pdfkeywords=, pdfsubject=, pdfcreator=Emacs 25.2.1 (Org mode 8.2.10)

packing_plan

toni

October 13, 2017

Contents

% this is 17r/planning/packing$_{plan}$.org % generated by ../maize/crops/merge$_{plandata}$.perl % on Sun May 21 01:26:51 CDT 2017 for crop 17r. % % The most recent plan data are derived from ../demeter/data/plan.pl for the 16r. These % are substituted into the packing$_{plan}$.pl data for 16r to generate % packing$_{plan}$/10 facts that are in the previous sequence, but not numbered. % % Wait until all packing$_{plan}$/10 facts are written, and in the correct sequence, % before re-running the script to insert the sequence numbers for planting!

1 general remarks

1.1 background *¡20 May 2017¿* toni

The general plan is to have a small field since we have a lot to do, both for work and fun in the field; a lot to do in the lab; and lots of manuscripts and proposals to write.

1.2 goals *¡21 May 2017¿* toni

Goals are:

- capture imagery for drone algorithm development
  - fly entire field and farms
  - asymmetric targets, placed asymmetrically on watering posts; these need to be durable for the whole season so they don't have to be put up and taken down each time
  - perpendicular and top-down for all fields; and oblique angles; and circling to keep landmarks in view for mosaicing

  - along and across rows
  - get ticket
  - train Kate and Avi
- instrumentation development and experimentation
- try to unstick stuck pedigrees with row shading: les15; cytogenetics?
- push along branches that are close to finishing
- doubled haploids from Candi
- back-cross Balint-Kurti mutants
- stay in the lab and process data!
- PHOTOGRAPH BEFORE POLLINATIONS!
- finish mutant data collection before pollinations
- make a nice color bar for the field, and use that.
- talk with a production agronomist in extension — Ken Sudduth?; what should we measure that would help farmers with their decision-making?

1.3 DONE send to Guri and Ross ASAP

% Mo20W/les23 K1802 3rd selfed inventory('16R4465:0004111','16R4465:0004111',num$_{kernels}$(whole),av
% W23/les23 K1802 5th selfed inventory('15R4339:0006503','15R4339:0006503',num$_{kernels}$(whole),li
% M14/les23 K1802 4th selfed inventory('15R4340:0006601','15R4340:0006601',num$_{kernels}$(whole),li
% Mo20W/les23 K1804 3rd selfed inventory('15R4370:0006703','15R4370:0006703',num$_{kernels}$(whole
% W23/les23 K1804 4th selfed inventory('15R4341:0006805','15R4341:0006805',num$_{kernels}$(whole),li
% M14/les23 K1804 3rd selfed inventory('15R4371:0006904','15R4371:0006904',num$_{kernels}$(whole),li
% Mo20W/les23 K3514 3rd selfed inventory('15R4342:0007002','15R4342:0007002',num$_{kernels}$(whole
% W23/les23 K3514 4th selfed inventory('15R4343:0007101','15R4343:0007101',num$_{kernels}$(whole),li
% M14/les23 K3514 3rd selfed inventory('15R4372:0007201','15R4372:0007201',num$_{kernels}$(whole),li
% Mo20W/les23 K16306 3rd selfed inventory('16R4466:0004206','16R4466:0004206',num$_{kernels}$(who
% W23/les23 K16306 3rd selfed inventory('15R4344:0007301','15R4344:0007301',num$_{kernels}$(whole),
% M14/les23 K16306 3rd selfed inventory('15R4373:0007403','15R4373:0007403',num$_{kernels}$(whole),
Also my Mo20W, W23, and M14.

1.4 **DONE** pack for Susan's chromosome walk

packing$_{plan}$(,1,['16R405:M0003112','16R4222:0009405'],1,[inc,self,'B',fly],'Les2;
is 6th!','K0202',20,20). inventory('16R405:M0003112','16R4222:0009405',num$_{kernels}$(quarter),avi,date(2
packing$_{plan}$(,1,['16R405:M0001811','16R4356:0010005'],1,[inc,self,'B',fly]],'Les6;
is 6th!; ','K2212','16R',15,10). inventory('16R405:M0001811','16R4356:0010005',num$_{kernels}$(quarter),av
need D10: inventory('12R305:W0008918','12R3727:0040606',num$_{kernels}$(whole),avi,date(26,05,2014)
W23/D10 4th bc '12R305:W0008918','12R3727:0040606',v00145

1.5 weather (v. wet so far, *¡21 May 2017¿*)

