

*J.P. van der Meer  
+ 1983 Reports van  
van Lee en Murphy*

1983 Report  
of

EC. RESEARCH PROGRAMME 0890

'The collection of land-races of cruciferous  
crops in EC countries'

**ivt**

**INSTITUUT VOOR DE VEREDELING VAN TUINBOUWGEWASSEN**

WAGENINGEN



Contents:

	page
Coordination	1
CP2 Collection in the Netherlands (Horticultural crops)	7
CP3 Collection in the Netherlands (Agricultural crops)	8
CP4 Collection in the UK (Agricultural crops)	9
CP6 Collection in Ireland	15
CP7 Collection in Denmark	17
CP8 Collection in the Federal Republic of Germany	34
CP9 Collection in Belgium	36
CP10 Collection in France	38
CP11 Collection in the Federal Republic of Germany	42
CP13 Collection in Italy	45
CP15 Collection in Italy	77

COORDINATION

Ir. Henny Roelofsen functioned as the project coordinator until the end of March. She organized a meeting, on January 6-7, of the Coordinating Committee and the Country Representatives at Merelbeke, Belgium. At this meeting verbal progress reports were given and arrangements were made for collection in a number of E.C. Countries (see Annex 1). Henny Roelofsen vacated her post in March. Collection and Coordination were partly taken over by Ir. Q.P. van der Meer. He started the organization of a final meeting planned for March 19-21, 1984, in Wageningen (Annex 2). For 1983 Progress reports were written on collection activities in a number of E.C. Countries. These combined reports form the scientific report for 1983.

Wageningen, February 1984

Q.P. van der Meer

Report of the third meeting of the Coordinating Committee and participants of EC-contract 0890. January 6-7 1983, Merelbeke, Belgium.

- The Collecting Programmes in Ireland, Denmark, Belgium and Germany have been succesful. Their scientific reports (describing the collected materials and areas, the collecting methods and details on genetic variation and genetic erosion and summarizing these data in maps and tables) will constitute the final report of 1982.
- Most of the 1982 Collecting Programmes will be continued in 1983 by further collecting. Multiplication, documentation and evaluation only comes under the contract if the materials concerned were collected within this framework.
- In 1983 NVRS will carry out a foreign Collecting Programme in Italy. For the Bari gene bank crucifers do not have a high priority, but it is readily willing to support the initiative by taking out a sub-contract as well.
- In August-September 1983 IVI and the Vegetable Research Institute in Gastouni, Greece plan to collect Allium and other vegetable species in Greece. IVI is willing to add one person within the framework of EC-contract 0890. B. Murphy (Ireland) is willing to take this responsibility as well.
- Both the main contractor and the participants expressed their willingness to continue this work in the next 5 year period 84-88. On behalf of IVI and the Coordinating Committee I will inform the Dutch country representative in the Programme Committee on Resistance Breeding and the Use of Gene Banks of our wish for a new contract entitled "The collection, multiplication and evaluation of genetic resources of cruciferous crops in EC-countries". The organisation of this contract should have the present form. The financial administration could be improved for the items "material (non-durable)" and "experimental costs". If possible "meeting costs" should be included.
- For smooth financial arrangement it is necessary for each sub-contractor to do the following writing:
  1. as soon as possible - a. scientific proposal  
b. financial proposal  
these have to join the application letter to the main contractor (annex 1).
  2. june - a. scientific report of the first half year  
b. financial report of the first half year
  3. december - a. scientific report of the whole year  
b. financial report of the whole year.

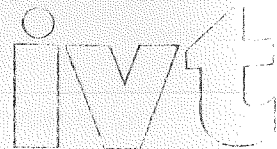
send 2a and 3a to H. Roelofsen  
send 2b and 3b to J. Doornbosch; the financial reports have to be in agreement with the amounts fixed in the meeting (annex 2).

- In 1983, the last year of contract 0890, an extra report will be made summarizing all the work that has been carried out and mentioning general experiences as well. It will be considered to publish it in cooperation with IBPGR and/or the Cruciferous Newsletter. EC needs to consent publication.
- The next meeting will be in Wageningen on the afternoon of November 9 and the morning of November 10, analogous to this meeting. The Coordinating Committee will meet on the afternoon of November 8 and 10 and the mornings of 9 and 11 as well. Although we will try to finance this meeting outside the contract, I would advise you to plan it within the contract.

H. Roelofsen  
1983.01.27.



**INSTITUUT VOOR DE VEREDELING VAN TUINBOUWGEWASSEN**

 INSTITUTE FOR HORTICULTURAL PLANT BREEDING  
 INSTITUT FÜR GÄRTNERISCHE PFLANZENZÜCHTUNG  
 INSTITUT D'AMÉLIORATION DES PLANTES HORTICOLES

 Mansholtlaan 15  
 Corr.adres: Postbus 16  
 6700 AA Wageningen  
 Telefoon 08370-19123  
 Postgiro 935477  
 Bankgiro 307000427  
 Directeur: Dr.Ir. N.G. Hogenboom

 Bereikbaar met buslijnen 83 en 84  
 vanaf NS station Ede-Wageningen,  
 halte Mansholtlaan.

Annex 2

Uw kenmerk	Uw brief van	Ons kenmerk QPM/1B	Datum 84.02.15
Onderwerp		Bijlage(n)	

To the country representatives of the EC project 0890  
 'The collection of land races of cruciferous crops in EC-  
 countries'.

Referring to my letter of 83.12.12 I am making the following proposals:

- A final country (or regional) report should contain the following (short) paragraphs:
- 1 Cruciferous crops in ..... (name of country or region)
    - 1.1 Common names and their scientific synonyms
    - 1.2 Utilization
    - 1.3 Cultural practices and crop rotations
    - 1.4 Main problems of cultivation (diseases etc.)
    - 1.5 Localities and acreages
    - 1.6 Economic value
  - 2 Varietal situation (percentages of respectively land races, local varieties, modern OP varieties and hybrids)
  - 3 Regional working- and/or gene bank-collections
  - 4 Collecting strategy
  - 5 Collection localities (or sub-regions)
  - 6 Collection results (list of collected accessions)
  - 7 Degree to which the genetic variation has been collected (per crop).

**INSTITUUT VOOR DE VEREDELING VAN TUINBOUWGEWASSEN**

Vervolgblad no.: 1 van ons kenmerk: QPM/1B d.d.: 84.02.15

**Agenda for the meeting in Wageningen**

Monday, March 19, afternoon: Discussion on final country reports  
 Tuesday, " 20, : Discussion on draft of final report  
    : Formulation of conclusions and recommendations  
 Wednesday, " 21, morning : Discussion on provisional final financial report  
    : Discussion on continuation of the project.

I received a number of 1983 reports but unfortunately some are still lacking.

If you send your final country report in time I will take care of copying it. If you prefer to bring it with you when coming to Wageningen please bring also with you 15 copies.

As told you in my telegram of 83.12.19 Mr. Doornbosch expects that the cost of the meeting (travelling and subsistence) can be paid from the (1983) project budget. If you have urgent financial questions please contact him (telephone: 08370 - 19112).

If I could help you somehow, e.g. by making hotel reservations, don't hesitate to ask me.

Sincerely yours,

ir. Q.P. van der Meer

To:

Ir. H. Toxopeus, SVP, Wageningen  
Dr. P. Crisp, Wellesbourne, UK  
Dr. D. Astley, Wellesbourne, UK  
Dr. I.H. MacNaughton, Pentlandfield, UK  
Dr. R.F. Murphy, Dublin, Ireland  
Erl.V. Schelbeck, Copenhagen, Denmark  
Ir. L. van Hee, Merelbeke, Belgium  
Dr. P. Mattusch, Hürt Fischenich, Germany  
Y. Hervé, Le Rheu, France  
Dr. P. Perrino, Bari, Italy

cc:

Dr.Ir. N.G. Hogenboom, director IVT, Wageningen, the Netherlands  
Ir. H. Roelofsen, DLO, Wageningen, the Netherlands  
Mr. J. Doornbosch, SVP, Wageningen, the Netherlands  
Dr. J. Dehandtschutter, Brussel, Belgium  
Archives 2x

1983 Report on CP2 of the EC Research Programme 0890 "The collection of land races of cruciferous crops in EC Countries".

The collection in the Netherlands (within the scope of CP2) has more or less been completed by the acquisition of a number of farmers' selections. Some seed samples could be collected of a cole crop, named "Schelk", which was grown until recently in the south-west of the country (South Limburg) but has now practically passed out of cultivation. This crop is a rather winterhardy type of Savoy cabbage.

In 1982-'83 41 cole accessions were grown for multiplication and in 1983-'84 45 accessions.

Determinations of germination percentages on all available accessions were made, in accordance with ISTA regulations, by the Government Seed Testing Station.

A list was composed of names, donors, seed weights and germination percentages (Annex 1). This list has been sent to the vegetable specialists of the Provincial Horticultural Extension Services. They have been asked to mention any missing cultivars.

The collected seed samples were conditioned for 3 weeks at 15°C and a r.h. of 15%. Subsequently they were put in vacuumized sealed bags of tin foil, with the exception of a small quantity of each sample, to be used for verification and description. Finally the main quantities were placed in long-term storage at -20°C.

For verification and description 53 accessions of early cauliflowers and 47 accessions of early Brussels sprouts were grown. Verification by cole specialists (breeders) revealed that of 6 accession names and material did not correspond.

For description use was made of the provisional IBPGR-descriptors prepared by Dr. P. Crisp of the NVRS at Wellesbourne, UK. Questions arose concerning the relevance (use) of describing certain hardly varying characters. More knowledge is essential concerning .e.g.:

- number of replicates required
- sampling methods
- number of plants per sample
- estimation by eye versus measuring
- expression of heterogeneity: in range, standard deviation or coefficient of variability.

The description data are stored in a computer (VAX 750).

BL

Annex 1

## Brassica oleracea var. botrytis

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
1	Enza	75312	3	78
2	Enza	75313	3	76
3	Enza	Alto	7	86
4	Enza	Eriomek	103	83
5	Enza	Sel. Butts	100	96
6	Bejo	Alvita	100	84
7	Bejo	Marva	100	82
8	Bejo	Lecerf	100	79
9	Bejo	Formana	100	86
10	Bejo	Torina	100	92
11	Bejo	Heralda	100	90
12	Bejo	Markanta	100	95
13	Bejo	Maya	100	78
14	Leen de Mos	Godyne	25	86
15	Nederlandse Zaadcentrale	Eureka	50	93
16	Nederlandse Zaadcentrale	Expressor	50	86
17	Holland Select	Walcheria Vroeg	103	86
18	Holland Select	Walcheria Middenvroeg	93	91
19	Holland Select	Walcheria Laat	94	93
20	Royal Sluis	Alpha Primura	100	82
21	Royal Sluis	Erfurter 14 Duromax	100	92
22	Royal Sluis	Durato	100	95
23	Royal Sluis	Paloma	100	91
24	Royal Sluis	Fortades	100	68
25	Royal Sluis	Erfurter Suprimax	100	93
26	Royal Sluis	Erfurter 14 Matra	100	93
27	Royal Sluis	Pindus	100	91
28	Royal Sluis	Astoria	100	77
29	Royal Sluis	Pandora	100	76
30	Royal Sluis	Lecerf B	100	92
31	Royal Sluis	Mechelse Merita	100	87
32	Royal Sluis	Mechelse Merano	100	94
33	Royal Sluis	Alpha Veralto	100	93
34	Royal Sluis	Maxor	100	96
35	Royal Sluis	Géant de Naples tardif Rubaco	100	97
36	Royal Sluis	Géant de Naples tardif Prebaca	100	96
37	Royal Sluis	Prom Lagen	100	95
38	Royal Sluis	Elgon Prio	100	83
39	Royal Sluis	Dok Elgon	100	93

## Brassica oleracea var. botrytis

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
40	Royal Sluis	Nimba Meba	100	96
41	Royal Sluis	Parnas	100	83
42	Royal Sluis	Orgon	100	89
43	Royal Sluis	Herfstreuzen Kibo Reuzen	100	94
44	Royal Sluis	Walcheren Winter Preminda	100	93
45	Royal Sluis	Walcheren Winter Armado Mei	100	87
46	Royal Sluis	Walcheren Winter Armado Arpil	100	96
47	Royal Sluis	Walcheren Winter Armado Quick	100	91
48	Royal Sluis	Walcheren Winter Armado Tardo	100	93
49	Royal Sluis	Walcheren Winter Armado Clio	100	83
50	Royal Sluis	Walcheren Winter Arminda	100	83
51	Royal Sluis	Extra tardif d'Angers Mirado	100	85
52	Royal Sluis	Jura	100	88
53	Royal Sluis	Cervina	100	90
54	Royal Sluis	Atos	100	82
55	Royal Sluis	Fermalba	100	81
56	Royal Sluis	Erfurter Fartomax/Erfurter Deense Export	11	
57	Royal Sluis	Blancato	101	
58	Royal Sluis	Condora	7	39
59	Royal Sluis	Erfurter Helios	100	62
60	Royal Sluis	Perfecto	10	
61	Royal Sluis	Andes	100	91
62	Royal Sluis	Vernon	100	84
63	Royal Sluis	RS 1836 / Alpha Tasma	100	91
64	Royal Sluis	Telva	106	
65	Royal Sluis	RS 1848	100	94
66	Royal Sluis	Herfstreuzen Meru	100	95
67	Sluis en Groot	Mechelse Carillon	100	90
68	Sluis en Groot	Alpha	100	98
69	Sluis en Groot	Alpha Raket	100	88
70	Sluis en Groot	Progress	100	97
71	Sluis en Groot	Spar-To	100	74
72	Sluis en Groot	Bravo	100	95
73	Sluis en Groot	Broei D	133	95
74	Sluis en Groot	Erfurter Remme	100	98
75	Sluis en Groot	Snowball y /Erfurter 14	100	90
76	Sluis en Groot	Erfurter 13	100	86
77	Sluis en Groot	Dominant	100	88
78	Sluis en Groot	Lecerf	100	97
79	Sluis en Groot	Walcheren Winter Aprilex	100	84

## Brassica oleracea var. botrytis

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
80	Sluis en Groot	Walcheren Winter Maystar	100	87
81	Sluis en Groot	Petra	100	98
82	Sluis en Groot	Herfstreuzen Algro Mayo	100	95
83	Sluis en Groot	Herfstreuzen Lawyna	100	88
84	Sluis en Groot	Giganti di Napoli	100	96
85	Sluis en Groot	Oze/White Top	100	84
86	Sluis en Groot	Orco/Talbion	100	82
87	Sluis en Groot	Ims/Talmira	100	70
88	Sluis en Groot	White Summer	100	98
89	Sluis en Groot	SG 109 White Fox	100	96
90	Sluis en Groot	Detso	100	85
91	Sluis en Groot	Walcheren Winter Maschpast	100	88
92	Van den Berg	Mechelse Abundantia	100	93
93	Van den Berg	Mechelse Delta	100	92
94	Van den Berg	Herfstreuzen Jqea	100	86
95	Van den Berg	Alpha Kassa	100	96
96	Van den Berg	Mechelse Panda	100	79
97	Van den Berg	Alpha Roberna	100	96
98	Van den Berg	Subrassa/Erfurter 14	100	92
99	Van den Berg	Erfurter Supra/Holdan	100	98
100	Van den Berg	Brittania	100	82
101	Van den Berg	Walcheren Winter June Glory	100	88
102	Van den Berg	Walcheren Winter May Glory	100	97
103	Van den Berg	Walcheren Winter Pronto	100	64
104	Van den Berg	Blenda	100	40
105	Van den Berg	Mechelse Vroege Delta	100	85
106	Van den Berg	Lecerf Selectie	100	88
106	Van den Berg	Rekord 22	2	
108	Broersen	Mechelse Primeur A	50	88
109	Broersen	Alpha Begum	50	77
110	Broersen	Pionier	50	85
111	Broersen	Hornstar	50	58
112	Broersen	Alpha Prekasa	50	90
113	Broersen	Alpha Venus	50	83
114	Broersen	Mavoron	50	93
115	Broersen	Alpha Balanza	50	96
116	Broersen	Sesam	50	87
117	Broersen	Solo Crop	50	89
118	Broersen	Walcheren Winter	50	89
119	Broersen	Lecerf	50	77

## Brassica oleracea var. botrytis

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
120	Broersen	Hormade	50	96
121	Broersen	Alpha Jubro	50	94
122	J.P. Rood	Lecerf Lero	100	81
123	J.P. Rood	Romax Extreem Vroeg	10	83
124	J.P. Rood	Cliro	10	78
125	J.P. Rood	Alpha Natuur Climax	10	93
126	J.P. Rood	Winter Bloemkool	10	57
127	Bejo	Septora	10	91
128	Bejo	Bejo 1035/Inka	10	66
162	ZGO	B	28	37
163	ZGO	C	36	70
164	ZGO	Z L	33	81
165	ZGO	A	35	84
166	ZGO	Witte Pater	41	0
167	ZGO	B37	39	0
168	ZGO	A26	68	0
169	ZGO	A13	61	21
170	Rijk Zwaan	Lukra	100	
171	Rijk Zwaan	Birka	100	
172	Rijk Zwaan	Escorva RZ	100	
173	Rijk Zwaan	Delina RZ	100	
174	Rijk Zwaan	Flora Blanca	100	
175	Rijk Zwaan	Nevada	100	
176	Rijk Zwaan	Celesta RZ	100	
177	Rijk Zwaan	Opaal RZ	100	
178	Rijk Zwaan	Verb.Mechelse	100	
179	Rijk Zwaan	Dualba RZ	100	
180	Rijk Zwaan	Fortuna RZ	100	
181	Rijk Zwaan	Walcheren Winter Middelvroeg	100	
182	Rijk Zwaan	Walcheren Winter Laat	100	
183	Rijk Zwaan	Star Light RZ	100	

