

**Report of a
Working Group
on *Avena*
(*Second Meeting*)**

**Held in
Braunschweig,
Federal Republic
of Germany
18-20 March 1986**

**UNDP/IBPGR EUROPEAN
COOPERATIVE PROGRAMME
FOR CONSERVATION AND
EXCHANGE OF CROP
GENETIC RESOURCES**



International Board for Plant Genetic Resources



United Nations Development Programme

The International Board for Plant Genetic Resources (IBPGR) is an autonomous international scientific organization under the aegis of the Consultative Group on International Agricultural Research (CGIAR). The IBPGR was established by the CGIAR in 1974. The basic function of the IBPGR is to promote and coordinate an international network of genetic resources centres to further the collection, conservation, documentation, evaluation and use of plant germplasm and thereby contribute to raising the standard of living and welfare of people throughout the world. Financial support for the core programme is provided by the Governments of Australia, Austria, Belgium, Canada, China, Denmark, France, Federal Republic of Germany, India, Italy, Japan, the Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, and the USA as well as the World Bank. FAO of the United Nations provides the Headquarters.

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EUROPEAN COOPERATIVE PROGRAMME FOR THE
CONSERVATION AND EXCHANGE OF CROP GENETIC RESOURCES

REPORT

of a Working Group on Avena
(Second meeting)

held at the

Institut für Pflanzenbau und Pflanzenzüchtung
Bundesforschungsanstalt für Landwirtschaft (FAL)
Braunschweig-Volkenröde
Federal Republic of Germany

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INTRODUCTION

In order to assess progress made since the first meeting of the Avena Working Group, at Izmir, Turkey, 25-27 September, 1984, and to formulate a plan of action for Phase III of the European Cooperative Programme for the Conservation and Exchange of Crop Genetic Resources (ECP/GR), a second meeting was held at the Institut für Pflanzenbau und Pflanzenzüchtung der Bundesforschungsanstalt für Landwirtschaft (FAL), Braunschweig-Volkenröde, Federal Republic of Germany, 18-20 March 1986. A list of participants is shown in Appendix I.

The participants were welcomed by Prof. M. Dambroth, Director of the Institute. Mr. P.M. Perret (ECP/GR Officer) expressed thanks on behalf of the ECP/GR:IBPGR Secretariat for the work achieved so far on the European Avena Data Base (EADB) compiled at FAL. Mr. Perret presented the major recommendations of the third meeting of the Technical Consultative Committee of the ECP/GR and further amplified the need to formulate detailed plans for Phase III, in which the inputs-in-kind to be expected from each country should be specified.

The Working Group unanimously elected Dr. H. Thomas as its Chairman and adopted the modified Agenda. The Agenda is provided in Appendix II.

REPORT

REVIEW OF CURRENT ACTIVITIES

European Avena data base

1. The second edition of the European Avena catalogue (9506 accessions from 14 countries) was tabled at the meeting: data from the Netherlands which had arrived too late for inclusion into the second edition were distributed in the form of a print-out. Dr. L. Seidewitz of FAL provided information on the second edition and the data base management. Tables on the status of the Avena data base are provided in Appendix III.

The meeting expressed its appreciation to FAL for the excellent work done to date and especially for the first analysis of the data.

2. It was noted that accessions belonging to the same group of obvious duplicates had sometimes received a different taxonomic status at the rank of subspecies and even at the species level. After a lengthy discussion on taxonomy it was agreed that for further editions of the European list two subcatalogues should be published, one for hexaploid oats and one for wild species.
3. The subcatalogue for hexaploid oats would be divided into three parts - (i) cultivated hexaploids, (ii) sterilis and (iii) fatua. It was recognized that infra- and interspecific classification of the cultivated hexaploids has no real significance due to the complete interfertility of the group and furthermore the taxa so named are of no significance in the breeding work.
4. Wild species should be classified according to the biological species concept. In this respect it was recommended that the identification key to the genus Avena, published in the report of the first meeting of the ECP/GR Avena Working Group, should be used as a reference.
5. Ten basic passport descriptors had been required for the initial registration of data into the European Avena data base. In most cases additional passport data had been provided from the collections. However, it was noted that essential passport data, such as country of origin, were often lacking and it was recommended that curators make all possible efforts to complete these gaps in the data when providing additional passport descriptors (see para. 20).
6. The meeting noted that the following Avena collections in Europe have not yet provided passport data to the central data base: France; Nordic countries; Portugal; Spain; UK (Plant Breeding Institute, Cambridge).