1.6 strategy and tables

In 17r, need to do serious bulking and push recessives along. Relatively few bcs in dominants, and those that are are mostly stalled or rebuilds.

type	num rows	modified
elite	10	10
selves	8	8
Les15	15	15
lls1*	5	5
other recess	7	7
bulks for flying	52	52
dominants	18	18
gardner	6.5	6.5
balint-kurti	16	16
total non-inbred		137.5
inbred	44	44
total rows		181.5

	S	W	M	B	total rows by plntg
over-planting factors	1.5	1.5	2	1.5	
1st plntg lines	13	17	14	20	
2nd plntg lines	20	18	25	20	
3rd plntg lines	5	3	7	0	
1st plntg ears	39	51	42	60	
2nd plntg ears	60	54	75	17	
3rd plntg ears	15	9	21	0	
1st plntg rows, inc losses	2.925	3.825	4.2	4.5	
2nd plntg rows, inc losses	4.5	4.05	7.5	1.275	
3rd plntg rows, inc losses	1.125	0.675	2.1	0.	
true 1st plntg rows + some 2nd plntg rows	4.275	5.04	6.45	4.8825	
rows by inbreds, all plantings	9.9	9.765	16.05	6.1575	
rounded 1st plntg rows	5	5	7	5	22
rounded 2nd plntg rows	5	4	8	2	19
rounded 3rd plntg rows	2	2	2	0	6
total rounded rows	12	11	17	7	47

full rows elite	10
full rows inbreds	47
full rows mutants	67
half rows mutants	76
half rows peter's and candi's corn	45.
total stakes	245.
total rows needed, exclusive of border	184.5

```
bash-3.2$ grep '\],1,\[' packing_plan.org | wc
     132    1187   16898
bash-3.2$ grep '\],2,\[' packing_plan.org | wc
     103     561   11729
bash-3.2$ grep '\],3,\[' packing_plan.org | wc
       6       6     462
```

1.7 crop notes

We had 20 good rows running east-west, parallel to the long axis of the field. The southwest and southeast corners are quite wet and so were avoided; row 1 (r00001) begins on the southwest side. Skipped n rows in the southwest corner (planted in sweet corn) and m rows in the southeast corner (planted in Amish 1 roasting corn from 16r).

Weather and soil perfect. Not much room: had to jam a single border row on the north and south sides into the track of the tractor tread, right next to the grass. These had 1–5 seeds/hole; began in northwest corner and switched to multiple seeds/hole midway in the second range. On the east and west sides, we have about half a range of sweet corn, again right up to the grass.

elite: First planting.

sweet: First planting.

fun: Amish roasting corn, selfed from plant 1, 16r. Second planting.

:avi: accidentally overplanted row 16 (r00016) with elite corn at 4 or 6 inch spacing. We'll see if we can't distinguish that from W23 and hoe it out.

2 DONE %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% elite line, 10 rows %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```
packing_plan(,1,[elite],1,[fly],'','','16R',60,20).
packing_plan(,1,[elite],1,[fly],'','','16R',60,20).
packing_plan(,1,[elite],1,[fly],'','','16R',60,20).
packing_plan(,1,[elite],1,[fly],'','','16R',60,20).
packing_plan(,1,[elite],1,[fly],'','','16R',60,20).
packing_plan(,1,[elite],1,[fly],'','','16R',40,20).
packing_plan(,1,[elite],1,[fly],'','','16R',40,20).
packing_plan(,1,[elite],1,[fly],'','','16R',40,20).
packing_plan(,1,[elite],1,[fly],'','','16R',40,20).
packing_plan(,1,[elite],1,[fly],'','','16R',40,20).
```

3 DONE %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% inbreds, 47 rows %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

3.1 DONE 1st planting

```
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],1,[inbred],'','',20,20).
```

```
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],1,[inbred],'','',20,20).


packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],1,[inbred],'','',20,20).


packing_plan(,1,['13R504:B0xxxxxx,13R504:B0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['13R504:B0xxxxxx,13R504:B0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['13R504:B0xxxxxx,13R504:B0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['13R504:B0xxxxxx,13R504:B0xxxxxx'],1,[inbred],'','',20,20).
packing_plan(,1,['13R504:B0xxxxxx,13R504:B0xxxxxx'],1,[inbred],'','',20,20).
```

3.2 DONE 2nd planting

```
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],2,[inbred],'','',20,20).


packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],2,[inbred],'','',20,20).


packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],2,[inbred],'','',20,20).
```

```
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],2,[inbred],'','',20,20).
```

