

HISTORY OF THE INTERNATIONAL POPLAR COMMISSION (IPC)

1947 – 1997

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The International Poplar Commission (IPC) marks the 50th anniversary of its activities in 1997.
This is once more an opportunity to draw up an account of its work, after the last revision made five years ago.

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¹ Originally prepared in 1982 by Marcel Viart, former Chairman of the IPC Executive Committee, for the 31st session of the Executive Committee held in Casale Monferrato, Italy. It was updated by Oscar Fugalli, former Secretary to the IPC, as a contribution to the XIX Session of the IPC held in Zaragoza, Spain, in September 1992 and again for the 50th anniversary celebrations of the IPC held as a satellite meeting of the XI World Forestry Congress in Antalya, Turkey, 13-22 October 1997.

BACKGROUND

The history of the IPC, at least at its outset, was closely bound up with that of the French Poplar Commission. When the French Commission was set up under an ordinance of 25 January 1947 by the Ministry of Agriculture, the Government instructed it to do its utmost to develop international co-operation aimed at promoting and fostering poplar cultivation and timber use. In the first months of operation, the French Commission therefore devoted considerable efforts to preparing a meeting of specialists from several European countries to discuss with them the problems faced at the time by poplar growers and users. Contacts had been facilitated by a study tour of Belgium and the Netherlands while the idea of an international meeting had been welcomed by Mr. Marcel Leloup, the then Director of the Forestry Division of the Food and Agriculture Organization of the United Nations.

The prerequisites for success having thus been created, the French Poplar Commission organised an International Poplar Week from 19 to 26 April 1947. Eight European countries accepted the invitation of the French Minister of Agriculture - Belgium, Czechoslovakia, Italy, the Netherlands, Poland, Sweden, Switzerland, and the UK. Their representatives quickly agreed on the principle of establishing an international poplar commission. Mr. Leloup gave FAO's formal backing. The IPC thus was born, and 1947 can be regarded as the year when it was founded.

Militant enthusiasm and faith in the future of international co-operation were the godparents of the young commission, whose meetings followed each other at a fast pace. The second session was organised in 1948 by Italy, which has subsequently played an outstanding role in the success of the IPC. A further four international congresses were held between 1945 and 1953. In 1954, a poplar conference for the Near and Middle East was arranged jointly by Lebanon and Syria. In 1956, Argentina received the participants in the First Regional Poplar Conference for Latin America. At the X session in 1959, 21 countries were represented by some 125 delegates while at the XX session in 1996 27 member countries and 6 non-member countries attended, with 207 delegates, advisers and observers participating.

At present, the IPC has the following 36 member countries:

Argentina	Korea (Republic of)
Austria	Lebanon
Belgium	Morocco
Bulgaria	Netherlands
Canada	New Zealand
Chile	Pakistan
China (People's Republic of)	Portugal
Croatia	Romania
Egypt	South Africa
France	Spain
Germany	Sweden
Hungary	Switzerland
India	Syria
Iran (Islamic Republic of)	Tunisia
Iraq	Turkey
Ireland	United Kingdom
Italy	United States of America
Japan	Yugoslavia

ORGANIZATION OF THE IPC

The functions of the IPC are:

- (a) to study the scientific, technical, social and economic aspects of poplar and willow cultivation, and of the use of their wood;
- (b) to promote the exchange of ideas and materials between research workers, producers and users;
- (c) to arrange joint research programmes;
- (d) to stimulate the organization of meetings combined with study tours;
- (e) to report and make recommendations to the FAO Conference, through the Director-General of FAO; and
- (f) to make recommendations to National Poplar Commissions, through the Director-General of FAO and the governments concerned.

The IPC is governed by a Convention that places it within the framework of FAO, and which the FAO Conference adopted at its X Session in November 1959. The most recent amendments to the Convention were adopted at the XIX Session of the FAO Conference held in November 1977.

Any FAO member nation may join the IPC when it formally accepts the Convention. The right of admission has also been extended to countries that are not members of FAO but are members of the United Nations, any of its Specialized Agencies or the International Atomic Energy Agency, if they formally accept the convention.

The IPC is summoned in regular sessions every four years (every two years prior to the most recent amendments) by the Director-General of FAO, in consultation with the Chairman of the IPC Executive Committee. But it may be convened in special sessions, if necessary. A session has normally been organised by one of the IPC member countries, after the Director-General of FAO has accepted its offer.