SR

## Brassica oleracea var. gemmifera

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
1	IVT Bejo	Sanda	85	74
2	IVT Bejo	Vrosa	92	93
3	IVT Rijk Zwaan B.V.	Stiekema	88	93
4	IVT Rijk Zwaan B.V.	Toledo RZ	96	94
5	IVT Rijk Zwaan B.V.	Prominent	111	86
6	IVT Sluis en Groot	Polar Star	90	97
7	IVT Sluis en Groot	Hekka	102	85
8	IVT Sluis en Groot	Gemma	101	91
9	IVT Sluis en Groot	Orion	25	37
10	IVT Sluis en Groot	Ny Kastrupgaard	15	86
11	IVT Sluis en Groot	Glenaegles	101	99
12	IVT Sluis en Groot	Zavitkova	100	96
13	IVT Sluis en Groot	Early Half Tall	96	86
14	IVT Nunhem	Stabilo	85	94
15	IVT Nunhem	Tribune	106	94
16	IVT Bejo	Vrosa	77	92
17	IVT Unilever	Gemma	77	98
18	IVT Unilever	Stiekema no.1	97	95
19	IVT Rijk Zwaan B.V.	Prominent	93	92
20	IVT Rijk Zwaan B.V.	Toledo	83	99
21	IVT Nunhem	Stabilo	82	90
22	IVT Asmer Seeds	Stiekema no.1	107	96
23	IVT Asmer Seeds	Roem van Koosterburen	105	95
24	IVT Asmer Seeds	Monitor	88	72
25	IVT Thomas Cullen	Bedforshire Prize	97	67
26	IVT Hansen Denmark	Amager Tagenshew	108	82
27	IVT Vilmorin-Andrieux	De Rosny	109	94
28	IVT A.R. Zwaan	Early Morn	91	87
29	IVT A.R. Zwaan	Electra	107	93
30	IVT Nunhem	Gravendeel	84	92
31	IVT Broersen	Harola Expert Laat	71	87
32	IVT Vreeken	Rubine	77	87
34	IVT Tézier Frères	Bleu Green	1	92
35	IVT Unilever	De Westland	58	92
36	IVT Jac Jong	Lierse of Westlandse	107	82
37	IVT Jac Jong	Kenor	13	95
38	IVT Zandbergen	Roodnerf Groningen Type	117	97
39	IVT Beemsterboer	Sanda	4	94
40	IVT Beemsterboer	Vrosa	92	96

## Brassica oleracea var. gemmifera

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
41	IVT Broersen	Brusselse Markt	91	96
42	IVT Broersen	Verbeterde Brusselse Markt	108	87
43	IVT Turkenburg	Halfhoge Westlandse of Lierse	8	94
44	IVT Turkenburg	Roem van Castricum	99	96
45	IVT Gebr.Eveleens	Roem van Barendrecht	2	
46	IVT Gebr.Eveleens	Brusselse Hoge	96	96
47	IVT Gebr.Eveleens	Lierse of Westlandse	109	96
48	IVT Gebr. de Jongh	Verbeterde Roodnerf	1	
49	IVT Gebr. de Jongh	Westlandse of Lierse	85	95
50	IVT Gebr. de Jongh	Scaldis	71	94
51	IVT Gebr. de Jongh	Arno	1	
52	IVT L.T.B.	Westlandse of Lierse	1	
53	IVT L.T.B.	Kennemer Roofnerf	34	80
54	IVT Nunhem	Ideal	80	96
55	IVT Nunhem	Bredase Atlanta	20	96
57	IVT Nunhem	Stabilo	89	96
58	IVT Nunhem	Gravendeel	93	98
59	IVT J.H. Deicke	Hilds Ideal	99	87
60	IVT Enza	Verbeterde Roodnerf	84	86
61	IVT Enza	Groningse Laat	101	96
62	IVT Walter und Karl Hild	Hilds Ideal	52	84
63	IVT Walter und Karl Hild	Neuzucht Hild 51	1	
64	IVT Walter und Karl Hild	Huizer's Abunda	1	
65	IVT J.E. Ohlsens Enke	Original	100	91
66	IVT J.E. Ohlsens Enke	Fest und Viel	24	78
67	IVT J.E. Ohlsens Enke	Long Island Enkona P 69	86	92
68	IVT J.E. Ohlsens Enke	Wilhemsburger	55	89
69	IVT J.E. Ohlsens Enke	Odenser Markt	77	92
70	IVT L.Daenfeldt Seeds Ltd	de la Halle L.D.	108	92
71	IVT Rijk Zwaan B.V.	Prominent	100	94
72	IVT Rijk Zwaan B.V.	Toledo	63	91
73	IVT Blain Fils Aîné	Demi Nain de la Halle	95	86
74	Enza	Groningse	1	
75	Jos Huizer	Abunda	10	89
76	Bejo	Groninger Vrosa	100	90
77	Bejo	Roem van Castricum Sanda	100	88
78	Bejo	Gemma	10	99
79	Bejo	Kenor	10	91

## Brassica oleracea var. gemmifera

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
80	Bejo	Roem van Voorne	2	74
81	Leen de Mos	Groninger Lindo	25	79
82	Leen de Mos	Roodnerf Rido	25	89
83	Leen de Mos	Tuindersselectie	25	95
84	Leen de Mos	Roodnerf Vremo/Ostar	25	80
85	Leen de Mos	Roodnerf Vremo/Nectar	25	72
86	Holland Select	Roodnerf Seven Hills	96	59
87	Holland Select	Rubine	93	87
88	Royal Sluis	Laro	90	
89	Royal Sluis	Friigo	92	
90	Royal Sluis	Gronalto	95	
91	Van den Berg	Roodnerf Kampioen	100	78
92	Nunhem	Tribune	33	
93	Nunhem	Roodnerf Stabilo/Gravendeel	50	72
94	J. Bode	Tuindersselectie		
95	Johan Kats	Gloria AB	92	83
96	Johan Kats	Roem van Kloosterburen	1000	15
97	Mevr. Groenenboom	Sel. Groenenboom	20	73
98	Sluis en Groot	Roodnerf Vroeg	100	99
99	Sluis en Groot	Roem van Kloosterburen	100	94
100	Sluis en Groot	Herka	100	97
101	Sluis en Groot	Gemma	100	100
102	Sluis en Groot	Gloria AB	100	95
103	Sluis en Groot	Labo	100	99
104	Broersen	Selectie W. van Iperen	36	
105	Broersen	Gloria AB	39	
106	Broersen	Elektra	13	
107	Broersen	Broersen Export	55	
108	Broersen	Groninger Rola Cross	24	
109	Broersen	Selectie W. Sol	5	
110	Broersen	Tuindersselectie	22	
111	Broersen	Roem van Castricum	10	
112	Broersen	Selectie vr. J. Bode	24	
113	Broersen	Verbeterde Stiekema	14	
114	Broersen	Selectie Groenenboom	47	
115	Broersen	Harola	50	92
116	Broersen	Groninger Rola Cross	50	80
117	Broersen	Aurora	50	95
118	Visser Zaden (Wouda)	Stiekema No.1	100	84

## Brassica oleracea var. gemmifera

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
119	Johan Kats	Labo	7	3
120	Stiekema	Stiekema	31	78
121	IVT	Orion	63	76
122	IVT Broersen	Harola Laat Export	74	92
123	IVT	Groninger	1	
124	IVT	Mauser Auslese	95	96
125	IVT Altorfer Samen	Marktbeherrscher	105	95
126	IVT	Seven Hills	1	
127	IVT	Cambridge Special	105	94
128	IVT	Cambridge no.1	25	93
129	IVT	Bleu Vein	16	95
130	IVT	Harola G.S.	61	69
131	IVT Broersen	Groninger Rola Cross	3	90
132	IVT Falter Bern	Berner Makrt	1	
133	IVT Falter Bern	Zwerg Special	91	88
134	IVT Asmer	Roodnerf Vremo/Ostar	93	99
135	IVT Asmer	Yater Dark Crop	97	81
136	IVT	Champion Original	83	84
137	IVT Corns v. Beusekom	Westlandse	1	
138	IVT	Raya	1	
139	IVT	Gloria AB	13	81
140	IVT Supergran	Mechelse Markt	115	86
141	IVT J.W. Unwin Ltd	Roodnerf Rollo	19	96
142	IVT Elsoms Seeds	Gronalto	72	88
143	IVT W. Deal + Sons Ltd	Ashwells Strain	1	
144	IVT	Blauwtje	106	92
145	IVT Elsoms Ltd	Roem van Kloosterburen	4	79
146	Rijk Zwaan	Groninger Prominent	100	
147	IVT	Tuindersselectie van Prooien	104	



W1

Brassica oleracea var. capitata f. alba

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
1	Enza	Ditmarscher D141	4	89
2	Kees Broersen	Langedijker Bewaar Starski	53	69
3	Bejo	Express Raket	100	90
4	Bejo	Vroege Groninger	100	86
5	Bejo	Gouden Akker/Goldack	100	84
6	Bejo	Langedijker Vroege Witte Julia	100	93
7	Bejo	Langedijker Vroege Witte Augusta	100	92
8	Bejo	Roem van Enkhuizen	100	94
9	Bejo	Langedijker Vroege Herfstwitte Septa	100	81
10	Bejo	Brunswijker	100	64
11	Bejo	Octoma	100	92
12	Bejo	Succes	100	90
13	Bejo	Bewaar J	100	95
14	Bejo	Bewama	100	91
15	Bejo	Langedijker Bewaar Decema	100	95
16	Bejo	Langedijker Bewaar Decema Extra	100	87
17	Bejo	Novema Snit	10	88
18	Bejo	Novema	10	47
19	Bejo	Amager Kortstronk	10	
20	Bejo	Nora	10	
21	Bejo	Junia	10	94
22	Bejo	Vroege Herfstwitte	10	
23	Bejo	Hark	10	
24	Bejo	Vezufa	10	84
25	Bejo	Sel. Muis	1	
26	Bejo	Sel. Karsten	2	
27	Holland Select	Brunswijker	93	72
28	Holland Select	Gouden Akker	101	74
29	Holland Select	Jersey Wakefield	114	86
30	Holland Select	Grey Hound	104	97
31	Holland Select	Langedijker Bewaar	81	85
32	Holland Select	Roem van Enkhuizen	97	4
33	Holland Select	Winningstädter	90	68
34	Holland Select	Gouden Akker/Early Bird	89	80
35	Royal Sluis	Winningstädter	100	94
36	Royal Sluis	Brunswijker	100	83
37	Royal Sluis	Kopenhagener Markt Coverno	100	84
38	Royal Sluis	Deense Kortpoot	100	84
39	Royal Sluis	Gouden Akker	100	89
40	Royal Sluis	Libra	100	74

Brassica oleracea var. capitata f. alba

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
41	Royal Sluis	Langedijker Late Herfstwitte	100	87
42	Royal Sluis	Langedijker Bewaar Lares	100	85
43	Royal Sluis	Roem van Enkhuizen Romenco	100	87
44	Royal Sluis	Kopenhagener Markt B	100	92
45	Royal Sluis	Ditmarscher Treib	100	93
46	Royal Sluis	Quintal d'Alsace	100	68
47	Royal Sluis	Büdericher	13	
48	Sluis en Groot	April	100	95
49	Sluis en Groot	Amager Kortstronk	100	72
50	Sluis en Groot	Brunswijker	100	88
51	Sluis en Groot	Büdericher	100	75
52	Sluis en Groot	Durham Elf Hearting	100	93
53	Sluis en Groot	Offenham	100	91
54	Sluis en Groot	Express	100	82
55	Sluis en Groot	First Early Market	100	98
56	Sluis en Groot	Gouden Akker	100	100
57	Sluis en Groot	Langedijker Bewaar Graag Orig	100	60
58	Sluis en Groot	Langedijker Bewaar Taai Orig	100	86
59	Sluis en Groot	Langedijker Bewaar Taai Orig grijsvrij	100	40
60	Sluis en Groot	Langedijker Late Herfstwitte Orig	100	84
61	Sluis en Groot	Langedijker Vroege Witte Orig	100	80
62	Sluis en Groot	Groot Ossehart	100	98
63	Sluis en Groot	Roem van Enkhuizen	100	93
64	Sluis en Groot	Kasko	100	99
65	Sluis en Groot	Winningstädter	100	90
66	Sluis en Groot	Capata	100	78
67	Sluis en Groot	Wintergreen	100	83
68	Sluis en Groot	Continental	50	75
69	Broersen	Sel. D. Goudsbloem	45	
70	Broersen	Herfstdeen Snitkolos	44	
71	Broersen	Antiplof	415	
72	Broersen	Blankora	52	29
73	Broersen	Express/Spiko	50	93
74	Broersen	Eersteling	40	90
75	Broersen	Langedijker Bewaar Harwin	50	90
76	Broersen	Gustar	50	94
77	Broersen	Langedijker Vroege Witte Baldura	50	79
78	Broersen	Herfstdeen Winterkolos	50	62
79	Broersen	Langedijker Bewaar Vitala	50	97

## Brassica oleracea var. capitata f. alba

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
80	Broersen	Langedijker Bewaar Stark Winter	50	96
81	Broersen	Gustar	200	
82	Broersen	Randex	50	90
83	PAGV	Tuindersselectie	5	
84	Broersen	Grote Herfstdeen	35	
85	B. van Zoest-Hoorn	Tuindersselectie - Pronk	15	83
86	"	Tuindersselectie - Veltman	27	93
87	"	" - Stoop	25	95
88	"	" - Veltman	7	93
89	"	" - Kuilboer	21	89
90	"	" - Dekker	13	97
91	"	" - Kanten	10	85
92	"	" - Westmeyer	11	75
93	"	" - Hoop	3	87
94	"	" - Karsten	12	57
95	"	" - Karsten	4	89
96	"	" - Entes	6	82
97	"	" - Tesselaar	12	86
98	"	" - Berkhout	12	95
99	"	" - De Groot	11	83
100	"	" - Blom	21	82
101	"	" - ?	21	95
102	"	" - Groen	24	95
103	"	" - Weel	17	58
104	De Bolster	Filderkraut	6	83
105	B. van Zoest-Hoorn	Tuindersselectie - Bleker	14	80
106	"	" - Mooy	10	95
107	"	" - Van Langen	15	94
108	"	" - ?	17	91
109	"	" - Hoogenboom	13	96
110	"	" - Kaan	13	92
111	"	" - De Boer	6	83
112	"	" - Dekker	27	95
113	"	" - Neefjes	17	78
114	"	" - Van der Vliet	43	97
115	"	" - Van Langen	33	70
116	"	" - Nannes	20	92
117	"	" - Noordstrand	30	87
118	"	" - Kaan	14	93

## Brassica oleracea var. capitata f. alba

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
119	B. van Zoest-Hoorn	Tuindersselectie - Kamper	18	81
120	"	" - Van Vliet	12	98
121	"	" - Overtoom	32	85
122	"	" - Schipper	19	93
123	"	" - Blom	20	66
124	"	" - Mooy	13	94
125	"	" - Hoogenboom	28	87
126	"	" - Koopman	39	87
127	"	" - Van Hout	12	81
128	Rijk Zwaan	Express Fijne Vroege Witte Spitse	100	

RO

## Brassica oleracea var. capitata f. rubra

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
1	Kees Broersen	Langedijker Bewaar Superstar	5	95
2	Bejo	Langedijker Allervroegste St.Pancras	100	92
3	Bejo	Langedijker Vroege Norma	100	95
4	Bejo	Langedijker Herfst Volga	100	85
5	Bejo	Bewaar 217	100	87
6	Bejo	Langedijker Bewaar Kwanta	100	96
7	Bejo	Bewaar 218	100	92
8	Bejo	Langedijker Bewaar Extase	100	97
9	Bejo	Negerkop	100	68
10	Bejo	Allervroegste	10	98
11	Bejo	Sel. van Essen	1	
12	Holland Select	Langedijker Herfst	103	85
13	Holland Select	Langedijker Bewaar	101	60
14	Holland Select	Negerkop	97	71
15	Royal Sluis	Langedijker Herfst	100	96
16	Royal Sluis	Langedijker Bewaar	100	96
17	Royal Sluis	Negerkop	100	83
18	Sluis en Groot	Langedijker Vroege Baby	100	98
19	Sluis en Groot	Langedijker Bewaar Baby	100	79
20	Sluis en Groot	Langedijker Bewaar	100	79
21	Sluis en Groot	Negerkop	100	77
22	Sluis en Groot	Utrechtse	50	97
23	Broersen	Langedijker Vroege Meteor	50	92
24	Broersen	Langedijker Allervroegste Preka	50	92
25	Broersen	Langedijker Herfst Roodsnit	50	93
26	Broersen	Langedijker Bewaar Dorota	50	97
27	Broersen	Langedijker Bewaar Gouden Oogst	50	87
28	B. van Zoest-Hoorn	Tuindersselectie - Dekker	10	95
29	"	" - Kuileboer	14	97
30	"	" - Smit	12	93
31	"	" - De Groot	10	82
32	"	" - Van Vliet	14	96
33	"	" - Kampen	11	89
34	"	" - Stoop	15	98
35	"	"	18	92
36	"	" - Mosch	8	82
37	"	" - Kos	18	84
38	"	" - Blokker	15	96
39	"	" - Van Langen	6	88

## Brassica oleracea var. capitata f. rubra

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
40	B. van Zoest-Hoorn	Tuindersselectie - Kaan	8	86
41	"	" - Van der Vliet	24	97
42	"	" - Dekker	23	86
43	"	" - Kaan	16	92
44	"	" - Stroper	21	87
45	Enza		1	
46	Rijk Zwaan	Langedijker Vroege	100	
47	Rijk Zwaan	Langedijker Bewaar	100	

SA

## Brassica oleracea var. sabauda

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
1	Jos Huizer	Zwijndrechtse Putjes	10	80
2	Jos Huizer	Bredase Putjes	10	80
3	Bejo	Langedijker Vroege Gele	100	88
4	Bejo	Langedijker Bewaar Gele Gelba	100	91
5	Bejo	Langedijker Bewaar Gele JJ	100	75
6	Bejo	Bloemendaalse Gele	100	88
7	Bejo	Fitis	100	94
8	Bejo	Algro	100	95
9	Bejo	Vroege Groen Spitse Org.	100	87
10	Bejo	Novum	100	92
11	Bejo	Havro	100	65
12	Bejo	Hammer/Herba	100	89
13	Bejo	Westlandse Putjes Putta	100	88
14	Bejo	Winter Koning WKK/Harda	100	92
15	Bejo	Langedijker Herfst Gele	10	
16	Bejo	Mei Savoye	10	
17	Bejo	Nr.526	10	
18	Bejo	Antwerpse Putjes	10	
19	Bejo	Brusselse Lage	10	
20	Bejo	Brusselse Winter	10	
21	Bejo	Mechelse Vroege Groene	10	
22	Bejo	Sel.Jac.Glas	2	
23	Bejo	Comeet	2	
24	Bejo	Geel Groene	2	
25	Royal Sluis	Zwijndrechtse Putjes	100	80
26	Royal Sluis	IJzerkop	100	90
27	Royal Sluis	Vertus	100	94
28	Royal Sluis	Aubervilliers	100	95
29	Royal Sluis	Hegro	100	90
30	Royal Sluis	Winterkoning/Wiko	100	93
31	Royal Sluis	Vorbote	100	92
32	Royal Sluis	Lagro	100	82
33	Royal Sluis	Langedijker Vroege Gele	36	
34	Royal Sluis	Westlandse Putjes	100	75
35	Sluis en Groot	Vorbote Saxa	100	84
36	Sluis en Groot	Eisenkopf	90	35
37	Sluis en Groot	Late Putjes	100	45
38	Sluis en Groot	Ostara	100	35
39	Sluis en Groot	Winterkoning	100	85

