
Manhattan plot grain yield.



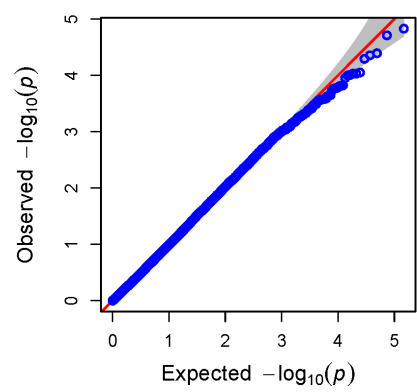
Manhattan plot stover yield



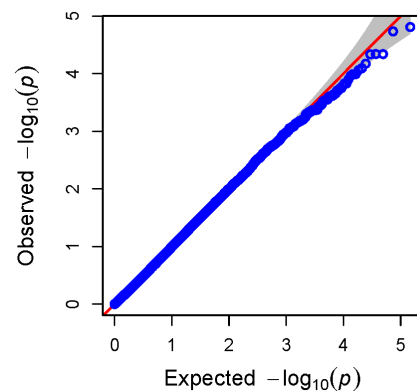
Manhattan plot saccharification efficiency



Q-Q plot grain yield



Q-Q plot stover yield



Q-Q plot saccharification efficiency

