UPOV

PLANT VARIETY PROTECTION

Gazette and Newsletter
of the
International Union for the Protection of New Varieties of Plants (UPOV)

No. 60 January 1991 Geneva

CONTENTS

UPOV Publication No. 438(E)

GAZETTE

EXTENSION OF PROTECTION TO FURTHER GENERA AND SPECIES

Germany

By virtue of the Third Order of March 21, 1990 (Bundesgesetzblatt, Part I, of March 27, 1990, pp. 557-561), Amending the Order Concerning the List of Species under the Plant Variety Protection Law, protection was extended, with effect from March 28, 1990, to the following families and to any species resulting from a hybridization between species belonging to different families, of which one at least is mentioned in the list below (the Latin and German names appear in the above-mentioned Order, whereas the English and French common names have been added by the Office of the Union).

Latine	English	Français	Deutsch
Aizoaceae	Aizoaceae	Aizoacées	Eiskrautgewächse
Alismataceae	Alismataceae	Alismatacées	Froschlöffelgewächse
Anacardiaceae	Anacardiaceae	Anacardiacées	Sumachgewächse
Aponogetonaceae	Aponogetonaceae	Aponogétonacées	Wasserährengewächse
Aristolochiaceae	Aristolochiaceae	Aristolochiacées	Osterluzeigewächse
Aspidiaceae	Aspidiaceae	Aspidiacées	Schildfarngewächse
Aspleniaceae	Aspleniaceae	Aspléniacées	Streifenfarngewächse
Athyriaceae	Athyriaceae	Athyriacées	Frauenfarngewächse
Basellaceae	Basellaceae	Basellacées	Basellengewächse
Bignoniaceae	Bignoniaceae	Bignoniacées	Trompetenbaumgewächse
Blechnaceae	Blechnaceae	Blechnacées	Rippenfarngewächse
Bombacaceae	Bombacaceae	Bombacacées	Wollbaumgewächse
Butomaceae	Butomaceae	Butomacées	Butomusgewächse
Capparaceae	Capparaceae	Capparacées	Kaperngewächse
Cercidiphyllaceae	Cercidiphyllaceae	Cercidiphyllacées	Judasbaumgewächse
Cistaceae	Cistaceae	Cistacées	Cistrosengewächse
Commelinaceae	Commelinaceae	Commélinacées	Commelinengewächse
Coprinaceae	Coprinaceae	Coprinacées	Tintlingartige
Corynocarpaceae	Corynocarpaceae	Corynocarpacées	Keulenbaumgewächse
Cycadaceae	Cycadaceae	Cycadacées	Palmfarngewächse
Cyperaceae	Cyperaceae	Cypéracées	Riedgrasgewächse
Dioscoreaceae	Dioscoreaceae	Dioscoréacées	Batatengewächse
Dipsacaceae	Dipsacaceae	Dipsacées	Kardengewächse
Dipterocarpaceae	Dipterocarpaceae	Diptérocarpacées	Dipterocarpagewächse
Globulariaceae	Globulariaceae	Globulariacées	Kugelblumengewächse
Haloragaceae	Haloragaceae	Haloragacées	Meerbeerengewächse
Hippuridaceae	Hippuridaceae	Hippuridacées	Tannenwedelgewächse

Latine	English	Français	Deutsch
Juncaceae	Juncaceae	Juncacées	Binsengewächse
Lauraceae	Lauraceae	Lauracées	Lorbeergewächse
Lycopodiaceae	Lycopodiaceae	Lycopodiacées	Bärlappgewächse
Melastomataceae	Melastomataceae	Mélastomacées	Schwarzwurzelgewächse
Melianthaceae	Melianthaceae	Mélianthacées	Honigbaumgewächse
Menyanthaceae	Menyanthaceae	Ményanthacées	Fieberkleegewächse
Musaceae	Musaceae	Musacées	Bananengewächse
Nyctaginaceae	Nyctaginaceae	Nyctaginacées	Wunderblumengewächse
Nymphaeaceae	Nymphaeaceae	Nymphéacées	Seerosengewächse
Onocleaceae	Onocleaceae	Onocléacées	Perlfarngewächse
Osmundaceae	Osmundaceae	Osmondacées	Rispenfarngewächse
Oxalidaceae	Oxalidaceae	Oxalidacées	Sauerkleegewächse
Palmae	Palmae	Palmacées	Palmen
Pandanaceae	Pandanaceae	Pandanacées	Schraubenbaumgewächse
Piperaceae	Piperaceae	Pipéracées	Pfeffergewächse
Polypodiaceae	Polypodiaceae	Polypodiacées	Tüpfelfarngewächse
Pontederiaceae	Pontederiaceae	Pontédériacées	Pontederiagewächse
Proteaceae	Proteaceae	Protéacées	Silberbaumgewächse
Punicaceae	Punicaceae	Punicacées	Granatbaumgewächse
Resedaceae	Resedaceae	Résédacées	Resedagewächse
Rhamnaceae	Rhamnaceae	Rhamnacées	Kreuzdorngewächse
Sapindaceae	Sapindaceae	Sapindacées	Seifenbaumgewächse
Saururaceae	Saururaceae	Saururacées	Molchschwanzgewächse
Selaginellaceae	Selaginellaceae	Selaginellacées	Mooskrautgewächse
Simaroubaceae	Simaroubaceae	Simaroubacées	Bittereschengewächse
Sinopteridaceae	Sinopteridaceae	Sinoptéridacées	Sinopteridagewächse
Sparganiaceae	Sparganiaceae	Sparganiacées	Igelkolbengewächse
Sterculiaceae	Sterculiaceae	Sterculiacées	Sterkuliengewächse
Tamaricaceae	Tamaricaceae	Tamaricacées	Tamariskengewächse
Typhaceae	Typhaceae	Typhacées	Rohrkolbengewächse
Urticaceae	Urticaceae	Urticacées	Nesselgewächse
Zingiberaceae	Zingiberaceae	Zingiberacées	Ingwergewächse

As regards the availability of protection to foreigners and the novelty condition, reference is made to Articles 15 and 6, respectively, of the Plant Variety Protection Law published in the "Legislation" subsection of Plant Variety Protection No. 51 (September 1986).

Pursuant to Article 6(1)3 of the Law, applications that relate to recently created varieties of taxa covered by this extension and which are to benefit from the transitional limitation of the requirement of novelty must be filed within one year following the extension, i.e. before March 28, 1991.

Pursuant to Article 13 of the Law, protection extends to the end of the thirtieth year following the grant in the case of hop, potato, grapevine and tree species and to the end of the twenty-fifth year following the grant in the case of the other species. Whether an application relates to a tree will be determined in each case on the basis of available scientific knowledge.

The overall list of the families which, including the present extension, are now covered by plant variety protection legislation is given below.

List of Families Covered by Plant Variety Protection Legislation in Germany*

Liste des familles couvertes par la législation sur la protection des obtentions végétales en Allemagne*

Liste der Familien, die in Deutschland der Sortenschutzgesetzgebung unterliegen*

Latine	English	Français	Deutsch
Acanthaceae	Acanthaceae	Acanthacées	Bärenklaugewächse
Aceraceae	Acéraceae	Acéracées	Ahorngewächse
Acrostichaceae	Acrostichaceae	Acrostichacées	Saumfarne
Actinidiaceae	Actinidiaceae	Actinidiacées	Strahlengriffelgewächse
Adiantaceae	Adiantaceae	Adiantacées	Frauenhaarfarne
Agaricaceae	Agaricaceae	Agaricacées	Blätterpilze
Agavaceae	Agavaceae	Agavacées	Agavengewächse
Aizoaceae	Aizoaceae	Aizoacées	Eiskrautgewächse
Alismataceae	Alismataceae	Alismatacées	Froschlöffelgewächse
Amaranthaceae	Amaranthaceae	Amarantacées	Fuchsschwanzgewächse
Amaryllidaceae	Amaryllidaceae	Amaryllidacées	Narzissengewächse
Anacardiaceae	Anacardiaceae	Anacardiacées	Sumachgewächse
Apiaceae (Umbelliferae)	Umbelliferae	Ombellifères	Doldenblütler
Apocynaceae	Apocynaceae	Apocynacées	Hundsgiftgewächse
Aponogetonaceae	Aponogetonaceae	Aponogétonacées	Wasserährengewächse

---

* Protection also extends to any species resulting from a hybridization between species belonging to different families, of which one at least is mentioned in the List.

La protection porte aussi sur toute espèce produite par hybridation d'espèces appartenant à des familles différentes dont l'une au moins est mentionnée dans la liste.

Der Schutz erstreckt sich auch auf alle aus einer Arthybridisation hervorgegangenen Arten, die verschiedenen Familien angehören, von denen mindestens eine in der Liste aufgeführt ist.

