# Molecular Marker Laboratory Workflow

## Genetic Resources Center

## IRRI

IRRI

CIMMYT

# SetGen List for GCP

| DNA_SET_NO | ACCNO | SPECIES | DILUTION | NET_INTENSITY | y = 1.72E-03x - 2.56E+01 | ng/ul undil | retain | avg (ng/ul) | total Yield (ug) | For_500ng | For_500ng for_1:25 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | R2 = 9.46E-01 | | | | | | |
| 15-01 | 10991 | O. sativa | 1:25 | 83070.75 | 117.28169 | 586.41 | | 940.946452 | 141.1419678 | 0.531379866 | 13.28449666 |
| | | | 1:50 | 69589.91 | 94.0946452 | 940.95 | 940.95 | | | | |
| | | | 1:100 | 38293 | 40.26396 | 805.28 | | | | | |
| 15-02 | 10992 | O. sativa | 1:25 | 63199.89 | 83.1038108 | 415.52 | | 617.096408 | 92.5644612 | 0.810246168 | 20.25615421 |
| | | | 1:50 | 43239.51 | 48.7719572 | 487.72 | | | | | |
| | | | 1:100 | 32822.57 | 30.8548204 | 617.10 | 617.10 | | | | |
| 15-03 | 10994 | O. sativa | 1:25 | 52366.42 | 64.4702424 | 322.35 | | 621.36132 | 93.204198 | 0.804684785 | 20.11711962 |
| | | | 1:50 | 36919.34 | 37.9012648 | 379.01 | | | | | |
| | | | 1:100 | 32946.55 | 31.068066 | 621.36 | 621.36 | | | | |
| 15-04 | 10997 | O. sativa | 1:25 | 51854.65 | 63.589998 | 317.95 | | 495.133804 | 74.2700706 | 1.009828042 | 25.24570106 |
| | | | 1:50 | 43670.57 | 49.5133804 | 495.13 | 495.13 | | | | |
| | | | 1:100 | 26828.59 | 20.5451748 | 410.90 | | | | | |
| 15-05 | 10998 | O. sativa | 1:25 | 51296.66 | 62.6302552 | 313.15 | | 773.728896 | 116.0593344 | 0.64622118 | 16.15552949 |
| | | | 1:50 | 47349.78 | 55.8416216 | 558.42 | | | | | |
| | | | 1:100 | 37375.84 | 38.6864448 | 773.73 | 773.73 | | | | |
| 15-06 | 11008 | O. sativa | 1:25 | 52344.03 | 64.4317316 | 322.16 | | 431.611788 | 64.7417682 | 1.158448434 | 28.96121086 |
| | | | 1:50 | 38563.62 | 40.7294264 | 407.29 | 407.29 | | | | |
| | | | 1:100 | 28137.48 | 22.7964656 | 455.93 | 455.93 | | | | |
| 15-07 | 11009 | O. sativa | 1:25 | 34644.84 | 33.9891248 | 169.95 | 169.95 | 159.072726 | 23.8609089 | 3.143216393 | 78.58040982 |
| | | | 1:50 | 23499.99 | 14.8199828 | 148.20 | 148.20 | | | | |
| | | | 1:100 | 17235.37 | 4.0448364 | 80.90 | | | | | |
| 15-08 | 11011 | O. sativa | 1:25 | 34224 | 33.26528 | 166.33 | | 293.641816 | 44.0462724 | 1.70275476 | 42.56886901 |
| | | | 1:50 | 31714 | 28.94808 | 289.48 | 289.48 | | | | |
| | | | 1:100 | 23540.78 | 14.8901416 | 297.80 | 297.80 | | | | |
| 15-09 | 11012 | O. sativa | 1:25 | 47927.23 | 56.8348356 | 284.17 | 284.17 | 269.267902 | 40.3901853 | 1.856886752 | 46.4221688 |
| | | | 1:50 | 29465.92 | 25.0813824 | 250.81 | 250.81 | | | | |
| | | | 1:100 | 22814.41 | 13.6407852 | 272.82 | 272.82 | | | | |
| 15-10 | 11015 | O. sativa | 1:25 | 35979.2 | 36.284224 | 181.42 | 181.42 | 193.409336 | 29.0114004 | 2.585190614 | 64.62976534 |
| | | | 1:50 | 34360.33 | 33.4997676 | 335.00 | 205.40 | | | | |
| | | | 1:100 | 20854.58 | 10.2698776 | 205.40 | | | | | |
| 15-11 | 11016 | O. sativa | 1:25 | 33586.79 | 32.1692788 | 160.85 | 160.85 | 170.687749 | 25.60316235 | 2.929325642 | 73.23314106 |
| | | | 1:50 | 29419.45 | 25.001454 | 250.01 | 180.53 | | | | |
| | | | 1:100 | 20131.66 | 9.0264552 | 180.53 | | | | | |
| 15-12 | 11017 | O. sativa | 1:25 | 49022.33 | 58.7184076 | 293.59 | | 356.788168 | 53.5182252 | 1.401391764 | 35.03479409 |
| | | | 1:50 | 28533.86 | 23.4782392 | 234.78 | | | | | |
| | | | 1:100 | 25255.47 | 17.8394084 | 356.79 | 356.79 | | | | |

