```
% this is ../../crops/18r/planning/current pedigrees/primary recessives/les23- mo20w
% generated Friday, June 01, 2018 at 21:28:50 UTC (=1527888530.770641) by compute_pedigrees/1.
% Horizontal pedigrees, generations at same indentation. S: Mo20W; W: W23; M: M14.
% !!! => cross was not by Toni; references to image locations on right.
% Mo20W/les23-
06R0018:0000000 x 06R0018:0000000
      06R0018:0001805 x 06R0018:0001809
      06R0018:0001808 x 06R0018:0001804
           06N1253:0002601 x 06N1253:0002601
          06N1253:0002603 x 06N1253:0002603
          06N1253:0002610 \times 06N1253:0002610
               07R2720:0076801 x 07R2720:0076801
               07R2720:0076804 x 07R2720:0076804
               07R2720:0076808 x 07R2720:0076810
          06N1253:0002611 x 06N1253:0002611
               09R201:S0032818 x 09R2719:0007304
               09R201:S0033101 x 09R2719:0007304
               09R201:S0033102 x 09R2719:0007312
                     10R1003:0011404 x 10R1003:0011404
                          12N205:S0041902 x 12N3153:0003802
                                                                       12N3153:0003802: [12n/bet/7.1-[410]]
                              13R4067:0014905 x 13R4067:0014905
                               13R4067:0014910 x 13R4067:0014910
                               13R4067:0014912 x 13R4067:0014912
                                   14R205:S0000418 x 14R4236:0017202
                                                                                14R4236:0017202: [14r/bet/22.8-[2295]]
                                   14R205:S0002609 x 14R4236:0017206
                                                                                14R4236:0017206: [14r/bet/22.8-[2254]]
                                   14R205:S0002703 x 14R4236:0017206
                                                                                14R4236:0017206: [14r/bet/22.8-[2254]]
                                         15R4370:0006703 x 15R4370:0006703
                                         15R4370:0006704 x 15R4370:0006704
                                         15R4370:0006705 x 15R4370:0006705
                                         15R4370:0006706 x 15R4370:0006706
                                   14R205:S0002812 x 14R4236:0017206
                                                                                 14R4236:0017206: [14r/bet/22.8-[2254]]
                          12N205:S0042202 x 12N3153:0003802
                                                                      12N3153:0003802: [12n/bet/7.1-[410]]
                          12N2O5:S0043101 x 12N3153:0003802
                                                                      12N3153:0003802: [12n/bet/7.1-[410]]
                          12N205:S0043104 x 12N3153:0003802
                                                                     12N3153:0003802: [12n/bet/7.1-[410]]
               09R301:W0033207 x 09R2719:0007312
                     11R3291:0007513 x 11R3291:0007513
                          11N305:W0041007 x 11N3503:0026412
                               12R3525:0015102 x 12R3525:0015102
                               12R3525:0015107 x 12R3525:0015107
                               12R3525:0015108 x 12R3525:0015108
                          11N305:W0041008 x 11N3503:0026410
                               12R3526:0015210 x 12R3526:0015210
                               12R3526:0015211 x 12R3526:0015211
                               12R3526:0015213 x 12R3526:0015213
```

les23- mo20w Fri Jun 01 16:28:50 2018 12N305:W0035903 x 12N3889:0004008 12N3889:0004008: [12n/bet/7.1-[413,414]] 13R4068:0015001 x 13R4068:0015001  $14R305:W0000802 \times 14R4237:0017306$ 14R4237:0017306: [14r/bet/22.8-[2247]] 14R305:W0000807 x 14R4237:0017306 14R4237:0017306: [14r/bet/22.8-[2247]] 15R4341:0006805 x 15R4341:0006805 16R305:W0001408 x 16R4470:0004603 16R4470:0004603: [16r /gimmel/26.7-[97,107]] 17R4619:0012701 x 17R4619:0012701 17R4619:0012702 x 17R4619:0012702 17R4619:0012703 x 17R4619:0012703 16R305:W0002806 x 16R4470:0004602 16R305:W0002808 x 16R4470:0004602 15R4341:0006810 x 15R4341:0006810 15R4341:0006811 x 15R4341:0006811 14R305:W0000813 x 14R4237:0017306 14R4237:0017306: [14r/bet/22.8-[2247]] 14R405:M0001201 x 14R4237:0017302 14R4237:0017302: [14r/bet/22.8-[2256]] 13R4068:0015004 x 13R4068:0015004 13R4068:0015007 x 13R4068:0015007 13R4068:0015008 x 13R4068:0015008 12R3526:0015214 x 12R3526:0015214 11R3291:0007514 x 11R3291:0007514 09R401:M0033001 x 09R2719:0007304 11R3292:0007401 x 11R3292:0007401 11R3292:0007403 x 11R3292:0007403 12N405:M0036001 x 12N3506:0004113 12N3506:0004113: [12n/bet/7.1-[423,424]]  $12N405:M0036010 \times 12N3506:0004113$ 12N3506:0004113: [12n/bet/7.1-[423,424]] 13R4069:0015105 x 13R4069:0015105 13R4069:0015109 x 13R4069:0015109 13R4069:0015112 x 13R4069:0015112 14R405:M0001406 x 14R4240:0017606 14R4240:0017606: [14r/bet/22.8-[2241]] 15R4371:0006904 x 15R4371:0006904  $16R405:M0001707 \times 16R4471:0004707$ 16R4471:0004707: [16r/gimmel/26 .7-[92]] 17R4623:0012802 x 17R4623:0012802 17R4623:0012806 x 17R4623:0012806 16R405:M0003101 x 16R4471:0004707 16R4471:0004707: [16r/gimmel/26 .7 - [92]15R4371:0006905 x 15R4371:0006905 15R4371:0006909 x 15R4371:0006909

