

Supplementary Material

1 Supplementary Data

Supplementary Table 1: Q-values for the WCS affected and unaffected animals with the reference populations.

| Animal ID | Breed | K = 6 | | | | | |
|-----------|--------------|----------|----------|----------|----------|----------|----------|
| | | Q-value | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.054922 | 1.00E-04 |
| DOH27 | DohneMerino | 0.944678 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.054922 | 1.00E-04 |
| WCS71 | WCS-affected | 0.941712 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.057888 | 1.00E-04 |
| DOH18 | DohneMerino | 0.896759 | 1.00E-04 | 1.00E-04 | 0.004517 | 0.098423 | 1.00E-04 |
| DOH17 | DohneMerino | 0.881154 | 0.002735 | 1.00E-04 | 0.037407 | 0.078504 | 1.00E-04 |
| CTRL11 | Unaffected | 0.879235 | 1.00E-04 | 1.00E-04 | 0.036542 | 0.082044 | 0.001979 |
| WCS67 | WCS-affected | 0.877216 | 1.00E-04 | 1.00E-04 | 0.040047 | 0.082438 | 1.00E-04 |
| DOH15 | DohneMerino | 0.863338 | 1.00E-04 | 1.00E-04 | 0.056291 | 0.066943 | 0.013227 |
| WCS97 | WCS-affected | 0.862276 | 0.003933 | 0.002785 | 0.054808 | 0.051768 | 0.02443 |
| WCS68 | WCS-affected | 0.861888 | 1.00E-04 | 0.002643 | 0.039341 | 0.045591 | 0.050437 |
| CTRL10 | Unaffected | 0.860829 | 1.00E-04 | 0.012992 | 0.039675 | 0.036536 | 0.049867 |
| WCS66 | WCS-affected | 0.840815 | 0.019481 | 1.00E-04 | 1.00E-04 | 0.063838 | 0.075666 |
| CTRL12 | Unaffected | 0.839832 | 0.017616 | 1.00E-04 | 1.00E-04 | 0.063169 | 0.079183 |
| WCS106 | WCS-affected | 0.837103 | 0.017708 | 0.017484 | 0.011701 | 0.07158 | 0.044423 |
| WCS108 | WCS-affected | 0.83407 | 0.018867 | 0.018496 | 0.039512 | 0.053526 | 0.03553 |
| DOH13 | DohneMerino | 0.833269 | 0.033992 | 1.00E-04 | 0.033195 | 0.059989 | 0.039455 |
| CTRL9 | Unaffected | 0.826333 | 0.00261 | 1.00E-04 | 0.001926 | 0.064212 | 0.104819 |
| WCS70 | WCS-affected | 0.825105 | 0.003973 | 1.00E-04 | 0.0051 | 0.065584 | 0.100138 |
| WCS69 | WCS-affected | 0.820297 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.083313 | 0.09609 |
| DOH28 | DohneMerino | 0.818345 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.083687 | 0.097669 |
| DOR8 | Dorper | 0.814599 | 0.014994 | 1.00E-04 | 0.065738 | 0.072659 | 0.03191 |
| WCS104 | WCS-affected | 0.812171 | 0.004336 | 0.007967 | 0.051621 | 0.058766 | 0.06514 |
| DOH43 | DohneMerino | 0.811156 | 0.000449 | 1.00E-04 | 0.135804 | 1.00E-04 | 0.052391 |
| WCS107 | WCS-affected | 0.800635 | 0.010382 | 0.002878 | 0.056791 | 0.073421 | 0.055893 |
| WCS111 | WCS-affected | 0.79473 | 1.00E-04 | 0.023765 | 0.038612 | 0.061031 | 0.081763 |
| WCS102 | WCS-affected | 0.793615 | 0.026049 | 0.001036 | 0.066184 | 0.054436 | 0.05868 |
| WCS101 | WCS-affected | 0.782085 | 0.029169 | 1.00E-04 | 0.050062 | 0.066498 | 0.072087 |
| CTRL7 | Unaffected | 0.7761 | 1.00E-04 | 0.003119 | 0.061833 | 0.049676 | 0.109172 |
| WCS99 | WCS-affected | 0.770372 | 0.008991 | 1.00E-04 | 1.00E-04 | 0.067623 | 0.152814 |
| DOH33 | DohneMerino | 0.767287 | 0.019027 | 0.001839 | 0.094895 | 0.054596 | 0.062357 |
| CTRL13 | Unaffected | 0.756449 | 0.00647 | 0.080596 | 0.035373 | 0.054114 | 0.066997 |
| MER87 | Merino | 0.750593 | 0.029511 | 0.011116 | 0.00574 | 0.056969 | 0.146072 |
| MER68 | Merino | 0.748676 | 0.029375 | 0.021474 | 1.00E-04 | 0.061107 | 0.139268 |
| WCS65 | WCS-affected | 0.748013 | 0.005417 | 0.088807 | 0.032279 | 0.050568 | 0.074917 |
| MER78 | Merino | 0.741629 | 0.029169 | 0.003801 | 0.00113 | 0.057395 | 0.166875 |

| | | | | | | | |
|--------|----------------|----------|----------|----------|----------|----------|----------|
| CTRL39 | Unaffected | 0.732818 | 0.04783 | 0.003645 | 1.00E-04 | 0.084283 | 0.131324 |
| MER71 | Merino | 0.729022 | 0.03084 | 0.01836 | 0.004148 | 0.051217 | 0.166413 |
| MER75 | Merino | 0.727172 | 1.00E-04 | 0.030175 | 1.00E-04 | 0.069823 | 0.172631 |
| MER81 | Merino | 0.726262 | 0.001769 | 0.024251 | 1.00E-04 | 0.049945 | 0.197675 |
| MER74 | Merino | 0.726188 | 0.023636 | 0.011542 | 1.00E-04 | 0.043564 | 0.19497 |
| MER85 | Merino | 0.722909 | 0.011242 | 0.021262 | 1.00E-04 | 0.064991 | 0.179496 |
| MER69 | Merino | 0.718754 | 0.031983 | 0.001085 | 1.00E-04 | 0.066154 | 0.181923 |
| MER76 | Merino | 0.716487 | 0.032495 | 0.013135 | 1.00E-04 | 0.06407 | 0.173712 |
| DOH26 | DohneMerino | 0.713473 | 0.032114 | 0.013802 | 0.024008 | 0.045268 | 0.171335 |
| MER77 | Merino | 0.713246 | 0.023661 | 0.024494 | 0.000231 | 0.047559 | 0.190808 |
| MER84 | Merino | 0.711655 | 0.018564 | 0.021475 | 1.00E-04 | 0.046394 | 0.201813 |
| DOH30 | DohneMerino | 0.710651 | 0.05006 | 1.00E-04 | 0.003628 | 0.079569 | 0.155992 |
| MER79 | Merino | 0.710149 | 0.019366 | 0.031243 | 1.00E-04 | 0.044491 | 0.194651 |
| MER89 | Merino | 0.707799 | 0.013034 | 0.030297 | 1.00E-04 | 0.05848 | 0.19029 |
| MER88 | Merino | 0.704541 | 0.027904 | 0.040144 | 1.00E-04 | 0.052115 | 0.175197 |
| CTRL8 | Unaffected | 0.704092 | 0.015419 | 0.001372 | 1.00E-04 | 0.053638 | 0.22538 |
| MER73 | Merino | 0.702255 | 0.018351 | 0.008883 | 1.00E-04 | 0.058901 | 0.211509 |
| MER82 | Merino | 0.700888 | 0.012418 | 0.028 | 1.00E-04 | 0.065687 | 0.192907 |
| DOH31 | DohneMerino | 0.70047 | 0.034367 | 0.009598 | 0.087034 | 0.052695 | 0.115837 |
| MER72 | Merino | 0.698802 | 0.020241 | 0.039308 | 1.00E-04 | 0.056389 | 0.185161 |
| MER70 | Merino | 0.698682 | 0.017639 | 0.031199 | 1.00E-04 | 0.059007 | 0.193374 |
| CTRL23 | Unaffected | 0.697298 | 1.00E-04 | 0.028093 | 0.110248 | 1.00E-04 | 0.164161 |
| CTRL6 | Unaffected | 0.693672 | 0.009993 | 1.00E-04 | 0.020024 | 0.053886 | 0.222325 |
| DOH42 | DohneMerino | 0.693294 | 0.054288 | 0.030392 | 0.063171 | 0.047686 | 0.111169 |
| DOH29 | DohneMerino | 0.689979 | 0.035413 | 1.00E-04 | 1.00E-04 | 0.090995 | 0.183413 |
| WCS96 | WCS-affected | 0.688668 | 0.042048 | 1.00E-04 | 1.00E-04 | 0.066763 | 0.202321 |
| DOR9 | Dorper | 0.687872 | 0.058127 | 0.004571 | 1.00E-04 | 0.071294 | 0.178036 |
| MER90 | Merino | 0.680995 | 0.015497 | 0.04433 | 1.00E-04 | 0.066 | 0.193079 |
| DOH32 | DohneMerino | 0.680129 | 0.012429 | 1.00E-04 | 0.095704 | 0.048961 | 0.162677 |
| MER65 | Merino | 0.678685 | 0.001557 | 0.041241 | 1.00E-04 | 0.041143 | 0.237275 |
| MER66 | Merino | 0.677589 | 0.022685 | 0.011839 | 1.00E-04 | 0.049562 | 0.238226 |
| MER67 | Merino | 0.674633 | 0.008387 | 0.029028 | 0.006652 | 0.045639 | 0.23566 |
| MER80 | Merino | 0.674579 | 0.019738 | 0.030109 | 0.000378 | 0.053611 | 0.221584 |
| MER49 | Merino | 0.670301 | 1.00E-04 | 0.129906 | 0.199493 | 1.00E-04 | 1.00E-04 |
| MER43 | Merino | 0.669295 | 1.00E-04 | 0.120971 | 0.209434 | 1.00E-04 | 1.00E-04 |
| MER83 | Merino | 0.666118 | 0.030574 | 0.035714 | 1.00E-04 | 0.038219 | 0.229276 |
| WCS5 | WCS-affected | 0.660387 | 0.028819 | 0.103753 | 0.206842 | 1.00E-04 | 1.00E-04 |
| MER59 | Merino | 0.656435 | 0.014546 | 0.126889 | 0.195897 | 0.006133 | 1.00E-04 |
| MER54 | Merino | 0.656102 | 0.019154 | 0.103858 | 0.220686 | 1.00E-04 | 1.00E-04 |
| SAMM10 | SAMuttonMerino | 0.650206 | 0.004259 | 0.122939 | 0.222397 | 1.00E-04 | 1.00E-04 |
| MER61 | Merino | 0.647737 | 0.021308 | 0.118721 | 0.195933 | 0.000802 | 0.015499 |
| MER45 | Merino | 0.646499 | 0.01274 | 0.125022 | 0.215539 | 1.00E-04 | 1.00E-04 |
| WCS2 | WCS-affected | 0.646067 | 0.000708 | 0.146591 | 0.194837 | 1.00E-04 | 0.011696 |
| MER86 | Merino | 0.643903 | 0.045299 | 0.03425 | 1.00E-04 | 0.046765 | 0.229683 |