An Executive Committee prepares and follows up the IPC's work for the sessions and between sessions. The committee has 12 members elected in a personal capacity for a four-year term (six years prior to the latest amendments), and a maximum of five members co-opted for the same duration from among candidates presented by member countries for their special competence. The committee elects a Chairman and a Vice-chairman from its members. The committee meets during each session of the IPC and at least once between sessions; it is summoned by the Director-General of FAO, in consultation with the Chairman.

The Forestry Department of FAO provides the permanent secretariat of the IPC. Scientific and technical problems have been investigated by five working parties - on diseases, pests, logging and utilisation of wood, breeding and improvement, and on production systems. These working parties have grouped the specialists involved in these fields of studies, and have been called for meetings by their chairmen about once every two to four years.

ACTIVITIES OF THE IPC EXECUTIVE COMMITTEE

The Executive Committee has met 38 times since its establishment.

Apart from its role in the nomenclature of poplar cultivars and the registration of their names through its subcommittee, the Executive Committee is the prime mover of the IPC. Its essential function is to select a topic for each session; this theme has been announced to the member countries about two years before the session, in order to mobilise efforts for drawing up a special report by each member country. The set of special reports has represented a rich source of documentation that has been at the root of the strides made in the past five decades. It should be said, however, that the response of member countries has not always been prompt and exhaustive.

The Executive Committee also has given its opinion on the candidacy of countries offering to organise the regular sessions while the Director-General of FAO consults the Executive Committee on all matters concerning poplar and willow cultivation and timber use.

The Executive Committee has the important job of synthesising the information and knowledge gathered and spreading it as widely as possible. It was one of the first tasks of the first Executive Committee to prepare a monograph that appeared in 1956 in the FAO Forestry and Forest Products Studies (No. 12), entitled "Poplars in Forestry and Land Use". It was a collective job with contributions by the members of the Executive Committee. With Ph. Guinier as Chairman and G. Houtzagers as Vice-Chairman, the first Executive Committee was composed of F.W. Bauer, E. Gaillard, G. Giordano, A. Herbignat, H. Johnson, T.H. Peace, G. Piccarolo, J. Pourtet and R. Regnier. The publication of the monograph in English, French and Spanish met with considerable demand, and the edition was quickly exhausted. Some 12 years later, therefore, the Executive Committee decided to rewrite the monograph in order to cover the evolution of knowledge and techniques, rather than re-issuing the old text with amendments. This project was carried out in 1979 with the publication of Volume No. 10 in the FAO Forestry Series entitled "Poplars and Willows in Wood Production and Land Use", in French (original text), English and Spanish, and for which M. Viart served as the chief editor. As for the future, rather than attempting to rewrite the whole monograph it was decided to publish a series of leaflets, which could be collected together in a standard binder; the first two leaflets, on insects and diseases of poplars and willows, were under preparation in 1997. They will constitute the basis also for a proposed expert meeting to prepare Guidelines for the safe movement of the Salicaceae (with the International Plant Genetic Resources Institute - IPGRI).

The Executive Committee in 1992 requested the Working Party on Breeding to prepare a project on the conservation, exploration, and improvement of the genetic resources of species of poplars and willows growing in arid, semi-arid, and subtropical regions. The recommendation was acted upon by the Secretariat, who prepared outline proposals for projects to explore the status of such poplars. Two of the projects were subsequently funded by UNDP:

- conservation of indigenous poplars in India (Populus ciliata, P. gregii, P. alba, and P. euphratica);
- conservation of indigenous poplars in Kenya (Populus ilicifolia).

The objectives of both projects were to explore the status of these poplars and to prepare proposals for their conservation. Results of the latter were presented to the Working Party on Breeding in 1996 (Budapest), while the former has not yet been completed.

FAO has also carried out studies, especially into the status of P. euphratica, in the main countries of its distribution, the results of which were presented in a paper to the Working Party on Breeding.

Reports of the two most recent Sessions of the IPC have been put on the FAO Forest Resources Division homepage, while the possibility has been reviewed of including the Directory of Poplar and Willow Scientists, prepared by the Istituto di Sperimentazione per la Pioppicoltura (Casale Monferrato, Italy) on the homepage.

It was agreed at the XX Session in 1996 that a small group should be set up to develop ideas for future directions of the IPC, and a small organising committee, drawn from member countries, should also be established to help prepare for future sessions, in particular to relate the papers of the working parties to the general theme of the sessions.

Provisions were included in the programme of the XI World Forestry Congress (Antalya, Turkey, October 1997) for a satellite meeting to mark the 50th anniversary of the IPC, with the theme *The contribution of poplars and willows to sustainable forestry development in the 21st century*. This was linked to the general theme of the Congress, *Forestry for sustainable development through the 21st century*.

