

**S3 Table.** The details of hits obtained with original sequences of QTLs UGEP13, UGEP19, UGEP68 and UGEP90 during cross genome synteny of ten species from grass family such as *Oryza sativa*, *Brachypodium distachyon*, *B. stacei*, *Panicum hallii*, *P. virgatum*, *Setaria italica*, *Setaria viridis*, *Sorghum bicolor*, *Zea mays* and *Triticum aestivum*

**Marker: UGEP13**

| <b>Species</b>                 | <b>Chromosome/ Linkage group</b> | <b>Identity</b> | <b>Start</b> | <b>End</b> | <b>E value</b> | <b>Score</b> |
|--------------------------------|----------------------------------|-----------------|--------------|------------|----------------|--------------|
| <i>Brachypodium distachyon</i> | Bd3                              | 82.35           | 35520420     | 35520370   | 9.00E-05       | 51.8         |
|                                | Bd3                              | 80.39           | 32406045     | 32405997   | 1.30E-02       | 44.6         |
|                                | Bd5                              | 80.77           | 20218818     | 20218869   | 3.00E-04       | 50           |
|                                | Bd4                              | 79.31           | 25927814     | 25927868   | 1.00E-03       | 48.2         |
| <i>Brachypodium stacei</i>     | Chr02                            | 91.11           | 24174079     | 24174123   | 1.00E-08       | 64.4         |
|                                | Chr10                            | 83.02           | 96285        | 96233      | 2.00E-05       | 53.6         |
|                                | Chr06                            | 82.98           | 19828518     | 19828564   | 3.00E-04       | 50           |
|                                | Chr09                            | 82.98           | 5730642      | 5730688    | 1.00E-03       | 48.2         |
| <i>Oryza sativa</i>            | Chr8                             | 92.59           | 15461193     | 15461242   | 9.00E-13       | 78.8         |
|                                | Chr8                             | 93.02           | 27756986     | 27756946   | 7.00E-08       | 62.6         |
|                                | Chr8                             | 100             | 22939174     | 22939200   | 4.00E-04       | 50           |
|                                | Chr8                             | 96.15           | 23081718     | 23081693   | 6.20E-02       | 42.8         |
|                                | Chr1                             | 83.08           | 1928123      | 1928179    | 3.00E-06       | 57.2         |
|                                | Chr1                             | 84.78           | 16097504     | 16097459   | 5.00E-03       | 46.4         |
|                                | Chr1                             | 87.88           | 10703638     | 10703606   | 6.20E-02       | 42.8         |
|                                | Chr1                             | 81.82           | 38729399     | 38729360   | 6.20E-02       | 42.8         |
|                                | Chr2                             | 80.7            | 6169436      | 6169380    | 3.00E-05       | 53.6         |
|                                | Chr2                             | 85.19           | 33846130     | 33846080   | 1.00E-04       | 51.8         |
|                                | Chr2                             | 78.57           | 6166166      | 6166111    | 1.00E-03       | 48.2         |
|                                | Chr2                             | 85.11           | 23488732     | 23488778   | 1.00E-03       | 48.2         |
| Chr9                           | 82.35                            | 4497847         | 4497891      | 1.00E-03   | 48.2           |              |
| Chr9                           | 80.39                            | 18620780        | 18620830     | 1.00E-03   | 48.2           |              |

| Species                 | Chromosome/ Linkage group | Identity | Start    | End      | E value  | Score |
|-------------------------|---------------------------|----------|----------|----------|----------|-------|
| <i>Panicum hallii</i>   | Chr12                     | 84.78    | 5223645  | 5223690  | 5.00E-03 | 46.4  |
|                         | Chr6                      | 84.78    | 20120927 | 20120972 | 5.00E-03 | 46.4  |
|                         | Chr6                      | 84.78    | 28532060 | 28532018 | 5.00E-03 | 46.4  |
|                         | Chr6                      | 81.4     | 25419476 | 25419434 | 6.20E-02 | 42.8  |
|                         | Chr5                      | 86.84    | 23180528 | 23180491 | 5.00E-03 | 46.4  |
|                         | Chr4                      | 83.33    | 8876755  | 8876714  | 1.80E-02 | 44.6  |
|                         | Chr3                      | 96.55    | 8984737  | 8984765  | 1.80E-02 | 44.6  |
|                         | Chr3                      | 88.24    | 15524710 | 15524677 | 1.80E-02 | 44.6  |
|                         | Chr10                     | 81.82    | 16005462 | 16005501 | 6.20E-02 | 42.8  |
|                         | Chr06                     | 96       | 41902475 | 41902524 | 1.00E-13 | 82.4  |
|                         | Chr03                     | 94.12    | 2977353  | 2977303  | 1.00E-12 | 78.8  |
|                         | Chr03                     | 96.15    | 4125407  | 4125432  | 9.10E-02 | 42.8  |
|                         | Chr03                     | 92.86    | 46733305 | 46733332 | 9.10E-02 | 42.8  |
|                         | Chr05                     | 82       | 57306995 | 57306946 | 6.00E-04 | 50    |
|                         | Chr05                     | 86.36    | 40458037 | 40458080 | 9.10E-02 | 42.8  |
|                         | Chr09                     | 91.18    | 33142047 | 33142014 | 7.00E-03 | 46.4  |
|                         | Chr09                     | 85       | 709610   | 709649   | 9.10E-02 | 42.8  |
|                         | Chr07                     | 84.31    | 21191415 | 21191462 | 7.00E-03 | 46.4  |
|                         | Chr07                     | 86.49    | 31903735 | 31903771 | 2.60E-02 | 44.6  |
|                         | Chr07                     | 77.59    | 44347463 | 44347520 | 2.60E-02 | 44.6  |
| Chr07                   | 90.32                     | 31928268 | 31928298 | 9.10E-02 | 42.8     |       |
| Chr04                   | 90.91                     | 25266734 | 25266702 | 2.60E-02 | 44.6     |       |
| Chr01                   | 93.94                     | 47454460 | 47454428 | 2.60E-02 | 44.6     |       |
| <i>Panicum virgatum</i> | contig77548               | 90.2     | 49       | 1        | 7.00E-09 | 68    |
|                         | Chr01b                    | 90.38    | 23745119 | 23745168 | 8.00E-08 | 64.4  |
|                         | Chr01b                    | 82.35    | 26356427 | 26356377 | 5.00E-04 | 51.8  |
|                         | Chr01b                    | 86.05    | 41196778 | 41196736 | 7.00E-03 | 48.2  |
|                         | Chr01b                    | 90.91    | 21266952 | 21266984 | 8.00E-02 | 44.6  |