## Brassica oleracea var. sabauda

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
40	Sluis en Groot	Des Vertus	100	96
41	Sluis en Groot	Noorweegse	50	85
42	Broersen	Groenland	50	92
43	Broersen	Winterkoning Wigro	50	82
44	Broersen	Lagedijker Gele Bewaar	31	
45	Broersen	Zomerparel	50	81
46	Broersen	Langedijker Bewaar Gele Toppy	50	65
47	Broersen	Vroege Groene Spitse	50	67
48	Broersen	Langedijker Bewaar Gele Prodor	50	89
49	Broersen	Sowa	50	80
50	Broersen	Groenetto	50	81
51	B. van Zoest-Hoorn	Tuindersselectie	9	
52	"	" Van Balder	1	
53	"	" Glas	17	
54	Broersen	Gele Bewaar	17	
55	Rijk Zwaan	Vroege Groene Spitse	100	

## Brassica oleracea var. acephala

Column	1	2	3	4
Acc.nr.	Donor name	Cultivar name	weight grams	germ %
1	Jos Huizer	Middelhoghe	10	66
2	Bejo	Bejo 1046	100	95
3	Bejo	Westlandse Herfst Westo/Toga	100	96
4	Bejo	Iras	100	74
5	Bejo	Sel.Valent Westlandse	3	81
6	Holland Select	Westlandse Herfst	85	81
7	Holland Select	Lage Krul	82	56
8	Royal Sluis	Lage Fijn Gekrulde	100	94
9	Royal Sluis	Westlandse Winter	100	95
10	Royal Sluis	Westlandse Herfst Arbo	100	82
11	Royal Sluis	Walcheren Winter Middelhoog Fijn Gekrulde	100	83
12	Van den Berg	Westlandse Winter	100	83
13	Nunhem	Halmar	100	72
14	Nunhem	Westlandse Winter	92	
15	Sluis en Groot	Lage Moskrul Mabor	100	90
16	Sluis en Groot	Westlandse Winter Wondergroen	100	32
17	Sluis en Groot	Westlandse Winter Verdura	100	47
18	Sluis en Groot	Frosty	100	45
19	Sluis en Groot	Bleu Siberian	50	100
20	Broersen	Westlandse Winter	500	90
21	IVT	Tuindersselectie Dammer	40	55
22	IVT	" Smit	31	89
23	IVT	" Grozema	21	83
24	IVT	" Waalkens	10	91
25	IVT	" De Vries	6	75
26	IVT	" Popkes	27	62
27	IVT	" Delger	129	95
28	IVT	" Ebeling	10/23	60/85
29	IVT	" Ronda	3	
30	IVT	" Mars	44	33
31	Enza	Westlandse Winter	100	91
32	IVT	Tuindersselectie Koning	24	
33	IVT	" Laan	5	
34	IVT	" Olders	17	
35	IVT	" Klungel	6	
36	Rijk Zwaan	Westlandse Herfst	100	

Report 1983 CP3

Many of the samples of the old stubble turnip accessions received from the RIVRO (report 1981) had shown a poor to very poor rate of germination. All of them, some 150, are in great need of multiplication. The 60 oldest samples did not show any germination upon sowing in press-pots which was unexpected since germination tests of a number of these samples (in 1982) had shown between 30 and 50 % germination. The struggle is now going on to extract seedlings by different ways and means.

E.E.C. CONTRACT FOR THE COLLECTION OF LAND-RACES OF CRUCIFEROUS CROPS  
IN EC-COUNTRIES

Claim for recovery of expenses  
incurred in conducting the trials  
during the half year period  
....January.-.July.....19.83

Name of participant:

Dr. I. H. McNaughton

Institution:

Scottish Crop Research Institute, Pentlandfield, Roslin,  
Midlothian EH25 9RF, Scotland, UK.

No. of Bank Account to be credited:

Bank of Scotland, Ltd.,  
Reform Street,  
Dundee.

Account No. 00767655

Signed ..... *I. H. McNaughton* .....

Date ..... 30-5-1983 .....



1 Scottish Crop Research Institute, Pentlandfield, Roslin, Midlothian EH25 9RF. Scotland, U.K.		A
2 Telephone number: 031-445-2171	3 No TELEX number	B
4 Dr. I. H. McNaughton		C
5 "The Collection of Forage Crucifers in the UK"		
6 Date sub-contract signed: 7 25.11.1981	31.12.1983	8 See attached details
9 <u>Progress report (if needed use additional sheets).</u>		
<p>Land races of cruciferous crops do not appear to exist in the UK. Seed of defunct cultivars, i.e. those no longer on the National List, is seldom available. As a consequence, seed collection has been restricted virtually to those cultivars currently on the National List and available from commercial seed organizations. This exercise is now almost completed.</p>		
10 All seed samples acquired have been sent to the National Vegetable Research Station (NVRs), Wellesbourne, Warwick CV35 9EF, UK, for processing and storage in the NVRs Gene Bank. Costs are charged against this sub-contract (CP4).		

11 As part of the programme, a number of mostly old, defunct cultivars of swedes, collected earlier at Pentlandfield, have been multiplied. Seed of 26 of these has been produced in sufficient quantity and 100 g samples incorporated in the NVRs Gene Bank. Twenty three further cultivars are currently being grown for seed production in autumn 1983.

Seed of a small number of defunct cultivars of various other forage crucifers has also been obtained.

12

E.E.C. CONTRACT FOR THE COLLECTION OF LAND-RACES OF CRUCIFEROUS CROPS  
IN EC-COUNTRIES

Claim for recovery of expenses  
incurred in conducting the trials  
during the half year period  
....July..-December.....1983

Name of participant: Dr. I.H. McNaughton

Institution: Scottish Crop Research Institute, Pentlandfield, Roslin,  
Midlothian EH25 9RF, Scotland, U.K.

No. of Bank Account to be credited:

Bank of Scotland Ltd.,  
Reform Street,  
Dundee.

Account No. 00767655

Signed ..... *I.H. McNaughton* .....

Date ..28th November 1983...

Sub contract no 0890

1 Scottish Crop Research Institute, Pentlandfield, Roslin, Midlothian EH25 9RF, Scotland, U.K.		A
2 Telephone No. 031-445-2171	3 No TELEX Number	B
4 Dr. I.H. McNaughton		C
5 "The Collection of Forage Crucifers in the U.K."		
6 Date sub-contract signed 25.11.1981	7 31.12.1983	8 See attached details
9 <u>Progress report (if needed use additional sheets).</u>  As stated previously land races of cruciferous crops do not appear to exist in the U.K. Furthermore seed of defunct cultivars, i.e. those no longer on the National List, is seldom available. As a consequence, seed collection has been restricted virtually to those cultivars on the National List and available from commercial seed organizations.  Defunct swede cultivars obtained several years ago, have been multiplied and included in collection CP4.		
10 During the period of the report nine seed samples have been sent for incorporation into the Gene Bank at the National Vegetable Research Station (NVRs), Wellesbourne. It is anticipated that a further 31 samples will be sent to the Gene Bank within a few weeks.		

11 A number of mostly old, defunct cultivars of swedes, collected earlier at Pentlandfield, have been multiplied. In addition to 26 of these, already incorporated in the NVRS Gene Bank, a further 29 were grown for seed production in Autumn 1983. Seed has been harvested and is currently being extracted and cleaned etc. Quantities are as yet unknown, but it is anticipated that seed of most, if not all cultivars will be sent to the Gene Bank within a few weeks.

Autotetraploid forms of B. oleracea and B. campestris have been produced at Pentlandfield for use as parents in B. napus (swede and rape) synthesis. Some of these may have agronomic value in themselves. Several cultivars; PentlandBrig, (B. oleracea) and Appin and Ballater (B. campestris) have originated from autotetraploid hybrids. Seed of 9 autotetraploids has been sent for incorporation into the Gene Bank. It takes four years to produce and establish an autotetraploid. It is particularly important to conserve this material in view of possible changes in breeding programmes.

12

HALF YEARLY SCIENTIFIC REPORT

E.C. COLLECTION PROGRAMME 6 1983

TITLE: COLLECTION OF LAND RACES OF ALL CRUCIFERS IN THE REPUBLIC OF IRELAND

R F Murphy,  
The Agricultural Institute,  
Kinsealy Research Centre,  
Dublin 5.

This programme which was started in 1982 was continued in 1983. To date most effort was concentrated in the southern half of the country, part of which was visited last year in the collection programme. Additional material (spring cabbage) was found in one of the areas visited last year. This is probably the last remaining land race of this valuable species. It is now known that very few land races of spring cabbage were collected in the other E.C. Collection Programmes and the Irish collection (including 1982) of spring cabbages are invaluable for breeding programmes as the areas in which they were grown favour ringspot (*Mycosphaerella brassicicola*).

A new selection of land races was discovered in the Glen of Aherlow stretching from Tipperary to Limerick in this years collection programme. This area is an isolated glen or valley and there has been a very long tradition of saving seeds and plants of crucifers - mostly cabbages in the area. Of particular interest were land races of cabbages which were known locally as 'cut and come'. These were propagated by seed, or cuttings inserted in the Autumn in the open and these then cropped from April right through to the Autumn. This glen is fairly frost prone and selections that growers made should have some tolerance to this climatic factor.

The collection methods used were basically the same as those used in 1982 viz. communication with the advisory service (ACOT) and personal visits to the grower concerned.

Some areas along the west coast of Ireland missed out in 1982 will be

visited during the second half of the year together with areas known to have land races but seed of which could not be collected due to severe kill in 1981 - 82 winter. Growers are accepting seed of cultivated brassicas instead as payment as in 1982.

To date I have collected a total of 8 land races as follows:

<u>No. Samples</u>	<u>Brassica</u>
1	Spring Cabbage
1	Green Sprouting Broccoli
6	Cabbages 'Cut and Come'

R. F. Murphy  
R F Murphy.  
June 7 1983

INSTITUUT  
VOOR DE VEREDLING  
VAN TUINBOUWGEWASSEN  
6700 PA WAGENINGEN  
MANSHOUTLAAN 15 (HOLLAND)

*Murphy*  
18/8/83

Final Report

EC COLLECTION PROGRAMME

Project CP 7 - Subcontract No. 0890

Collection of seed of Brassica and Radish cultivars and land-races in Denmark

Breeding of horticultural crops are made by four Danish firms. To obtain seed samples, I have contacted all these firms and have collected 100 g samples of Cabbage, Kale, Cauliflower, Brussels Sprouts and Kohlrabi, as well as 100 g/250 g samples of Radish.

The genetic origin of some of these samples may be land-races, but surely a real land-race does not exist in Denmark. 40-70 years ago strains were grown and maintained by market growers and farmers. This has now come to an end, but in the case of particularly good types, such excellent local strains were often bought by the seed companies. Many of the strains marketed in Denmark can thus be regarded as still maintained, but in many cases improved land-races.

Some of the strains originate from Dutch land-races. 450 years ago, a number of Dutch farmers came to Amager to grow vegetables with a view to supplying Copenhagen. These farmers brought their own strains and continued to grow seed. It was also customary that a young girl who married brought seed from home. Therefore, the same genes can probably be found in certain Danish and Dutch strains.

Improvement of land-races and breeding of cultivars were started in the years before the first World War, and as mentioned, there are now four Danish seed companies working with their own strains (cultivars). These strains are based on 40-100 individual plants. The strains (cultivars) have been the property of the respective companies for many years. Formerly, a gradual improvement was done without changing the name, but after introduction of rules for plant breeders' rights, this is no longer possible.

Seeds are distributed to commercial horticultural enterprises and to about 500,000 private gardens. Each of the four companies tries to market their own seed, and in order to satisfy their buyers, they breed several cultivars of each species, e.g. early, medium and late cultivars, cultivars suited for private consumption, and cultivars suited for industrial purpose.

Raising of cruciferous crops on an F.1 basis is still very limited in Denmark, but seed of some F.1 cultivars may be sold on the market. Seed of the components of F.1 cultivars is not available.

Testing of horticultural cultivars was previously carried out by The State Experiments in Plant Culture in cooperation with the Association of Commercial Horticulturists and local growers. Reports from this testing are available, but in Danish.

Cultivars and land-races tested in the years 1947-52 were stored in sealed glasses after testing and were offered to the Nordic Gene Bank two years ago. The germination capacity was unsatisfactory for many samples, but a good deal of the sealed samples germinated very well and are transferred to the gene bank, in some cases after multiplication.

Many Danish cultivars, especially the old ones, were considered to be very similar, but at a meeting in the Danish board for the Nordic Gene Bank, it was decided to include the following numbers of cultivars (land-races, strains) in the collection:

Cauliflower .....	29	Cabbage .....	11
Brussels Sprouts ....	9	Radish .....	33
Turnip .....	11	Cabbage White ....	38
Kale .....	12	Cabbage Pointed ..	11

Seeds and information about the entries are available at the files of the bank. Through professor Sigurd Andersen, Landbrugs Plantekultur, an inquiry was made whether the Nordic Gene Bank would be in a position to store the seeds collected by me, but unfortunately, the answer was negative, due to insufficient room.

*Erl. V. Schelbeck*  
Erl. V. Schelbeck

Instituut voor de Veredeling van  
Tuinbouwgewassen  
P.O.B. 16  
NL-6700 AA WAGENINGEN  
H o l l a n d  
-----

1983-11-18

Dear Sirs,

Re collection of land-races of cruciferous crops in EC-countries

I am pleased to hand you enclosed descriptions of all the varieties sampled.

A copy as well as my claim for EEC funds have been addressed to the Stichting voor Plantenveredeling.

Yours sincerely,

*Erl. V. Schelbeck*  
Erl. V. Schelbeck

ES/GJ

Erl. V. Schelbeck  
Hvenebo  
Hvenekildevej 18  
DK-5240 Odense NØ  
-----  
Denmark

CAULIFLOWER 'DANOVA' LD

A very uniform and vigorous cauliflower, with very firm and ample curds well protected by foliage. Very late development. Very heavy cropper.

CAULIFLOWER 'DOMINANT' LD

A very uniform, extremely vigorous cauliflower. Very big, extremely firm and ample curds. Curd protection medium. Development very late. Very high yield of excellent quality.

CAULIFLOWER ERFURTER 'ERFU' LD

A uniform, medium-vigorous to rather vigorous cauliflower. Good protection of curd. Fast development, harvest starting after 52-66 days. Harvesting period short to rather short, relatively concentrated. Fairly high yield of good quality.

CAULIFLOWER 'GRANDESSA' LD

Extremely uniform and very vigorous cauliflower. Very big, extremely firm and ample curds. Very well protected by foliage. Development medium-early to rather late. Very high yield of very fine quality.

CAULIFLOWER 'KING' LD

A very uniform, medium-vigorous cauliflower with good curd protection. Very fast development, harvest beginning after 49-63 days. Harvesting period short and rather concentrated. Very high yield of good quality.

CAULIFLOWER 'PERFECTION' LD

A uniform, medium-vigorous cauliflower, with very firm and very ample curds of medium size. Leaves with strongly marked keel; protection of the curd rather poor. Very early cauliflower giving fairly high yield of fine quality.

CAULIFLOWER 'STARLA' LD

Very uniform cauliflower of medium-vigorous to rather weak growth. Extremely firm and ample, medium-sized curds. The leaves have a marked keel, and the protection of the curd is not very good. Extremely early, with a heavy yield of good quality.

CAULIFLOWER 986 'VALI' AH

Very uniform, medium-vigorous to rather vigorous cauliflower, with extremely firm and ample medium-sized curds. The leaves have strongly marked keel, and the curd protection is not very good. Curds sitting low in the foliage. Very early, with a heavy yield of fine quality.

CAULIFLOWER 'GARANT' AH

Very uniform, rather vigorous cauliflower with big, very firm and ample curds, well protected by leaves. Medium-early. Very heavy crop of nice quality.

CAULIFLOWER 'BRAVO' AH

A very uniform, medium-vigorous cauliflower with good curd protection. Very fast development. Harvest starting after 49-63 days. Harvesting period short and rather concentrated. Heavy yield of good quality.

CAULIFLOWER 'SAFIR' FDB

Very uniform, rather vigorous cauliflower, with big, extremely firm and ample curds, very well protected by foliage. Development medium-early. Heavy yield of fine quality.

BORECOLE 'HALVHØJ KRUSET', 'KONSERVA' LD

Very homogeneous borecole with medium-tall stem, and nicely curled, dark green leaves. Uniform as to height of stems, and healthy when harvested in due time. Medium to high yield at early and medium-early harvests.

BORECOLE 'LÆRKETUNGE' LD

Recognized for spring and short culture. Leaves long and narrow, strongly curled, and glaucous. Low yield, but good quality. Fairly good for wintering. Tendency to early renewal of growth rather pronounced.

BORECOLE 'HØJ KRUSET' LD

A tall, very hardy borecole giving a high yield of healthy leaves of agreeable taste.

BORECOLE 'LAVO' LD

A dwarf borecole with upright leaves and therefore especially suited for mechanical harvest. When the leaves are cut above the growing-point, harvest can take place three times in a season.



BORECOLE 'HØJ AMAGER SUNDBY TORVE' AH

A fairly homogeneous, rather tall-stemmed, coarsely curled borecole. Fresh green leaf colour. Uniform height of stems. Healthy, very durable. Heavy yield.

BORECOLE 'HALVHØJ KRUSET' 'BONA' FDB

Very homogeneous borecole, with medium to tall stem and nicely curled leaves. Leaf colour rather light green. Very high yield at early and particularly at medium-early harvests. Even in case of late harvest, the yield has been above average. Suited for fresh use and industry, because of the somewhat light colour perhaps especially for the former purpose.

WHITE CABBAGE AMAGER 'HØJ GRØN' 'GRANI' LD

A fairly homogeneous, medium-vigorous to vigorous cabbage, rather late developed, with relatively dark green leaf colour and rather light head colour. Outer stem about 20 cm (half-tall), tap medium. Heads deep flattish round, most with balloon-shaped base. Interior quality medium. In Danish trials some tendency to interior tipburn. Autumn yield very high. Keeping qualities good in January-February, dropping a little in March-April but the yield is still acceptable after storage.

WHITE CABBAGE AMAGER LAV 'ANLARO' LD

A short-stemmed, early winter cabbage. Heads are medium-sized, round to flattened round. High yield.

WHITE CABBAGE 'BEWAMA'

A very uniform cabbage, not very vigorous, comparatively early developed. Leaf and head of a dull-green colour. Outer stem about 17 cm (short), tap medium. The heads are round, most of them without balloon-shaped base. Interior quality very fine. Showed in the Danish trials very little tendency to interior tipburn. Autumn yield rather high - keeping qualities medium good for January/February, only moderate for March/April.

WHITE CABBAGE DITMARSKER 'PRIMAX' LD

A very uniform, rather vigorous cabbage with fresh-green leaf and head colour. Heads very big, ball-shaped to flattened round with rather good closing. The interior quality is fairly good. High yield. Average head weight about 1500 g. Rather early to medium early.