Activities of the Subcommittee on Nomenclature and Registration

At its VII Session in 1953, the IPC decided to set up a Subcommittee of the Executive Committee on Nomenclature and Registration with responsibility for investigating the best way of establishing a register of poplar names by adapting the nomenclature used by the IPC to the rules on nomenclature of cultivated plants. This job became of special importance as a result of the designation of the IPC as the official body for the registration of forest cultivars of the genus Populus (International Code of Nomenclature of Cultivated Plants, Utrecht, 1958).

As the success of poplar cultivation depends very largely on the appropriate choice of cultivars, poplar breeders have been and are engaged in research leading to the creation of new cultivars with the properties of fast growth where the objective is poplar wood production, and with the greatest possible resistance to pests and diseases. In this way, the number of usable cultivars has been gradually increasing. It therefore became necessary to identify them correctly and as precisely as possible, to avoid possible confusion and to facilitate exchanges among users regardless of whether or not such exchanges were on a commercial basis.

Under the chairmanship of J. Pourtet, who headed the Executive Committee from 1969 to 1975, the Subcommittee made great progress. In September 1971, its work resulted in a registration form with the code number FAO/IPC/71/30 to be used for describing poplar cultivars of the section Aigeiros. The latest revision, dealing mainly with extending the possibility of registration to poplars of the section Tacamahaca (Balsam poplars) and their hybrids with those of the section Aigeiros, was made at the XV Session held at Rome in December 1975. The revised form was designated FAO/IPC/75/49. It consisted of 85 columns, 40 of which were reserved for descriptive characteristics alone. As J. Pourtet wrote, "This document is not perfect but it has stood the test and makes it possible, especially in temperate Europe, to classify, identify, separate and group the principal clones cultivated there." At that time, 52 cultivars were described in accordance with this revised form while another eight names were being considered.

The Subcommittee recommended in September 1982 that the revised form should be further revised to take into account the scientific progress achieved in this field by the International Union for the Protection of New Varieties of Plants (IUPV). This was to be achieved principally by adding those characteristics that can improve the identification of the poplars of the sections Aigeiros and Tacamahaca, and thereby broaden the possibilities of identifying the poplars of the sections Leuce, Turanga, and Leucoides while retaining the present grouping of characteristics. The Subcommittee also recommended that the scale of annotations used by IUPV for each characteristic should be adopted in order to facilitate passing from one registration form to the other, and that the IUPV form should be used for the genus Salix as well. All these recommendations were subsequently endorsed by the Executive Committee at its 31st Session late in 1982.

Accordingly, two sets of forms for the identification, nomenclature, and registration of poplars were produced about two years later, one by M. Viart and the other by S.K. Hyun for the poplar species of the section Leuce and their hybrids. They were submitted to the XVII Session of the IPC in October 1984 via the 32nd Session of the Executive Committee held just before the IPC session. It was recommended that the two proposed forms should be harmonised, that studies of isoenzymes and cytogenetical characteristics should be carried out with the co-operation of investigators from other countries, and that only material of commercial productive value should be submitted for registration.

At its XVIII Session, organised by Canada in September 1988, the IPC recommended that:

- fancy names should be given to cultivars released for cultivation, in accordance with the rules of the International Code of Nomenclature of Cultivated Plants, and registered at national level by a Registration Authority duly mandated by the Government;
- subsequently the names of the registered cultivars should be listed by every national Registration Authority and sent with brief comments to the IPC Secretariat as the International Registration Authority;
- the IPC Secretariat should issue an international list of names of poplar cultivars, a provisional version of which should be made available possibly for the 35th session of the Executive Committee in 1990.

Accordingly, between September 1988 and March 1990 a proposed brief description sheet for poplar clones whose names were to be submitted for registration, and a draft international catalogue based on responses from 12 IPC member countries, were circulated to national poplar commissions, after having been submitted for comments to the chairman of the International Commission on Nomenclature and Registration of Cultivated Plants.

These two papers were adopted by the Executive Committee at its 35th Session in Buenos Aires in March 1990, subject to some remarks made during the discussion and to some further remarks by the chairman of the commission mentioned in the preceding paragraph. The chairmen of the national commissions were requested to submit their proposed amendments no later than 31 May 1990, and the secretariat was asked to ensure publication of the first edition of the International Catalogue of Poplar Cultivars by the end of 1990.