# SAGA Analysis

- Pre-process SAGA output with Excel VBA
- Process SAGA output using R for input to Darwin and PowerMarker

# Genotyping Data from SAGA



**Saga Report (txt file)**

**Processed Saga Report**

| GCP_Code | Plate_Well | Locus | Gel | Dye | Allele1 | Peak1 | Qual1 | Volume1 | Allele2 | Peak2 | Qual2 | Volume2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Plate1-A01 | OSR13 | OSR13_Plate1_17 | 700 | 113 | 112.5 | 71 | 486994 | 117 | 116.3 | 72 | 564538 |
| 1 | Plate1-A01 | RM133 | RM133_Plate1_17 | 800 | 247 | 247.6 | 84 | 261994 | | | | |
| 1 | Plate1-A01 | RM152 | RM152_Plate1_17 | 700 | 163 | 151.1 | 200 | 439104 | | | | |
| 1 | Plate1-A01 | RM162 | RM162_Plate1_17 | 700 | 205 | 203.8 | 86 | 655350 | | | | |
| 1 | Plate1-A01 | RM215 | RM215_Plate1_17 | 700 | 151 | 144.4 | 200 | 239602 | | | | |
| 1 | Plate1-A01 | RM237 | RM237_Plate1_17 | 700 | 132 | 132.8 | 2 | 655350 | | | | |
| 1 | Plate1-A01 | RM271 | RM271_Plate1_17 | 800 | 89 | 88.5 | 57 | 655350 | | | | |
| 1 | Plate1-A01 | RM277 | RM277_Plate1_17 | 700 | 136 | 136.7 | 42 | 104288 | | | | |
| 1 | Plate1-A01 | RM44 | RM44_Plate1_17 | 700 | 126 | 126.9 | 200 | 579866 | | | | |
| 1 | Plate1-A01 | RM447 | RM447_PLate1_17 | 800 | 106 | 104.6 | 78 | 655350 | | | | |
| 1 | Plate1-A01 | RM5 | RM5_Plate1_17 | 700 | | | | | | | | |
| 2 | Plate1-A02 | OSR13 | OSR13_Plate1_17 | 700 | 113 | 111.7 | 87 | 452730 | | | | |
| 2 | Plate1-A02 | RM133 | RM133_Plate1_17 | 800 | 247 | 247.2 | 70 | 167366 | | | | |
| 2 | Plate1-A02 | RM152 | RM152_Plate1_17 | 700 | 169 | 169 | 96 | 655350 | | | | |
| 2 | Plate1-A02 | RM162 | RM162_Plate1_17 | 700 | 211 | 209.2 | 57 | 655350 | | | | |
| 2 | Plate1-A02 | RM215 | RM215_Plate1_17 | 700 | 145 | 144.2 | 41 | 655350 | | | | |
| 2 | Plate1-A02 | RM237 | RM237_Plate1_17 | 700 | 138 | 137.8 | 76 | 655350 | | | | |
| 2 | Plate1-A02 | RM271 | RM271_Plate1_17 | 800 | 101 | 101 | 96 | 655350 | | | | |