WHITE CABBAGE DITMARSKER 'SPECIAL' LD

A very uniform cabbage of very early development, with medium to weak leaf growth. Heads round to flattened round, light green, with medium good closing and medium to fairly good inner quality. Time of development short, 45-55 days from transplanting. Harvesting period short. Heads will soon burst if not cut in due time. Yield in tons rather low. Weight per head about 900 g. Very high percentage of first quality.

WHITE CABBAGE KØBENHAVNS TORVE 'KOTO' LD

A very uniform, comparatively vigorous cabbage. Leaf and head colour a fresh green. Good closing. The heads are big, spherical to flattened round. Average weight 2.4 kg. Inner quality fairly good. Medium-early to rather early.

WHITE CABBAGE 'VIVALDI' LD

A fairly uniform, medium-vigorous to vigorous cabbage of late development. Leaf and head of a fresh green colour. Outer stem about 25 cm (tall), tap medium. Deep globe to globe shape with balloon-shaped base. Interior quality good, in trials no interior tipburn found. Autumn yield high, keeping qualities good.

WHITE CABBAGE 'WIDI' LD

A very uniform cabbage of medium early to rather late development. Very weak leaf growth. Heads round to flattened round, medium green, with good closing, very fine interior quality. Time of development rather long, 63-80 days from transplanting. Harvesting period fairly long. The heads will stand comparatively long without bursting. Yield in tons medium to rather low. About 1100 g per head. Very high percentage of first quality.

WHITE CABBAGE 'DIMA' AH

A very uniform cabbage of very early development, with medium to weak leaf growth. The heads are flattened round to round, comparatively light green. Medium to good closing, interior quality medium. Time of development short, 47-60 days from transplanting. Harvesting period rather short. If not cut in due time, the heads will rapidly burst. Yield in tons rather low. Weight about 1000 g per head. Percentage of first quality very high.

WHITE CABBAGE LANGENDIJKER VINTER 'VERNIDO' AH

Fairly uniform, medium vigorous to vigorous cabbage of medium early to rather early development. Leaf colour rather dark green, head colour rather light. Outer stem about 20 cm (half-tall), tap medium. The heads are between flattened round and slightly deep globe-shaped, i.e. roundish. About half of the heads with balloon-shaped base. The interior quality medium to good, and in Danish trials no interior tipburn was found. High autumn yield. Keeping qualities were medium for January-February - less good for March-April.

WHITE CABBAGE AMAGER HØJ GRØN 'KALIDA' AH

A uniform, vigorous cabbage, rather late developed, with light leaf colour and rather light head colour. Outer stem about 25 cm (tall). Tap medium-sized. Heads flattened round with balloon-shaped base. Inner quality medium. Trials showed rather little tendency to interior tipburn. Autumn yield very high. Keeping qualities good.

WHITE CABBAGE AMAGER GRØN VINTER 206 OE

The heads are fairly uniform, very firm, smooth, of good colour, round, most of them with balloon-shaped base. Little tendency to tattering or sliming when standing. Late development. At short term storage very low waste percentage. Heavy yield - percentage of first quality very high.

WHITE CABBAGE 'DURAL' OE

Fairly uniform, medium vigorous cabbage, rather late of development. Leaf and head of a fresh green colour. Outer stem about 20 cm tall, tap medium. Heads round, most with balloon-shaped base. Interior quality medium to good, no interior tipburn found in the Danish trials. Autumn yield was high. Keeping qualities, especially for January-February and March, were good.

WHITE CABBAGE KØBENHAVNS TORVE 'BIRO' OE

A uniform cabbage of medium-early to rather late development with comparatively vigorous leaf growth. The heads are round to flattened round, medium green, with medium to good closing, and medium to fairly good interior quality. Time of development rather long to long, 76-108 days from transplanting. Harvesting period rather short, but the heads will stand comparatively long without bursting. Yield in tons very high. Head weight about 2300 g apiece. Percentage of first quality very high.

WHITE CABBAGE TIDLIG DITMARSKER 'EGA' OE

A very uniform cabbage of very early development, with weak leaf growth. Heads rather deep globe-shaped, light green, with medium to good closing, and medium to good interior quality. Time of development short, 45-55 days from transplanting. Harvesting period short. If they are not cut in due time, the heads will rapidly burst. Yield in tons rather low. Head weight about 900 g apiece. Percentage of first quality is very high.

WHITE CABBAGE DITMARSKER 'MIDI' OE

A uniform, vigorous Ditmarsker type with ample foliage and big, flattened round to round heads. Leaf colour rather dark green, head colour fresh green. Closing and interior quality fairly good. Smoothness after trimming less good. Relatively early to medium early, can follow the early Ditmarsker types. High yield, with an average head weight of 1500 g.

WHITE CABBAGE BRUNSVIGER 'LADU' OE

Large-sized, vigorous cabbage with rather large, slightly wavy leaves. The heads are large and oblate (flat round) in shape. Colour a fresh green. Approx. 95 days from transplanting to maturity.

WHITE CABBAGE 'DARKRI' OE

A very uniform cabbage of medium-early development with medium-ample foliage. Heads round to flattened round, medium-green, with good closing and good interior quality. Time of development rather long, 75-87 days from transplanting. Harvesting period long. The heads will stand comparatively long before bursting. Yield in tons is high. Head weight about 2000 g. Percentage of first quality very high.

WHITE CABBAGE 'DELIKATESSE' OE

Belongs to the same series as Cabbage 'Noblesse', which it resembles in many ways. However, it is slightly smaller and earlier. Days to maturity: about 62-65.

WHITE CABBAGE 'GODIN' (TIDLIG DITMARSKER) OE

A very uniform cabbage of very early development, with medium to little foliage mass. Heads round, rather light green, with good closing and medium to good interior quality. Time of development comparatively short, 51-60 days from transplanting. Harvesting period fairly long, but the heads will rapidly burst if not cut in due time. Yield in tons rather small. Head weight about 1000 g apiece. Percentage of first quality very high.

WHITE CABBAGE 'NOBLESSE' OE

A rather small, early to medium-early cabbage, round in shape with very fine closing of the heads. The interior quality is excellent, very firm. The tap (core) is about 20 %. Interior leaves thin, delicate, and sweet. Outer leaves few in number, quite small and round. Days to maturity: about 70.

WHITE CABBAGE RUHM VON ENKHUIZEN '386' OE

A little varying in type, vigorous, with medium-sized, flat rounded heads with fairly good closing. Head colour rather dark green. Development medium-early - keeping long without bursting or tattering. Showed but little interior tipburn in the trials and yielded 80 t/ha. High growing value, good quality.

WHITE CABBAGE LANGENDIJKER VINTER 'HEKLA' FDB

Fairly uniform, medium-vigorous cabbage of rather late development. Leaf colour medium - head colour rather light. Outer stem about 20 cm (half-tall), tap medium. Heads spherical to slightly flattened round, most with slightly balloon-shaped base. Interior quality medium to good. No interior tipburn found in the trials. Yield in autumn was very high. Keeping qualities good in January/February - decreasing somewhat in March/April, but the yield is still acceptable after storage.

WHITE CABBAGE DITMARSKER 'FRIGGA' FDB

A uniform, vigorous Ditmarsker type, with ample foliage, and big, round to flattened round heads. Leaf and head colour fresh green. Closing and interior quality rather good. Smoothness after trimming is good. Early to medium-early, 'FRIGGA' can follow the early Ditmarsker types. The yield has been high with an average head weight of more than 1500 g.

BRUSSELS SPROUTS ODENSE TORVE 'OTO' LD

Very uniform, short-stemmed, with big, dark green to bluish green leaves. Sprouts very well covered. Oval, often compressed, very firm and very smooth sprouts with excellent closing. Those at the bottom are biggest. Sprouts sitting quite closely. A very hardy strain. Yield very high of fine quality.

BRUSSELS SPROUTS 'POLARSTJERNEN' LD

Uniform, half-tall plant with big, broad leaves giving good protection to the sprouts. Nicely coloured, deep globe shaped to oval, smooth, very firm sprouts, with fine closing. Density on the stem is medium. The sprouts may be rather big, but most of them are of a suitable size. Very heavy yield. Sprout quality fine.

BRUSSELS SPROUTS 'HUGIN' FDB

Uniform type, relatively tall stem. Vigorous growth. Big leaves with comparatively long petioles, medium-green colour. Big, uniform sprouts, deep globe shape, medium-green. The closing of the sprouts is rather good. Early of development - the leaves are shed rather early. Heavy yield in good quality, most sprouts are medium-sized. Below 0.3 per cent with interior tipburn at the latest harvest.

RED CABBAGE 'HOLDBAR AMAGER' LD

A uniform, relatively vigorous red cabbage; shape deep globe to round. Fairly good inner and outer colour. Colour after cleaning good. Closing medium. Tap small. Very high yield in fine quality. Good keeping qualities.

RED CABBAGE AMAGER 'CARO' (180) OE

Fairly uniform, rather vigorous red cabbage, with a very nice outer colour also after trimming. The heads are large, deep globe shaped, some spherical or oval. Very few balloon-shaped. The closing is very fine, and so are the interior colour and quality. Outer stem about 18.5 cm tall. Tap very small. Very little waste at short storage. High yield, high growing value, and very high quality.

RED CABBAGE 'HOLDBAR VINTER', 'ROKA' OE

Vigorous, round to oval, petioled leaves with slightly undulated edges. Heads medium-sized, deep globe to balloon shaped. Relatively high autumn yield, good keeping qualities, and good inner and outer quality also after storage.

RED CABBAGE KISSENDRUP 'PIRU' OE

A medium-early red cabbage, spherical in shape. The head is smooth with a thin to medium thick waxy layer. The outer leaves are medium long, petioled and slightly wavy with a medium thick waxy layer.

RED CABBAGE 'HOLDBAR AMAGER' FDB

Very productive strain with average keeping percentage. Harvested in autumn and stored until February 1st, it gave the highest yield of useable heads in trials. Uniform, very vigorous, stem 18 cm tall. Leaves with short petioles, strongly glaucous, almost round, somewhat patulous, with slightly undulated edges. Heads big, almost round with very fine closing. The inner quality is good, and so is the appearance after cleaning.

RED CABBAGE AMAGER '304' AH

A uniform, vigorous red cabbage of deep globe shape. Very nice inner and outer colour. Closing fine, and density good. The heads are somewhat uneven after trimming. Tap very small. High yield of very fine quality. Good keeping qualities.

RED CABBAGE 'HOLDBAR VINTER', 'ROVI' AH

Vigorous, round to oval, petioled, strongly undulated leaves. Heads medium-sized, round to deep globe shaped. Relatively high autumn yield, good keeping qualities, good inner and outer quality.

SAVOY CABBAGE VERTUS 'VERIUS' LD

A medium-sized savoy cabbage suited for autumn use. Heads round to flattened round.

SAVOY CABBAGE AUBERVILLIERS 'PLADANO' OE

A typical Aubervilliers type, abt. 10 days earlier than 'Vertus'. Medium-early, oblate in shape (flat round) with large, well-curved heads. Colour green with a slight yellowish tinge when the heads are fully ripe. Outer leaves quite large, blue-green with a waxy layer. Almost blistered in texture with a cloqué effect.

POINTED CABBAGE ERSTLING 'LINGA' LD

Uniform; medium-vigorous growth. Big heads of comparatively good colour. Tap very short. Development medium-early to rather late. Very high yield in fine quality.

POINTED CABBAGE 'BIGAL' OE

An early to medium-early cabbage. The heads are green to dark green with a waxy layer, and deeper than usual for a pointed cabbage. The shape is deep oval, nearly cylindrical, attaining 50 % of the head height before the point is formed.

/Days to maturity: 75.

POINTED CABBAGE ERSTLING 'TRETA' OE

Uniform, medium-vigorous to vigorous with medium-green head colour. Heads big, rather short, broad, comparatively smooth, fairly well closed. Tap short. Development medium-early. Very high yield of fine quality.

POINTED CABBAGE JERSEY WAKEFIELD 'PEWA' OE

A uniform, medium-vigorous cabbage. Head colour a comparatively intense green. Big heads, very smooth, rather long, and broad at the base. Well closed. Tap rather long. Development medium-early to rather late. High yield in very fine quality.

POINTED CABBAGE CHARLESTON WAKEFIELD 'MITOL' OE

Relatively uniform with very vigorous growth, head colour a rather light green. Heads medium-sized, relatively long, rather broad at the base, and very smooth. Very fine closing. Tap rather long. Development very late. Very high yield of fine quality.

POINTED CABBAGE 'WAKKER' OE

A uniform, medium-vigorous cabbage. Head colour rather dark to dark green. Heads relatively high, wide at the base, smooth, and with fairly good closing. Tap rather small. Medium-early to rather late in development.

POINTED CABBAGE ERSTLING 'ERNOVA' FDB

Uniform, medium to rather vigorous. Head colour medium to dark green. Heads big, rather short, broad, fairly smooth, and with fine closing. Tap rather long. Of medium-early development. Very high yield of fine quality.

POINTED CABBAGE ERSTLING 'PIKOLA' AH

Very uniform. Growth rather weak. Heads big, fairly smooth, medium-green with fine closing. Very short tap. Development early. Acceptable yield of very fine quality.

KOHLRABI DELIKATESSE BLAA LD

Medium-sized, round to flattened round, purple. Foliage with torsion.

KOHLRABI DELIKATESSE HVID 'DELIWI' LD

Medium-sized, round to flattened round, white. Foliage with torsion.

RADISH GAUDRY LD

A fairly uniform radish, somewhat deep ball-shape. Dark rose with approx. 1/3 white tip. Has to be harvested in due time, otherwise it may tend to become pithy. Very early, yielding a high percentage of first quality.

RADISH 'HALVLANG ROSENROD HVIDSPIDSET', 'VIDAN' LD

A very uniform radish with vigorous foliage, relatively early developed. Half-long to long, red with about 1/5 white tip. Yield high, quality and durability on root good.

RADISH 'HALVLANG SKARLAGENROD HVIDSPIDSET No. 25' LD

(French Breakfast)

A uniform, short/half-long to long/oval radish. Scarlet with 1/5 white tip. Foliage fairly vigorous. Early, with a very high percentage of first quality.

RADISH 'HALVLANG SKARLAGENROD HVIDSPIDSET No. 35' LD

A uniform, short/half-long, dark scarlet radish with very small white tip (1.3 tenths). Foliage medium-vigorous. Early with a very high percentage of first quality.

RADISH 'HALVLANG SKARLAGEN HVIDSPIDSET No. 875' LD

A very uniform, relatively early radish with short top. Half-long, dark red with approx. 1/5 white tip. Fine quality.

RADISH ISTAP 'ISMO' LD

A very uniform, very long, conical radish, snow-white, with very vigorous foliage. In a fairly good stand, 'Istap' gave a high percentage of first quality, and it did not show any tendency to pith in the trials.

RADISH KOBENHAVNS TORVE 'KOTOMA' LD

Outdoor radish with rather vigorous foliage. Red with 3/8 white tip.

RADISH 'METEOR' LD

A uniform, oval, all bright red radish, rather well shaped at bottom. Foliage medium to small. Development early to very early. Very high percentage of first quality.

RADISH NON PLUS ULTRA 'NONDAN' LD

A uniform, round to flattened round, all bright red radish, nicely shaped at bottom. Foliage rather small to medium. Development medium-early. Relatively high percentage of first quality.

RADISH RUBIN 'RUNO' LD

A round, red radish. Suited for summer crop.

RADISH 'RUND ROSENROD HVIDSPIDSET' LD

Round, rose-red, with white tip.

RADISH SAXA 'SARA' LD

Round, red forcing radish. Short top.

RADISH 'MINARET' AH

High-summer radish, of a bright scarlet, with 1/3 to 1/2 white tip. Foliage medium-long.

RADISH 'CLARO' OE

A very uniform radish. Development medium-early. Rather small foliage. Round, dark red, without white tip. Fine quality.

RADISH KØBENHAVNS TORVE 'DEMA' OE

An outdoor radish, round in shape with a tendency to be oblate (flat round). The colour is scarlet with a tinge of rose-pink. 30-40 % white tip.

RADISH SAXA 'KORTO' OE

A relatively uniform radish, with a short top, rather late developed. Round, bright red without white tip. Yield high, quality fine, durability good on root.

RADISH 'HALVLANG HVIDSPIDSET', 'FOTA' OE

A uniform radish of very early development. Foliage vigorous to rather vigorous. Short to half-long, rose-red, with a little more than 1/3 white tip. Good quality.

RADISH 'HALVLANG ROSENROD HVIDSPIDSET' 205 OE

A uniform, half-long, rose-red radish with approx. 1/3 white tip. Foliage rather vigorous. Very early. Very high percentage of first quality.

RADISH 'HALVLANG SKARLAGEN HVIDSPIDSET' 393 OE

A very uniform, short/half-long to oval, scarlet radish with a small white tip. Rather early of development. Small foliage.

RADISH NON PLUS ULTRA 357 'FALKAN' OE

A very uniform radish with small foliage. Development rather early. Round, dark red, without white tip. Fine quality.

RADISH NON PLUS ULTRA 406 OE

A very uniform, almost round, all bright red radish with rather small foliage. Very high percentage of first quality.

RADISH ISTAP 'SYLA' OE

Istap (Icicle) 'SYLA' is a long, pointed radish, very white and delicate.

RADISH 'ROVI' OE

A uniform, round to round-oval, bright signal-red radish, with approx. 1/5 white tip. Foliage relatively vigorous. Very high percentage of first quality.

RADISH WÜRZBURGER 'GIGA' OE

A large outdoor radish with good resistance to bolting. It is scarlet in colour, round with a slight tendency to be oblate (flat round). A characteristic trait is the interior colour, white with spots of red here and there.

RADISH 'HALVLANG HVIDSPIDSET', 'RAPID' FDB

A very uniform radish, development very early, foliage vigorous. Half-long, rose red with approx. 1/3 white tip. When harvested in due time, it is of good quality, but pith appears rather soon after maturity.

RADISH 'HALVLANG SKARLAGEN HVIDSPIDSET' FDB

A very uniform, half-long to short/half-long, scarlet radish with a little more than 1/5 white tip. Foliage vigorous. A very high percentage of first quality.

RADISH KØBENHAVNS TORVE 'HAFNIA' FDB

A very uniform, spherical radish of a dark rose red colour, with approx. 1/3 white tip. Relatively vigorous foliage. A very high percentage of first quality.



CAULIFLOWER 'CODANIA' AH

A very uniform, medium-vigorous cauliflower with very big, firm, ample curds of good colour. Very little tendency to riceyness. Development early, harvesting period short. Very heavy yield of fine quality.

CAULIFLOWER 'AKRON' OE

(Description covering plants grown in house only)

Very uniform in type and time of development. Growth more than medium-vigorous. Tall-stemmed, with comparatively long, smooth leaves. Leaf colour a rather light, fresh green. Early development. Having no keel, the leaves give good protection to the curds, which are medium-sized, of fine quality. Very high percentage of first quality, most curds being medium-sized.

