**DArTseq markers associated with eight agronomic traits at 0.05 > P > 0.001**

|  |  |
| --- | --- |
| **Drought-stressed**  | **Non-stressed**  |
| **Marker** | **Perm P** | **Marker R2** | **Marker** | **Perm P** | **Marker R2** |
| **Days-to-heading** |
| 5B|000.649324338|1209883|1209883 | 0.003 | 0.23873 | 2B|107.007987900|1087177|1087177 | 0.002 | 0.29296 |
| 5A|086.598960660|1215648|1215648 | 0.003 | 0.26821 | 2D|128.146584600|4021827|4021827 | 0.003 | 0.26388 |
| 2D|128.146584600|4021827|4021827 | 0.003 | 0.27203 | 5A|086.598960660|1215648|1215648 | 0.007 | 0.2608 |
| 3A|134.034465000|3945820|3945820 | 0.003 | 0.27326 | 1B|263.548918400|1396299|1396299 | 0.009 | 0.28202 |
| 2B|107.007987900|1087177|1087177 | 0.003 | 0.29771 | 4A|050.549009130|1118950|1118950 | 0.014 | 0.21772 |
| 2B|107.092980900|1029432|1029432 | 0.011 | 0.21538 | 6B|078.748041400|3958789|3958789 | 0.024 | 0.26966 |
| 2B|108.086871100|1132117|1132117 | 0.011 | 0.21538 | 3A|134.034465000|3945820|3945820 | 0.026 | 0.24248 |
| 6B|078.748041400|3958789|3958789 | 0.011 | 0.27278 | 2B|107.092980900|1029432|1029432 | 0.034 | 0.20372 |
| 5B|000.000000000|3023157|3023157 | 0.013 | 0.24497 | 2B|108.086871100|1132117|1132117 | 0.034 | 0.20372 |
| 6A|067.991408960|1237708|1237708 | 0.023 | 0.23895 |  |  |  |
| 3B|013.678476040|3958709|3958709 | 0.027 | 0.23445 |  |  |  |
| 3A|004.294450061|4990595|4990595 | 0.028 | 0.23402 |  |  |  |
| 4A|050.549009130|1118950|1118950 | 0.029 | 0.20193 |  |  |  |
| 1B|037.446808880|4991863|4991863 | 0.035 | 0.23014 |  |  |  |
| 6A|056.724637920|3945797|3945797 | 0.043 | 0.19675 |  |  |  |
| 2B|057.230408490|3064921|3064921 | 0.043 | 0.22823 |  |  |  |
| **Plant height** |
| 5B|000.649324338|1209883|1209883 | 0.002 | 0.24165 | 3A|076.019683050|4394549|4394549 | 0.002 | 0.22396 |
| 3A|070.942486970|1104502|1104502 | 0.002 | 0.24277 | 1B|063.445873190|3937163|3937163 | 0.002 | 0.25054 |
| 3B|008.294356567|4261111|4261111 | 0.002 | 0.29407 | 3B|008.294356567|4261111|4261111 | 0.002 | 0.27192 |
| 3B|012.621927070|3028387|3028387 | 0.003 | 0.24898 | 3B|005.715696741|1125891|1125891 | 0.003 | 0.24427 |
| 7B|112.004439500|2322338|2322338 | 0.008 | 0.24533 | 3A|070.942486970|1104502|1104502 | 0.004 | 0.21477 |
| 3A|076.019683050|4394549|4394549 | 0.01 | 0.2112 | 4A|050.549009130|1118950|1118950 | 0.009 | 0.20701 |
| 3B|011.134281090|3027768|3027768 | 0.017 | 0.25656 | 2D|128.146584600|4021827|4021827 | 0.013 | 0.22945 |
| 2D|126.901211300|1109826|1109826 | 0.018 | 0.20185 | 3A|134.034465000|3945820|3945820 | 0.013 | 0.22981 |
| 3B|005.715696741|1125891|1125891 | 0.018 | 0.23024 | 3B|017.067952280|998573|998573 | 0.015 | 0.24932 |
