**Table S2** Changes of 28 alfalfa cultivars under low nitrogen level (N21) in seedling stage

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NO.** | **Cultivars** | **SDW****(g**·**plant -1)** | **RDW****(g**·**plant -1)** | **PDW****(g**·**plant -1)** | **SH****(cm)** | **RL****(cm**·**plant -1)** | **RV****(cm3)** | **SNC****(%)** | **RNC****(%)** | **PNC****(%)** | **SNA****(mg**·**plant -1)** | **RNA****(mg**·**plant -1)** | **PNA****(mg**·**plant -1)** |
| 1 | Gannong NO.3 | 0.38±0.02l | 0.37±0.02kl | 0.74±0.03mn | 8.00±0.20f | 40.02±13.88bcde | 0.04±0.02cde | 1.05±0.01q | 1.25±0.02j | 1.16±0.02kl | 0.39±0.02m | 0.46±0.02o | 0.86±0.04m |
| 2 | Gannong NO.4 | 0.71±0.09ghi | 0.40±0.02ij | 1.11±0.10ij | 4.97±0.21o | 46.02±4.45bcde | 0.02±0.01de | 1.18±0.00n | 1.25±0.01ij | 1.18±0.03jkl | 0.84±0.10jkl | 0.50±0.02mn | 1.31±0.12l |
| 3 | Gannong NO.5 | 1.07±0.09bc | 0.47±0.01h | 1.54±0.09de | 9.72±0.15c | 39.72±7.67bcde | 0.02±0.01e | 1.71±0.02c | 1.42±0.01d | 1.62±0.01a | 1.82±0.15c | 0.67±0.02gh | 2.49±0.15c |
| 4 | Gannong NO.7 | 0.94±0.09cde | 0.44±0.01h | 1.38±0.09fg | 8.90±0.20d | 59.89±10.45ab | 0.09±0.04a | 1.46±0.01f | 1.48±0.00c | 1.46±0.01d | 1.37±0.13ef | 0.65±0.01h | 2.02±0.13defg |
| 5 | Gannong NO.8 | 0.55±0.04jk | 0.32±0.01m | 0.87±0.03klm | 6.58±0.20klm | 37.14±10.18de | 0.03±0.02cde | 1.36±0.01hi | 1.28±0.00h | 1.33±0.01g | 0.74±0.05kl | 0.41±0.02p | 1.16±0.04l |
| 6 | Gannong NO.9 | 1.01±0.09cde | 0.41±0.01i | 1.43±0.09efg | 7.57±0.21hi | 45.97±9.29bcde | 0.03±0.00cde | 1.34±0.01hi | 1.74±0.00a | 1.45±0.01de | 1.36±0.12ef | 0.72±0.02f | 2.07±0.13de |
| 7 | Longdong | 0.65±0.03hij | 0.27±0.02n | 0.92±0.05kl | 8.80±0.20de | 50.11±1.37bcde | 0.05±0.03bcd | 1.23±0.00lm | 1.28±0.00hi | 1.24±0.00h | 0.79±0.04kl | 0.34±0.02q | 1.14±0.06l |
| 8 | Xinjiangdaye | 0.90±0.08de | 0.83±0.02b | 1.73±0.08c | 6.75±0.15kl | 45.58±4.25bcde | 0.05±0.00bcd | 1.05±0.07q | 0.97±0.05o | 1.01±0.06n | 0.94±0.09ijk | 0.80±0.02d | 1.75±0.08hijk |
| 9 | Xinmu NO.1 | 0.85±0.03ef | 0.52±0.02g | 1.37±0.05fg | 6.55±0.15lm | 46.09±14.95bcde | 0.03±0.01cde | 1.21±0.00mn | 1.14±0.01l | 1.17±0.001jkl | 1.03±0.04hij | 0.60±0.02ij | 1.61±0.06jk |
| 10 | Longmu 806 | 0.96±0.09cde | 0.47±0.01h | 1.42±0.09efg | 6.88±0.20k | 49.34±11.1bcde | 0.05±0.02bc | 1.33±0.02ij | 1.21±0.01k | 1.30±0.01g | 1.27±0.11efg | 0.57±0.01jk | 1.86±0.12efghi |
| 11 | Longmu 801 | 1.03±0.09cd | 0.51±0.02g | 1.53±0.1de | 7.22±0.15j | 36.83±17.14be | 0.03±0.01cde | 1.4±0.02g | 1.36±0.00e | 1.39±0.01f | 1.44±0.12de | 0.69±0.02fg | 2.13±0.14d |
| 12 | Gongnong NO.1 | 0.74±0.04fgh | 0.33±0.00m | 1.07±0.04ij | 7.33±0.15ij | 47.34±16.01bcde | 0.03±0.00cde | 1.18±0.02no | 1.10±0.01m | 1.15±0.01l | 0.87±0.05jkl | 0.36±0.00q | 1.23±0.05l |
| 13 | Gongnong NO.3 | 0.24±0.01m | 0.07±0.00o | 0.31±0.01o | 8.85±0.15de | 30.02±0.95e | 0.02±0.00cde | 1.65±0.01d | 1.26±0.01hij | 1.56±0.01b | 0.40±0.01m | 0.09±0.00r | 0.49±0.02n |
| 14 | Zhaodong | 0.96±0.09cde | 0.59±0.01f | 1.54±0.09de | 7.92±0.15fg | 55.23±13.00abcd | 0.08±0.02a | 1.14±0.01op | 1.28±0.01h | 1.19±0.01ijk | 1.09±0.10ghi | 0.75±0.02e | 1.84±0.11fghi |
