YUNHAN LEI, The Linsly School, Wheeling, WV, 26003. Pre-germination inoculation with 11 species of endomycorrhizal fungi slightly improves early growth of lettuce (*Lactuca sativa*) seeds but not that of radish (*Raphanus raphanistrum*) or beans (*Phaseolus vulgaris*).

Mycorrhizal associations of fungi with established and mature plant roots are well-known to benefit the plant. Mycorrhizal fungi, by penetrating into plant's root cells and increasing their surface area, improve a plant's absorption of water and mineral nutrients. In return, the fungi absorb carbohydrates from the plant. Less well known are the effects mycorrhizal fungi have on germination and early root growth. Tiny orchid seeds contain low quantities of nutrients and need early contact with mycorrhizal fungi for germination success. This study asks whether inoculation of lettuce, radish and bean seeds improves seed germination or seedling growth, and whether any effect is seed size dependent. Ten groups of seeds of lettuce, radish and beans were treated with a powder consisting of 11 different species of endomycorrizal fungi while ten seeds for each species served as controls. Seeds were placed in plastic petri dishes lined with paper toweling and provided equal amounts of distilled water. All six groups had 100% germination rates, except for 90% germination in the mycorrhizal fungi radish group. In comparing mycorrhizal fungi treatment groups to the control, average root length in lettuce increased by 12% (p=0.15, t-test), but only by 8% (p=0.71, t-test) in radish and 5% (p=0.91, t-test) in beans. Only the effect on lettuce seeds approached statistical significance. A larger trial with more seeds growing longer might yield significant results. Since mycorrhizal fungi treated seeds absorbed water faster and left drier paper toweling, seed coat proteins may be triggered to absorb water faster, aiding germination.