CAULIFLOWER 'BOSS' OE

A relatively uniform, very vigorous cauliflower, with very big, very firm and rather ample curds. Foliage giving fairly good protection to the curds. Rather medium-early of development. Very high yield of good quality.

CAULIFLOWER 'EKO' OE

A uniform, very vigorous cauliflower with extremely big, very firm and very ample curds. Protection of curds rather good to good. Medium-early to rather early of development. Producing a very high yield of good quality.

WHITE CABBAGE AMAGER 'HØJ GRØN' No. 5 AH

Medium-vigorous with medium-sized, roundish leaves, standing somewhat out, with rather short petioles. Glauous, very waxy. Keeping very well. Interior quality fairly good. Remaining rather green after storage.

WHITE CABBAGE AMAGER 'HØJ GRØN' No. 13 AH

Medium-vigorous cabbage. Leaves medium-sized, roundish, with rather short petioles. Glauous, very waxy. Keeping very well. Interior quality fairly good. Remaining green after storage.

WHITE CABBAGE LANGENDIJKER VINTER 007 AH

Weak-growing cabbage, with rather small, petioled, oval leaves with undulating edge. Green with light-coloured leaf veins. Keeping very well. Interior quality very fine. Small tap. Very green after storage.

WHITE CABBAGE LANGENDIJKER VINTER No. 453 OE

Rather weak-growing cabbage with rather small, petioled, oval, somewhat bowl-shaped leaves. Green with light coloured veins. Keeping very well. Very fine interior quality, small tap. Strongly green after storage.

RADISH 'FORINA' OE

A very uniform, short - half-long, rose-red radish with almost 1/3 white tip. Rather well-shaped at bottom. Foliage medium to rather small. Development early to very early. Very high percentage of first quality.

RADISH 'TRIRO' OE

Very uniform in shape and colour. Bright scarlet, round radish with medium to small foliage. Nicely shaped at bottom, fine taproot. Development medium-early to late. Little tendency to pith and neck.



Report 1983 CP8

As from late 1982 seed samples of the existing German OP varieties from the respective breeding firms started to come in; free of charge except for one small firm. A total of 159 varieties belonging to 14 crops came in; 100 gms of each. The accessions of the landraces of sauerkraut cabbages and the Münchner radi started to come in later and so far 52 of the former and 20 of the latter were received. Table 1 provides details of the accessions. Most of these samples are only 10 or so grammes in weight and require multiplication.

All samples were sent directly to the Deutsche Genbank at the FAL in Braunschweig.

Table 1.

		nr. of accessions	
Weisskohl (white cabbage)	landraces		52
Experimental materials			12
	OP varieties		20
Rothkohl u Wirsing (red cabbage and savoy cabbage)			20
Kohlrabi			25
Blumenkohl (cauliflower)			6
Herbstrueben (stubble turnips bulbing )			13
Winterruebsen (stubble turnips non bulbing )			4
Sommerruebsen (summer turnip rape)			4
Kohlruebe (rutabaga)			9
Sarepta senf (indian mustard)			2
Weisser senf (white mustard)			7
Oelrettich (oilseed radish)			6
Rettich (giant radish)	landraces		19
	OP varieties		18
Radies (radish)	landrace		1
	OP varieties		<u>24</u>
	total		243 accessions
	landraces		72
	OP varieties		159
	exp. materials		12

Sub contract no 0890

1	Rijksproefstation voor Plantenveredeling Van Gansberghelaan 109 9220 Merelbeke - Belgium		A
2	(091) 521981 (091) 521982	3	B
4	Ir. Lena van Hee		C
5	The collection of seeds of landraces and cultivars of crucifers in the Belgium provinces East and West-Flanders.		
6	30 March 1982	7 31 December 1983	8 1 acad. for 1/15 man p.y. 1 techn. for 1/25 man p.y.

9 Progress report (if needed use additional sheets).

- a. Collection of seed of landraces and cultivars of fodder rape, stubble turnip, fodder kale and marrow stemkale in the Belgian provinces East- and West-Flanders in order to build up a gene collection.
- b. Seed firms are contacted and farmers are visited. The seeds need mostly to be dried and cleaned at their arrival and before storage at - 20°C germination test are also performed on the seed.
- c. Some samples have very low germinating capacity and in order to preserve these land-races, seeds must first be multiplied by sowing. There is considerable genetic variation in shape and colour in the available material of stubble turnips also the resistance against diseases is very different among these landraces, especially against Plasmodiophora brassicae there one differences too in frost resistance.

10 Usefull information is obtained from merchants who visit farmers frequently, and also from extension services of the Ministry of Agriculture.

11 The Belgian provinces of East- and West-Flanders have been fully explored for the occurrence of landraces of stubble turnips, fodder rape, fodder kale and marrow stemkale. We have found that many landraces of stubble turnips still exist today and have collected seeds of them, while concerning the other explored crucifers we found only a few landraces, many old varieties having disappeared during the last twenty years.

12

SCIENTIFIC REPORT OF E.C. RESEARCH  
PROGRAMME 0890

"the collection of land races of cruciferous  
crops in E.C. countries"

C.P.10 FRANCE  
FOR 1983

Yves HERVE

Station d'Amélioration des Plantes de Rennes  
Institut National de la Recherche Agronomique  
B.P. 29 - 35650 LE RHEU

The collection of cruciferous varieties undertaken in 1982 was expanded in 1983. Collecting land races was the main goal of the work but this sort of old varieties can only yet be found in some types of cruciferous crops, mainly kale, cabbage and cauliflower and just in some growing areas in France, in the western part of the country. Until approximately 20 years ago land varieties were the only ones in use for winter cauliflower, fodder kale, sauerkraut cabbage and fresh cabbage.

They have been superseded by commercial populations or hybrids (cabbage), commercial varieties (kale) and sometimes seeds produced by cooperative organisation created by the growers (winter and autumn cauliflowers). In the west of France land varieties are however still used now by 30 % to 40 % <sup>of</sup> the growers for kale.

1) Collecting programme 1983 for kale

1-1 Land varieties

The collecting project for 1983 was intending to complete the collection undertaken in 1982 in the western part of France where land varieties are still used.

In 1982, 67 land varieties were found. For 1983, 2 collectors visited farmers, during summer, trying to get fresh seeds.

Results 1983

Departments	Number of farm varieties
Finistère	24
Morbihan	45
Loire-Atlantique	2
Maine et Loire	21
Vendée	24
Vienne	7
TOTAL	123 varieties

1-2 Commercial varieties

Commercial populations were gathered for all varieties of the official list. number of varieties collected : 16

2) Collecting programme 1983 for cabbage

2-1 Land varieties

Growers populations are difficult to find. They are bred by old farmers and gardeners or in some specific areas where they are appraised for local markets or specific harvesting periods.

<u>Number of land varieties collected</u>	
- fresh cabbage	9
- sauerkraut cabbage	20
TOTAL	29

2-2 Commercial varieties

A lot of varieties are still in use or at least registered and offered by firms catalogues. About all these cultivars have been collected.

Number of varieties collected 59

3) Collecting programme 1983 for cauliflowers

3-1 Land varieties

Cauliflower production is very important in France, principally in the west (Brittany-Normandy).

An important collecting program has been realized in 1980 and 1981 by the "Institut National de la Recherche Agronomique" (INRA) where 120 land varieties were found in Brittany. Completing this programme, a lot of land races were gathered from growers in Normandy and Brittany.

Number of varieties collected : 21

3-2 Commercial varieties

A very important number of varieties are listed in the french official catalogue. All of them has been provided by french firms of purchased to seed merchants.

Number of varieties collected : 80

4) Other crucifers

4-1 Forage rape

During collecting trips for kale, old land varieties of fodder rape were found occasionally in dairy farms.

Number of land varieties collected : 12

Some private firms are producing populations in the west of France where fodder rape is used for grazing in early spring.

Number of commercial varieties collected : 6

4-2 Rapekale (navette)

Navette is a non-rooting turnip, It is a fodder crop which was very often used as the first green forage crop in february and early march in some limited areas of the west. It has now nearly disappeared.

One land varieties has been collected

4-3 Swedes (rutabagas)

Land varieties were found in a growing area near the atlantic coast (Vendée). They are still grown in some farms where they are used for chopping.

Number of land varieties collected : 15

4-4 Radish

A lot of commercial populations of vegetable radish was provided by seed firms when collecting brassicas.

Number of commercial varieties : 17

SUMMARY

Collection of land and commercial varieties of cruciferous crops in France  
For 1983

Type	Number of varieties collected	
	Land varieties	Commercial varieties (excluding F1 hybrids)
Kale (chou fourrager)	123	16
Cabbage (choux pommés)	29	59
Cauliflower (chou-fleur)	21	80
Forage rape (colza)	12	6
Rape, kale (navette)	1	-
Swedes (rutabaga)	15	-
Radish		17
TOTAL 1983	201	178
379 VARIETES		

Scientific report CPII for 1983.

H. Toxopeus and P. Mattusch.

As has been reported earlier, Collection Programme nr. 11 had the objective to collect landraces of "Stoppelrüben" or "Herbstrüben"\* and any other crucifer fodder crop that might exist in the Black Forest area in the Land (state) Baden-Württemberg.

Apart from the usual desk work in planning the CP we made a trip to the area to meet fieldworkers concerned and see for ourselves. We managed to pick up some samples of farmer's own seed as is reported in the following.

Contacts with farmers or farming communities were made through the Landwirtschaftsamt of the state and several Landwirtschaft-berater (agricultural advisors).

In Bühl we met with dr. Hasel, director, and messrs Fliegl and Reuther, and explained the collection programme and its objective. The last two gentlemen were prepared to attempt to collect seed samples from farmer's own seed. There was agreement about the likelihood that the crop concerned would be fodder turnips.

In Offenburg we met with dr. Gruber, agricultural advisor, with whom we made a brief trip into the fringes of the black forest. In the village of Durbach we stopped at a hillside farm where we had spotted a plot with a couple of hundred kale plants, on the hillside just behind the farmhouse. The farmers' wife, who managed this crop, explained that the leaves were used for fresh fodder (during winter) for pigs: "Suukael" (pig-kale). In the past the name was "Geisskael" (goat kale) at a time that a farm would keep goats. She mentioned that the crop could also be referred to with the name Kuh-kohl (cow kale) since other farmers would feed the leaves to their cows.

For seed production she would keep about 7 plants apart, planted elsewhere, to go to seed after the winter. Unfortunately there was no seed to spare.

Sometime during the month of July a small nursery would be sown. Six to eight weeks after sowing, seedlings would be transplanted in the plot in rows about 70 cms apart and plants in the row at 30 cm. At the same time the plants for seed production would be set apart. We were told that fodder turnips could not be grown on the steep hill (40%).

\* fodderturnips, sown in the barley stubble in late July or early August, produce a very palatable fresh fodder as from the late autumn well into the winter.

Subsequently we drove to Eckartsweil a hamlet on the flat grounds near the river Rhine. On a farm in the village we met a farmer's wife who kept her own seed of fodderturnips. She had inherited this type from the previous owner of the farm some 30 years ago. The type was described as "Stoppelrübe, halblang, rotköppig, weiss fleissig".

There was not an opportunity to visit the farm land. We were given about 100 gr of last year's seed. In this area there was no sign of the "Geisskael" the farmer's wife did not know the crop!

In Hasslach we met mr. Walter of the Landwirtschaftschule and we made a swing through the fringes of the Schwarzwald here.

Quite a few plantings of "Geisskael" were observed but in variably planted inside the vegetable garden. The "kael" was taller here, the leaves larger and the green colour was rather lighter than the former we had seen. It appeared that a particularly active farmer's wife (whom we met) produced (seed and) seedlings for sale. The plots we had seen had all been planted with such seedlings.

In Oberharmersbach we spent the night in a gasthof (inn) where we had been on other occasions and knew the owner, mr. Schäck himself a farmer. He confirmed the story of the "Geisskael" and added that the upper leaves are cooked and eaten as a delicacy after the first night frosts have occurred.

He also told us about a crop of the name "Kreuselkael" (curly kale) which is sown in autumn so the plants are rather small during winter (consequently they do not flower in the following year). When in spring the plants grow out, the lowest leaves are cooked into a delicacy. The leaves are sliced lengthwise into thin strips, briefly cooked, some salt and pepper added, and eaten with bacon and potatoes with horse radish sauce.

As the plants grow out the leaves are fed to pigs, rabbits, chickens. A few plants are allowed to go through the second winter and will flower the following year to produce seeds.

In the Landwirtschaftskammer in Lahr we met mr. Wachter who took us to farmland near the Rhine. Here we met a farmer who grew his own fodderturnip seed and we saw his turnip field. There were many different kinds of turnip plants in the field; all combinations of white flesh or yellow flesh and white, green red and bronze tops. It transpired that the farmer did this deliberately, i.e. he would plant representatives of the different types in the seed production plot. His belief was that in this way, no matter the varieties of the climate,

he would have a crop. We received nearly 100 grams of seed from him. Regarding "Geisskael", Mr. Wachter nor his assistant had ever heard of it. He pointed out that vegetable gardens were the subject of a different department in the "amt".

Finally we visited Mr. Kohler of the Landwirtschaftskammer in Karlsruhe to whom we explained our mission. He promised to try and pick up landrace material and send it to Dr. Mattusch.

This programme is not likely to yield many samples. As has been explained we collected two samples during the trip. Hopefully the people we contacted and met will succeed in picking up a dozen or so more.

Note on soils and clubroot in this area (information from Dr. Gruber). Black forest soils tend to be acid as against Alp derived soils deposited by the Rhine, which have a high PH.

Rivers from the Black forest (draining in the Rhine) deposit material with a low PH and it is on such soils that clubroot disease occurs. Clubroot disease is well known to people but it is rare. Gruber mentioned a very serious case of clubroot in a field of a farmer who had grown oilseed rape, fodder turnips, white mustard and fodder rape within a couple of years time.

30 December 1983

H. Toxopeus.

Scientific report for 1982 of project CP13 - 'The collection of horticultural cruciferous crops from southern Italy'.

Peter Crisp, National Vegetable Research Station, Wellesbourne, Warwick, UK.

## 1. Introduction

- 1.1. Several major forms of horticultural brassicas originated in Italy. They include the white curded cauliflower, the green sprouting broccoli of Calabria ('calabrese') and the Savoy type of cabbage. A great diversity of these crops still occurs as growers' own stocks, and as varieties sold by local seed companies.
- 1.2. There are also many minor crucifer vegetables, including a vegetable form of rocket (Eruca sativa), broccoli-like forms of the turnip, green-curded cauliflowers, and purple-headed broccolis.
- 1.3. Additionally, wild species of the Brassica villosa-incano complex, B. macrocarpa and B. robertiana occur in coastal regions.
- 1.4. Clearly, a great deal of genetic variation exists in Italy, but very little of this material is currently represented in gene banks.

## 2. Genetic erosion

- 2.1. Many of the types described above (and in more detail in Appendix 1) are not covered by National List or Plant Variety Rights regulations, and so there is little legislative cause for genetic erosion.
- 2.2. It may also be true that EEC regulations governing the sale of listed crops are widely unknown or ignored; but there is also evidence that since about 1977 several varieties (albeit of dubious type and origin) are no longer available because of the EEC regulations.
- 2.3. Italian growers are becoming organised into cooperatives with the ultimate objective of exporting horticultural produce on a



much larger scale. It is likely that exports will result in more of the 'conventional' crops (eg. white cauliflowers and calabrese) being grown at the expense of minor crop types.

2.4. French, Dutch and Australian seeds companies are selling highly bred varieties, notably of white cauliflower and calabrese, to the more progressive Italian growers. These new varieties are replacing local types in some areas. In other areas Italian research stations are improving locally adapted types of white cauliflower by breeding. Both activities will bring about a rapid erosion of the gene base in these important horticultural crops.

2.5. The wild species are under some threat due to tourism.

2.6. That is, there are several threats to the genetic variability extant in Italy. This is recognised by the International Board of Plant Genetic Resources, who have given several Mediterranean B. oleracea crops a first priority rating for collection (AGP:IBPGR/80/100 'Genetic Resources of Cruciferous Crops').

3. Scheme for collecting in Italy

3.1. The work falls into three parts for the 1979-1983 5 year programme:

3.1.1. A preliminary investigation into the purchase of seedsmen's stocks of local Italian varieties. This is conducted mainly from the 1982 budget, and is the subject of this report. The project number is CP13, and it is the responsibility of the author of this report.

3.1.2. A continuation of CP13, using the 1983 budget. This is the responsibility of David Astley, NVRS, UK.

3.1.3. The collection of growers' stocks of brassicas, conducted by Pietro Perino, Ist. del Germoplasm, Bari, Italy. This is project number CP15; to be conducted from the 1983 budget.

3.2. The method of collecting used in CP13 has been outlined by the author and B. Ford-Lloyd in the IBPGR Newsletter (AGP:PGR/48: Genetic Resources Newsletter 48: 11-12, 1981, entitled "A novel method of collecting vegetable germplasm"). Briefly, it consists of identifying local seeds companies from the telephone 'yellow pages', visiting them and buying samples.

3.3. The method used in CP13 and its products are complementary to those used in CP15 - the programme conducted by Bari.

3.4. The lack of a highly organised advisory service in Italy, the presence of many local seeds firms, and the potential to acquire large samples of high quality seed make the purchase of seed a highly effective method of getting genetic resources safely into store.

4. Report of CP13 (1982 budget)

4.1. The work consisted of a visit to Italy by the author during which seed was bought from local seed companies, and Italian breeders and gene bankers were consulted.

4.2. Itinerary - all during February 1983

Monday 14	Fly from UK to Rome. Collect hire car.
Tuesday 15	Buy seeds in Itri and Formia. Drive to Naples.
Wednesday 16	Buy seeds in Naples. Unsuccessful attempt to contact an acquaintance who is a local seedsmen. Drive to Salerno.
Thursday 17	Visit Professor S Porcelli, Ist. Sper. per l'Ort., Salerno. Drive towards Cosenza.
Friday 18	Arranged visit to two horticulturalists at Cosenza University prevented by snow. Buy seeds in Cosenza. Drive to Taranto.
Saturday 19	Visit towns south of Bari to buy seeds.
Sunday 20	
Monday 21	Visit Dr P Perino, Bari Genebank. Drive towards Ascoli Piceno.
Tuesday 22	Continue towards Ascoli Piceno.
Wednesday 23	Visit Professor L Uncini and colleagues at the substation of the Salerno institute, at Ascoli Piceno. Drive to Rome. Return hire car.

Thursday 24 Buy seeds in Rome. Visit Dick van Sloten, IBPGR, to discuss collecting in Italy.

Friday 25 Fly back to UK.

Several other towns and cities were visited en route.

