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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS

Twenty-Sixth Session
Montevideo, November 10 to 14, 1997

REPORT

adopted by the Technical Working Party for Agricultural Crops

Opening of the Session

1. The twenty-sixth session of the Technical Working Party for Agricultural Crops (hereinafter referred to as "the Working Party") was held in Montevideo, Uruguay, from November 10 to 14, 1997. The list of participants is reproduced as Annex I to this report.

2. Mr. Gustavo E. Blanco Demarco, President of the *Junta Directiva* of the *Instituto Nacional de Semillas* (INASE), welcomed the participants to Montevideo. The session was opened by the Chairman, Mr. A. Bould (United Kingdom).

Adoption of the Agenda

3. The Working Party adopted the agenda of its twenty-sixth session as reproduced in document TWA/26/1, after having agreed to delete item 12 (g) (Lotus) and to add the items 5(a) Harmonization of the states of expression and notes for different characteristics, 5(b) Definition of off-type, 9(a) New alleles for barley, 10(a) Use of resistance characteristics, 10(b) Distinctness of inbred lines in oil seed rape with different sterility genes,

10(c) Uniformity in oil seed rape, 12(i) Test Guidelines for Rye, 12(j) Test Guidelines for Field Bean, Broad Bean, 12(k) Test Guidelines for Opium/Seed Poppy.

Short Reports on Special Developments in Plant Variety Protection in Agricultural Crops (Oral Reports)

4. The expert from South Africa reported on new legislation on GMO varieties and that applications for plant variety protection had been made for only 30% of all varieties applied for national listing. The expert from Denmark reported that in his country the number of applications had fallen by half.

Important Decisions Taken During The Last Sessions of the Technical Working Party, the Technical Working Party on Automation and Computer Programs and the Technical Committee

5. Mr. Thiele-Wittig presented a brief report on the main items discussed during the previous session of the Technical Committee and referred participants needing further details to the full report reproduced in document TC/33/11.

6. COYD and COYU analysis: The Working Party noted that the Technical Committee approved a revised version of the Combined-Over-Years Distinctness (COYD) criterion and the Combined-Over-Years Uniformity (COYU) criterion as contained in document TC/33/7 which replaces the version contained in document TC/30/4. It also noted that that version would become part of a revised General Introduction to Test Guidelines

7. Consequences of the introduction of new characteristics: The Working Party agreed with the Technical Committee that, if a new method created more problems than it solved, it should be abandoned.

8. Definition of categories of characteristics and the conditions of their use for the description of varieties: The Working Party noted the discussions in the Technical Committee and the need to have a clearer understanding and a definition of the different categories of characteristics used. It noted the draft presented during the Technical Committee session and reproduced in paragraph 64 of document TC/32/7 Prov. It agreed that there was a need for rediscussion of the categories. The expert from ASSINSEL agreed to the need for rediscussion and will send the position of ASSINSEL for presentation to the Technical Committee.

9. Mr. Thiele-Wittig recalled the report of the Working Party of the last session (TWA/25/13) and gave a short summary of the fifteenth session of the Technical Working Party on Automation and Computer Programs (TWC) referring for further details to document TWC/15/18.

10. List of statistical documents prepared by the TWC: The Working Party noted that the TWC had prepared document TWC/15/2 containing a list of documents produced by it and document TWC/15/3 containing a topic index to those documents. The Working Party

appreciated the updating of those lists and especially the topic index which made it easier to find a particular document on a given subject.

11. Windows Version of DUSTW: The Working Party was also informed that as part of a pilot study into the production of a Windows version of DUSTX the general DUS data analysis package for the PC and thus applying among others the COYD and COYU criteria, a prototype program DUSTW had been produced. The prototype included the DUSTX programs: CHOSX, MERGX, ANALX, TESTX, TVRPX and UNSLX. It would run on 386, 486 and Pentium PC's under Windows 3.1 or Windows 95 (where an SX chip was used, a maths coprocessor is recommended). Whereas DUSTX was run from within MS-DOS, the majority of today's software was run from within Windows. With DUSTW, or DUSTX for Windows, the appearance of the program was more familiar to today's users and together with the greater interactive capabilities of Windows technology, the program was simpler to use and to learn. DUSTW was written with the DUSTX programs at its core, using the same control files to pass input and output file names and parameters to the programs. With DUSTW, instead of the user needing to edit the control files as necessary with DUSTX, the information was gathered by the program guiding the user to select filenames and options from windows displaying lists of filenames and options (including variety and character names where relevant). When the full version of DUSTW, or DUSTX for Windows, is produced the user will be able to use data from Excel spreadsheets as well as from the carefully formatted ASCCII files currently required by DUSTX. The program would also be capable of being run in languages other than English. More information can be found in document TWC/15/17.

12. Developments on the World Wide Web: The Working Party noted that in the TWC the importance of E-mail on the World Wide Web and the future trends had been discussed. With respect to UPOV, the situation was as follows: (a) the UPOV office in Geneva already had plans well advanced for the establishment of a Web Site; the Site would initially provide basic information about UPOV; its history, objectives, membership, structures, principal officers and in time, some of the formal documents, e.g. text of conventions, Test Guidelines, would be placed on the Site for access in electronic form; (b) an EU Fourth Framework FAIR Program proposal had recently been submitted by CPRO/NIAB/BioSS/GEVES to develop variety image database structures which might allow access from Web browsers and (c) the use of the Web for the provision of on-call training in science and technology was becoming increasingly important. An example of interest to crop specialists was the SMART system, a collaborative initiative aiming to provide user-friendly training in quantitative methods for scientists and technical specialists, was available in six languages and could be accessed at http://www.bioss.sari.ac.uk/smart/unix/smart.html.

13. The TWC had welcomed the offer made by the expert from the United Kingdom to set up an E-mail discussion group open to all TWC experts which would be used for discussion of certain subjects by the three special interest groups: on visually-assessed characteristics, on BMT data and on uniformity. It was also asked whether it could be useful to have Internet structures which facilitated electronic communications and provided an information resource. These might include: (a) an E-mail discussion list where queries and news items might be posted; (b) one or more Web links on UPOV technical matters could be established; this could provide access to the working group documents as well as facilitating links between collaborating centers and individuals; (c) for short meetings involving small groups of individuals, the possibility of using video conferencing facilities should be considered. The

Working Party recommended that the Chairman should take part in the interest group on uniformity.

14. Testing of uniformity: finding the right population standard and decision rule for different sample sizes: The Working Party noted that the Technical Working Party on Automation and Computer Programs (TWC) had prepared document TWC/15/15 on balanced α and β risks tables (single sampling). Document TWC/11/16 was a help in finding the right sample size on the basis of the population standard. That document gave, however, rise to some problems when trying to extend it to all species. Document TWC/15/15 listed the problems as (a) the population standard was often not known, (b) especially in new species it lead to small p errors but very large 2 p (consumer risk) errors, (c) the population standard for testing might be different to that required by other authorities, (d) self-fertilized species were treated differently to cross-fertilized species. It further questioned whether it was right for UPOV to impose a certain population standard for all varieties in a given species. If the population standard was necessary, UPOV needed to develop methods to estimate it from the acceptable number of off-types. It then proposed that it be calculated from the reference collection OC (Operating Characteristic) Curves.

15. Cooperation with the Technical Working Party on Automation and Computer Programs (TWC): Several experts recalled the need for a better transfer of information from the TWC to the other Technical Working Parties. Some wondered whether an action list summing up the main decisions could facilitate that transfer. A short summary list was always reproduced in the report of the Technical Committee summing up all work done by all Technical Working Parties. The Working Party noted that the best transfer of information would be achieved if more crop experts attended sessions of the TWC when they took place in their country. This also applied to sessions of other Technical Working Parties.

16. New methods, techniques and equipment in the examination of varieties: Mr. Thiele-Wittig gave a short summary report of the fourth session of the Working Group on Biochemical and Molecular Techniques and DNA Profiling in Particular (BMT), referring for further details to document BMT/4/21. During its session, the BMT had been given short presentations of research results on Azalea, Carnation, Maize, Oilseed Rape, Peach, Potato, Ryegrass and Tomato; it had heard explanations on the usefulness and the limitations of statistical methods and especially on similarity, clustering and dendrograms, a review of methods for cluster analysis of marker data, on the use of the analysis of molecular variance (AMOVA) for distinction studies and noted especially the frequent misuse of dendrograms as results of a study; it had heard reports on the correlation and causal linkage between DNA markers and morphological traits and on the relationship between genetic distance and morphological distance between varieties and that only in a few cases were there correlations between morphological characteristics and DNA markers; it had noted the confirmation of the position of the breeders vis-à-vis DNA profiling and on the study on the use of DNA profiling methods by expert witnesses in disputes on essential derivation and on the effect of different plant breeding schemes in the evaluation of parentage between them and the judgment of essential derivation was not considered to be a task for the national authorities although the courts may approach national authorities for technical advice; it had very contradictory views on the possible use of DNA profiling for prescreening as a possible tool in DUS testing; it had noted that the biggest shortcoming remained the checking and control of uniformity in characteristics obtained with biochemical or molecular markers, and had very

lively and contradictory discussions on possibilities and consequences of the introduction of DNA profiling methods for DUS testing.

17. The next session of the BMT is scheduled to take place under the extended chairmanship of Mr. Joël Guiard, France, in Washington D.C., USA, from September 28 to 30, 1998. During that session, discussions are planned on the following subjects: (a) Short presentation of research results or their follow-up on different species; (b) assessment of variability within varieties; (c) assessment of variability between varieties; (d) statistical methods: confidence intervals and accuracy of distance estimates; alternative to dendrograms; refinement of the analysis of molecular variance (AMOVA) for distinction studies and as a tool to assess uniformity; combination of information from diverse data types (AFLP, SSR, morphological data, etc.); (e) position of the breeders vis-à-vis DNA profiling; (f) the use of DNA profiling methods by expert witnesses in disputes on essential derivation; (g) the use of DNA profiling for prescreening as a possible tool in DUS testing; (h) possibilities and consequences of the introduction of DNA profiling methods for DUS testing; (i) definition of variety; (j) future program of the BMT (date and place of the next session if any).

18. Reports from other UPOV sessions or on other matters: Mr. Thiele-Wittig reported that the Secretary-General of UPOV, Dr. Arpad Bogsch, had retired and that the Council had appointed Dr. Kamil Idris from Sudan as the new Secretary-General as of November 1, 1997. In the Administrative and Legal Committee (CAJ), the question of definition of variety and of genotype and phenotype as raised in the Working Group on Biochemical and Molecular Techniques and DNA Profiling in Particular (BMT) had been discussed. It would try to reach a definition in a small subgroup meeting of the CAJ which would meet at the beginning of 1998. Thereafter, a combined session of the Technical Committee and the CAJ was planned to be held in April 1998. The Working Party appreciated that the Chairman of the Technical Committee and of the BMT will also participate in that subgroup meeting as he had been the Chairman of the Working Group leading to the definition of variety as defined in the 1991 Act of the UPOV Convention. It was looking forward to the report of the subgroup.

Central Computerized Database

19. The Working Party noted the latest stage of preparation of the UPOV Plant Variety Database on CD-ROM (UPOV-ROM) as set forth in Circular U 2594 dated October 21, 1997, distributing the fifth disc in 1997. The Office of UPOV aimed at issuing an updated disc every second month. The UPOV-ROM 97/05 already included the 1996 OECD List of Cultivars Eligible for Certification. The UPOV-ROM 97/06 will already include–not in the database itself but in a separate pdf (portable document file)–the list of protected varieties from the Community Plant Variety Office of the European Union (CPVO). Discussions were under way to include in the UPOV-ROM also the European Union Catalogue. It was expected that the UPOV-ROM would include several improvements before the end of the year and especially enable its use on a local network. It was also expected that in a few months it would be offered to the private sector at an annual subscription price of 750 CHF.

20. Several experts had had a chance to study the UPOV-ROM and expressed their satisfaction. Some experts proposed that the UPOV-ROM should include the public descriptions of the varieties. The Working Party invited all the experts to contact their

respective colleagues at national level for them to also see and assess the information on the disc and make any comments for further improvement. As several experts had not seen the UPOV-ROM, Mr. Thiele-Wittig gave a short demonstration of the content of the UPOV-ROM with its three parts, the combined database with the taxon information, the text part in pdf (portable document file) format with information from the member States on their data, all texts of the different Acts of the UPOV Convention, the Recommendations on Variety Denominations, the General Information Brochure, the lists of addresses of national PVR Offices, the list of UPOV publications and various other information and the part containing the original data (password protected) from the member States.

21. The expert from the Community Plant Variety Office of the European Union (CPVO) explained that the submission of data of protected varieties was only a first step as long as the Office was in the process of building up its computer facilities. It was planned to open a Web Site before the end of the year whereby information of various kinds would be made available. The expert from the European Union responsible for the European Catalogue reported that they were studying the submission of data to UPOV. They had to solve, in addition to the technical aspects, the matter of the copyright of the data which belonged to the Official Journal.

22. Several experts asked for inclusion of more information on the UPOV-ROM and especially more technical information as for example public descriptions of varieties. Other experts warned not to request too much information as in many countries the information had to be collected from different, separate offices or institutes which would make the periodic supply of data rather difficult. Differing opinions were expressed on whether information on the variety being a GMO should be included in the database or not. The expert from ASSINSEL was against inclusion, while testing experts said that they needed the information in case they wanted to use a variety as an example variety.

23. UPOV documents in electronic form: The Working Party noted that the Technical Committee had considered the usefulness of documents in electronic form. It noted that the UPOV Test Guidelines may be available in electronic form by the end of the year. The Working Party supported making available the UPOV documents in electronic form. This should not be restricted to Test Guidelines, but should cover several other documents, especially reports of meetings and other important documents.

Harmonization of States of Expression and Notes for Different Characteristics

24. The Working Party noted that the Technical Committee had taken note of document TC/33/8, of Annex II to TC/33/3 and of the discussions held at the Technical Working Party for Fruit Crops (TWF), the Technical Working Party for Ornamental Plants and Forest Trees (TWO) and the Technical Working Party for Vegetables (TWV) on the harmonization of expression and Notes for different characteristics. On a proposal from the Editorial Committee, the Committee had agreed that the expert from South Africa would amend document TC/33/8. In connection with the above document, the General Introduction to Test Guidelines (TG/1/2) would also be revised and the first task for preparing a preliminary draft for a revised version would be carried out in a group consisting of members of the Editorial Committee, the Chairmen of all the Technical Working Parties and the Chairman and Vice-Chairman of the Technical Committee. The Office of UPOV will collect the information on

which part of the General Introduction to Test Guidelines should be revised by the members of the above group. The Working Party noted the new document TWF/28/7 prepared by experts from South Africa and a collection of certain rules provisionally agreed upon by the Editorial Committee as reproduced in document TWF/28/9.