| <b>Species</b> | <b>Chromosome/ Linkage group</b> | <b>Identity</b> | <b>Start</b> | <b>End</b> | <b>E value</b> | <b>Score</b> |
|----------------|----------------------------------|-----------------|--------------|------------|----------------|--------------|
|                | Chr01b                           | 90.91           | 21281916     | 21281948   | 8.00E-02       | 44.6         |
|                | Chr01b                           | 96.3            | 29741451     | 29741425   | 8.00E-02       | 44.6         |
|                | Chr01b                           | 83.72           | 38564105     | 38564147   | 8.00E-02       | 44.6         |
|                | Chr02b                           | 81.97           | 24834970     | 24834912   | 4.00E-05       | 55.4         |
|                | Chr02b                           | 81.82           | 15043959     | 15043897   | 5.00E-04       | 51.8         |
|                | Chr02b                           | 84.21           | 18913109     | 18913056   | 7.00E-03       | 48.2         |
|                | Chr02b                           | 90.91           | 39001015     | 39000983   | 8.00E-02       | 44.6         |
|                | Chr07b                           | 82.26           | 13292825     | 13292765   | 2.00E-04       | 53.6         |
|                | Chr08b                           | 82.35           | 48020488     | 48020438   | 5.00E-04       | 51.8         |
|                | Chr08b                           | 84.21           | 26679703     | 26679652   | 2.30E-02       | 46.4         |
|                | contig379996                     | 91.67           | 272          | 307        | 2.00E-03       | 50           |
|                | contig304775                     | 91.67           | 1105         | 1140       | 2.00E-03       | 50           |
|                | Chr08a                           | 78.12           | 829609       | 829670     | 2.00E-03       | 50           |
|                | Chr08a                           | 93.94           | 27559353     | 27559321   | 7.00E-03       | 48.2         |
|                | Chr08a                           | 80              | 29785039     | 29785098   | 2.30E-02       | 46.4         |
|                | Chr08a                           | 88.89           | 31627545     | 31627510   | 8.00E-02       | 44.6         |
|                | Chr03b                           | 82.14           | 14431281     | 14431334   | 2.00E-03       | 50           |
|                | Chr03b                           | 93.94           | 16484614     | 16484646   | 7.00E-03       | 48.2         |
|                | Chr03b                           | 86.05           | 32488678     | 32488720   | 7.00E-03       | 48.2         |
|                | Chr03b                           | 96.3            | 28170373     | 28170347   | 8.00E-02       | 44.6         |
|                | Chr03b                           | 93.1            | 35919628     | 35919600   | 8.00E-02       | 44.6         |
|                | Chr01a                           | 84.31           | 11715187     | 11715237   | 2.00E-03       | 50           |
|                | Chr01a                           | 90.91           | 54335680     | 54335648   | 8.00E-02       | 44.6         |
|                | Chr01a                           | 91.18           | 56300365     | 56300332   | 8.00E-02       | 44.6         |
|                | contig378616                     | 86.05           | 186          | 144        | 7.00E-03       | 48.2         |
|                | contig359741                     | 86.05           | 54           | 96         | 7.00E-03       | 48.2         |
|                | contig316284                     | 86.05           | 106          | 64         | 7.00E-03       | 48.2         |
|                | contig263601                     | 86.05           | 1652         | 1610       | 7.00E-03       | 48.2         |

| <b>Species</b> | <b>Chromosome/ Linkage group</b> | <b>Identity</b> | <b>Start</b> | <b>End</b> | <b>E value</b> | <b>Score</b> |
|----------------|----------------------------------|-----------------|--------------|------------|----------------|--------------|
|                | contig175862                     | 86.05           | 2238         | 2280       | 7.00E-03       | 48.2         |
|                | contig168435                     | 86.05           | 2383         | 2425       | 7.00E-03       | 48.2         |
|                | contig159363                     | 86.05           | 900          | 942        | 7.00E-03       | 48.2         |
|                | contig131574                     | 86.05           | 3017         | 3059       | 7.00E-03       | 48.2         |
|                | contig126657                     | 86.05           | 297          | 255        | 7.00E-03       | 48.2         |
|                | contig122387                     | 86.05           | 3184         | 3142       | 7.00E-03       | 48.2         |
|                | contig18861                      | 93.94           | 6858         | 6890       | 7.00E-03       | 48.2         |
|                | contig07204                      | 96.55           | 7209         | 7237       | 7.00E-03       | 48.2         |
|                | Chr09b                           | 88.89           | 23553890     | 23553855   | 7.00E-03       | 48.2         |
|                | Chr09b                           | 91.43           | 40068727     | 40068693   | 2.30E-02       | 46.4         |
|                | Chr09b                           | 83.72           | 34085874     | 34085832   | 8.00E-02       | 44.6         |
|                | Chr09b                           | 90.91           | 39247825     | 39247793   | 8.00E-02       | 44.6         |
|                | Chr09a                           | 93.94           | 2650010      | 2649978    | 7.00E-03       | 48.2         |
|                | Chr09a                           | 90.91           | 38644454     | 38644422   | 8.00E-02       | 44.6         |
|                | Chr09a                           | 90.91           | 76448328     | 76448360   | 8.00E-02       | 44.6         |
|                | Chr06b                           | 93.94           | 23979950     | 23979918   | 7.00E-03       | 48.2         |
|                | Chr06b                           | 100             | 38925978     | 38925954   | 2.30E-02       | 46.4         |
|                | Chr06b                           | 90.91           | 30352432     | 30352464   | 8.00E-02       | 44.6         |
|                | Chr05b                           | 77.78           | 27519633     | 27519695   | 7.00E-03       | 48.2         |
|                | Chr05b                           | 90.91           | 54364289     | 54364321   | 8.00E-02       | 44.6         |
|                | Chr04b                           | 93.94           | 50940355     | 50940323   | 7.00E-03       | 48.2         |
|                | Chr04b                           | 90.91           | 15318442     | 15318410   | 8.00E-02       | 44.6         |
|                | Chr04b                           | 90.91           | 22751892     | 22751924   | 8.00E-02       | 44.6         |
|                | contig357797                     | 91.43           | 47           | 13         | 2.30E-02       | 46.4         |
|                | contig355725                     | 100             | 711          | 687        | 2.30E-02       | 46.4         |
|                | contig245789                     | 80              | 1832         | 1880       | 2.30E-02       | 46.4         |
|                | contig142688                     | 91.43           | 2337         | 2303       | 2.30E-02       | 46.4         |
|                | contig12167                      | 91.43           | 1873         | 1839       | 2.30E-02       | 46.4         |

| <b>Species</b> | <b>Chromosome/ Linkage group</b> | <b>Identity</b> | <b>Start</b> | <b>End</b> | <b>E value</b> | <b>Score</b> |
|----------------|----------------------------------|-----------------|--------------|------------|----------------|--------------|
|                | contig10815                      | 81.13           | 2557         | 2505       | 2.30E-02       | 46.4         |
|                | Chr02a                           | 91.67           | 48808438     | 48808404   | 2.30E-02       | 46.4         |
|                | Chr02a                           | 88.89           | 35342020     | 35341985   | 8.00E-02       | 44.6         |
|                | Chr02a                           | 91.18           | 35669757     | 35669790   | 8.00E-02       | 44.6         |
|                | Chr02a                           | 83.72           | 36262325     | 36262283   | 8.00E-02       | 44.6         |
|                | contig408611                     | 90.91           | 382          | 414        | 8.00E-02       | 44.6         |
|                | contig288025                     | 90.91           | 694          | 726        | 8.00E-02       | 44.6         |
|                | contig274804                     | 90.91           | 92           | 60         | 8.00E-02       | 44.6         |
|                | contig244606                     | 90.91           | 870          | 838        | 8.00E-02       | 44.6         |
|                | contig238870                     | 90.91           | 145          | 177        | 8.00E-02       | 44.6         |
|                | contig200164                     | 77.78           | 419          | 366        | 8.00E-02       | 44.6         |
|                | contig175039                     | 90.91           | 2164         | 2196       | 8.00E-02       | 44.6         |
|                | contig152136                     | 83.33           | 245          | 201        | 8.00E-02       | 44.6         |
|                | contig137176                     | 88.89           | 2948         | 2981       | 8.00E-02       | 44.6         |
|                | contig127088                     | 90.91           | 671          | 703        | 8.00E-02       | 44.6         |
|                | contig126062                     | 83.72           | 1106         | 1148       | 8.00E-02       | 44.6         |
|                | contig95420                      | 83.72           | 59           | 17         | 8.00E-02       | 44.6         |
|                | contig81031                      | 93.1            | 2437         | 2409       | 8.00E-02       | 44.6         |
|                | contig72841                      | 90.91           | 4407         | 4375       | 8.00E-02       | 44.6         |
|                | contig61906                      | 89.47           | 1587         | 1622       | 8.00E-02       | 44.6         |
|                | contig40302                      | 82              | 4876         | 4925       | 8.00E-02       | 44.6         |
|                | contig05701                      | 90.91           | 13048        | 13016      | 8.00E-02       | 44.6         |
|                | Chr06a                           | 100             | 3959379      | 3959402    | 8.00E-02       | 44.6         |
|                | Chr06a                           | 100             | 6528885      | 6528862    | 8.00E-02       | 44.6         |
|                | Chr04a                           | 83.33           | 43259942     | 43259901   | 8.00E-02       | 44.6         |
|                | Chr03a                           | 82              | 17383288     | 17383239   | 8.00E-02       | 44.6         |
|                | Chr03a                           | 100             | 30725483     | 30725460   | 8.00E-02       | 44.6         |
|                | Chr03a                           | 90.91           | 48066753     | 48066721   | 8.00E-02       | 44.6         |