| 2 | Plate1-A02 | RM277 | RM277_Plate1_17 | 700 | 132 | 132.8 | 48 | 120304 | | | | |
| 2 | Plate1-A02 | RM44 | RM44_Plate1_17 | 700 | 128 | 128.6 | 84 | 655350 | | | | |
| 2 | Plate1-A02 | RM447 | RM447_PLate1_17 | 800 | 112 | 112.2 | 29 | 655350 | | | | |
| 2 | Plate1-A02 | RM5 | RM5_Plate1_17 | 700 | 129 | 128.5 | 77 | 145438 | | | | |
| 3 | Plate1-A03 | OSR13 | OSR13_Plate1_17 | 700 | 113 | 112.1 | 93 | 315758 | | | | |
| 3 | Plate1-A03 | RM133 | RM133_Plate1_17 | 800 | 245 | 246.8 | 69 | 252800 | | | | |
| 3 | Plate1-A03 | RM152 | RM152_Plate1_17 | 700 | 169 | 168.9 | 93 | 655350 | | | | |
| 3 | Plate1-A03 | RM162 | RM162_Plate1_17 | 700 | 235 | 209 | 200 | 198926 | | | | |
| 3 | Plate1-A03 | RM215 | RM215_Plate1_17 | 700 | 145 | 144.2 | 55 | 655350 | | | | |
| 3 | Plate1-A03 | RM237 | RM237_Plate1_17 | 700 | 132 | 132.5 | 50 | 655350 | | | | |
| 3 | Plate1-A03 | RM271 | RM271_Plate1_17 | 800 | 101 | 100.8 | 83 | 654232 | | | | |
| 3 | Plate1-A03 | RM277 | RM277_Plate1_17 | 700 | 136 | 136.5 | 57 | 59376 | | | | |
| 3 | Plate1-A03 | RM44 | RM44_Plate1_17 | 700 | 128 | 128.6 | 85 | 655350 | | | | |
| 3 | Plate1-A03 | RM447 | RM447_PLate1_17 | 800 | 100 | 98.5 | 86 | 655350 | | | | |
| 3 | Plate1-A03 | RM5 | RM5_Plate1_17 | 700 | 125 | 124.6 | 83 | 204618 | | | | |
| 4 | Plate1-A04 | OSR13 | OSR13_Plate1_17 | 700 | 113 | 111.9 | 93 | 519874 | | | | |
| 4 | Plate1-A04 | RM133 | RM133_Plate1_17 | 800 | 245 | 246.9 | 69 | 212404 | | | | |
| 4 | Plate1-A04 | RM152 | RM152_Plate1_17 | 700 | 163 | 163.1 | 200 | 655350 | | | | |
| 4 | Plate1-A04 | RM162 | RM162_Plate1_17 | 700 | 203 | 201.9 | 93 | 655350 | | | | |
| 4 | Plate1-A04 | RM215 | RM215_Plate1_17 | 700 | 151 | 149.9 | 13 | 655350 | | | | |
| 4 | Plate1-A04 | RM237 | RM237_Plate1_17 | 700 | 122 | 121.7 | 22 | 628550 | 132 | 132.7 | 16 | 655350 |
| 4 | Plate1-A04 | RM271 | RM271_Plate1_17 | 800 | 103 | 102.1 | 200 | 121676 | | | | |
| 4 | Plate1-A04 | RM277 | RM277_Plate1_17 | 700 | 132 | 132.6 | 200 | 43900 | | | | |