25. Mr. Thiele-Wittig gave a short explanation of the basic principles of the above document and explained the different cases appearing on the basis of a summary as reproduced in the Annex to Circular U 2593. The Working Party expressed the need to study the document in more detail before it was able to express its ideas on the document.

Definition of Off-type, Admixtures

26. The Working Party noted that the Technical Committee had considered that the definition of off-type was not clear. The previously prepared word "significant" had a statistical connotation and also, significance in leaves is different from that in fruits. The word "clear" was more restricted to what can be seen visually, while "significant" includes much more than seeing. It was important to point out that the work done is to distinguish a variety, so the word to be chosen should be considered in relation to distinctness. The Working Party also noted the different positions on the concept of admixture in relation to off-type. It was mentioned that an admixture was a plant which did not belong to the variety and was not clearly an off-type. In other words, a barley seed within wheat was an admixture which might have been caused by mixing or in other ways, while an off-type belongs to and comes from the variety through a genetic difference expressed in the phenotype. The Working Party further noted that the Technical Working Parties for Fruit Crops (TWF) and for Ornamental Plants and Forest Trees (TWO) had discussed the question of off-types and admixtures. The TWF and TWO could agree to the following definition of off-type: "Any plant is to be considered an off-type if it differs in the expression of any characteristic, of the whole plant or of part of the plant, from that of the variety, taking into consideration the particular species." The TWO proposed adding the sentence: "An admixture is considered to be an off-type." to clarify the handling of admixtures. The TWF could not agree to that addition. It agreed that admixtures should be treated in the same way as other off-types and their number should be included in the number of off-types tolerated, but it was unable to call them "off-types." The TWF therefore proposed a rewording of the last sentence as follows: "An admixture has to be considered an off-type."

27. The Working Party could, however, not follow the TWF and TWO with respect to the first sentence of the definition of off-type. It could not accept that any characteristic would be able to make a plant an off-type. With the new methods in all existing varieties differences could be found and therefore all varieties could be rejected for lacking uniformity. The Working Party preferred to stay closer to the text of the UPOV Convention and copy part of the wording of Article 7 of the 1991 Act. By this the Working Party wanted to make clear that for off-types the same yardstick is used as for distinctness. In general only off-types in the characteristics normally used for DUS testing would be considered. The interpretation was clearly left to the crop expert. It would not only cover the fact that it was not possible to emphasize any characteristic but also that not only the characteristics included in the Test Guidelines would be taken into account.

28. The Working Party finally proposed the following wording: "Any plant is to be considered an off-type if it is clearly distinguishable from the variety, taking into consideration the particular species."

29. With respect to admixtures, the Working Party also took a different position to that of the Technical Working Party for Fruit Crops (TWF) and Technical Working Party for Ornamental Plants and Forest Trees (TWO). In their opinion, admixtures were off-types but would not be counted as such in the assessment of uniformity. Because of the different interpretation among the different Working Parties it was finally agreed to add a sentence to clarify any doubts. As the term admixture would require first a definition it was preferred to avoid that term. While still looking for a better wording for presentation to the Technical Committee, the Working Party provisionally agreed to the following sentence: "Plants being very different from those of the variety could be disregarded as long as their number does not interfere with the test." This text would cover not only admixtures but for example also the situation in the Test Guidelines for Maize where for out-crossed plants in hybrids an additional tolerance was indicated.

Prescreening of Varieties

30. The Working Party noted the discussions on the screening of varieties in the Technical Committee and its request to study the subject and give a report of the discussions to its next session. The Working Party also noted that the TWF and TWO had agreed that these methods should only be admitted for prescreening if a strong correlation existed between the characteristic in question (e.g. the band or bands in the case of electrophoresis) and morphological or physiological characteristics used in the Test Guidelines. If that was not the case and there was no connection to an expression in the plant, the prescreening by these means should not be admitted.

31. The Working Party noted document TWA/26/5 containing thoughts on the setting-up and use of reference collections for DUS testing prepared by the expert from France. It especially discussed the following possible principles:

- Choose a set of descriptors not or little subject to environmental effects enabling separate groups of varieties to be made up whatever the origin of the data used. The grouping characteristics as defined in the UPOV Guidelines would constitute an initial basis for defining groups of varieties but other descriptors may also be considered, without them being necessarily included in the guidelines including descriptions of protein polymorphism revealed by electrophoresis and that of DNA resulting from molecular analysis, being characteristics that are generally independent of the growing environment of the plant.

- Define a methodology that permits an approach in terms of distance that is based on several characteristics so that, beyond a given value to be estimated, two varieties judged to be different on the basis of this combination of characteristics not necessarily recognized by UPOV are effectively different in one or more characteristics chosen for distinctness testing.

It was necessary to show, by using a few examples, that this methodology can effectively enable the varieties to be compared to be separated by using a tool that differs from that chosen for examining distinctness between varieties and that was not included in the UPOV Guidelines.

32. The document suggested

- putting together comparison indexes including the phenotypical characteristics that are most stable over the years or with regard to the places and define the thresholds beyond which the varieties would not have to be directly compared in the field (e.g. for the maize species)

- setting up comparative indexes including the molecular characteristics revealed by the use of a perfectly defined, standardized "tool box" available to everyone, and define thresholds for the molecular distances.

33. The Working Party furthermore noted document TWA/26/10, Prescreening of Varieties, a Case Study on *Poa pratensis*, prepared by the expert from the Netherlands. The document referred to document TWA/25/7 and the discussion during the TWA meeting in 1996. It reported that (a) the testing of the electrophoretic database for *Poa* had been delayed due to technical problems; (b) the first experience had shown a major problem as the comparison of similar lanes on different gels was not accurate enough; (c) another difficulty had been the low intensity of some bands and that (d) a possible improvement may be reached by using a computer system in which the conformity of the electrophoretic patterns was calculated. The following procedure was therefore proposed for next spring: (a) the candidate varieties are put in the electrophoretic database; (b) seedling characteristics are recorded and fed into a database, which contains the characteristics of all varieties; (c) the candidate varieties are compared on the basis of the seedling characteristics with all varieties in the database; (d) the electrophoretic lanes of these close reference varieties are compared with the candidate varieties. If the electrophoretic differences are clear and support the (small) differences recorded in the seedling characteristics, the reference variety may be omitted in the spaced plant trial. In this way the "grouping" would be based on the seedling characteristics. The electrophoretic characteristics may be regarded as "supportive" or "complementary" characteristics. This approach may prevent the complication of using non-guideline or non-routine characteristics for grouping. A similar approach may be tested for potatoes, using lightsprout characteristics in combination with electrophoresis.

34. The Working Party noted that it was not possible to use all characteristics used for distinctness purposes also for screening varieties. In addition variety descriptions depended on year(s) and location(s). Characteristics independent of the environment were therefore of considerable help. Therefore electrophoresis or other new methods would be of great assistance in screening all varieties. One was never sure whether the reference collection covered all relevant varieties. There was always a risk that some varieties were missing, and 100% safety could never be guaranteed. In the past, the reference collection had comprised mainly local, national or regional varieties with, in total, a reduced number. With the 1991 Act of the UPOV Convention and the coverage of all species of the plant kingdom the setting-up of reference collections had become more difficult. Nowadays, varieties in faraway countries had also to be considered. To find in that large number the closest varieties with electrophoresis or other new methods was considered of more help than restricting the

comparisons with traditional characteristics to regional reference collections only. The whole screening had to be a balanced risk between what was ideally to be done and what was financially possible.

35. Other experts warned again of using electrophoretic characters for screening varieties. UPOV had taken the view that those characteristics might be useful but that they might not be sufficient on their own to establish distinctness. Use for grouping meant a *de facto* introduction into the Table of Characteristics and use as any other characteristic or even as the first characteristics to be applied for distinctness. Normally, only the most reliable characteristics would be used for grouping. A risk therefore existed that some reference varieties placed in another group would never be compared with the candidate variety. If they were to be used for screening, they should be included in the Test Guidelines for use for DUS testing. UPOV had insisted in the past that all characteristics used for distinctness had also be tested for uniformity and stability. That principle had also to be applied for characteristics for prescreening. Otherwise breeders would be free to change uniformity and stability.

36. Several experts stated that at present UPOV applied for distinctness a characteristic-by-characteristic approach to find a clear-cut difference. For prescreening, other possibilities should be checked for possible use, for example those based on the distance between varieties, e.g. by the combination of characteristics. The objectives for prescreening were different. There was a need to take one or more examples and gain experience of the possibilities and consequences of such a system. A start could be made with *Poa* where "centralized" testing existed in Europe. The same could be done with potato where the experts from Netherlands and Germany could exchange data and try to reach a common approach. Prescreening was considered by many experts to be different from grouping. It was mainly used to get an idea of the structure of the reference collection and to make its use more efficient through the application of certain techniques.

37. In order to make more progress and come to a common understanding, the Working Party agreed that it was important to obtain a better exchange of existing information in the individual member States and to start with some concrete cases either at a bilateral or multilateral level to find out how these new characteristics or a combination with characteristics from the Test Guidelines could facilitate the screening of varieties, because the volume of work and the means available had to be balanced somehow.

Use of Electrophoresis in Ryegrass

38. The Working Party referred back to document TWA/25/5 which contained a proposal to include characteristics on electrophoresis in an Annex to the Test Guidelines for Ryegrass in the same way as was already done for maize, barley and wheat and with the same reservations on the usefulness of those characteristics. The Working Party noted that during its last session it had finally agreed (a) to present the legal questions of imposing possible additional requirements on the breeder of a similar pre-existing variety to the Technical Committee and to the Administrative and Legal Committee (CAJ); (b) to continue further discussions on uniformity as uniformity could not be applied but only stability of frequencies; (c) to ask for advice from the Technical Working Party on Automation and Computer Programs (TWC) on the number of plants in tetraploid varieties to be observed and whether the chi-squared test was at all applicable; (d) to obtain the opinion of breeders; (e) to rediscuss the meaning of

"significantly different" and "reasonably stable"; (f) to rediscuss the question of example varieties and of a ring test; (g) to ask the expert from the United Kingdom to prepare a new document as a result of the above discussions.

39. The expert from ASSINSEL reported that breeders were completely opposed to the use of electrophoresis for DUS tests in cross-fertilized crops such as ryegrass. The Office of UPOV had received the position of ASSINSEL in writing asking to forward it to the Technical Committee. If electrophoresis were to be accepted it would open the door to more plagiarism and more litigation as it was easy to change the frequency of alleles. Even if electrophoresis characteristics were only be included in an annex to the Test guidelines which stated in its introduction that they "may ...," this would be considered an encouragement to use those characteristics.

40. Some experts recalled that the UPOV Test Guidelines were not exhaustive and that further characteristics could be added. But there were some basic technical requirements which had to be fulfilled before a characteristic could be added. In the case of electrophoresis, in addition to the other requirement, there had to be a well-defined method, genetic knowledge of the significance of the bands used, a set of standards varieties and a positive result of a ring test with several states.

41. Other experts warned of the consequences such a step would have. Even though there was information at the technical level, there was still a need to check the consistency of results between different laboratories. Another problem to be solved was the checking of uniformity in a bulk sample and in frequencies of alleles. Therefore at present a use could not be accepted but special studies should be made. In addition there was a question of policy which would go beyond the technical questions. The Working Party therefore decided to set up a special subgroup to further advance the question. Moreover, an exchange of information between experts and breeders should take place. The Subgroup should meet in Geneva for one day, either before or after the coming session of the Technical Committee. Ryegrass should only be used as a model for the more general question of the use of electrophoresis in cross-fertilized crops.

Genetically Modified Varieties

42. The Working Party noted that the Technical Committee had reconfirmed its decision to include in the Technical Questionnaire of the Test Guidelines for Rape Seed and in future in other relevant Technical Questionnaires, a broad question whether the variety would "require authorization for release under legislation concerning especially the protection of the environment, human and animal health in the country in which the application is made" and whether such authorization had been obtained. The question was not intended to be limited to GM varieties but to elicit information where appropriate on other restrictions on release. The CAJ during its session held on October 21, 1996, had decided to amend the text as follows:

"4.3(i) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

"Has such authorization been obtained?

Yes [ ] No [ ]

"If the answer to that question is yes, please attach a copy of such authorization."

43. The Working Party agreed to include the above as standard in all Technical Questionnaires of all Test Guidelines. Some experts of the Working Party also proposed that information on whether a variety was a GMO should be included in the information submitted for the UPOV-ROM as testing authorities which would like to use a given variety as example variety or to grow next to a candidate for comparison would be warned to ensure that the safety requirements were fulfilled.

44. The Working Party clarified that where a gene was incorporated into a variety by genetic engineering and expressed there were no special rules applicable. There was just a new trait in the variety. The method of incorporation whether by genetic engineering or by traditional technology, did not matter for distinctness purposes.

New Alleles for Certain Species

Barley

45. The Working Party noted certain difficulties in including additional alleles in the Test Guidelines for Barley due to the fact that at least for certain hordeins an additional method (Acid PAGE) had been accepted in the past which would not be able to identify the new alleles sufficiently. More discussions would be necessary before a decision could be taken. The consequence might be to allow only the SDS PAGE method which was more reliable, faster and now apparently also more discriminative.

Maize, Wheat

46. The Working Party noted that so far no changes had been proposed to the Test Guidelines for Wheat or for Maize. For maize, the present ring tests would have to be continued.

47. The expert from France expressed his concern at the continuous amendments of Test Guidelines each time a new allele was detected which each time would lead to an additional state of expression of a given characteristic. He proposed to set up an agreed procedure (beyond the presently required ring test) for the handling of these new alleles. He offered to prepare a paper for the next session of the Working Party.