Latine	English	Français	Deutsch
Aquifoliaceae	Aquifoliaceae	Aquifoliacées (Ilicacées)	Stechpalmengewächse
Araceae	Araceae	Aracées (Aroïdées)	Aronstabgewächse
Araliaceae	Araliaceae	Araliacées	Araliengewächse
Araucariaceae	Araucariaceae	Araucariacées	Araukariengewächse
Aristolochiaceae	Aristolochiaceae	Aristolochiacées	Osterluzeigewächse
Asclepiadaceae	Asclepiadaceae	Asclépiadacées	Seidenpflanzengewächse
Aspidiaceae	Aspidiaceae	Aspidiacées	Schildfarngewächse
Aspleniaceae	Aspleniaceae	Aspléniacées	Streifenfarngewächse
Asteraceae (Compositae)	Compositae	Composées (Composacées)	Korbblütler
Athyriaceae	Athyriaceae	Athyriacées	Frauenfarngewächse
Balsaminaceae	Balsaminaceae	Balsaminacées	Springkrautgewächse
Basellaceae	Basellaceae	Basellacées	Basellengewächse
Begoniaceae	Begoniaceae	Bégoniacées	Schiefblattgewächse
Berberidaceae	Berberidaceae	Berbéridacées	Sauerdorngewächse
Betulaceae	Betulaceae	Bétulacées	Birkengewächse
Bignoniaceae	Bignoniaceae	Bignoniacées	Trompetenbaumgewächse
Blechnaceae	Blechnaceae	Blechnacées	Rippenfarngewächse
Bombacaceae	Bombacaceae	Bombacacées	Wollbaumgewächse
Boraginaceae	Boraginaceae	Borraginacées	Rauhblattgewächse
Brassicaceae (Cruciferae)	Crucifers	Crucifères	Kreuzblütler
Bromeliaceae	Bromeliaceae	Broméliacées	Ananasgewächse
Buddlejaceae	Buddlejaceae	Buddléiacées	Buddlejagewächse
Butomaceae	Butomaceae	Butomacées	Butomusgewächse
Buxaceae	Buxaceae	Buxacées	Buchsbaumgewächse
Cactaceae	Cactaceae	Cactacées	Kaktusgewächse
Campanulaceae	Campanulaceae	Campanulacées	Glockenblumengewächse
Cannaceae	Cannaceae	Cannacées	Cannagewächse
Capparaceae	Capparaceae	Capparacées	Kaperngewächse
Caprifoliaceae	Caprifoliaceae	Caprifoliacées	Geissblattgewächse
Caryophyllaceae	Caryophyllaceae	Caryophyllacées	Nelkengewächse
Celastraceae	Celastraceae	Célastracées	Baumwürgergewächse
Cercidiphyllaceae	Cercidiphyllaceae	Cercidiphyllacées	Judasbaumgewächse
Chenopodiaceae	Chenopodiaceae	Chénopodiacées (Salsolacées)	Gänsefussgewächse
Cistaceae	Cistaceae	Cistacées	Cistrosengewächse
Commelinaceae	Commelinaceae	Commélinacées	Commelinengewächse
Convolvulaceae	Convolvulaceae	Convolvulacées	Windengewächse

Latine	English	Français	Deutsch
Coprinaceae	Coprinaceae	Coprinacées	Tintlingartige
Cornaceae	Cornaceae	Cornacées	Hartriegelgewächse
Corynocarpaceae	Corynocarpaceae	Corynocarpacées	Keulenbaumgewächse
Crassulaceae	Crassulaceae	Crassulacées	Dickblattgewächse
Cucurbitaceae	Cucurbits	Cucurbitacées	Kürbisgewächse
Cupressaceae	Cupressaceae	Cupressacées	Zypressengewächse
Cycadaceae	Cycadaceae	Cycadacées	Palmfarngewächse
Cyperaceae	Cyperaceae	Cypéracées	Riedgrasgewächse
Dioscoreaceae	Dioscoreaceae	Dioscoréacées	Batatengewächse
Dipsacaceae	Dipsacaceae	Dipsacées	Kardengewächse
Dipterocarpaceae	Dipterocarpaceae	Diptérocarpacées	Dipterocarpagewächse
Droseraceae	Droseraceae	Droséracées	Sonnentaugewächse
Elaeagnaceae	Elaeagnaceae	Eléagnacées	Oelweidengewächse
Ericaceae	Ericaceae	Ericacées	Heidekrautgewächse
Euphorbiaceae	Euphorbiaceae	Euphorbiacées	Wolfsmilchgewächse
Fabaceae (Leguminosae)	Leguminosae, Legumes	Légumineuses	Hülsenfrüchtler
Fagaceae	Fagaceae	Fagacées (Cupulifères)	Buchengewächse
Gentianaceae	Gentianaceae	Gentianacées	Enziangewächse
Geraniaceae	Geraniaceae	Géraniacées	Storchschnabelgewächse
Gesneriaceae	Gesneriaceae	Gesnériacées	Gesneriengewächse
Ginkgoaceae	Ginkgoaceae	Ginkgoacées	Ginkgogewächse
Globulariaceae	Globulariaceae	Globulariacées	Kugelblumengewächse
Goodeniaceae	Goodeniaceae	Goodéniacées	Goodeniengewächse
Haemodoraceae	Haemodoraceae	Hémodoracées	Haemodoragewächse
Haloragaceae	Haloragaceae	Haloragacées	Meerbeerengewächse
Hamamelidaceae	Hamamelidaceae	Hamamélidacées	Zaubernussgewächse
Hippocastanaceae	Hippocastanaceae	Hippocastanacées	Rosskastaniengewächse
Hippuridaceae	Hippuridaceae	Hippuridacées	Tannenwedelgewächse
Hydrophyllaceae	Hydrophyllaceae	Hydrophyllacées	Wasserblattgewächse
Hypericaceae (Guttiferae)	Guttiferae (Hypericaceae)	Hypéricacées (Guttifères)	Johanniskrautgewächse
Iridaceae	Iridaceae	Iridacées	Schwertliliengewächse
Juglandaceae	Juglandaceae	Juglandacées	Walnussgewächse
Juncaceae	Juncaceae	Juncacées	Binsengewächse
Lamiaceae (Labiatae)	Labiatae	Labiatacées (Labiées)	Lippenblütler
Lauraceae	Lauraceae	Lauracées	Lorbeergewächse
Liliaceae	Liliaceae	Liliacées	Liliengewächse

Latine	English	Français	Deutsch
Linaceae	Linaceae	Linacées	Leingewächse
Lycopodiaceae	Lycopodiaceae	Lycopodiacées	Bärlappgewächse
Lythraceae	Lythraceae	Lythracées	Weiderichgewächse
Magnoliaceae	Magnoliaceae	Magnoliacées	Tulpenbaumgewächse
Malvaceae	Malvaceae	Malvacées	Malvengewächse
Marantaceae	Marantaceae	Marantacées	Marantengewächse
Melastomataceae	Melastomataceae	Mélastomacées	Schwarzwurzelgewächse
Melianthaceae	Melianthaceae	Mélianthacées	Honigbaumgewächse
Menyanthaceae	Menyanthaceae	Ményanthacées	Fieberkleegewächse
Moraceae	Moraceae	Moracées	Maulbeergewächse
Musaceae	Musaceae	Musacées	Bananengewächse
Myrsinaceae	Myrsinaceae	Myrsinacées	Myrsinegewächse
Myrtaceae	Myrtaceae	Myrtacées	Myrtengewächse
Nephrolepidaceae	Nephrolepidaceae	Nephrolépidacées	Schwertfarne
Nyctaginaceae	Nyctaginaceae	Nyctaginacées	Wunderblumengewächse
Nymphaeaceae	Nymphaeaceae	Nymphéacées	Seerosengewächse
Oleaceae	Oleaceae	Oléacées	Oelbaumgewächse
Onagraceae	Onagraceae	Onagracées	Nachtkerzengewächse
Onocleaceae	Onocleaceae	Onocléacées	Perlfarngewächse
Orchidaceae	Orchids	Orchidées	Orchideen
Osmundaceae	Osmundaceae	Osmondacées	Rispenfarngewächse
Oxalidaceae	Oxalidaceae	Oxalidacées	Sauerkleegewächse
Paeoniaceae	Paeoniaceae	Paeoniacées	Pfingstrosengewächse
Palmae	Palmae	Palmacées	Palmen
Pandanaceae	Pandanaceae	Pandanacées	Schraubenbaumgewächse
Papaveraceae	Papaveraceae	Papavéracées	Mohngewächse
Passifloraceae	Passifloraceae	Passifloracées	Passionsblumengewächse
Pinaceae	Pinaceae	Pinacées	Kieferngewächse
Piperaceae	Piperaceae	Pipéracées	Pfeffergewächse
Platanaceae	Platanaceae	Platanacées	Platanengewächse
Plumbaginaceae	Plumbaginaceae	Plombaginées	Bleiwurzgewächse
Poaceae (Gramineae)	Graminaceae	Graminées	Süssgräser
Polemoniaceae	Polemoniaceae	Polémoniacées	Sperrkrautgewächse
Polygonaceae	Polygonaceae	Polygonacées	Knöterichgewächse
Polypodiaceae	Polypodiaceae	Polypodiacées	Tüpfelfarngewächse
Polyporaceae	Polyporaceae	Polyporacées	Löcherpilze
Pontederiaceae	Pontederiaceae	Pontédériacées	Pontederiagewächse
Portulacaceae	Portulacaceae	Portulacacées	Portulakgewächse

Latine	English	Français	Deutsch
Primulaceae	Primulaceae	Primulacées	Primelgewächse
Proteaceae	Proteaceae	Protéacées	Silberbaumgewächse
Punicaceae	Punicaceae	Punicacées	Granatbaumgewächse
Ranunculaceae	Ranunculaceae	Renonculacées	Hahnenfussgewächse
Resedaceae	Resedaceae	Résédacées	Resedagewächse
Rhamnaceae	Rhamnaceae	Rhamnacées	Kreuzdorngewächse
Rosaceae	Rosaceae	Rosacées	Rosengewächse
Rubiaceae	Rubiaceae	Rubiacées	Rötegewächse
Rutaceae	Rutaceae	Rutacées	Rautengewächse
Salicaceae	Salicaceae	Salicacées	Weidengewächse
Sapindaceae	Sapindaceae	Sapindacées	Seifenbaumgewächse
Saururaceae	Saururaceae	Saururacées	Molchschwanzgewächse
Saxifragaceae	Saxifragaceae	Saxifragacées	Steinbrechgewächse
Scrophulariaceae	Scrophulariaceae	Scrophulariacées	Rachenblütler
Selaginellaceae	Selaginellaceae	Selaginellacées	Mooskrautgewächse
Simaroubaceae	Simaroubaceae	Simaroubacées	Bittereschengewächse
Sinopteridaceae	Sinopteridaceae	Sinoptéridacées	Sinopteridagewächse
Solanaceae	Solanaceae	Solanacées	Nachtschattengewächse
Sparganiaceae	Sparganiaceae	Sparganiacées	Igelkolbengewächse
Sterculiaceae	Sterculiaceae	Sterculiacées	Sterkuliengewächse
Strophariaceae	Strophariaceae	Strophariacées	Träuschlinge
Tamaricaceae	Tamaricaceae	Tamaricacées	Tamariskengewächse
Taxaceae	Taxaceae	Taxacées	Eibengewächse
Taxodiaceae	Taxodiaceae	Taxodiacées	Sumpfzypressengewächse
Theaceae	Theaceae	Théacées	Teestrauchgewächse
Thymelaeaceae	Thymelaeaceae	Thymélacées	Seidelbastgewächse
Tiliaceae	Tiliaceae	Tiliacées	Lindengewächse
Tropaeolaceae	Tropaeolaceae	Tropaeolacées	Kapuzinerkressegewächse
Typhaceae	Typhaceae	Typhacées	Rohrkolbengewächse
Ulmaceae	Ulmaceae	Ulmacées	Ulmengewächse
Urticaceae	Urticaceae	Urticacées	Nesselgewächse
Valerianaceae	Valerianaceae	Valérianacées	Baldriangewächse
Verbenaceae	Verbenaceae	Verbénacées	Eisenkrautgewächse
Violaceae	Violaceae	Violacées	Veilchengewächse
Vitaceae	Vitaceae	Vitacées (Ampélidées)	Weinrebengewächse
Zingiberaceae	Zingiberaceae	Zingiberacées	Ingwergewächse

NEWSLETTER

UPOV

The International Union for the Protection of New Varieties of Plants in 1989

State of the Union

On February 1, 1989, Australia deposited its instrument of accession to the International Convention for the Protection of New Varieties of Plants of December 2, 1961, as Revised at Geneva on November 10, 1972, and October 23, 1978 (Revised Act of October 23, 1978). The accession of Australia took effect on March 1, 1989.