At the end of July 1990 another draft of the International Catalogue of Poplar Cultivars was thus circulated to national commissions for additions or corrections. It already contained more than 200 names of cultivars though it was far from being complete.

The following points arose from discussion of the catalogue during the XIX Session of the IPC in September 1992:

- the IPC is the only international authority for the registration of the names of cultivars of poplars (decision taken in 1958 by the International Commission for the Nomenclature of Cultivated Plants);
- by extension, the competence of the IPC, functioning as the International Authority for Registration, is universal and is not limited only to member countries of the IPC;
- in such a capacity, the competence of the IPC is limited to the strict application of the International Code of Nomenclature of Cultivated Plants;
- in conformity with this Code, the IPC is in particular not permitted to carry out trials, give an opinion on the merits of one cultivar over another, or to give an opinion on the identification of cultivars.

The meeting confirmed that the International Catalogue of the Names of Cultivars of Poplars met these four points.

At its subsequent session in October 1996, the Chairman of the Subcommittee drew attention to some weaknesses in the functioning of the present system:

- no country requested preliminary authorisation from the system for the naming of cultivars;
- the existence of the catalogue was known neither to breeders nor to the relevant national authorities for the control of forest reproductive material;
- most National Poplar Commissions did not ensure that the relevant information on new cultivars was transmitted to the relevant national authorities or to the IPC Subcommittee;
- there was no connection between the catalogue and other official international registers;

- no system for the registration of the names of poplar cultivars existed for non-member countries of the IPC.

Therefore, the Secretary of the IPC was requested to circulate a letter to the member countries concerning the catalogue, with an example of the registration form, recalling the responsibilities of the IPC for the registration of the names of poplar cultivars, and the procedures. In addition, each member country should be requested to designate a correspondent with responsibility for providing information necessary for registering new cultivars and for co-ordinating with national authorities responsible for the control of forest reproductive material. The coherence of the catalogue with registers published by other organisations should also be checked. The Secretariat, finally, should examine means of involving non-member countries in the registration of names of poplar cultivars, in collaboration with the Subcommittee.

WORK DONE DURING SESSIONS

The IPC has thus far held 20 ordinary sessions, as follows:

<u>No. of Session</u>	<u>Year</u>	<u>Organising Country</u>
International Week	1947	France
II	1948	Italy
III	1949	Belgium and Netherlands
IV	1950	Switzerland
V	1951	United Kingdom
VI	1952	Italy
VII	1953	Germany
VIII	1955	Spain
IX	1957	France
X	1959	Italy
XI	1962	Yugoslavia
XII	1965	Iran
XIII	1968	Canada
XIV	1971	Romania
XV	1975	FAO (Rome)
XVI	1980	Turkey
XVII	1984	Canada
XVIII	1988	China
XIX	1992	Spain
XX	1996	Hungary

Each session has included work in plenary when the participants have taken note of a general report on the activities of the national poplar commissions and of a special report which each member country is requested to submit on the theme of the session, as laid down by the Executive Committee. A rapporteur has usually been designated to sum up the information supplied by the member countries in this way.

Moreover, each session has afforded an opportunity for a meeting of the Executive Committee and of its Subcommittee on Nomenclature and Registration as well as for at least one meeting of each Working Party. For specialists this has always been an opportunity for presenting scientific or technical communications on their work. Each chairman of the subsidiary bodies has summed up the work and communications submitted. In this way, the sessions have taken stock of the development of poplar and willow cultivation and of solutions to problems related thereto and to the use of poplar and willow wood in the various member countries.

In addition, the sessions have included study tours which have enabled participants to familiarise themselves with the conditions of poplar and willow cultivation and use, and with the main lines of research in the organising country. Such tours have served to forge links among international specialists whose friendly bonds gain strength as the number of meetings have increased.

ACTIVITIES OF WORKING PARTIES

Working Party on Logging and Utilization of Poplar and Willow Wood

This is the oldest working party of the IPC, whose establishment dates from the early 1950's. It brings together all experts interested in the question of logging and utilisation of poplar and willow wood.

For each member country, the meeting has been an opportunity to sum up and report on progress achieved and on research underway. Moreover, the working party has drawn up a standard form for technological trials which is intended to describe and qualify the wood of the cultivars used by member countries. The working party has also dealt with felling and harvesting practices and with developing new possibilities for wood utilisation.

Economic problems have not been ignored by the working party; on the contrary, data have periodically been gathered and submitted to IPC sessions, thus making it possible to monitor the evolution of cultivated areas, volumes utilised, and operating costs and prices.