The Nordic Gene Bank and France had already agreed to send their data at the latest by May 1986. It was agreed that both these and other curators should be urged by the central data base and ECP/GR Secretariat to provide their data.

7. Members were informed that the collections in Israel, which are no longer being used, had been duplicated at the Small Grains Collection of the United States Department of Agriculture (USDA), Beltsville, Maryland, USA. The second edition of the European Avena data base includes passport data from material of European origin held in Beltsville and therefore, information on the Israelian collections. It was also learnt that the Polish Genebank had recently increased its Avena collection by 700 accessions and that the passport data for these accessions will be sent soon to the central data base.

8. The European Avena data base had made a first attempt to identify redundant accessions on the basis of cultivar names. Thirty-six percent of all named accessions appeared to be duplicated. After a study of the second edition, members concluded that the final percentage of duplication will be much higher, because of misspellings in the names of cultivars, numerous translations of names for the same variety and the high number of existing synonyms. It was also pointed out that in a few cases different material could be found under the same name. There was a general consensus that the problem of duplication was an important matter to be dealt with primarily by the central data base and the Working Group (see recommendations of para. 19).

Collecting of wild species

9. Following the recommendations of the first meeting of the Working Group, a collecting mission had been organized in southern Spain, Canary Islands and Morocco for A. canariensis, A. maroccana, A. murphyi and A. prostrata in May-June 1985. Dr. G. Ladizinsky, who was the leader of the collecting trip in southern Spain and Canary Islands and had prepared the itinerary of the trip in Morocco, presented the main results and first conclusions of this mission. The meeting was also informed on the follow-up work undertaken by the Welsh Plant Breeding Station, UK and Svalöf, Sweden, for identification and characterization of the material. A short report on this collecting trip and work now in progress for the utilization of this material had been prepared by Dr. Ladizinsky and is provided in Appendix IV. The members expressed their satisfaction with the results of the work.

10. The two young oat scientists, who participated in the IBPGR collecting mission mentioned above, were trained in Israel by Dr. Ladizinsky for the collecting of wild species. In view of the results obtained from the collecting mission, the training was considered successful and it was recommended that these two collectors lead further missions.
11. Due to practical constraints, the ECP/GR:IBPGR Secretariat had not been able to organize collecting trips in 1986 in Syria for A. damascena and in Algeria for A. macrostachya as recommended by the first meeting. It was noted that in any case the collecting mission to Syria, if it had been organized in 1986, would have had to be cancelled due to the exceptional drought.

Other activities

12. The draft descriptor list prepared at the first meeting of the Working Group had been circulated to specialists world-wide by the ECP/GR Secretariat and had been revised following comments received by a panel of Working Group members on the occasion of the International Oat Symposium held in Aberystwyth, UK, 15-18 July, 1985. Subsequently, the IBPGR Avena descriptors was published in February 1986.
13. With regard to promotion of the characterization and evaluation of the material, the Working Group recognized that no action could be taken before publication of the second edition of the Avena list.
14. It was noted that little interest had been shown by countries to the ECP/GR Secretariat for training in Avena genetic resources work. Nevertheless a number of member countries have large areas planted to Avena and should benefit from this ECP/GR programme.

PROPOSED WORKPLAN 1986-1989

Wild species

15. The meeting recommended strongly that collecting for A. damascena in

Syria and for A. macrostachya in Algeria should be organized by IBPGR in 1987. It was not recommended to link these collecting trips with any other exploration for wild species in consideration of the specific habitats, maturity times and collecting efficiency.

16. Based on knowledge accumulated to date on the evolution of the genus Avena, it appears almost certain that new species can be discovered in Morocco. This was confirmed by the wealth of new material collected in 1985 during a collecting mission which lacked sufficient time to make systematic research in specific areas. The meeting recommended therefore that a new collecting mission be organized in targeted areas of Morocco and additionally drew the attention of IBPGR or other organizations on the need to undertake field studies (ecological amplitude of the species, structure of the populations, etc) in this key country for the genus Avena. It stressed once again that A. maroccana may totally disappear in a few years and that this situation may be similar for other species still not discovered. It was agreed that new collecting and field studies had serious implications for the long-term survival of oat as an economic crop. These field studies would also produce data helpful for conservation of habitats.
17. The Working Group drew the attention of the Government of Spain to the need for in situ conservation for A. murphyi. This species is located in pastures in very limited areas of Southern Spain, and these are presently being destroyed by the extension of arable land.

