

Elsoms Run 2

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This analysis summarizes Elsoms run 2. Nursery Trials/Experiments/Run 1/Elsoms Run 2 Results

The first few charts look at oak mortality. The oaks were very mildewed and I had almost decided to omit them from the experiment. However, I did a mortality check first. Some trees had died immediately on planting, and this number is deducted from the total number of trees per tray. The mortality is then the number of trees which died subsequently/this reduced starting number

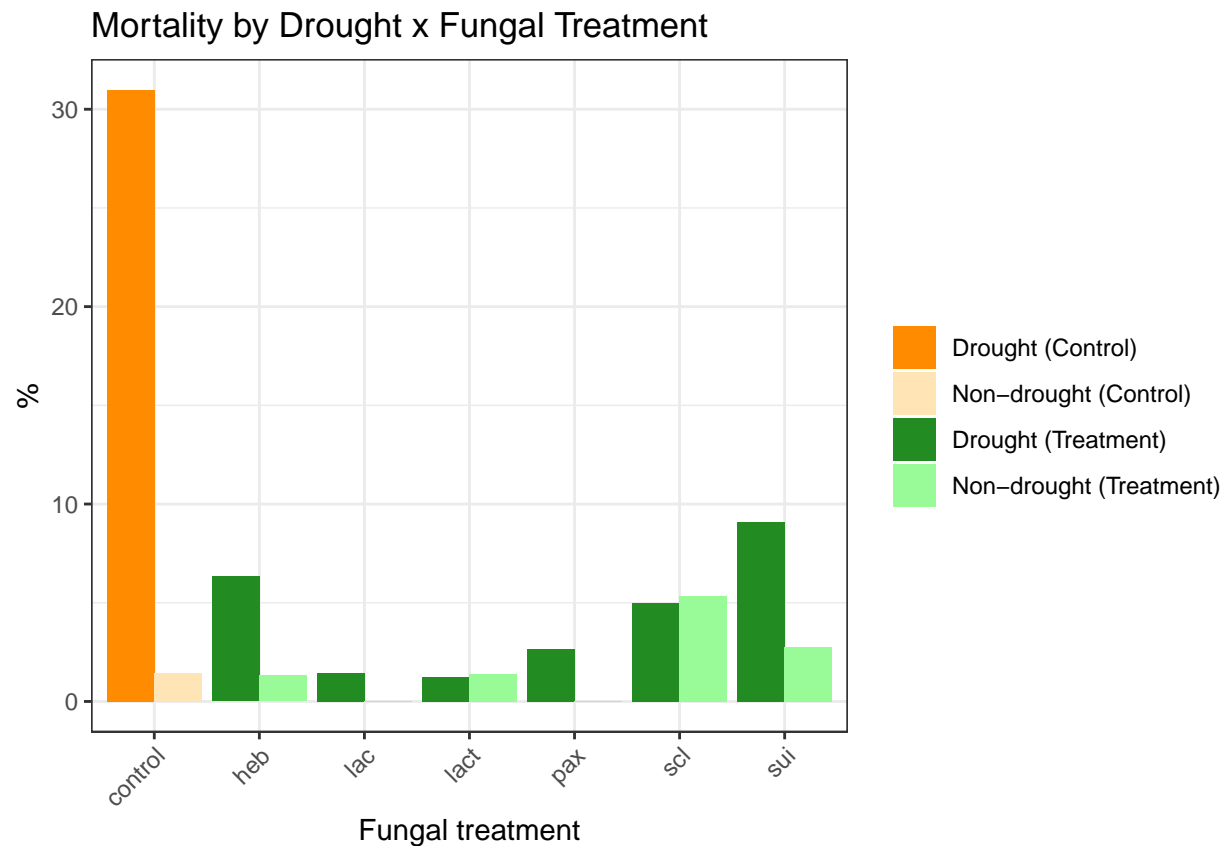


Fig caption: Control, trees which received no inoculum. Treatment, these trees received liquid inoculum of 6 different emf, heb = *Hebeloma spp*, lac = *Laccaria bicolor*, lact = *Lactarius torminosus*, pax = *Paxillus involutus*, scl = *Scleroderma areolatum*, sui = *Suillus bovinus*

If the droughting is to be believed, and this is an issue, because it was an oversight by Elsoms rather than a controlled experiment, then the emf only had an impact on mortality in the droughting treatment. This data may be useful to inform future runs - but perhaps used with caution with customers. Next graph combines all the oaks ignoring the droughting treatment.