Recent work of the working party has indicated that the trend in harvesting is now to use all-tree harvesters in plantations, and specially constructed machinery for short rotation biomass plantations. This has confirmed that the outputs of research are filtering down to the operator.

The trends in wood products have been influenced by the need to reduce waste. Traditional uses have remained important but high value products will likely to be more actively marketed in the future and research will, therefore, be important in the coming decade.

With regard to the aims of poplar breeding, it has been the opinion of some in this working party that breeders should aim at producing trees with high density and straight form, apart from resistance to pests and diseases. Others maintain that breeders should endeavour to produce trees that would satisfy a variety of industrial requirements.

Recent working party discussions have included the effect of management regimes, large-scale industrial projects, and the benefits of combinations with agricultural crops or grazing. In this context, the role of poplar growing on "set aside" farmland in the EEC has been discussed, together with the uses of computer modelling in such situations. Member countries have been invited to pay more attention to the environmental aspects of poplar and willow growing, as well as to the recycling of products. The need for greater co-ordination between the growers and those who use the wood of poplar and willow has been stressed.

The working party has recommended that more joint sessions should be held between the different working parties of the IPC in future, in order to achieve greater co-ordination of research and development and the transfer of technology. It has proposed that mechanisms should be developed for the greater involvement of the private sector in its future activities, and has recommended that the Executive Committee should investigate ways of promoting student exchanges and participation in meetings of the working parties.

The following three research priorities were identified in 1996: wetwood, tensionwood, and biodeterioration and its prevention. The working party also identified the subject matter for three technical leaflets, to be prepared by its members and passed to the Secretariat: economics and the modelling of poplar production; production, technical characteristics, and the utilisation of willows; production, technical characteristics, and the utilisation of poplars.

Working Party on Poplar and Willow Diseases

This Working Party has met regularly since its first meeting in Paris in April 1957, with attendance mainly by pathologists. Each meeting has served to exchange information about the health conditions of poplar and willow plantations in the member countries and about the work done and the results of research. An overview paper describing the activities of the working party since its formation was presented by the chairman in 1992.

A subject has been proposed to the participants at each meeting so that discussion can quickly concentrate on a common field. Joint research programmes have been agreed between pathology laboratories where mention may be made of international arrangements for studying the susceptibility of cultivars to Marssonina brunnea and a research programme on sensitivity to Xanthomonas populi. In carrying out these programmes, pathologists have helped one another, exchanging information, techniques and sometimes their material. They have received visiting researchers who can then familiarise themselves with the methods applied. In this way knowledge of poplar and willow diseases has made rapid strides towards their control.

Apart from summary reports on the meetings, with the texts of the communications presented in an annex providing a wealth of documentation, the working party in 1981 completed a synthesis which was published under the French title "Les maladies du peuplier" (Poplar Diseases) by the National Forestry Fund set up in 1946 by France.

The leaf diseases (Marssonina brunnea) and, in particular, the rust diseases (Melampsora spp.) have continued to be a major cause for loss of vigour in the poplar plantations. Because of the high variability of the diseases, work has had to concentrate on their taxonomy. The bark parasite, Dothichiza populea, which is also highly variable, has caused increasing concern to affected countries.

The gravity of risk of virus diseases was recently highlighted by the working party. Though damage attributed to air pollution may be caused primarily by physiological stress, a suggestion was made at one of the last meetings of the working party that it should become involved with this topic.

The sensitivity of 78 clones of European origin to Marssonina brunnea was tested in France. As there was a certain divergence among the findings obtained in a number of countries, the working party has been endeavouring to find satisfactory explanations in the context of international co-operation.

The working party has repeatedly drawn attention to the existence of physiological races of Melampsora larici-populina and M. allii-populina and to the rapid evolution of populations of these races; although it was acknowledged that progress has been made in understanding the reaction of clones and species of poplar to the diseases, it has been stressed that more attention should be paid to the selection of clones for resistance to both pathogens. A strategy has been described for the utilisation of white poplar, involving the selection of families and provenances for tolerance to frost and drought.

It has been recommended that the collaboration between tree breeders and pathologists should be expanded and should be translated into some joint sessions. Two joint projects were prepared in 1994 with the Working Party on Poplar Insect Pests. The first would aim to acquire systematic knowledge on the natural resistance mechanisms of poplars and willows towards insects and diseases. The second would look for possible correlations between tree susceptibility and soil characteristics or other ecological factors, in order to determine the risk of damage by insects or diseases to a particular poplar or willow for a given site.