Identification of duplicates

18. Due to the high number of potential duplication and the resultant need to rationalize collections in order to make sensible plans for regeneration and for documentation of characterization/evaluation data (see paras. 25 to 28), it was agreed that the central data base should give a high priority to continued work on identifying duplicates.
19. The easiest way to identify or confirm obvious duplicates is through the search for identical numbers (collector's number or donor's number or other numbers).

The central data base, after identifying the obvious duplicates by numbers and by names, will send to each member of the Working Group a print-out of potential duplicates and apparent unique accessions for the country/region of concern to the member. The members agreed to circulate this print-out to breeders in their country/region for identification of misspellings, synonyms and different translations in order to confirm or discover other duplicates.

Further registration into the Avena data base

20. The Working Group examined which additional items of passport data should be systematically registered by the EADB and agreed that the PEDIGREE (refer IBPGR descriptor for Avena number 1.6), the STATUS OF SAMPLE (2.1.1.4) and the growth class (4.1.2.) (herein for obvious reasons considered as a passport descriptor) were essential pieces of information for the users of the data base. Curators are therefore requested to provide these data, if not already done.

The year of release of a cultivar is also a useful item of information and should be provided, when available.

21. It was recommended that in regard to pedigree a sequential order of slashes be used, one slash representing the first cross in the time sequence, while the maximum number of slashes will give the parents of the cultivar: S-Abruzzi/Victory//Reid = (S-Abruzzi x Victory) x Reid.
22. It was recommended that genebanks provide to the EADB the characterization data which are listed in the IBPGR Avena descriptors.
23. The meeting considered at length which evaluation data registered into the central data base and subsequently published in the European catalogue would most efficiently help breeders in their programmes; due consideration was given to financial and workload implications of breeders/genebank curators when documenting the requested data. A list of 12 descriptors was agreed and is provided in Appendix V.

24. It was recommended that in a first step the curators of Avena collections provide as soon as possible the requested data as available, for all their accessions. The Working Group stressed that any additional evaluation data which collections may wish to provide at the same time will be highly appreciated; the EADB is willing to sort out and make available on request to the community of users all additional data received.

Promotion of the documentation of selected characters

25. The Working Group recognized that an important percentage of the material held in collections may not have been evaluated for some of the 12 characters in certain cases for all of them. In order to avoid an unnecessary duplication of time and effort, it was agreed that the requested data will be recorded only for unique accessions or the best representative among a group of duplicates.

26. Among a group of duplicates, the accession which is considered as the best representative is the one which is kept in the collection of the country in which the variety was bred or the material collected.

In the case of accessions which come from outside Europe there are two possible sources:

1. The collecting has been done by an European institute, it should therefore have responsibility to document the collected material;
2. The accession has been donated from an institute outside Europe; the Working Group felt it was too early to assign responsibilities for documentation for this class of material, as it will partly depend on the cooperation which will be developed with other regions of the world.

27. The recording of data should be undertaken in 1987 and 1988 in order that EADB may publish a revised edition of the European catalogue by the beginning of 1989. The IBPGR descriptor states will be followed. It was agreed that for disease susceptibility only the scale 1 to 9 as

recommended by IBPGR (or the system Sensitive, Hypersensitive, Resistant, Immune, Tolerant) would be accepted by the EADB.

28. It was considered of the utmost importance that curators document their original material for the 12 selected characters. Therefore, the Working Group suggested that Governments, when joining Phase III of the Programme be requested to consider the documentation of Avena material under their responsibility as a necessary contribution-in-kind to the Programme.

Rationalization of collections and duplication in base collections

29. It was recommended that the rationalization of collections be achieved following the principles explained in para. 26 for the documentation of collections. Attempts will be made to repatriate the material in their country of origin as far as possible. Subsequently all Avena collections will receive from the EADB a complete list of their accessions which are considered as unique or the best representative of a group of duplicates. Thereafter they will have the responsibility of acting as an active collection for this original material. In accordance with the accepted definitions of active collections they should:

- (i) Provide duplicate samples to the designated base collections
- (ii) Regenerate and multiply the material
- (iii) Distribute material on request and
- (iv) Document data as listed in Appendix V (see also paras. 20 to 28)

30. The Working Group noted with satisfaction the willingness of FAL to also act as an Avena base collection.

31. The meeting felt the necessity to develop standards for the proper regeneration of the material but agreed that this would need serious studies. The IBPGR has recognized this need and is taking action 1986-87.