```
packing_plan(,1,['13R504:B0xxxxxx,13R504:B0xxxxxx'],2,[inbred],'','',20,20).
packing_plan(,1,['13R504:B0xxxxxx,13R504:B0xxxxxx'],2,[inbred],'','',20,20).
```

3.3 DONE 3rd planting

```
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],3,[inbred],'','',20,20).
packing_plan(,1,['09R201:S0xxxxxx,09R201:S0xxxxxx'],3,[inbred],'','',20,20).
```

```
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],3,[inbred],'','',20,20).
packing_plan(,1,['09R301:W0xxxxxx,09R301:W0xxxxxx'],3,[inbred],'','',20,20).
```

```
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],3,[inbred],'','',20,20).
packing_plan(,1,['09R401:M0xxxxxx,09R401:M0xxxxxx'],3,[inbred],'','',20,20).
```

4 DONE %%%%%%%%%%%%%%%%%%%%%%%%%%%%%% mutants, 105 rows %%%%%%%%%%%%%%%%%%%%%%%%%%%%

4.1 DONE %%%%%%%%%%%%%%%%%%%%% bulks, Bs, selves, flying, 52 rows %%%%%%%%%%%%%%

4.1.1 DONE Les2 4 rows

```
packing_plan(,1,['16R405:M0003112','16R4222:0009405'],1,[inc,self,'B',fly],'is 6th!',
packing_plan(,1,['16R405:M0003112','16R4222:0009405'],2,[inc,self,'B',fly],'is 6th!',

packing_plan(,1,['16R405:M0001811','16R4356:0010005'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R405:M0001811','16R4356:0010005'],2,[inc,self,'B',fly],'is 6th!;
```

4.1.2 DONE Les4 18 rows

- M14, K0302 doubles available; otherwise done for now
- W23, K0303 done
- Mo20W, K2106 done

```
packing_plan(,1,['13R205:S0002205','13R4082:0005502'],1,[inc,self,fly],'is 6th!; addi
packing_plan(,1,['13R205:S0002205','13R4082:0005502'],2,[inc,self,fly],'is 6th!; addi

packing_plan(,1,['13R305:W0000702','13R4083:0005603'],1,[inc,self,fly],'is 6th!; no p
packing_plan(,1,['13R305:W0000702','13R4083:0005603'],2,[inc,self,fly],'is 6th!; no p

packing_plan(,1,['14R205:S0000215','14R4229:0009701'],1,[inc,self,'B',fly],'is 6th!',
packing_plan(,1,['14R205:S0000215','14R4229:0009701'],2,[inc,self,'B',fly],'is 6th!',

packing_plan(,1,['12R405:M0000310','12R3587:0023110'],1,[inc,self,fly],'is 6th!; phen
packing_plan(,1,['12R405:M0000310','12R3587:0023110'],2,[inc,self,fly],'is 6th!; phen

packing_plan(,1,['12N205:S0036705','12N3948:0017506'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['12N205:S0036705','12N3948:0017506'],2,[inc,self,'B',fly],'is 6th!;

packing_plan(,1,['12N305:W0038310','12N3949:0017706'],1,[inc,self,fly],'is 6th!; in 1
packing_plan(,1,['12N305:W0038310','12N3949:0017706'],2,[inc,self,fly],'is 6th!; in 1

packing_plan(,1,['11N405:M0032808','11N3419:0010704'],1,[self,inc,fly],'is 6th!; addt
packing_plan(,1,['11N405:M0032808','11N3419:0010704'],2,[self,inc,fly],'is 6th!; addt

packing_plan(,1,['15R305:W0000711','15R4352:0010904'],1,[inc,self,'B',fly],'is 6th; n
packing_plan(,1,['14R305:W0000803','14R3958:0010412'],2,[inc,self,'B',fly],'is 6th; n

packing_plan(,1,['15R405:M0001101','15R4353:0011002'],1,[inc,self,'B',fly],'is 6th; p
packing_plan(,1,['15R405:M0001101','15R4353:0011002'],2,[inc,self,'B',fly],'is 6th; p
```

4.1.3 DONE Les7 4 rows

```
packing_plan(,1,['16R305:W0001610','16R4279:0010511'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R305:W0001610','16R4279:0010511'],2,[inc,self,'B',fly],'is 6th!;

packing_plan(,1,['16R205:S0001202','16R4390:0010609'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R205:S0001202','16R4390:0010609'],2,[inc,self,'B',fly],'is 6th!;
```

4.1.4 DONE Les8 8 rows

- Mo20W, K0604 done
- W23, K0604 done; doubles available