4.3. Collections made in Italy

- 4.3.1. The full list of accessions, 148 in number, is given in Appendix 2. Of these 54 exceeded 50 g in weight and if they germinate well will not need multiplication. See also note 4.3.7.
- 4.3.2. As expected, cauliflowers (both white and green), purple heading broccoli, green sprouting broccoli (including calabrese) and the Savoy type of cabbage were all well represented in the collections.
- 4.3.3. There were two unexpected vegetables which were also collected:
- 4.3.3.1. 'Rucola' (rocket, Eruca sativa) was common, and 10 samples were obtained.
- 4.3.3.2. The sprouting form of turnip (B. campestris) occurred in many more forms than the author previously appreciated, giving types of different maturity, but also with an apparent cline from central to southern Italy whereby the size of head increased to the extent that some plants in Calabria closely resembled calabrese (B. oleracea). 30 samples of these types were obtained.
- 4.3.4. 19 samples of the small radish (██████████ 'ravanello') were obtained, often under the same names (eg. 'Lungo rosso'). Previous experience with cauliflowers suggests that these may all represent different selections of the type.
- 4.3.5. Only one sample of the large radish ('ramolaccio') was bought, although there appear to be many kinds of these in Italy.
- 4.3.6. A small number of other cruciferous crops were also obtained:

kohl rabi (5 samples); watercress (1); rape (1); black cabbage (3); ornamental cabbage (1); smooth cabbage (4); turnip (4); and Brussels sprout (7).

4.3.7. In many cases only small quantities of seed could be bought because the local varieties were only sold in quantities suitable for small scale growers. Imported seed was sold in larger (50 g +) quantities. The exceptions were the peculiarly Italian crops where there are no suitable, foreign, highly bred varieties.

4.4. Contacts made to assist in the 1983 programmes for CP13 and CP15

- 4.4.1. Close collaboration between David Astley and Pietro Perino is desirable when they conduct their parts of the work, but either programme could, if necessary, be independent of the other.
- 4.4.2. It was hoped that an Italian research worker or horticulturalist could be found to assist in CP13, but no definite offers were forthcoming.

4.5. Conclusions drawn from the preliminary part of programme CP13

- 4.5.1. A large amount of material is still to be collected from seedsmen, and it is already starting to be superseded by foreign varieties in certain crops.
- 4.5.2. I suggest that David Astley should, from the 1983 budget:
- 4.5.2.1. Visit Sicily to collect seedsmen's stocks.
- 4.5.2.2. Visit the Marche area to collect seedsmen's stocks of the Fanese cauliflower (in particular). Help may be given here by Professor Uncini and his colleagues.
- 4.5.2.3. Visit Dr Perino at Bari to compare progress and prepare a more definitive report of the status of genetic variation and erosion in Italian cruciferous crops.
- 4.5.2.4. Write to all seedsmen listed in Italian telephone yellow pages (the likely total is 100-200), explaining our requirements, and offering to buy seeds by post.

4.6. In summary - with little effort a large amount of genetic material was obtained, and lacking definite offers of assistance from native Italians CP13 should continue using the same methods.

Peter Crisp  
3.3.83

Appendix 1: Types of Italian horticultural crucifers

Species	Ssp/var.	Italian name	English name	
<u>Brassica oleracea</u>	<u>botrytis</u>	Cavolofiore	White curded cauliflowers	
		Cavolofiore, Cime, or Cavolo broccolo	Toscana	Romanesco green cauliflower
			Napoli	Smooth green curded cauliflowers
			Jes	
			Neve	
			Fanese	
			Romanesco	
			Molfettesi	
			Barese	
			Macerata	
<u>italica</u>				
		Albenga	Purple cauliflowers, or purple headed broccoli	
		Sicilia	Calabrese	
		Calabrese	Black broccoli	
		Sarno		
		Neri		
<u>gongyloides</u>		Cavolo rapa	Kohl rabi	
<u>acephala</u>		Cavolo nero (ramoso)	Black kale or cabbage	
<u>capitata</u>		Cavolo verza	Savoy cabbages	
		Asti		
		Napoli		
		Piacenza		
		Castenuovo		
		Ferro		
<u>gemmifera</u>		Cavolo cappuccio	Smooth (summer) cabbages	
		Cavolo di Bruxelles	Brussels sprout	
<u>B. campestris</u>	<u>rapa?</u>	Cima di rapa, broccolo rapa, or broccoletti di rapa	Turnip tops; turnip broccoli	
	<u>rapa</u>	Rapa	Turnip	
<u>Raphanus sativus</u>		Ramolaccio Ravanello	Winter radish (large) Radish (small)	
<u>Eruca sativa</u>		Rucola	Rocket	

## Appendix 2:

## Seed collections made in Italy

Type (see Appendix 1)	Cultivar	Source (seed company)	Weight	
volofiore	Toscane	Unlabelled, Bari	49.4g	
		Sgaravatti - Egis, Rome	4.4g	
		Magda, Lecce	3.8g	
		Olter, Termoli	6.2g	
		Sgaravatti, Rome	3.2g	
Napoli	Febbraiese	Soria Semi, Naples	101.6g	
	Bianco Natalino	Soria Semi, Naples	100.5g	
	Marzatico	Soria Semi, Naples	100.5g	
	Gennarese	SAIS, Pescara	9.9g	
	Natalino	Salvatore Soria, Naples	32.1g	
	Gigante Precoce	Improta, Naples	5.5g	
	Gigante	Soria Salvatore, Naples	41.6g	
	Gigante	Bulleri, Bari	4.8g	
	Tardivo	Unlabelled, Naples	3.2g	
	Gigante tardivo	Four, Termoli	15.3g	
		Fuscello, Andria	7.0g	
	Jesi		Fuscello, Andria	28.8g
			Unlabelled, Termoli	2.1g
			Magda, Bari	11.8g
			Centro Dauno Sementi, Termoli	22.6g
		Oris, Ancona	9.3g	
Neve	Precoce	Unlabelled, Bari	16.4g	
	Precoce	Sgaravatti, Rome	89.2g	
	Precoce			
Fanesse	Palla	Fuscello, Andria	63.8g	
	Palla	Olter, Termoli	1.7g	
	Palla Tardivo	RVDI, Latina	7.7g	
volofiore	Mezzo Precoce	CAC, Pescara	21.3g	
	Gennarese	Salvatore Soria, Naples	32.0g	
others	Marzaiolo	Unlabelled, Pescara	19.7g	
	Gennarese	Fuscello, Andria	34.0g	
	Tardivo Metropole	Sgaravatti, Rome	2.1g	

- 2 -

Type (see Table 1)

Type (see Table 1)	Cultivar	Source (seed company)	Weight
Cavolo fiore, Cime, or Cavolo broccolo	Verde	RVDI, Latino	98.3
	Verde	Soria Semi, Naples	100.0
	Natalino	Improta, Naples	1.8
	Precoce	Consorzio Agrario Provinciale di Parma	44.6
	Natalino	Clause, Consenza	3.5
	Tardivo	Sgaravatti, Rome	49.1
	$\frac{1}{2}$ Precoce	Sgaravatti, Rome	48.5
	Precoce	Sgaravatti, Rome	97.4
	Verde tardivo	Unlabelled, Naples	6.2
	Ottobrino	'S', Naples	56.5
	Medio Precoce O Natalino	Fuscello, Andria	34.2
	Natalino	SAIS, Pescara	10.0
	Gennarese	Sottotetti, San Severo	5.3
		Bulleri, Bari	108.6
Molfettesi		Fuscello, Andria	37.5
Barese		Larosa, San Severo	100.0
Macerata	Verde	Unlabelled, Bari	6.3
	Verde	Fuscello, Andria	36.0
		SAIS, Pescara	5.5
	Verde	Sgaravatti, Rome	12.5
	Verde	Magda, Bari	12.6
Albenga		Larosa, Termoli	2.4
	Bronzino	Magda, Bari	19.2
Sicilia	Violetto tardivo	Confessione Salvase, Benvenuti	99.3
	Primitive violette	Fuscello, Andria	23.0
	Violetto	CDS, Termoli	19.5
	Violetto	Unlabelled, Benvenuti	2.1
	Violetto	SAIS, Pescara	9.1
	Violetto	Soria Semi, Naples	106.3
		Salvatore Soria, Naples	56.0
		FI, Naples	0.9
	SAIS, Cesena	511.0	
Others	Tardivo	Fuscello, Andria	7.8
	Broccolo Nataka piedi grande Liscio	Soria Semi, Naples	99.5

Type (see Table 1)	Cultivar	Seed source (seed company)	Weight	
Cavolo broccolo (ramoso)	Calabrese	Atlantico	52.0g	
		Verde precoce	95.3g	
		Precoce	33.6g	
		-	30.0g	
		Verde	5.1g	
		Verde	49.0g	
		Verde	6.0g	
		-	31.0g	
		Verde	6.7g	
		Precoce	8.9g	
		-	28.9g	
		-	103.1g	
	Cavolo rapa	Sarno	Improta, Naples	97.8g
		Soria Salvatore, Naples	42.2g	
		Soria Semi, Naples	101.3g	
Neri		Spigariello	Improta, Naples	95.4g
		a cespuglio	Salvatore Soria, Naples	46.5g
Others		Natalino di Napoli	Domenico Soria, Naples	100.0g
		Cime Tardive Marzatiche	Bulleri, Bari	6.0g
		Cavolo O Cima violetta Natalino	Fuscello, Andria	61.3g
		Cime Nataline	Larosa, Termoli	3.9g
		Precoce	Fuscello, Andria	65.0g
		Fuscello, Andria	81.6g	
	Cavolo nero	Violetto	Unlabelled, Benvenuti	79.6g
		Bianco	Olter, Termoli	5.8g
		Bianco	Larosa, Bari	4.7g
		Rosso	Fuscello, Andria	10.5g
Cavolo verza	Violetto	Olter, Termoli	24.6g	
	di toscana O Senza testa	Unlabelled, Benvenuti	79.6g	
	Cavolo Palmizio Nero di Toscana	Olter, Termoli	5.8g	
Cavolo verza	Asti	Magda, Bari	4.2g	
		Magda, Lecce	0.2g	
		Sottotetti, Termoli	7.2g	
		Olter, Termoli	7.1g	
Cavolo verza	Napoli	Larosa, Termoli	4.2g	
	Piacenza	Olter, Termoli	7.2g	
		Larosa, Termoli	43.7g	
	Castenuovo	Riccio	Sgaravatti, Rome	21.6g
			Magda, Bari	4.2g
	Ferro	Testa di Ferro	Magda, Lecce	5.7g
			Torcianti, Ancona	40.8g
	Others	Quarantino precoce	Sgaravatti, Rome	3.0g
		Grosso delle virtu	SAIS, Pescara	7.4g
		Tardivo gigante	Sottotetti, Castelnuovo	51.8g
Invernali S Martino		Sgaravatti, Rome	43.8g	
Quarantino		Soria Semi, Naples	8.7g	
San Giovanni		SAIS, Benvenuti	3.0g	
Principe d'Inverno Wirsing		Soria Semi, Naples	105.7g	
Winterprinz		Unlabelled, San Severo	7.2g	
Quarantino		Sottotetti, San Severo	5.4g	
Grosse delle virtu		Olter, Termoli	7.2g	
Cavolo cappuccio	Grosse tardivo	Magda, Bari	6.9g	
	Cuore di Bue	Unlabelled, Pescara	3.9g	
	Cuore di Bue Grosse	Soria Salvatore, Naples	38.0g	
	Medio Napoletano	Improta, Naples	14.8g	
		Fuscello, Andria	13.5g	
		Consorzio Agrario provinciale di Parma	51.2g	
		Improta, Naples	91.0g	
		Niagara, Bari	5.1g	
		Ohlsens Enke, Bari	3.0g	
		Domenico soria, Naples	107.0g	
Cavolo di Bruxelles	O Catskill	Sgaravatti, Rome	53.8g	
	Mezzo Nano	Consorzio Agrario provinciale di Parma	53.8g	
	Precoce	Soria Semi, Naples	49.9g	
	demi-nain	Unlabelled, San Severo	5.3g	
		Unlabelled, Pescara	14.4g	
		Sgaravatti, Rome	42.8g	
		Soria Salvatore, Naples	10.7g	
		Improta, Naples	2.5g	
		Fuscello, Andria	7.7g	
		Torcianti, Ancona	14.5g	

Type (see Table 1)	Cultivar	Seed source (seed company)	Weight	
Cavolo verza	Napoli	Magda, Lecce	5.7g	
	Piacenza	Torcianti, Ancona	40.8g	
		Sgaravatti, Rome	3.0g	
		SAIS, Pescara	7.4g	
	Castenuovo	Riccio	Sottotetti, Castelnuovo	51.8g
			Sgaravatti, Rome	43.8g
	Others	Quarantino precoce	Soria Semi, Naples	8.7g
		Grosso delle virtu	SAIS, Benvenuti	3.0g
		Tardivo gigante	Soria Semi, Naples	105.7g
		Invernali S Martino	Unlabelled, San Severo	7.2g
Quarantino		Sottotetti, San Severo	5.4g	
San Giovanni		Olter, Termoli	7.2g	
Principe d'Inverno Wirsing		Magda, Bari	6.9g	
Winterprinz		Unlabelled, Pescara	3.9g	
Quarantino		Soria Salvatore, Naples	38.0g	
Grosse delle virtu		Improta, Naples	14.8g	
Cavolo cappuccio	Grosse tardivo	Fuscello, Andria	13.5g	
	Cuore di Bue	Consorzio Agrario provinciale di Parma	51.2g	
	Cuore di Bue Grosse	Improta, Naples	91.0g	
	Medio Napoletano	Niagara, Bari	5.1g	
		Ohlsens Enke, Bari	3.0g	
		Domenico soria, Naples	107.0g	
		Sgaravatti, Rome	53.8g	
		Consorzio Agrario provinciale di Parma	53.8g	
		Soria Semi, Naples	49.9g	
		Unlabelled, San Severo	5.3g	
Cavolo di Bruxelles	O Catskill	Unlabelled, Pescara	14.4g	
	Mezzo Nano	Sgaravatti, Rome	42.8g	
	Precoce	Soria Salvatore, Naples	10.7g	
	demi-nain	Improta, Naples	2.5g	
		Fuscello, Andria	7.7g	
		Torcianti, Ancona	14.5g	

Type (see Table 1)

Cima di rapa, broccolo rapa,  
or broccoletti di rapa

Cultivar	Seed source (seed company)	Weight
Centoventina	Unlabelled, Naples	4.8g
Centoventina	RVDI, Latina	96.8g
Novantino	Consorzio Agrario provinciale di Parma	39.6g
Sessantina	Soria Semi, Naples	92.1g
Sessantina a testa grossa	SAIS, Cesena	107.0g
Bradano Novantina	Oris, Ancona	103.0g
O Broccoletto	Unlabelled, Latina	8.7g
Sezese	RVDI, Latina	99.4g
Sele Quarantina	Oris, Ancona	99.8g
Novantina a cima grossa	SAIS, Cesena	100.0g
Centoventina a testa grossa	SAIS, Benvenuti	97.2g
120na Gennarese	L'Ortolano, Pescara	54.1g
60na	L'Ortolano, Pescara	32.2g
90na	L'Ortolano, Pescara	33.5g
Marzatica Tardiva Barese	Improta, Naples	237.0g
Novantina	RVDI, Latina	94.4g
Novantino	Torcianti, Ancona	9.2g
Quarantino	Torcianti, Ancona	9.6g
Sessantina	Torcianti, Ancona	17.0g
Sessantina	CDS, Termoli	5.2g
Novantina	CDS, Termoli	5.2g
Novantina	Fuscello, Andria	12.6g
Tardiva di marzo a cima grande	Larosa, Bari	94.0g
Centoventina	Fuscello, Andria	6.8g
Quarantina	CDS, Termoli	3.5g
Quarantina	Fuscello, Andria	6.0g
Cinquantina	Fuscello, Andria	16.2g
Natalino	Sgaravatti, Rome	4.3g
Tardivo	Sgaravatti, Rome	4.3g
Quarantino	Sgaravatti, Rome	4.2g
di Milano bianca a colletto viola	Sgaravatti, Rome	5.1g
palla di neve	Sgaravatti, Rome	92.6g
bianca piatta quarantina	Sgaravatti, Rome	97.0g
testa grossa bianca da foraggio	Soria Semi, Naples	104.0g
Ramolaccio Nero tonde d'inverno	Four, Termoli	39.1g
Candela di fuoco	Clause, Cosenza	5.5g
Candela di fuoco	Olter, Termoli	10.0g
Candela di ghiaccio	Unlabelled, Termoli	10.0g
Candela di ghiaccio	Magda, Termoli	10.0g
Candela di ghiaccio	Clause, Cosenza	4.7g

Rapa

Ramolaccio or Ravanello

Type (see Table 1)

Ramolaccio or Ravanello

Cultivar	Seed source (seed company)	Weight
Candela di ghiaccio	Confessione Salvaseme, Benvenuti	51.0g
Candela Fuoco lunge rosso	Confessione Salvaseme, Benvenuti	49.6g
Rosso tonde a grande punta bianca	Sgaravatti, Rome	5.8g
Mezzo lunge toso a punta bianca	SAIS, Pescara	15.4g
lungo bianco	Sgaravatti, Rome	5.5g
lungo rosso	Oris, Ancona	19.3g
Rosso lungo candela di fuoco	Soria Semi, Naples	99.7g
Rosso Gigante	Four, Termoli	33.5g
Tondo rosso a GPB	Unlabelled, Termoli	10.0g
Tondo rosso ciliegia	Fuscello, Andria	25.9g
Rosso tondo precocissimo	Sgaravatti, Rome	44.6g
1/2 lungo rosso di napoli	Improta, Naples	15.4g
Tondo a punta bianca	Improta, Naples	12.9g
tondo rosso saxa	Improta, Naples	9.2g
Coltivata	Bulleri, Bari	17.6g
Coltivata	Clause, Cosenza	250.0g
Coltivata	Four, Termoli	9.7g
da Orto	Mario Torcianti, Osimo	24.2g
da Orto	Larosa, Bari	13.9g
da Orto	Soria Semi, Naples	95.3g
O ruchetta Coltivata	Improta, Naples	12.9g
O ruchetta Coltivata	Sgaravatti, Rome	44.5g
Ruchetta	Unlabelled, Pescara	96.5g
Eruca Sativa	Oris, Ancona	8.0g

Ruola



Cruciferous crops Project Report

Sub contract no 0890

1	National Vegetable Research Station Wellesbourne Warwickshire CV35 9EF United Kingdom	A
2	Telephone: (0789) 840382	3 B
4	Dr D Astley	C

5 Collection of cruciferous crops in Italy

6	1982	7	March 1984	8
---	------	---	------------	---

9 Progress report (if needed use additional sheets).

The collection of locally produced commercial cruciferous crops in Sicily and the Puglia and Marche areas of Italy (see route attached). Seed samples were purchased from growers, seed traders and commercial outlets in the various regions.