| | | | | | | | |
|--------|--------------|----------|----------|----------|----------|----------|----------|
| WCS109 | WCS-affected | 0.632034 | 0.020633 | 0.042532 | 0.078263 | 0.048073 | 0.178465 |
| AFR18 | Afrino | 0.631175 | 1.00E-04 | 0.122592 | 0.200116 | 0.028789 | 0.017227 |
| MER51 | Merino | 0.630781 | 1.00E-04 | 0.130244 | 0.227855 | 1.00E-04 | 0.010921 |
| MER56 | Merino | 0.629576 | 0.008866 | 0.151938 | 0.207519 | 1.00E-04 | 0.002002 |
| MER47 | Merino | 0.627683 | 0.017275 | 0.135895 | 0.20109 | 0.006859 | 0.011198 |
| AFR10 | Afrino | 0.626981 | 0.003917 | 0.149534 | 0.190496 | 0.013513 | 0.015558 |
| MER62 | Merino | 0.626036 | 0.009698 | 0.127321 | 0.20478 | 1.00E-04 | 0.032065 |
| MER32 | Merino | 0.620545 | 0.008892 | 0.136189 | 0.206748 | 1.00E-04 | 0.027526 |
| AFR25 | Afrino | 0.618359 | 0.022911 | 0.133075 | 0.181433 | 0.017895 | 0.026327 |
| MER52 | Merino | 0.61601 | 0.014832 | 0.138227 | 0.20667 | 1.00E-04 | 0.024161 |
| AFR2 | Afrino | 0.608825 | 0.021939 | 0.114379 | 0.20481 | 0.029573 | 0.020474 |
| SAM9 | SAMerino | 0.607779 | 0.024913 | 0.141675 | 0.201278 | 1.00E-04 | 0.024254 |
| MER38 | Merino | 0.605824 | 0.014887 | 0.118046 | 0.225592 | 1.00E-04 | 0.035551 |
| AFR6 | Afrino | 0.604495 | 0.017337 | 0.142208 | 0.186344 | 0.021708 | 0.027908 |
| MER28 | Merino | 0.599241 | 0.024342 | 0.158292 | 0.179254 | 1.00E-04 | 0.03877 |
| MER21 | Merino | 0.59778 | 0.004572 | 0.140779 | 0.214641 | 1.00E-04 | 0.042128 |
| MER42 | Merino | 0.596298 | 1.00E-04 | 0.154312 | 0.227589 | 1.00E-04 | 0.0216 |
| AFR33 | Afrino | 0.596009 | 0.021863 | 0.148052 | 0.184692 | 0.031649 | 0.017735 |
| MER34 | Merino | 0.594317 | 1.00E-04 | 0.139303 | 0.227968 | 1.00E-04 | 0.038211 |
| AFR19 | Afrino | 0.593154 | 0.006815 | 0.137789 | 0.194449 | 1.00E-04 | 0.067694 |
| AFR14 | Afrino | 0.59306 | 0.014965 | 0.157739 | 0.196355 | 0.00857 | 0.029312 |
| WCS88 | WCS-affected | 0.585159 | 0.076482 | 0.087993 | 0.093183 | 0.00093 | 0.156253 |
| WCS110 | WCS-affected | 0.58466 | 0.087521 | 0.008466 | 0.001872 | 0.111091 | 0.206391 |
| MER25 | Merino | 0.581524 | 0.044656 | 0.132641 | 0.188475 | 0.019278 | 0.033426 |
| WCS1 | WCS-affected | 0.568988 | 0.0394 | 0.134081 | 0.195439 | 1.00E-04 | 0.061992 |
| MER39 | Merino | 0.567273 | 0.007737 | 0.141288 | 0.190158 | 1.00E-04 | 0.093445 |
| MER57 | Merino | 0.562653 | 0.046033 | 0.148913 | 0.193684 | 0.00783 | 0.040887 |
| MER23 | Merino | 0.561739 | 0.003798 | 0.160113 | 0.218807 | 1.00E-04 | 0.055443 |
| MER31 | Merino | 0.560295 | 0.018729 | 0.154001 | 0.20204 | 1.00E-04 | 0.064835 |
| WCS6 | WCS-affected | 0.558297 | 0.016509 | 0.150178 | 0.215255 | 1.00E-04 | 0.059661 |
| MER35 | Merino | 0.553923 | 0.028556 | 0.137117 | 0.213289 | 1.00E-04 | 0.067015 |
| AFR34 | Afrino | 0.552419 | 0.059332 | 0.147814 | 0.184652 | 1.00E-04 | 0.055683 |
| AFR16 | Afrino | 0.552033 | 0.045464 | 0.15274 | 0.177623 | 0.016417 | 0.055725 |
| AFR15 | Afrino | 0.550521 | 0.042775 | 0.131658 | 0.228004 | 0.000582 | 0.04646 |
| MER19 | Merino | 0.548526 | 0.026713 | 0.145051 | 0.191922 | 1.00E-04 | 0.087689 |
| MER27 | Merino | 0.542715 | 0.029407 | 0.143852 | 0.221266 | 1.00E-04 | 0.062661 |
| AFR22 | Afrino | 0.535821 | 0.056838 | 0.14542 | 0.173849 | 0.021075 | 0.066998 |
| AFR3 | Afrino | 0.52917 | 0.071111 | 0.161947 | 0.170844 | 0.013869 | 0.053058 |
| AFR26 | Afrino | 0.528326 | 0.064006 | 0.132195 | 0.203302 | 0.001989 | 0.070182 |
| DOH19 | DohneMerino | 0.527593 | 0.022464 | 0.020051 | 0.076433 | 0.059995 | 0.293464 |
| CTRL14 | Unaffected | 0.519714 | 0.02648 | 0.004764 | 1.00E-04 | 0.069261 | 0.379681 |
| WCS64 | WCS-affected | 0.516042 | 0.022405 | 1.00E-04 | 1.00E-04 | 0.073384 | 0.387969 |
| AFR7 | Afrino | 0.510002 | 0.075858 | 0.145626 | 0.166049 | 0.031625 | 0.07084 |
| AFR11 | Afrino | 0.505749 | 0.0539 | 0.148551 | 0.177289 | 0.029158 | 0.085354 |

