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Root growth studies of willow cuttings using Rhizoboxes

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Riparian forests (Tugay forests) in Central Asia (Kazakhstan) play a significant in soil protection. However, unadapted forest use leads to damage and loss of these fragile ecosystems. Willows have a crucial function in the ecosystem of these riparian forests. Willows facilitate the colonization with other important tree species and furthermore they protect the soil from wind and water erosion. To propagate willows and to estimate the beneficial effects of these plants it is important to know the root growth development. The research design is planned as model experiment with rhizoboxes. Rhizoboxes are non-invasive investigation methods which offer the possibility to survey the root system growth dynamics in time and space. A total of 33 rhizoboxes in size of 50cm x 75 cm x 5 cm will be constructed. The rhizoboxes will be tilted by 45 degrees using the gravitropism of the roots. The willow cuttings (Salix purpurea) will be planted in three different soil types. Each test series (growth period) will take three months. Investigated parameters will be root architecture, dynamic of root growth and above and below ground biomass allocation. Data will be drawn from photographic surveys which will be performed once a week. The contribution will present the methodology of these rhizobox investigations.