Statistical Methods

Ear Rows/Drilled Plots

48. The experts from the Netherlands recalled the situation reported by him in the preceding sessions. He also referred to the different population standards applied in the Working Paper for revised Test Guidelines for Rye. The population standard should depend on how the

plants were observed and on the accuracy with which the observer made his observations. In ear rows, each ear was harvested; the characteristics expressed themselves more clearly; many more characteristics were observed. The observer observed more precisely and differences were expressed more clearly and were more obvious.

49. Others added that, if in a row one seed was an off-type, the whole row was considered an off-type, while in a plot, one seed resulted in only one off-type plant. Others stated that in rows closer observation lead to the detection of residual segregation while in plots only obvious off-types would be spotted. In plots, longer plants were detected easily, but shorter plants were not.

50. One expert wondered whether the concept of a population standard was the right concept. It was concerned of the quality of a sample and was therefore not affected by different trial lay-outs. What was done in practice at present was good and practical but the mathematical concept was wrong. In addition there was no sufficient balance between the α and β risks. This might create problems for some crops in the future.

Sequential Analysis

51. The Working Party noted an updated document (TC/32/6) on sequential analysis prepared by the Chairman of the Technical Working Party on Automation and Computer Programs (TWC) with the help of the experts from Denmark, France, Germany and the United Kingdom and noted that the Technical Committee had recommended that each of the Technical Working Parties should act in coordination with the TWC and look further into the sequential analysis method as one of the possible approaches for the future. It aimed at reducing the sample size to be used in the testing of uniformity in order to avoid the rejection of good varieties or the acceptance of bad varieties. The Working Party noted, however, that the document did give much help in achieving the original objective of using cost efficient small samples. The Working Party needed even smaller samples (e.g. 20 seeds) than even foreseen in the document.

52. Sequential analysis was therefore not at present a solution for the stated problem of reducing the high β risk encountered in practice. However, the Working Party might come back to study the sequential analysis further on a later occasion.

Image Analysis

53. The Working Party noted the report of the Subgroup Meeting on Image Analysis of the Technical Working Party for Ornamental Plants and Forest Trees (TWO) as reproduced in document TWO/29/17. The next meeting of that Subgroup would be held in Antibes, France, at the end of 1998. The Subgroup would not be limited to experts from the TWO. The main aim of the research was to achieve comparable results in the measuring of existing characteristics, despite the differing hardware and software used. So far there was no aim to obtain new characteristics. The experts from France, Germany, the Netherlands and the United Kingdom reported that in their country image analysis was already used in practice to measure some of characteristics such as the length and width of leaves, petals or other organs. In all cases it measured only characteristics already existing in the Test Guidelines. In

contrast to electrophoresis or DNA techniques, image analysis was therefore mainly an alternative tool for a task already performed using other tools. Image recording was also used to build up a database of images for other uses (e.g. prescreening).

Use of Resistance Characteristics

54. The Working Party noted the preliminary answers received to the questionnaire as reproduced in document TWO/30/11 Prov. It stated that the use of resistance characteristics should be adapted to the species concerned. Resistance characteristics should only be used if ring tests had been made to ensure comparable results. UPOV should, however, agree to a general uniform overriding principle. A situation should be avoided where decisions in one Technical Working Party have negative effects on another Working Party through the creation of a precedent. It confirmed that resistance characteristics should only be used if other characteristics failed to establish distinctness. It noted two corrections (France to receive a "Y" for question 3, ASSINSEL to receive a "Y" for question 2 for horticultural species).

Final Discussion on Draft Test Guidelines for Soya Bean (Revision)

55. The Working Party noted the draft Test Guidelines for Soya Bean (Revision) as reproduced in documents TG/80/4(proj.). It finally made the following main changes to that document:

(i) Methods and Observations: To have an additional paragraph reading: "All observations on the leaf and the flower should be made at the time of full flowering" and "Unless otherwise indicated, all observations on the plant should be made either at flowering time or at maturity."

(ii) Table of Characteristics

Characteristics

2 To receive example varieties to be given by France

5 To read: "Plant: color of hair on middle third of main stem"

7 To read: "Leaf: blistering" with the first state "absent or very weak"

9, 10, 11 To have the bracketed content deleted

15 To have "ground" inserted before "color"; thereafter a new characteristic to be inserted reading: "Seed: reaction of peroxydase" for which the experts from Argentina will supply the exact wording and the testing method

17 To have the states "same as testa (1), different to testa (2)"

18 To have the bracketed addition "50% of plants with at least one flower open"

(iii) Explanations: To have the explanations to characteristic 3 reworded as follows:

- "Layout: This characteristic should preferably be assessed in a special trial with 3 or 4 replicates of 20 plants each. Any border effect must be avoided. About 9 cm between plants in the rows.

- "Plant material: Candidate and example varieties must be grown in groups according to their earliness at maturity (characteristic 19).

- "Observation: At the beginning of flowering time (1 flower at any level of the main stem), the apex of the plant must be identified with a mark.
  At maturity (free kernels in the pod), the number of nodes between the mark and the top of the plant is counted. The average number per variety gives–in comparison with standard varieties–the state of expression of the characteristics."

In addition, the characteristic "Size of the terminal leaf" could also be considered to separate more clearly the states of expression "determinate"(Note 1) from other states. The terminal leaf on the main stem of determinate varieties is more or less equal to other leaves at lower levels. For other types, the terminal leaf is clearly smaller.

(iv) Literature: To have also the BBCH cited.

56. The experts from France and Germany would try to include in the document a growth stage code. Through a ring test also in the Annex the denomination of alleles by letters would be replaced by figures.

57. The Working Party noted with regret the discouraging experience of the United States experts in the drafting of Test Guidelines for Soya Bean and their consequential reluctance to more actively participate in the drafting of future UPOV Test Guidelines.

Discussion on Working Papers on Test Guidelines

Working Paper on Test Guidelines for Rice (Revision)

58. The Working Party noted documents TG/16/4 and TWA/24/12 prepared by experts from Spain. The experts from Spain had received some further comments from Italy, Japan and Uruguay. The experts from Brazil would send further comments to Spain before the end of the year. The experts from Spain would prepare a new draft by the end of February 1998.

Working Paper on Test Guidelines for Cotton (Revision)

59. The Working Party noted documents TG/88/3, TWA/25/11 and TWA/26/8 prepared by experts from Spain and made the following main changes in document TWA/26/8:

(i) Subject of the Guidelines: To be checked whether the Test Guidelines should apply to the whole genus or only to the species listed in the Technical Questionnaire.

(ii) Methods and Observations: To have, in paragraph 3, the standard wording with 9 off-types in 500 plants. Thereafter, to have three new paragraphs reading: "All observations on the leaf, except for the leaf color which should be observed at flowering stage should be made on the fully expanded leaf." "All observations on the boll should be made at green maturity" and "All observations on the seed bud and fiber should be made at full maturity.

(iii) Table of Characteristics

Characteristics

1 To have the words: "first day of" added to the bracket

3 To be observed as for characteristic 1 and to have the letter "M" replaced by "S"

5 To receive explanations

6-9 To have the bracketed content deleted

10-15 To have the bracketed content deleted

8 To have "first" replaced by "lowest"; to have a new characteristic added after characteristic 8 reading: "Plant: number of nodes to lowest fruiting branch" with the states "few, medium, many" and example varieties to be indicated by Spain

16 To be observed "at green maturity"

19 To receive drawings to be prepared by Greece

17-22 To have the bracketed content deleted

23 To receive a new drawing for the state "spreading" to be prepared by Spain

30 To have the order of states 3 and 4 reversed

31 To read: "Seed: weight of 100 seeds (as for 27)" with the states "low, medium, high"

33 To have the word "maximum" added

34, 35, 36 To have the asterisk provisionally deleted, to receive a method from Spain and to be reconsidered during the next session

37 To read: "Fiber: fiber length ratio" and receive explanations on how to be observed (ratio between mean length and upper half mean length)

(iv) Technical Questionnaire: To have paragraph 4 copied from the Test Guidelines for Maize.

(v) General: The experts from Greece to send missing drawings and example varieties to experts from Spain who would prepare a new draft for discussion during the next session of the Working Party.

Working Paper on Test Guidelines for *Bromus*

60. The expert from France reported that there had been no progress in addition to what had been reported in the past in documents TWA/23/13 and TWA/24/6 apart from the idea to include also *Bromus auleticus* into the Test Guidelines. He proposed to finalize the document for the three species in question with a layout as for cross-fertilized grasses despite the species being mainly self-pollinated but for the reasons explained in the previous session and partly repeated again. Two more characteristics (shape of seed, shape of panicle) and more example varieties would be added. Comments should be sent to the expert from France by the end of the year. A new document would be prepared by the end of February 1998.

Working Paper on Test Guidelines for Subterranean Clover

61. The Working Party noted documents TWA/22/8, TWA/23/6 and TWA/26/4 prepared by experts from Australia and made the following main changes in document TWA/26/4:

(i) Material Required: To require 500 g with a wording copied from the Test Guidelines for Maize.

(ii) Conduct of Tests: Paragraph 6 to use the standardized wording and 95% acceptance probability.

(iii) Methods and Observations: Paragraph 4 to read: "Unless otherwise indicated, all observations on the leaf should be made at the fourth true leaf stage. All observations on the flower should be made at commencement of flowering when 50% of the plants show at least one flower."

(iv) Grouping of Varieties: To have characteristics 24, 32 and 44 deleted as grouping characteristics, however, included in the Technical Questionnaire with the other grouping characteristics and the first grouping according to subspecies.

(v) Table of Characteristics:

Characteristics

3 To have the Notes changed to "1, 2, 3, 4, 5"

4 To have the second state read: "triangular to rounded"

5 To read: "Leaflet: green color" with the states "light, medium, dark"; thereafter a new characteristic to be inserted reading: "Leaflet: conspicuousness of mark" with the states "absent or very faint (1), faint (2), clear (3)"

6 To have the first state deleted as well as the bracketed information and to have an explanation on state 5 whether the two expressions can be observed on one single leaf or on two different leaves

7 To be deleted

8,10,13 To have the states "white, cream, light green, medium green, red, purple, black"

9 To have the states: "narrow, medium, broad"

15 To read: "Leaflet: anthocyanin flecks"; thereafter a new characteristic to be included reading: "Leaf: predominant position of anthocyanin fleck" with the states "only on upper surface (1), only on lower surface (2), on both sides (3)"

16 To read: "Leaflet: degree of anthocyanin fleck"

19 To have the first three states deleted if no example varieties can be given by Australia

20 To have "only" added to states 2 and 3

24 To have the asterisk deleted and to have explanations on the method of observation

25, 26 To receive the method of observation

28 To have the word "distribution" added

29 To have the bracketed content deleted

32 To have the word "coloration" added and in states 3, 4 and 6 the word "lower" after "between" and to have the Notes from 1 to 8

33 To have the order of states changed to "pink, pinkish red, red, purplish red, brownish purple" and to be deleted if no example varieties can be given by Australia

39, 40, 41 To have "Burr" replaced by "Fruit"

41 To be checked whether correlated with characteristic 30 in which case one of the characteristics to be deleted

44 To have the bracketed content deleted and to receive the method of storage and of determination of "hard seed"

(vi) General: The experts from Australia to provide the missing information, to add more asterisks (*), and to supply any additional information for the Technical Questionnaire, especially for paragraphs 5 and 7 before the draft would be sent to the professional organizations for comments.

Working Paper on Test Guidelines for Sunflower (Revision)

62. The Working Party noted documents TG/81/3, TWA/26/2 and the report of the Subgroup meeting. The expert from France reported that only a few comments had been received after the Subgroup meeting. More comments and discussions would be necessary. She therefore proposed to organize another Subgroup meeting. The Working Party accepted the offer from Spain to host the Subgroup on Sunflower in Spain in March 1998 in Sevilla or preferably in Madrid [after the session planned for March 10 to 12, 1998 in Madrid].

Working Paper on Test Guidelines for Tobacco

63. The Working Party noted documents TWA/25/10, TWA/25/12 and TWA/26/9 prepared by experts from Greece and several further comments to be made by experts from France and Germany. In view of the number of comments it decided not to discuss the document in the session but to ask the expert from Greece to prepare a new draft which would take note of all these comments. The draft should then be circulated to the experts from France, Germany Greece, Italy and South Africa before a final document would be prepared for the next session of the Working Party.

Working Paper on Test Guidelines for Rye

64. The Working Party noted document TWA/26/7 prepared by experts from Germany and made the following main changes in that document:

(i) Methods and Observations: To have paragraph 3 changed to read:

"For the assessment of uniformity of parental lines and single hybrids a population standard should be applied as follows:

In the case of row plots	0.5%)	with an acceptance probability of
In the case of single spaced plants:	2.0%)	at least 95%

.... (the rest of the text to remain unchanged)"

(ii) Table of Characteristics

Characteristics

2 To have the asterisk deleted
14 To have "height" replaced by "length"
18 To have the explanations deleted
20 To be observed on 60 grains

(iii) Technical Questionnaire: To have paragraph 4.1 copied from the Test Guidelines for Sunflower.

(iv) General: The expert from Germany to supply some missing information before January 10, 1998, for a draft to be sent to the professional organizations for comments.

Working Paper on Test Guidelines for Sugarcane

65. The Working Party noted that there was no draft document prepared but that the expert from Brazil had available a draft for national Test Guidelines for Sugarcane and would prefer a quick reply on whether it was in line with UPOV principles. The Working Party therefore agreed to ask the expert from Brazil in cooperation with the UPOV Office to add certain further information normally supplied in Test Guidelines and arrange the draft in the UPOV layout and circulate it to experts from Austria, Argentina, France, Mexico and South Africa for comments before the end of February 1998. Based on these comments, a revised draft would be prepared for the next session of the Working Party, if possible, by the end of March 1998.

Working Paper on Test Guidelines for Broad Bean, Field Bean

66. The Working Party noted document TWV/30/15 and paragraph 43 of document TWV/30/21. It first started to amend the Technical Notes to apply to either self-fertilized varieties (mainly broad beans) or to cross-fertilized varieties (mainly field beans). It also noted that many example varieties were mixed which were either grown in Spain or the United Kingdom. It was doubted whether they all had been grown at the same place to find out which state of expression they refer to at the given place of selection for the UPOV document. It also noted that there was no complete absence of a melanin spot (characteristic 17) on the wing. The Working Party finally concluded that it was not possible to prepare one single Test Guidelines document covering both species. Therefore the Technical Working Party for Vegetables (TWV) should prepare a separate document for broad bean while the TWA would prepare one for field bean. The difficulty still to be solved would be what to do with the hybrids between species and how to draw the dividing line. It could be established on the differences in seed weight. The type of reproduction might help but in both groups both types would occur and therefore both Test Guidelines should foresee the application for self-fertilized and for cross-fertilized varieties.