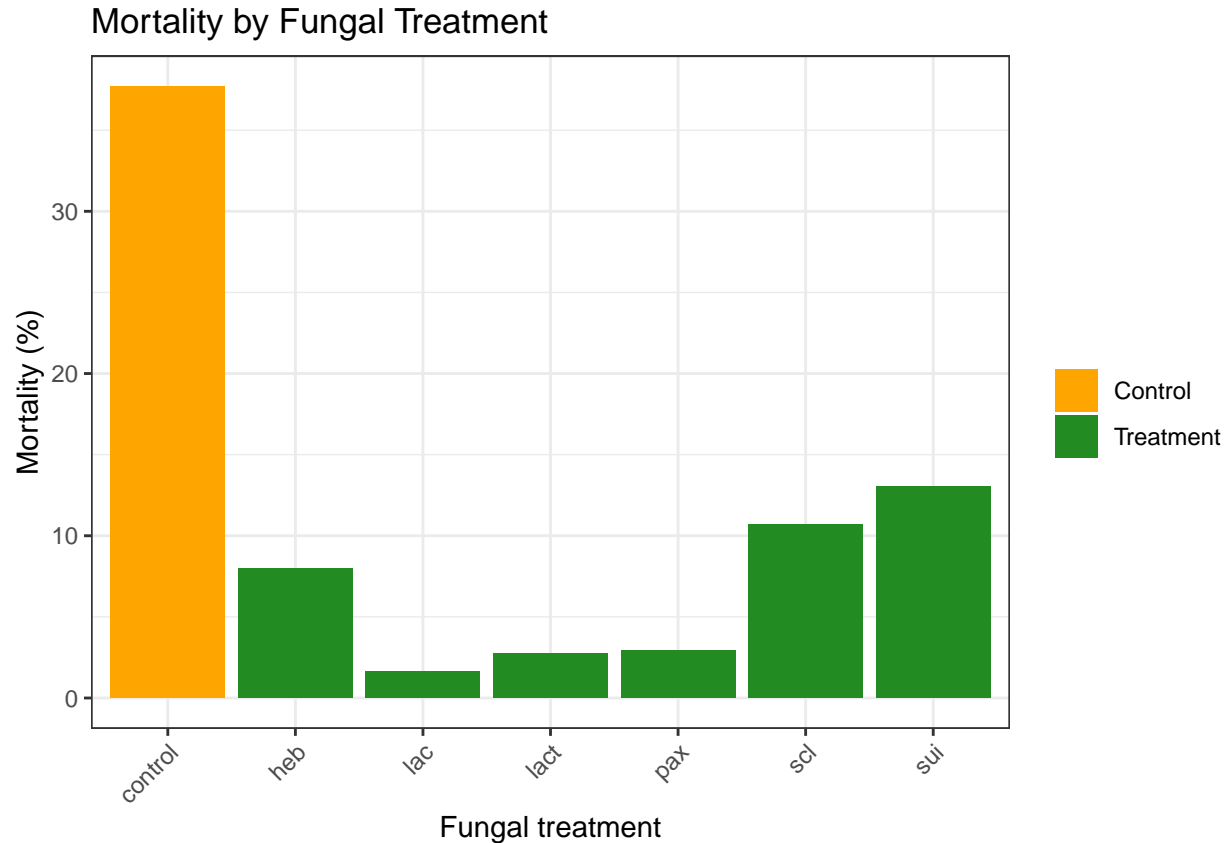


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Above we ignore whether the trays were on the droughted or non-droughted bench. Since some of the trees died immediately on the same day as planting, these were removed from the analysis as this was not related to treatment. each group then has slightly different starting number of trees and mortality is calculated as number of trees which subsequently died/(80-number which died immediately)