Collecting of landraces and old cultivars

32. It was recognized that genetic erosion of oat landraces and cultivars was occurring in Poland and that more collecting missions had to be

organized. The Polish member informed the group that the Plant Breeding and Acclimatization Institute would continue its collecting programme for Avena.

The meeting was not convinced of the need to collect in Greece and Yugoslavia, as pointed out at the third meeting of the Technical Consultative Committee of the ECP/GR in December 1985. The ECP/GR Secretariat should seek further information.

Training

33. The members recommended that a training course on characterization and evaluation of Avena be organized by the Aegean Regional Agricultural Research Institute (ARARI), Turkey, in 1987 with the participation of outside expertise.

The Working Group was aware that no funds for training will be available in Phase III of the ECP/GR. It hoped that arrangements would be made for the funding of trainees from Europe. It also suggested that trainees from North Africa should attend the course.

34. It was agreed that a tentative programme of the course, to be formulated by the Nordic Gene Bank in collaboration with ARARI and other experts, should be circulated as soon as possible in order that the ECP/GR Secretariat may assess potential interest.

Development of active collaboration with other regions

35. It was recommended that a more systematic collaboration be agreed with the USDA and Plant Gene Resources of Canada, Ottawa. The members considered that in the near future all regional Avena data bases should be linked in such a way that an operational world Avena data base be implemented. It was recommended that the visit of a specialist from EADB would be useful within the framework of existing bilateral agreements.
36. The Working Group agreed that European collections and the EADB should help developing countries to maintain and use Avena genetic resources. This could include technical advice or help with documentation of data.

37. The meeting expressed its strong scientific interest in the Avena genetic diversity which may be found in China and looks forward to close collaboration with this country. It was also hoped that additional links will be developed with N.I. Vavilov Institute of Plant Industry, Leningrad, USSR.

Other matters

38. It was recommended that more research, which for example could be made the subject of scholar's thesis, be undertaken to explore diverse methods for identification of duplicates at the genotypic level. FAL expressed its interest in this work.
39. The meeting was informed that the next International Oat Symposium will be held in 1988 in Svalöv, Sweden. It recommended that the opportunity presented by this gathering of oat breeders and workers should be used to seek collaboration of curators and users to further the proposals of the Working Group.

The meeting expressed its appreciation to the Director and staff of the FAL for the excellent organization of the meeting as well as for the kind hospitality.

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APPENDIX II

AGENDA

1. Opening Addresses
2. Election of Chairman
3. Adoption of Agenda
4. Review of activities since first meeting of Phase II
 - 4.1 European Avena data base
 - 4.1.1 Discussion on preliminary Avena list
 - 4.1.2 Identification of those collections not yet included in the data base
 - 4.1.3 Identification of redundant duplicates
 - 4.2 Report on collecting in Spain and Morocco and progress on identification and characterization/preliminary evaluation of the collected materials
 - 4.3 Review of progress on other recommendations of the first meeting
5. Formulation of a workplan for 1986-1989
 - 5.1 Wild and weedy species
 - 5.1.1 Recommendations for further collecting
 - 5.1.2 Further characterization and evaluation of collected material
 - 5.1.3 Field studies
 - 5.2 Further registration in Avena data base
 - 5.2.1 Registration of data from those collections not yet included in the data base
 - 5.2.2 Completion of passport data
 - 5.2.3 Utilization of the EADB and its promotion to plant breeders and scientists
 - 5.2.4 Selection of characterization and evaluation data for registration
 - 5.3 Documentation of the characterization and evaluation of landraces and old cultivars
 - 5.4 Recommendations for collecting of landraces and old cultivars

APPENDIX II (Continued)

- 5.5 Rationalization of collections and duplication in base collections
- 5.6 Training
- 5.7 Development of active collaboration with other regions
6. Other matters
7. Writing of report
8. Consideration and approval by Working Group

APPENDIX III

DATA ON WHICH THE AVENA CATALOGUE IS BEING BASED

On behalf of the ECP/GR, data on Avena accessions have been assembled from the institutions in Table 1 (institute acronyms are explained at end of Appendix III). In this table, a distinction has been made between named and unnamed accessions.

Table 1. Number of accessions on which this catalogue is being based

Informant	Accessions		
	Named	Unnamed	Total
1. AUTBVAL	82	89	171
2. BELCRAGXAP	244	56	300
3. BELCRAGXSA	217	107	324
4. BGRIIPR	340	16	356
5. CANPGRC*	514	-	514
6. CSKKROME	1418	1	1419
7. DDRGAT	736	337	1073
8. DEUBGRC	876	6	882
9. GBRWPBS	171	60	231
10. GRCGGB	5	17	22
11. HUNRCA	957	67	1024
12. POLIHAR	700	112	812
13. TURARARI	-	530	530
14. USAUSDA*	1490	192	1682
15. YUGSGI	165	1	166
Total	7915	1591	9056

* Data from Canada and the USA make up a total of 2196 accessions of European origin.