| <b>Species</b>         | <b>Chromosome/ Linkage group</b> | <b>Identity</b> | <b>Start</b> | <b>End</b> | <b>E value</b> | <b>Score</b> |
|------------------------|----------------------------------|-----------------|--------------|------------|----------------|--------------|
| <i>Setaria italica</i> | scaffold_9                       | 77.05           | 9502305      | 9502365    | 1.00E-05       | 55.4         |
|                        | scaffold_9                       | 77.42           | 20711928     | 20711983   | 5.00E-03       | 46.4         |
|                        | scaffold_3                       | 79.17           | 42906117     | 42906164   | 6.70E-02       | 42.8         |
| <i>Setaria viridis</i> | Chr_09                           | 88.33           | 52911996     | 52911937   | 9.00E-13       | 78.8         |
|                        | Chr_09                           | 77.05           | 9301959      | 9302019    | 1.00E-05       | 55.4         |
|                        | Chr_09                           | 80              | 36862110     | 36862051   | 4.00E-04       | 50           |
|                        | Chr_03                           | 80.77           | 8398373      | 8398418    | 5.00E-03       | 46.4         |
|                        | Chr_02                           | 92.86           | 14909888     | 14909915   | 6.50E-02       | 42.8         |
| <i>Sorghum bicolor</i> | Chr06                            | 87.5            | 30816073     | 30816036   | 3.00E-03       | 48.2         |
|                        | Chr04                            | 76.67           | 1403228      | 1403169    | 1.00E-02       | 46.4         |
|                        | Chr01                            | 82.69           | 17909151     | 17909200   | 1.00E-02       | 46.4         |
| <i>Zea mays</i>        | 9                                | 92.45           | 31030180     | 31030232   | 6.00E-11       | 75.2         |
|                        | 9                                | 78.33           | 102842099    | 102842042  | 8.00E-03       | 48.2         |
|                        | 9                                | 100             | 131127491    | 131127466  | 8.00E-03       | 48.2         |
|                        | 9                                | 100             | 57879689     | 57879665   | 2.80E-02       | 46.4         |
|                        | 1                                | 85.48           | 20687201     | 20687144   | 4.00E-06       | 59           |
|                        | 1                                | 82.54           | 20609951     | 20610010   | 5.00E-05       | 55.4         |
|                        | 1                                | 100             | 123324625    | 123324600  | 8.00E-03       | 48.2         |
|                        | 1                                | 87.23           | 233985412    | 233985369  | 8.00E-03       | 48.2         |
|                        | 1                                | 100             | 26088691     | 26088667   | 2.80E-02       | 46.4         |
|                        | 1                                | 82.69           | 26231875     | 26231924   | 2.80E-02       | 46.4         |
|                        | 1                                | 84.44           | 150008420    | 150008463  | 2.80E-02       | 46.4         |
|                        | 1                                | 100             | 260093853    | 260093829  | 2.80E-02       | 46.4         |
|                        | 1                                | 79.59           | 108343077    | 108343125  | 9.70E-02       | 44.6         |
|                        | 1                                | 100             | 260138217    | 260138194  | 9.70E-02       | 44.6         |
|                        | 2                                | 80.7            | 87563754     | 87563698   | 2.00E-04       | 53.6         |
| 2                      | 100                              | 180721169       | 180721146    | 9.70E-02   | 44.6           |              |
| 6                      | 82.35                            | 132235016       | 132235066    | 7.00E-04   | 51.8           |              |

| Species                  | Chromosome/ Linkage group | Identity | Start     | End       | E value  | Score |
|--------------------------|---------------------------|----------|-----------|-----------|----------|-------|
| <i>Triticum aestivum</i> | 6                         | 81.03    | 67526218  | 67526274  | 8.00E-03 | 48.2  |
|                          | 4                         | 100      | 235172620 | 235172646 | 2.00E-03 | 50    |
|                          | 4                         | 86.05    | 119079653 | 119079611 | 8.00E-03 | 48.2  |
|                          | 5                         | 82       | 144499352 | 144499303 | 2.00E-03 | 50    |
|                          | 7                         | 82.98    | 46072752  | 46072707  | 2.80E-02 | 46.4  |
|                          | ta_iwgsc_5dl_v1_4584636   | 94.12    | 10637     | 10687     | 1.00E-12 | 78.8  |
|                          | ta_iwgsc_4bs_v1_4901407   | 89.29    | 218       | 273       | 2.00E-11 | 75.2  |
|                          | ta_iwgsc_2dl_v1_9885701   | 90.2     | 2390      | 2440      | 7.00E-10 | 69.8  |
|                          | ta_iwgsc_7dl_v1_3395182   | 88.24    | 3876      | 3826      | 9.00E-09 | 66.2  |
|                          | ta_iwgsc_6dl_v1_3271976   | 84.91    | 2098      | 2150      | 5.00E-06 | 57.2  |
|                          | ta_iwgsc_5dl_v1_4574152   | 81.67    | 14456     | 14397     | 5.00E-06 | 57.2  |
|                          | ta_iwgsc_1bl_v1_3874034   | 86.96    | 308       | 263       | 5.00E-06 | 57.2  |
|                          | ta_iwgsc_5bs_v1_2285955   | 82.61    | 2940      | 2985      | 2.00E-03 | 48.2  |
|                          | ta_iwgsc_2bl_v1_8090779   | 89.19    | 23566     | 23532     | 9.00E-03 | 46.4  |
|                          | ta_iwgsc_1bs_v1_3441641   | 79.25    | 11497     | 11445     | 9.00E-03 | 46.4  |
| ta_iwgsc_6as_v1_4412851  | 87.5                      | 462      | 424       | 3.00E-02  | 44.6     |       |
| ta_iwgsc_2bl_v1_7970262  | 83.33                     | 14107    | 14066     | 3.00E-02  | 44.6     |       |
| ta_iwgsc_1ds_v1_1898084  | 93.55                     | 13328    | 13299     | 3.00E-02  | 44.6     |       |