| 3B|013.678476040|3958709|3958709 | 0.018 | 0.23051 | 2B|107.007987900|1087177|1087177 | 0.016 | 0.24799 |
| 3B|012.928798990|1165422|1165422 | 0.02 | 0.20062 | 2A|043.555079010|3222362|3222362 | 0.017 | 0.19637 |
| 3D|147.079710800|1108739|1108739 | 0.022 | 0.19969 | 6A|067.991408960|1237708|1237708 | 0.024 | 0.22279 |
| 3A|075.704509290|1086515|1086515 | 0.03 | 0.22183 | 6A|028.951443700|1094966|1094966 | 0.027 | 0.21995 |
| 3B|017.067952280|998573|998573 | 0.03 | 0.24508 | 2B|033.737015920|4733926|4733926 | 0.027 | 0.24342 |
| 2B|013.546408570|977308|977308 | 0.032 | 0.24293 | 3B|029.893695730|3222379|3222379 | 0.029 | 0.18924 |
| 2B|107.007987900|1087177|1087177 | 0.032 | 0.24322 | 3B|011.134281090|3027768|3027768 | 0.029 | 0.24021 |
| 3B|065.420680590|1153055|1153055 | 0.033 | 0.2198 | 2B|012.351178520|2297566|2297566 | 0.031 | 0.23973 |
| 3A|002.485631701|3952392|3952392 | 0.041 | 0.18783 | 2B|057.230408490|3064921|3064921 | 0.036 | 0.21537 |
| 3A|004.294450061|4990595|4990595 | 0.041 | 0.21675 | 1B|037.446808880|4991863|4991863 | 0.036 | 0.21551 |
| 3B|029.893695730|3222379|3222379 | 0.042 | 0.18517 | 2A|104.293924100|1110657|1110657 | 0.038 | 0.18584 |
| 3B|005.829269954|2256562|2256562 | 0.042 | 0.23713 | 6A|048.226863160|1150993|1150993 | 0.038 | 0.21467 |
| 2A|047.886253160|5971468|5971468 | 0.043 | 0.21221 | 7B|097.452251360|1126833|1126833 | 0.041 | 0.18452 |
| 2B|023.182120080|1251215|1251215 | 0.043 | 0.21221 | 7B|100.338066000|1096412|1096412 | 0.041 | 0.18452 |
| 3B|009.173872085|1083589|1083589 | 0.044 | 0.21107 | 7B|100.338066000|1276616|1276616 | 0.041 | 0.18452 |
|  |  |  | 7B|100.475730800|3937689|3937689 | 0.041 | 0.18452 |
|  |  |  | 2B|012.351178520|2291877|2291877 | 0.041 | 0.21291 |
|  |  |  | 3B|010.530635430|4989647|4989647 | 0.041 | 0.23513 |
|  |  |  | 2B|026.939223010|1093835|1093835 | 0.044 | 0.20929 |

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| **Drought-stressed** | **Non-stressed** |
| **Marker** | **Perm P** | **Marker R2** | **Marker** | **Perm P** | **Marker R2** |
| **Spike length** |
| 3A|070.942486970|1104502|1104502 | 0.005 | 0.19608 | 1B|184.429245100|1113389|1113389 | 0.002 | 0.20749 |
| 2B|107.007987900|1087177|1087177 | 0.005 | 0.23609 | 3A|056.634055130|3934533|3934533 | 0.004 | 0.21891 |
| 2B|107.234832300|1159774|1159774 | 0.006 | 0.18982 | 4B|042.180040830|1081624|1081624 | 0.004 | 0.22577 |
| 5B|118.415533200|2303045|2303045 | 0.008 | 0.21189 | 4B|042.901192180|1027953|1027953 | 0.004 | 0.22577 |
| 2B|106.869346000|3023780|3023780 | 0.009 | 0.18772 | 2B|107.234832300|1159774|1159774 | 0.006 | 0.18905 |
| 1B|176.095445600|1259406|1259406 | 0.01 | 0.18276 | 5B|000.649324338|1209883|1209883 | 0.008 | 0.17696 |