10 Assistance was received from staff of Horticultural Institutes in Catania and Palermo and the Germplasm Institute, Bari.

Collections were made of a wide range of cruciferous crops as detailed in the attached list.

The collection of cruciferous crops in Sicily and Italy - CP13

This collection was made between 21 October 1983 and 1 December 1983 and contains samples of locally produced seed of local varieties grown in the three regions of Sicily, Puglia and the Marche. Complete lists of these varieties, their sources the supposed provenance and other details of cultivation practice were collected. This report will concentrate on qualitative observations, on the conclusions that may be derived from them and on recommendations for further action.

Collection zone:

The three collection zones will be dealt with separately due to the considerable differences in the organisation of the agricultural infrastructure, agricultural and marketing practises, and the consequent level of success that can be expected from the collection method employed - ie. that of buying seed from local seed merchants as a means of sampling the genetic diversity present in local cultivated crops.

1. Sicily

Seed does not appear to be produced in Sicily on any large scale, that which is being destined for a very local market, not being exported to the mainland and possibly not even to other parts of Sicily. There are only 8-10 entries under "sementi e bulbs" in the yellow pages, for the whole of the island. Of those visited only one sold seed of local origin, FERRERI of PALERMO. This was a very limited local concern having, as far as I could gather, only one shop as an outlet for seed from the central northern coast of Sicily.

Due to a lack of entries for seed firms per se I used the yellow pages (= PAGINE GIALLE) to locate other possible sources of local seed, "Agricoltura" and "Piante e fiore" the latter dealing mainly in flowers. These, however,

only dealt with seed imported from the mainland or abroad. On the two occasions when large quantities of seed were bought from such sources their provenance is dubious due possibly to a language confusion with regard to the difference between "produced in" and "originated from". It is advantageous to know the language but not necessarily to admit it.

Apart from small shops, markets may also be a source of seed of local origin where farmers sell off any surplus seed they may have. To be in the right place at the right time however, requires considerable local knowledge or luck. Through local enquiries I managed to obtain some seed from a market in Agrigento; but was informed at Vittoria that I would have to wait 3 weeks before such a market was to be held. Apart from their infrequency, making them difficult for a traveller to use as a source of seed, markets may also be unreliable in that a farmer may have bought imported seed of a variety and be maintaining it himself, the seed bought from the market therefore, not being of local origin even though it is produced locally.

The misgivings of the Horticultural Institute at Palermo, confirmed by the Agricultural Institute at Catania confirmed my conclusions, from observations and conversations with locals, that the only effective means of sampling the local cultivated crucifer germplasm is to go directly to the farmer and collect the land races. This must be carried out very soon since social changes are taking place in Sicily which will destroy the genetic resources in a very few years. Urbanisation is increasing, nearly every town that I entered on the island was ringed by a zone of half built buildings larger than the inhabited parts themselves. A local seed producer in Palermo told me that he had known of a colleague whose fields had recently been built over. Farmers producing cauliflowers (white, green and shades of purple curds) and other vegetables for sale locally are changing over from their ancient land races to imported seed and abandoning their stocks, the variety being lost within the space of one year. In view of this it is fortunate that

the Agricultural Institute at Catania has volunteered to collect from the local growers across the whole of Sicily in April (since this is the time when the majority of seed matures and becomes available). I strongly advise that every effort be made to encourage them in this (see progress report from TARANTO dated Wednesday 16 November 1983).

The yellow pages covering the 5 regions of Sicily are incomplete, inaccurate and frequently out of date and so cannot be used as an effective means of locating sources of seed of local origin.

## 2. PUGLIA

The yellow pages can be used far more effectively in the north of Puglia. The major local seed firms of LAROSA and FUSCELLO; based in Andria to the north of Bari; export seed produced locally, packaged under their own names, to all parts of Italy. They do, however, also import seed from other regions of Italy, package and redistribute it - ie. all seed bearing their label does not necessarily originate from their northern Puglian production fields. According to Dr Perrino, Director of the Germplasm Institute at Bari, Larosa farms out his seed production to other growers in Puglia, some of them in the southern region.

For the south eastern heel of Italy, in the regions of Brindisi and Lecce, no local seed firms were listed. N. BENVENUTI in Palagianello, about 25 Km to the north west of Taranto, sold local seed packaged in packets printed elsewhere. However, similar to the Sicilian situation, seed is grown in the south which, if it does not go to the Andrian seed firms, is sold locally in markets or by seed merchants not listed in the yellow pages. This may be because they do not have telephones (Prof. Bianco, Institute of Agriculture, Bari) or simply due to the incomplete nature of the yellow pages. A more reliable source of addresses of all local seed merchants for these southern regions may be obtained from the Chamber of Commerce in the large

provincial cities.

A large number of land races and local farmers varieties are available in Puglia. I obtained some myself from Altamura and more will have been bought on my behalf from a market in Lecce. The germplasm institute at Bari is in the process of collecting the land races in Puglia so any further action in that respect may be left up to them. However, letters to all the seed firms visited in this region may result in some valuable returns.

Of particular importance is Sig. A De CORATO of De CORATO SEMENTI, 210 VIA VECCHIA CORATO, ANDRIA (BA). He was strongly recommended by a number of independent local sources as a grower of local varieties and told me himself that he possessed many. He would not sell them to me immediately, since he said they would take a long time to package. However, he was prepared to send NVRS samples of all his varieties, free, if he received an official request from you. His Telex number is 810528.

### 3. MARCHE

The seed firms of the Marche region have a seed production and marketing infrastructure that appears of far greater organisation than those of the south. Extensive offices, glossy catalogues, large warehouses etc, were very much in evidence. The change from the more primitive systems of the south would seem to be complete, all seed production being in the hands of these firms; though I did not spend enough time in the region to be certain that there was no "freelance" marketing by local farmers. However, the situation does not appear to have fully stabilised, at least two seed firms visited had abandoned production of Marche varieties within the past 5 years. The firms dealing in the Cruciferae not only package locally produced seed, but also imported seed from other areas and package this under their own label.

Of these seed firms ORIS and TORCIANTI will send seed directly to NVRS this year, with a bill. ISEA and SGARAVATTI will respond to explanatory

letters requesting seed, as will APOM of FANO who I have told to expect a request from you for more of their local "FANESE" varieties of cauliflower. I recommend that these requests be sent out as soon as possible.

APOM was not to be found in the yellow pages, illustrating its incompleteness even in the north. In view of this it is always wise to ask merchants, so located, for further information and attempt to use their local knowledge to eliminate entries that are of no value.

Palermo - Sicilia  
21-24 October 1983

I have visited two seed merchants in Palermo on the recommendation of the staff of the city's botanical gardens only one of which "Ferreri", 148 Via Vittorio Emanuele, stocked locally produced seed. The seed was sold by volume therefore weight was estimated when the samples were bought.

On 22 October I made contact with Dr Giovanni Iapichiono of the Istituto d'Orticoltura and Floricoltura. He has been extremely helpful and will make a valuable contact in the future. We visited two sites of locally produced Cruciferae seed in "RESUTTANA COLLI" region of Palermo and obtained samples free.

On 24 October I made contact with Professor Caruso who recommended a monastery garden in Palermo as a source of locally produced seed. The monks grew 7 varieties of green curded cauliflower, which they called "Cavolo broccolo", which have been selected over an indefinite number of human generations for "beautiful" appearance suggesting a high level of disease resistance; due to the long period of selection this may be race non-specific. The price for this seed was high but I checked with staff at the institute and they did not consider it excessive. The only apparent difference between the varieties is their photoperiodic requirements; the sowing dates in Sicily are given and each varietal name indicates the month in which the crop is ready to eat. Also the monks guarantee high viability in terms of % germination which,

they state, Ferreri does not guarantee. An independent source (vegetable shop owner) has suggested that Cruciferae seeds harvested this year will be of low viability due to particularly wet weather and therefore rapid regeneration of Ferreri and Resuttana Colli seed samples is recommended.

Mazara Del Vallo - Sicily  
25 October - 1 November 1983

I found no seed produced locally in the region of Trapani and was advised by the locals to go to the region of Masala, and ask there. At Masala I met Sig. A. Vita who assisted me in my search around the city. Success was limited to small samples obtained from a local grower known to Sig. Vita. Sig. Vita appears to have considerable local influence and has told me that if you need any further help with regard to collecting seed in this region he is very willing to provide it. I moved down to Mazara del Vello and bought the majority of the seed from a merchant in Strasatti recommended to me by a merchant in Trapani. Despite what it says on the packets he insists that the seed is produced locally. I had no further success in this region.

I find this lack of success disturbing and the time taken in firmly establishing that there is no seed available has resulted in my being several days behind schedule. It was suggested in Palermo that little seed is produced for sale in Sicily due to changing social systems and certainly most appears to be imported from other parts of Italy or Europe. However, no one in Palermo was prepared to stick their neck out and tell me whether I was wasting my time in Sicily when I pressed the point. From what I can gather from my encounters with seed merchants over the past week (and there is little English spoken) the synthesis is that local production of seed is carried out by growers primarily for their own use and not for sale, therefore collection directly from the growers seems to be the most effective means of sampling local diversity and is beyond the scope of someone without local contacts.

Lack of personal transport and ability to speak the language also seriously limits effectiveness.

At Palermo I was advised to proceed directly from Agrigento to Catania since the Institute there has many field stations in the south eastern part of Sicily and will be able to tell me whether it is worth visiting.

Agrigento - Sicily  
1-3 November 1983

The provenance of the foil packaged seed in this consignment is impossible to determine precisely since, as I gather from the seed merchant, that the packets are produced in Italy and seed produced at various sites in Sicily is sent to Palermo where it is packaged and redistributed. Although I have encountered these packages before and no one has persisted in claiming that they contain Sicilian seed I am inclined to take the merchants word for it; since he indicated that some of the crucifer varieties were not Sicilian seed and put them back on the stand. He may, however, have been very subtle in doing this.

He indicated a number of areas in which the seed was grown but couldn't say precisely where this seed was grown it all having been packaged in Palermo. The general growing areas are BELOGNETTA, TRAPANI, CORLEONE, CASTEL VETRANO, AGRIGENTO, CALTANISSETTA, ENNA, MESSINA, FLORIDIA and the Southern region.

The names on the seed bought in the AGRIGENTO market may be incorrect since the grower was illiterate and could not write them down for me.

Leave for GELA tomorrow.

Vittoria - Sicily  
4-8 November 1983

I realise that these samples may well seem as pathetic to you as they do to me however I am sending them since they are all that I have managed to

obtain from the region between Agrigento and Vittoria and I hope may be of some value.

Vittoria itself appears to be the agricultural centre for this south eastern region and I was advised in Gela that here, if anywhere, would be the place in which I was most likely to find locally produced seed. This has not proved to be the case, of the several seed merchants in Vittoria none sold locally produced seed and only one was able to direct me to the source of these samples. I visited a local cooperative office and was told in plain English that all seed commercially available was imported into Sicily and that only the products were grown and sold locally. They could not inform me of anywhere in the region where local seed could be obtained.

I have received the same discouraging news from the locals I have managed to communciate with though they did inform me that a village several miles to the north of Ragusa called GIARRATANA produced a local variety. I attempted to reach this today but failed due to problems with the public transport.

The "Yellow Pages" have proved, so far, to be of little value in Sicily. Only two seed merchants were listed for the entire region from Trapani to Gela; one in Vittoria for the Siracusa region; and two in the region of Catania. This compares with 16 in the Bari region where I hope my work will be more fruitful. I will remain in Vittoria for one further day before moving directly on to Catania and hopefully making contact with Dr Foti, since an annual agricultural fete starts tomorrow where produce from the whole of Sicily comes to Vittoria and I have been told that I will probably be able to obtain the seed I am looking for if it is obtainable at all.

It may well be that I have wasted time in an unproductive area but I felt it important to establish that the seed was not readily commercially available, not withstanding the occasional market stall or backstreet shop.

Taranto - Italy  
9-16 November 1983

Samples were obtained from the region between Messina and Siracusa with the assistance of the Agricultural Institute in Catania who transported me around the country to local growers.

When I arrived at the institute and told them that I had been attempting to locate seed firms though the yellow pages they literally fell about laughing, and two entries I had located for the Catania region were not considered. I explained that the method had worked in Italy but they still considered it inadequate for Sicily. I was told that nearly all the seed sold in Sicily was imported which supported my findings and, with the exception of Ferreri in Palermo, this calls into question the origin of the packaged samples which I have sent you. However, those which I have packaged myself (waxed bags etc) are local.

They tell me that seed produced in Sicily is for use by the growers themselves in order to produce crops for market and that many growers are now switching to imported seed for this purpose. I had seen and heard evidence for this as I travelled around the coast. Also very little seed is stored most of that produced at the end of one season is sown immediately to produce the next crop. Growers we visited over the next 5 days were reluctant to give/sell me more than 50 g on many occasions as this would result in them having insufficient seed for sowing! Also I was in Sicily at the wrong time of year, the majority of crucifer seed will become available in April. I expressed my concern that if this cultivated resource was not collected in within a very few years it would vanish and was therefore enthusiastic about the idea that they should collect seed from all over Sicily and send it to Wellesbourne when it becomes available. Dr Giovanni Mauromicale, who assisted me throughout my stay in Catania appears to have been designated liaison officer for this project. Professor Foti would like you to invite Dr Mauromicale over the look around NVRS in the hope that he will learn something that will enable them to improve their work in Catania. He is interested in



collaboration not only in the field of crucifer genetic resources and evaluation but also in other aspects of NVRS's research.

I have explained that I am a small cog working for NVRS on a temporary basis and cannot make any detailed statements on such collaboration if it is to take place but was sure their help in collecting seed of local crucifer varieties would be much appreciated and was of immediate importance. I referred them to IBPGR and Dr Perrino and also to yourselves for further discussion and suggested they enter into direct correspondence with you on the matter.

I travelled from Catania to Taranto over night and am now back on schedule. I contacted Dr Perrino this morning on arrival and will see him next Monday and will travel to Bari on Friday to meet a Professor Bianca of the Institute of Agriculture after visiting the two seed firms listed in the Taranto region. None are listed in the region of Brindisi and Lecce but there are several around Bari itself and the Marche region is packed with entries.

Puglia - Italy  
17-20 November 1983

I obtained samples of locally produced seed from N. Benvenuti in PALAGIANELLO (Taranto province) who dismissed the other seed merchant in the region listed in the yellow pages as a representative of the American "Asgrow" and not a source of local seed. He had a store of packets which he filled before me with seed from his own stock so the origin given on the packets is irrelevant. He indicated that the main region of this seed production was along the coast of Puglia/Calabria from Taranto to Marina Di Roseto and from Bari to Brindisi noting the towns of Monopoli and Fasani as particular centres. As another source of locally produced seed however, he was only able to recommend Larosa in Andria, listed in the yellow pages and whom, I subsequently visited.

Proceeded to Bari on Friday 18 November and sought the advice of a Professor Bianca of the Institute of Agriculture as to the whereabouts of seed firms in the south of Puglia since none were listed in the yellow pages. He told me that while seed was produced in that region it was not readily commercially available and if I entered the area without a guide I would be lost. (Dr Perrino has recently collected seed directly from the growers in this region which is now under evaluation) I produced my list of local seed firms obtained from the yellow pages and he eliminated those dealing in grain recommending 3 in Andria which he said would be the source for all the others listed. I went to Andria that afternoon and obtained samples from Fuscello and Larosa. Fuscello's production fields are around Andria while Larosa's are around Foggia and on the Puglia/Calabria coast to the east of Bernalda.

I also visited Sig. A. de Corato of De Corato Sementi, via Vecchia Corato, 210. Andria. He spoke good English and claims to have received a letter from the Wellesbourne Gene Bank in July of this year asking for samples which he duly sent. He says that he requires an official request on receipt of which he will send further samples free of charge. His telex number is 810528 and he seems to be in contact with Dr L Watts at NVRS.

On Saturday 19 November I visited Agritecnica in Bari and obtained a further sample of one of Fuscello's varieties to make up weight to 100 g and 3 other varieties not obtained from Fuscello himself the previous day though 2 of them bore his label. I then proceeded to ALTAMURA to meet with a contact given to me in Catania: Sig. Giannuzzi Ottavio and obtained samples from a local grower known to him. This grower, LORENZO has fields to the south east of Altamura.

21 November 1983

I visited Dr Perrino at the Germplasm Institute who explained that he had recently been collecting land races from farmers in the south of Puglia, had further plans for collection in Calabria and Sicily and that he would send sub-samples to Wellesbourne after discussion with Dr Astley at the EEC meeting in 1984.

In the afternoon I visited Monopoli and bought samples from Dr Leonardo Napolitano who runs an agricultural shop in Via Ten Camicia 86/A Monopoli and from Sig. Giuseppe Carbonara, Via Oberdan, 21D Monopoli (BA) including two small samples of Larosa seed not obtained from Larosa himself. I returned to Bari and consulted Dr Perrino as to the value to these samples and asked if the fact that I had not been able to obtain these varieties from Larosa himself was indicative that they were not locally produced? Dr Perrino said that Larosa farmed out his seed production to local growers and that I could not be certain of its value suggesting that I should buy 100 g of all Larosa varieties for evaluation.

22 November 1983

I visited "Agripuglia Garden" of Vittorio Rucci, Largo 2 Guigno, 9, Bari (Tel. 225869-364250) and bought small samples of Magda's Cruciferae. This is a northern seed firm but the origin of the seed could be anywhere in Italy.

I visited another seed shop and found nothing before returning to the Germplasm Institute. In Monopoli I bought larger samples from the seed shops visited the previous day including a Cavolo broccolo variety in Zorzi foil packages; this seed being of uncertain origin. De Corato of Andria was again strongly recommended to me as a good source of local varieties.

23 November 1983

In Lecce I was told that a market was to be held in a

few days and that someone from the Germplasm Institute local field station would obtain locally produced seed to send the samples on to Wellesbourne.

On the return journey I visited Torre Santa Susana (Brindisi region) and obtained a sample from Dr N Moscocturi (contact Bari Germplasm Institute). Also obtained were further Larosa varieties, from Vercim Asterias of Sig. Santoro, Via Latiano, Torre Santa Susana (Br.) and Cavolo rapa varieties from Sig. F. Epifani, Via Latiano, 200. I visited Fasano (Br) and obtained varieties packaged by the seed firm "Zagaria" Via Pontano 82, Andria (BA) (not visited itself as not located in the yellow pages before going to Andria and not recommended by other seed firms visited) from L. Angelini, Corso Garrivald, 189 Fasano (BA). Tel. 792838.

Returned to the Bari Germplasm Institute and discussed the possibility of being accompanied north to the Marche region by one of Perrino's men who would collect double samples directly from local growers while I would purchase double samples by my method. Examples of each being sent for storage at Bari and Wellesbourne. This, however, was not possible and I proceeded alone to the Marche region the following day.