**Marker: UGEP19**

| Species                        | Chromosome / Linkage group | Identity | Start    | End      | E value  | Score |
|--------------------------------|----------------------------|----------|----------|----------|----------|-------|
| <i>Brachypodium distachyon</i> | Bd3                        | 68.28    | 11823962 | 11823674 | 9.00E-17 | 91.5  |
|                                | Bd3                        | 82.14    | 5850514  | 5850565  | 7.00E-06 | 55.4  |
|                                | Bd3                        | 81.13    | 12895890 | 12895938 | 3.00E-04 | 50    |
|                                | Bd3                        | 80.36    | 13097205 | 13097154 | 3.00E-04 | 50    |
|                                | Bd3                        | 80.36    | 16197522 | 16197573 | 3.00E-04 | 50    |
|                                | Bd3                        | 81.13    | 19996340 | 19996292 | 3.00E-04 | 50    |
|                                | Bd3                        | 84.44    | 42025301 | 42025341 | 3.00E-04 | 50    |

| <b>Species</b> | <b>Chromosome / Linkage group</b> | <b>Identity</b> | <b>Start</b> | <b>End</b> | <b>E value</b> | <b>Score</b> |
|----------------|-----------------------------------|-----------------|--------------|------------|----------------|--------------|
|                | Bd3                               | 80.39           | 10116659     | 10116613   | 3.00E-03       | 46.4         |
|                | Bd3                               | 81.25           | 14426612     | 14426565   | 3.00E-03       | 46.4         |
|                | Bd3                               | 80.39           | 23278664     | 23278710   | 3.00E-03       | 46.4         |
|                | Bd3                               | 78.57           | 49934810     | 49934861   | 3.00E-03       | 46.4         |
|                | Bd5                               | 87.93           | 11563060     | 11563117   | 2.00E-07       | 60.8         |
|                | Bd5                               | 87.23           | 11563059     | 11563101   | 2.00E-06       | 57.2         |
|                | Bd5                               | 81.03           | 8561118      | 8561171    | 8.00E-05       | 51.8         |
|                | Bd5                               | 81.13           | 5698389      | 5698437    | 3.00E-04       | 50           |
|                | Bd5                               | 80.77           | 11056634     | 11056681   | 1.00E-03       | 48.2         |
|                | Bd5                               | 80.39           | 9522031      | 9521985    | 3.00E-03       | 46.4         |
|                | Bd5                               | 80.39           | 9998348      | 9998394    | 3.00E-03       | 46.4         |
|                | Bd4                               | 87.04           | 24206239     | 24206186   | 5.00E-07       | 59           |
|                | Bd4                               | 82.46           | 2299684      | 2299632    | 2.00E-06       | 57.2         |
|                | Bd4                               | 81.82           | 11679243     | 11679293   | 2.00E-05       | 53.6         |
|                | Bd4                               | 81.82           | 24206270     | 24206220   | 2.00E-05       | 53.6         |
|                | Bd4                               | 85.19           | 28129610     | 28129558   | 2.00E-05       | 53.6         |
|                | Bd4                               | 83.67           | 7983630      | 7983586    | 8.00E-05       | 51.8         |
|                | Bd4                               | 79.37           | 23729103     | 23729161   | 8.00E-05       | 51.8         |
|                | Bd4                               | 79.03           | 28129629     | 28129572   | 8.00E-05       | 51.8         |
|                | Bd4                               | 81.03           | 32863146     | 32863093   | 8.00E-05       | 51.8         |
|                | Bd4                               | 81.13           | 10399430     | 10399382   | 3.00E-04       | 50           |
|                | Bd4                               | 81.13           | 14735114     | 14735066   | 3.00E-04       | 50           |
|                | Bd4                               | 81.13           | 20159866     | 20159814   | 3.00E-04       | 50           |
|                | Bd4                               | 80.3            | 24206271     | 24206206   | 3.00E-04       | 50           |
|                | Bd4                               | 81.13           | 27219009     | 27218961   | 3.00E-04       | 50           |
|                | Bd4                               | 84.44           | 34627389     | 34627349   | 3.00E-04       | 50           |
|                | Bd4                               | 76.92           | 9344095      | 9344035    | 1.00E-03       | 48.2         |
|                | Bd4                               | 78.33           | 19011164     | 19011109   | 1.00E-03       | 48.2         |
|                | Bd4                               | 80              | 22754866     | 22754916   | 1.00E-03       | 48.2         |
|                | Bd4                               | 80.39           | 9521480      | 9521434    | 3.00E-03       | 46.4         |
|                | Bd4                               | 78.57           | 14866200     | 14866251   | 3.00E-03       | 46.4         |



| Species                    | Chromosome / Linkage group | Identity | Start    | End      | E value  | Score |
|----------------------------|----------------------------|----------|----------|----------|----------|-------|
|                            | Bd4                        | 78.57    | 28172776 | 28172725 | 3.00E-03 | 46.4  |
|                            | Bd4                        | 81.63    | 29035635 | 29035683 | 3.00E-03 | 46.4  |
|                            | Bd4                        | 80.39    | 35607179 | 35607225 | 3.00E-03 | 46.4  |
|                            | Bd4                        | 79.25    | 18896212 | 18896164 | 1.20E-02 | 44.6  |
|                            | Bd1                        | 82.76    | 54722731 | 54722674 | 2.00E-06 | 57.2  |
|                            | Bd1                        | 82.14    | 21454086 | 21454035 | 7.00E-06 | 55.4  |
|                            | Bd1                        | 81.82    | 23449348 | 23449398 | 2.00E-05 | 53.6  |
|                            | Bd1                        | 81.03    | 54717538 | 54717591 | 2.00E-05 | 53.6  |
|                            | Bd1                        | 81.03    | 43177432 | 43177485 | 8.00E-05 | 51.8  |
|                            | Bd1                        | 83.33    | 64483317 | 64483266 | 8.00E-05 | 51.8  |
|                            | Bd1                        | 81.13    | 3493364  | 3493316  | 3.00E-04 | 50    |
|                            | Bd1                        | 81.13    | 23449320 | 23449368 | 3.00E-04 | 50    |
|                            | Bd1                        | 81.13    | 54132895 | 54132943 | 3.00E-04 | 50    |
|                            | Bd1                        | 78.95    | 13056855 | 13056803 | 1.00E-03 | 48.2  |
|                            | Bd1                        | 78.95    | 26426759 | 26426707 | 1.00E-03 | 48.2  |
|                            | Bd1                        | 80       | 29242160 | 29242210 | 1.00E-03 | 48.2  |
|                            | Bd1                        | 80       | 31437485 | 31437535 | 1.00E-03 | 48.2  |
|                            | Bd1                        | 80.39    | 28521480 | 28521434 | 3.00E-03 | 46.4  |
|                            | Bd1                        | 80.39    | 43128314 | 43128360 | 3.00E-03 | 46.4  |
|                            | Bd2                        | 80.33    | 4816270  | 4816326  | 7.00E-06 | 55.4  |
|                            | Bd2                        | 83.67    | 4816252  | 4816296  | 8.00E-05 | 51.8  |
|                            | Bd2                        | 83.67    | 13226345 | 13226301 | 8.00E-05 | 51.8  |
|                            | Bd2                        | 81.13    | 35185517 | 35185565 | 3.00E-04 | 50    |
|                            | Bd2                        | 82.98    | 11374471 | 11374513 | 1.00E-03 | 48.2  |
| <i>Brachypodium stacei</i> | Chr03                      | 69.75    | 3188489  | 3188701  | 2.00E-17 | 93.3  |
|                            | Chr03                      | 80       | 10687328 | 10687278 | 8.00E-04 | 48.2  |
|                            | Chr08                      | 84.62    | 12314315 | 12314268 | 2.00E-06 | 57.2  |
|                            | Chr08                      | 83.02    | 12258688 | 12258738 | 7.00E-05 | 51.8  |
|                            | Chr05                      | 90.7     | 7756464  | 7756504  | 2.00E-06 | 57.2  |
|                            | Chr05                      | 80.7     | 7048605  | 7048551  | 7.00E-05 | 51.8  |
|                            | Chr10                      | 82.35    | 15642616 | 15642574 | 6.00E-06 | 55.4  |

