**Table S3. Relative values of X6 and X14 of *O. s. japonica* varieties under different N application levels**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Relative value | | | | | |
| N104 | N207 | N311 | N104 | N207 | N311 |
| X6 | | | X14 | | |
| 1 | 1.32 ABCDEFbcdefghiAb | 1.19 ABCDEFefghiAb | 1.85 ABaAa | 1.54 ABCDabcdAab | 1.21 BCDEFGdefghAb | 1.83 ABabAa |
| 2 | 1.64 ABCDEabcdeAa | 1.12 CDEFfghiAb | 1.38 ABCDEFGbcdefAab | 1.62 ABabcAa | 1.04 DEFGefghAb | 1.03 DEFGefgAb |
| 3 | 1.58 ABCDEFabcdeAa | 1.66 ABCDEabcdAa | 1.59 ABCDEabcdAa | 1.62 ABabcAa | 1.52 ABCDEFabcdeAa | 1.83 ABabAa |
| 4 | 0.99 DEFghiAa | 1.04 CDEFghiAa | 0.98 DEFGfghAa | 0.89 CDEfgh | 1.03 DEFGefgh | 0.96 DEFGfg |
| 5 | 1.66 ABCDabcdAa | 1.4 ABCDEFbcdefghAa | 1.54 ABCDEFabcdeAa | 1.63 ABabcAa | 1.13 CDEFGefghAb | 0.97 DEFGfgAb |
| 6 | 0.95 EFhiAa | 0.98 EFhiAa | 1.02 DEFGfghAa | 0.94 BCDEefghAa | 1.00 EFGfghAa | 1.15 BCDEFGdefgAa |
| 7 | 0.97 DEFghiAb | 1.1 CDEFfghiAab | 1.58 ABCDEabcdAa | 1.31 ABCDEabcdefgAa | 1.20 BCDEFGdefghAa | 1.52 ABCDEFabcdeAa |
| 8 | 1.21 ABCDEFcdefghiAa | 1.05 CDEFghiAa | 1.52 ABCDEFabcdeAa | 1.09 ABCDEdefghABb | 0.96 EFGfghBb | 1.75 ABCabAa |
| 9 | 1.13 BCDEFefghiAb | 1.16 BCDEFefghiAb | 1.68 ABCDabcAa | 1.28 ABCDEabcdefgAa | 1.33 ABCDEFGcdefgAa | 1.43 ABCDEFGbcdefAa |
| 10 | 0.98 DEFghiBb | 1.7 ABCDabcAa | 1.04 DEFGefghABb | 1.00 BCDEefghAb | 1.50 ABCDEFabcdeAa | 1.40 ABCDEFGbcdefAab |
| 11 | 1.32 ABCDEFbcdefghiAa | 1.17 BCDEFefghiAa | 1.08 CDEFGefghAa | 0.91 CDEfghAa | 0.98 EFGfghAa | 1.07 CDEFGefgAa |
| 12 | 1.20 ABCDEFdefghiAa | 1.25 ABCDEFcdeghiAa | 1.62 ABCDEabcAa | 1.00 BCDEefghAb | 1.25 BCDEFGdefghAab | 1.66 ABCDabcAa |
| 13 | 1.12 BCDEFefghiAa | 1.06 CDEFghiAa | 1.15 CDEFGdefghAa | 0.94 BCDEefghAa | 1.02 DEFGefghAa | 1.09 CDEFGefgAa |
| 14 | 1.21 ABCDEFcdefghiAa | 1.02 DEFghiAa | 1.06 DEFGefghAa | 0.90 CDEfghAa | 1.07 CDEFGefghAa | 1.02 DEFGfgAa |
| 15 | 1.83 AaAa | 1.63 ABCDEabcdeAa | 1.62 ABCDEabcAa | 1.62 ABabcAa | 1.83 ABabAa | 1.75 ABCabAa |
| 16 | 1.75 ABCabAa | 1.72 ABCabcAa | 1.87 ABaAa | 1.65 ABabAa | 1.77 ABCabcAa | 2.01 AaAa |
| 17 | 1.38 ABCDEFabcdefgAa | 1.21 ABCDEFdefghiAa | 1.52 ABCDEFabcdeAa | 1.15 ABCDEcdefghAb | 1.24 BCDEFGdefghAb | 1.80 ABabAa |
| 18 | 1.66 ABCDabcdAab | 1.88 AabAa | 1.32 ABCDEFGbcdefgAb | 1.02 BCDEefghAa | 1.41 ABCDEFGbcdefAa | 1.07 CDEFGefgAa |
