

## PROJECT SUMMARY

**TITLE:** *Cordia alliodora*, study of breeding systems and development of breeding strategies for an agroforestry species.

**R NUMBER:** R4484

**PROGRAMME MANAGER:** OFI

**STRATEGY AREA:** Plantations and agroforestry

**SUB-CONTRACTOR:** Oxford Forestry Institute

**START DATE:** 01/10/88 **FINISH DATE:** 31/03/91

**TOTAL COST:** £100,687

### 1. Background:

*Cordia alliodora* is an important neotropical timber that combines high quality with fast growth. Its light crown makes it particularly suitable for use in various agroforestry systems, providing valuable timber and income to small farmers. Natural regeneration is abundant and often maintained by farmers in combination with perennial crops. Several countries are establishing it on a modest plantation scale as well as in enrichment planting and in a variety of agroforestry systems.

The FAO Panel of Experts on Forest Gene Resources categorised *C. alliodora* as a very important species for wood production. The OFI collected seed from most of the natural range of the species (R3158) and initiated a programme of international provenance trials in 1977. An intensive assessment of the trials (R4101) revealed the outstanding performance of provenances from the Atlantic lowlands of Costa Rica and Honduras. The potential for genetic improvement was shown by the great variation between trees. However, an efficient breeding programme needs adequate knowledge of the population structure, pollination biology, breeding systems, etc. This was not available for *C. alliodora*.

### 2. Objectives:

The overall project objective was to gain an understanding of the reproductive biology of *C. alliodora* as the basis for planning and efficient tree improvement strategy for the species. The specific objectives were:

- 1) To determine the type of pollination and any incompatibility system in *C. alliodora*;
- 2) To determine the levels of heterozygosity, by isoenzyme analysis, found in natural stands of *C. alliodora* where trees have been selected for the CATIE breeding population, and the relation, if any, to growth rates in progeny trials;
- 3) To determine the effect of related crossings and selfing on initial growth rate;
- 4) To develop a breeding strategy for *C. alliodora* on the basis of the information produced by objectives 1-3.

### 3. Results:

Reported as part of the continuation project R4724.

### 4. Dissemination products:

See PROREC output for R4724.

### 5. Follow-up.

The research was continued as R4724.