APPENDIX III (Continued)

A distinction between spring and winter types of Avena provides the following figures of Table 2.

Table 2. Number of spring and winter forms of Avena accessions in the catalogue

Seasonality	Accessions		Total
	Unnamed	Named	
Spring	1386	5587	6973
Winter	181	769	950
Not specified	24	1559	1583
Total of accessions	1591	7915	9506

The identification of duplicates is the most important objective of the catalogue. The easiest method of doing this is by means of a comparison of identical names in alphabetical sequence. For this purpose, accessions to which a name or other identification as been applied have been separated from those to which no such identifying name or sequence of figures has been applied. A total of 7915 accessions makes up the first part (white pages) of the catalogue. Of these accessions, 5084 have been named or numbered differently, which means that 2831 accessions are duplicated items. It is fairly certain that due to misspelling, and through the process of transliteration or translation of names, several duplicates remain undiscovered. Experts are therefore asked to report their findings after a careful checking of the catalogue.

The first column in the catalogue provides a sequential number which is repeated as many times as identical names follow ("name applied to accession"). Due to the number of time an item identification has been repeated, accessions have been grouped in classes with a frequency of repetitions ranging from 1 (not duplicated accessions) to 25. The frequency of duplications is listed in Table 3.

APPENDIX III (Continued)

Table 3. Distribution of frequencies in duplicated accessions

Size of group	Times found	Number of accessions per group
1	3747	3747
2	657	1314
3	313	939
4	168	672
5	85	425
6	47	282
7	41	287
8	13	104
9	4	36
10	5	50
11	2	22
12	1	12
13	1	13
	5084	7915

Taxonomic identification

Table 4 provides all species, subspecies and varieties as well as the number of accessions per taxonomic unit

Table 4. Avena accessions by taxonomic identification

Species	Subspecies	Variety	Number of Accessions
Not identified (984)	-	-	984
<u>A. abyssinica</u> (3)	-	-	1
<u>A. abyssinica</u>	-	<u>abyssinica</u>	2
<u>A. barbata</u> (219)	-	-	205
<u>A. barbata</u>	<u>barbata</u>	-	14
<u>A. brevis</u> (2)	-	-	2
<u>A. byzantina</u> (638)	-	<u>aristata</u>	2
"	-	<u>aurea</u>	5
"	-	<u>brunnea</u>	1
"	-	<u>byzantina</u>	4
"	-	<u>cinerea</u>	1
"	-	<u>fusca</u>	1
"	-	<u>grisea</u>	1
"	-	<u>krausei</u>	2
"	-	<u>ligulata</u>	1
"	-	<u>montana</u>	6
"	-	<u>mutica</u>	9
"	-	<u>nigra</u>	2
"	-	<u>obtusata</u>	1
"	<u>byzantina</u>	-	224

APPENDIX III (Continued)

Table 4. Avena accessions by taxonomic identification (Continued)

Species	Subspecies	Variety	Number of Accessions
<u>A. canariensis</u>	-	-	1
<u>A. clauda</u>	-	-	5
<u>A. damascena</u>	-	-	1
<u>A. eriantha</u>	-	-	6
<u>A. fatua</u> (294)	-	-	280
"	-	<u>abyssinica</u>	2
"	-	<u>byzantina</u>	1
"	-	<u>fatua</u>	1
"	-	<u>mutica</u>	1
"	<u>fatua</u>	-	9
" + <u>barbata</u>	-	-	1
<u>A. fatuoid</u>	-	-	2
<u>A. hirtula</u>	-	-	12
<u>A. hybrida</u>	-	-	16
<u>A. longiglumis</u>	-	-	18
<u>A. macrostachya</u>	-	-	1
<u>A. maroccana</u>	-	-	5
<u>A. murphyi</u>	-	-	1
<u>A. nuda</u> (358)	-	-	315
"	-	<u>aurea</u>	1
"	-	<u>braunii</u>	1
"	-	<u>chinensis</u>	2
"	-	<u>inermis</u>	2
"	-	<u>montana</u>	1
"	-	<u>nuda</u>	2
"	<u>abyssinica</u>	-	1
"	<u>brevis</u>	-	7
"	<u>nuda</u>	-	26
<u>A. nudibrevis</u>	-	-	1
<u>A. occidentalis</u>	-	-	3
<u>A. pilosa</u>	-	-	8
<u>A. prostrata</u>	-	-	1
<u>A. sativa</u> (6210)	-	-	3100
"	-	<u>aristata</u>	272
"	-	<u>aurea</u>	755
"	-	<u>borealis</u>	1
"	-	<u>brachytrina</u>	1
"	-	<u>brunnea</u>	78
"	-	<u>byzantina</u>	13
"	-	<u>chinensis</u>	2
"	-	<u>cirenea</u>	76
"	-	<u>cravache</u>	1
"	-	<u>elegulata</u>	5
"	-	<u>flava</u>	3
"	-	<u>fusca</u>	10
"	-	<u>grisea</u>	42