14R405:M0001504 x 14R4240:0017605

14R405:M0001505 x 14R4240:0017605

12N405:M0037202 x 12N3506:0004108

 $12N405:M0037207 \times 12N3506:0004113$ 

14R4240:0017605: [14r/bet/22.8-[2240]]

14R4240:0017605: [14r/bet/22.8-[2240]]

12N3506:0004108: [12n/bet/7.1-[419,420]]

12N3506:0004113: [12n/bet/7.1-[423,424]]

07R1586:0076101 x 07R1586:0076101 07R1586:0076102 x 07R1586:0076102

```
12N405:M0039501 x 12N3506:0004108
                                                                 12N3506:0004108: [12n/bet/7.1-[419,420]]
                    12N405:M0039502 x 12N3506:0004108
                                                                 12N3506:0004108: [12n/bet/7.1-[419,420]]
               11R3292:0007408 x 11R3292:0007408
          0.9R401:M0033003 \times 0.9R2719:0007312
          09R401:M0033307 x 09R2719:0007304
     06N201:S0005002 x 06N1253:0002601
     06N201:S0014302 x 06N1253:0002607
    06N301:W0004206 x 06N1253:0002601
    06N301:W0029301 x 06N1253:0002603
          07R2724:0076501 x 07R2724:0076501
               09R301:W0032902 x 09R2200:0007605
               09R301:W0032908 x 09R2200:0007612
               09R301:W0035002 x 09R2200:0007606
               09R301:W0035912 x 09R2200:0007615
               09R401:M0033004 x 09R2200:0007605
               09R401:M0033005 x 09R2200:0007612
               09R401:M0033009 x 09R2200:0007606
               09R401:M0033010 \times 09R2200:0007615
               09R401:M0036903 x 09R2200:0007605
          07R2724:0076502 x 07R2724:0076502
          07R2724:0076503 x 07R2724:0076503
     06N301:W0029601 x 06N1253:0002610
06R200:S00I7212 x 06R0018:0001802
    09R1057:0006401 x 09R1057:0006401
          12R205:S0011211 x 12R3114:0041302
                                                       12R3114:0041302: [12r/aleph/9.8-[2193]]
    09R1057:0006404 x 09R1057:0006404
     09R1057:0006405 x 09R1057:0006405
          12N205:S0036410 x 12N3115:0003309
              13R4065:0014705 x 13R4065:0014705
              13R4065:0014707 x 13R4065:0014707
                    15R205:S0000405 x 15R4231:0009207
                                                                 15R4231:0009207: [15r/bet/15.8-[2761]]
                    15R205:S0000501 x 15R4231:0009207
                                                                 15R4231:0009207: [15r/bet/15.8-[2761]]
                         16R4465:0004109 x 16R4465:0004109
                         16R4465:0004111 x 16R4465:0004111
                              17R205:S0001102 x 17R4626:0015704
                                                                           17R4626:0015704: [17r/gimmel/2.8-[366]]
                                                                           17R4626:0015704: [17r/gimmel/2.8-[366]]
                              17R205:S0001103 x 17R4626:0015704
                              17R205:S0001214 x 17R4626:0015704
                                                                           17R4626:0015704: [17r/gimmel/2.8-[366]]
                              17R205:S0001216 x 17R4626:0015704
                                                                           17R4626:0015704: [17r/gimmel/2.8-[366]]
                         16R4465:0004112 x 16R4465:0004112
                         16R4465:0004113 x 16R4465:0004113
                    15R205:S0000502 x 15R4231:0009207
                                                                15R4231:0009207: [15r/bet/15.8-[2761]]
              13R4065:0014710 x 13R4065:0014710
    09R1057:0006407 x 09R1057:0006407
    09R1057:0006408 x 09R1057:0006408
06R300:W00I7303 x 06R0018:0001802
```

09R301:W0032914 x 09R2172:0006509 11R3244:0007302 x 11R3244:0007302

11N305:W0039201 x 11N3498:0025811

12R3527:0015304 x 12R3527:0015304 12R3527:0015306 x 12R3527:0015306

13R4066:0014804 x 13R4066:0014804

[2257]]