```
packing_plan(,1,['14R405:M0001105','14R4283:0021405'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['14R405:M0001105','14R4283:0021405'],2,[inc,self,'B',fly],'is 6th!;


packing_plan(,1,['14R205:S0000105','14R4284:0021512'],1,[inc,self,'B',fly],'is 6th!',
packing_plan(,1,['14R205:S0000105','14R4284:0021512'],2,[inc,self,'B',fly],'is 6th!',

packing_plan(,1,['12N305:W0039207','12N3614:0024110'],1,[inc,self,fly],'is 6th!; poor
packing_plan(,1,['12N305:W0039207','12N3614:0024110'],2,[inc,self,fly],'is 6th!; poor

packing_plan(,1,['14R405:M0001103','14R4285:0021603'],1,[inc,self,'B',fly],'is 6th!',
packing_plan(,1,['14R405:M0001103','14R4285:0021603'],2,[inc,self,'B',fly],'is 6th!',
```

4.1.5 DONE Les9 2 rows

```
packing_plan(,1,['16R205:S0001210','16R4391:0010710'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R205:S0001210','16R4391:0010710'],2,[inc,self,'B',fly],'is 6th!;
```

4.1.6 DONE Les11 4 rows

```
packing_plan(,1,['16R405:M0003214','16R4510:0011204'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R405:M0003214','16R4510:0011204'],2,[inc,self,'B',fly],'is 6th!;

packing_plan(,1,['16R405:M0003206','16R4511:0011304'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R405:M0003206','16R4511:0011304'],2,[inc,self,'B',fly],'is 6th!;
```

4.1.7 DONE Les17 4 rows

- the more lesions and the more rapid the lesion development, the poorer the ears, up to no ears

```
packing_plan(,1,['16R405:M0003312','16R4027:0012203'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R405:M0003312','16R4027:0012203'],2,[inc,self,'B',fly],'is 6th!;

packing_plan(,1,['16R405:M0000808','16R4298:0012403'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R405:M0000808','16R4298:0012403'],2,[inc,self,'B',fly],'is 6th!;
```

4.1.8 DONE Les18 2 rows

- M14, K1411 has a lot of crummy tassel

```
packing_plan(,1,['16R405:M0002208','16R4300:0012606'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R405:M0002208','16R4300:0012606'],2,[inc,self,'B',fly],'is 6th!;
```

4.1.9 DONE Les21-N1442 4 rows

```
packing_plan(,1,['15R205:S0000101,15R4183:0017105'],1,[inc,self,'B',fly],'is 6th!; no
packing_plan(,1,['15R205:S0000101,15R4183:0017105'],2,[inc,self,'B',fly],'is 6th!; no

packing_plan(,1,['15R305:W0000701,15R4363:0017408'],1,[inc,self,'B',fly],'is 6th!; ph
packing_plan(,1,['15R305:W0000701,15R4363:0017408'],2,[inc,self,'B',fly],'is 6th!; ph
```

4.1.10 DONE Les*-mi1 2 rows

```
packing_plan(,1,['16R205:S0001303','16R4537:0014611'],1,[inc,self,'B',fly],'is 6th!;
packing_plan(,1,['16R205:S0001303','16R4537:0014611'],2,[inc,self,'B',fly],'is 6th!;
```

4.2 DONE %%%%%%%%%%%%%%%%%%%%%% Les15, 15 rows %%%%%%%%%%%%%%%%%%%%%%

4.2.1 DONE Les15 15 rows

OK, let's try again. Full rows and overplanting.

```
packing_plan(,1,['09R201:S0056209','09R1416:0025907'],1,['S'],'is 1st; forebear','K67
packing_plan(,1,['09R201:S0040305','09R1416:0025907'],1,['S'],'is 1st; sib of 09R201:
packing_plan(,1,['10R205:S0002302','10R2252:0031702'],1,['S'],'is 2nd; forbear of 12R
packing_plan(,1,['12R205:S0008815','12R3270:0014314'],1,['S'],'is 3rd','K6711',40,20)
packing_plan(,1,['12R205:S0009109','12R3270:0014314'],1,['S'],'is 3rd','K6711',40,20)

packing_plan(,1,['14R305:W0000703','14R4137:0004215'],1,['W'],'is 5th','K6711',40,20)
packing_plan(,1,['14R305:W0000716','14R4137:0004215'],1,['W'],'is 5th','K6711',40,20)
packing_plan(,1,['14R305:W0000705','14R4137:0004215'],1,['W'],'is 5th','K6711',40,20)

packing_plan(,1,['09R401:M0040909','09R1416:0025906'],1,['M'],'is 1st; forebear','K67
packing_plan(,1,['10R405:M0000715','10R2254:0032002'],1,['M'],'is 2nd; forebear of 12
packing_plan(,1,['10R405:M0001010','10R2254:0032002'],1,['M'],'is 2nd; sib of 10R405:
packing_plan(,1,['10R405:M0006607','10R2254:0032003'],1,['M'],'is 2nd; sib of 10R405:
packing_plan(,1,['10R405:M0006610','10R2254:0032010'],1,['M'],'is 2nd; sib of 10R405:
```