| | | | | | | | |
|---------|----------------|----------|----------|----------|----------|----------|----------|
| DOR10 | Dorper | 0.475657 | 0.064347 | 0.001459 | 0.029356 | 0.069764 | 0.359419 |
| MER17 | Merino | 0.466901 | 0.092019 | 0.149927 | 0.165684 | 0.017544 | 0.107924 |
| DOH44 | DohneMerino | 0.447579 | 0.02908 | 0.107375 | 0.138473 | 0.054216 | 0.223276 |
| DOR11 | Dorper | 0.425226 | 0.027928 | 0.051996 | 0.165491 | 0.039563 | 0.289795 |
| DOH16 | DohneMerino | 0.349882 | 0.069164 | 0.15836 | 0.214478 | 0.05895 | 0.149167 |
| WCS53 | WCS-affected | 0.327505 | 0.1157 | 0.227228 | 0.205082 | 0.01893 | 0.105555 |
| MER16 | Merino | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| MER36 | Merino | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| MER44 | Merino | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| MER46 | Merino | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| MER50 | Merino | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| MER60 | Merino | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| SAMM8 | SAMuttonMerino | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| WCS3 | WCS-affected | 1.00E-04 | 0.997954 | 1.00E-04 | 1.00E-04 | 0.001646 | 1.00E-04 |
| MER55 | Merino | 1.00E-04 | 0.996465 | 1.00E-04 | 1.00E-04 | 0.003135 | 1.00E-04 |
| MER29 | Merino | 1.00E-04 | 0.995989 | 1.00E-04 | 0.003611 | 1.00E-04 | 1.00E-04 |
| MER58 | Merino | 1.00E-04 | 0.99259 | 1.00E-04 | 0.007011 | 1.00E-04 | 1.00E-04 |
| MER48 | Merino | 1.00E-04 | 0.99223 | 1.00E-04 | 1.00E-04 | 0.007371 | 1.00E-04 |
| MER63 | Merino | 1.00E-04 | 0.990473 | 1.00E-04 | 0.002928 | 1.00E-04 | 0.006299 |
| AFR5 | Afrino | 0.023052 | 0.967147 | 0.002031 | 1.00E-04 | 1.00E-04 | 0.00757 |
| MER12 | Merino | 0.008721 | 0.966991 | 1.00E-04 | 1.00E-04 | 0.023988 | 1.00E-04 |
| AFR9 | Afrino | 0.010906 | 0.964132 | 1.00E-04 | 0.006737 | 0.007447 | 0.010679 |
| MER53 | Merino | 0.02904 | 0.952676 | 1.00E-04 | 0.012724 | 0.00536 | 1.00E-04 |
| AFR1 | Afrino | 0.03236 | 0.949948 | 0.002999 | 0.014493 | 1.00E-04 | 1.00E-04 |
| AFR24 | Afrino | 0.017355 | 0.949055 | 0.013232 | 0.020158 | 1.00E-04 | 1.00E-04 |
| MEATM13 | MeatMaster | 0.015756 | 0.94769 | 0.004807 | 0.012284 | 0.01936 | 0.000102 |
| AFR40 | Afrino | 0.024124 | 0.945076 | 1.00E-04 | 0.020512 | 1.00E-04 | 0.010089 |
| MER40 | Merino | 1.00E-04 | 0.944664 | 1.00E-04 | 1.00E-04 | 0.054936 | 1.00E-04 |
| AFR36 | Afrino | 0.019595 | 0.939563 | 0.020921 | 0.019722 | 1.00E-04 | 1.00E-04 |
| AFR28 | Afrino | 0.043164 | 0.933488 | 0.003105 | 0.020043 | 1.00E-04 | 1.00E-04 |
| MEATM19 | MeatMaster | 0.031596 | 0.924491 | 0.00834 | 0.035373 | 1.00E-04 | 1.00E-04 |
| AFR17 | Afrino | 0.019452 | 0.923777 | 0.015963 | 0.01519 | 0.002673 | 0.022945 |
| AFR20 | Afrino | 0.022949 | 0.90229 | 0.021608 | 0.047133 | 1.00E-04 | 0.00592 |
| MEATM6 | MeatMaster | 0.029948 | 0.8881 | 0.036687 | 0.008564 | 0.027434 | 0.009268 |
| MEATM18 | MeatMaster | 0.034517 | 0.887025 | 0.004591 | 0.011367 | 0.041946 | 0.020553 |
| WCS4 | WCS-affected | 0.03164 | 0.887013 | 0.018131 | 0.011551 | 0.047521 | 0.004146 |
| SAMM9 | SAMuttonMerino | 0.050251 | 0.881271 | 0.009216 | 0.035042 | 0.022956 | 0.001265 |
| AFR32 | Afrino | 0.05896 | 0.87555 | 0.021094 | 0.034466 | 1.00E-04 | 0.009831 |
| MEATM25 | MeatMaster | 0.015062 | 0.87504 | 0.01189 | 0.045827 | 0.016531 | 0.03565 |
| MER14 | Merino | 0.037994 | 0.870444 | 0.016215 | 0.038449 | 0.028189 | 0.00871 |
| MER41 | Merino | 0.04644 | 0.869862 | 0.008651 | 0.050018 | 0.018918 | 0.006112 |
| MER22 | Merino | 0.069771 | 0.869352 | 0.019853 | 0.040825 | 1.00E-04 | 1.00E-04 |
| AFR45 | Afrino | 0.003955 | 0.868977 | 0.042613 | 1.00E-04 | 0.070064 | 0.014291 |
| MEATM22 | MeatMaster | 0.042395 | 0.865388 | 0.0278 | 0.037349 | 0.005782 | 0.021286 |