On October 11, 1989, Poland deposited its instrument of accession to the Revised Act of October 23, 1978. The accession of Poland took effect on November 11, 1989.

Since then, the Union has comprised 19 member States: Australia, Belgium, Denmark, France, Germany (Federal Republic of), Hungary, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Poland, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States of America. All, except Belgium and Spain, are parties to the Revised Act of October 23, 1978.

The table at pages 17 and 18 summarizes the position of the various States as regards the various Acts of the Convention, as at December 31, 1989.

Sessions

During 1989, the various bodies of UPOV met as described below. Unless otherwise specified, the sessions took place at Geneva.

Council.- The Council held its twenty-third ordinary session on October 17 and 18, under the chairmanship of Mr. W.F.S Duffhues (Netherlands). The session was attended by observers from nine non-member States,[1] four intergovernmental organizations[2] and six international non-governmental organizations.[3]

---

1 Argentina, Czechoslovakia, Egypt, Kenya, Morocco, the Philippines, Poland--whose accession had not yet taken effect at the time of the session--, the Republic of Korea, Turkey.

2 European Communities (EC), European Free Trade Association (EFTA), Organisation for Economic Co-operation and Development (OECD), European Patent Organisation (EPO).

3 International Association for the Protection of Industrial Property (AIPPI), International Association of Plant Breeders for the Protection of Plant Varieties (ASSINSEL), International Community of Breeders of Asexually Reproduced Ornamental and Fruit-Tree Varieties (CIOPORA), Association of Plant Breeders of the European Economic Community (COMASSO), International Federation of the Seed Trade (FIS), International Chamber of Commerce (ICC).

At that session, the Council took the following main decisions:

(i) It approved the Secretary General's report on the activities of the Union in 1988 and the first nine months of 1989;

(ii) It adopted the Union's program and budget for the 1990-91 biennium;

(iii) It took note of the medium-term plan for the 1992-95 period presented by the Secretary-General;

(iv) It approved the progress reports on the work of its various subsidiary bodies and drew up or approved plans for their work in the year ahead. In that connection, it decided that the next Diplomatic Conference on the revision of the Convention would be held in March 1991, and that preparations for that conference should be entrusted to preparatory meetings to be held in April, June and October 1990;

(v) It elected the members of the bureaux of certain subsidiary bodies for a term of three years expiring at the end of the twenty-sixth regular session of the Council, in 1992: Mr. J.-F. Prevel (France) and Mr. H. Kunhardt (Federal Republic of Germany) were respectively elected Chairman and Vice-Chairman of the Administrative and Legal Committee; Dr. G. Fuchs (Federal Republic of Germany) and Mrs. Jutta Rasmussen (Denmark) were respectively elected Chairman and Vice-Chairman of the Technical Committee; Dr. M.S. Camlin (United Kingdom) was elected Chairman of the Technical Working Party for Agricultural Crops.

Consultative Committee.- The Consultative Committee held its thirty-ninth session on April 14 and its fortieth session on October 16, under the Chairmanship of Mr. W.F.S Duffhues (Netherlands).

Discussions at the thirty-ninth session were mostly devoted to preparations for the fourth Meeting with International Organizations, reconsideration of the list of States and organizations invited to the meetings of UPOV, consideration of the necessity and periodicity of the "statistical" documentation submitted to the regular sessions of the Council, and a general debate on the preparation and date of the meeting of the (joint UPOV/WIPO) Committee of Experts on the Interface Between Patent Protection and Plant Breeders' Rights, which was subsequently scheduled for the period January 29 to February 2, 1990. The fortieth session was mostly devoted to preparing the twenty-third ordinary session of the Council.

Administrative and Legal Committee.- The Administrative and Legal Committee held its twenty-fourth session from April 10 to 13, under the chairmanship of Mrs. C. Holtz (Sweden), and its twenty-fifth session from October 11 to 13, under the chairmanship of Mr. J.-F. Prevel (France). Observers from the following States and organizations participated in the twenty-fourth session: Argentina, Austria, Brazil, Bulgaria, Finland, Norway, World Intellectual Property Organization (WIPO), EC, EFTA, EPO; observers from the following States and organizations participated in the twenty-fifth session: Argentina, Austria, Brazil, Bulgaria, Canada, Finland, Norway, WIPO, EC, EPO.

The Committee devoted both sessions almost entirely to the revision of the Convention. At the twenty-fourth session, it also took note of a draft document drawn up in preparation for the session of the (joint WIPO/UPOV) Committee of Experts on the Interface Between Patent Protection and Plant Breeders' Rights (document CAJ/XXIV/4).

Technical Committee.- The Technical Committee held its twenty-fifth session on October 5 and 6, under the chairmanship of Mr. J.K. Doodson (United Kingdom).

On the basis of the preparatory work carried out by the Technical Working Parties, the Technical Committee adopted Test Guidelines for the following eight taxa (the asterisk denotes a revised version): (1) banana; (2) chestnut; (3) black currant*; (4) gerbera*; (5) Protea; (6) sorghum; (7) triticale; (8) walnut.

The Committee considered the progress reports on the work of the Technical Working Parties and defined the main features of their future work. It also examined the matters raised by the Technical Working Parties on the basis of the experience gained by the member States in carrying out the examination for distinctness, homogeneity and stability of new plant varieties.

Furthermore, the Committee took the following main decisions:

(i) As regards fodder grasses, it formally approved the replacement of the present method of examination for distinctness, in which data are analyzed separately for each vegetation cycle, by the Combined Over-Years Analysis (COY), including the modified joint regression analysis (MJRA). The significance level to be used was set at 1% over two years of testing; the same level is to be used over three years of testing. However, in order to facilitate the transition, member States would be allowed to apply the 5% level for a period of three years;

(ii) It further recommended that the COY analysis should be applied, whenever possible, to the measured characteristics of agricultural and vegetable species;

(iii) It requested the Technical Working Party on Automation and Computer Programs to continue to study the possibility of replacing the criterion applied in examining homogeneity in cross-fertilized plants by a criterion which would also be based on the analysis of data from several years;

(iv) It approved the modification of several standard forms used in variety examination.

Lastly, the Committee examined reports on three workshops, namely, on the examination of varieties of Elatior Begonia and Pelargonium, the examination of varieties of soybean and the examination of varieties of maize (see below).

Technical Working Parties.- The Technical Working Parties each held one session in 1989, outside Geneva, as follows:

(i) The Technical Working Party on Automation and Computer Programs (TWC) held its seventh session from May 17 to 19 in Madrid (Spain), under the chairmanship of Dr. F. Laidig (Federal Republic of Germany);

(ii) The Technical Working Party for Ornamental Plants and Forest Trees (TWO) held its twenty-second session from May 29 to June 1 at Hanover (Federal Republic of Germany), under the chairmanship of Mr. C.J. Barendrecht (Netherlands);

(iii) The Technical Working Party for Agricultural Crops (TWA) held its eighteenth session from June 13 to 16 at Belfast (United Kingdom), under the chairmanship of Mr. D.P. Feeley (Ireland);

(iv) The Technical Working Party for Vegetables (TWV) held its twenty-second session from July 3 to 7 at Tsukuba (Japan), under the chairmanship of Mr. R. Brand (France);

(v) The Technical Working Party for Fruit Crops (TWF) held its twentieth session from September 26 to 29 at Wageningen (Netherlands), under the chairmanship of Mrs. Elise Buitendag (South Africa).

The basic task of four of these Working Parties is to draw up Test Guidelines. In addition to the drafts submitted to the Technical Committee for adoption, they drew up further drafts, for the following taxa, to be submitted to the professional organizations for comment (the asterisk denotes a draft revised edition): bent*, Kentucky bluegrass*, ryegrass*, safflower (TWA); red and white currants* (TWF); carnation*, chincherinchee, Dieffenbachia, Hydrangea, rose*, Spathiphyllum, Norway spruce (TWO); asparagus, carrot*, parsley, Brussels sprouts*, tomato* (TWV).

In addition, the Technical Working Party for Agricultural Crops decided to include characteristics obtained by electrophoresis in the Test Guidelines for wheat, barley and oats, which are at present under revision; in this connection, it plans to regard the clear absence or presence of a band as a new characteristic, without an asterisk; examination for such a characteristic would therefore be optional. The Technical Working Party for Ornamental Plants and Forest Trees noted that in several countries applications for protection must be accompanied by color photographs of the variety. It expressed the opinion that the other member States should adopt the same practice.

Workshops.- Three workshops were organized jointly by the authorities of the host country and UPOV in 1989:

(i) A Workshop on the Examination of Varieties of Elatior Begonia and Pelargonium was held on June 1 and 2 at Hanover (Federal Republic of Germany). It was opened by Dr. D. Böringer, President of the Federal Varieties Office;

(ii) A Workshop on the Examination of Varieties of Soybean was held from September 27 to 29 at New Carrollton (Maryland, United States of America). It was opened by Dr. K.H. Evans, Commissioner of the Plant Variety Protection Office, and Mr. C.A. Reed, Director of the Commodities Scientific Support Division, Department of Agriculture;

(iii) A Workshop on the Examination of Varieties of Maize was held on October 2 and 3 at Versailles (France). It was opened by Mr. P.-L. Lefort, Director of GEVES (Study and Control Group for Varieties and Seed) and Mr. F. Rapilly, President of the Versailles Center of the National Institute of Agricultural Research.