The following recommendations were made in 1996 for future activities:

- the preparation of a world map of the principal diseases of poplars;
- the extension of existing collaboration with the European Union in the evaluation of the reaction of existing clones of poplars to the main diseases to other countries and continents, harmonising the results to make them comparable;
- the preparation of a detailed study of the diversity of the two pathogens Marssonina brunnea and Discosporium populeum.

Once again potential problems arising from the transfer of diseases from one continent to another were identified as being of high importance.

Working Party on Poplar and Willow Insect Pests

This working party was created in 1957 after a number of Belgian, Dutch, French, Italian, and Spanish entomologists met in Paris. They pointed out the potentially harmful significance of insects, mainly xylophagous ones, to the development of modern poplar and willow cultivation and suggested that the IPC set up a working party on pests, along the lines of the Working Party on Poplar Diseases. Since its establishment, the working party has operated regularly under conditions comparable to those of the Working Party on Diseases, in the same spirit and with the same goals.

Except for the presence of a new pest recorded from France (Anisandrus dispar) and the problems arising from associations between poplars and agricultural crops, there have been no serious attacks by new insect pests for several years. In Europe, the most harmful insects continue to be primarily borers such as Cryptorhynchus lapathi, Saperda carcharias, and Paranthrene tabaniformis. In Argentina, considerable damage is being attributed to defoliating insects (Nematus desantisii and Hylesia nigricans), a sucker (Pterocomma populea), and a borer (Platypus sulcatus); rodent damage to young plantations has also been reported.

The working party has foreseen that the trend in phytosanitary protection of poplars and willows towards the year 2000 will be noticeable for the increased use of biological control methods (for instance, preparations based on Bacillus thuringiensis have been increasingly used for the control of Lepidoptera, and the control of Cryptorhynchus lapathi by nematodes), the breeding of pest resistant clones, and the increased use of environmentally less harmful insecticides (such as those containing diflubenzuron).

Whether the enlargement of the genetic base of the planting material and the reduction of the risk factor could be better achieved by planting clones in mixtures or through a mosaic of monoclonal plantations has been debated by the working party, which has also drawn attention to the need to increase basic research on resistance of the

Salicaceae to pest damage. It has recommended that interdisciplinary work aimed at genetic improvement should be increased as well.

The choice of clones to be planted in a given environment has to be based not only on short-term economic considerations of fast growth but also on the need to satisfy other requirements, such as the maintenance of genetic diversity. By so doing, better protection will be offered against biotic or abiotic risks and better adaptation to local variability of the site.

Recommendations on guidelines for its future activities were adopted in 1996 as follows:

- the improvement of methods of pest control in order to reduce threats to humans and to natural ecosystems;
- increased emphasis on methods for the prevention of the accidental introduction of new pests through germplasm exchange;
- the harmonisation of methodologies for research into genetic resistance to poplar pests, in order to make results comparable between countries;
- the encouragement of young scientists through a system of fellowships.

An overview of internationally important insect pest of poplars has been prepared, the results of an enquiry conducted among member countries in 1993.

Working Party on Poplar and Willow Breeding and Selection

On the basis of work done by pathologists and, to a lesser extent by entomologists, which brought out the hereditary character of susceptibility and resistance to diseases and to some insects such as Phloeomyzus passerinii, poplar breeders felt the need of setting up a structure of their own for co-ordination and co-operation which would open up great possibilities for the biological control of certain poplar enemies. Up to that time, breeders had confined themselves to taking part in the activities of the Working Party on Diseases and to closely observing the research results of pathologists concerning variability in the reaction of cultivated poplars to pathogens. Systematic work done mainly in Belgium on the heritability of certain genetic characters showed that poplar genetics ought to have its place among the concerns of the IPC, which therefore agreed to the establishment of the new subsidiary body in 1971.

Some important activities may be mentioned. On the one hand, thanks to co-operation and close liaison with the Poplar Council of the United States of America, in the late 1960's/early 1970's several collections of seed from various sources of Populus deltoides and P. trichocarpa were subsequently distributed to European countries involved in research programmes concerning those species. On the other hand, thanks to a generous offer from the Academy of Forest Science of the People's Republic of China, the first collection of propagation material from various sources of P. maximowiczii, P. simonii and P. yunnanensis was distributed widely among member countries in the early 1980's. These undertakings were significant examples of the spirit of international co-operation that has always characterised the IPC member countries. By leading to the creation of new hybrids, they have been harbingers of a veritable revolution that has the potential to improve poplar and willow cultivation in several countries; one should not, however, underestimate the risk of spreading diseases through the exchange of material, and close liaison with pathologists must not be relaxed.