```
packing_plan(,1,['12R405:M0009302','12R3486:0014708'],1,['M'],'is 3rd; has repeatedly
packing_plan(,1,['12R405:M0011707','12R3486:0014708'],1,['M'],'is 3rd; sib of 12R405:
```

4.3 DONE %%%%%%%%%%%%%%%%%%%%%% selves, 8 rows %%%%%%%%%%%%%%%%%%%%%%

4.3.1 DONE les23 13 half-rows

```
packing_plan(,1,['16R305:W0001401','16R4467:0004309'],1,[self],'is 6th!; male had phe
packing_plan(,1,['16R405:M0001705','16R4468:0004411'],1,[self],'is 5th; male had phe


packing_plan(,1,['16R305:W0001408','16R4470:0004603'],1,[self],'is 5th; male had phe
packing_plan(,1,['16R405:M0001707','16R4471:0004707'],1,[self],'is 4th; male had phe


packing_plan(,1,['16R205:S0001309','16R4472:0004811'],1,[self],'is 4th; male had phe
packing_plan(,1,['16R305:W0001511','16R4473:0004903'],1,[self],'is 5th; male had phe
packing_plan(,1,['16R405:M0003103','16R4474:0005001'],1,[self],'is 4th; male had phe


packing_plan(,1,['16R305:W0000714','16R4475:0005105'],1,[self],'is 4th; male had phe
packing_plan(,1,['16R405:M0003107','16R4476:0005202'],1,[self],'is 4th; male had phe

%  'Les*-tk1'

packing_plan(,1,['16R305:W0001612','16R4477:0005303'],1,[self],'is 1st in W; dominant
packing_plan(,1,['16R305:W0001618','16R4477:0005311'],1,[self],'is 1st in W; dominant

packing_plan(,1,['16R405:M0001704','16R4477:0005305'],1,[self],'is 1st in M; dominant
packing_plan(,1,['16R405:M0001708','16R4477:0005303'],1,[self],'is 1st in M; dominant
```

4.3.2 DONE les3 3 half-rows

% may like cooler weather, lots of light, very late developping, must cross % blindly, favored lower leaves in 12r. Phenotype variable, from small % necroses to brown necroses on midrib to yellow-green splotchies on lower % or upper leaves. Functionally recessive, possibly malleable phenotype. % % In 12n, a strong necrotic phenotype developed well before flowering.

```
packing_plan(,1,['16R205:S0001112','16R4478:0005404'],1,[self],'is 3rd; male had phe
```

```
packing_plan(,1,['16R305:W0000702','16R4481:0005706'],1,[self],'is 3rd; male had phe
packing_plan(,1,['16R405:M0002211','16R4482:0005809'],1,[self],'is 3rd; male had phe
```

4.4 DONE %%%%%%%%%%%%% recessives to back-cross, 12 rows %%%%%%%%%%%%%%%%%%%%

- 1st planting as usual; these are fairly far along, so may not be completely fast.

4.4.1 DONE lls1 2 half-rows

```
packing_plan(,1,['16R4460:0003602','16R4460:0003602'],1,[check,'S'],'is 3rd selfed','
packing_plan(,1,['16R4460:0003602','16R4460:0003602'],1,[check,'S'],'is 3rd selfed','
```

4.4.2 DONE lls1 121D K3402 4 half-rows

```
packing_plan(,1,['16R4461:0003713','16R4461:0003713'],1,[check,'W'],'is 3rd selfed','
packing_plan(,1,['16R4461:0003713','16R4461:0003713'],1,[check,'W'],'is 3rd selfed','
packing_plan(,1,['16R4462:0003808','16R4462:0003808'],2,[check,'M'],'is 2nd selfed','
packing_plan(,1,['16R4462:0003808','16R4462:0003808'],2,[check,'M'],'is 2nd selfed','
```

4.4.3 DONE lls1121D K5302 4 half-rows