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Here is above splitting into drought and non-drought

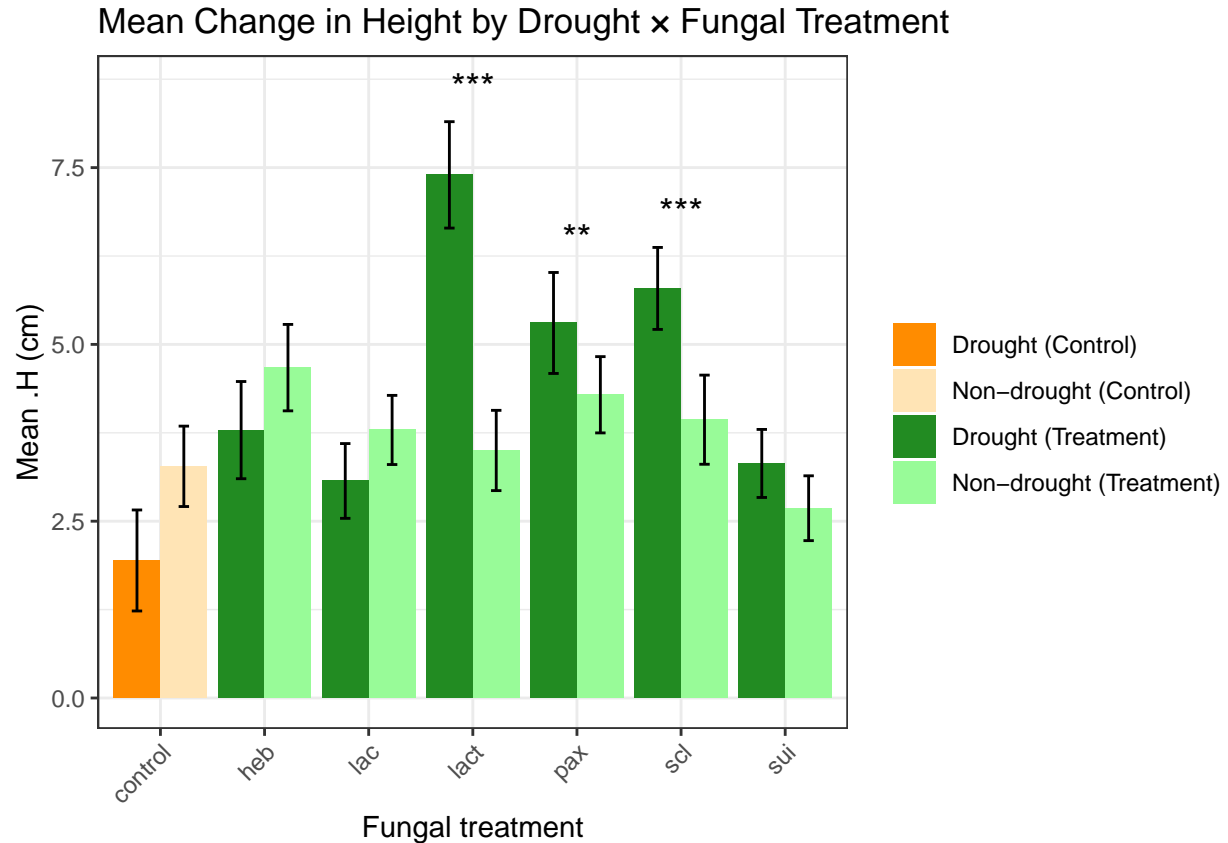
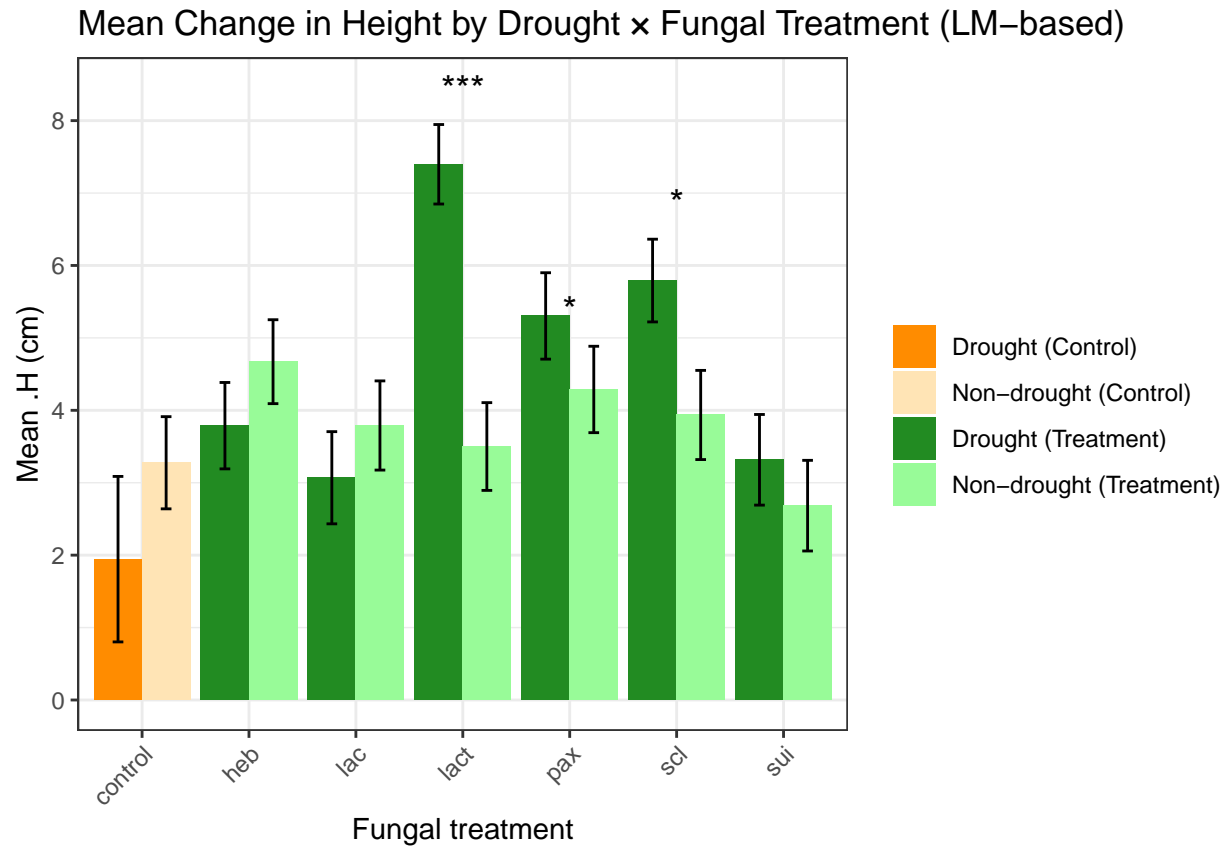


