

Donald Mead, Scientist

Don Mead has had a long-life interest in sustainable forest management. After he left high school Don joined the NZ Forest Service and after gaining a B.Sc at Victoria University was sent to Edinburgh to study forestry. He became a forester, but later he obtained a PhD in forest soils at the University of Florida and was a scientist in Rotorua and Christchurch. Half way through his career he began teaching silviculture, forest ecology and agroforestry at Canterbury and Lincoln Universities, while continuing his research.

His interest in forest sustainability began as scientist in the Soils and Tree Nutrition Section of the Forest Research Institute in Rotorua in the 1960s. Initially the focus was on improving the growth of plantations planted on degraded soils, particularly in the North Auckland, Nelson and Westland regions. These areas had often been degraded by human activities which resulted in severe nutrient deficiencies or compacted soils. This research developed into studies of how to ensure long-term sustainability of plantations, the impact of various management practices, and ways to monitor their nutritional health. From 1990 his research has focused on understanding how pastures and trees interact in agroforestry systems and on the nutrient sustainability of forest bioenergy.

Planting native or introduced trees on farms (agroforestry or farm forestry) is a major way of farm diversification, reducing soil erosion, providing shelter, protecting waterways, improving the landscape, farm living conditions and animal welfare, increasing biodiversity and storing additional CO₂. In short integrating trees into farming assists with agricultural sustainability. Don has stressed the need to protect native remnants on farms and planning on a farm, catchment or landscape scale. In 2009 he was invited to talk on agroforestry at the 1st National Silvopastoral Congress in Argentina and at the 13th World Forestry Congress.

For forest bioenergy, Don has described how this may alter forest silvicultural practices, and will increase the need for improved nutrient management, particularly where more tree-crown biomass is removed. He has argued that decision making must take into account long-term sustainability. Economic tools need to be supplemented by energy analysis to ensure optimum use is made of fossil fuels. Adaptive forest management is critical when entering into new, often more intensive, silviculture and harvesting practices. Don is currently technical editor for an international book being written on criteria and indicators for sustainable woodfuel production.

In the area of basic research, using stable isotopes, Don and his colleagues have made significant contributions to understanding how applied nitrogen moves in the tree-soil ecosystem over time. This research has highlighted that a pulse of nitrogen applied to forest stands only briefly boosts the nitrogen status of the trees although this uptake, generally less than 10% of the amount applied, is subsequently recycled within the tree and through litter to the soil. A large proportion of the nitrogen becomes incorporated into the soil. However, isotope balance indicates that considerable applied nitrogen is lost from forest ecosystems.

Don is concerned about where the world is headed, with its ever increasing population and use of resources, the looming impacts of reducing fossil fuels, water shortages and the damage already done to terrestrial and oceanic ecosystems. He believes it is essential that everyone keeps long-term sustainability to the forefront of what they do, so that life is as good and exciting for our grandchildren's, grandchildren. He sees that the Quaker urging to live simply as an important part of this, as is the need to truly value the world we live in.