APPENDIX III (Continued)

Table 4. Avena accessions by taxonomic identification (Continued)

Species	Subspecies	Variety	Number of Accessions
<u>A. sativa</u> (Continued)	-	<u>homomalla</u>	1
"	-	<u>inermis</u>	8
"	-	<u>kasanensis</u>	1
"	-	<u>krausei</u>	29
"	-	<u>liquilata</u>	27
"	-	<u>macrantha</u>	2
"	-	<u>montana</u>	65
"	-	<u>mutica</u>	1507
"	-	<u>nigra</u>	85
"	-	<u>nuda</u>	14
"	-	<u>obtusata</u>	33
"	-	<u>persica</u>	1
"	-	<u>pilosa</u>	6
"	-	<u>pugnax</u>	21
"	-	<u>subuniflora</u>	1
"	-	<u>tatarica</u>	3
"	-	<u>tristis</u>	16
"	-	<u>volgensis</u>	1
<u>A. sterilis</u> (678)	-	-	622
"	-	<u>brunnea</u>	1
"	-	<u>byzantina</u>	3
"	-	<u>media</u>	1
"	-	<u>sterilis</u>	18
"	<u>ludoviciana</u>	-	26
"	<u>macrocarpa</u>	-	2
"	<u>sterilis</u>	-	5
<u>A. sterilis</u> + <u>byzantina</u>	-	-	1
<u>A. sterilis</u> + <u>fatua</u>	-	-	3
<u>A. strigosa</u> (30)	-	-	18
"	-	<u>strigosa</u>	12
<u>A. ventricosa</u>	-	-	1
<u>A. wiestii</u>	-	-	3

APPENDIX III (Continued)

Accessions compiled in Table 4 have been reported from genebanks as shown in Table 5

Table 5. Number of accessions of *Avena* species as reported by genebanks

Species	Genebank	No.	Species	Genebank	No.
Unspecified (904)	CSKKROME	80	<i>A. hirtula</i> (12)	GBRWPBS	6
	DEUBCRC	7		USAUSDA	6
	POLIHAR	303	<i>A. hybrida</i> (16)	DELCRACXSA	7
	TURARARI	118		GBRWPBS	1
	USAUSDA	476		USAUSDA	8
<i>A. abyssinica</i> (5)	BELCRACXAP	2	<i>A. longiglumis</i> (18)	DDRCAT	4
	BGRIPR	1		GBRWPBS	7
<i>A. barbata</i> (219)	BGRIPR	2		USAUSDA	7
	DDRCAT	14	<i>A. macrostachya</i>	GBRWPBS	1
	GBRWPBS	1	<i>A. maroccana</i>	GBRWPBS	5
	POLIHAR	1	<i>A. murphyi</i>	USAUSDA	1
	TURARARI	73	<i>A. nuda</i> (358)	AUTBVAL	3
	USAUSDA	128		BELCRACXAP	22
<i>A. brevis</i>	USAUSDA	2		BGRIPR	4
<i>A. byzantina</i> (638)	BELCRACXAP	21		CANPCRC	5
	BELCRACXSA	2		CSKKROME	27
	BGRIPR	22		DDRCAT	30
	CANPCRC	29		DEUBCRC	36
	CSKKROME	103		GBRWPBS	108
	DDRCAT	225		HUNRCA	9
	DEUBCRC	25		POLIHAR	4
	GBRWPBS	1		USAUSDA	110
	HUNRCA	31	<i>A. nudibrevis</i>	GBRWPBS	1
	POLIHAR	45	<i>A. occidentalis</i>	GBRWPBS	3
	TURARARI	97	<i>A. pilosa</i> (8)	GBRWPBS	6
	USAUSDA	19		TURARARI	2
	YUCSCI	18	<i>A. prostrata</i>	GBRWPBS	1
<i>A. canariensis</i>	GBRWPBS	1	<i>A. sativa</i> (6210)	AUTBVAL	165
<i>A. clauda</i> (5)	GBRWPBS	3		BELCRACXAP	225
	TURARARI	2		BELCRACXSA	314
<i>A. damascena</i>	GBRWPBS	1		BGRIPR	324
<i>A. eriantha</i>	USAUSDA	6		CANPCRC	480
<i>A. fatua</i> (294)	AUTBVAL	1		CSKKROME	1202
	BELCRACXAP	1		DDRCAT	772
	BGRIPR	1		DEUBCRC	705
	DDRCAT	9		GBRWPBS	66
	DEUBCRC	5		GRCCGB	22
	HUNRCA	243		HUNRCA	741
	POLIHAR	2		POLIHAR	455
	TURARARI	29		TURARARI	76
	USAUSDA	3		USAUSDA	515
<i>A. fatua + barbata</i>	TURARARI	1		YUCSCI	148
<i>A. fatuoid</i> (2)	AUTBVAL	1			
	DDRCAT	1			

