**Table S1.** Summary statistics of model selection for simple models explaining variation in proportion of dead foliage of *Pseudotsuga menziesii* trees in relation to herbicide treatment (GL, GH, ATL, ATH), herbicide dose (6, 12 and 18 ml tree-1), height (H), crown diameter (CD) and breast diameter (DBH). Models are listed in increasing order of importance.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Candidate models** | **Df** | **AIC** | **ΔAIC** | **w*i*** |
| *6 months after application*  |  |  |  |  |
| herbicide treatment x dose + h + cd + DBH | 16 | -194.5 | 5.845 | 0.02 |
| herbicide treatment x dose + h + DBH | 15 | -196.4 | 3.944 | 0.053 |
| herbicide treatment x dose + h + cd  | 15 | -196.5 | 3.848 | 0.056 |
| herbicide treatment x dose + cd + DBH | 15 | -196.5 | 3.852 | 0.055 |
| herbicide treatment x dose + h  | 14 | -198.3 | 1.986 | 0.141 |
| herbicide treatment x dose + cd | 14 | -198.5 | 1.858 | 0.15 |
| herbicide treatment x dose + DBH | 14 | -198.4 | 1.947 | 0.144 |
| herbicide treatment x dose | 13 | -200.4 | 0.000 | 0.381 |
|  |  |  |  |  |
| *12 months after application*  |  |  |  |  |
| herbicide treatment x dose + h + cd + DBH | 16 | -217 | 5.713 | 0.022 |
| herbicide treatment x dose + h + DBH | 15 | -218.8 | 3.929 | 0.053 |
| herbicide treatment x dose + h + cd  | 15 | -219 | 3.727 | 0.058 |
| herbicide treatment x dose + cd + DBH | 15 | -218.9 | 3.775 | 0.057 |
| herbicide treatment x dose + h  | 14 | -220.8 | 1.934 | 0.143 |
| herbicide treatment x dose + cd | 14 | -220.9 | 1.819 | 0.152 |
| herbicide treatment x dose + DBH | 14 | -220.7 | 2.000 | 0.139 |
| herbicide treatment x dose | 13 | -222.7 | 0.000 | 0.377 |
|  |  |  |  |  |
| *24 months after application*  |  |  |  |  |
| herbicide treatment x dose + h + cd + DBH | 16 | -204.5 | 4.765 | 0.030 |
| herbicide treatment x dose + h + DBH | 15 | -205.3 | 3.964 | 0.045 |
| herbicide treatment x dose + h + cd  | 15 | -206.3 | 3.011 | 0.073 |
| herbicide treatment x dose + cd + DBH | 15 | -206.5 | 2.768 | 0.083 |
| herbicide treatment x dose + h  | 14 | -207.3 | 1.975 | 0.123 |
| herbicide treatment x dose + cd | 14 | -208.3 | 1.066 | 0.193 |
| herbicide treatment x dose + DBH | 14 | -207.3 | 1.977 | 0.123 |
| herbicide treatment x dose | 13 | -209.3 | 0.000 | 0.330 |

**Table S2. Comparison of predicted marginal means for different combinations of herbicide and dose at 6, 12 and 24 months after application. The predicted values for the proportion of dead foliage (response), standard error (SE), lower and upper limit for a confidence level of 95% are shown.** Codes are defined as follows, GL: glyphosate at low concentration (33.1 g ai L -1); GH: glyphosate at high concentration (662 g ai L -1); ATL, aminopyralid + triclopyr at low concentration (0.31 g ai L -1 total for both ai); ATH: aminopyralid + triclopyr at high concentration (1.55 g ai L -1 total for both ai). Dose is defined as ml tree-1. Statistically significant effects determined by Tukey's HSD test are shown with different letters (*P* < 0.05).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  | CL |
| Herbicide treatment  | Dose  | Responsea | SE | Lower  | Upper  |
|  |
| *6 months after application* |
| ATL | 6 | 0.045 a | 0.02 | 0.018 | 0.107 |
| ATL | 12 | 0.045 a | 0.02 | 0.018 | 0.107 |
| ATL | 18 | 0.045 a | 0.02 | 0.018 | 0.107 |
| ATH | 12 | 0.072 a | 0.031 | 0.03 | 0.161 |
| ATH | 18 | 0.079 a | 0.034 | 0.0341 | 0.175 |
| GL | 18 | 0.083 a | 0.035 | 0.035 | 0.182 |
| ATH | 6 | 0.106 a | 0.042 | 0.047 | 0.22 |
| GL | 12 | 0.115 a | 0.044 | 0.052 | 0.235 |
| GL | 6 | 0.231 ab | 0.069 | 0.123 | 0.391 |
| GH | 18 | 0.498 bc | 0.087 | 0.333 | 0.664 |
| GH | 12 | 0.678 c | 0.079 | 0.507 | 0.812 |
| GH | 6 | 0.955 d | 0.02 | 0.893 | 0.982 |
|  |  |  |  |  |  |
| *12 months after application* |
| ATL | 6 | 0.084 a | 0.038 | 0.033 | 0.198 |
| ATL | 12 | 0.084 a | 0.038 | 0.033 | 0.198 |
| ATL | 18 | 0.084 a | 0.038 | 0.033 | 0.198 |
| ATH | 12 | 0.126 a | 0.055 | 0.051 | 0.278 |
| ATH | 18 | 0.135 a | 0.058 | 0.055 | 0.294 |
| GL | 18 | 0.191 a | 0.076 | 0.082 | 0.383 |
| ATH | 6 | 0.206 a | 0.081 | 0.09 | 0.405 |
| GL | 12 | 0.245 a | 0.09 | 0.111 | 0.458 |
| GL | 6 | 0.839 b | 0.067 | 0.664 | 0.933 |
| GH | 18 | 0.893 b | 0.048 | 0.757 | 0.957 |
| GH | 12 | 0.902 b | 0.044 | 0.776 | 0.961 |
| GH | 6 | 0.916 b | 0.038 | 0.802 | 0.967 |
|  |
| *24 months after application* |
| ATL | 18 | 0.078 a | 0.036 | 0.031 | 0.183 |
| ATL | 12 | 0.078 a | 0.036 | 0.031 | 0.183 |
| ATL | 6 | 0.078 a | 0.036 | 0.031 | 0.183 |
| ATH | 12 | 0.117 ab | 0.051 | 0.048 | 0.259 |
| ATH | 18 | 0.126 ab | 0.054 | 0.052 | 0.275 |
| ATH | 6 | 0.288 ab | 0.096 | 0.139 | 0.505 |
| GL | 18 | 0.384 ab | 0.109 | 0.203 | 0.606 |
| GL | 12 | 0.518 bc | 0.114 | 0.305 | 0.725 |
| GL | 6 | 0.860 cd | 0.059 | 0.702 | 0.942 |
| GH | 18 | 0.904 cd | 0.043 | 0.781 | 0.961 |
| GH | 12 | 0.909 d | 0.041 | 0.792 | 0.964 |
| GH | 6 | 0.922 d | 0.036 | 0.817 | 0.969 |

aThe predicted values are back transformed from the logit-scale.