| | | | | | | | |
|---------|------------------|----------|----------|----------|----------|----------|----------|
| DOR22 | Dorper | 0.016552 | 0.865124 | 0.01942 | 0.036782 | 0.038096 | 0.024026 |
| DOR17 | Dorper | 0.061368 | 0.86197 | 0.027477 | 0.046849 | 0.001455 | 0.000882 |
| MER26 | Merino | 0.045451 | 0.861068 | 0.028035 | 0.012264 | 0.042043 | 0.01114 |
| MER37 | Merino | 0.043549 | 0.858683 | 0.028592 | 0.015595 | 0.023398 | 0.030183 |
| MEATM7 | MeatMaster | 0.044748 | 0.857624 | 0.017887 | 0.040308 | 0.004753 | 0.034681 |
| AFR13 | Afrino | 0.077736 | 0.855213 | 0.001434 | 0.059008 | 0.003887 | 0.002722 |
| BHP2 | BlackheadPersian | 0.027493 | 0.853153 | 0.023381 | 0.039536 | 0.029033 | 0.027405 |
| MER15 | Merino | 0.063085 | 0.850252 | 0.016027 | 0.063029 | 1.00E-04 | 0.007508 |
| DOR16 | Dorper | 0.066701 | 0.846481 | 0.033671 | 0.043316 | 0.009269 | 0.000561 |
| MER6 | Merino | 0.056266 | 0.845747 | 0.007402 | 0.050314 | 0.034965 | 0.005306 |
| MER13 | Merino | 0.077467 | 0.835856 | 0.014134 | 0.038634 | 0.018816 | 0.015094 |
| MER33 | Merino | 0.059082 | 0.830515 | 0.041942 | 0.028583 | 0.039778 | 1.00E-04 |
| MER24 | Merino | 0.036723 | 0.829332 | 0.034355 | 0.023726 | 0.054205 | 0.02166 |
| MEATM1 | MeatMaster | 0.069913 | 0.823444 | 0.026107 | 0.055692 | 0.009895 | 0.014949 |
| AFR49 | Afrino | 0.048238 | 0.81192 | 0.027927 | 0.036609 | 0.061555 | 0.013751 |
| MER20 | Merino | 0.069129 | 0.797429 | 0.02291 | 0.086628 | 1.00E-04 | 0.023805 |
| MEATM12 | MeatMaster | 0.067278 | 0.776622 | 0.05657 | 0.046698 | 0.02739 | 0.025441 |
| BHP6 | BlackheadPersian | 0.0604 | 0.766075 | 0.044806 | 0.050605 | 0.050332 | 0.027783 |
| MER18 | Merino | 0.095287 | 0.749867 | 0.054451 | 0.072263 | 1.00E-04 | 0.028031 |
| AFR41 | Afrino | 0.081087 | 0.73855 | 0.056607 | 0.076647 | 0.019605 | 0.027504 |
| BHP13 | BlackheadPersian | 0.062768 | 0.736959 | 0.053877 | 0.079711 | 0.005617 | 0.061067 |
| MEATM46 | MeatMaster | 0.070348 | 0.73672 | 0.068034 | 0.070618 | 0.021749 | 0.032531 |
| MEATM31 | MeatMaster | 0.093084 | 0.710276 | 0.061159 | 0.084592 | 1.00E-04 | 0.050789 |
| MEATM44 | MeatMaster | 0.091394 | 0.683454 | 0.040263 | 0.089826 | 0.047438 | 0.047625 |
| MER30 | Merino | 0.108819 | 0.582218 | 0.058343 | 0.08634 | 0.116589 | 0.04769 |
| MEATM30 | MeatMaster | 0.104253 | 0.493403 | 0.100917 | 0.090531 | 0.142096 | 0.0688 |
| MEATM35 | MeatMaster | 0.087595 | 0.492437 | 0.111312 | 0.08778 | 0.142037 | 0.078839 |
| MEATM42 | MeatMaster | 0.133926 | 0.481263 | 0.091587 | 0.090472 | 0.12067 | 0.082083 |
| AFR50 | Afrino | 0.125433 | 0.479281 | 0.085632 | 0.107141 | 0.124238 | 0.078275 |
| MER9 | Merino | 0.127291 | 0.468395 | 0.101653 | 0.109169 | 0.128318 | 0.065173 |
| MEATM40 | MeatMaster | 0.12484 | 0.464686 | 0.10777 | 0.092489 | 0.137809 | 0.072407 |
| MER3 | Merino | 0.142861 | 0.46109 | 0.090581 | 0.108551 | 0.115982 | 0.080936 |
| BHP3 | BlackheadPersian | 0.142272 | 0.454857 | 0.09438 | 0.125725 | 0.109256 | 0.07351 |
| BHP10 | BlackheadPersian | 0.143547 | 0.45374 | 0.087917 | 0.129767 | 0.102995 | 0.082033 |
| BHP7 | BlackheadPersian | 0.136238 | 0.445499 | 0.101768 | 0.132258 | 0.110612 | 0.073626 |
| BHP14 | BlackheadPersian | 0.143533 | 0.43989 | 0.113684 | 0.129914 | 0.074034 | 0.098945 |
| DOH20 | DohneMerino | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| WCS76 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| WCS113 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| WCS118 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| WCS116 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.997215 | 1.00E-04 | 0.002385 | 1.00E-04 |
| DOH11 | DohneMerino | 1.00E-04 | 1.00E-04 | 0.997111 | 0.002039 | 0.00055 | 1.00E-04 |
| WCS112 | WCS-affected | 1.00E-04 | 0.020565 | 0.979035 | 1.00E-04 | 1.00E-04 | 1.00E-04 |
| WCS100 | WCS-affected | 1.00E-04 | 0.015419 | 0.973649 | 0.00676 | 0.003972 | 1.00E-04 |

| | | | | | | | |
|--------|------------------|----------|----------|----------|----------|----------|----------|
| NAM3 | NamakwaAfrikaner | 0.011908 | 1.00E-04 | 0.971816 | 0.004747 | 0.011329 | 1.00E-04 |
| DOH25 | DohneMerino | 0.016282 | 0.006963 | 0.96456 | 1.00E-04 | 0.011995 | 1.00E-04 |
| WCS80 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.963817 | 0.035784 | 1.00E-04 | 1.00E-04 |
| WCS75 | WCS-affected | 1.00E-04 | 0.009131 | 0.960465 | 0.00871 | 0.021494 | 1.00E-04 |
| DOH4 | DohneMerino | 0.000193 | 1.00E-04 | 0.952788 | 0.037077 | 0.009742 | 1.00E-04 |
| CTRL59 | Unaffected | 1.00E-04 | 0.022539 | 0.949884 | 1.00E-04 | 0.017341 | 0.010036 |
| CTRL60 | Unaffected | 1.00E-04 | 0.041488 | 0.945214 | 1.00E-04 | 1.00E-04 | 0.012998 |
| CTRL30 | Unaffected | 1.00E-04 | 0.033164 | 0.944792 | 1.00E-04 | 0.012156 | 0.009689 |
| NAM5 | NamakwaAfrikaner | 0.030972 | 1.00E-04 | 0.940133 | 0.017746 | 0.010949 | 1.00E-04 |
| WCS74 | WCS-affected | 1.00E-04 | 0.017621 | 0.933792 | 0.03924 | 0.009147 | 1.00E-04 |
| WCS114 | WCS-affected | 0.002028 | 0.021433 | 0.933702 | 0.042637 | 1.00E-04 | 1.00E-04 |
| CTRL55 | Unaffected | 1.00E-04 | 0.025552 | 0.932819 | 1.00E-04 | 0.024273 | 0.017156 |
| CTRL57 | Unaffected | 1.00E-04 | 0.045675 | 0.929367 | 1.00E-04 | 0.010734 | 0.014024 |
| WCS91 | WCS-affected | 1.00E-04 | 0.022484 | 0.928968 | 0.030354 | 0.011013 | 0.007081 |
| DOH14 | DohneMerino | 1.00E-04 | 0.011324 | 0.926668 | 0.061708 | 1.00E-04 | 1.00E-04 |
| DOH22 | DohneMerino | 1.00E-04 | 0.011065 | 0.925509 | 0.035943 | 0.023876 | 0.003507 |
| WCS85 | WCS-affected | 1.00E-04 | 0.010602 | 0.925508 | 0.049064 | 0.013666 | 0.00106 |
| DOH48 | DohneMerino | 1.00E-04 | 0.048359 | 0.924304 | 1.00E-04 | 0.006409 | 0.020728 |
| WCS115 | WCS-affected | 0.017664 | 0.002952 | 0.922947 | 0.034537 | 0.021801 | 1.00E-04 |
| CTRL62 | Unaffected | 0.026142 | 0.01877 | 0.922913 | 1.00E-04 | 0.005078 | 0.026996 |
| WCS83 | WCS-affected | 0.008157 | 0.020588 | 0.921983 | 0.033164 | 1.00E-04 | 0.016008 |
| WCS84 | WCS-affected | 1.00E-04 | 0.049462 | 0.917762 | 1.00E-04 | 0.032476 | 1.00E-04 |
| NAM6 | NamakwaAfrikaner | 0.022368 | 1.00E-04 | 0.916258 | 0.052347 | 0.008827 | 1.00E-04 |
| CTRL58 | Unaffected | 0.003313 | 0.018618 | 0.915015 | 0.013905 | 0.022367 | 0.026783 |
| CTRL31 | Unaffected | 0.024326 | 0.042946 | 0.910166 | 0.0091 | 0.013361 | 1.00E-04 |
| CTRL53 | Unaffected | 1.00E-04 | 0.01103 | 0.909549 | 0.010768 | 0.028894 | 0.039659 |
| CTRL24 | Unaffected | 0.000268 | 0.024306 | 0.908993 | 0.006768 | 0.046492 | 0.013173 |
| DOH47 | DohneMerino | 0.009685 | 0.033823 | 0.908984 | 1.00E-04 | 0.024467 | 0.022941 |
| WCS93 | WCS-affected | 0.011412 | 1.00E-04 | 0.907024 | 0.066197 | 0.015167 | 1.00E-04 |
| NAM1 | NamakwaAfrikaner | 1.00E-04 | 0.002687 | 0.902498 | 0.067893 | 0.024146 | 0.002677 |
| WCS87 | WCS-affected | 1.00E-04 | 0.005544 | 0.898878 | 0.063276 | 0.032103 | 1.00E-04 |
| WCS89 | WCS-affected | 1.00E-04 | 0.000149 | 0.895921 | 0.077701 | 0.026028 | 1.00E-04 |
| NAM2 | NamakwaAfrikaner | 1.00E-04 | 1.00E-04 | 0.895233 | 0.082876 | 0.021591 | 1.00E-04 |
| WCS79 | WCS-affected | 1.00E-04 | 0.003388 | 0.890157 | 0.106155 | 1.00E-04 | 1.00E-04 |
| NAM4 | NamakwaAfrikaner | 1.00E-04 | 0.028219 | 0.890027 | 1.00E-04 | 0.081454 | 1.00E-04 |
| WCS81 | WCS-affected | 0.002005 | 0.030662 | 0.889889 | 0.061665 | 0.015679 | 1.00E-04 |
| DOH49 | DohneMerino | 0.011662 | 0.033172 | 0.888322 | 0.002773 | 0.028351 | 0.035721 |
| DOR13 | Dorper | 0.006666 | 0.037002 | 0.883254 | 0.041883 | 0.021387 | 0.009809 |
| WCS82 | WCS-affected | 0.005179 | 0.008747 | 0.87602 | 0.077316 | 0.032639 | 1.00E-04 |
| CTRL21 | Unaffected | 1.00E-04 | 0.045235 | 0.875148 | 0.022963 | 0.023746 | 0.032807 |
| DOH5 | DohneMerino | 0.012862 | 0.00871 | 0.874266 | 0.093435 | 0.010627 | 1.00E-04 |
| WCS98 | WCS-affected | 0.005428 | 0.033361 | 0.867345 | 0.070303 | 0.023462 | 1.00E-04 |
| WCS119 | WCS-affected | 1.00E-04 | 0.020967 | 0.860757 | 0.067974 | 0.050101 | 1.00E-04 |
| WCS73 | WCS-affected | 1.00E-04 | 0.009071 | 0.856095 | 0.128348 | 1.00E-04 | 0.006286 |