| Species             | Chromosome / Linkage group | Identity | Start    | End      | E value  | Score    |      |
|---------------------|----------------------------|----------|----------|----------|----------|----------|------|
| <i>Oryza sativa</i> | Chr06                      | 85.11    | 6479671  | 6479625  | 2.00E-05 | 53.6     |      |
|                     | Chr06                      | 83.33    | 9718079  | 9718120  | 3.60E-02 | 42.8     |      |
|                     | Chr02                      | 83.33    | 17544595 | 17544644 | 2.00E-05 | 53.6     |      |
|                     | Chr02                      | 87.18    | 17544594 | 17544630 | 3.00E-03 | 46.4     |      |
|                     | Chr09                      | 80.7     | 9293146  | 9293200  | 7.00E-05 | 51.8     |      |
|                     | Chr09                      | 87.8     | 9151778  | 9151740  | 2.00E-04 | 50       |      |
|                     | Chr09                      | 77.59    | 4808709  | 4808652  | 3.00E-03 | 46.4     |      |
|                     | Chr09                      | 77.42    | 9293127  | 9293184  | 1.00E-02 | 44.6     |      |
|                     | Chr04                      | 87.8     | 17324397 | 17324435 | 2.00E-04 | 50       |      |
|                     | Chr04                      | 90.32    | 5152540  | 5152510  | 1.00E-02 | 44.6     |      |
|                     | Chr07                      | 82.22    | 12136454 | 12136414 | 1.00E-02 | 44.6     |      |
|                     | Chr07                      | 86.49    | 1046503  | 1046469  | 3.60E-02 | 42.8     |      |
|                     | Chr01                      | 82.22    | 17286841 | 17286799 | 3.60E-02 | 42.8     |      |
|                     | Chr8                       | 73.08    | 426856   | 426519   | 9.00E-44 | 181      |      |
|                     | Chr8                       | 86.84    | 427889   | 427852   | 5.00E-03 | 46.4     |      |
|                     | Chr8                       | 77.59    | 426929   | 426880   | 1.60E-02 | 44.6     |      |
|                     | Chr4                       | 90.16    | 27042609 | 27042549 | 3.00E-12 | 77       |      |
|                     | Chr4                       | 88.89    | 31164142 | 31164182 | 9.00E-06 | 55.4     |      |
|                     | Chr4                       | 90.24    | 34730833 | 34730869 | 9.00E-06 | 55.4     |      |
|                     | Chr4                       | 90       | 4954280  | 4954309  | 5.70E-02 | 42.8     |      |
|                     | Chr4                       | 88.57    | 28374484 | 28374451 | 5.70E-02 | 42.8     |      |
|                     | Chr1                       | 90.38    | 36934652 | 36934703 | 1.00E-10 | 71.6     |      |
|                     | Chr10                      | 84.38    | 13292405 | 13292352 | 5.00E-09 | 66.2     |      |
|                     | Chr10                      | 82.46    | 14723172 | 14723218 | 7.00E-07 | 59       |      |
|                     | Chr12                      | 84.91    | 25289930 | 25289882 | 7.00E-07 | 59       |      |
|                     | Chr3                       | 82.69    | 24835229 | 24835276 | 1.00E-03 | 48.2     |      |
|                     | Chr5                       | 100      | 22789910 | 22789932 | 5.70E-02 | 42.8     |      |
|                     | Chr2                       | 90       | 22192929 | 22192958 | 5.70E-02 | 42.8     |      |
|                     | <i>Panicum hallii</i>      | Chr06    | 77.05    | 1073396  | 1073067  | 1.00E-63 | 248  |
|                     |                            | Chr06    | 87.27    | 1103158  | 1103206  | 3.00E-08 | 64.4 |
| Chr06               |                            | 82.98    | 1073501  | 1073457  | 7.00E-03 | 46.4     |      |

| Species                 | Chromosome / Linkage group | Identity | Start    | End      | E value  | Score |
|-------------------------|----------------------------|----------|----------|----------|----------|-------|
| <i>Panicum virgatum</i> | Chr06                      | 82.61    | 1587492  | 1587451  | 7.00E-03 | 46.4  |
|                         | Chr07                      | 83.33    | 32225949 | 32225842 | 2.00E-22 | 111   |
|                         | Chr07                      | 83.72    | 32226050 | 32226010 | 2.40E-02 | 44.6  |
|                         | Chr03                      | 89.29    | 4464532  | 4464583  | 5.00E-11 | 73.4  |
|                         | Chr03                      | 82.61    | 6720700  | 6720663  | 6.00E-04 | 50    |
|                         | Chr08                      | 85.19    | 2980306  | 2980351  | 3.00E-08 | 64.4  |
|                         | Chr05                      | 83.93    | 8488153  | 8488204  | 3.00E-07 | 60.8  |
|                         | Chr05                      | 84.62    | 54213979 | 54213936 | 3.00E-07 | 60.8  |
|                         | Chr04                      | 84.48    | 17702339 | 17702390 | 6.00E-04 | 50    |
|                         | Chr09                      | 91.89    | 70876361 | 70876397 | 7.00E-03 | 46.4  |
|                         | contig182248               | 75.45    | 8        | 372      | 3.00E-63 | 248   |
|                         | Chr06a                     | 76.22    | 48811529 | 48811205 | 1.00E-55 | 223   |
|                         | Chr06a                     | 81.93    | 48812530 | 48812451 | 4.00E-12 | 78.8  |
|                         | Chr06a                     | 85.19    | 48811607 | 48811556 | 3.00E-06 | 59    |
|                         | contig316264               | 82.5     | 136      | 20       | 3.00E-20 | 105   |
|                         | Chr06b                     | 82.5     | 373319   | 373203   | 3.00E-20 | 105   |
|                         | Chr06b                     | 81.93    | 374163   | 374084   | 4.00E-12 | 78.8  |
|                         | Chr06b                     | 87.18    | 3121334  | 3121300  | 6.00E-03 | 48.2  |
|                         | Chr03b                     | 81.93    | 10600043 | 10599964 | 4.00E-12 | 78.8  |
|                         | Chr09b                     | 100      | 9128185  | 9128221  | 6.00E-09 | 68    |
|                         | Chr05b                     | 90.74    | 4277276  | 4277329  | 6.00E-09 | 68    |
|                         | Chr05b                     | 81.4     | 10047963 | 10047929 | 7.30E-02 | 44.6  |
|                         | contig19148                | 79.37    | 5751     | 5807     | 5.00E-04 | 51.8  |
|                         | contig37323                | 81.82    | 1482     | 1447     | 2.10E-02 | 46.4  |
| Chr02a                  | 81.13                      | 58714204 | 58714252 | 2.10E-02 | 46.4     |       |
| <i>Setaria italica</i>  | scaffold_6                 | 80.99    | 564552   | 564214   | 5.00E-85 | 318   |
|                         | scaffold_6                 | 83.33    | 565474   | 565395   | 2.00E-13 | 80.6  |
|                         | scaffold_7                 | 91.53    | 27314050 | 27313992 | 3.00E-12 | 77    |
|                         | scaffold_7                 | 85.45    | 22607878 | 22607924 | 5.00E-09 | 66.2  |
|                         | scaffold_7                 | 83.33    | 18296190 | 18296235 | 2.00E-07 | 60.8  |
|                         | scaffold_5                 | 91.38    | 7444323  | 7444266  | 1.00E-11 | 75.2  |