At each of these workshops, a number of lectures were given on a variety of technical and legal topics by speakers from public services, scientific and legal circles and industry. Practical demonstrations were given in glasshouses and field plots, and discussions led to the identification of general trends in variety examination, minimum distances between varieties and the revision of the Convention, including the introduction of a principle of "dependency."

As regards Elatior Begonia and Pelargonium, the general conclusion was reached that the varieties should have minimum distances which are in balance between the scientific possibilities and the interests of breeders and growers. In these species, an average expert should be able to distinguish varieties. As regards soybean, the participants requested that characteristics of a bio-

chemical nature, notably as obtained by electrophoresis, should be included in the Test Guidelines in the next revision. Lastly, the workshop on maize provided an opportunity to review available methods of examining hybrids and to look into the potential of examination methods based on agronomic, morphological, biochemical and genetic characteristics (restriction fragment length polymorphism).

Contacts with States and Organizations

On January 16, the Vice Secretary-General paid an official visit to the Commission of the European Communities in Brussels (Belgium) where he met with officials of the Directorate General for Agriculture.

On January 30, the Vice Secretary-General received a visit from Mr. T. Okada, Director of the Seeds and Seedlings Division of the Ministry of Agriculture, Forestry and Fisheries of Japan, and Mr. T. Oobayashi, official of that same Ministry responsible for the International Garden and Greenery Exhibition to be held in Osaka in 1990.

From January 31 to February 3, the Vice Secretary-General participated at Anaheim (California, United States of America) in a working group dealing with the problems, challenges and prospects of plant patents. The event was organized, with the financial assistance of the Department of Agriculture, by the American Society of Agronomy, the Crop Science Society of America, the Soil Science Society of America, the American Agricultural Economics Association and the American Society for Horticultural Science.

On February 13 and 14, an official of the Union participated in Paris (France) in a meeting of the designated authorities responsible for the implementation of the OECD Scheme for the Control of Forest Reproductive Material Moving in International Trade.

In February and March, the Vice Secretary-General had contacts with various persons in India and with the Secretariat General of ASSINSEL in respect of a symposium that was to be held on March 13 in New Delhi (India). Further contacts also took place in the meantime as a result of the growing interest in plant variety protection in India.

On March 1, the Vice Secretary-General paid a visit to the Secretary-General of ASSINSEL to discuss matters of mutual interest.

On March 8, the Vice Secretary-General received a visit from Academician B.A. Runov, a departmental director of Gosagroprom (Central Committee for Agriculture) of the Soviet Union. It should be noted in this respect that the new draft patent law provides that plant and animal varieties are to be protected under a special law.

On March 9, the Secretary-General and the Vice Secretary-General received a visit from Mr. Arpad Szabó, Director of the Department for International Economic Cooperation of the Federal Ministry of Agriculture and Food of Czechoslovakia. Discussions concerned, in particular, the conformity of the draft Czechoslovak law on the legal protection of new varieties of plants and breeds of animals with the UPOV Convention.

On March 10, the Vice Secretary-General received a visit from Mr. A. Calvelo, Honorary Secretary of the Argentine Cereal Exchange, and Mr. A.G. Trombetta, Second Secretary at the Permanent Mission of Argentina in Geneva.

On March 20, the Vice Secretary-General received a visit from Mr. N. Monya, Professor of intellectual property law at Seikei University, and Mr. A. Yamaguchi, of the Food and Agriculture Research and Development Association, of Japan.

On April 5, the Vice Secretary-General participated in London (United Kingdom) in a working group on intellectual property protection for innovation in farm animals and poultry, organized by the British Animal Production Society, and presented a paper on the plant variety protection system.

From April 13 to 16, UPOV participated in the International Exhibition of New Varieties of Plants in Geneva (Expoflore).

From April 17 to 20, the Vice Secretary-General participated in Rome (Italy) in the third session of the FAO Commission on Plant Genetic Resources.

On April 21, the Vice Secretary-General paid an official visit to the United Kingdom where he met the officials responsible for plant variety protection.

At the end of April, the Office of the Union was requested by the French authorities to produce a translation into Chinese of the UPOV Convention. The request was made in relation to a visit by a high-level delegation from China. The translation was produced in the early part of May and given by the French authorities to the Vice Minister for Agriculture Wang Liang Zheng.

On May 16, the Vice Secretary-General paid an official visit to Lisbon (Portugal) mainly to discuss the state of progress of the draft Portuguese plant variety protection law.

In the course of the session of the Technical Working Party on Automation and Computer Programs held in Madrid (Spain) from May 17 to 19, the Vice Secretary-General had discussions with the officials responsible for plant variety protection in Spain.

From May 22 to 24, the Vice Secretary-General participated in Paris (France) in the annual meeting organized by OECD of the representatives of the designated authorities responsible for the implementation of the OECD Schemes for the Varietal Certification of Seeds Moving in International Trade.

On May 31 and June 1, an official of the Union participated in Brussels (Belgium) in a meeting of the Working Group of the European Economic Community "Seeds and Propagating Material: Plant Breeders' Rights," whose task it is to consider a proposal by the Commission relating to a regulation of the Council of the European Communities on Community breeders' rights.

On this occasion, the said official also paid a visit to the Secretary-General of the General Committee for Agricultural Co-operation in the European Economic Community (COGECA) and of the Committee of Agricultural Organisations in the European Economic Community (COPA).

On June 1 and 2, the Vice Secretary-General participated in Tel-Aviv (Israel) in the annual world congress of ASSINSEL.

From June 5 to 8, the Vice Secretary-General participated in Amsterdam (Netherlands) in the World Industrial Property Congress of AIPPI and gave a lecture.

On June 9, the President of the Council and the Vice Secretary-General participated in Amsterdam (Netherlands) in a meeting of the Committee for

Novelty Protection of the International Association of Horticultural Producers (AIPH).

On June 12, the Vice Secretary-General received a visit from Mr. Makoto Tabata, Assistant Director of the Seeds and Seedlings Division, Ministry of Agriculture, Forestry and Fisheries of Japan, and from an official of that Ministry and discussed the organization and financing of a UPOV seminar proposed to be held in Japan in 1991.

On June 16, an official of the Union gave a lecture on plant variety protection in Zurich (Switzerland) in the framework of a training course for patent agents organized by the Association of Patent Agents from Industry of Switzerland (VIPS) and the Association of Swiss Private Patent Practitioners Registered with the European Patent Office (VESPA).

From June 20 to 22, the Vice Secretary-General and an official of the Union paid an official visit to the German Democratic Republic at the invitation of the German Democratic Republic Group of AIPPI and the German Democratic Republic Association for the Protection of Industrial Property. In addition to the discussions on the protection of intellectual property in the field of plants which they had with various interested circles in restricted groups or in a colloquium, a visit was made to the premises of the Central Organization for Variety Matters (Zentralstelle für Sortenwesen) in Nossen.

From June 26 to 29, an official of the Union participated in Edinburgh (United Kingdom) in the twenty-second congress of the International Seed Testing Association (ISTA) which took place from June 21 to 30.

From July 1 to 7, the Vice Secretary-General paid an official visit to Japan where: he participated in Tsukuba Science City in part of the session of the Technical Working Party for Vegetables; he participated in Tokyo in a symposium on the protection of new plant varieties and biotechnology and gave a lecture; he participated, also in Tokyo, in the celebration of the tenth anniversary of plant variety protection in Japan; he met with high officials of the Ministry of Agriculture, Forestry and Fisheries and the Patent Office; he paid a visit to a number of professional organizations; he visited several undertakings and institutions in Tokyo, Yokohama and Tsukuba.

From July 10 to 18, the Vice Secretary-General paid an official visit to Australia where: he participated in Canberra in a workshop on intellectual property protection for plants; he participated in Perth in a conference on the production and marketing of Australian flora; he gave a lecture in Toowoomba at the Queensland Wheat Research Institute to members of that Institute and representatives from the seeds industry; he met with the members of the Plant Variety Rights Advisory Committee and the Acting Commissioner of Patents, and also with representatives of interested circles in Canberra, Sydney and Toowoomba.

On July 26 and 27, an official of the Union participated in Brussels (Belgium) in the meeting of the EEC Working Group "Seeds and Propagating Material: Plant Breeders' Rights."

On August 21, the Vice Secretary-General went to Cambridge (United Kingdom) to discuss the program of future work concerning the revision of the Convention and other questions of general interest with the United Kingdom authorities.

On August 22, the Vice Secretary-General went to Paris (France) for a similar purpose.

On September 1, the Vice Secretary-General went to Hanover (Federal Republic of Germany) for a similar purpose.

On September 11 and 12, the Vice Secretary-General received a visit from Mr. Peter Slimák, Director of the Principal Division for Legislative Affairs, Federal Ministry of Agriculture and Food of Czechoslovakia, and Mr. Vladimir Duris, Third Secretary at the Permanent Mission of Czechoslovakia in Geneva. Detailed discussions took place on the conformity of the draft Czechoslovak law on the legal protection of new varieties of plants and breeds of animals with the UPOV Convention and on the procedure to be followed in relation to accession to the Convention.

On September 20, the Vice Secretary-General participated in Brussels (Belgium) in the meeting of the EEC Working Group "Seeds and Propagating Material: Plant Breeders' Rights."

On September 21 and 22, the Vice Secretary-General participated in Cambridge (United Kingdom) in the Fifth Conference on Plant Variety Protection, Biotechnology and Intellectual Property, organized by Queen Mary College (University of London), and gave a lecture.

On September 26, in connection with the Workshop on the Examination of Varieties of Soybean, the Vice Secretary-General and an official of the Union met in Washington D.C. (United States of America) with high officials of the Department of Agriculture and with representatives of interested circles.

On October 23, the Vice Secretary-General participated in Brussels (Belgium) in the meeting of the EEC Working Group "Seeds and Propagating Material: Plant Breeders' Rights."

On October 25, the Vice Secretary-General participated in Paris (France) in a conference on recent legal developments in the field of biotechnology in Europe, the United States and Japan, and gave a lecture.