| | | | | | | | |
|---------|--------------|----------|----------|----------|----------|----------|----------|
| CTRL4 | Unaffected | 1.00E-04 | 0.032671 | 0.853415 | 0.064461 | 0.040097 | 0.009257 |
| DOH2 | DohneMerino | 0.031299 | 1.00E-04 | 0.851078 | 0.078467 | 0.034339 | 0.004717 |
| CTRL34 | Unaffected | 0.031312 | 0.028177 | 0.849314 | 0.066256 | 0.010647 | 0.014295 |
| CTRL3 | Unaffected | 1.00E-04 | 0.011282 | 0.847993 | 0.11629 | 0.024235 | 1.00E-04 |
| DOH24 | DohneMerino | 0.00551 | 0.008762 | 0.84698 | 0.115445 | 0.023203 | 1.00E-04 |
| CTRL5 | Unaffected | 0.03779 | 0.011687 | 0.82538 | 0.091107 | 0.033937 | 1.00E-04 |
| WCS123 | WCS-affected | 0.001715 | 0.021583 | 0.821471 | 0.115734 | 0.032002 | 0.007495 |
| CTRL2 | Unaffected | 1.00E-04 | 0.028136 | 0.820754 | 0.115333 | 0.024063 | 0.011614 |
| DOH46 | DohneMerino | 0.003301 | 0.021831 | 0.819096 | 0.093185 | 0.040878 | 0.021709 |
| WCS92 | WCS-affected | 0.02051 | 0.02723 | 0.812058 | 0.112615 | 0.010501 | 0.017086 |
| WCS120 | WCS-affected | 1.00E-04 | 0.0163 | 0.804025 | 0.118219 | 0.061256 | 1.00E-04 |
| CTRL16 | Unaffected | 0.045539 | 0.020159 | 0.80229 | 0.087419 | 0.026587 | 0.018006 |
| WCS121 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.793397 | 0.152188 | 0.054115 | 1.00E-04 |
| CTRL56 | Unaffected | 0.005855 | 0.046485 | 0.786258 | 0.088967 | 0.043527 | 0.028908 |
| CTRL22 | Unaffected | 0.022893 | 0.030981 | 0.778942 | 0.122069 | 0.037713 | 0.007403 |
| CTRL63 | Unaffected | 0.013057 | 0.040811 | 0.778231 | 0.086815 | 0.064694 | 0.016392 |
| MER91 | Merino | 0.00094 | 0.081883 | 0.76378 | 0.005682 | 0.137725 | 0.00999 |
| MER10 | Merino | 0.079916 | 1.00E-04 | 0.745892 | 0.039126 | 0.01435 | 0.120615 |
| WCS124 | WCS-affected | 1.00E-04 | 0.009277 | 0.74072 | 0.227065 | 0.022738 | 1.00E-04 |
| MER11 | Merino | 0.104194 | 1.00E-04 | 0.73353 | 0.062548 | 1.00E-04 | 0.099528 |
| MEATM36 | MeatMaster | 0.107271 | 1.00E-04 | 0.729439 | 0.049443 | 0.013822 | 0.099925 |
| MEATM41 | MeatMaster | 0.085217 | 1.00E-04 | 0.716252 | 0.064352 | 0.031981 | 0.102098 |
| MER7 | Merino | 0.098878 | 1.00E-04 | 0.704168 | 0.063866 | 0.021113 | 0.111874 |
| WCS103 | WCS-affected | 1.00E-04 | 0.035649 | 0.702886 | 0.178099 | 0.066789 | 0.016477 |
| DOH12 | DohneMerino | 0.05027 | 1.00E-04 | 0.69922 | 0.250211 | 1.00E-04 | 1.00E-04 |
| CTRL19 | Unaffected | 0.004595 | 0.05718 | 0.699206 | 0.129912 | 0.069147 | 0.039959 |
| MEATM11 | MeatMaster | 0.093283 | 1.00E-04 | 0.69588 | 0.096948 | 1.00E-04 | 0.113689 |
| MER4 | Merino | 0.086036 | 1.00E-04 | 0.694985 | 0.084815 | 0.041046 | 0.093018 |
| DOR6 | Dorper | 0.009777 | 0.033253 | 0.693107 | 0.184328 | 0.06326 | 0.016276 |
| MEATM43 | MeatMaster | 0.053595 | 0.01732 | 0.689793 | 0.014794 | 0.103961 | 0.120538 |
| MEATM17 | MeatMaster | 0.078328 | 1.00E-04 | 0.68942 | 0.090916 | 0.034236 | 0.107 |
| DOH23 | DohneMerino | 1.00E-04 | 0.006915 | 0.68155 | 0.226718 | 0.084616 | 1.00E-04 |
| DOH37 | DohneMerino | 0.121283 | 1.00E-04 | 0.681295 | 0.180974 | 1.00E-04 | 0.016248 |
| WCS122 | WCS-affected | 1.00E-04 | 0.027087 | 0.679474 | 0.212136 | 0.057649 | 0.023554 |
| DOH34 | DohneMerino | 0.060424 | 1.00E-04 | 0.678958 | 0.202166 | 0.013027 | 0.045326 |
| MEATM45 | MeatMaster | 0.113235 | 1.00E-04 | 0.677068 | 0.093219 | 1.00E-04 | 0.116277 |
| MER5 | Merino | 0.12983 | 1.00E-04 | 0.676665 | 0.087264 | 1.00E-04 | 0.106041 |
| CTRL50 | Unaffected | 0.055474 | 0.018843 | 0.671889 | 0.230501 | 1.00E-04 | 0.023193 |
| MEATM24 | MeatMaster | 0.099845 | 0.000435 | 0.663514 | 0.11899 | 0.008042 | 0.109174 |
| WCS86 | WCS-affected | 0.007181 | 0.044488 | 0.638254 | 0.228345 | 0.048533 | 0.033199 |
| DOR21 | Dorper | 0.090754 | 1.00E-04 | 0.626916 | 0.119398 | 0.050409 | 0.112423 |
| CTRL44 | Unaffected | 0.012194 | 0.010107 | 0.62112 | 0.27595 | 0.066775 | 0.013855 |
| CTRL18 | Unaffected | 0.043886 | 0.014462 | 0.618209 | 0.235415 | 0.054569 | 0.033459 |
| MER1 | Merino | 0.06305 | 0.056647 | 0.617348 | 0.005624 | 0.146207 | 0.111124 |