| 7A|065.934336980|4541148|4541148 | 0.01 | 0.18356 | 5D|138.209637900|7157166|7157166 | 0.008 | 0.19944 |
| 5D|019.203412160|1161544|1161544 | 0.01 | 0.18569 | 1B|063.445873190|3937163|3937163 | 0.008 | 0.19985 |
| 3B|011.134281090|3027768|3027768 | 0.011 | 0.22365 | 2B|107.007987900|1087177|1087177 | 0.008 | 0.22003 |
| 2A|060.600016560|2361439|2361439 | 0.017 | 0.17704 | 1B|176.095445600|1259406|1259406 | 0.01 | 0.17524 |
| 3B|027.228283330|304361|wPt-5432 | 0.017 | 0.17801 | 2A|043.555079010|3222362|3222362 | 0.011 | 0.17382 |
| 2B|106.857184700|3533741|3533741 | 0.017 | 0.20066 | 2A|060.600016560|2361439|2361439 | 0.013 | 0.17187 |
| 3A|137.708449300|980006|980006 | 0.019 | 0.17557 | 6A|048.638907120|3944784|3944784 | 0.013 | 0.19444 |
| 5B|000.649324338|1209883|1209883 | 0.025 | 0.17252 | 1D|079.079510220|1078020|1078020 | 0.015 | 0.17008 |
| 1B|045.390774230|1294103|1294103 | 0.03 | 0.19166 | 6B|030.982252730|1252863|1252863 | 0.016 | 0.19243 |
| 6B|031.043100140|1237876|1237876 | 0.031 | 0.16808 | 3A|070.942486970|1104502|1104502 | 0.022 | 0.16746 |
| 5B|114.361194300|1126378|1126378 | 0.032 | 0.20907 | 5B|120.771719000|2275671|2275671 | 0.025 | 0.20819 |
| 1B|043.312855080|1162221|1162221 | 0.034 | 0.16642 | 1D|079.958633130|3954634|3954634 | 0.026 | 0.16481 |
| 1B|044.758067030|1266583|1266583 | 0.034 | 0.16642 | 5B|118.415533200|2303045|2303045 | 0.026 | 0.18742 |
| 1B|045.177576690|3022879|3022879 | 0.034 | 0.16642 | 1D|082.419690380|1096857|1096857 | 0.026 | 0.18855 |
| 1B|046.175945760|5325402|5325402 | 0.034 | 0.16642 | 2B|106.869346000|3023780|3023780 | 0.029 | 0.16331 |
| 1B|047.111474150|7346672|7346672 | 0.034 | 0.16642 | 2A|058.063556250|1062330|1062330 | 0.029 | 0.16357 |
| 1B|047.741224110|7334370|7334370 | 0.034 | 0.16642 | 6B|031.510249370|4992590|4992590 | 0.029 | 0.20528 |
| 1B|051.254224490|7346032|7346032 | 0.034 | 0.16642 | 2B|087.475859870|3944716|3944716 | 0.032 | 0.16243 |
| 1B|051.289701790|3950468|3950468 | 0.034 | 0.16642 | 2B|061.547753160|4542690|4542690 | 0.033 | 0.18528 |
| 1B|054.040907460|1266945|1266945 | 0.034 | 0.16642 | 6A|067.991408960|1237708|1237708 | 0.038 | 0.18309 |
| 1B|061.689082610|1122393|1122393 | 0.034 | 0.16642 | 1D|079.061658050|5324336|5324336 | 0.038 | 0.18326 |
| 1B|061.689082610|4261902|4261902 | 0.034 | 0.16642 | 7B|097.452251360|1126833|1126833 | 0.04 | 0.15854 |
| 1B|063.445873190|4005038|4005038 | 0.034 | 0.16642 | 7B|100.338066000|1096412|1096412 | 0.04 | 0.15854 |
| 1B|066.188180470|1164185|1164185 | 0.034 | 0.16642 | 7B|100.338066000|1276616|1276616 | 0.04 | 0.15854 |
| 1B|070.209793990|7345501|7345501 | 0.034 | 0.16642 | 7B|100.475730800|3937689|3937689 | 0.04 | 0.15854 |