```
packing_plan(,1,['16R4463:0003902','16R4463:0003902'],1,[check,'W'],'is 3rd selfed','
packing_plan(,1,['16R4463:0003902','16R4463:0003902'],1,[check,'W'],'is 3rd selfed','
packing_plan(,1,['16R4464:0004010','16R4464:0004010'],1,[check,'M'],'is 3rd selfed','
packing_plan(,1,['16R4464:0004010','16R4464:0004010'],1,[check,'M'],'is 3rd selfed','
```

4.4.4 DONE les5 6 half-rows

```
packing_plan(,1,['16R4484:0006001','16R4484:0006001'],2,[check,'S'],'is 1st selfed in
packing_plan(,1,['16R4485:0006103','16R4485:0006103'],2,[check,'W'],'is 1st selfed in
packing_plan(,1,['16R4486:0006204','16R4486:0006204'],2,[check,'M'],'is 1st selfed in


packing_plan(,1,['16R4487:0006309','16R4487:0006309'],2,[check,'S'],'is 1st selfed in
packing_plan(,1,['16R4488:0006409','16R4488:0006409'],2,[check,'W'],'is 1st selfed in
packing_plan(,1,['16R4489:0006503','16R4489:0006503'],2,[check,'M'],'is 1st selfed in
```

4.4.5 DONE les23; with awareness of Guri's and Ross's result, that Mo20W/les23 has no phenotype 8 half-rows

```
packing_plan(,1,['16R4465:0004111','16R4465:0004111'],1,[check,'S'],'is 3rd selfed','
packing_plan(,1,['16R4466:0004206','16R4466:0004206'],1,[check,'S'],'is 3rd selfed; c

packing_plan(,1,['15R4370:0006703','15R4370:0006703'],1,[check,'S'],'is 3rd selfed; n
packing_plan(,1,['14R205:S0002812','14R4236:0017206'],1,[check,'S'],'is 3rd selfed; n

packing_plan(,1,['15R4372:0007201','15R4372:0007201'],1,[check,'M'],'is 3rd selfed; p

packing_plan(,1,['15R305:W0000908','15R4373:0007409'],2,[check,'S','W','M'],'dominant
```

4.5 DONE %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% primary and secondary dominants bcs, 18 rows %%%%%%%%%%%%%%%%

These guys are either very early or very late in bcs.

4.5.1 DONE Les1 1 half-row

- abandoned K0104 for now

```
packing_plan(,1,['16R405:M0002212','16R4496:0009201'],1,['M'],'is 3rd; branch rebuild
```

4.5.2 DONE Les2 3 half-rows

```
packing_plan(,1,['14R305:W0000704','14R4220:0006819'],1,['W'],'is 4th; repeat of 15r


packing_plan(,1,['16R305:W0001406','16R4498:0009505'],1,['W'],'is 3rd; branch rebuild
packing_plan(,1,['16R305:W0002911','16R4499:0009614'],1,['W'],'is 3rd; branch rebuild
```

4.5.3 DONE Les2-N845A 3 half-rows

```
packing_plan(,1,['13R405:M0002605','13R4148:0019101'],1,['M'],'is 5th; repeat 15r and


packing_plan(,1,['16R205:S0002616','16R4445:0009807'],1,['S'],'is 5th; male had phe 1
packing_plan(,1,['16R305:W0001411','16R4393:0009910'],1,['W'],'is 3rd; may be chlorot
```

4.5.4 DONE Les7 4 half-rows

- Mo20W, K0509 done for now
- M14, K0509 doubles available; otherwise done for now
- W23, K0509 appears stalled

```
packing_plan(,1,['10R305:W0001502','10R1035:0021906'],1,['W'],'is 3rd; no phe 15r; re
packing_plan(,1,['10R305:W0001511','10R1035:0021903'],1,['W'],'is 3rd; no phe 15r; re
packing_plan(,1,['11N305:W0039501','11N3192:0013810'],1,['W'],'is 4th; no phe 15r;  r
packing_plan(,1,['16R305:W0001607','16R3607:0010403'],1,['W'],'is 5th; no phe 15r; no
```

4.5.5 DONE Les9 1 half-row

- Mo20W, K0707 small ears
- W23, K0707 self problematic

```
packing_plan(,1,['16R405:M0002210','16R4392:0010801'],1,['M'],'is 5th; phe 17.7 in 16
```

4.5.6 DONE Les10 3 half-rows

- M14, K0801 consistently had crappy tassels and no ears in 2nd; 1st low; rebuild from S
- chronic ear issues in K2606