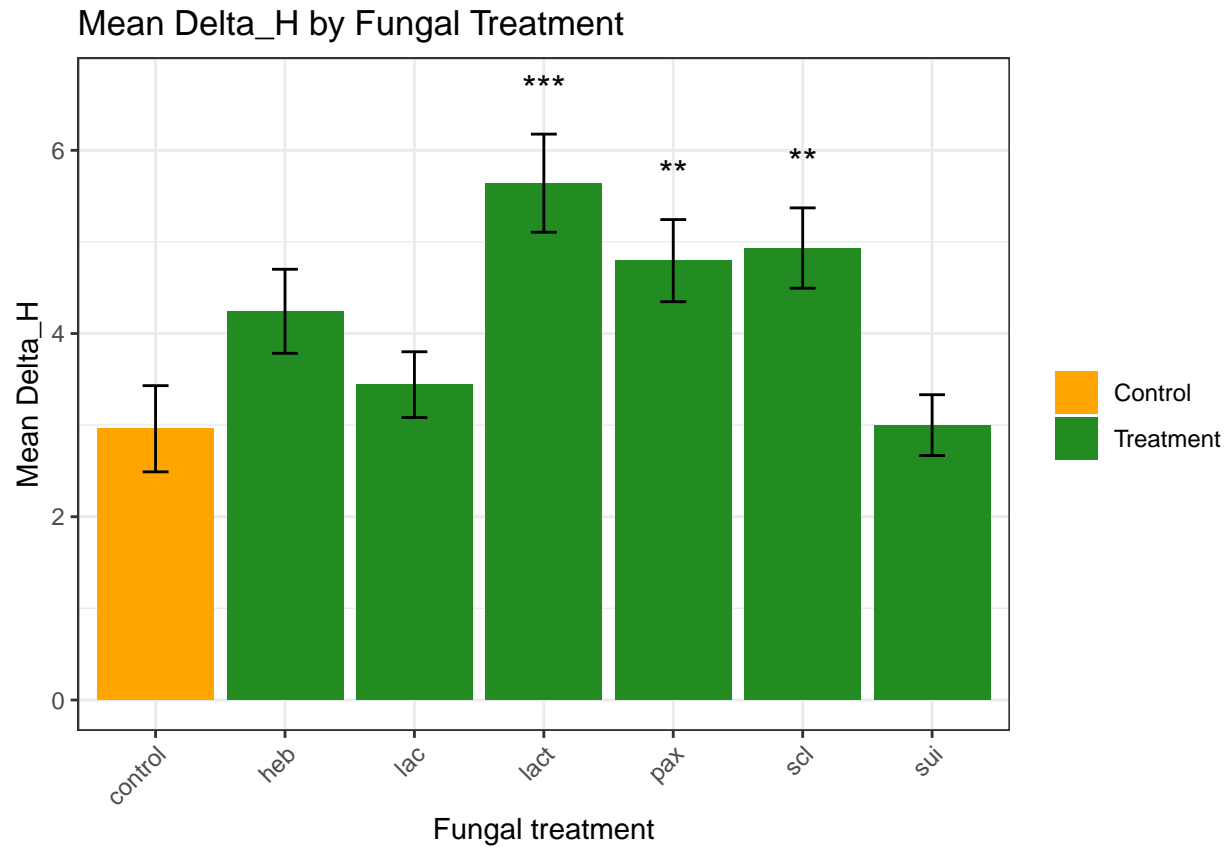
Fig caption: Control, trees which received no inoculum. Treatment, these trees received liquid inoculum of 6 different emf, heb = *Hebeloma spp*, lac = *Laccaria bicolor*, lact = *Lactarius torminosus*, pax = *Paxillus involutus*, scl = *Scleroderma areolatum*, sui = *Suillus bovinus*. The stars represent the significance of a Welch's t test with ** $p \leq 0.01$, *** $p \leq 0.001$.