On November 16 and 17, the Vice Secretary-General paid an official visit to Moscow (Soviet Union) where he met high-ranking officials and members of the V.I. Lenin Academy of Agricultural Science.

On December 4 and 5, the Vice Secretary-General and an official of the Union participated in Brussels (Belgium) in the meeting of the EEC Working Group "Seeds and Propagating Material: Plant Breeders' Rights."

On December 13 and 14, the Vice Secretary-General participated in a conference organized at Cambridge (United Kingdom) by the National Institute of Agricultural Botany on the theme "new technologies--cultivated plants of the 1990s," at which he gave a lecture.

On December 14 and 15, an official of the Union participated in Geneva in an informal meeting for coordination between a number of intergovernmental organizations involved in the field of environmental protection and the conservation of fauna and flora.

Publications

In 1989, the Office of the Union published two issues of Plant Variety Protection.

MEMBERSHIP OF THE UNION (as at December 31, 1989)
(including signatory States that are not yet members)

State	Date of signature[1]	Date of deposit of instrument[1,2]	Date of effect[1]
Australia	-	-	-
	-	-	-
	-	February 1, 1989	March 1, 1989
Belgium	December 2, 1961	November 5, 1976	December 5, 1976
	November 10, 1972	November 5, 1976	February 11, 1977
	October 23, 1978	-	-
Canada (not yet a member)	-	-	-
	-	-	-
	October 31, 1979	-	-
Denmark	November 26, 1962	September 6, 1968	October 6, 1968
	November 10, 1972	February 8, 1974	February 11, 1977
	October 23, 1978	October 8, 1981	November 8, 1981
France	December 2, 1961	September 3, 1971	October 3, 1971
	November 10, 1972	January 22, 1975	February 11, 1977
	October 23, 1978	February 17, 1983	March 17, 1983
Germany (Federal Republic of)	December 2, 1961	July 11, 1968	August 10, 1968
	November 10, 1972	July 23, 1976	February 11, 1977
	October 23, 1978	March 12, 1986	April 12, 1986
Hungary	-	-	-
	-	-	-
	-	March 16, 1983	April 16, 1983
Ireland	-	-	-
	-	-	-
	September 27, 1979	May 19, 1981	November 8, 1981
Israel	-	November 12, 1979	December 12, 1979
	-	November 12, 1979	December 12, 1979
	-	April 12, 1984	May 12, 1984

[Cont'd]

1 First Line: International Convention for the Protection of New Varieties of Plants of December 2, 1961.
Second Line: Additional Act of November 10, 1972.
Third Line: Revised Text of October 23, 1978.

2 of ratification where the State has signed the Convention or the Additional Act, depending on the case; of ratification, acceptance or accession where the State has signed the Revised Text of 1978; of accession where it has not signed the text concerned.

MEMBERSHIP OF THE UNION (as at December 31, 1989)
(including signatory States that are not yet members)

State	Date of signature[1]	Date of deposit of instrument[1,2]	Date of effect[1]
Italy	December 2, 1961	June 1, 1977	July 1, 1977
	November 10, 1972	June 1, 1977	July 1, 1977
	October 23, 1978	April 28, 1986	May 28, 1986
Japan	-	-	-
	-	-	-
	October 17, 1979	August 3, 1982	September 3, 1982
Mexico (not yet a member)	-	-	-
	-	-	-
	July 25, 1979	-	-
Netherlands	December 2, 1961	August 8, 1967	August 10, 1968
	November 10, 1972	January 12, 1977	February 11, 1977
	October 23, 1978	August 2, 1984	September 2, 1984
New Zealand	-	-	-
	-	-	-
	July 25, 1979	November 3, 1980	November 8, 1981
Poland	-	-	-
	-	-	-
	-	October 11, 1989	November 11, 1989
South Africa	-	October 7, 1977	November 6, 1977
	-	October 7, 1977	November 6, 1977
	October 23, 1978	July 21, 1981	November 8, 1981
Spain	-	April 18, 1980	May 18, 1980
	-	April 18, 1980	May 18, 1980
	-	-	-
Sweden	-	November 17, 1971	December 17, 1971
	January 11, 1973	January 11, 1973	February 11, 1977
	December 6, 1978	December 1, 1982	January 1, 1983
Switzerland	November 30, 1962	June 10, 1977	July 10, 1977
	November 10, 1972	June 10, 1977	July 10, 1977
	October 23, 1978	June 17, 1981	November 8, 1981
United Kingdom	November 26, 1962	September 17, 1965	August 10, 1968
	November 10, 1972	July 1, 1980	July 31, 1980
	October 23, 1978	August 24, 1983	September 24, 1983
United States of America	-	-	-
	-	-	-
	October 23, 1978	November 12, 1980	November 8, 1981

GENERAL STUDIES

Variety Creation and Intellectual Property*

Bernard Le Buanec**

I. TECHNOLOGICAL DEVELOPMENT OF VARIETY CREATION

Plant breeding, together with animal breeding and the development of production methods, was central to the transition of communities from a nomadic to a sedentary way of life. This transition occurred between the ninth and the seventh millennium BC, probably in a disconnected manner, in several places at the same time, including the Near and Middle East, Mexico and Central America and China (1, 2). Sedentariness led to the development of present-day civilizations.

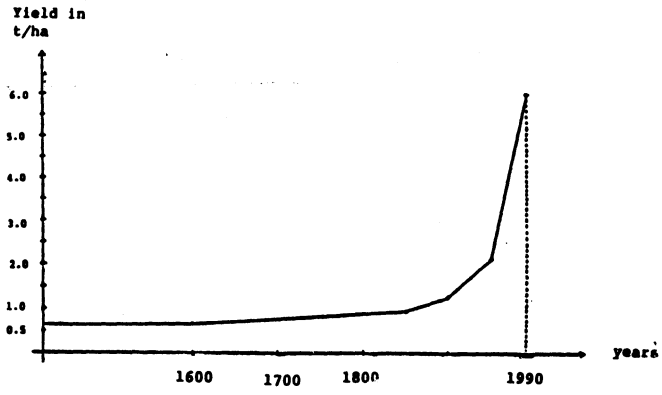
In the plant kingdom, sedentariness initially involved the **domestication** of certain species selected by man early in the New Stone Age. The process of domestication lasted several millennia, but by the fifth millennium BC the great majority of the species cultivated nowadays had already been definitely adopted, at least as far as staple food crops were concerned (3).

It was at that time that the **improvement** of cultivated species began, and that improvement led to the development of present-day cultivars (4), which is now steadily gaining momentum.

In very broad terms, plant breeding can be broken down into a number of overlapping technological and chronological stages.

(a) From the fifth millennium BC until the second half of the 19th century, **mass selection** was practised by the farmers themselves, with some attempts at specialization that led to the advent of the first "breeders", such as the Vilmorin family in the 18th century. This very simple method consists in selecting the best individuals in each crop and using their seed to sow the next. It was recommended by Greek and Latin agronomists. It was described in detail by Olivier de Serres (5), and it remained in use until the 19th century. This form of selection is not very effective, being strongly conditioned by the environment of the plant. "It was therefore the time during which the selection was practised (centuries, millennia ?) that ensured its success" (6). At any rate, over that period of those 6 to 7,000 years, the yields of smallgrain cereals increased from 200-300 kilograms to some 1,000 kilograms per hectare (graph No. 1). Mass selection was successful only because the

Graph No. 1
Evolution of wheat yields in France
(compiled from various sources)



* The summary of this article was first published in the March 1990 edition of the Journal "BIOFUTUR"

** Director of Research, Groupe Limagrain, France.

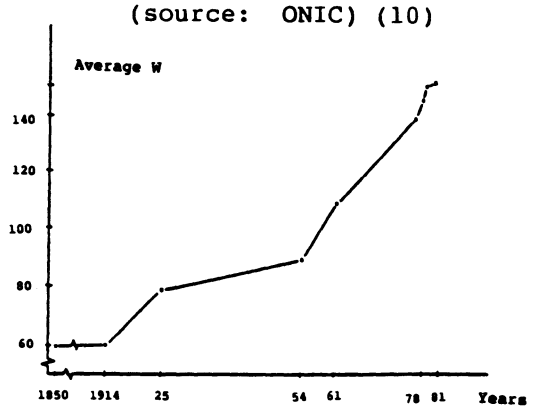
original "varieties" of cultivated plants were in fact heterogeneous populations, characterized by internal **genetic variability.** The concept of genetic variability is indeed essential to all plant breeding processes.

(b) As from the second half of the 19th century, three new concepts, namely **pedigree selection, pure lines** and **hybridization,** helped to accelerate plant improvement and bring about genuine "variety creation," first in an empirical fashion and then more and more scientifically following Mendel's discovery of the "laws of heredity" and their "rediscovery" at the dawn of the 20th century. On the basis of these three inseparable concepts, desirable recombinations can be sorted from the progeny of a--usually artificial--hybrid and progeny can be fixed by successive self-pollination. This method gave rise to the development of varieties that were distinct, homogeneous and stable, the three characteristics that form the basis of plant variety protection under the UPOV Convention (7). While the results achieved with self fertilized species were highly successful, those achieved with cross-fertilized species proved disappointing for easily understandable genetic reasons (6). This problem was overcome by heterosis, on the basis of the varietal model of F1 hybrids between two pure lines. This breeding method is still widely used at present.

(c) Finally, in the 1940s, **recurrent selection** began to develop in the wake of research conducted by Jenkins (1935), Sprague (1952) and Lonnquist (1968) (8). This method was developed for fear of a genetic deadend which would prevent further improvements under pedigree programs (9). The method, which proceeds from a broad, intraspecific genetic base, known as the original population, involves making mixes and selections in successive cycles and thereby achieving cumulative selection. Although it was initially applied only to cross-fertilized plants, it is now also applied to some which are self-fertilized, such as wheat (10, 11).