Working Paper on Test Guidelines for Opium/Seed Poppy

67. The Working Party noted document TWV/31/3 and made the following remarks or proposals for changes:

(a) There are too many characteristics.

(b) Too many characteristics have no example varieties to fix the state of expression, at least the quantitative characteristics should have example varieties (e.g. 42, 43).

(c) Too few characteristics have an asterisk (*).

(d) Drawings are missing for characteristics 2 and 13. Does characteristic 13 refer to the shape of the surface?

(e) Characteristic 5 should have an asterisk instead of characteristic 6.

Working Paper on Test Guidelines for Swede

68. The Working Party noted document TWV/31/4 and made the following remarks or proposals for changes:

(a) Why are there no generative characteristics included?

(b) Why is characteristic 15 split?

(c) In the Technical Notes, rules on uniformity are missing (e.g. a reference to the use of COYU or paragraphs 31 and 30 of TG/1/2)

(d) Characteristic 19 is missing (diameter of neck)

(e) The paragraph on "GMO" varieties should be included in the Technical Questionnaire.

Distinctness of Inbred Lines in Oil Seed Rape

69. The expert from Germany reported on a case in oil seed rape where male sterility in inbred lines could be restored in one case and not in another case. The lines would otherwise not be distinguishable through morphological characteristics. He asked whether the Working Party considered that difference to be sufficient for distinctness between the two lines. Several experts referred to other cases where distinctness could only be observed through the reaction from outside as for example in the case of resistance to diseases. In the case of diseases the reaction would, however, be visible on the same generation, while the restoring of fertility could be observed only in the following generation. It was important to obtain the views of breeders and also refer the question to the Subgroup of the Administrative and Legal Committee (CAJ). The expert from Germany would prepare a paper for the next session.

Uniformity in Oil Seed Rape

70. The expert from France reported on a case where in inbred lines and in three-way hybrids half of the plants would show male sterility and half would be fertile. How should the uniformity of such lines or hybrids be judged? The experts from the breeders clarified that in the case in question half of the plants could easily be destroyed by a herbicide. The judgment should therefore be made after the application of the herbicide.

71. The expert from Germany reported on a study on uniformity between inbred lines, single hybrids and three-way hybrids in oil seed rape. In front of a given plot in the field it was not possible to say to which of the above groups the plants belonged. This was also reflected in the results shown on several diagrams prepared by him using the leaf length, leaf width and total plant length. He questioned to which of the groups a relative uniformity or a given population standard should be applied. Another possibility would be to treat them all in

the same way and apply the COYU analysis to all groups. He would prepare a paper for the next session of the Working Party.

Status of Test Guidelines

72. The Working Party agreed that the draft Test Guidelines for Soya Bean should be sent to the Technical Committee for final adoption and that the draft Test Guidelines for Rye, Subterranean Clover and Sunflower should be sent to the professional organizations for comments. It also agreed to rediscuss the Test Guidelines for the other species mentioned on the agenda at its next session.

Future Program, Date and Place of Next Session

73. At the invitation of the expert from France, the Working Party agreed to hold its twenty-seventh session at Angers, France, from June 23 to 26, 1998. During the session, the Working Party planned to discuss the following items:

(a) Short reports on special developments in plant variety protection in agricultural crops (oral reports)

(b) Important decisions taken during the last sessions of the TWA, the Technical Working Party on Automation and Computer Programs (TWC) and the Technical Committee

(c) Prescreening of varieties (NL to prepare a document).

(d) Use of electrophoresis in cross-fertilized varieties (report from the Subgroup)

(e) New alleles in cereals (FR to prepare a document on the procedure for maize and barley)

(f) Uniformity criteria in measured characteristics of different categories of varieties (DE to prepare a document by February 28, 1998)

(g) Distinctness testing in Oil Seed Rape (different male sterility (DE to prepare a document by February 28, 1998)

(h) Uniformity testing in Oil Seed Rape (50% sterility) (France to prepare a document)

(i) Final discussion on draft Test Guidelines for

- Rye
- Subterranean Clover
- Sunflower

(j) Discussion on working papers on Test Guidelines for:

- *Bromus* (TWA/23/13, TWA/24/6, FR to prepare a document by February 28, 1998)
- Cotton (Revision) (TG/88/3, TWA/26/8, ES to prepare a new document by January 1, 1998)
- Field Bean (TG/8/ , TWV/30/15, GB to prepare document by February 28, 1998)
- Fodder Raddish (DE to prepare a document by February 28, 1998)
- Industrial Chicory (TWV/30/17)
- Lotus (UY to prepare a document by February 28, 1998)
- Rice (Revision) (TG/16/4, TWA/24/12, ES to prepare a new document by February 28, 1998)
- Sugarcane (BR to prepare a document by January 1, 1998)
- Tobacco (TWA/26/9; GR to prepare a new document)
- Turnip, Turnip rape (TWV/30/17)
- White Mustard (DE to prepare a document by February 28, 1998)

Subgroups

74. A Subgroup on Sunflower will meet in March 1998 in Spain [after the session planned to be held in Madrid from March 10 to 12, 1998]. A Subgroup on Electrophoresis in Ryegrass will meet before or after the 1998 session of the Technical Committee in Geneva, Switzerland [after the session fixed for April 3, 1998].

Visits in Uruguay

75. In the morning of November 12, 1997, the Working Party visited the Experimental Station "*La Estanzuela*" of the National Institute of Agricultural Research (INIA) near Colonia where it was received by its director who gave an introduction to the work done by the Institute and its five regional experimental stations which were governed by a board composed half of representatives of the government and half of representatives of the farmers. The financing was also done half by the government and half by farmers through a levy of 0.4% on all agricultural products. The Variety Research Program was of main interest to the Working Party and after an introduction to the program the Working Party visited the trial fields. In Uruguay, VCU testing is compulsory for agricultural crops but there is no minimum requirement and all tested varieties enter the list. It is left to the market and the variety owner to determine how long the varieties stay on the list. The majority of varieties, however, do not stay for longer than five years on the list.

76. In the afternoon, the Working Party visited the National Seed Institute (INASE) which also handles the plant variety protection system and the testing of varieties. After an introduction to the work given by Mr. Carlos Gomez, the Working Party visited the offices and the testing plots for varieties of fescue, barley, bromus, lotus, lucerne, oat, ryegrass and wheat. INASE works in close cooperation with INIA and part of the experiments (VCU trials) are done by INIA on behalf of INASE. The testing not only comprises DUS tests for plant variety protection, but also other tests as post control varieties.

Visits in Argentina

77. Taking advantage of its presence in the region, the Working Party made official visits to Argentina on November 17 and 18, 1997, after the closing of the session in Montevideo, Uruguay. Official visits to the Argentine Plant Variety Protection Office and its trial fields were foreseen on November 17 and 18, 1997. On November 17 the Working Party was welcome by Mrs. Adelaide Harries, President of the National Seed Institute (INASE) and received detailed information on the structure and task of the Institute and its different directions by Mr. Raimundo Lavignolle, Director of the Plant Varieties Register. More details and especially the diagrams and tables presented in overhead projection are reproduced in Annex II to this report. The information was followed by a visit to the facilities of the Plant Variety Directorate, the Seed Certification and Trade Control Directorate, the Seed Quality Directorate and the Biomolecular and Electrophoresis Techniques Laboratories. On November 18, 1997, the Working Party visited the Agronomy Faculty of the Moron University about 40 km from Buenos Aires where it was received by the Rector Dr. Mario Almando Mena and the Dean of the Agronomy Faculty, Ing. George Raul Ottone, and visited the field plots for DUS testing, the reference collections grown and post control tests.

78. *This report has been adopted by correspondence.*

[Two annexes follow]

ANNEX I

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* Arturo REBOLLO, Instituto Nacional de Semillas (INASE), Avda. Millan 4703, C.P. 12900, Montevideo (tel. +598-2-309 79 24 or 309 78 32, fax +598-2-309 60 53)

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* Susana CASSOO ENRICO (Mrs.), Regional E-N de INASE, Estación Experimental "Real de San Carlos", CC. 33 000 (fax +598-45-23 551)

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William Lee BURNQUIST, Plant Science Manager, Copersucar, Cooperativa de Produtores de Cana, Açúcar e Álcool do Estado de São Paulo LTDA, Centro de Technologia Copersucar. Fazenda Santo Antonio, s/n° - Barrio Santo Antonio,. Caixa Postal 162, 13400-970 Piracicaba SP (tel. +55-19-429 8180, fax +55-19-429 8388, e-mail: william@azul.ctc.com.br)

José ROZALVO ANDRIGUETO, EMBRAPA/SPSB, Caixa Postal 0403-15, CEP 70.770.901, Brasilia (tel. +55-61-347 6322, fax +55-61-347 96 68, e-mail: rozalvo@sede.spsb.embrapa.br)

Vera Lucia MACHADO (Mrs.), Ministerio da Agricultura, Esplanada, Bloco D, Anexo B, Sala 43 A, Brasilia (tel. +55-61-218-2557, fax +55-61-224-5647)

GREECE

* Apostolina LIOUSSA (Mrs.), Ministry of Agriculture, Variety Research Institute of Cultivated Plants, 574 00 Sindos - Thessaloniki (tel. +30-31-799 392 or 799 684, fax +30-31-799 392)

III. EXPERTS

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Bert SCHOLTE, Cebeco Zaden, B.V. Postbus 10000, 5250 GA Vlijmen, Netherlands (tel. +31-73 51 88 555, fax +31-73 51-88 666)

* Dirk THEOBALD, Community Plant Variety Office, B.P. 2141, F-49021 Angers, France (tel. +33-2 41.36 84 50, fax +33-241 36 84 60)

* Marcantonio VALVASSORI, Administrateur principal, Commission européenne, Direction générale de l'agriculture, 84 Loi 84 1/7, 200, rue de la Loi, 1049 Bruxelles, Belgique (tel. +32-2-295 69 71, fax +32-2-296 9399, e-mail: marcantonio.valvassori@dg6.cec.be)

IV. OFFICER

* Aubrey BOULD, Chairman

V. OFFICE OF UPOV

* Max-Heinrich THIELE-WITTIG, Senior Counsellor, 34, chemin des Colombettes, 1211 Geneva 20, Switzerland (tel. +41-22-338 9152, telex 412 912 ompi ch, fax +41-22-733 54 28, e-mail: thiele.upov@wipo.int, Web site: http://www.upov.int)

[Annex II follows]

ANNEX II

INFORMATION ON THE STRUCTURE AND TASK
OF THE NATIONAL SEED INSTITUTE (INASE)
OF ARGENTINA

Ministerio de Economia
y Obras y Servicios Públicos
Secretaria de Agricultura,Pesca y Alimentación
Instituto Nacional de Semillas

INSTITUTO NACIONAL DE SEMILLAS.
ARGENTINA.

AUTORIDADES

PRESIDENTA:	ING. AGR. ADELAIDA HARRIES
DIRECTORA DE CALIDAD:	ING. AGR. MONICA INES MORENO
DIRECTOR DE REG. DE VARIEDADES	ING. AGR. RAIMUNDO LAVIGNOLLE
DIRECTORA DE CERTIFICACION Y CONTROL	ING. AGR. MUNCHA DIAZ CANO
DIRECTORA DE ASUNTOS JURIDICOS	DRA. CARMEN GIANNI
DIRECTOR DE SERVICIOS ADMINISTRATIVOS	CONT. MARIO LUIS CANTISANI
AUDITORIA INTERNA	ING. AGR. ALICIA LEDE

DIRECTION OF PLANT VARIETIES REGISTER
PASEO COLON 922 3º PISO OF. 347
(1063) BUENOS AIRES - ARGENTINA
PHONE: 0054-1-349-2444/45
FAX : 0054-1-349-2417

DIRECTOR: ING. AGR. RAIMUNDO LAVIGNOLLE

DIVISION VEGETABLES: ING. AGR. JORGE R. TORRES

DIVISION OIL CROPS: ING. AGR. ULISES E. MITIDIERI

DIVISION FORAGES AND CEREALS: ING. AGR. ALBERTO H. M. BALLESTEROS

DIVISION FRUITS, FOREST TREES, AROMATICS AND ORNAMENTALS: ING. AGR. SUSANA CIANIS

DIVISION STATISTICS AND COMPARATIVE TRIALS: ING. AGR. ISABEL BOCCALONI

DIVISION ADMINISTRATIVE: Mrs. ANALIA A. PERRONI

Ministerio de Economía
y Obras y Servicios Públicos
Secretaría de Agricultura, Ganadería, Pesca y Alimentación
Instituto Nacional de Semillas

CERTIFICATION AND CONTROL SEEDS OFFICE

RESPONSABLE: ING. MUNCHA DIAZ CANO
PHONE: 54-01-3492426

SECTION:
1- NATIONAL AND INTERNATIONAL CERTIFICATION OF VARIETAL IDENTIFY
UNDER DOMESTIC RULES
O.E.C.D RULES
A.O.S.C.A RULES
EXPORT DESTINATION
RESPONSABLE: ING. SILVIA SUNKOWSKY
PHONE: 54-01-349 2428

2- TRADE CONTROL
RESPONSABLE: ING.RAMIRO DE LUCA
PHONE: 54-01-349 2419

3- ACCREDITATION PROYECT
RESPONSABLE: ING. DIEGO MAC GAUL
PHONE: 54-01-349 2427

4- POTATE AND VEGETABLE CERTIFICATION
RESPONSABLE: ING. GABRIEL SALADRIGAS
PHONE: 54-01-349 2427

5- NURSERY PLANTS
RESPONSABLE: ING. LEANDRO MONTANE
PHONE: 54-01-061-309470

6- TAGS OFFICE
RESPONSABLE: MRS. LUCIA LAGOS
PHONE: 54-01-349 2418

7- NATIONAL REGISTER OF TRADERS AND CERTIFICATION SEEDS

Ministerio de Economía
y Obras y Servicios Públicos
Secretaría de Agricultura, Ganadería, Pesca y Alimentación
Instituto Nacional de Semillas

RESPONSABLE: MRS.PAULA ALZAMENDI
PHONE: 54-01-349 2427

8- IMPORT AND EXPORT SEED OFFICE
RESPONSABLE: MISS GLORIA GOMEZ
PHONE: 54-01-349 2419

DIRECCION DE CALIDAD
LABORATORIO CENTRAL DE ANALISIS DE SEMILLAS
PASEO COLON 922 - 4° PISO
Tel.: 349-2435 / 2496 / 2077 / 2034.
(1063) - BUENOS AIRES - ARGENTINA

DIRECTORA:	ING. AGR. MONICA INES MORENO.
AREA GERMINACIÓN:	ING. AGR. ALBERTO NICOLAS ALMOÑO. SRA. TECNICA SUSANA GRACIELA LOPEZ.
AREA PUREZA:	SR. TECNICO MARIO REY MIRANDA. SR. TECNICO JUAN CARLOS MARTINEZ.
AREA ADMINISTRATIVA:	SR. ALEJANDRO MONTES.
AREA PATOLOGIA:	ING. PATRICIA ARIAS. ING. HECTOR PALAZZO. LIC. SANDRA DURMAN
AREA ELECTROFORESIS	LIC. SANDRA MARIA GIANCOLA. SR. TECNICO MATIAS LANGAN ING. CELIA NEGRI.