| Species                | Chromosome / Linkage group | Identity | Start    | End      | E value  | Score |
|------------------------|----------------------------|----------|----------|----------|----------|-------|
| <i>Setaria viridis</i> | scaffold_5                 | 84.78    | 29005925 | 29005966 | 1.00E-04 | 51.8  |
|                        | scaffold_5                 | 82.14    | 31993892 | 31993947 | 1.00E-04 | 51.8  |
|                        | scaffold_5                 | 80       | 25643601 | 25643556 | 1.80E-02 | 44.6  |
|                        | scaffold_2                 | 91.38    | 5103718  | 5103661  | 1.00E-11 | 75.2  |
|                        | scaffold_8                 | 86.54    | 24030893 | 24030846 | 7.00E-08 | 62.6  |
|                        | scaffold_1                 | 83.33    | 28741007 | 28740958 | 3.00E-05 | 53.6  |
|                        | scaffold_1                 | 81.48    | 28740971 | 28740918 | 4.00E-04 | 50    |
|                        | scaffold_1                 | 77.55    | 8559201  | 8559241  | 6.20E-02 | 42.8  |
|                        | scaffold_9                 | 91.89    | 57661220 | 57661256 | 5.00E-03 | 46.4  |
|                        | Chr_06                     | 80.99    | 541528   | 541190   | 5.00E-85 | 318   |
|                        | Chr_06                     | 83.33    | 542490   | 542411   | 2.00E-13 | 80.6  |
|                        | Chr_07                     | 91.53    | 26371096 | 26371038 | 3.00E-12 | 77    |
|                        | Chr_07                     | 91.38    | 24074145 | 24074088 | 1.00E-11 | 75.2  |
|                        | Chr_07                     | 89.29    | 17223577 | 17223626 | 1.00E-10 | 71.6  |
|                        | Chr_07                     | 84.31    | 21527132 | 21527174 | 8.00E-07 | 59    |
|                        | Chr_09                     | 91.38    | 8607622  | 8607565  | 1.00E-11 | 75.2  |
|                        | Chr_09                     | 94.29    | 54905757 | 54905791 | 1.00E-03 | 48.2  |
|                        | Chr_05                     | 89.66    | 6842151  | 6842094  | 1.00E-10 | 71.6  |
|                        | Chr_03                     | 85.96    | 3660977  | 3661025  | 4.00E-10 | 69.8  |
|                        | Chr_02                     | 89.83    | 5254404  | 5254346  | 4.00E-10 | 69.8  |
| Chr_08                 | 86.54                      | 23125711 | 23125664 | 6.00E-08 | 62.6     |       |
| Chr_01                 | 86                         | 28185062 | 28185013 | 8.00E-07 | 59       |       |
| Chr_01                 | 83.64                      | 8376194  | 8376242  | 9.00E-06 | 55.4     |       |
| Chr_01                 | 85.11                      | 28185083 | 28185041 | 3.00E-05 | 53.6     |       |
| <i>Sorghum bicolor</i> | Chr07                      | 78.85    | 770960   | 770629   | 6.00E-75 | 286   |
|                        | Chr07                      | 83.82    | 773166   | 773099   | 8.00E-10 | 69.8  |
|                        | Chr07                      | 83.33    | 771034   | 770983   | 2.00E-05 | 55.4  |
|                        | Chr04                      | 91.38    | 63425817 | 63425874 | 2.00E-11 | 75.2  |
|                        | Chr04                      | 83.33    | 66726864 | 66726825 | 6.00E-05 | 53.6  |
|                        | Chr03                      | 84.62    | 51323970 | 51323927 | 4.00E-07 | 60.8  |
|                        | Chr03                      | 82.14    | 677429   | 677484   | 5.00E-06 | 57.2  |

| Species                  | Chromosome / Linkage group | Identity               | Start     | End       | E value  | Score    |
|--------------------------|----------------------------|------------------------|-----------|-----------|----------|----------|
| <i>Zea mays</i>          | Chr10                      | 84                     | 8588323   | 8588282   | 5.00E-06 | 57.2     |
|                          | Chr01                      | 84                     | 18788701  | 18788742  | 5.00E-06 | 57.2     |
|                          | 6                          | 76.78                  | 2147467   | 2147113   | 1.00E-64 | 253      |
|                          | 6                          | 84.62                  | 2147976   | 2147928   | 1.00E-05 | 57.2     |
|                          | 4                          | 85.71                  | 39738460  | 39738357  | 2.00E-22 | 113      |
|                          | 3                          | 91.38                  | 166465789 | 166465732 | 5.00E-11 | 75.2     |
|                          | 3                          | 85.37                  | 35357473  | 35357513  | 7.00E-03 | 48.2     |
|                          | 3                          | 89.47                  | 49150755  | 49150790  | 9.00E-02 | 44.6     |
|                          | 9                          | 88.33                  | 126257265 | 126257324 | 6.00E-10 | 71.6     |
|                          | 1                          | 84.31                  | 35047361  | 35047403  | 4.00E-06 | 59       |
|                          | 5                          | 91.3                   | 114809148 | 114809191 | 4.00E-06 | 59       |
|                          | 5                          | 83.67                  | 7631953   | 7631993   | 5.00E-05 | 55.4     |
|                          | 2                          | 82                     | 224596475 | 224596516 | 2.00E-04 | 53.6     |
|                          | 2                          | 91.18                  | 124715591 | 124715560 | 2.60E-02 | 46.4     |
|                          | 2                          | 81.82                  | 190474078 | 190474113 | 2.60E-02 | 46.4     |
|                          | 10                         | 88.57                  | 27620113  | 27620083  | 9.00E-02 | 44.6     |
|                          | <i>Triticum aestivum</i>   | ta_iwgsc_5bs_v1_457869 | 91.07     | 6853      | 6906     | 5.00E-12 |
| ta_iwgsc_2dl_v1_9909120  |                            | 90                     | 2448      | 2391      | 5.00E-12 | 77       |
| ta_iwgsc_1al_v2_3975476  |                            | 94.12                  | 2246      | 2196      | 5.00E-12 | 77       |
| ta_iwgsc_5al_v1_2742183  |                            | 87.1                   | 1843      | 1786      | 2.00E-11 | 75.2     |
| ta_iwgsc_1bs_v1_3462460  |                            | 91.38                  | 2070      | 2013      | 2.00E-11 | 75.2     |
| ta_iwgsc_1as_v1_529860   |                            | 91.38                  | 2434      | 2377      | 2.00E-11 | 75.2     |
| ta_iwgsc_5dl_v1_4553403  |                            | 89.29                  | 15524     | 15575     | 6.00E-11 | 73.4     |
| ta_iwgsc_1dl_v1_2273792  |                            | 85.25                  | 690       | 742       | 6.00E-11 | 73.4     |
| ta_iwgsc_5bl_v1_10910316 |                            | 85.96                  | 8479      | 8535      | 2.00E-09 | 68       |
| ta_iwgsc_5bl_v1_10867123 |                            | 85.71                  | 3077      | 3030      | 2.00E-09 | 68       |
| ta_iwgsc_3b_v1_10759089  |                            | 87.27                  | 4333      | 4383      | 2.00E-09 | 68       |
| ta_iwgsc_1al_v2_3905383  |                            | 86.89                  | 3917      | 3857      | 2.00E-09 | 68       |
| ta_iwgsc_5dl_v1_4604052  |                            | 91.11                  | 10592     | 10636     | 3.00E-08 | 64.4     |
| ta_iwgsc_7bl_v1_6737043  |                            | 86.79                  | 1748      | 1800      | 1.00E-06 | 59       |
| ta_iwgsc_4as_v2_5930405  |                            | 84.31                  | 1747      | 1705      | 1.00E-06 | 59       |