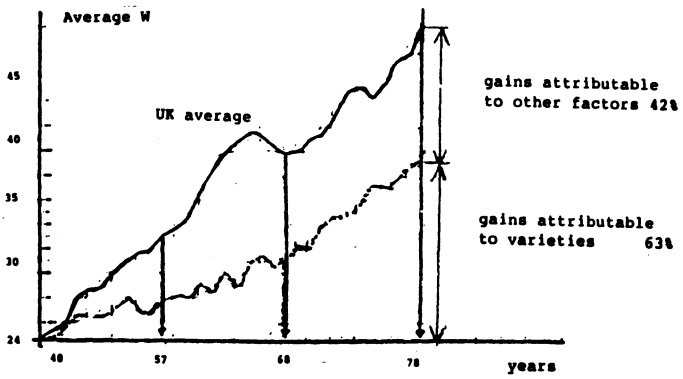
Graph No. 2
Evolution of average strength (W) of soft wheat in France since 1850

(from G. Branlard)
(source: ONIC) (10)



Mass selection, pedigree selection following hybridization and recurrent selection paved the way for considerable varietal improvements and are still contributing to significant and steady progress, which, as shown by the graphs No. 1 to 3, has so far shown no sign of losing momentum contrary to certain claims being made at present (12). The increase in productivity was achieved together with parallel improvements in quality (graph No. 2) and disease resistance. Research conducted in the United Kingdom (11) indicates that a significant share of the productivity gains can be attributed to variety improvement (graph No. 3). The results achieved with other species reflect

Graph No. 3
Variety factor in productivity gains
winter and spring wheat 1948-1978
(from Max Rives (11))



improvements comparable to those shown here in respect of wheat. All three methods are based on the same principle, namely the selection of the best individuals in a population that has concentrated as many desirable genes as possible, following recombinations. These breeding methods, which could be termed "gentle," involve thousands, perhaps even tens of thousands, of genes, and they are bound to be the ones that will produce general improvements in productivity and adaptability to different environments over the coming decades. The use of these methods presupposes wide genetic variability (see box No. 1).

(d) For the past fifty years or so, in addition to the basic methods described above, which are the driving force of genetic progress, breeders have been developing ways of modifying one or some of the characteristics of basic genetic structures of special interest, but flawed by minor defects, or calling for the introduction of a new characteristic. Three main methods are used, namely **mutation**, either genetic or chromosomal, **back-crossing**--both of these having been practised since the 1940s or 1950s--and, more recently, **genetic engineering**, which relies on various methods, either micro-biological, physico-chemical or physical, for introducing recombinant DNA into a plant.

Obviously, these new methods are very interesting and produce significant and rapid improvements in specific fields. However, it must be stressed that they cannot be used to bring about an overall improvement in the internal genetic balance of a variety.

BOX No. 1
THE SEARCH FOR EXTENDED VARIABILITY

The genetic variability available within a given species may sometimes be insufficient for the purposes of certain breeding objectives. For the past 60 years or so, breeders have endeavored to broaden variability by various means, such as mutation and interspecific crossbreeding, and, for some ten years, by transferring genes through genetic engineering.

The results of chemically or physically induced mutagenesis have generally been disappointing, except with ornamental plants and in a few cases with food and industrial crops. One of the main reasons is that most mutations are isolated events on a molecular scale which do not produce any visible change in the phenotype.

Interspecific crossbreeding can often yield highly satisfactory results provided that one makes use of relatively similar species. However, breeders often run into serious difficulties, the most common of them being the sterility of offspring. Such sterility is due to the presence, within the same individual, of heterologous chromosomes. This problem can sometimes be overcome by artificially doubling the number of chromosomes (as in the case of triticale, a cross between rye and wheat, and arabusta coffee, a cross between robusta and arabica coffee plants).

Another difficulty, which also occurs frequently, is the dying back of the interspecific embryo. Present-day methods of culture *in vitro* often help to "rescue" such embryos, which can therefore go on to produce complete plants. The development of *in vitro* cultures has also facilitated interspecific crossbreeding by protoplastic fusion and the regeneration of the resulting "cybrids."

Finally, the latest advance in this field has been genetic engineering, which makes it possible to transfer foreign genes into a plant genome. This method considerably broadens the base of variability, since it allows a breeder to use the genes not only of different species, but also from a different kingdom.

II. DEVELOPMENT OF VARIETY CREATION INFRASTRUCTURE AND COSTS

Until the turn of the century, plant breeding was primarily the business of farmers, some of whom had specialized in this field by the end of the 19th century.

At the beginning of the 20th century, roughly up to the Second World War, plant breeding was still carried on by some farmers, albeit on a diminishing scale, having been extensively taken over by public authorities. Since the Second World War, variety creation has been concentrated in public research agencies and private undertakings, which are beginning to predominate, at least with respect to species of major, worldwide economic importance.

Moreover, over the past 15 years or so:

- the businesses concerned have been joining forces, and a number of international firms have been set up;

- in some cases, businesses engaged in basic variety creation, involving genetic recombination work, have become dissociated from those more specialized in researching genes transferable by genetic engineering. It should however be pointed out that such dissociation is increasingly becoming the exception, as many firms combine both branches of activity. Attention was already drawn to this trend in 1987 (13).

Considering the increasingly scientific nature of variety creation and the increasingly high quality of present varieties, it should also be pointed out that the cost of research is soaring on account of:

- the scale and complexity of multi-location networks for the practical evaluation of varieties;

- work on the development of methods for accelerating variety fixation and evaluation processes such as haplodiploidization, the use of molecular probes, etc.;

- molecular research on the isolation of effective genes and their transfer into varieties.

Estimates of current expenditure on such research in Europe and in the United States are given in the table opposite.

Expenditure on variety creation in 1989 (millions of French francs)

TOTAL	5,000 to 5,500
of which "Biotechnology" accounts for	1,000 to 1,500
"private" for	3,150 to 3,450
and "public" for	1,850 to 2,050

Source: GNIS 1987 (14), reports on the activities of the major companies engaged in such research, with extrapolation by the author.

III. NECESSITY OF EFFECTIVE PROTECTION OF RESEARCH FINDINGS

Considering the economic and social significance of the improvements brought about by variety creation, especially the impact of variety creation on the nutritional status of the world's population, the environment and the processing of agricultural produce, and considering also the scale of investment in private research in these fields, it is essential that the results of such research should be protected effectively. This presupposes, first,

reasonable returns on the capital invested and, secondly, a system ensuring continued development of the underlying driving force constituted by selection based on the exploitation of genetic variability.

1. The situation at present

This has already been outlined by the author in a previous issue of Biofutur (13) and discussed at length in a number of books, including Le droit du génie génétique végétal, published in 1987, by M.-A. Hermitte (15). In brief, plant varieties are protected under the UPOV Convention, but such protection is still inadequate, although it reflects a vast improvement on the disparity of legal situations, not to say the legal vacuum, that prevailed in this field 30 years ago.

As for biotechnological inventions, including both processes and products, they are becoming eligible for patent protection, although many uncertainties have yet to be cleared up as regards the subject matter and extent of the right granted.

2. The objectives to be achieved

The protection of intellectual property in the field of variety creation must take account of two essential considerations, namely:

- the products to be protected (16), whether final or intermediate, are alive and self-reproducible. This must be taken into account in the laws governing their protection status;

- basic improvements in plant varieties not only depend on the development of theories based on past experience and requiring, for their implementation, the use of elementary products free of all rights; they also call for the use and incorporation of very elaborate products, namely earlier varieties, and this particular feature is quite unique in the history of technological development.

We shall not concern ourselves here with the controversy over the possibility of protecting living matter, because the issue has lost some of its topical relevance as far as plants are concerned (17). The legal systems of all developed countries provide for such protection in various forms (patents, UPOV), and have done so for a long time, often more than 50 years.

One could contemplate the introduction of a new, original set of rights in the light of these basic considerations and of current technological trends. However, it would certainly be preferable to be practical and proceed on the basis of the existing bodies of law, namely, that deriving from the UPOV Convention for plant varieties, and patent law for biotechnological inventions.

2.1. Plant variety protection under the UPOV system

All plant varieties, whatever their genus or species, must qualify for protection under the UPOV system and under that system alone (prohibition of double protection).

A new variety must be eligible for protection if it is distinct, homogeneous and stable, irrespective of how it was bred.

Distinctness must be assessed on the basis of minimum distances between the **expressed characteristics of genes**, regardless whether those characteristics are phenotypical, physiological or molecular. A list of the characteristics to be examined must be drawn up species by species. In some cases, the characteristics may or must be ranked and combined in relation to each other so as to establish distinctness "indices."

In any event, a panel of experts from various backgrounds, both public and private, must play a decisive part in assessing distinctness. As a result of the growing amount of resources spent on variety creation and the selective pressure towards specific agro-technological ideotypes, varieties are becoming increasingly similar, although they may be bred by original methods and correspond to original genetic formulae. As a matter of necessity, the "minimum distances," on the basis of which distinctness is established, must be made increasingly narrow.

Under no circumstances must the concept of economic benefit be taken into account in the granting of a breeder's right. Indeed, this concept is bound to vary in both time and space (18).

The right granted must constitute an absolute monopoly of the reproduction or propagation of the variety for all commercial or industrial purposes, irrespective of the reproductive or other propagating methods used. The Convention must clearly prohibit the practices permitted or tolerated in certain countries in the guise of the so-called farmer's privilege.

BOX No. 2
PROTECTION OF THE RESULTS OF VARIETY CREATION AND GENETIC VARIABILITY

Plant variety protection is often criticized first for contributing to the impoverishment of genetic variability worldwide and secondly for impeding and/or preventing exchanges of the remaining variability.

As far as the first point is concerned, the impoverishment of genetic variability clearly appears to be caused by variety creation itself, not by the legal protection of the results of variety creation. Indeed, the effectiveness of such creation has made vastly improved varieties available to farmers. The latter therefore tend to abandon earlier varieties, whether they are local populations or elaborate varieties already, in favor of the new ones. If a variety is highly efficient, it is naturally bound to spread rapidly over a large portion of any given growing area. Whether the variety was bred by a government laboratory or private enterprise, and whether or not it is protected, the outcome will be the same, and might even be precipitated in the case of an unprotected public variety. There is nothing new about this pattern, which was already observed in France in 1928 in respect of wheat, before variety protection was even introduced (28).

As for the second point, the system that we have advocated in this article should settle any controversy in this respect, because it provides both for effective protection of the results of variety creation and for free access to general genetic variability for the purposes of further improvement. The protection of biotechnological inventions, such as genes, which affords a much stronger monopoly than the protection of plant varieties as such, should not give rise to any difficulty, because it involves only a very small amount of variability, although such inventions may have required considerable investment.