# GCP Template

| GCP_Code | OSR13_IRRI1 | OSR13_IRRI2 | RM133_IRRI1 | RM133_IRRI2 | RM152_IRRI1 | RM152_IRRI2 | RM162_IRRI1 | RM162_IRRI2 |
|---|---|---|---|---|---|---|---|---|
| 1 | 113 | 117 | 247 | 247 | 163 | 163 | 205 | 205 |
| 2 | 113 | 113 | 247 | 247 | 169 | 169 | 211 | 211 |
| 3 | 113 | 113 | 245 | 245 | 169 | 169 | 235 | 235 |
| 4 | 113 | 113 | 245 | 245 | 163 | 163 | 203 | 203 |
| 5 | 113 | 113 | 243 | 245 | 163 | 163 | 203 | 209 |
| 6 | 113 | 123 | 243 | 243 | 175 | 175 | 209 | 209 |
| 7 | 117 | 117 | 245 | 245 | 163 | 163 | 207 | 233 |
| 8 | 117 | 117 | 245 | 245 | 163 | 163 | 201 | 201 |
| 9 | 117 | 117 | 245 | 245 | 163 | 163 | 201 | 201 |
| 10 | 131 | 131 | 243 | 243 | 160 | 169 | 205 | 205 |
| 11 | 129 | 129 | 243 | 243 | 163 | 163 | 205 | 205 |
| 12 | 113 | 113 | 243 | 243 | 163 | 163 | 237 | 237 |
| 13 | 113 | 113 | 243 | 243 | 151 | 151 | 207 | 207 |
| 14 | 117 | 117 | 243 | 243 | 163 | 163 | 207 | 207 |
| 15 | 113 | 113 | 243 | 243 | 169 | 169 | 207 | 207 |
| 16 | 113 | 113 | 243 | 243 | 151 | 151 | 207 | 207 |
| 17 | 113 | 113 | 245 | 245 | 175 | 175 | 207 | 207 |
| 18 | 115 | 115 | 245 | 245 | 163 | 163 | 207 | 207 |
| 19 | 117 | 117 | 247 | 247 | 163 | 163 | 201 | 201 |
| 20 | 129 | 129 | 245 | 245 | 151 | 151 | 209 | 209 |
| 21 | 117 | 117 | 247 | 247 | 169 | 169 | 223 | 223 |
| 22 | 113 | 113 | 245 | 245 | 175 | 175 | 209 | 209 |
| 23 | 117 | 117 | 247 | 247 | 163 | 163 | 203 | 203 |
| 24 | 117 | 117 | 247 | 247 | 151 | 163 | 209 | 233 |
| 25 | 113 | 113 | 247 | 247 | 163 | 175 | 209 | 209 |
| 26 | 117 | 117 | 245 | 245 | 151 | 151 | 209 | 209 |
| 27 | 117 | 117 | 245 | 245 | 169 | 169 | 209 | 209 |
| 28 | 117 | 117 | 245 | 245 | 169 | 169 | 209 | 209 |
| 29 | 117 | 117 | 247 | 247 | 163 | 163 | 235 | 235 |
| 30 | 117 | 117 | 245 | 245 | 163 | 163 | 209 | 209 |
| 31 | 117 | 117 | 245 | 245 | 163 | 163 | 211 | 211 |
| 32 | 115 | 115 | 247 | 247 | 151 | 151 | 209 | 209 |
| 33 | 113 | 113 | 247 | 247 | 175 | 175 | 211 | 211 |
| 34 | 113 | 113 | 245 | 245 | 175 | 175 | 211 | 211 |
| 35 | 117 | 117 | 245 | 245 | 163 | 163 | 209 | 209 |
| 36 | 113 | 113 | 245 | 245 | 151 | 151 | 215 | 215 |
| 37 | 117 | 117 | 247 | 247 | 163 | 163 | 205 | 205 |
| 38 | 117 | 117 | 245 | 245 | 151 | 175 | 211 | 211 |
| 39 | 113 | 113 | 245 | 245 | 169 | 175 | 211 | 211 |
| 40 | 117 | 117 | 247 | 247 | 163 | 163 | 227 | 239 |

Transpose SAGA output using R Scripts and Excel Macros

# Templates

- http://cropwiki.irri.org/icis/index.php/Loading_SSR_Data
  - Woarkbook Template for loading SSR dataset
- http://cropforge.org/frs/?group_id=18&release_id=151
  - GCP SSR Template