Pathogens and insects have in fact been transferred together with the germplasm, as happened with the introduction of leaf rusts (Melampsora spp.) to Australia, New Zealand, Argentina and South Africa, of the poplar mosaic virus to China, and of Septoria musiva to Argentina.

The working party has also drawn attention to the fact that the populations of some native species were rapidly disappearing, either because they were displaced by agriculture or other land uses, or because they spontaneously hybridise with cultivars. Natural stands of Populus nigra have almost disappeared in Europe and the situation for P. deltoides in North America has become very serious. Studies in China on the natural range and individual variability have been underway for a number of species, amongst which P. tomentosa deserves special attention.

The main activities in central, western and southern Europe have been focused on the creation of Euramerican or inter-American hybrids; the selection objectives have primarily concerned the search for satisfactory resistance to parasites, and environmental adaptation. Modern techniques of controlled cross-breeding have been used. In northern Europe the main research topics are vegetative multiplication and the development of multiclonal

varieties of aspens, which have been widely used. Willow breeding has been very important in Argentina; the main focus there has been improved resistance to both parasites and flooding.

Early in the 1990's the working party decided to concentrate on the following topics: (a) the potential of biotechnology in poplar breeding, (b) poplar breeding for extensive culture, (c) status and perspectives of North American poplar resources, (d) breeding of Asiatic willows. It also recommended that FAO should address to member and non-member countries a formal invitation to adopt appropriate measures to ensure that existing genetic resources of poplar and willow species, in natural and man-made stands be properly preserved, stressing the role that fast-growing species may play in reducing the pressure on delicate and endangered natural environments world-wide. Member countries were invited to design model programmes around Populus deltoides and P. nigra in consideration of their great importance in breeding programmes and the existing threats of genetic pollution from cultivated varieties.

The following recommendations were made in 1994:

- to update the methodologies suitable for the conservation of the different poplar and willow genetic resources in danger of extinction;
- to prepare guidelines for the safe exchange of poplar genetic material between continents and countries;
- to promote molecular biology and its application in poplar and willow breeding;
- to promote breeding of willow trees and shrubs;
- to prepare leaflets on different aspects on poplar and willow breeding;
- to promote case studies on the conservation of poplar and willow genetic resources.

As for needs concerning Populus euphratica, the working party recommended in 1994 the enlargement of fundamental knowledge, particularly in the field of its ecology, physiology, and genetics; the conservation of natural stands in areas where they are diminishing seriously; the establishment of at least one Populetum euphraticum for in situ conservation; the preparation of a monograph on the species. Subsequently, the working party acknowledged the action taken by FAO on monitoring the status of Populus euphratica and P. ilicifolia. It recommended that a similar effort be extended to other low-latitude species adapted to the warm and dry climates of many sub-tropical countries, especially P. yunnanensis and P. ciliata in Asia and species of the Aigeiros, Abaso, and Tacamahaca section of poplars in Mexico.

In 1996 the working party recommended that special attention should be devoted by member countries with long experience in poplar and willow breeding to the transfer of knowledge to countries where such culture was relatively new. Some of the germplasm grown in ex situ collections might no longer be used in one country but might be still useful in another, and it therefore recommended that member countries maintained such collections. The attention of member countries was drawn to the ongoing debate on breeders' and farmers' rights while in view of the nature of breeding programmes for improved wood production and other benefits, the working party drew the attention of member countries to the need for long-term commitment of adequate funding.

Working Party on Production Systems for Poplars and Willows (formerly, Working Party on Biomass Production Systems for the Salicaceae)

This group, set up at the XVI Session in 1980, aims to promote co-ordination among specialists concerned with biomass production from poplars and willows. As this was a totally novel kind of cultivation, so far as techniques of cultivation, choice of cultivars, and harvesting techniques were concerned, it was decided to assign these problems to a new group rather than splitting the study among the existing working parties. The specialised new group has thus been in a better position to maintain relations with institutions pursuing similar objectives, such as the International Energy Agency (IEA) and the Research Units of the International Union of Forestry Research Organizations (IUFRO).