Ministerio de Economía
y Obras y Servicios Públicos
Secretaría de Agricultura, Ganadería, Pesca y Alimentación
Instituto Nacional de Semillas

DIRECCION DE CALIDAD

PERSONAL DEL LABORATORIO DE MARCADORES MOLECULARES

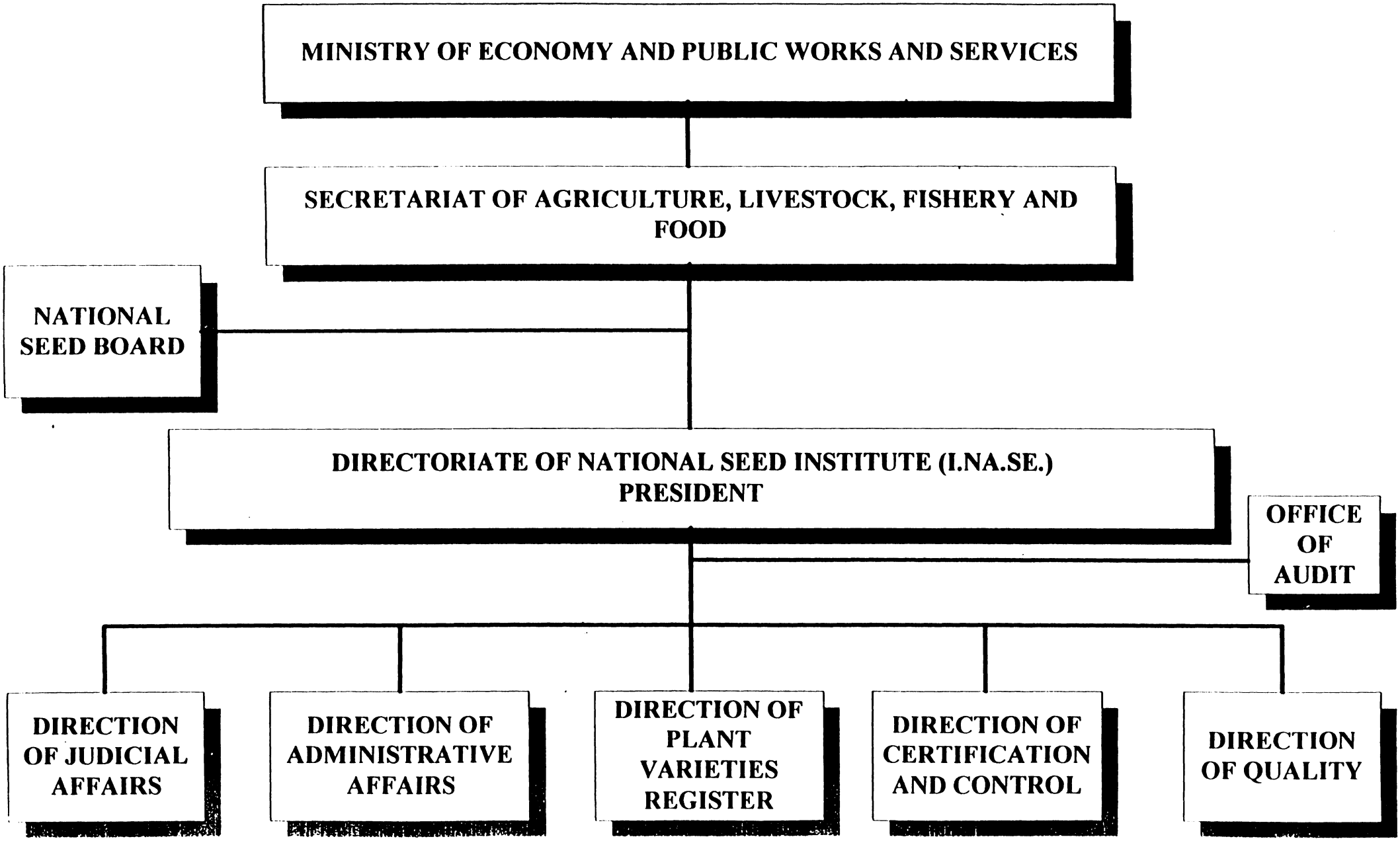
JEFA DEL LABORATORIO: Lic. Ciencias Biologicas , Sandra Giancola

TECNICOS: Matías Langan (técnico laboratorio, est.agronomía)

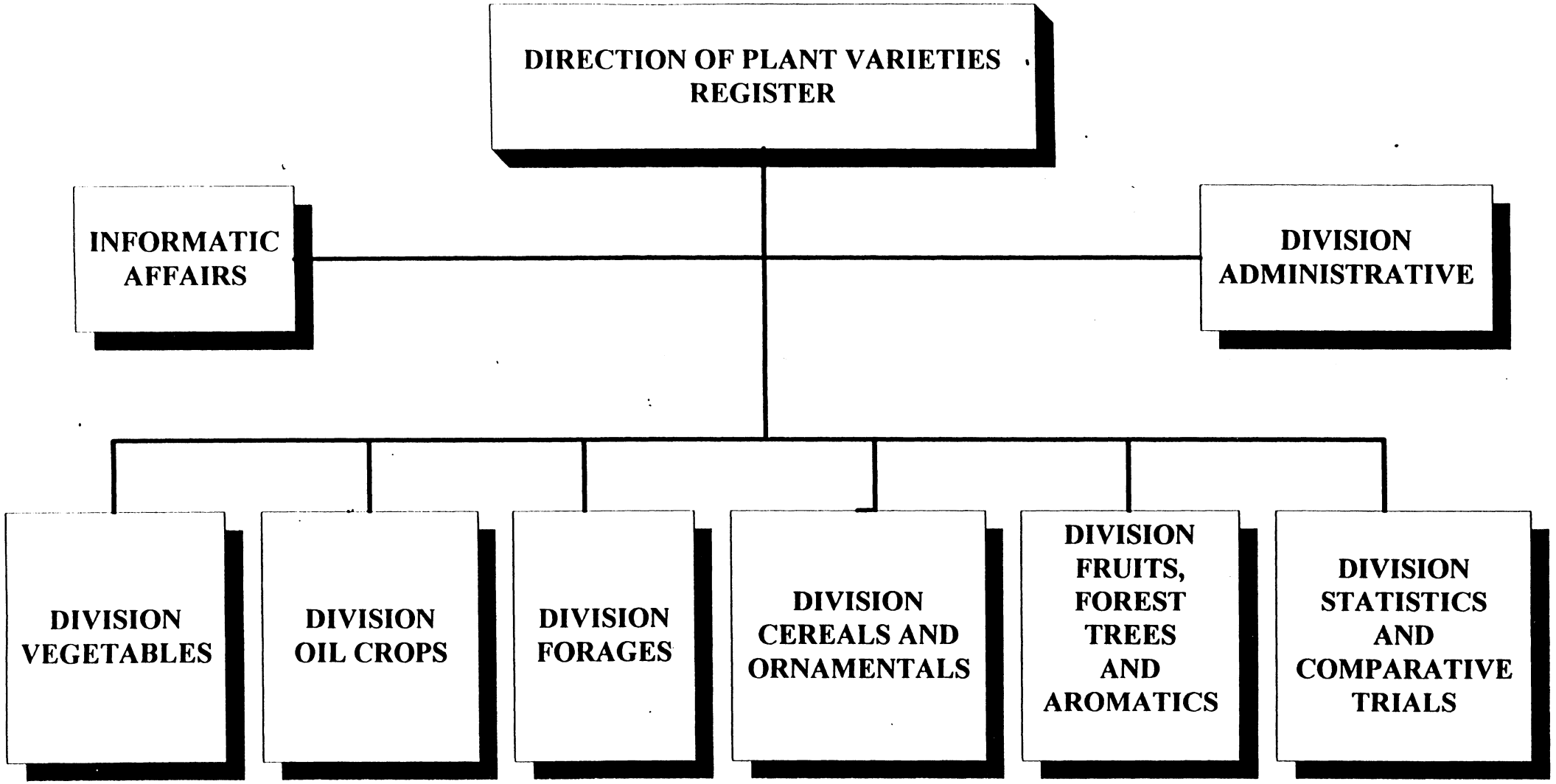
Celia Inés Negri Viola (técnica Univ. en Producción Agropecuaria)

Viviana de la Cruz (tècnica laboratorio, est. Agronomía)

MANTENIMIENTO: Ana Nunez (Personal limpieza especializada)


MINISTRY OF ECONOMY AND PUBLIC WORKS AND SERVICES
SECRETARIAT OF AGRICULTURE, LIVESTOCK, FISHERY AND FOOD
NATIONAL SEED BOARD
DIRECTORIATE OF NATIONAL SEED INSTITUTE (I.NA.SE.) PRESIDENT
OFFICE OF AUDIT
DIRECTION OF JUDICIAL AFFAIRS
DIRECTION OF ADMINISTRATIVE AFFAIRS
DIRECTION OF PLANT VARIETIES REGISTER
DIRECTION OF CERTIFICATION AND CONTROL
DIRECTION OF QUALITY

YEAR 1997


DIRECTION OF PLANT VARIETIES REGISTER
INFORMATIC AFFAIRS
DIVISION ADMINISTRATIVE
DIVISION VEGETABLES
DIVISION OIL CROPS
DIVISION FORAGES
DIVISION CEREALS AND ORNAMENTALS
DIVISION FRUITS, FOREST TREES AND AROMATICS
DIVISION STATISTICS AND COMPARATIVE TRIALS

SEED ACT Nº 20.247/73

The purposes of this law are:

- To promote efficient activities about **production** and **marketing** seeds.

- To provide farmers with a guarantee of the **identity** and **quality** of the seed they can acquire.

- To **protect property** in phytogenetics creations.

CHRONOLOGY	DATE
* SEED ACT Nº 20.247	March 30 th., 1.973
* FIRST REGULATORY DECREE Nº 1.995	August 28 th., 1.978
* SECOND REGULATORY DECREE Nº 50	January 1 st., 1.989
* THIRD REGULATORY DECREE Nº 2.183	November 1 st., 1.991
*** I.NA.SE.**	
CREATION DECREE Nº 2.817	December 30 th., 1.991
* ARGENTINA BECAME PARTY TO THE UPOV 1978 ACT (ACT Nº 24.376, October 25 th.,1.994)	December 25 th., 1.994

INASE
INSTITUTO NACIONAL DE SEMILLAS

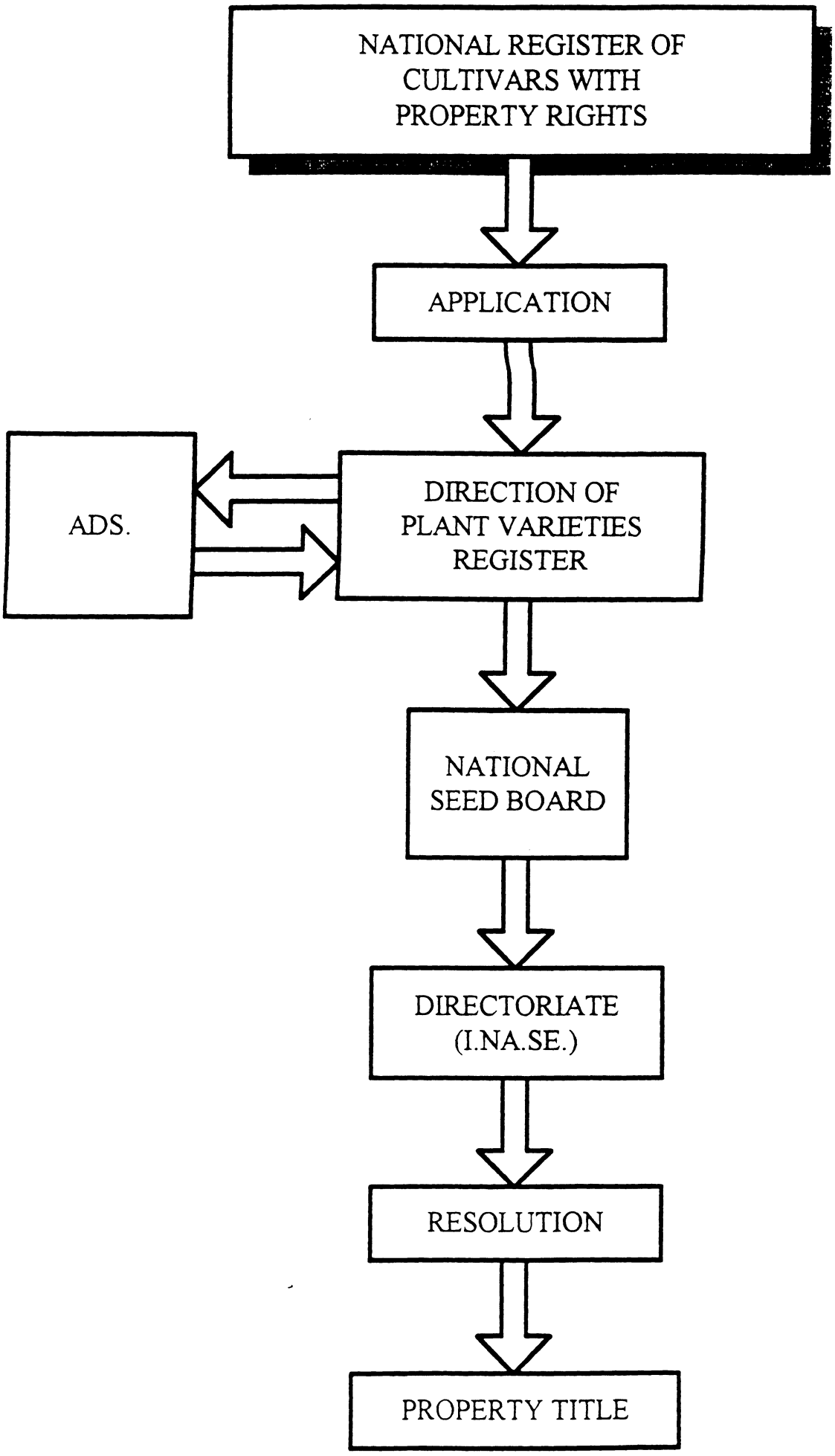
Harmonization between UPOV act 1.978 and our Law

* Right to National Treatment.
* Novelty
* Period of protection.
* Distinctness, Homogeneity, Stability.
* Variety denomination.