APPENDIX III (Continued)

Table 5. Number of accessions of Avena species as reported by genebanks (Continued)

Species	Genebank	No.	Species	Genebank	No.
<u>A. sterilis</u> (678)	BELCRACXAP	18	<u>A. sterilis + fatua</u>	TURARARI	3
	BELCRACXSA	1	<u>A. strigosa</u> (30)	AUTBVAL	1
	CSKKROME	4	BELCRACXAP	11	
	DDRCAT	18	BGR11PR	2	
	DEUBGRC	104	CSKKROME	3	
	GBRWPBS	11	<u>A. strigosa</u>	GBRWPBS	4
	POLIHAR	1	POLIHAR	1	
	TURARARI	128	USAUSDA	8	
	USAUSDA	393	<u>A. ventricosa</u>	GBRWPBS	1
	TURARARI	1	<u>A. wiestii</u>	GBRWPBS	3
<u>A. sterilis + byzantine</u>					

Table 6. Seasonal types of Avena accessions as reported by genebanks

Gene Bank	Spring types	Winter types	Not specified	Total of accessions
AUTBVAL	171	-	-	171
BELCRACXAP	300	-	-	300
BELCRACXSA	324	-	-	324
BGR11PR	210	8	138	356
CANPGRC	-	-	514	514
CSKKROME	1357	33	29	1419
DDRCAT	1027	46	-	1073
DEUBGRC	841	41	-	882
GBRWPBS	204	27	-	231
GRCCGB	22	-	-	22
HUNRCA	1024	-	-	1024
POLIHAR	807	5	-	812
TURARARI	530	-	-	530
USAUSDA	902	780	-	1682
YUGSCI	156	10	-	166
Total	7875	950	681	9506

It is obvious from Tables 6 and 7 that the information on Avena accessions is still far from being complete. When looking at the catalogue, the same impression can be gained. The editor therefore wishes that gaps will be filled as far as circumstances allow before a third edition of this catalogue is printed which hopefully also provides a great deal of characterization data.

APPENDIX III (Continued)

Table 7. Number of accessions per level of selection as reported by genebanks

Genebank	Not specified	CV	Landrace	Line	Wild	Pop.	Other	Total
AUTBVAL	5	80	68	17	-	-	-	171
BELCRAGXAP	300	-	-	-	-	-	-	300
BELCRAGXSA	256	-	-	56	-	-	12	324
BGRIIPR	167	189	-	-	-	-	-	356
CANPGRC	383	-	-	129	-	1	1	514
CSKKROME	686	14	14	705	-	-	-	1419
DDRGAT	1073	-	-	-	-	-	-	1073
DEUBGRC	239	511	1	-	95	-	36	882
GBRWPBS	204	20	1	3	-	-	3	231
GRCGGB	16	-	6	-	-	-	-	22
HUNRCA	1024	-	-	-	-	-	-	1024
POLIHAR	454	243	99	10	6	-	-	812
TURARARI	530	-	-	-	-	-	-	530
USAUSDA	1682	-	-	-	-	-	-	1682
YUGSGI	59	60	10	37	-	-	-	166
Total	7078	1117	199	957	101	1	53	9506