```
packing_plan(,1,['16R205:S0002711','16R4507:0010903'],1,['S'],'is 5th; phe 17.7 in 16
packing_plan(,1,['16R405:M0003314','16R4508:0011011'],1,['M'],'is 3rd; phe 17.7 in 16
packing_plan(,1,['15R405:M0003909','15R4398:0013904'],1,['M'],'is 3rd; phe 17.7 in 16
```

4.5.7 DONE Les12 4 half-rows

- Mo20W/{K1001, K2711} had been stalled

```
packing_plan(,1,['16R205:S0000613','16R4513:0011501'],1,['S'],'is 4th; clear phe 15r;
packing_plan(,1,['16R205:S0000602','16R4007:0011605'],1,['S'],'is 5th; finally got th

packing_plan(,1,['12R205:S0002217','12R3454:0028708'],1,['S'],'is 3rd; repeat of 13r,
packing_plan(,1,['16R205:S0000604','16R4011:0011703'],1,['S'],'is 4th; check phenotyp
```

4.5.8 DONE Les13 2 half-rows

```
packing_plan(,1,['16R305:W0001502','16R4514:0011806'],1,['W','M'],'is 4th','K1109',15

packing_plan(,1,['16R405:M0002103','16R4516:0012007'],1,['M'],'is 3rd; male had phe 1
```

4.5.9 DONE Les19 1 half-row

```
packing_plan(,1,['15R405:M0001310','15R4401:0014902'],1,['M'],'is 5th; repeat 16r; ph
```

4.5.10 DONE Les20-N2457 13 half-rows

- a mess; kernel counts often low, good phenotype but no tassels
- steps not planted out have cl ¡ 50
- do in Hawai'i?; but let's see how the 15r corn works out
- overplant all of these

```
packing_plan(,1,['15R205:S0002306','15R4403:0015507'],1,['S'],'is 3rd; repeat 16r; ov
packing_plan(,1,['16R305:W0003012','16R4526:0013504'],1,['W'],'is 3rd; male had phe 1
packing_plan(,1,['16R305:W0003016','16R4528:0013704'],1,['W'],'is 4th; male had phe 1
packing_plan(,1,['15R305:W0002904','15R3654:0016401'],1,['W'],'is 5th; repeat 16r; ov


packing_plan(,1,['16R405:M0003204','16R4531:0014008'],1,['M'],'is 4th; no phe 17.7 in
packing_plan(,1,['16R405:M0002004','16R4532:0014101'],1,['M'],'is 5th; no phe 17.7 in



packing_plan(,1,['16R205:S0002715','16R4519:0012802'],2,['S','M'],'is 2nd; recreated
packing_plan(,1,['16R305:W0003006','16R4520:0012908'],2,['W','M'],'is 2nd; recreated
packing_plan(,1,['15R0686:0000000','15R0686:0000000'],2,['M'],'is 1st; forebear of 15


packing_plan(,1,['15R205:S0002411','15R0686:0015307'],2,['S'],'is 1st; repeat 16r; re
packing_plan(,1,['16R305:W0001416','16R4523:0013207'],2,['W'],'is 2nd; recreated from
packing_plan(,1,['15R405:M0001601','15R0686:0015307'],2,['M'],'is 1st; repeat 16r; re
```

4.5.11 DONE Les21 1 half-row

```
packing_plan(,1,['14R405:M0001610','14R4048:0026106'],1,['M'],'is 4th; repeat 15r and
```

5 DONE %%%%%%%%%%%%%%%%%%%%%%%%%%%%% Balint-Kurti new mutants, 16 rows %%%%%%%%%%%%%%

```
packing_plan(,1,['15R205:S0002104','15R0667:0021107'],2,['S','W'],'is 1st','K66707',1
packing_plan(,1,['15R405:M0003601','15R0667:0021107'],2,['W','M'],'is 1st','K66707',1

packing_plan(,1,['15R205:S0002310','15R0668:0021201'],2,['S','W'],'is 1st','K66801',1
packing_plan(,1,['15R405:M0003501','15R0668:0021201'],2,['W','M'],'is 1st','K66801',1

packing_plan(,1,['15R205:S0002601','15R0669:0021307'],2,['S'],'is 1st','K66907',15,10
packing_plan(,1,['15R305:W0002804','15R0669:0021307'],2,['W'],'is 1st','K66907',15,10
packing_plan(,1,['15R405:M0003407','15R0669:0021307'],2,['M'],'is 1st','K66907',15,10

packing_plan(,1,['15R205:S0002511','15R0669:0021311'],2,['S','W','M'],'is 1st','K6691

