

# **PRODUCING OAK TREES FOR AGROFORESTRY AND THEIR MANAGEMENT FOR TIMBER, LIVESTOCK AND SEED PRODUCTION**

**R. Olave<sup>1</sup> and J. McAdam<sup>2,3</sup>**

<sup>1</sup>Agri-Food and Biosciences Institute (AFBI), Horticulture and Plant Breeding Station, Loughgall, Co. Armagh, BT61 8JB.

<sup>2</sup>Applied Plant Science and Biometrics Division, Agri-Food and Biosciences Institute, UK.

<sup>3</sup>Department of Applied Plant Science, Queen's University Belfast, UK.  
(E-mail: [Rodrigo.Olave@afbini.gov.uk](mailto:Rodrigo.Olave@afbini.gov.uk))

Native oak woodlands may be established into intensively managed pasture in N. Ireland by establishing an agroforestry system, which integrates agriculture, and forestry practices on the same land base.

To create low-density, multifunctional systems for timber, livestock and seed production novel methods of tree seedling production should be considered to increase outplanting survival, early growth and accelerated flowering. Trees raised by the Root Production Method (RPM) may be taller, hardier and produce flowers and seeds in a shorter time than other systems due to their accelerated root growth.

Oak trees were raised by cell grown (CG), Root Production Method (RPM) and bareroot (BR) systems and planted at relatively low density (2 m x 4 m) in a randomised block experiment at Loughgall (Co. Armagh) in 2001 to investigate their field performance for timber, livestock and seed production.

By 2007 survival was high (99%) for all types of tree production systems. RPM trees (4.6 m) grew significantly better than either CG (3.9 m) or BR (3.6 m) trees. Although there was no difference in quality ranking using a tree form system especially developed for broadleaved trees in Ireland, this was used for tending, extracting 470 trees per hectare. RPM trees had reduced the time to flower and produced acorns without reducing their growth rate. Acorns from RPM trees had a viability of 45%, in 2008.

Since 2007, the trial is progressively being managed towards a well-established agroforestry system area using formative pruning and tending to improve tree form for timber. This allows flexibility for agricultural machinery, livestock, pasture growth and other future silvicultural practices.

*Note:* RPM is a registered trademark of the Forrest Keeling Nursery in the United States