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## Tree species interaction and soil depth affect the response of root exudates to drought

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Drought is considered a severe natural risk that increases drying-rewetting frequencies of soil. Yet, it remains largely unknown how forest ecosystems respond, hampering our ability to evaluate the overall sink and source functionality for this large carbon pool. Recent investigations present that the loss of soluble carbon via root exudation increases under drought, facilitating fundamental carbon stabilization and mineralization dynamics. However, information on the vertical variation of root exudation from interacting tree species is missing. Here we show that drought increases root exudation rates only in the upper soil profile, while exudation rates decrease in the deeper profile under drought. These trends occurred in both, monocultures and species mixtures. Surprisingly, beech (*Fagus sylvatica*) and spruce (*Picea abies*) trees showed opposing results depending on species mixture. While root exudation rates increased in beech growing together with spruce, drought-susceptible spruce had higher exudation rates when grown in monoculture, suggesting the benefit of spruce in mixed cultures via reduced belowground carbon loss. Our results demonstrate that stimulation of root exudation rates with drought exists in natural temperate forest ecosystems, but only in shallow soil depths. In contrast, decreased exudation rates in deeper soil during drought suggest carbon stabilization. The exudate composition can help to determine how priming of soil organic matter relates to microbial respiration and to disclose belowground processes of complementary species interaction.