These comments apply equally to the situation prevailing in developed countries and in the less developed countries, which may benefit from substantive improvement work on the genomes of cultivated plants for their own breeding programs.

If the owner of the right so wishes, he must be allowed to exercise his right either in relation to harvested material or in relation to products directly obtained from the processing of such material.

Protected varieties must be freely usable in variety breeding programs based on the principle of genetic recombination following hybridization, and the new varieties developed under such programs must be eligible for protection and be freely marketable by their breeders.

A new variety derived from a protected variety is considered dependent on the protected parent variety if its **genome as such** is very similar to that of the parent variety. This is likely to occur where methods such as mutation, back-crossing or the introduction of recombinant DNA are used. The new variety is then said to be "essentially derived" from the parent variety. Its marketing must be subject to authorization by the owner of the parent variety. If necessary, such approval must be coupled with financial license arrangements.

The title of protection for the new variety must be granted in accordance with the standard procedure based on the minimum distances described above, in other words on the basis of the **expression of characteristics.**

The dependency criterion, however, must be assessed by analyzing the genome as such, using the RFLP method (DNA restriction fragment length polymorphism) (19). Work will be necessary for specialists to set the threshold of genetic similarity beyond which a variety should be declared dependent. With maize, for example, our own research (P. Leroy and Z. Karaman) and that of the Pioneer Company (J.S.C. Smith and O.S. Smith) both indicate that the threshold should be somewhere between 75 and 85 per cent. Obviously, these findings will have to be refined in respect of maize and worked out species by species in respect of other plants. It must again be stressed that the concept of genetic distance bears no relation whatsoever to economic value.

It is only if and when the owner of the rights in the parent variety authorizes marketing to go ahead that the concept of economic benefit will be taken into account in setting the licensing fee for the dependent variety.

2.2. Protection of biotechnological inventions by patent

Biotechnological inventions, whether processes or products (20), must be patentable, but to **the exclusion of all plant varieties** and therefore any kind of reproductive material from conventional seed to plant cells used for regeneration.

The protection of processes under the patents system should not give rise to any special difficulties, except in two specific respects, namely:

- First, the question of sufficient disclosure (repeatability). This difficulty will have to be overcome by recognition of the concept of statistical repeatability. This should not be difficult to bring about.

- Secondly, if the subject matter of a patent, for instance a microorganism, is involved in the process used to produce a new or a known product, and if the microorganism has been deposited in a culture collection and made available to a third party, the same product developed by that third party will, in the absence of proof to the contrary, be deemed to have been produced by means of the patented process.

However, more problems are likely to arise in connection with products, that are by nature either living matter or biologically active. If these are to be protected effectively, a few modifications will have to be conceded in the principles of patent law, namely:

- The invention concept must be broadened, and a product dissociated from pre-existing, but hitherto non-dissociated material must be regarded as a patentable invention.

- Since the products in question are self-replicating, the marketing of such products must not exhaust the patentee's right in respect of acts relating to the propagation of the product.

- If a patented product consisting of a piece of genetic information is introduced into a plant variety and if the information is expressed in the variety, the patented product must remain protected within the variety. Breeders' rights must be granted in respect of the new variety thus developed, provided that it is distinct, homogeneous and stable, irrespective of the economic significance of the transferred genetic characteristic. The new variety will be **dependent** on the protected genetic information and will only be marketable subject to the consent of the owner of the patent covering the genetic information in question. As with the dependent varieties examined above, the economic criterion should be taken into account when the amount of the licensing royalty is set.
  If the new variety is used in a breeding program involving the random recombination of characteristics, the "offspring" of the breeding program will also be dependent on the patent for the original genetic information if the latter continues to be expressed, and this applies until the expiry of the patent.

- Where description difficulties prevent persons skilled in the art from carrying out the invention, the latter can still be protected after it has been deposited in a recognized culture collection. The sample should be made available to third parties only if a patent has been granted. However, it must be made available to recognized experts in the event of opposition proceedings (the same applies where the invention is a production process or part of such a process, as a microorganism or plant cell would be).

2.3. Relations between the UPOV system and the patent system

The application of the above basic principles should result in adequate and effective protection not only for plant varieties, but also for biotechnological inventions applied to variety creation, and give satisfaction to the various parties concerned.

Relations between the UPOV system and the patent system are governed satisfactorily by the principle of the interdependence of plant varieties and biotechnological inventions. However, plant varieties and microorganisms must be defined in order to avoid any ambiguity.

As regards plant varieties, two definitions have been given in recent months, one by UPOV, and the other by the Scientific Committee of the CTPS (21). They are as follows:

> UPOV: "variety" shall mean any plant or part of plant, or any grouping of plants or parts of plants, which, by reason of its characteristics, is regarded as an independent unit for the purposes of cultivation or any other form of use;

CTPS: a variety (= a cultivar) is a selected grouping of plants derived from one or more maintained components. This grouping is reproducible. The variety possesses sufficiently homogeneous and stable characteristics to make it susceptible of description and identification. It has potential for production or use.

Both definitions are acceptable, although the one proposed by UPOV might seem somewhat broad.

It should also be borne in mind that a plant variety may, in some cases, be represented by a single plant, as in the case of a clone (see box No. 3).

So far, no attempt has been made to work out a legally-binding definition of a microorganism. The one given in Lexibio (22) might serve the purpose, namely "a living organism visible only through a microscope. Refers to unicellular prokaryotes, i.e. bacteria, and unicellular eukaryotes. Microscopic algae and fungi, protozoa and yeasts are also microorganisms." This definition should be extended to viruses and parts of cells and viruses, such as plasmids and cosmids.

Plant cells give rise to a difficulty, because in some cases they can be used for production purposes, like a conventional microorganism, whereas in others they may be used as propagating material of a variety. The choice of a system of protection would have to be determined by the claims of the inventor, namely, a patent in the first case and a PVC (23) in the second.

BOX No. 3
HYBRIDS

Apart from Article 5(3), which provides that the repeated use of a variety for the commercial production of another is subject to authorization, the present UPOV Convention takes no account of the specific nature of hybrid varieties in general and F1 hybrid varieties in particular. In this connection, two important points must be stressed:

- First, the Convention provides that, whatever the origin, artificial or natural, of the initial variation from which it was derived, a variety must be clearly distinguishable. With regard to hybrids, it should allow distinctness to be demonstrated on the basis of the distinctness of one or more of the parent constituents and of the formula combining them;

- Secondly, and even more importantly, the parent lines are regarded as "ordinary" varieties created for the purposes of mass production by farmers. Yet a line is not a conventional finished product in terms of agricultural production. It is one element in the production of the seed of the "ordinary" variety. It follows that the objectives of line creation differ considerably from those of variety creation. In particular, breeders stress combination ability, in other words the ability to be the parents of successful hybrids.

Access to a parent line therefore means more than just access to conventional genetic variability; it implies access to a means of producing seed. The UPOV Convention should therefore provide for an extension of the specific rights in parent lines. There is no easy, straightforward solution to this problem. However, most international professional organizations (GIBiP, COMASSO, ASSINSEL) have for a number of years been calling for it to be addressed. The revision of the Convention would provide a good opportunity for doing so.

3. Current Negotiations

Negotiations are under way in many forums, and at various levels: professional associations and national governments, intergovernmental and international non-governmental organizations. We shall confine ourselves here to mentioning the positions adopted by certain international non-governmental organizations, and discussing the most significant work undertaken by the intergovernmental organizations.

In our opinion, the main non-governmental organizations that have adopted a position on the matter are the following: ICC, GIBiP, CIOPORA, ASSINSEL, COMASSO, COPA-COGECA (24). Their views have already been widely disseminated and are available on request from their headquarters.

Four initiatives have been taken by intergovernmental organizations, namely, the revision of the UPOV Convention, with final decisions scheduled for 1991; a joint UPOV-WIPO (25) meeting from January 29 to February 2, 1990; and, in the European Communities, a draft Directive from DG III (26) on the "protection of biotechnological inventions" and another from DG VI (27) on "Community breeders' rights."

The two most significant initiatives are the revision of the UPOV Convention and the draft Community Directive on the "protection of biotechnological inventions". The UPOV-WIPO meeting is more in the nature of a concerted effort towards consistent progress on the previous two initiatives. As for the draft Directive on Community breeders' rights, whose underlying principle of unification has been warmly welcomed by the various professional sectors, it can reasonably be expected to conform to the revised UPOV Convention on substantive matters and simply regulate questions regarding the harmonization of implementation in the States of the European Community.

On the whole, the development of the UPOV Convention is proceeding in line with the above-mentioned principles of plant variety protection, although there is still much discussion on:

the prohibition of double protection;
the definition of the subject matter of the right;
the implementation of the accepted principle of dependency.

It is to be hoped that the final decisions taken will come close to the wishes expressed by the majority of the professionals involved in variety creation, which take account of both the need to maintain access to genetic variability and the need for a fair return on investment in research, which would pave the way for further, indispensable varietal improvements.

The same cannot be said of the draft European Directive on the protection of "biotechnological inventions," on which discussions have made no progress for several months, although the Community authorities originally requested that a final decision be reached by the end of 1989. There are a number of reasons for this:

- the text was drafted without even the basic consultations that should have been held with the national experts and professional organizations concerned;

- the text is still marred by many imprecisions, at least in some of its translations, and these have given rise to controversy at all levels, in individual countries and within the Community. Considering the importance of the subject matter and its contentious nature, it would have

been preferable to produce a very simple, unambiguous text, whereas several articles will now lend themselves to various interpretations;

- a number of proposals appear to be either contradictory (12.2 and 3.2 in relation to 3.1, for example), or unacceptable (10, 14) or yet, if they are understood correctly, superfluous (12). This is not meant to be an exhaustive list.

The text will presumably have to be referred back to the Expert Commission, if a solution is eventually to be worked out. This situation is no doubt prejudicial to the development of research, because, as we have already shown, there are still many uncertainties which could usefully be cleared up.

However, it must be pointed out that, in the circumstances, it has become essential to pursue the various lines of thought in parallel, be it the two Community drafts or the broader international initiatives. In this respect, the organization of the WIPO-UPOV meeting in January 1990 should be welcomed. Indeed, any decision on one of the drafts without conclusions being reached on the others would undoubtedly lead to an inextricable situation on account of the total interdependence of their subject matter.