14R305:W0000806 x 14R4232:0016701 14R4232:0016701: [14r/bet/22.8-

[2255]]

15R4339:0006503 x 15R4339:0006503

16R305:W0001401 x 16R4467:0004309 16R4467:0004309: [16r

/gimme1/26.7-[99]]

17R4618:0012502 x 17R4618:0012502 17R4618:0012503 x 17R4618:0012503 17R4618:0012507 x 17R4618:0012507

/gimmel/26.7-[113]]

16R305:W0001503 x 16R4467:0004315 16R4467:0004315: [16r

/gimmel/26.7-[109]]

15R4339:0006507 x 15R4339:0006507 15R4339:0006508 x 15R4339:0006508 15R4339:0006510 x 15R4339:0006510

13R4066:0014806 x 13R4066:0014806 13R4066:0014812 x 13R4066:0014812 13R4066:0014813 x 13R4066:0014813

12R3527:0015307 x 12R3527:0015307

11N305:W0039209 x 11N3498:0025812

12R3528:0015402 x 12R3528:0015402 12R3528:0015403 x 12R3528:0015403

12R3528:0015413 x 12R3528:0015413

12R3528:0015415 x 12R3528:0015415

11N305:W0039509 x 11N3498:0025805

12R3529:0015501 x 12R3529:0015501 12R3529:0015503 x 12R3529:0015503

12R3529:0015510 x 12R3529:0015510

11R3244:0007303 x 11R3244:0007303

09R301:W0032916 x 09R2172:0006507

07R1586:0076106 x 07R1586:0076106

07R1586:0076115 x 07R1586:0076115

06R400:M00I7405 x 06R0018:0001802

07R1625:0076202 x 07R1625:0076202

09R301:W0032915 x 09R2175:0007010

```
09R401:M0033407 x 09R2175:0007012
                     11R3245:0007602 x 11R3245:0007602
                     11R3245:0007603 x 11R3245:0007603
                          12R305:W0011606 x 12R3501:0041711
                                                                       12R3501:0041711: [12r/aleph/9.8-[2194]]
                                                                       12R3501:0041711: [12r/aleph/9.8-[2194]]
                          12R405:M0011702 x 12R3501:0041711
                               12N3894:0005303 x 12N3894:0005303
                                    14R405:M0001301 x 14R4124:0016906
                                                                                 14R4124:0016906: [14r/bet/22.8-[2242]]
                                         15R4340:0006601 x 15R4340:0006601
                                              16R305:W0001510 x 16R4468:0004403
                                              16R405:M0001705 x 16R4468:0004411
                                                                                           16R4468:0004411: [16r/qimmel/26
.7-[104],16r/qimme1/30.7-[278]
                                                   17R4622:0012602 x 17R4622:0012602
                                                   17R4622:0012603 x 17R4622:0012603
                                                   17R4622:0012610 x 17R4622:0012610
                                                   17R4622:0012611 x 17R4622:0012611
                                              16R405:M0001706 x 16R4468:0004411
                                                                                           16R4468:0004411: [16r/gimmel/26
.7-[104],16r/gimmel/30.7-[278]]
                                              16R405:M0002003 x 16R4468:0004410
                                                                                           16R4468:0004410: [16r/gimmel/26
.7-[101],16r/qimmel/30.7-[281]
                                              16R405:M0002005 x 16R4468:0004410
                                                                                           16R4468:0004410: [16r/gimmel/26
.7-[101],16r/qimmel/30.7-[281]]
                                              16R405:M0002101 x 16R4468:0004411
                                                                                           16R4468:0004411: [16r/qimmel/26
.7-[104],16r/gimmel/30.7-[278]]
                                              16R405:M0002102 x 16R4468:0004411
                                                                                           16R4468:0004411: [16r/gimmel/26
.7-[104],16r/qimmel/30.7-[278]
                                         15R4340:0006604 x 15R4340:0006604
                                         15R4340:0006605 x 15R4340:0006605
                                         15R4340:0006606 x 15R4340:0006606
                                    14R405:M0001307 x 14R4124:0016906
                                                                                 14R4124:0016906: [14r/bet/22.8-[2242]]
                                    14R405:M0001513 x 14R4124:0016907
                                                                                 14R4124:0016907: [14r/bet/22.8-[2258]]
                                    14R405:M0001514 x 14R4124:0016907
                                                                                 14R4124:0016907: [14r/bet/22.8-[2258]]
                               12N3894:0005306 x 12N3894:0005306
                               12N3894:0005307 x 12N3894:0005307
                               12N3894:0005313 x 12N3894:0005313
                          12R405:M0011708 x 12R3501:0041711
                                                                       12R3501:0041711: [12r/aleph/9.8-[2194]]
                     11R3245:0007605 x 11R3245:0007605
                09R401:M0036002 x 09R2175:0007010
                09R401:M0036004 x 09R2175:0007012
```