When we also split out the drought and non drought we have the same pattern of lactarius, paxillus and scleroderma giving significant changes in height, so whilst the droughting may influence mortality, it does not appear to influence change in height.

Cleaner here to run a lm with droughting as an effect as multipl pairwise t tests can inflate type 1 errors



Linear model, main effects are fungi and drought, interaction effect of drought (i.e, how each fungi responds differently under drought vs non drought). Estimated marginal means ($\text{lm_model} \sim \text{Fungi} \mid \text{Drought}$) - this is delta H of lact for each drought level, estimated by the model - not just the raw average. $\text{Contrast}(\text{emm})$ compares model adjusted mean of lact under drought to model adjusted mean of control under drought - similarly for non-drought.



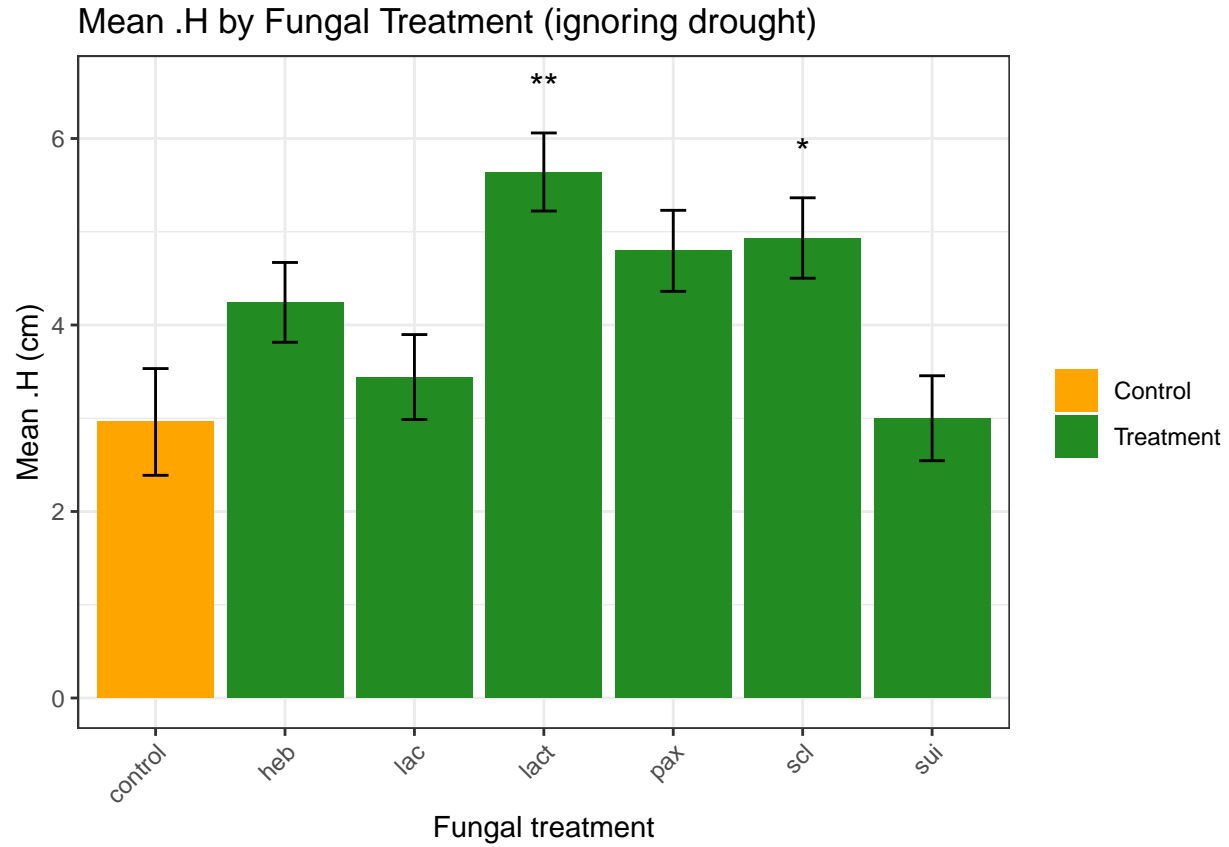


Table 1: Summary of Delta H by Fungal Treatment

Fungi	n	Mean Delta H (cm)	SD (cm)	Variance
control	38	2.96	2.90	8.41
heb	69	4.24	3.81	14.50
lac	60	3.44	2.78	7.75
lact	71	5.64	4.51	20.36
pax	66	4.80	3.64	13.27
scl	67	4.93	3.59	12.88
sui	60	3.00	2.57	6.61

Distribution of delta_H by Fungal Treatment

