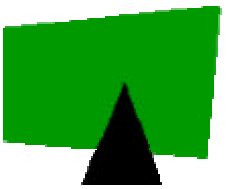

RESOLUTION S5
Expansion of the EUROSILVA Network of Research on Tree Physiology

The Signatory States and International Institution,

considering that because of the development in silvicultural techniques, trees are sometimes subject to nutritional deficiencies, to competition or reaction to climatic and other conditions, whose consequences have not always been foreseen and which may lead to serious difficulties, in particular to phenomena of decline in health,

considering that the impact of long-range air pollution or the consequences of global climate changes that may ensue on the greenhouse effect may substantially aggravate these difficulties,

considering that, to conserve the stability and vitality of forest ecosystems, it is important that we better understand the adaptation capacities of woody plants, and the limits of these capacities, so as to be able to react by elaborating appropriate strategies,

observing that, in order to make progress in basic scientific disciplines, such as genetics, pathology or entomology, a better knowledge of the functioning of the tree is required, to understand and master its relationship with its environment,

considering that this desired improvement of knowledge should also cover the physiology of healthy trees as much as the malfunctionings that affect trees subject to attacks by living organisms or by stressful situations,

bearing in mind that the Oak n°3 resolution of the SILVA International Conference on Trees and Forests, held in Paris in December 1986, recommended the setting up of EUROSILVA, an advanced research network on the physiology of trees,

considering that with the experience gained over the last two years by Franco-German cooperation this EUROSILVA network can now take on the truly European dimension desired by the SILVA conference, and that certain research and development projects co-financed by the European Communities contribute to the promotion of a successful international cooperation,

recognizing the specificity of tree physiology and of the quality of the teams already engaged in various research programmes covering tree physiology,

conscious of the need to reinforce and to structure bilateral and multilateral relations between the research institutes, as well as between the research workers,

conscious of the necessity to support these research programmes and this cooperation with appropriate resources, which notably may be national in origin, in such a way as to enable current researches to be reorganized and research teams to be directed towards fundamental themes hitherto neglected,

commit themselves to set up a joint European research programme on tree physiology within the expanded EUROSILVA network, in accordance with the Oak n°3 resolution of the SILVA conference.

THE PRINCIPLES

1. The EUROSILVA network has as its goal the development of cooperation between research institutes and researchers in the following four fields:

    1.1. influence of stress and diseases on trees

    1.2. tree physiology, biochemistry, biotechnology

    1.3. molecular biology of trees

    1.4. methods of studying tree physiology

2. After the establishment of an inventory of scientific resources in each country, the possible complementary features between programmes thus revealed should lead to exchanges of researchers for periods of a few weeks to a year and to continuing collaboration.

3. The EUROSILVA network is intended to encourage and sponsor scientific meetings at different levels, as for example:

    3.1. joint seminars with two or more teams

    3.2. colloquia or workshops on very precise subjects, bringing young researchers in contact with recognized specialists

    3.3. workshops centred on specific techniques

    3.4. series of lectures given by top-level researchers in different countries

4. Existing coordination mechanisms, flexible but official, could guide the network in each country and internationally.

THE JOINT PROJECT

1. The European network of advanced research on tree physiology, known as EUROSILVA, working in the manner described above, is to be extended to all of the signatory countries, after the identification of top-level laboratories is complete.

2. The priority topics needing particular attention and which will be the object of programmes and doctoral theses are enumerated in the Annex.

3. In view of the complex problems posed by woody material, each country is invited to promote appropriate procedures for the awarding of doctoral thesis grants and financial support that is sufficiently motivating and durable to allow new well-qualified laboratories to make a long term contribution to the work of the EUROSILVA network.

4. This dialogue would allow several laboratories of the EUROSILVA network to respond jointly to international tenders. Furthermore, it would facilitate coordination in the choice of projects financed by each country within the framework of an overall project.

NATIONAL AND INTERNATIONAL COORDINATION BODIES

1. Each country is invited to organize its national network on the basis of the principles set out in chapter 2, and to participate jointly with other countries in the international activity of the EUROSILVA network.

2. A chairman is chosen by the participating countries to lead the EUROSILVA network as a group and to represent the network when dealing with other bodies. Appropriate mechanisms for coordination of international proposals of tree physiology research, especially in the European Communities, should be used.

3. Each country is responsible for the financing of its contribution to the EUROSILVA network.

ANNEX:

EUROSILVA – MAIN CURRENT TOPICS

1. Methodology

1.1. Plant physiological and biochemical methods are as yet little developed in the case of forest trees. Therefore appropriate methods must be newly developed or methods in use for the study of agricultural plants should be adapted for studies of tree species.

1.2. Some examples are:

1.2.1. organogenesis and regeneration "*in vitro*"

1.2.2. isolation and characterization of organelles, enzymes, nucleic acids and metabolites from cell cultures as well as needles, leaves, woody parts and roots of intact trees

2. Tree molecular biology

2.1. Considerable advances have been made in recent years concerning the molecular biology of agricultural plants. Such studies are also essential for forest trees in order to understand processes of developmental regulation, of tree growth and of stress effects and for gene transfer (e.g. for insect, disease or frost resistance). Two major areas concerned are cellular membranes and differential gene expression.

2.2. Some examples are:

2.2.1. study of gene expression at the levels of transcription and translation

2.2.2. identification and mode of formation of secondary metabolites that are related to specific developmental or stress effects (e.g. phytoalexins, terpenes)

3. Tree physiology, ecophysiology and biochemistry

3.1. There is again a wide discrepancy in knowledge on agricultural plants and forest trees. A variety of key physiological processes will have to be studied in close cooperation with neighbouring disciplines (forest ecology, forest pathology, tree propagation).

3.2. Some examples are:

3.2.1. study of dormancy and germination of tree seeds

3.2.2. study of aging and of normal and premature senescence processes

3.2.3. study of the light and dark reactions of photosynthesis as well as carbon transport and allocation

3.2.4. study of stomatal processes, gas exchange and ecophysiology

3.2.5. biosynthesis, turnover and mode of action of phytohormones

3.2.6. uptake, distribution and effects of mineral ions

4. Stress and disease factors

4.1 In principle, each of the above mentioned physiological processes may be growth-determining and be involved in stress and disease phenomena. It is therefore mandatory to coordinate studies on “normal” trees with studies on stressed or diseased trees.

4.2. Some examples are:

4.2.1. effects of air pollutants such as ozone, nitrogen oxides, sulfur dioxide, etc...

4.2.2. pathogenic organisms (e.g. viroids, viruses, bacteria, fungi), insects

4.2.3. environmental factors (e.g. soil parameters, mineral nutrition, salt stress, wounding, allelochemicals)