| | | | | | | | |
|--------|------------------|----------|----------|----------|----------|----------|----------|
| CTRL33 | Unaffected | 0.109987 | 1.00E-04 | 0.615978 | 0.2726 | 1.00E-04 | 0.001235 |
| CTRL1 | Unaffected | 0.000794 | 0.03033 | 0.612656 | 0.262224 | 0.065192 | 0.028805 |
| MEATM5 | MeatMaster | 0.113659 | 1.00E-04 | 0.611214 | 0.158147 | 0.016024 | 0.100856 |
| DOH50 | DohneMerino | 0.06293 | 0.012661 | 0.601061 | 0.276696 | 0.007951 | 0.038701 |
| DOH21 | DohneMerino | 1.00E-04 | 0.037487 | 0.598699 | 0.256696 | 0.106919 | 1.00E-04 |
| WCS117 | WCS-affected | 0.025042 | 0.02133 | 0.591348 | 0.335697 | 0.021644 | 0.004939 |
| DOH45 | DohneMerino | 0.035845 | 0.023166 | 0.584773 | 0.244062 | 0.070323 | 0.041831 |
| CTRL15 | Unaffected | 0.016064 | 0.041326 | 0.570047 | 0.26628 | 0.073801 | 0.032483 |
| DOR15 | Dorper | 0.116001 | 0.006934 | 0.565521 | 0.129089 | 0.075847 | 0.106608 |
| CTRL61 | Unaffected | 0.042503 | 0.019598 | 0.565341 | 0.309161 | 0.034916 | 0.028481 |
| DOR5 | Dorper | 0.042999 | 0.026541 | 0.560107 | 0.281506 | 0.048418 | 0.040428 |
| CTRL29 | Unaffected | 1.00E-04 | 0.024605 | 0.524302 | 0.282027 | 0.129151 | 0.039815 |
| CTRL49 | Unaffected | 0.055642 | 0.034232 | 0.510694 | 0.278064 | 0.078321 | 0.043047 |
| DOR3 | Dorper | 0.017354 | 0.032726 | 0.50311 | 0.383241 | 0.030123 | 0.033448 |
| DOH10 | DohneMerino | 0.055409 | 0.01705 | 0.499279 | 0.391696 | 0.001715 | 0.034852 |
| WCS95 | WCS-affected | 0.045798 | 0.023614 | 0.493813 | 0.396982 | 0.013507 | 0.026285 |
| WCS78 | WCS-affected | 0.02193 | 0.028325 | 0.475666 | 0.460014 | 1.00E-04 | 0.013965 |
| CTRL45 | Unaffected | 0.003087 | 0.044574 | 0.465831 | 0.380988 | 0.083455 | 0.022066 |
| DOH38 | DohneMerino | 0.029416 | 0.059131 | 0.449851 | 0.326781 | 0.072267 | 0.062554 |
| DOR2 | Dorper | 0.025447 | 0.066078 | 0.429098 | 0.360773 | 0.089477 | 0.029127 |
| CTRL41 | Unaffected | 0.027758 | 0.029236 | 0.426595 | 0.421487 | 0.058281 | 0.036643 |
| WCS94 | WCS-affected | 0.031914 | 0.013895 | 0.425838 | 0.5156 | 1.00E-04 | 0.012654 |
| DOH1 | DohneMerino | 0.070227 | 0.030222 | 0.418658 | 0.403165 | 0.043166 | 0.034562 |
| CTRL17 | Unaffected | 0.012373 | 0.074968 | 0.415929 | 0.316564 | 0.122494 | 0.057673 |
| CTRL47 | Unaffected | 1.00E-04 | 0.097697 | 0.41556 | 0.281206 | 0.174535 | 0.030903 |
| AFR27 | Afrino | 1.00E-04 | 0.050874 | 0.379479 | 0.135002 | 0.357546 | 0.076998 |
| BHP5 | BlackheadPersian | 1.00E-04 | 0.061877 | 0.375296 | 0.146868 | 0.360948 | 0.054912 |
| AFR31 | Afrino | 1.00E-04 | 0.065724 | 0.372489 | 0.151472 | 0.331502 | 0.078713 |
| AFR39 | Afrino | 1.00E-04 | 0.053773 | 0.360981 | 0.16403 | 0.35753 | 0.063586 |
| AFR35 | Afrino | 1.00E-04 | 0.049012 | 0.358032 | 0.187222 | 0.331247 | 0.074388 |
| BHP12 | BlackheadPersian | 1.00E-04 | 0.032627 | 0.358018 | 0.182593 | 0.346525 | 0.080137 |
| AFR43 | Afrino | 1.00E-04 | 0.067824 | 0.356601 | 0.148608 | 0.348271 | 0.078595 |
| AFR48 | Afrino | 1.00E-04 | 0.076731 | 0.351738 | 0.156385 | 0.346958 | 0.068088 |
| WCS46 | WCS-affected | 0.218467 | 0.208393 | 0.254789 | 0.084045 | 0.114952 | 0.119355 |
| NAM10 | NamakwaAfrikaner | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 |
| WCS52 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 |
| WCS54 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 |
| WCS60 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 |
| WCS63 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 | 1.00E-04 |
| NAM9 | NamakwaAfrikaner | 1.00E-04 | 1.00E-04 | 0.013915 | 0.985685 | 1.00E-04 | 1.00E-04 |
| WCS61 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.970265 | 0.029335 | 1.00E-04 |
| MER64 | Merino | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.968384 | 0.031216 | 1.00E-04 |
| WCS59 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.005512 | 0.950486 | 0.043702 | 1.00E-04 |
| WCS57 | WCS-affected | 0.007708 | 0.002325 | 0.025675 | 0.950302 | 0.013891 | 1.00E-04 |

| | | | | | | | |
|--------|------------------|----------|----------|----------|----------|----------|----------|
| WCS62 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.050248 | 0.949352 | 1.00E-04 | 1.00E-04 |
| WCS58 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.046353 | 0.948449 | 0.004898 | 1.00E-04 |
| SAM4 | SAMerino | 1.00E-04 | 0.005054 | 0.04258 | 0.938542 | 0.013625 | 1.00E-04 |
| WCS48 | WCS-affected | 0.007609 | 1.00E-04 | 0.032451 | 0.908151 | 0.051589 | 1.00E-04 |
| WCS55 | WCS-affected | 1.00E-04 | 0.016072 | 1.00E-04 | 0.904677 | 0.078951 | 1.00E-04 |
| SAM7 | SAMerino | 1.00E-04 | 0.015962 | 0.027904 | 0.897132 | 0.052996 | 0.005907 |
| WCS56 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.075077 | 0.894304 | 0.030319 | 1.00E-04 |
| NAM8 | NamakwaAfrikaner | 1.00E-04 | 1.00E-04 | 0.058657 | 0.888009 | 0.053034 | 1.00E-04 |
| WCS51 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.052212 | 0.879701 | 0.055552 | 0.012336 |
| WCS49 | WCS-affected | 1.00E-04 | 0.029106 | 0.067344 | 0.874131 | 0.029219 | 1.00E-04 |
| WCS50 | WCS-affected | 0.000962 | 0.035089 | 0.025773 | 0.860621 | 0.077456 | 1.00E-04 |
| WCS47 | WCS-affected | 1.00E-04 | 0.003314 | 0.093231 | 0.834571 | 0.064692 | 0.004092 |
| SAM3 | SAMerino | 1.00E-04 | 0.034369 | 0.059557 | 0.82317 | 0.078842 | 0.003962 |
| SAM2 | SAMerino | 0.017184 | 0.010922 | 0.094444 | 0.820479 | 0.051469 | 0.005502 |
| SAM5 | SAMerino | 1.00E-04 | 0.005981 | 0.079591 | 0.818551 | 0.095677 | 1.00E-04 |
| WCS44 | WCS-affected | 0.023116 | 0.021917 | 0.066062 | 0.818456 | 0.070349 | 1.00E-04 |
| SAM6 | SAMerino | 1.00E-04 | 0.025116 | 0.044302 | 0.817154 | 0.113228 | 1.00E-04 |
| WCS45 | WCS-affected | 0.005562 | 0.004541 | 0.123001 | 0.792629 | 0.05968 | 0.014588 |
| DOH3 | DohneMerino | 0.009463 | 0.016506 | 0.062808 | 0.772112 | 0.101738 | 0.037373 |
| SAM1 | SAMerino | 0.005394 | 0.018324 | 0.187049 | 0.740699 | 0.033419 | 0.015116 |
| SAM8 | SAMerino | 0.051239 | 0.011444 | 0.125149 | 0.734535 | 0.067248 | 0.010385 |
| DOR4 | Dorper | 1.00E-04 | 0.029981 | 0.081767 | 0.732456 | 0.108152 | 0.047544 |
| CTRL27 | Unaffected | 0.039756 | 0.060266 | 0.117273 | 0.708321 | 0.055657 | 0.018727 |
| CTRL32 | Unaffected | 0.023388 | 0.049716 | 0.126913 | 0.685368 | 0.088579 | 0.026037 |
| WCS77 | WCS-affected | 1.00E-04 | 0.058187 | 0.131245 | 0.667636 | 0.108756 | 0.034077 |
| CTRL26 | Unaffected | 0.030819 | 0.039924 | 0.147502 | 0.662407 | 0.085586 | 0.033762 |
| NAM7 | NamakwaAfrikaner | 1.00E-04 | 0.039109 | 0.137504 | 0.65837 | 0.16094 | 0.003978 |
| DOR12 | Dorper | 0.002375 | 0.030344 | 0.196055 | 0.623114 | 0.091748 | 0.056364 |
| CTRL40 | Unaffected | 0.01106 | 0.068394 | 0.143598 | 0.59097 | 0.141846 | 0.044131 |
| CTRL48 | Unaffected | 0.024857 | 0.04734 | 0.205069 | 0.587522 | 0.089123 | 0.04609 |
| CTRL25 | Unaffected | 1.00E-04 | 0.069829 | 0.055936 | 0.585764 | 0.226945 | 0.061427 |
| CTRL51 | Unaffected | 0.028868 | 0.053574 | 0.18078 | 0.578118 | 0.116741 | 0.041919 |
| CTRL38 | Unaffected | 0.027181 | 0.044894 | 0.249911 | 0.573157 | 0.057924 | 0.046933 |
| CTRL36 | Unaffected | 1.00E-04 | 0.054023 | 0.249357 | 0.571084 | 0.085443 | 0.039992 |
| CTRL52 | Unaffected | 0.054359 | 0.045016 | 0.214517 | 0.568577 | 0.072963 | 0.044568 |
| DOR1 | Dorper | 0.004977 | 0.085607 | 0.117458 | 0.567023 | 0.169299 | 0.055637 |
| CTRL54 | Unaffected | 0.010271 | 0.06701 | 0.151319 | 0.552061 | 0.157988 | 0.061351 |
| DOH7 | DohneMerino | 0.05656 | 0.011701 | 0.372862 | 0.549915 | 1.00E-04 | 0.008862 |
| CTRL35 | Unaffected | 1.00E-04 | 0.030589 | 0.322215 | 0.545637 | 0.060168 | 0.041291 |
| WCS90 | WCS-affected | 0.029842 | 0.042002 | 0.276109 | 0.540844 | 0.087147 | 0.024056 |
| CTRL43 | Unaffected | 0.000678 | 0.065016 | 0.198552 | 0.529271 | 0.160023 | 0.046461 |
| DOH6 | DohneMerino | 0.050104 | 0.009433 | 0.390942 | 0.528323 | 1.00E-04 | 0.021098 |
| DOH40 | DohneMerino | 0.03311 | 0.024209 | 0.362239 | 0.520935 | 0.026001 | 0.033506 |
| WCS72 | WCS-affected | 0.064612 | 0.028174 | 0.365111 | 0.51752 | 0.011282 | 0.013302 |

