Table S3: All the identified MTAs for grain size and shape-related traits in durum panel. Stable MTAs marked by asterisk

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Trait** | **Environment** | **MTA** | **SNP-ID** | **Chr.** | **Position** | **P value1** | **MAF** | **Add. Eff.2** |
| AS | E2/BLUP | *QAS.su.2A1\** | *SNP-1095449* | 2A | 104,655,222 | 1.02E-12 | 0.33 | -0.76 |
|  | E2 | *QAS.su.2A2* | *SNP-991434* | 2A | 531,237,720 | 3.60E-16 | 0.39 | -1.04 |
|  | BLUP | *QAS.su.2A3* | *SNP-1127014* | 2A | 501,916,772 | 6.96E-09 | 0.38 | -0.49 |
|  | BLUP | *QAS.su.2A4* | *SNP-1071334* | 2A | 723,735,918 | 1.14E-06 | 0.24 | -0.35 |
|  | E1 | *QAS.su.4A1* | *SNP-1017888* | 4A | 584,706,382 | 4.04E-06 | 0.04 | 1.30 |
|  | E1 | *QAS.su.6A1* | *SNP-1006957* | 6A | 451,640,237 | 2.38E-10 | 0.16 | 0.93 |
|  | E1 | *QAS.su.7B1* | *SNP-2293044* | 7B | 634,388,110 | 5.42E-06 | 0.20 | 0.57 |
|  | E2 | *QAS.su.7B2* | *SNP-1091721* | 7B | 716,307,209 | 1.62E-09 | 0.09 | -1.55 |
|  | BLUP | *QAS.su.7B3* | *SNP-1127813* | 7B | 500,368,572 | 9.49E-06 | 0.42 | 0.28 |
| PL | E1/E2/BLUP | *QPL.su.1B1\** | *SNP-100083695* | 1B | 29,327,461 | 3.37E‑09 | 0.20 | 0.40 |
|  | E1 | *QPL.su.2A1* | *SNP-1102402* | 2A | 120,126,537 | 2.68E-08 | 0.35 | 0.35 |
|  | E2 | *QPL.su.2A2* | *SNP-991434* | 2A | 531,237,720 | 1.19E-14 | 0.39 | -0.49 |
|  | BLUP | *QPL.su.2A3* | *SNP-1095449* | 2A | 104,655,222 | 1.54E-08 | 0.33 | 0.28 |
|  | BLUP | *QPL.su.2A4* | *SNP-1127014* | 2A | 501,916,772 | 9.02E-06 | 0.38 | -0.23 |
|  | E2 | *QPL.su.5A1* | *SNP-10983760* | 5A | 509,939,168 | 3.51E-06 | 0.17 | 0.30 |
|  | E1 | *QPL.su.6A1* | *SNP-1006957* | 6A | 451,640,237 | 1.63E-08 | 0.16 | -0.45 |
|  | E2 | *QPL.su.7A1* | *SNP-1125288* | 7A | 56,088,430 | 7.70E-08 | 0.13 | -0.40 |
|  | E2 | *QPL.su.7B1* | *SNP-1091721* | 7B | 716,307,209 | 7.26E-06 | 0.09 | -0.60 |
| L | E1/E2/BLUP | *QL.su.1B1\** | *SNP-100083695* | 1B | 29,327,461 | 1.53E-11 | 0.20 | 0.22 |
|  | E1 | *QL.su.2A1* | *SNP-991737* | 2A | 505,958,255 | 4.74E-10 | 0.36 | -0.18 |
|  | E2 | *QL.su.2A2* | *SNP-991434* | 2A | 531,237,720 | 4.32E-17 | 0.40 | -0.22 |
|  | BLUP | *QL.su.2A3* | *SNP-1095449* | 2A | 104,655,222 | 1.54E-08 | 0.33 | -0.28 |
|  | BLUP | *QL.su.2A4* | *SNP-1127014* | 2A | 501,916,772 | 9.02E-06 | 0.38 | -0.23 |
|  | E2 | *QL.su.5A1* | *SNP-10983760* | 5A | 509,939,168 | 1.73E-07 | 0.18 | 0.15 |
|  | E1 | *QL.su.6A1* | *SNP-1006957* | 6A | 451,640,237 | 4.23E-08 | 0.17 | -0.19 |
|  | E2 | *QL.su.6B1* | *SNP-1091395* | 6B | 653,235,473 | 1.47E-09 | 0.05 | 0.30 |
| LWR | E1/BLUP | *QLWR.su.2A1\** | *SNP-1150369* | 2A | 148,130,749 | 6.62E-09 | 0.28 | 0.05 |
|  | E1/BLUP | *QLWR.su.2A2\** | *SNP-991737* | 2A | 505,958,255 | 1.09E-08 | 0.36 | -0.05 |
|  | BLUP | *QLWR.su.3A1* | *SNP-1127543* | 3A | 47,156,933 | 1.85E-07 | 0.28 | -0.03 |
| CS | E1/BLUP | *QCS.su.2A1\** | *SNP-1150369* | 2A | 148,130,749 | 8.48E-10 | 0.28 | -0.01 |
|  | E1/BLUP | *QCS.su.2A2\** | *SNP-991737* | 2A | 505,958,255 | 2.88E-09 | 0.36 | -0.01 |
|  | BLUP | *QCS.su.2A3* | *SNP-1725042* | 2A | 724,616,734 | 1.21E-05 | 0.21 | -0.01 |
|  | BLUP | *QCS.su.3A1* | *SNP-1127543* | 3A | 47,156,933 | 9.14E-06 | 0.28 | 0.01 |
|  | E1/BLUP | *QCS.su.7A1\** | *SNP-1059714* | 7A | 673,131,697 | 1.94E-08 | 0.41 | -0.01 |
| TGW | E2 | *QTGW.su.1A1* | *SNP-1209291* | 1A | 527,910,602 | 7.27E-06 | 0.18 | -2.43 |
|  | E1 | *QTGW.su.2A1* | *SNP-1041769* | 2A | 127,602,655 | 7.28E-09 | 0.38 | -2.75 |
|  | E2/BLUP | *QTGW.su.2A2\** | *SNP-3025548* | 2A | 106,204,569 | 2.35E-09 | 0.33 | -2.90 |
|  | E1/E2/BLUP | *QTGW.su.2A3\** | *SNP-991434* | 2A | 531,237,720 | 3.17E-17 | 0.40 | -4.24 |
|  | E2 | *QTGW.su.2A4* | *SNP-2256686* | 2A | 726,762,051 | 3.39E-06 | 0.11 | 2.87 |
|  | E2 | *QTGW.su.5B1* | *SNP-992710* | 5B | 243,670,953 | 1.49E-06 | 0.14 | -2.94 |
|  | E1/E2/BLUP | *QTGW.su.7B1\** | *SNP-5369680* | 7B | 500,369,002 | 2.48E-08 | 0.45 | -2.12 |

1: The highest p value over environments, 2: Additive effects of the significant MTAs on the related traits