| 19 | 1.21 ABCDEFcdefghiAb | 1.28 ABCDEFcdefghAab | 1.75 ABCabAa | 1.38 ABCDEabcdefAa | 1.38 ABCDEFGbcdefAa | 1.58 ABCDEabcdAa |
| 20 | 0.98 DEFghiAa | 1.00 DEFghiAa | 1.14 CDEFGdefghAa | 0.84 DEghAa | 1.02 DEFGefghAa | 1.00 DEFGfgAa |
| 21 | 0.99 DEFghiAa | 1.23 ABCDEFcdefghiAa | 1.13 CDEFGdefghAa | 0.98 BCDEefghAa | 0.80 GhAa | 1.00 DEFGfgAa |
| 22 | 0.93 EFhiAa | 0.77 FiAa | 0.74 GhAa | 0.93 BCDEefghAa | 0.78 GhAa | 0.87 FGgAa |
| 23 | 0.99 DEFghiAab | 1.42 ABCDEFabcdefghAa | 0.86 FGghAb | 1.01 BCDEefghBb | 1.71 ABCDabcdAa | 1.21 BCDEFGcdefgABb |
| 24 | 1.27 ABCDEFcdefghiAa | 1.48 ABCDEabcdefgAa | 1.14 CDEFGdefghAa | 1.00 BCDEefghAb | 1.66 ABCDEabcdAa | 1.38 ABCDEFGbcdefAb |
| 25 | 1.76 ABabAa | 1.53 ABCDEabcdefAa | 1.78 ABCabAa | 1.73 AaAa | 1.96 AaAa | 1.75 ABCabAa |
| 26 | 1.16 ABCDEFefghiAa | 1.10 CDEFfghiAa | 1.00 DEFGfghAa | 0.95 BCDEefghAa | 0.86 FGghAa | 0.94 EFGfgAa |
| 27 | 0.87 FiAa | 0.95 EFhiAa | 1.04 DEFGefghAa | 1.03 ABCDEefghAa | 1.03 DEFGefghAa | 1.02 DEFGfgAa |
| 28 | 1.47 ABCDEFabcdefAa | 1.26 ABCDEFcdefghiAa | 1.36 ABCDEFGbcdefAa | 1.57 ABCabcdAa | 1.31 ABCDEFGcdefgAab | 1.05 CDEFGefgAb |
| 29 | 0.89 FiAa | 0.94 EFhiAa | 1.17 BCDEFGcdefghAa | 0.95 BCDEefghAa | 1.14 BCDEFGefghAa | 1.04 DEFGefgAa |
| 30 | 1.06 BCDEFfghiAa | 1.08 CDEFfghiAa | 1.07 CDEFGefghAa | 0.94 BCDEefghAa | 0.87 FGghAa | 0.99 DEFGfgAa |
| 31 | 0.97 DEFghiAa | 1.02 DEFghiAa | 1.01 DEFGfghAa | 1.19 ABCDEbcdefghAa | 1.05 DEFGefghAa | 1.03 DEFGefgAa |
| 32 | 1.24 ABCDEFcdefghiAb | 1.85 ABabAa | 1.21 ABCDEFGcdefghAb | 1.10 ABCDEdefghAa | 1.48 ABCDEFGabcdefAa | 1.18 BCDEFGcdefgAa |
| 33 | 1.13 BCDEFefghiAb | 1.18 BCDEFefghiAb | 1.68 ABCDabcAa | 1.27 ABCDEabcdefgAa | 1.24 BCDEFGdefghAa | 1.60 ABCDEabcdAa |
| 34 | 1.45 ABCDEFabcdefAa | 1.56 ABCDEabcdefAa | 1.57 ABCDEabcdAa | 0.70 EhBb | 1.51 ABCDEFabcdeAa | 0.76 GgBb |
| 35 | 1.13 BCDEFefghiAb | 1.29 ABCDEFcdefghAab | 1.67 ABCDabcAa | 1.41 ABCDabcdeAa | 1.30 ABCDEFGcdefgAa | 1.60 ABCDEabcdAa |
| 36 | 1.30 ABCDEFbcdefghiAb | 1.23 ABCDEFcdefghiAb | 1.89 AaAa | 1.23 ABCDEbcdefAb | 1.24 BCDEFGdefghAb | 1.80 ABabAa |
| 37 | 1.70 ABCabcAa | 1.22 ABCDEFdefghiAab | 1.18 BCDEFGcdefghAb | 1.56 ABCabcdAa | 1.14 BCDEFGefghAa | 1.24 BCDEFGcdefgAa |
| 38 | 1.74 ABCabAa | 1.00 DEFghiBb | 0.96 EFGfghBb | 1.65 ABabAa | 1.14 BCDEFGefghAb | 1.04 DEFGefgAb |

Normal letters represent the same column for significant analysis, and superscript letters represent the same row for significant analysis.