AUTBVAL	Landwirtschaftlich-chemische Bundesversuchsanstalt Institut für Analytik-D, Austria
BELCRAGXAP	Centre de Recherches Agronomiques de l'Etat Station d'Amélioration des Plantes, Belgium
BELCRAGXSA	Centre de Recherches Agronomiques de l'Etat Station de Phytopathologie, Belgium
BGRIIPR	Institute of Plant Introduction and Genetic Resources "K. Malkov", Bulgaria
CANPGRC	Plant Genetic Resources Centre, Canada
CSKKROME	Cereals Research and Breeding Institute, Czechoslovakia
DDRGAT	Zentral Institut für Genetik und Kulturpflanzenforschung, German Democratic Republic
DEUBGRC	Braunschweig Genetic Resources Centre Institut für Pflanzenbau und Pflanzenzüchtung der FAL, Federal Republic of Germany
GBRWPBS	Welsh Plant Breeding Station, United Kingdom
GRCGGB	Greek Gene Bank North Greece Agricultural Research Center, Greece
HUNRCA	Research Centre for Agrobotany, Hungary
POLIHAR	National Department of Plant Genetic Resources Plant Breeding and Acclimatization Institute, Poland
TURARARI	Aegean Regional Agricultural Research Institute, Turkey
USDA	United States Department of Agriculture Beltsville, Maryland USA
YUGSGI	Small Grains Institute, Yugoslavia

REPORT ON WILD OAT COLLECTING IN SPAIN AND MOROCCO

The aims of the collecting trip to Spain and Morocco were:

- 1) To collect seeds of the wild species A. canariensis, A. prostrata, A. murphyi and A. maroccana and to identify any threat of extinction to these species
- 2) To introduce young oat scientists to the ecology and pattern of distribution of wild oats and to train them in the practice of wild oat collecting

The collecting mission took place from 3 May-13 June 1985. Table 1 shows the number of accessions of the various species that were collected. In each site seeds were collected from about 100 individuals of the same species. This will allow study of infra-population variability in the future. Besides the target species, seeds of other wild oats were collected when they grew adjacent to these species. Three previously unknown wild oats were collected in Morocco. Two of them were reported independently as new species, A. atlantica and A. agadriana by Canadian scientists about three months after the completion of the mission. There is an obvious threat of extinction to the two tetraploid wild oats, A. murphyi and A. maroccana since their habitats are rapidly being turned into arable land.

Characterization and evaluation of the material

These two activities were started shortly after returning from the trip. A. maroccana is being evaluated in Sweden and the rest of the material in the UK.

Preliminary chromosome counts of the A. maroccana collection indicate that most of them are composed of types with $2n = 28$; mixture of A. sterilis ($2n = 42$) was found in two accessions, A. atlantica and A. agadriana were crossed to several diploid, tetraploid and hexaploid species and cytogenetic investigation of these interspecific hybrids is underway on in order to identify the property of these new species.

APPENDIX IV (Continued)

Preliminary isozyme study of the A. canariensis populations indicates extraordinary infra-population variability.

Table 1. Number of accessions of wild oats collection 1985 (122 total)

Species	Territory		
	Canary Islands	Spain	Morocco
<u>A. canariensis</u>	21		
<u>A. prostrata</u>		7	
<u>A. murphyi</u>		9	3
<u>A. maroccana</u>			9
<u>A. atlantica</u>			9
<u>A. agadriana</u>			9
<u>A. sterilis</u>	4		17
<u>A. fatue</u>	4		
<u>A. barbata</u>		1	1
<u>A. hirtula</u>		1	10
<u>A. longiglumis</u>			6
<u>A. clauda</u>			2
Unclassified			9

REGISTRATION OF EVALUATION DATA IN EUROPEAN DATA BASE

- 4.1.5^{*} Plant height
- 6.1.6 Lodging at mature stage
- 6.2.2 Days to harvest
- 6.3.2 1000 grain weight (g)
- 6.3.4 Percentage of husk (%)
- 6.3.5^{**} Percentage protein content of caryopses (%)
- 6.3.6^{**} Percentage oil content of caryopsis (%)
- 7.1 LOW TEMPERATURE DAMAGE
- 7.5 WINTER KILL
- 8.2.1 Erysiphe graminis avenae
- 8.2.3 Puccinia coronata avenae
- 8.4.1 Barley yellow dwarf virus (BYDV)

* The numbering follows the IBPCR descriptor list for Avena, which provides detailed information

** The percentage protein and oil may be measured on the kernel; it should be clearly specified if such analyses have been performed on the kernel or on the caryopsis