Institutional reorganization

* NATIONAL SEED INSTITUTE (I.NA.SE.) with **economic** and **financial autonomy.**

INASE
INSTITUTO NACIONAL DE SEMILLAS


NATIONAL REGISTER OF CULTIVARS WITH PROPERTY RIGHTS
APPLICATION
ADS.
DIRECTION OF PLANT VARIETIES REGISTER
NATIONAL SEED BOARD
DIRECTORIATE (I.NA.SE.)
RESOLUTION
PROPERTY TITLE

FORAGES

ANNUAL RYEGRASS
BARLEY GRASS
BRISTLE OAT
BROMUS AULETICUS
BROMUS PERENNIS
BULBOUS CANARYGRASS
COCKSFOOT
DALLISGRASS
LESPEDEZA SERICEA
LOTUS SUBBIFLORUS
LOTUS TENNUIS
LUCERNE
MILLET
PERENNIAL RYEGRASS
RED CLOVER
RESCUE GRASS
SORGHUM
TAAL FESCUE
TRICEPIRO
TRITICALE
WHITE CLOVER

INDUSTRIAL CROPS

COTTON
HOPS
SORGHUM TECHNICUM
STEVIA REBAUDIANA
TOBACCO

VEGETABLES

ADZUKI
ARTICHOKE
BEAN
CARROT
CHICORY
GARLIC
LENTIL
LETTUCE
ONION
PEA
PEPER
POTATO
RADISH
SQUASH

OIL CROPS

GROUNDNUT
RAPE
SAFFLOWER
SOYBEAN
SUNFLOWER
SUNFLOWER (INBRED LINES)

CEREALS

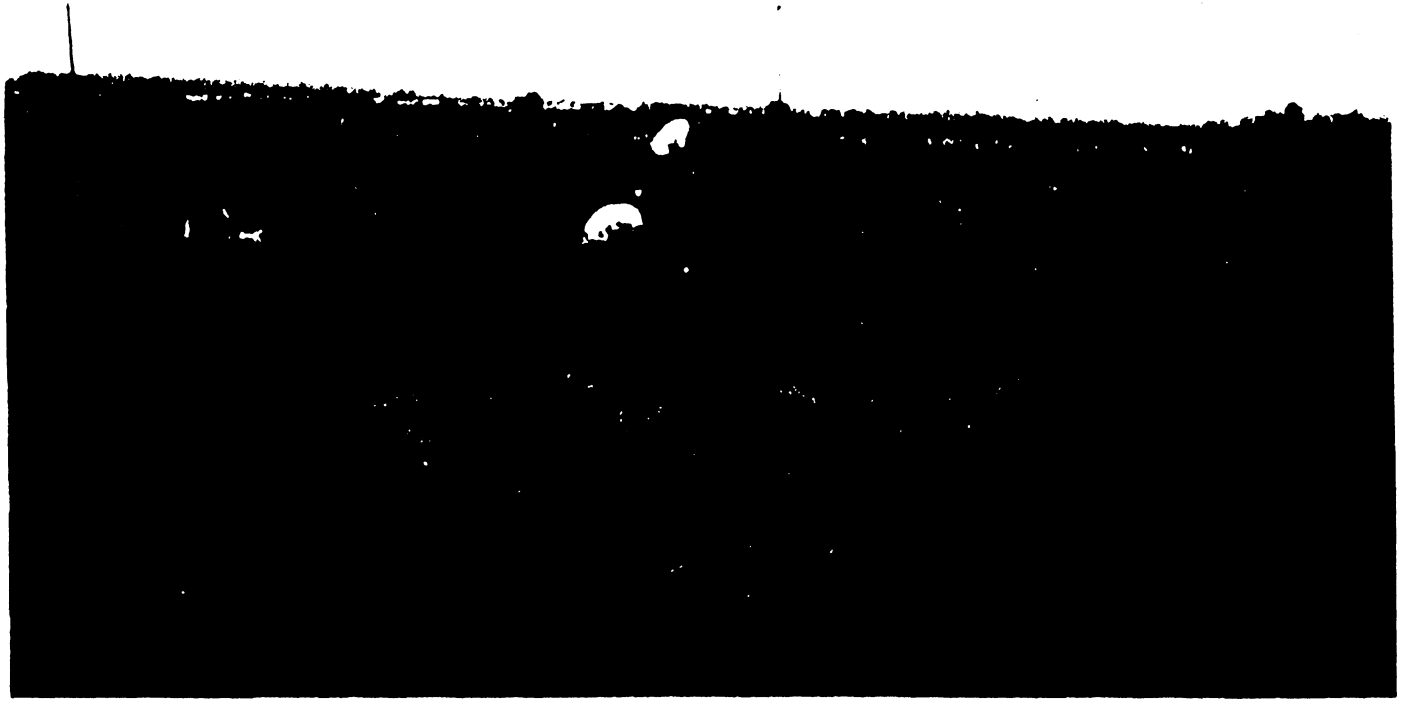
BARLEY
BREAD WHEAT
DURUM WHEAT
MAIZE
MAIZE (INBRED LINES)
RICE
RYE
SORGHUM
SORGHUM (INBRED LINES)
WHITE OAT
YELLOW OAT

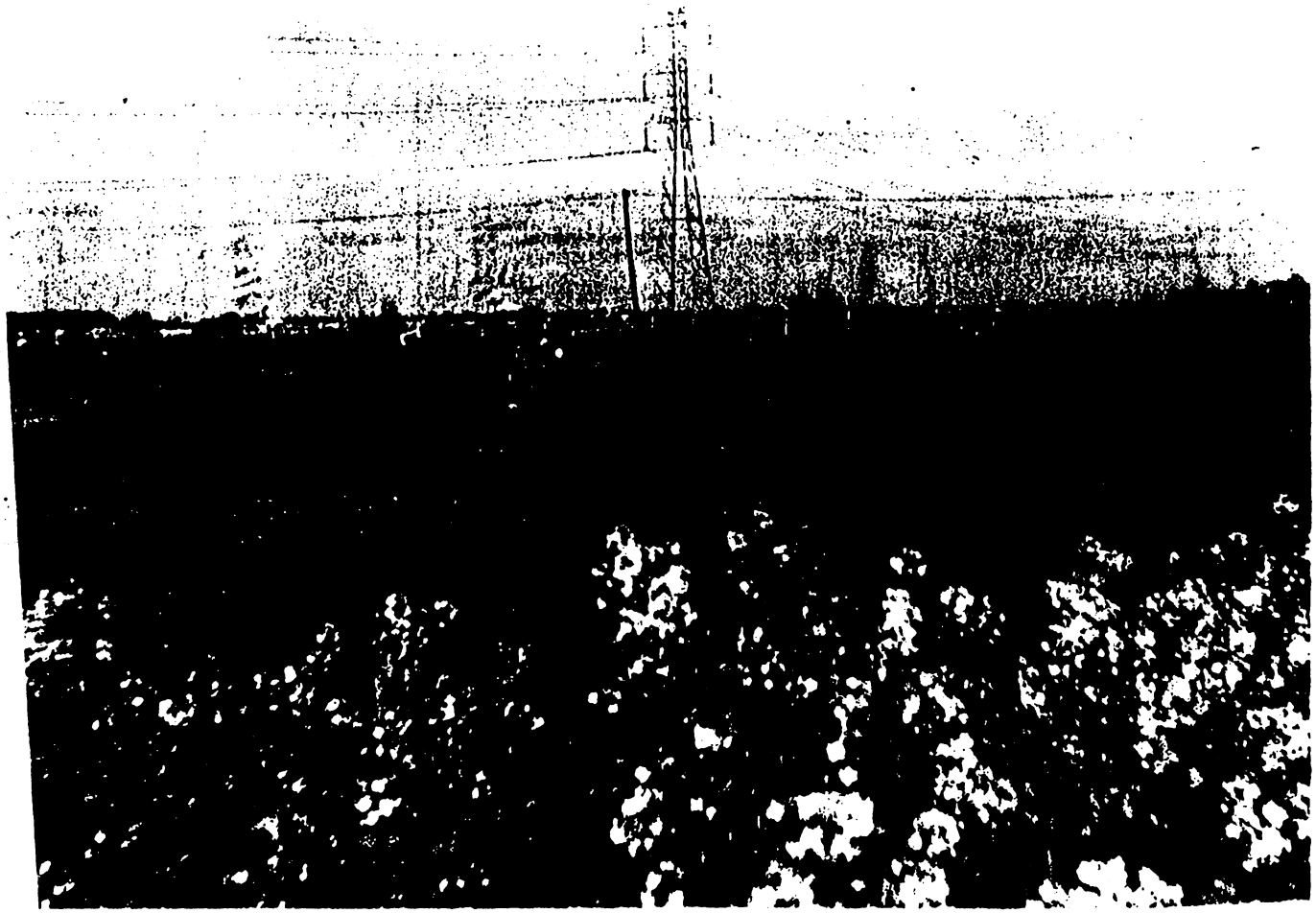
FRUITS

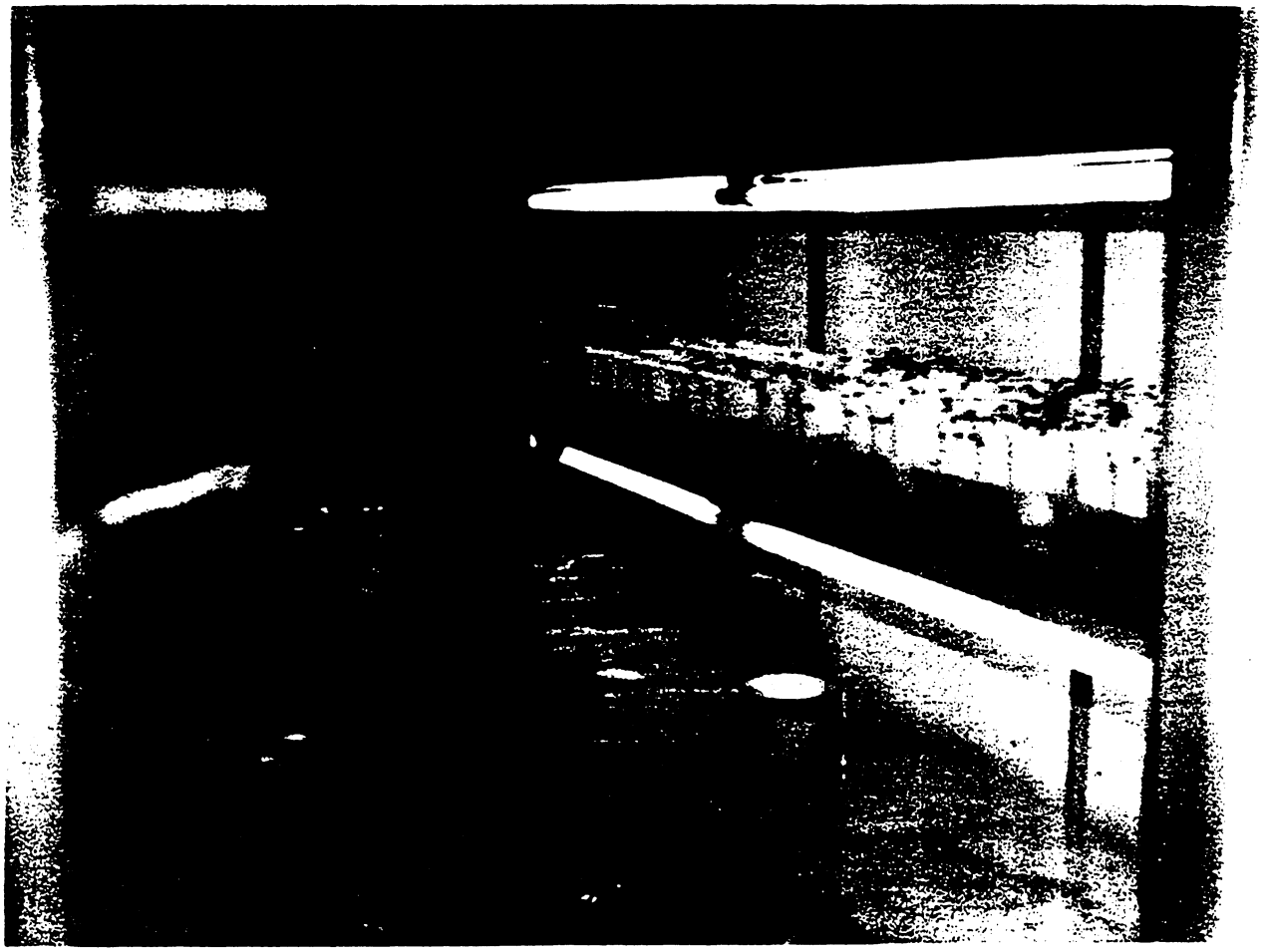
GRAPE FRUIT
JAPANES PLUM
NECTARINE
PEACH
PEAR
STRAWBERRY
SWEET ORANGE

AROMATICS

CHAMOMILE







SUPERFICIE SEMBRADA

	1989/90	1996/97	VARIACIÓN
CEREALES Has.	11.635.480	14.932.005	28.3 %
OLEAGINOSAS Has.	8.670.400	10.126.500	16.8 %
TOTAL Has	21.072.380	26.271.500	24.7 %