| 1B|070.891907290|1232724|1232724 | 0.034 | 0.16642 | 5D|019.203412160|1161544|1161544 | 0.04 | 0.15888 |
| 1B|247.531565800|1699070|1699070 | 0.034 | 0.16642 | 7A|065.934336980|4541148|4541148 | 0.044 | 0.15726 |
| 1B|263.257205600|1767653|1767653 | 0.034 | 0.16642 | 2B|057.230408490|3064921|3064921 | 0.044 | 0.18076 |
| 2A|004.227547215|1732419|1732419 | 0.034 | 0.16642 |  |  |  |
| 2A|007.484441636|1162329|1162329 | 0.034 | 0.16642 |  |  |  |
| 3A|056.634055130|4539513|4539513 | 0.034 | 0.16642 |  |  |  |
| 5A|069.124959010|993853|993853 | 0.034 | 0.16642 |  |  |  |
| 6A|086.477776400|1238110|1238110 | 0.034 | 0.16642 |  |  |  |
| 6B|073.055837020|978839|978839 | 0.034 | 0.16642 |  |  |  |
| 7D|013.562439360|1216320|1216320 | 0.034 | 0.16642 |  |  |  |
| 7D|082.070949060|1387325|1387325 | 0.034 | 0.16642 |  |  |  |
| 6A|067.991408960|1237708|1237708 | 0.034 | 0.18993 |  |  |  |
| 2B|087.475859870|3944716|3944716 | 0.035 | 0.16606 |  |  |  |
| 4B|042.901192180|3954457|3954457 | 0.035 | 0.18907 |  |  |  |
| 5B|001.190695579|1088009|1088009 | 0.037 | 0.18818 |  |  |  |
| 5B|120.771719000|2275671|2275671 | 0.037 | 0.20658 |  |  |  |
| 3A|134.034465000|3956339|3956339 | 0.038 | 0.18774 |  |  |  |
| 6A|048.638907120|4406711|4406711 | 0.044 | 0.20467 |  |  |  |

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| **Drought-stressed** | **Non-stressed** |
| **Marker** | **Perm P** | **Marker R2** | **Marker** | **Perm P** | **Marker R2** |
| **Spikelet per spike** |
| 6A|028.951443700|1094966|1094966 | 0.003 | 0.31618 | 6B|030.951829030|1094565|1094565 | 0.004 | 0.29618 |
| 3B|027.228283330|304361|wPt-5432 | 0.004 | 0.27662 | 2B|107.007987900|1087177|1087177 | 0.004 | 0.32519 |
| 6A|048.638907120|2281875|2281875 | 0.004 | 0.3336 | 6B|031.043100140|1237876|1237876 | 0.005 | 0.25697 |
| 5D|019.203412160|1161544|1161544 | 0.006 | 0.26843 | 5B|000.000000000|3023157|3023157 | 0.005 | 0.28927 |
| 2D|126.901211300|1109826|1109826 | 0.007 | 0.25933 | 5A|081.525617550|4542594|4542594 | 0.006 | 0.28448 |
| 3A|134.034465000|3945820|3945820 | 0.007 | 0.28985 | 2D|144.969480900|1104828|1104828 | 0.007 | 0.28341 |
| 1B|063.445873190|3937163|3937163 | 0.007 | 0.29219 | 4B|042.901192180|3954457|3954457 | 0.009 | 0.28057 |
| 1B|176.095445600|1259406|1259406 | 0.009 | 0.25508 | 6B|030.982252730|1252863|1252863 | 0.012 | 0.26518 |
| 3A|004.294450061|4990595|4990595 | 0.009 | 0.28386 | 6A|028.951443700|1094966|1094966 | 0.012 | 0.26633 |
| 6A|049.559984320|2280316|2280316 | 0.009 | 0.30866 | 1D|067.245066070|4262641|4262641 | 0.012 | 0.2701 |
| 3D|147.079710800|1108739|1108739 | 0.01 | 0.2527 | 6B|030.951829030|1765837|1765837 | 0.012 | 0.29597 |
