

Distribution of fine root biomass of fruit and forest tree species raised on old river bed lands in the north west Himalaya

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Abstract: Biomass production and turnover of fine roots were estimated in six fruit and three forest stands that had been raised on old river bed lands in the Doon valley. Significant variations ($P < 0.05$) were observed among species, over seasons and distances from the stem. Nearly 80 % of fine roots were confined to the 0 - 20 cm soil layer in all species investigated. Fine root biomass and turnover was high at 1 m distance from the stem in moisture sensitive fruit species (mango, litchi and kinnow mandarin) due to annual addition of manure and fertilizers. In forest stands similar trends were observed except that turnover rates varied at increased distance from the stem and ranged between 0.326 and 0.884 at 1 m distance and between 0.613 and 0.811 at 2 m distance. The contribution of fine roots towards the build-up of soil organic matter and enrichment of nutrients can lead to conducive soil environment to assist natural forest recovery on these degraded sites over a period of time.