| | | | | | | | |
|---------|------------------|----------|----------|----------|----------|----------|----------|
| DOH9 | DohneMerino | 0.06818 | 0.009607 | 0.40023 | 0.508432 | 0.00579 | 0.007761 |
| CTRL42 | Unaffected | 0.028658 | 0.057018 | 0.238585 | 0.505038 | 0.137798 | 0.032902 |
| DOH39 | DohneMerino | 0.065684 | 0.070918 | 0.281011 | 0.49795 | 0.040983 | 0.043454 |
| CTRL46 | Unaffected | 0.012832 | 0.040762 | 0.288072 | 0.497496 | 0.090581 | 0.070257 |
| DOH8 | DohneMerino | 0.067498 | 0.027301 | 0.393743 | 0.49214 | 1.00E-04 | 0.019218 |
| DOH36 | DohneMerino | 0.042061 | 0.03921 | 0.338094 | 0.490754 | 0.051906 | 0.037976 |
| DOR7 | Dorper | 0.193508 | 1.00E-04 | 0.266233 | 0.462767 | 1.00E-04 | 0.077292 |
| DOH35 | DohneMerino | 0.089258 | 0.033734 | 0.364594 | 0.459819 | 0.011745 | 0.04085 |
| CTRL28 | Unaffected | 0.101085 | 0.013739 | 0.343908 | 0.453334 | 0.037498 | 0.050435 |
| DOH41 | DohneMerino | 0.056442 | 0.069252 | 0.354724 | 0.449519 | 0.043253 | 0.026809 |
| CTRL20 | Unaffected | 0.082406 | 0.046096 | 0.403677 | 0.442347 | 0.002705 | 0.022769 |
| CTRL37 | Unaffected | 0.020322 | 0.045168 | 0.338403 | 0.433022 | 0.099215 | 0.06387 |
| WCS105 | WCS-affected | 0.0022 | 0.032869 | 0.402119 | 0.424892 | 0.086389 | 0.051531 |
| AFR21 | Afrino | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| AFR30 | Afrino | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| AFR42 | Afrino | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| AFR51 | Afrino | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| BHP4 | BlackheadPersian | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| BHP8 | BlackheadPersian | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| DOR14 | Dorper | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| MEATM8 | MeatMaster | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| MEATM10 | MeatMaster | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| MEATM14 | MeatMaster | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| MEATM20 | MeatMaster | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| MEATM23 | MeatMaster | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| MEATM29 | MeatMaster | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 | 1.00E-04 |
| MEATM2 | MeatMaster | 1.00E-04 | 0.000775 | 1.00E-04 | 1.00E-04 | 0.998825 | 1.00E-04 |
| BHP11 | BlackheadPersian | 1.00E-04 | 0.001164 | 1.00E-04 | 1.00E-04 | 0.998436 | 1.00E-04 |
| DOR18 | Dorper | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.015354 | 0.984246 | 1.00E-04 |
| MEATM34 | MeatMaster | 1.00E-04 | 0.011779 | 0.009985 | 1.00E-04 | 0.977936 | 1.00E-04 |
| MEATM4 | MeatMaster | 1.00E-04 | 0.010789 | 1.00E-04 | 0.016282 | 0.964486 | 0.008243 |
| MEATM39 | MeatMaster | 1.00E-04 | 0.016862 | 1.00E-04 | 0.025312 | 0.957526 | 1.00E-04 |
| MEATM48 | MeatMaster | 0.011322 | 1.00E-04 | 1.00E-04 | 0.051614 | 0.930615 | 0.006249 |
| DOR20 | Dorper | 1.00E-04 | 1.00E-04 | 0.008589 | 0.046723 | 0.921178 | 0.02331 |
| MEATM26 | MeatMaster | 1.00E-04 | 0.002845 | 0.016476 | 0.072246 | 0.879221 | 0.029112 |
| AFR46 | Afrino | 0.012542 | 0.015211 | 0.005005 | 0.078712 | 0.878999 | 0.009531 |
| AFR38 | Afrino | 0.02227 | 1.00E-04 | 0.032738 | 0.092422 | 0.828482 | 0.023988 |
| MEATM16 | MeatMaster | 1.00E-04 | 0.027337 | 0.027394 | 0.108803 | 0.796722 | 0.039644 |
| MEATM27 | MeatMaster | 0.04354 | 0.176275 | 0.041554 | 0.169885 | 0.460017 | 0.108728 |
| BHP1 | BlackheadPersian | 0.004389 | 0.181066 | 0.086072 | 0.158716 | 0.452792 | 0.116965 |
| AFR4 | Afrino | 0.03708 | 0.175833 | 0.076726 | 0.164367 | 0.437897 | 0.108097 |
| AFR23 | Afrino | 0.061769 | 0.131963 | 0.034745 | 0.22202 | 0.432601 | 0.116901 |
| MEATM3 | MeatMaster | 0.028794 | 0.177314 | 0.076105 | 0.167373 | 0.428535 | 0.121879 |
| MEATM21 | MeatMaster | 0.06812 | 0.128475 | 0.025735 | 0.24963 | 0.420617 | 0.107423 |