| Species | Chromosome / Linkage group | Identity | Start | End   | E value  | Score |
|---------|----------------------------|----------|-------|-------|----------|-------|
|         | ta_iwgsc_4as_v2_5930405    | 83.67    | 1899  | 1859  | 2.00E-05 | 55.4  |
|         | ta_iwgsc_7dl_v1_2022790    | 84       | 1     | 42    | 4.00E-06 | 57.2  |
|         | ta_iwgsc_4dl_v3_14326198   | 83.67    | 14943 | 14903 | 2.00E-05 | 55.4  |
|         | ta_iwgsc_1as_v1_3296694    | 77.27    | 4063  | 4120  | 2.00E-05 | 55.4  |
|         | ta_iwgsc_4bs_v1_4898005    | 82       | 3775  | 3818  | 2.00E-04 | 51.8  |
|         | ta_iwgsc_4bl_v1_6903702    | 82.98    | 1     | 39    | 2.00E-04 | 51.8  |
|         | ta_iwgsc_4al_v2_7129828    | 81.63    | 13698 | 13738 | 2.00E-04 | 51.8  |
|         | ta_iwgsc_4al_v2_7068933    | 81.63    | 3780  | 3740  | 2.00E-04 | 51.8  |
|         | ta_iwgsc_6dl_v1_3290973    | 82.22    | 1621  | 1657  | 2.00E-03 | 48.2  |
|         | ta_iwgsc_3al_v1_4354342    | 82.22    | 303   | 339   | 2.00E-03 | 48.2  |
|         | ta_iwgsc_7dl_v1_3384295    | 80.43    | 3443  | 3482  | 2.70E-02 | 44.6  |
|         | ta_iwgsc_5bl_v1_10799316   | 84.21    | 268   | 305   | 9.60E-02 | 42.8  |
|         | ta_iwgsc_3b_v1_10758293    | 90.32    | 7732  | 7762  | 9.60E-02 | 42.8  |
|         | ta_iwgsc_1bl_v1_3906435    | 90.32    | 14966 | 14996 | 9.60E-02 | 42.8  |

**Marker: UGEP68**

| Species                        | Chromosome/ Linkage group | Identity | Start    | End      | E value  | Score |
|--------------------------------|---------------------------|----------|----------|----------|----------|-------|
| <i>Brachypodium distachyon</i> | Bd1                       | 90.32    | 12435936 | 12435966 | 4.30E-02 | 42.8  |
| <i>Brachypodium stacei</i>     | Chr02                     | 84.21    | 10417763 | 10417726 | 3.70E-02 | 42.8  |
|                                | Chr01                     | 90.32    | 14781653 | 14781623 | 3.70E-02 | 42.8  |
| <i>Oryza sativa</i>            | Chr6                      | 90.24    | 9439234  | 9439194  | 3.00E-05 | 53.6  |
|                                | Chr1                      | 83.72    | 7653206  | 7653164  | 5.00E-03 | 46.4  |
|                                | Chr2                      | 84.78    | 33833253 | 33833208 | 1.70E-02 | 44.6  |
|                                | Chr10                     | 96.15    | 10183678 | 10183703 | 5.90E-02 | 42.8  |
| <i>Panicum hallii</i>          | Chr02                     | 93.33    | 5088932  | 5088903  | 7.00E-03 | 46.4  |
| <i>Panicum virgatum</i>        | Chr08a                    | 86.36    | 4086941  | 4086984  | 2.00E-03 | 50    |
| <i>Setaria italica</i>         | scaffold_9                | 73.56    | 20454095 | 20454176 | 4.00E-04 | 50    |
|                                | scaffold_2                | 70.14    | 34374916 | 34374780 | 1.00E-03 | 48.2  |
|                                | scaffold_2                | 70.97    | 26336417 | 26336325 | 6.40E-02 | 42.8  |

| Species                  | Chromosome/ Linkage group | Identity | Start     | End       | E value  | Score |
|--------------------------|---------------------------|----------|-----------|-----------|----------|-------|
| <i>Setaria viridis</i>   | scaffold_7                | 91.18    | 35962831  | 35962798  | 1.80E-02 | 44.6  |
|                          | scaffold_5                | 91.18    | 47252243  | 47252210  | 1.80E-02 | 44.6  |
|                          | Chr_08                    | 91.18    | 1359907   | 1359874   | 1.80E-02 | 44.6  |
|                          | Chr_09                    | 72.84    | 20780885  | 20780960  | 6.20E-02 | 42.8  |
|                          | Chr_09                    | 88.57    | 37223282  | 37223248  | 6.20E-02 | 42.8  |
| <i>Sorghum bicolor</i>   | Chr_02                    | 70.97    | 25170067  | 25169975  | 6.20E-02 | 42.8  |
|                          | Chr07                     | 81.63    | 1505713   | 1505761   | 3.00E-03 | 48.2  |
|                          | Chr02                     | 91.18    | 73026060  | 73026093  | 3.00E-03 | 48.2  |
|                          | Chr02                     | 83.33    | 68431916  | 68431957  | 3.30E-02 | 44.6  |
|                          | super_12                  | 80       | 2605268   | 2605219   | 3.30E-02 | 44.6  |
| <i>Zea mays</i>          | Chr03                     | 88.24    | 12247501  | 12247468  | 3.30E-02 | 44.6  |
|                          | Chr01                     | 80       | 36290476  | 36290427  | 3.30E-02 | 44.6  |
|                          | 5                         | 93.1     | 167822987 | 167822959 | 9.30E-02 | 44.6  |
|                          | 7                         | 86.49    | 132631714 | 132631678 | 9.30E-02 | 44.6  |
|                          | 7                         | 93.55    | 174888844 | 174888815 | 9.30E-02 | 44.6  |
| <i>Triticum aestivum</i> | 8                         | 84.09    | 173259844 | 173259801 | 9.30E-02 | 44.6  |
|                          | ta_iwgsc_6dl_v1_3240604   | 96.15    | 3031      | 3056      | 9.90E-02 | 42.8  |
|                          | ta_iwgsc_6bs_v1_3017092   | 90.32    | 533       | 563       | 9.90E-02 | 42.8  |
|                          | ta_iwgsc_5bl_v1_10926297  | 81.25    | 4742      | 4788      | 9.90E-02 | 42.8  |
|                          | ta_iwgsc_5bl_v1_10867888  | 82.93    | 11252     | 11292     | 9.90E-02 | 42.8  |