PRODUCCIÓN DE GRANOS

	1989/90	1996/97	VARIACIÓN
CEREALES Tn..	19.095.470	35.117.000	83.9 %
OLEAGINOSAS Tn..	15.324.700	16.407.000	7.1 %
TOTAL Tn.	35.550.965	52.834.000	48.6 %

ARGENTINA HOY

1°
EXPORTADOR MUNDIAL DE ACEITE DE GIRASOL
EXPORTADOR MUNDIAL DE HARINA DE GIRASOL
EXPORTADOR MUNDIAL DE ACEITE DE SOJA
EXPORTADOR MUNDIAL DE PERA
PRODUCTOR MUNDIAL DE JUGO DE LIMON

2°
PRODUCTOR MUNDIAL DE LIMONES FRESCOS
EXPORTADOR MUNDIAL DE MAIZ
EXPORTAOREXPORTADOR MUNDIAL DE HARINA DE SOJA

3°
PRODUCTOR MUNDIAL DE JUGOS CONCENTRADOS DE POMELO Y MANZANA

4°
EXPORTADOR MUNDIAL DE ALGODÓN

5°
EXPORTADOR MUNDIAL DE TRIGO
EXORTADOR MUNDIAL DE HARINA DE TRIGO

1900-30

GRAN CRECIMIENTO ECONÓMICO Y SOCIAL

MODELO LIBERAL-AGROEXPORTADOR

30´s

MEJORAMIENTO DE TRIGO MAIZ y GIRASOL

INTENTO DE LEY TIPO PLANT PATENT USA: NO PROSPERÓ

PROBLEMAS DE CALIDAD EN TRIGO

05/10/35

LEY DE GRANOS (Ley 12253)

CAPITULO: Fomento de la Genética

1935 LEY 12253 Cap. FOMENTO DE LA GENÉTICA

SISTEMA DE FISCALIZACIÓN

DIV. De GRANOS

TRIBUNAL DE FISCALIZACIÓN

1° INSC. PROVISORIA

SOLO PUEDE COMERCIALIZAR EL CREADOR

R.O.E.T. X 3 AÑOS

RECHAZO

INSC. DEFINITIVA

ESBOZO DE R.N.C.
(Listado Nacional)

ESBOZO DE PROPIEDAD

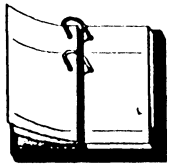
50´s-60´s

HIBRIDOS

MAIZ

SORGO

GIRASOL (+ TARDE)



DESARROLLO Y LIBERACION DE LINEAS POR EL I.N.T.A.

RADICACIÓN DE EMPRESAS EXTRANJERAS CONSOLIDAN EL DESARROLLO

FIN 60´s

NUEVA REALIDAD

NECESIDAD DE MAYORES INVERSIONES EN MEJORAMIENTO VEGETAL

GRAN % MERCADO SIN CONTROL

LEY 20.247

CONASE

ESTÁN REPRESENTADOS
TODOS LOS SECTORES

SENASE

REGISTRO Y
PROPIEDAD

CERTIFICACIÓN Y
COMERCIO

CONTROL DE CALIDAD

DERECHO DE PROPIEDAD

SE PUEDEN PROTEGER
TODAS LAS ESPECIES

PERTENECE AL CREADOR

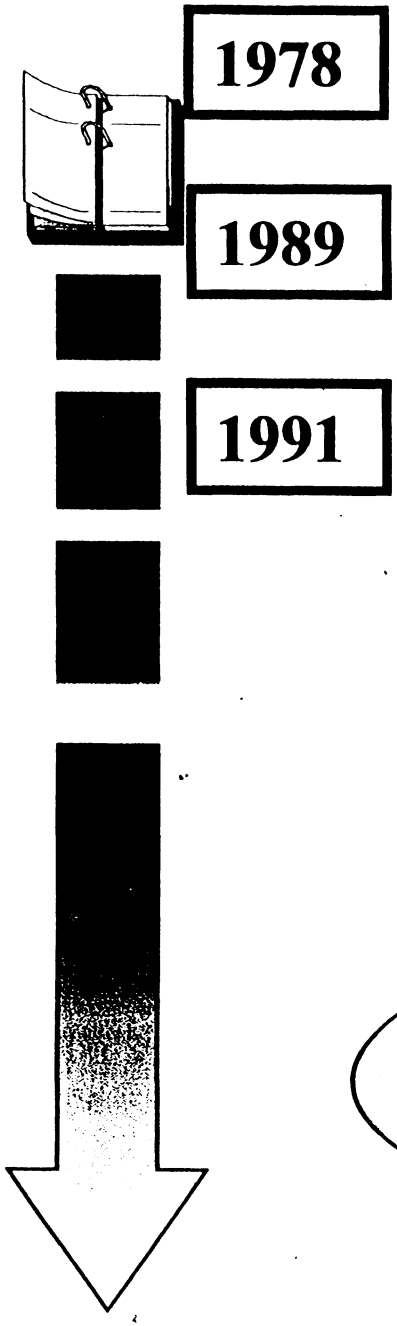
LA NUEVA VARIEDAD PUEDE
SER USADAPARA CREAR
OTRAS NUEVAS

EXCEPCIÓN DEL
AGRICULTOR

CREA EL R.N.P.C.

DURACIÓ 20 AÑOS

REQUISITOS = D.H.E.



1978 — **DTO. 1995/78 - DURACIÓN 12 - 15 - 20 AÑOS**

1989 — **DTO. 50/89 - DURACIÓN 15 - 20 AÑOS**

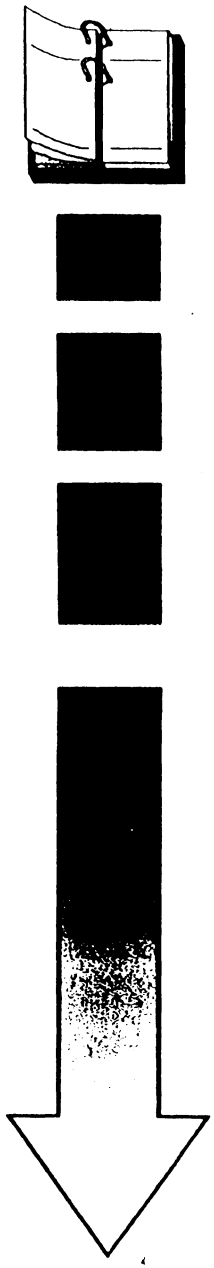
1991 — **DTO. 2183/91 - DURACIÓN 20 AÑOS**

ALCANCES DEL D.O.

DTO. 2817/91

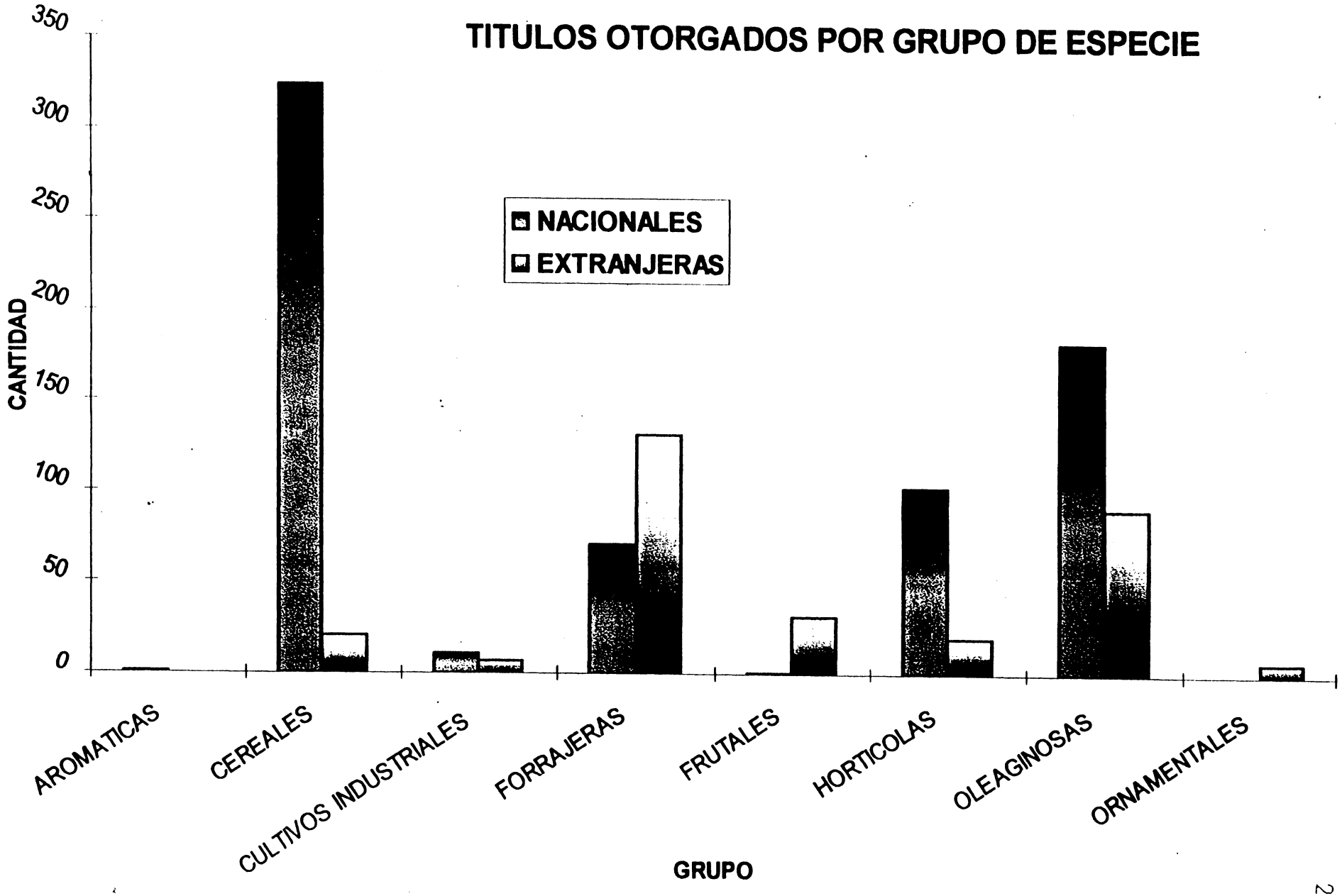
INASE

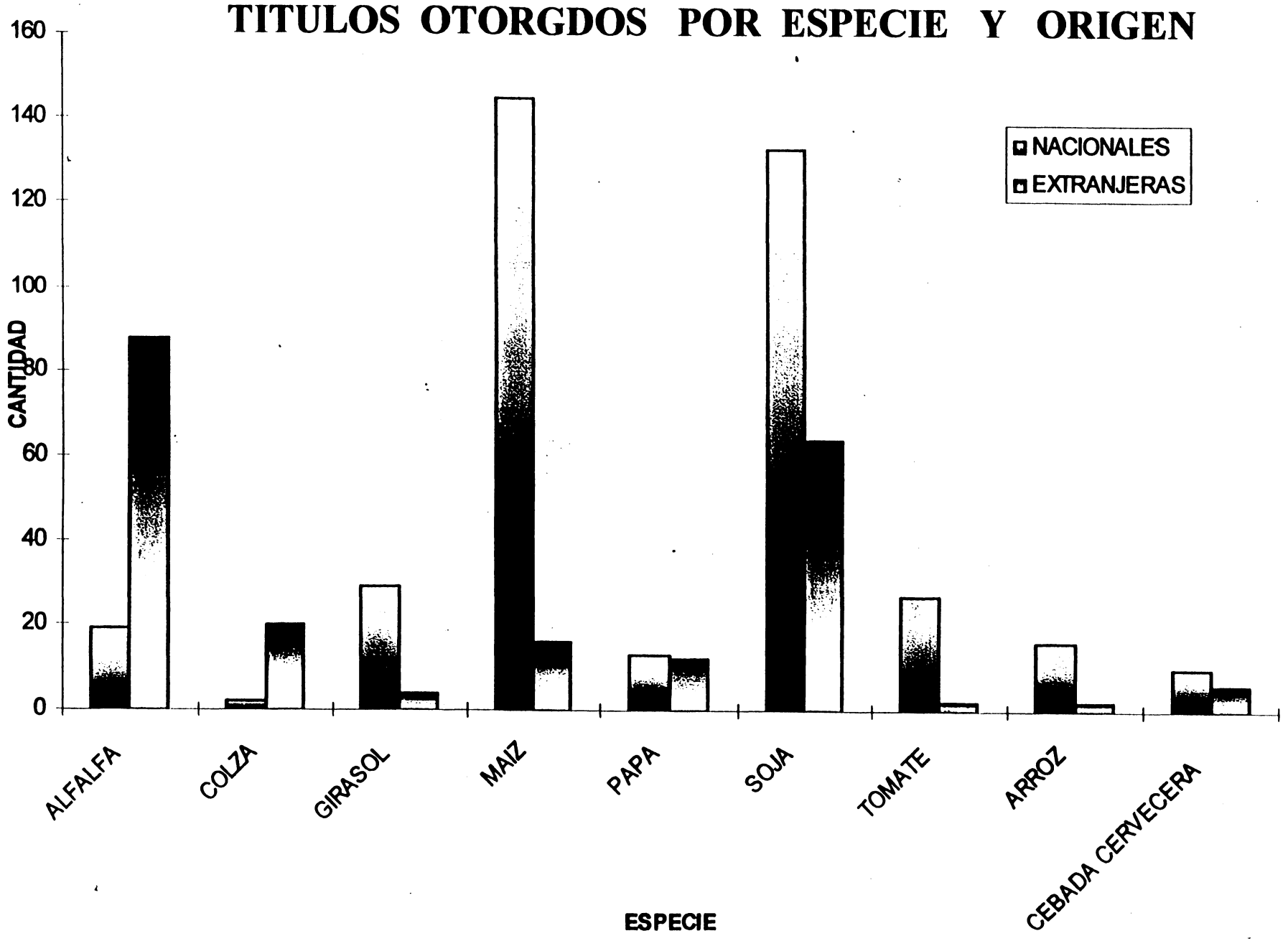
- **CONDUCIR RNC y RNPC**
- **CONTROL DE LA PRODUCCIÓN Y CALIDAD**
- **PODER DE POLICIA**
- **AUTOFINANCIARSE**