NOTES

1. Gille, B.: "Les premières grandes civilisations techniques," in Histoire des techniques, Encyclopédie de la Pléïade (Gallimard, 1978), pp. 175-285.
2. Bailloud, G.: Histoire de la France rurale (Seuil, 1975), Volume 1, pp. 119-194.
3. Readers interested in the fascinating topic of domestication might refer, inter alia, to the work of J. Pernes: Gestion des ressources génétiques des plantes (2 volumes) (Cultural and Technical Cooperation Agency, 1984).
4. Cultivar: a general term used to denote any cultivated genetic structure. See Demarly, Y.: Génétique et Amélioration des Plantes (Masson, 1977).
5. de Serres, O.: Le théâtre d'Agriculture et mesnage des champs (second edition, Dardelet, 1973), pp. 83-161.
6. Bannerot, H.: "L'évolution de l'amélioration des variétés de légumes"; AICPC/ACFEV/BRG: La diversité des plantes légumières (1986), pp. 53-64.
7. UPOV: International Union for the Protection of New Varieties of Plants.
8. Demarly, Y.: Génétique et Amélioration des Plantes (Masson, 1977), pp. 227 et seq.
9. This fear, however, has so far not been substantiated.
10. Rousset, M.: "Les connaissances scientifiques et techniques en matière de sélection semencière," in Innovation dans les semences, Recherche et Industrie. Economie et Sociologie rurales, Actes et Communications, No. 4, July 1989, pp. 9-16.
11. Rives, M.: "Amélioration des plantes," in Culture technique, No. 16 (CRCT, 1986), pp. 122-131.
12. Jullien, E.: Les impacts économiques de la protection de l'innovation sur le secteur européen de la semence. CERNA Report, Ecole Nationale Supérieure des Mines de Paris (June 1989).

13. Le Buanec, B.: "La protection des obtentions végétales," in Biofutur (October 1987), pp. 49-53.

14. GNIS (Intertrade Seed and Seedling Association): "Semences et plants, la CEE à 12," in Etudes économiques et statistiques (Paris).

15. Hermitte, M.-A.: Le droit du génie génétique végétal (Librairies Techniques, 1987).

16. Throughout this paper, the term "protected" should be understood as a reference to the protection of intellectual property.

17. The significance of the debate on the protection of living matter is mainly determined by the way in which plant, animal and human material has been lumped together in one category for the purpose. The clear-cut position in favor of non-protection of human material, which is shared by this author, thus overshadows the debate on plant material. In terms of the principles involved, one of the main focuses of the debate is the question of genetic variability (see box No. 2).

18. This obvious point can be illustrated by a simple example. If resistance to a disease were the only difference between one variety and another, and if that disease were prevalent in country A but not in country B, that characteristic would be considered economically important in country A but not in country B, which would result in the grant of a right in the first country but not in the second. Furthermore, if the two countries share a common frontier, the disease is likely to spread from A to B and, once again, an unacceptable situation would arise.

19. Recent findings presented at the Maize Workshop organized by UPOV in Versailles on October 2 and 3, 1989 (publication forthcoming), clearly show that RFLP is the only reliable method of measuring genetic distances (P. Leroy and Z. Karaman, and J.S.C. Smith and O.S. Smith).

20. It is not always easy to distinguish processes from products in the field of biotechnological inventions, especially in the case of modified micro-organisms used in the production of a specific protein for example.

21. CTPS: Standing Technical Committee for Plant Breeding, French Ministry of Agriculture and Forestry.

22. LEXIBIO: Annuaire des biotechnologies et des bio-industries (biofutur, 1987).

23. PVC: plant variety certificate granted under the UPOV system.

24. ICC: International Chamber of Commerce; GIBiP: Green Industry Biotechnology Platform; CIOPORA: International Community of Breeders of Asexually Reproduced Ornamental and Fruit-Tree Varieties; ASSINSEL: International Association of Plant Breeders for the Protection of Plant Varieties; COMASSO: Association of Plant Breeders of the European Economic Community; COPA-COGECA: Committee of Professional Agricultural Organisations of the European Communities--General Committee for Agricultural Cooperation of the European Community.

25. World Intellectual Property Organization.

26. Directorate General III, Industry.

27. Directorate General VI, Agriculture.

28. Coutière, H.: "Le monde vivant," in Histoire Naturelle Illustrée, volume 2 (Les Editions Pittoresques, 1928).

NAMES OF REPRESENTATIVES OF MEMBER STATES IN THE COUNCIL OF UPOV AND THEIR ALTERNATES
(as of September 25, 1990)

Australia:	-	
	-	
Belgium:	Mr. R. Piscaglia	Inspecteur général, Administration de l'agriculture et de l'horticulture
	Mr. W.J.G. van Ormelingen	Ingénieur agronome, Ministère de l'agriculture
Denmark:	Mr. F. Espenhain	Administrative Secretariat, Plant Directorate, Ministry of Agriculture
	Mr. A.B. Josefsen	Head of Department, Plant Directorate, Misnistry of Agriculture
France:	Mr. J.F. Prevel	Directeur, Bureau de la séléction végétale et des semences, Ministeur de l'agriculture
	Mr. F. Gougé	Président, Comité de la protection des obtentions végétales, Ministère de l'agriculture
Germany (Federal Republic of):	Dr. D. Böringer	Präsident, Bundessortenamt
	Mr. W. Burr	Ministerialrat, Bundesministerium für Ernährung, Landwirtschaft und Forsten
Hungary:	Dr. B. Szalóczy	Deputy Director-General, Institute for Agricultural Qualification, Ministry of Agriculture and Food
	Dr. J. Bobrovszky	Head, Legal and International Department, National Office of Inventions
Ireland:	Mr. J.K. O'Donohoe	Controller of Plant Breeders' Rights, Agriculture House
	Dr. I. Byrne	Department of Agriculture and Food, Agriculture House
Israel:	Mr. M. Zur	Chairman, Plant Breeders' Rights Council, Agricultural Research Organization
	Mr. A. Perry	Counsellor, Economic and Commercial Affairs, Parmanent Mission of Israel to the United Nations and Other International Organizations in Geneva
Italy:	Mrs. M.G. Del Gallo Rossoni	Direttore, Ufficio Centrale Brevetti, Ministero dell'Industria, del Commercio e dell'Artigianato
	Dr. B. Palestini	Primo Dirigente, Ministry of Agriculture and Forestry
Japan:	Mr. Y. Kobayashi	Director, Seeds and Seedlings Division, Ministry of Agriculture, Forestry and Fisheries
	Mr. S. Kawahara	Deputy Director, Seeds and Seedlings Division, Ministry of Agriculture, Forestry and Fisheries
Netherlands:	Mr. W.F.S. Duffhues	Director, Forestry and Landscaping, Ministry of Agriculture and Fisheries
	Mr. B.P. Kiewiet	President, Board for Plant Breeders' Rights
New Zealand:	Mr. F.W. Whitmore	Commissioner, Plant Variety Rights, Plant Variety Rights Office
	-	
Poland:	Prof. E. Bilski	Director, Research Center on Cultivars (COBORU)
	Mr. J. Virion	Chef-expert, Ministère de l'agriculture, des forêts et de l'économie alimentaire
Sweden:	Mr. K.O. Öster	Permanent Under-Secretary, Ministry of Agriculture, and President, National Plant Variety Board
	Prof. L. Kåhre	Department of Plant Husbandry, Swedish University of Agriculture
South Africa:	Mr. D.C. Lourens	Director, Directorate of Plant and Liquor Control, Department of Agriculture
	Dr. S. Visser	Agricultural Attaché, South African Embassy in Paris, France
Spain:	Mr. R. Lopez de Haro y Wood	Director Técnico de Certificación y Registro de Variedades, Instituto Nacional de Semillas y Plantas de Vivero
	Dr. J.M. Elena-Rossello	Jefe del Registro de Variedades, Instituto Nacional de Semillas y Plantas de Vivero
Switzerland:	Mrs. M. Jenni	Leiterin des Büros für Sortenschutz, Bundesamt für Lantwirtschaft
	Dr. M. Ingold	Service chargé de l'examen, RAC Changins
United Kingdom:	Mr. J. Harvey	Controller, Plant Variety Rights Office
	Mr. J. Ardley	Deputy Controller, Plant Variety Rights Office
United States of America:	Mr. H.D. Hoinkes	Senior Counsel, Office of Legislation and International Affairs, Patent and Trade Mark Office, U.S. Department of Commerce
	Mr. L.J. Schroeder	Office of Legistration and International Affairs, Patent and Trademark Office, U.S. Department of Commerce

CALENDAR

UPOV Meetings in 1991

March 4 to 19	Diplomatic Conference for the Revision of the Convention
March 18	Consultative Committee
May 13 to 17 (Beltsville, United States of America)	Technical Working Party for Agricultural Crops
May 29 to 31 (La Minière, France)	Technical Working Party on Automation and Computer Programs
June 4 to 7 (Hungary)	Technical Working Party for Vegetables
June 11 to 14 (Bordeaux, France)	Technical Working Party for Fruit Crops
June 24 to 28 (Cambridge, United Kingdom)	Technical Working Party for Ornamental Plants and Forest Trees
October 16 to 18	Technical Committee
October 21 and 22	Administrative and Legal Committee
October 23	Consultative Committee
October 24 and 25	Council
November 12 to 15 (Tokyo, Japan)	UPOV Seminar

The International Union for the Protection of New Varieties of Plants (UPOV)--an international organization established by the International Convention for the Protection of New Varieties of Plants--is the international forum for States interested in plant variety protection. Its main objective is to promote the protection of the interests of plant breeders--for their benefit and for the benefit of agriculture and thus also of the community at large--in accordance with uniform and clearly defined principles.

"Plant Variety Protection" is a UPOV publication that reports on national and international events in its field of competence and in related areas. It is published in English only--although some items are trilingual (English, French and German)--at irregular intervals, usually at a rate of four issues a year. Subscription orders may be placed with:

The International Union for the Protection of New Varieties of Plants
34, chemin des Colombettes, 1211 Geneva 20 (POB 18)
(Telephone: (022) 730 91 11 - Telex: 412 912 ompi ch - Telefax: 733 54 28)