| 15 | LW6010 | 1.33±0.04a | 0.94±0.02a | 2.26±0.03a | 10.77±0.12a | 37.28±10.08de | 0.03±0.02cde | 1.85±0.05a | 1.34±0.01ef | 1.64±0.03a | 2.45±0.07a | 1.25±0.02a | 3.71±0.05a |
| 16 | Reindeer | 0.82±0.09efg | 0.46±0.02h | 1.28±0.10gh | 6.83±0.15kl | 33.20±3.97e | 0.03±0.00cde | 1.46±0.02f | 1.31±0.01g | 1.42±0.02ef | 1.20±0.13fgh | 0.60±0.02ij | 1.81±0.15ghij |
| 17 | Crown | 1.00±0.09cd | 0.68±0.02d | 1.68±0.10cd | 6.63±0.15klm | 70.11±3.19a | 0.05±0.02cde | 1.13±0.00p | 1.32±0.00fg | 1.21±0.00hij | 1.13±0.10gh | 0.90±0.02c | 2.03±0.13def |
| 18 | Goldqueen | 0.59±0.01ij | 0.58±0.02f | 1.17±0.03hi | 6.37±0.21m | 43.13±8.69bcde | 0.04±0.01cde | 1.3±0.02jk | 0.94±0.01p | 1.10±0.04m | 0.77±0.02kl | 0.54±0.02kl | 1.29±0.03l |
| 19 | Giant 551 | 0.95±0.09cde | 0.36±0.09l | 1.31±0.09fgh | 7.87±0.21fgh | 32.82±5.80e | 0.03±0.00cde | 1.64±0.02d | 1.32±0.00fg | 1.55±0.01b | 1.56±0.14d | 0.47±0.00no | 2.03±0.14def |
| 20 | Giant 601 | 1.18±0.15b | 0.84±0.04b | 2.02±0.17b | 10.30±0.20b | 44.13±17.64bcde | 0.03±0.01cde | 1.79±0.05b | 1.43±0.01d | 1.64±0.02a | 2.12±0.27b | 1.20±0.05b | 3.31±0.28b |
| 21 | Giant 6 | 0.70±0.03ghi | 0.63±0.01e | 1.34±0.04fg | 5.97±0.21n | 35.84±2.83de | 0.03±0.01ab | 1.25±0.00lm | 1.06±0.05n | 1.16±0.03kl | 0.88±0.04jkl | 0.67±0.01gh | 1.55±0.05k |
| 22 | Giant 2 | 0.89±0.09de | 0.71±0.02c | 1.6±0.10cd | 6.62±0.15klm | 59.05±16.77abc | 0.08±0.03cde | 1.33±0.01ij | 1.09±0.01m | 1.22±0.01hi | 1.18±0.11fgh | 0.77±0.02de | 1.95±0.13defgh |
| 23 | Sadie 7 | 0.43±0.03kl | 0.25±0.01n | 0.69±0.04n | 6.86±0.21k | 41.63±11.95bcde | 0.03±0.01e | 1.14±0.00op | 1.31±0.01g | 1.21±0.01hij | 0.50±0.03m | 0.33±0.02q | 0.83±0.05m |
| 24 | Sadie 10 | 0.99±0.09cd | 0.45±0.01h | 1.45±0.09ef | 8.52±0.15c | 32.57±11.04e | 0.02±0.00cde | 1.38±0.01gh | 1.21±0.01k | 1.33±0.01g | 1.37±0.12ef | 0.55±0.01kl | 1.92±0.12defgh |
| 25 | Tourists | 0.54±0.09jk | 0.28±0.00n | 0.82±0.09lmn | 7.33±0.15ij | 31.33±4.79e | 0.04±0.00e | 1.36±0.01ghi | 1.51±0.01b | 1.42±0.01ef | 0.73±0.12l | 0.42±0.00p | 1.16±0.13l |
| 26 | Elite | 0.7±0.03ghi | 0.28±0.00n | 0.97±0.04jk | 6.88±0.20k | 45.70±3.63bcde | 0.04±0.01cde | 1.35±0.02hi | 1.25±0.01j | 1.33±0.02g | 0.94±0.05ijk | 0.34±0.00q | 1.29±0.05l |
| 27 | Weston | 0.92±0.09de | 0.46±0.02h | 1.38±0.10fg | 6.07±0.15n | 38.04±16.4cde | 0.04±0.01cde | 1.26±0.02kl | 0.97±0.00o | 1.15±0.01kl | 1.16±0.11gh | 0.44±0.02op | 1.59±0.12k |
| 28 | Algonquin | 0.75±0.09fgh | 0.39±0.01jk | 1.13±0.09i | 7.63±0.15ghi | 41.86±12.46bcde | 0.03±0.01cde | 1.54±0.01e | 1.35±0.01e | 1.51±0.04c | 1.15±0.13gh | 0.52±0.02lm | 1.72±0.14ijk |

Note: SDW, RDW, PDW, SH, RL, RV, SNC, RNC, PNC, SNA, RNA and PNA respective shoot dry weight, root dry weight, plant dry weight, plant height, total root length, total root volume, shoot nitrogen content, root nitrogen content, plant nitrogen content, shoot nitrogen accumulation, root nitrogen accumulation and plant nitrogen accumulation.