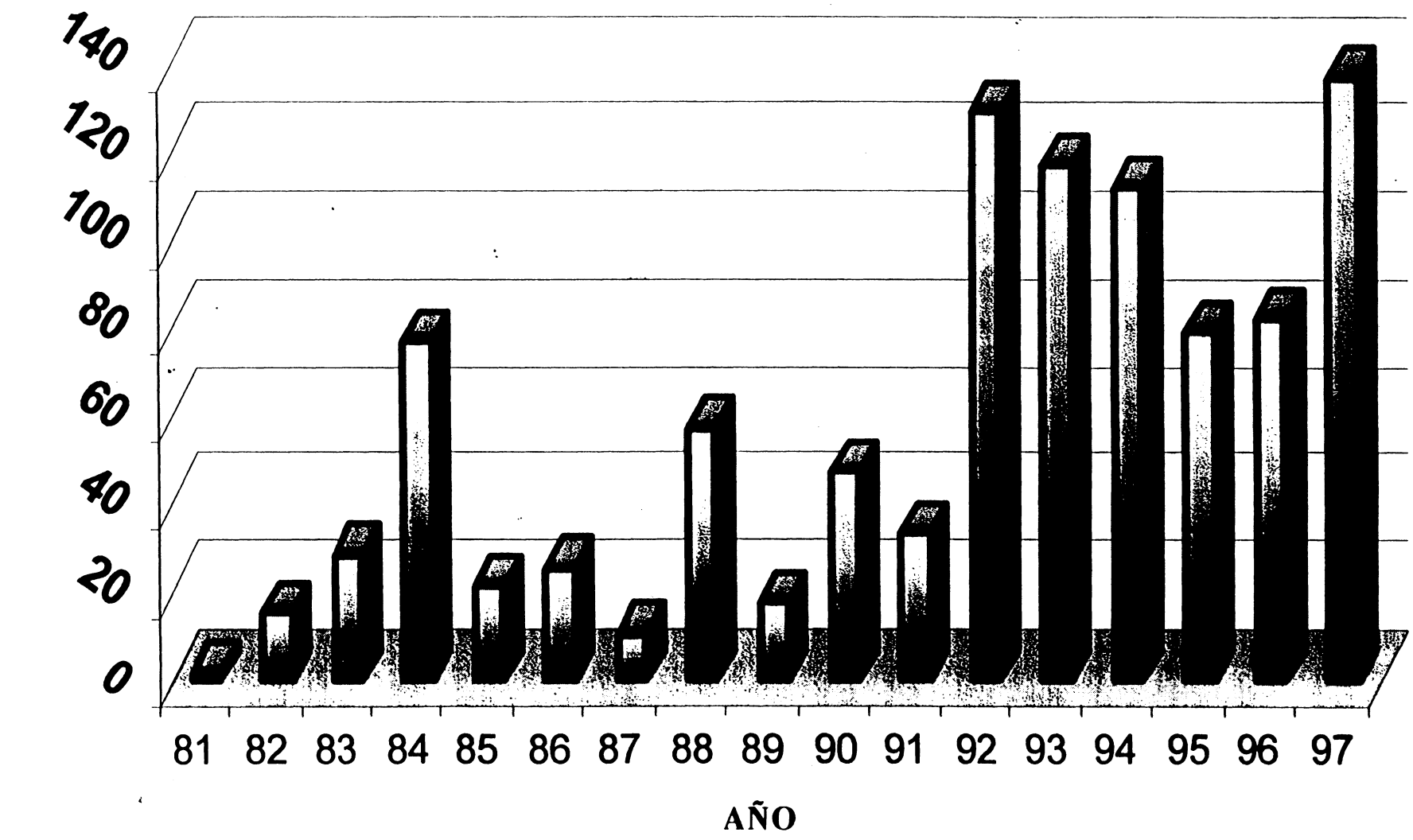
1994

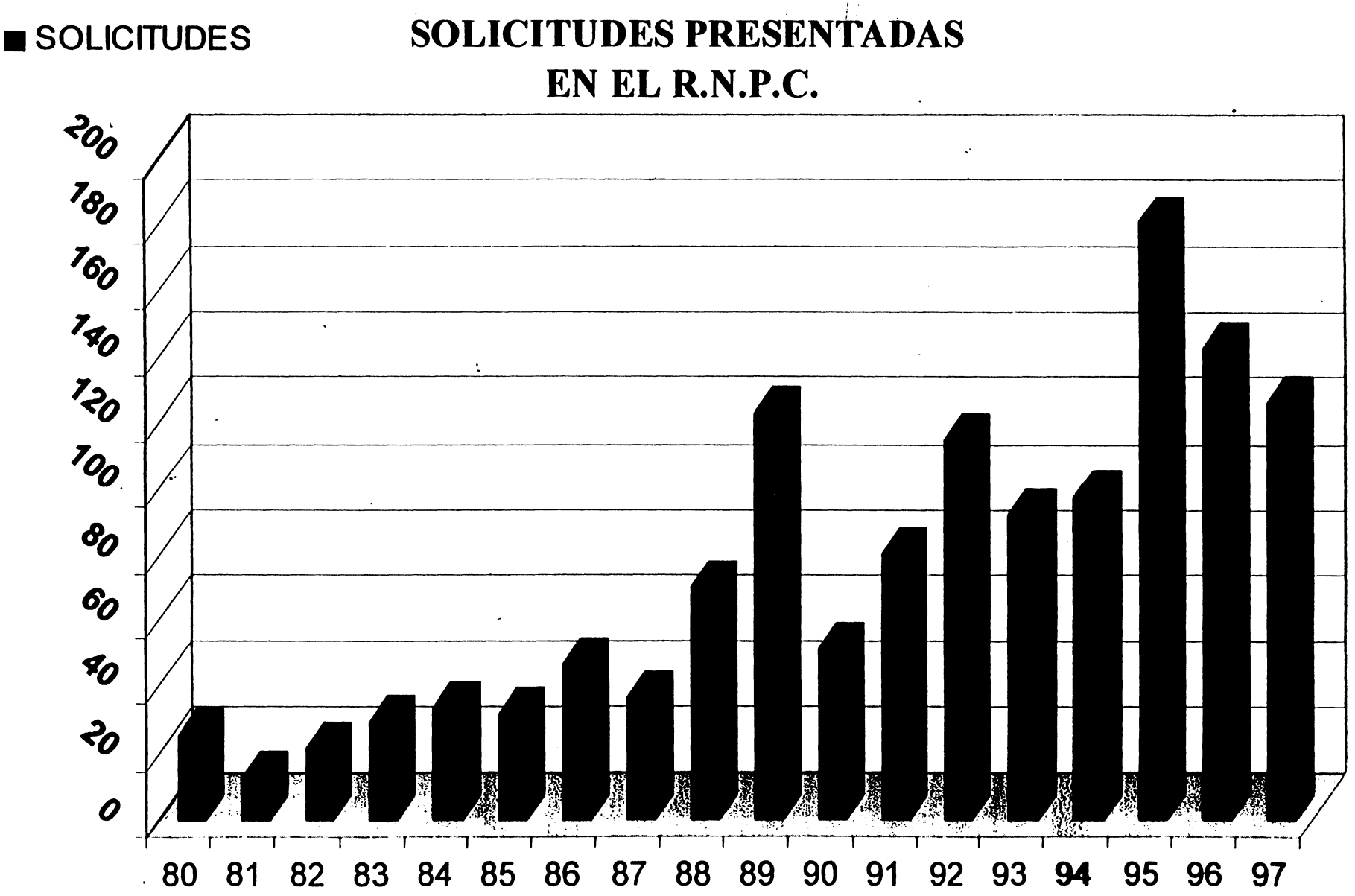
LEY 24376 ADHESIÓN A UPOV '78


TITULOS OTORGADOS POR GRUPO DE ESPECIE
NACIONALES
EXTRANJERAS
CANTIDAD
350
300
250
200
150
100
50
0
AROMATICAS
CEREALES
CULTIVOS INDUSTRIALES
FORRAJERAS
FRUTALES
HORTICOLAS
OLEAGINOSAS
ORNAMENTALES
GRUPO


TITULOS OTORGDOS POR ESPECIE Y ORIGEN
NACIONALES
EXTRANJERAS
CANTIDAD
160
140
120
100
80
60
40
20
0
ALFALFA
COLZA
GIRASOL
MAIZ
PAPA
SOJA
TOMATE
ARROZ
CEBADA CERVECERA
ESPECIE

CANTIDAD DE TITULOS OTORGADOS POR AÑO




SOLICITUDES
SOLICITUDES PRESENTADAS
EN EL R.N.P.C.
200
180
160
140
120
100
80
60
40
20
0
80
81
82
83
84
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88
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92
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94
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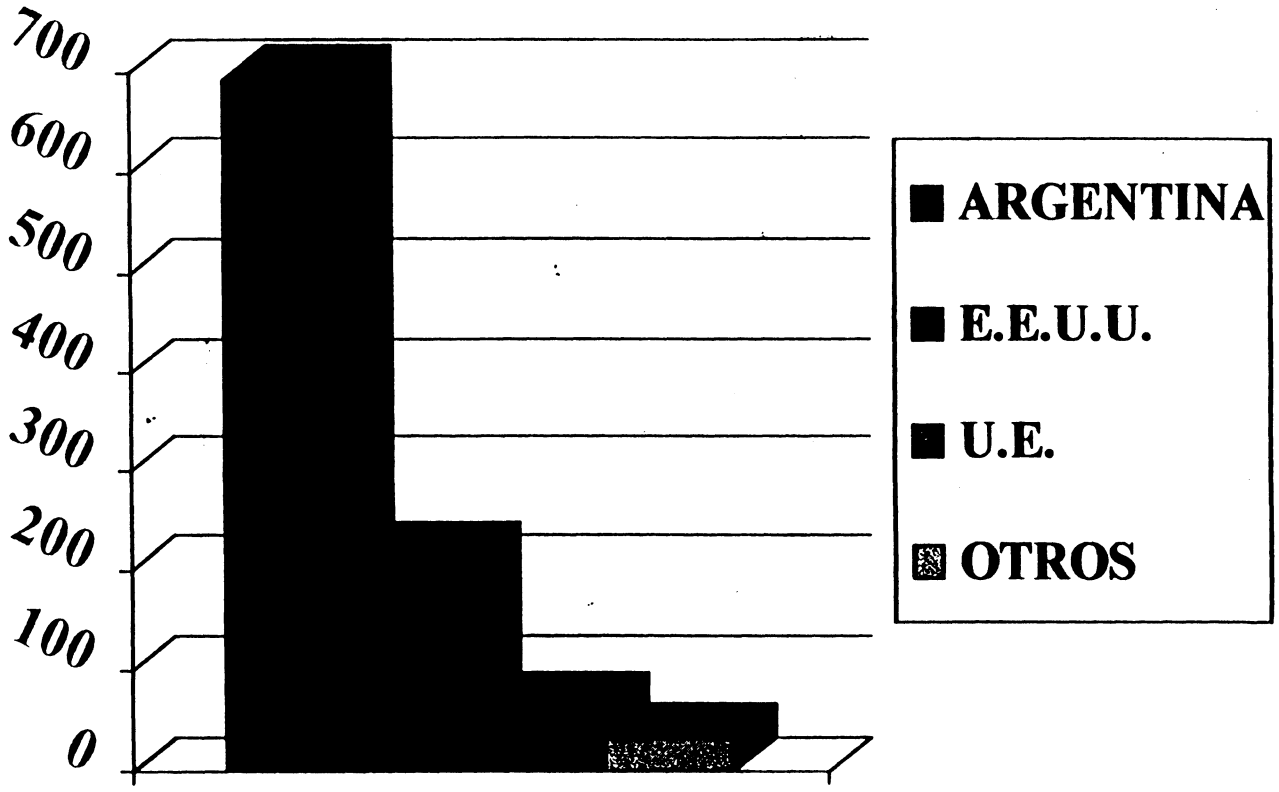
96
97

TITULOS OTORGADOS POR PAIS DE ORIGEN



ARGENTINA	694
E.E.U.U.	213
FRANCIA	21
HOLANDA	17
SUECIA	16
N.ZELANDIA	16
URUGUAY	6
AUSTRALIA	5
ALEMANIA	4
CHILE	2
ESPAÑA	2
DINAMARCA	2
CANADA	1
BELGICA	1
JAPON	1
INGLATERRA	1
BRASIL	2
	1004

SPECIES WITH PROTECTED VARIETIES

PROTECTED SINCE	SPECIES
1981	MILLET, PERENNIAL RYEGRASS
1982	BRISTLE OAT, SOYBEAN, BREAD WHEAT
1983	DURUM WHEAT, BARLEY, LUCERNE, BARLEY GRASS
1984	MAIZE , RED CLOVER, RICE, WHITE OAT, RYE, MELON, FORAGE SORGHUM, TOBACCO, RESCUE GRASS
1985	GROUNDNUT, ONION, SUNFLOWER
1986	POTATO, TRITICALE, SAFFLOWER
1987	YELLOW OAT, BULBOUS CANARYGRASS, BEAN
1988	TALL FESCUE, LOTUS TENUIS, RADISH, WHITE CLOVER,WILD PEA, DALLISGRASS, ANNUAL RYEGRASS
1989	COTTON
1990	RAPE, SORGHUM TECHNICUM, JAPANESE PLUM, COCKSFOOT GRAPE FRUIT
1991	LETTUCE, SWEET PEPER
1992	SQUASH, CHICK PEA, LENTIL, STRAWBERRY, HOPS, MAIZE (INBRED LINES)
1993	SUNFLOWER (INBRED LINES), WILD CHAMOMILE, SORGHUM (INBRED LINES)
1994	SWEET ORANGE, ADZUKI, CARROT, TRICEPIRO, LOTUS SUBBIFLORUS, GRAIN SORGHUM, BROMUS AULETICUS
1995	LESPEDEZA SERICEA, ARTICHOKE
1996	CHICORY, BROMUS PERENNIS, PEACH, NECTARINE
1997	GARLIC, PEAR, STEVIA REBAUDIANA

[End of document]