| 2D|144.969480900|1104828|1104828 | 0.013 | 0.27969 | 6A|049.559984320|2280316|2280316 | 0.012 | 0.29643 |
| 4B|042.901192180|3954457|3954457 | 0.017 | 0.27778 | 2D|148.989565100|374614|wPt-4329 | 0.013 | 0.23457 |
| 6B|078.748041400|3958789|3958789 | 0.018 | 0.30002 | 6B|031.199477690|4990947|4990947 | 0.015 | 0.26184 |
| 3A|056.634055130|3934533|3934533 | 0.024 | 0.27215 | 6B|033.035441000|1300029|1300029 | 0.015 | 0.26184 |
| 1D|067.245066070|4262641|4262641 | 0.029 | 0.26746 | 3A|004.285602847|3959705|3959705 | 0.015 | 0.26207 |
| 2A|091.748081010|1117352|1117352 | 0.037 | 0.26411 | 3A|134.034465000|3945820|3945820 | 0.015 | 0.26406 |
| 3A|004.285602847|3959705|3959705 | 0.037 | 0.26454 | 6B|078.748041400|3958789|3958789 | 0.017 | 0.28445 |
| 3A|076.019683050|4394549|4394549 | 0.038 | 0.23379 | 6D|000.191508874|5324047|5324047 | 0.022 | 0.25655 |
| 3A|002.485631701|3952392|3952392 | 0.04 | 0.23339 | 1D|082.419690380|1096857|1096857 | 0.023 | 0.25596 |
| 5B|117.097644100|3950938|3950938 | 0.043 | 0.23173 | 1D|079.958633130|3954634|3954634 | 0.028 | 0.22285 |
|  |  |  | 2D|126.901211300|1109826|1109826 | 0.028 | 0.2231 |
|  |  |  | 3A|004.294450061|4990595|4990595 | 0.028 | 0.2522 |
|  |  |  | 1D|079.417276640|1094132|1094132 | 0.029 | 0.25187 |
|  |  |  | 5D|052.977153290|3532978|3532978 | 0.03 | 0.22179 |
|  |  |  | 3A|004.732320657|4989854|4989854 | 0.031 | 0.21887 |
|  |  |  | 1D|079.079510220|1078020|1078020 | 0.031 | 0.2197 |
|  |  |  | 2B|101.018822200|1113485|1113485 | 0.031 | 0.24993 |
|  |  |  | 6B|031.429488930|1131748|1131748 | 0.031 | 0.2742 |
|  |  |  | 6B|027.222942130|1090582|1090582 | 0.032 | 0.27264 |
|  |  |  | 6B|031.160976350|1724555|1724555 | 0.037 | 0.27002 |
|  |  |  | 6B|031.087340250|4398260|4398260 | 0.039 | 0.26929 |
|  |  |  | 6A|056.724637920|4539672|4539672 | 0.04 | 0.2147 |
|  |  |  | 5B|117.097644100|3950938|3950938 | 0.042 | 0.21408 |
|  |  |  | 6B|035.712467660|4989379|4989379 | 0.042 | 0.24415 |
| **Kernels per spike** |
| 6B|079.586479380|3949288|3949288 | 0.016 | 0.23815 | 6B|030.951829030|1144567|1144567 | 0.002 | 0.26852 |
| 7D|160.711960400|2358656|2358656 | 0.017 | 0.20662 | 2D|153.055365100|1237263|1237263 | 0.003 | 0.23728 |
| 2D|153.055365100|1237263|1237263 | 0.017 | 0.20691 | 5B|117.097644100|3950938|3950938 | 0.003 | 0.23779 |
| 6B|030.951829030|1144567|1144567 | 0.017 | 0.23637 | 6B|030.951829030|1765837|1765837 | 0.004 | 0.2811 |
| 2D|148.989565100|374614|wPt-4329 | 0.019 | 0.20373 | 6B|030.982252730|1252863|1252863 | 0.005 | 0.25133 |
| 1D|058.851037050|5411762|5411762 | 0.021 | 0.23176 | 6B|031.197452460|3939783|3939783 | 0.005 | 0.27574 |