The first formal meeting of the new group was held on the occasion of the XVII IUFRO World Congress in Japan in September 1981. Since then, biomass production in dense, short-rotation plantations of poplars and willows (including agroforestry systems with complete utilisation of the combined biomass), regenerated by coppicing, has been introduced on an experimental scale in Canada, France, Belgium, Sweden and USA. Trials

on a small scale have been conducted in Austria, China, Hungary, Ireland, Italy, New Zealand, Pakistan, Turkey and UK

The work programme 1984-88 of the working party included a proposal for a poplar biomass project in China, the development of a manual for biomass production, the development of a database, standards for biomass qualities, and the publishing of a woody biomass terminology.

At its session in 1992, the participants agreed on the integrated approach being adopted in consideration of the short rotations of biomass systems as well as on the importance of socio-economics and market analysis. They also noted the lack of a working party of the IPC devoted to management systems of poplar and willow plantations and suggested the broadening of scope of the working party.

A cost-benefit analysis of biomass production systems compared to other land uses has been initiated in Turkey and the results will be of wider interest to working party members.

It was recommended in 1994 that a report be prepared on the modelling of production system in the Salicaceae. The importance of poplars and willows to social forestry, which should be regarded as multipurpose species, was recognised and member countries were encouraged to investigate the opportunities for technical assistance to support such programmes. It was further recommended that activities of the working party should include studies of the specific requirements for the growth of poplars and willows in the more northerly regions, including Scandinavia, and the northern parts of North America and China.

SPREADING POPLAR AND WILLOW CULTIVATION

In spreading knowledge and promoting poplar and willow cultivation, IPC activities have not been limited to preparing the monographs mentioned earlier. When a country has organised a session it has been an opportunity for mobilising the media in favour of poplar and willow cultivation, with potentially important consequences. It has been an indirect effect, but it must not be neglected.

The IPC was directly involved in the creation of the Populetum mediterraneum proposed by the participants in the VIII Session (Spain 1955), who approved a recommendation to that effect. The first plantations were made in the spring of 1956 on a farm at Tivoli, near Rome, of the ENCC Agricultural and Forestry Experiment Centre. The plantings were continued in the following years, and now a living collection of some 300 clones of several poplar species has been assembled. In 1966, the IPC sponsored the establishment of another populetum near Cologne, Germany, which grouped about 60 clones cultivated in Central and Western Europe. Another populetum for the Near East was established near Ankara, Turkey. The Italian, German and Turkish Poplar Commissions have been requested to report on their observations and growth measurements. The data gathered in this way would permit useful comparisons and are a remarkable source of information on the behaviour of the species or varieties represented.

TECHNICAL ASSISTANCE

The first results obtained by the IPC, not only in the technical field but perhaps even more so in human relations, soon led to requests for technical assistance from FAO. The IPC thus acted as technical adviser to the Director-General of FAO to co-ordinate programmes and provide candidates for consultants' posts in poplar and willow cultivation, and to facilitate the reception of foreign colleagues by specialists, generally in Europe, for varying periods of time.

In this way, a network of friendly relations has been gradually built up between the countries most advanced in poplar and willow cultivation and countries where cultivation has been modernized, as in Near/Middle Eastern countries, or where it has been promoted, as in some countries in Asia. A good example is the establishment of the Poplar Cultivation Institute (now the Poplar & Fast-growing Trees Research Institute) at Izmit, Turkey, in 1962, after a long period of preparation that began in 1957. Many other countries, such as China, have received some form of technical support through development projects.

CONCLUSIONS

Springing from the enthusiasm of its promoters and their faith in international co-operation to promote cultivation of two of the most rewarding quick-growing genera in temperate and temperate-warm climates, the IPC has worked without relaxation along the lines laid down by its founder and first president, Ph. Guinier:

- to improve the botanical, ecological, and technological knowledge of the species and varieties of the genus Populus;
- to develop cultivation methods in order to establish thriving and productive plantations;
- to study pests and diseases of poplars to achieve better control;
- to improve the performance of cultivated poplars; and
- to perfect the use of poplar wood.

In the late 1950's that the genus Salix was added to the terms of reference of the IPC, with the same objectives.

This history shows that, although not all goals have been wholly attained, the means of attaining them are available and that the tools have been forged to find satisfactory solutions tomorrow to today's problems. At any rate the IPC, after 50 years, remains a living institution capable of following the evolution of knowledge and techniques, and of adjusting itself to changes in technology. The establishment of the Working Party on Biomass Production Systems in 1980 was a significant example in this respect.

Yesterday: Enthusiasm and faith in the future

Today: Confidence based on experience

These are reasons to believe that the next century, which will certainly witness the need for many changes in meeting the demands of mankind, will find the IPC prepared to be of service to the peoples of its member nations.