| | | | | | | | |
|---------|------------------|----------|----------|----------|----------|----------|----------|
| BHP9 | BlackheadPersian | 0.041696 | 0.155588 | 0.071933 | 0.187623 | 0.420226 | 0.122935 |
| AFR12 | Afrino | 0.079618 | 0.13039 | 0.028081 | 0.243261 | 0.414188 | 0.104462 |
| AFR44 | Afrino | 0.04413 | 0.134107 | 0.045152 | 0.249933 | 0.409333 | 0.117346 |
| DOR19 | Dorper | 0.074128 | 0.121305 | 0.050975 | 0.249648 | 0.398172 | 0.105771 |
| MEATM9 | MeatMaster | 0.077725 | 0.105999 | 0.044094 | 0.26252 | 0.3929 | 0.116762 |
| AFR8 | Afrino | 0.062843 | 0.108959 | 0.054637 | 0.262695 | 0.38835 | 0.122517 |
| MEATM15 | MeatMaster | 0.078506 | 0.125881 | 0.051503 | 0.252288 | 0.380616 | 0.111206 |
| AFR47 | Afrino | 0.021463 | 0.057382 | 0.271459 | 0.218723 | 0.337406 | 0.093567 |
| WCS43 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.9995 |
| SAMM1 | SAMuttonMerino | 0.003023 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.00317 | 0.993507 |
| WCS7 | WCS-affected | 1.00E-04 | 0.006439 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.993161 |
| SAMM2 | SAMuttonMerino | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.00858 | 0.99102 |
| WCS30 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.008957 | 0.990643 |
| WCS21 | WCS-affected | 0.010522 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.989078 |
| SAMM7 | SAMuttonMerino | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.01316 | 0.98644 |
| WCS36 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.014158 | 1.00E-04 | 0.985442 |
| WCS28 | WCS-affected | 1.00E-04 | 0.007653 | 0.006748 | 0.002457 | 1.00E-04 | 0.982942 |
| WCS38 | WCS-affected | 0.001032 | 0.011043 | 1.00E-04 | 1.00E-04 | 0.007915 | 0.97981 |
| WCS34 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.021023 | 0.978577 |
| WCS33 | WCS-affected | 1.00E-04 | 0.008216 | 1.00E-04 | 0.007549 | 0.011465 | 0.97257 |
| WCS41 | WCS-affected | 1.00E-04 | 0.000871 | 0.000388 | 0.002769 | 0.023546 | 0.972326 |
| WCS32 | WCS-affected | 1.00E-04 | 0.001869 | 0.025998 | 1.00E-04 | 0.002664 | 0.969269 |
| WCS24 | WCS-affected | 1.00E-04 | 0.011318 | 0.007652 | 1.00E-04 | 0.012381 | 0.96845 |
| WCS20 | WCS-affected | 1.00E-04 | 1.00E-04 | 0.01067 | 0.009038 | 0.013629 | 0.966463 |
| WCS18 | WCS-affected | 0.018367 | 1.00E-04 | 1.00E-04 | 0.014958 | 1.00E-04 | 0.966375 |
| WCS35 | WCS-affected | 0.00565 | 0.002743 | 1.00E-04 | 0.02219 | 0.004324 | 0.964994 |
| WCS13 | WCS-affected | 1.00E-04 | 0.00541 | 1.00E-04 | 0.016933 | 0.017455 | 0.960002 |
| WCS12 | WCS-affected | 1.00E-04 | 1.00E-04 | 1.00E-04 | 0.042274 | 1.00E-04 | 0.957326 |
| WCS31 | WCS-affected | 0.012918 | 0.004938 | 1.00E-04 | 0.022405 | 0.008522 | 0.951118 |
| SAMM3 | SAMuttonMerino | 0.021685 | 1.00E-04 | 0.026723 | 1.00E-04 | 0.002786 | 0.948607 |
| WCS23 | WCS-affected | 0.008516 | 0.012126 | 1.00E-04 | 0.026773 | 0.007529 | 0.944957 |
| SAMM4 | SAMuttonMerino | 0.018945 | 1.00E-04 | 0.005374 | 1.00E-04 | 0.031826 | 0.943655 |
| WCS25 | WCS-affected | 0.04626 | 1.00E-04 | 0.00501 | 1.00E-04 | 0.008632 | 0.939899 |
| WCS19 | WCS-affected | 0.015721 | 0.015751 | 1.00E-04 | 0.015911 | 0.014102 | 0.938415 |
| WCS14 | WCS-affected | 0.05726 | 1.00E-04 | 0.004089 | 1.00E-04 | 0.000807 | 0.937644 |
| WCS37 | WCS-affected | 0.003746 | 0.010173 | 1.00E-04 | 0.03013 | 0.021743 | 0.934109 |
| WCS42 | WCS-affected | 1.00E-04 | 0.007285 | 1.00E-04 | 0.033899 | 0.028904 | 0.929712 |
| WCS39 | WCS-affected | 0.039318 | 0.003283 | 1.00E-04 | 0.014169 | 0.026288 | 0.916842 |
| WCS29 | WCS-affected | 0.022856 | 1.00E-04 | 1.00E-04 | 0.064642 | 1.00E-04 | 0.912202 |
| WCS9 | WCS-affected | 0.039162 | 0.005338 | 1.00E-04 | 0.019243 | 0.029346 | 0.90681 |
| SAMM6 | SAMuttonMerino | 0.042118 | 0.013437 | 1.00E-04 | 0.014553 | 0.024622 | 0.905169 |
| WCS16 | WCS-affected | 0.032811 | 0.006773 | 1.00E-04 | 0.043605 | 0.017459 | 0.899252 |
| WCS22 | WCS-affected | 0.054432 | 0.004506 | 1.00E-04 | 0.026212 | 0.020688 | 0.894062 |
| WCS17 | WCS-affected | 0.031629 | 0.010628 | 0.003202 | 0.017821 | 0.044554 | 0.892166 |

Supplementary Material

| | | | | | | | |
|---------|----------------|----------|----------|----------|----------|----------|----------|
| WCS40 | WCS-affected | 0.063321 | 0.013655 | 0.004042 | 0.013178 | 0.015366 | 0.890438 |
| WCS10 | WCS-affected | 0.048395 | 0.009612 | 0.010137 | 0.019523 | 0.022682 | 0.889652 |
| WCS11 | WCS-affected | 0.087474 | 1.00E-04 | 0.003453 | 0.0219 | 1.00E-04 | 0.886974 |
| SAMM5 | SAMuttonMerino | 0.039315 | 0.002306 | 0.020038 | 0.03981 | 0.026562 | 0.87197 |
| WCS27 | WCS-affected | 0.064896 | 0.007072 | 0.008624 | 0.026164 | 0.023923 | 0.869322 |
| WCS26 | WCS-affected | 0.080401 | 0.005143 | 0.010244 | 0.013337 | 0.0227 | 0.868175 |
| WCS15 | WCS-affected | 0.09662 | 0.005503 | 0.001329 | 0.02815 | 0.011227 | 0.857172 |
| SAM10 | SAMerino | 0.045746 | 0.033882 | 0.018954 | 0.023304 | 0.025531 | 0.852584 |
| WCS8 | WCS-affected | 0.112894 | 1.00E-04 | 0.026471 | 0.022427 | 1.00E-04 | 0.838009 |
| MEATM47 | MeatMaster | 0.167332 | 0.060862 | 0.182907 | 0.07914 | 1.00E-04 | 0.509659 |
| MEATM37 | MeatMaster | 0.167011 | 0.082118 | 0.17296 | 0.073471 | 0.017401 | 0.48704 |
| AFR37 | Afrino | 0.191268 | 0.071394 | 0.150895 | 0.116797 | 1.00E-04 | 0.469545 |
| MEATM33 | MeatMaster | 0.235073 | 0.052176 | 0.142383 | 0.11585 | 1.00E-04 | 0.454419 |
| MER2 | Merino | 0.239162 | 0.059481 | 0.16999 | 0.090608 | 1.00E-04 | 0.44066 |
| AFR29 | Afrino | 0.245244 | 0.055646 | 0.149341 | 0.110338 | 1.00E-04 | 0.43933 |
| MEATM32 | MeatMaster | 0.243278 | 0.043349 | 0.177288 | 0.098833 | 1.00E-04 | 0.437152 |
| MER8 | Merino | 0.282258 | 0.023398 | 0.162566 | 0.131828 | 1.00E-04 | 0.399851 |
| MEATM38 | MeatMaster | 0.255722 | 0.069036 | 0.159871 | 0.123355 | 1.00E-04 | 0.391916 |
| MEATM28 | MeatMaster | 0.260247 | 0.053602 | 0.167469 | 0.126782 | 1.00E-04 | 0.391801 |