packing_plan(,1,['15R205:S0002403','15R0670:0021405'],2,['S'],'is 1st','K67005',15,10
packing_plan(,1,['15R305:W0002905','15R0670:0021405'],2,['W'],'is 1st','K67005',15,10
packing_plan(,1,['15R405:M0003408','15R0670:0021405'],2,['M'],'is 1st','K67005',15,10

packing_plan(,1,['15R205:S0002404','15R0671:0021502'],2,['S','W'],'is 1st','K67102',1
packing_plan(,1,['15R405:M0003403','15R0671:0021502'],2,['W','M'],'is 1st','K67102',1

packing_plan(,1,['15R205:S0002408','15R0672:0021608'],2,['S','W'],'is 1st','K67208',1
packing_plan(,1,['15R405:M0003504','15R0672:0021608'],2,['W','M'],'is 1st','K67208',1

packing_plan(,1,['15R205:S0002206','15R0673:0021705'],2,['S','W'],'is 1st','K67305',1
packing_plan(,1,['15R405:M0003618','15R0673:0021705'],2,['W','M'],'is 1st','K67305',1

packing_plan(,1,['15R405:M0003717','15R0674:0021810'],2,['S','W','M'],'is 1st','K6741

packing_plan(,1,['15R405:M0003502','15R0675:0021910'],2,['S','W','M'],'is 1st','K6751

packing_plan(,1,['15R205:S0002309','15R0676:0022002'],2,['S','W'],'is 1st','K67602',1
packing_plan(,1,['15R405:M0003303','15R0676:0022002'],2,['W','M'],'is 1st','K67602',1

packing_plan(,1,['15R205:S0002401','15R0677:0022110'],2,['S','W'],'is 1st','K67710',1
packing_plan(,1,['15R405:M0003611','15R0677:0022110'],2,['W','M'],'is 1st','K67710',1

packing_plan(,1,['15R405:M0003711','15R0678:0022212'],2,['S','W','M'],'is 1st','K6781
```

```
packing_plan(,1,['15R205:S0002208','15R0679:0022304'],2,['S','W'],'is 1st','K67904',1
packing_plan(,1,['15R405:M0003807','15R0679:0022304'],2,['W','M'],'is 1st','K67904',1

packing_plan(,1,['15R205:S0002410','15R0680:0022411'],2,['S','W'],'is 1st','K68011',1
packing_plan(,1,['15R405:M0003613','15R0680:0022411'],2,['W','M'],'is 1st','K68011',1

packing_plan(,1,['15R405:M0001213','15R0681:0022505'],2,['S','W','M'],'is 1st','K6810

packing_plan(,1,['15R405:M0001305','15R0682:0022603'],2,['S','W','M'],'is 1st','K6820

packing_plan(,1,['15R405:M0001618','15R0683:0022701'],2,['S','W','M'],'is 1st','K6830

packing_plan(,1,['15R405:M0001904','15R0684:0022802'],2,['S','W','M'],'is 1st','K6840
```

6 DONE %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% Gardner doubled haploids, 6.5 rows %%%%%%%%%%%%%%%%

```
packing_plan(,1,['16R205:S0002604','16R0687:0014708'],2,[check,'S','W','M'],'is 1st;
packing_plan(,1,['16R0688:0014805','16R0688:0014805'],2,['S','W','M'],'Gardner landra
packing_plan(,1,['16R0689:0014903','16R0689:0014903'],2,['S','W','M'],'Gardner landra
packing_plan(,1,['16R0690:0000000','16R0690:0000000'],2,['S','W','M'],'repeat 16r; Ga
packing_plan(,1,['16R205:S0000603','16R0691:0015106'],2,[check,'S','M'],'is 1st; may
packing_plan(,1,['16R305:W0000711','16R0691:0015106'],2,[check,'W','M'],'is 1st; may
packing_plan(,1,['16R205:S0002607','16R0693:0015303'],2,[check,'S','W','M'],'is 1st m
packing_plan(,1,['16R0694:0000000','16R0694:0000000'],2,['S','W','M'],'repeat 16r; Ga
packing_plan(,1,['16R205:S0001111','16R0698:0015802'],2,[check,'S','W','M'],'is 1st;
packing_plan(,1,['16R0700:0000000','16R0700:0000000'],2,['S','W','M'],'repeat 16r; Ga
packing_plan(,1,['16R0701:0000000','16R0701:0000000'],2,['S','W','M'],'repeat 16r; Ga
```

7 DONE %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% fun corn %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

3 rows south of row 1 are sweet corn Honey and Peaches 8 rows south of row 240 are Amish roasting corn