| 6B|029.393612280|1003850|1003850 | 0.022 | 0.25482 | 6B|029.393612280|1003850|1003850 | 0.006 | 0.27067 |
| 6B|031.822757590|4540541|4540541 | 0.025 | 0.25203 | 6B|031.301254040|2276412|2276412 | 0.007 | 0.2463 |
| 6B|031.043100140|1237876|1237876 | 0.029 | 0.19792 | 1D|058.851037050|5411762|5411762 | 0.008 | 0.23862 |
| 5B|000.000000000|3023157|3023157 | 0.036 | 0.2251 | 1B|239.642526900|1249348|1249348 | 0.008 | 0.24518 |
| 6B|026.564442100|1115276|1115276 | 0.039 | 0.24743 | 6B|031.822757590|4540541|4540541 | 0.008 | 0.26855 |
| 5B|001.190695579|1088009|1088009 | 0.044 | 0.22238 | 6B|031.993678630|1234486|1234486 | 0.009 | 0.26076 |

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| **Drought-stressed** | **Non-stressed** |
| **Marker** | **Perm P** | **Marker R2** | **Marker** | **Perm P** | **Marker R2** |
| **Kernels per spike** |
|  |  |  | 2D|148.923115000|1124930|1124930 | 0.012 | 0.20103 |
|  |  |  | 2D|149.648499200|1117423|1117423 | 0.012 | 0.20103 |
|  |  |  | 2D|149.851806300|1260378|1260378 | 0.012 | 0.20103 |
|  |  |  | 2D|150.373883300|1132957|1132957 | 0.012 | 0.20103 |
|  |  |  | 6B|079.586479380|3949288|3949288 | 0.012 | 0.23068 |
|  |  |  | 4B|042.180040830|1081624|1081624 | 0.012 | 0.23374 |
|  |  |  | 4B|042.901192180|1027953|1027953 | 0.012 | 0.23374 |
|  |  |  | 1D|079.417276640|1094132|1094132 | 0.012 | 0.23376 |
|  |  |  | 6A|049.559984320|2280316|2280316 | 0.012 | 0.25411 |
|  |  |  | 6B|021.333495120|1091969|1091969 | 0.012 | 0.2551 |
|  |  |  | 6B|026.564442100|1115276|1115276 | 0.012 | 0.25656 |
|  |  |  | 1A|080.925753810|3938842|3938842 | 0.012 | 0.25695 |
|  |  |  | 2A|127.024087100|3943270|3943270 | 0.014 | 0.197 |
|  |  |  | 2A|123.580916200|3949672|3949672 | 0.014 | 0.22699 |
|  |  |  | 7A|112.746111900|5331823|5331823 | 0.014 | 0.22699 |
|  |  |  | 5B|000.000000000|3023157|3023157 | 0.014 | 0.22718 |
|  |  |  | 6B|030.951829030|2322413|2322413 | 0.023 | 0.24512 |
|  |  |  | 1D|079.417276640|1039789|1039789 | 0.024 | 0.22137 |
|  |  |  | 7B|042.947028100|986776|986776 | 0.025 | 0.21966 |
|  |  |  | 6B|023.023153150|1154773|1154773 | 0.028 | 0.2423 |
|  |  |  | 2D|152.244494700|1104321|1104321 | 0.03 | 0.21798 |
|  |  |  | 2D|155.591825400|1279862|1279862 | 0.034 | 0.21645 |
|  |  |  | 6B|077.148647860|2279482|2279482 | 0.034 | 0.2399 |
|  |  |  | 6B|030.951829030|1139022|1139022 | 0.038 | 0.23815 |
|  |  |  | 6B|029.393612280|1003850|1003850 | 0.039 | 0.23789 |
|  |  |  | 2D|148.923115000|1096024|1096024 | 0.04 | 0.18498 |
|  |  |  | 2D|150.373883300|1122467|1122467 | 0.04 | 0.18498 |
|  |  |  | 6B|041.061995810|2309137|2309137 | 0.042 | 0.21383 |

Perm P = Probability value; R2 = marker-trait correlation