**Marker: UGEP90**

| Species                        | Chromosome/ Linkage group | Identity | Start    | End      | E value  | Score |
|--------------------------------|---------------------------|----------|----------|----------|----------|-------|
| <i>Brachypodium distachyon</i> | Nil                       | -        | -        | -        | -        | -     |
| <i>Brachypodium stacei</i>     | Chr05                     | 77.58    | 10784973 | 10784811 | 1.00E-26 | 123   |
|                                | Chr01                     | 84.09    | 21476513 | 21476556 | 8.00E-04 | 48.2  |
|                                | Chr01                     | 83.33    | 28079247 | 28079288 | 1.00E-02 | 44.6  |
|                                | Chr03                     | 93.33    | 8479568  | 8479539  | 3.00E-03 | 46.4  |
|                                | Chr10                     | 88.24    | 17533375 | 17533342 | 1.00E-02 | 44.6  |

| Species                 | Chromosome/ Linkage group | Identity | Start    | End      | E value  | Score |
|-------------------------|---------------------------|----------|----------|----------|----------|-------|
| <i>Oryza sativa</i>     | Chr02                     | 86.11    | 24045182 | 24045147 | 3.50E-02 | 42.8  |
|                         | Chr9                      | 84.44    | 12267466 | 12267422 | 1.00E-03 | 48.2  |
|                         | Chr10                     | 80.85    | 2327300  | 2327254  | 1.60E-02 | 44.6  |
| <i>Panicum hallii</i>   | Chr2                      | 88.24    | 5427206  | 5427239  | 1.60E-02 | 44.6  |
|                         | Chr02                     | 75.29    | 41957107 | 41956687 | 2.00E-61 | 241   |
|                         | Chr02                     | 85.48    | 41956623 | 41956563 | 3.00E-08 | 64.4  |
|                         | Chr02                     | 77.27    | 41956308 | 41956243 | 6.00E-04 | 50    |
|                         | Chr05                     | 88.64    | 20287358 | 20287317 | 6.00E-04 | 50    |
|                         | Chr04                     | 93.75    | 18659142 | 18659111 | 6.00E-04 | 50    |
|                         | Chr09                     | 88.37    | 8994083  | 8994123  | 2.00E-03 | 48.2  |
|                         | Chr01                     | 86.36    | 49027235 | 49027194 | 7.00E-03 | 46.4  |
|                         | Chr08                     | 87.8     | 19481897 | 19481859 | 2.40E-02 | 44.6  |
| <i>Panicum virgatum</i> | contig69046               | 91.41    | 4464     | 4625     | 5.00E-55 | 221   |
|                         | contig81907               | 88.71    | 128      | 188      | 1.00E-10 | 73.4  |
|                         | contig81907               | 76.92    | 438      | 515      | 1.00E-04 | 53.6  |
|                         | Chr02b                    | 78.43    | 50644970 | 50644876 | 1.00E-10 | 73.4  |
|                         | Chr02b                    | 91.43    | 50644778 | 50644745 | 2.10E-02 | 46.4  |
|                         | contig26001               | 85.45    | 3        | 54       | 1.00E-04 | 53.6  |
|                         | contig182170              | 86.96    | 36       | 81       | 2.00E-03 | 50    |
|                         | contig17785               | 84.44    | 9821     | 9781     | 2.00E-03 | 50    |
|                         | Chr08b                    | 84.44    | 18496290 | 18496246 | 2.00E-03 | 50    |
|                         | Chr09a                    | 84.09    | 22779192 | 22779153 | 6.00E-03 | 48.2  |
|                         | Chr05a                    | 88.37    | 19573516 | 19573556 | 6.00E-03 | 48.2  |
|                         | Chr02a                    | 83.33    | 26268678 | 26268632 | 6.00E-03 | 48.2  |
|                         | contig68490               | 82       | 4158     | 4203     | 2.10E-02 | 46.4  |
|                         | contig33627               | 86.36    | 7102     | 7061     | 2.10E-02 | 46.4  |
|                         | contig329873              | 87.8     | 3        | 41       | 7.30E-02 | 44.6  |
|                         | contig34098               | 87.8     | 7039     | 7001     | 7.30E-02 | 44.6  |



| <b>Species</b>           | <b>Chromosome/ Linkage group</b> | <b>Identity</b> | <b>Start</b> | <b>End</b> | <b>E value</b> | <b>Score</b> |
|--------------------------|----------------------------------|-----------------|--------------|------------|----------------|--------------|
| <i>Setaria italica</i>   | scaffold_2                       | 75.55           | 28442614     | 28442280   | 6.00E-59       | 232          |
|                          | scaffold_2                       | 77.46           | 28441901     | 28441831   | 3.00E-05       | 53.6         |
|                          | scaffold_2                       | 79.69           | 28442188     | 28442125   | 1.00E-04       | 51.8         |
|                          | scaffold_6                       | 83.33           | 28961321     | 28961274   | 1.00E-04       | 51.8         |
|                          | scaffold_6                       | 83.33           | 29002641     | 29002594   | 1.00E-04       | 51.8         |
|                          | scaffold_5                       | 96.55           | 40548835     | 40548807   | 1.00E-03       | 48.2         |
| <i>Setaria viridis</i>   | Chr_02                           | 75.55           | 27346682     | 27346348   | 6.00E-59       | 232          |
|                          | Chr_02                           | 77.46           | 27345969     | 27345899   | 3.00E-05       | 53.6         |
|                          | Chr_02                           | 79.69           | 27346256     | 27346193   | 1.00E-04       | 51.8         |
|                          | Chr_06                           | 83.33           | 28429784     | 28429737   | 1.00E-04       | 51.8         |
|                          | Chr_05                           | 96.55           | 39429734     | 39429706   | 1.00E-03       | 48.2         |
|                          | <i>Sorghum bicolor</i>           | Chr02           | 87.34        | 56870685   | 56870529       | 1.00E-45     |
| Chr02                    |                                  | 96.77           | 56869872     | 56869842   | 2.00E-04       | 51.8         |
| Chr02                    |                                  | 76.67           | 56870247     | 56870188   | 9.00E-03       | 46.4         |
| Chr02                    |                                  | 100             | 56870417     | 56870393   | 9.00E-03       | 46.4         |
| Chr03                    |                                  | 88.37           | 5484283      | 5484241    | 6.00E-05       | 53.6         |
| Chr09                    |                                  | 86.27           | 163556       | 163604     | 9.00E-03       | 46.4         |
| Chr09                    |                                  | 87.8            | 57142030     | 57142068   | 3.20E-02       | 44.6         |
| Chr06                    |                                  | 77.46           | 4691390      | 4691320    | 3.20E-02       | 44.6         |
| <i>Zea mays</i>          |                                  | 2               | 84.85        | 177888273  | 177888436      | 6.00E-42     |
|                          | 2                                | 73.39           | 177888568    | 177888672  | 7.00E-03       | 48.2         |
|                          | 7                                | 81.33           | 100291343    | 100291507  | 5.00E-37       | 161          |
|                          | 7                                | 76.83           | 100291681    | 100291762  | 4.00E-06       | 59           |
|                          | 7                                | 90              | 100292189    | 100292228  | 6.00E-04       | 51.8         |
|                          | 6                                | 78.64           | 123021408    | 123021307  | 1.00E-13       | 84.2         |
|                          | 10                               | 85.71           | 141048469    | 141048428  | 2.00E-03       | 50           |
| <i>Triticum aestivum</i> | ta_iwgsc_5bl_v1_10814677         | 74.58           | 2183         | 2357       | 2.00E-23       | 114          |
|                          | ta_iwgsc_5bl_v1_10814677         | 90.62           | 3152         | 3183       | 2.70E-02       | 44.6         |

| <b>Species</b> | <b>Chromosome/ Linkage group</b> | <b>Identity</b> | <b>Start</b> | <b>End</b> | <b>E value</b> | <b>Score</b> |
|----------------|----------------------------------|-----------------|--------------|------------|----------------|--------------|
|                | ta_iwgsc_5dl_v1_4529992          | 74.01           | 19671        | 19845      | 2.00E-22       | 111          |
|                | ta_iwgsc_5dl_v1_4529992          | 90.91           | 20519        | 20551      | 8.00E-03       | 46.4         |
|                | ta_iwgsc_3b_v1_10754810          | 88.24           | 11600        | 11567      | 2.70E-02       | 44.6         |
|                | ta_iwgsc_4dl_v3_14404266         | 78.95           | 17161        | 17107      | 9.50E-02       | 42.8         |