24 November 1983

I decided to go to Ancona first as it is a major provincial city and I hoped to obtain good information about the Marche area.

I visited Sgaravatti, 221 Via Marconi, a few yards from the hotel and bought the varieties listed. Other crucifer varieties are packaged by Sgaravatti but these are not of Marche origin. He pulled a sack from beneath his desk and gave me 100 g of a non-packaged variety of his own production, which he seemed quite proud of, called "Cavolo Bolfino". He then eliminated from my lists of seed firms obtained from the yellow pages all those dealing solely in grain and those supplied by him recommending I.S.E.A. and TORCIANTI. This information turned out to be the most reliable of all seed merchants

asked. At my request for further varieties he told me that if I returned on Wednesday he would have checked his main store for any other local varieties and for any originating from Puglia or Sicily. In view of this I decided to base myself in Ancona for the remainder of the trip.

25 November 1983

I located I.S.E.A., Via Marconi, 60015 Falconara Marittima (AN) after some difficulty (the people in the north are generally less helpful than those living in Sicily) and bought listed varieties. They told me that I had come at the wrong time of year and that they had run out of seed of some of their locally produced varieties (as is the case with Torcianti and Sgaravatti some of their varieties are not locally produced). However with a letter from NVRS setting out your requirements in 1984 they will send the remaining varieties on to you.

Returned to Ancona and booked flight out of Rome for Thursday 1 December (day 42).

26 November 1983

I visited Torcianti, Via di Recanati, 50, Osimo (AN), several kilometres to the south of Osimo and bought the varieties listed including a locally produced hybrid which he seemed to be suggesting had been produced illegally. He also did not have seed of all his locally produced varieties but will send those I did not collect, with the bill, to Wellesbourne in October 1984. He recommended Oris near Osimo Stazione (6 km to east of Osimo) and several other seed firms, these latter proving to be a waste of time.

27 November 1983

Sunday - no action

28 November 1983

I took the train to Marotta and visited "Semeco" but discovered that they only sold grain and had done so for the past 4 years. I returned to Ancona and took a bus to Osimo Stazione and visited Oris; Km 311,000 SS 16 Zona Ino Statzione. I made my way to Osimo town and then on to Macerata where I caught a train to San Severino Marche and visited Coop Produttori Sementi Elette, 8 Km down the road to Macerata (no. 361). This however turned out to have stopped producing anything other than cereals several years ago. Returned to Ancona.

29 November 1983

I took a train to Porto San Giorgio and a bus inland to Fermo and located Bottoni - seed merchant - but he only sold small packets of Sgaravatti varieties. Since I expected to obtain these on Wednesday and I couldn't tell which were local I bought nothing here. Returned to Porto San Giorgio and proceeded south by train to San Benedetto del Tronto. Visited Picena (Sementi) who sold nothing new except a few varieties from Oris. No seed was bought here as Oris was to be visited the following day. Clause Italia, also in San Benedetto del Tronto was closed. Proceeded to Colli del Tronto to find that the seed firm L.S.T. had moved to Porto D'Ascoli. Eventually I located it to find that it produced only melon seeds which it packaged, apparently, for human consumption in bars.

I returned to San Benedetto del Tronto and visited Clause Italia again - still closed. I obtained the telephone number from a neighbour and, with the help of a local fruit shop, contacted the fellow who ran the shop who came from his home to see me. "Clause Italia" only sold imported seed with the exception of some cauliflower varieties produced around Fano. In order to obtain these the proprietor (who was the local area representative of this "Clause" company) told me to visit A.P.O.M. in Fano (which is not to be found in the yellow pages). I then returned to Ancona.

30 November 1983

Wednesday: Posted seed to England. I took the train to Fano and located A.P.O.M. (Associazione Produttori Ortofrutticoli Marchigiani) Fano (Persaro). They gave me two free 100 g samples of their varieties these were:

1. Fanese - Tardivo - 100 g - sown August, crop harvested between 25/4 and 5/5 the following year.
2. Fanese - Precoce - 100 g- sown August, crop reaches maturity between 20/2 and 5/3 the following year.

They said that a letter from Wellesbourne will secure further varieties when they become available.

I returned to Ancona to visit Sgaravatti but he had found no more local varieties in his store. I took the bus to Osimo stazione and visited Oris and they will send all relevant examples of their locally produced varieties directly to Wellesbourne.

I returned to Ancona and picked up my luggage before taking a train to Rome and then a taxi to the Airport.

1 December 1983

Flew from Rome, 10.37 local time.

Route in Sicily and Italy for the Collection of cruciferous crops - CP13

Arrive Palermo  
 Palermo - contact  
 Trapani  
 Marsala  
 Agrigento  
 Gela/Vittoria/Comiso  
 Pachino/Noto  
 Siracusa  
 Catania - contacts  
 Messina

Mainland

Messina - Reggio - Taranto  
 Taranto  
 Taranto - Bari - contact Perrino  
 Monopoli  
 Brindisi  
 Lecce  
 Bari - San Benedetto (Marche area)  
 San Benedetto  
 Ascoli  
 Ancona

Rome - fly out

EEC Crucifer Project - CP13 - Italy - 1983 Collection

Fuscello Seed Co, Andria - Bari

Broccoletto o cima di rapa - centoventina (marzo)  
- cinquantina  
- quarantina  
- sessantina a cima grande  
- novantina  
- novantina a cima grande  
- 120

Cavolfiore - genarese  
- palla di neve  
- precoce di sicilia violetto  
- verde di macerata

Cima tradiva

Cima molfettesi

Cavolo cappuccio mercato di Copenaghen

Cavolo verza grosse delle virtu

Ravanello saxa

Rucola da orto

Cavolo rapa - bianco  
- rosso

Larosa Emanuele Seed Co, Andria - Bari

Broccoletto o cima di rapa - sessantina a cima grande  
- quarantina a cima grande  
- tardiva di marzo a cima grande  
- natalino a cima grande

Cavolo o cima - verde barese  
- violetta natalino  
- violetta precoce

Cavolo di Bruxelles

Cavolo cappuccio di Copenaghen

Cavolo broccolo ramoso calabrese precoce

Cavolo rapa bianco

Cavolo verza invernale di piacenza

Broccolo gnade precoce

Rucola da Orto

Ravanello - rosso tondo a grande punta bianca  
- saxa

Sr. Scollo, Siracusa, Sicily

Ravizzone (swede)

Senape (mustard)

Associazione Produttori Ortofrutticoli Marchigiani, Fano

Cavolfiore Fanese - precoce  
- tardivo

Agritecnica, Bari

Cavolo broccolo verde calabrese

Nicola Benvenuti, Puglia

Cavolfiore violetto di Sicilia

Cima a broccoletto di rapa - novantina

Cavolo broccolo verde calabrese

Cima di rapa - centoventina a testa grossa  
- sessantina a testa grossa

Cavolo rapa violetto

Rucola coltivata

Ravanello - candela di ghiaccio  
- candela fuoco lungo rosso  
- rosso tondo a piccola punta bianca

Sig. Giannuzzi Ottavio, Bari

Rapa - 60 giorni  
- natalino  
- febbraio  
- aprile  
- maggio tardive

Cima di broccoletti precoce or broccoli precocissima

Cima verde barese settembrina di altimura

Cavolfiore - di Sicilia precoce  
- violetto pugliese precoce

Sig. F. Epifani, Brindisi

Cavolo rapa - a mignuli or scuri  
- marzotico tardivo

Torcanti Seed, Osimo, Ancona

Broccoletto di rapa - quarantino  
- sessantino  
- novantino

Cavolo - cappuccio mercato di Copenaghen  
- verze riccio di piacenza  
- di Bruxelles

Cavolfiore - di iesi a palla liscia  
- verde tardivo big. flower

Rapa da mensa o navona

Cima di rapa maceratese

Rucola da orto

Ravanello - tondo Cherry Belle  
- a form di oliva  
- rosso lungo  
- mezzo lungo rosso a punta bianca

ISEA, Ancona

Cavolo verza - delle virtu  
- precocissimo di S. Giovanni  
- di piacenza

Cavolfiore precocissimo di Jesi

Cavolo di Bruxelles

Broccoletto di rapa cinquantino

Cima di rapa - quantantina  
- sessantina

Rapa bianca piatta quarantina

Rapa di Milano a colletto viola

Rucola

Ravanello - non plus ultra  
- candela di fuoco

Normativa

Cavolo zolfino

Cavolfiore - di Jesi  
- verde di Macerata

Cavolo broccolo ramoso calabrese

Rapa da cima - broccoletto mezzo tardivo 60  
- broccoletto tardivo 90

Normativa continued

Rucola coltivata

Ravanello non plus ultra

Agripuglia Garden, Bari

Cavolo cappuccio di Brunswich

Cavolo di Bruxelles mezzo nano

Cima di rapa quarantina

Rucola

Ravanello rosso gigante

Crescione comune

Antiparassitari E Semi, Fasano

Cavolo cappuccio 51

Cime di rapa quarantina a cima grossa

Rucola o ruchetta coltivata

Monastero di Cappuccini, Palermo

Cavolo broccolo - agostina  
- settembrina  
- sammartinara  
- natalina  
- innorota or gennorota  
- frevarota  
- marzullo

Instituto Agrario Castelnuovo, Palermo

Cavolo broccolo

Local Grower, N W Palermo

Cavolo

Ravanello grossa



Ferreri, Palermo

Cavolo fiore sammartinaro bianco  
 Cavolo fiore verde di Palermo sammartinaro  
 Cavolo di Palermo  
 Cavolo cappuccio grosso  
 Cavolo Bruxelles  
 Cavolo broccolo ramoso calabrese  
 Rapa da cima broccoletto precoce 40  
 Rucola o ruchetta insalatina  
 Ravanello rotondo rosso quarantino nostrale  
 Cicoria da taglio  
 Crescione inglese insalatina

Laviano Nicola, Messina

Cavolo broccolo invernale - type A  
 - type B

Micari Antomino, Messina

Cavolo broccolo or broccole messinese

Catania Agricultural Institute Field Station, Siracusa

Cavolfiore violetto  
 Cavolo broccolo - broccolo di siracusa  
 Senapa

Patane Venerando, Catania

Cavolo rapa trunzo majolino

Sig. Copani, Frieria

Cavolo linguaglossa  
 Cima di rapa  
 Rapa spontana

Sig. D'Angelo Santi, Messina

Cavolfiore - san martinisi  
 - frivarolo  
 Cavolo broccolo - broccolo di minestra spicata  
 Cavolo cavolina rizza

Scuderi Salvatore, Messina

Cavolfiore  
 Cavolo broccolo - broccolo di mojo  
 Cavolo rapa di acireale

Sig. Tomasello, Catania

Cavolfiore - natalino  
 - gennarino  
 - frivarolo  
 - marzolo  
 Cavolo broccolo - natalino  
 - aprilotu

Cavolo rapa - cavulu

Sig. Carbonara, Monopoli

Cavolo broccolo ramoso di calabria mezzo precoce

Floreal Agrigentina, Agrigento

Cavolfiore gigante di napoli - natalino  
 - di sicilia violetto  
 Cavolo cappuccio cuor di bue  
 Cavolo broccolo a foglie lisce  
 Cavolo rapa di praga bianco  
 Cima di rapa - quarantino  
 - sessantino  
 Ravanello - tondo rosso a grande punta bianca  
 - candela fuoco lungo rosso  
 - burro gigante

Market Samples, Agrigento

- Cavolo - sparacello
- forte
- fiore

Local Grower, Masala

Cavole broccoli - \* obviously radish seed

Galfano Luca, Masala

- Cavolo cappuccio - testa di pietra
- cuor di bue grosso
- cuore di bue
- tondo precocissimo
- di Copenaghen precoce
- di Brunswik tardivo
- bianco gloria di enkhuizen

Cavolo broccolo tardivo di verona

Cavolfiore di Jesi

- Ravenello - cerasella
- non plus ultra
- saxa

Sedano rapa

Scientific Report of E.C. Research Programme 0890.

"The collection of land races of cruciferous crops in E.C. Countries".

CP15 - Collecting of landraces of Brassica and other cruciferous species cultivated in South Italy.

1983

Pietro Perrino

Istituto del Germoplasma C.N.R.

Bari, Italy

Introduction

The collecting programme was undertaken in 1983 and for this first year the main efforts were made for collecting true landraces.

Commercial varieties have been and may continue to be collected by project CP13 in collaboration with our Institute.

In 1983 three main collecting missions have been mounted and accomplished.

First mission.

It took place from 18th to 31st July. The team was composed by Dr.P. Perrino from Bari, Dr.P. Hanelt and Dr.K. Hammer from Gatersleben (DDR). Some remote areas of Basilicata and Calabria were visited.

The itinerary was the following:

- 18th July: Metaponto, Policoro, Rotondella, Senise.
- 19th " Chiaromonte, Fardella, Agromonte, Castelluccio superiore, Rotonda, Zarafa, Viggianello, Prastio.
- 20th " Serra del Prete, Pollino, Piano Ruggio, Castrovillari.
- 21st " Firmo, Lungro, Acqua formosa, Roggiano.
- 22nd " Altomonte, S. Marco Argentino, Mongrassano.
- 23rd " Cavallerizzo, Cerzeto, S.Martino, S.Giacomo.

- 24th " Cerzeto, Rota Greca, Piretto, Lattarico, Montalto.
- 25th " Uffugo, Cosenza, Camigliatello, S.Pietro.
- 26th " Guarano, Corva di Melisi, Longobucco, Destro, Cropalati, Mirto, Carriati, Crucoli.
- 27th " Torretta, Cirò, Umbriatico, Perticaro, Verzino, Savelli, Pino Grande,
- 28th " S.Giovanni in Fiore, Lago Ampollino, Germano, Germano Frasineto.
- 29th " Zerisi, Cotronei, Roccabernarda, Mesoraca, Filippa, Petronà, Cerva, Sersale.
- 30th " Zagarise, Magisano, S.Pietro Lossato.
- 31st " S.Giovanni, Albi, Villaggio Mancuso, Vill. Racise, Spineto, Parenti, Policoro, Bari.

Second mission.

It took place from 12-14th September and from 20-28th September; the team was composed by Dr.G.B. Polignano from the Germplasm Institute and Dr.G. D'Amato from the Institute of Agronomy of Bari in the first part and by Dr.G.B. Polignano Mr.P. Ugenti and Dr.G.H./Mariam from the Germplasm Institute of Bari in the second part.

The province of Lecce was visited from 12-14 September while different districts of Campania, Basilicata and Calabria were visited from 20-28 September.

Third mission.

It took place from 1-10th of October by Dr.G. D'Amato from the Institute of Agronomy of Bari. Collecting work was concentrated in Puglia.

A part from these three missions, there were, from time to time, short excursions in different regions for preparing each mission and for starting contacts with local people before collecting.

Collections. (In all 211 seed samples were collected).

The list of species of Brassica collected in all regions is reported on table 1 and 2. The visited areas and the sites of collection are reported on Fig.1. During each mission seed samples were collected both from the plants and from farmers according to the altitude and season of collection. In some cases and especially in Puglia farmers were visited twice in order to collect seed samples at harvesting time. In other cases when collecting was not possible from plants seed samples were taken from the store.

As can be seen from table 1 the majority of land races collected in all districts belong to Brassica campestris var. ruvo (Cima di rapa) and B.oleracea var. italica (cavolo broccolo). B.oleracea var botrytis (cavolfiore), B.oleracea var. sabauda (cavolo verza) and B.oleracea var. capitata (cavolo cappuccio) are less frequent as landraces but also as new commercial varieties.

Puglia

In Puglia most of the samples were collected on the Murge and Salentina Peninsula. On the Murge vegetable crops are cultivated on typical red soil and small garden around farms and by small towns and cities. In the peninsula Salentina vegetable crops are cultivated in the same way but on clay and calcareous soils. Rainfall ranges from 500 to 800 mm. Only "Cima di rapa" (B. campestris) and "Cavolo broccolo" (B.oleracea var. italica) can be found easily as local populations. For other Brassicaceae new commercial varieties and hybrids are the common role.

Several landraces of Brassica campestris with a different length of crop cycle have been collected (Quarantina, Sessantina, Novantina with 40-60-90 days respectively). Other landraces with a different day length have also been collected: "Novembrina", "San Martina", "dell'Immacolata", "Natalina", "Febbraiese", "Marzotica".

Frequent are also three landraces of Brassica oleracea var. italica: "Poverello", "Precoce" and "Tardivo".

Campania

This region is a typical one for vegetable crops. Brassica is cultivated on volcanic clay and sandy soils. Though rainfall is not low, ranging from 600-800 mm in the low lands to 1800-2000 on the mountains, irrigation is very frequent.

Two typical areas cultivated with Brassica are the plateau of Sala Consilina and Padula (Vallo di Diana) along the Tanagro river and the cost of Salerno district (Valle del Sarno and Piana del Sele).

On the plateau Brassica rapa as a fodder crop is frequently cultivated. Landraces of B.oleracea var. botrytis, B.oleracea var. italica are rare.

Landraces of Cima di rapa (B.campestris) locally called: "Marzaiola", "Maggeola", "Torsa or Tuzzi", "Quarantina", "Schiattaiuli", "Sessantina", "Novantina" have been collected.

Landraces of B.oleracea var. botrytis (Cavolfiore) locally called "Natalese", "Febbrarese tardivo", "Natale", "Natalino", "Marzotico", "Pinolo", "Broccoletto nero", "Calabrese", "Cavolo verde" were collected together with few landraces of B.oleracea var. sabauda (Cavolo verza).

In the low lands the predominant Brassica is B.oleracea var botrytis. However Cima di rapa and Broccoli are not rare.

Genetic erosion in Campania is high. This is mainly due to the distribution of new high yielding varieties.

For Basilicata and Calabria regions collection of landraces is harder for three reasons: 1) seldom farmers collect seeds themselves; 2) commercial varieties are used; 3) spontaneous cruciferae are eaten instead of normal crops. However rare types like B.campestris subspecies rapa and B.oleracea var. acephala were found only in these two regions.

More details concerning each species of Brassica, region of cultivation and even other samples not reported on table 1 and 2 will be reported in a paper which will be sent to Plant Genetic Resources Newsletter.

Conclusions

Genetic erosion is high in all regions though the results of collecting show that it is still possible to find landraces with different day length and may be with other physiological and morphological traits.

Some of the collected samples have been duplicated and will be distributed to other gene banks after multiplication.

In collaboration with other Institutes the collected landraces will be grown in 1984-85 both for conservation and identification purposes.

More landraces will be collected in Basilicata, Calabria and Sicily in 1984.

Wild Brassica like B.incana, B.rupestris, B.macrocarpa, B.villosa, B.depranensis, B.tinei, etc. will be collected in the next future.

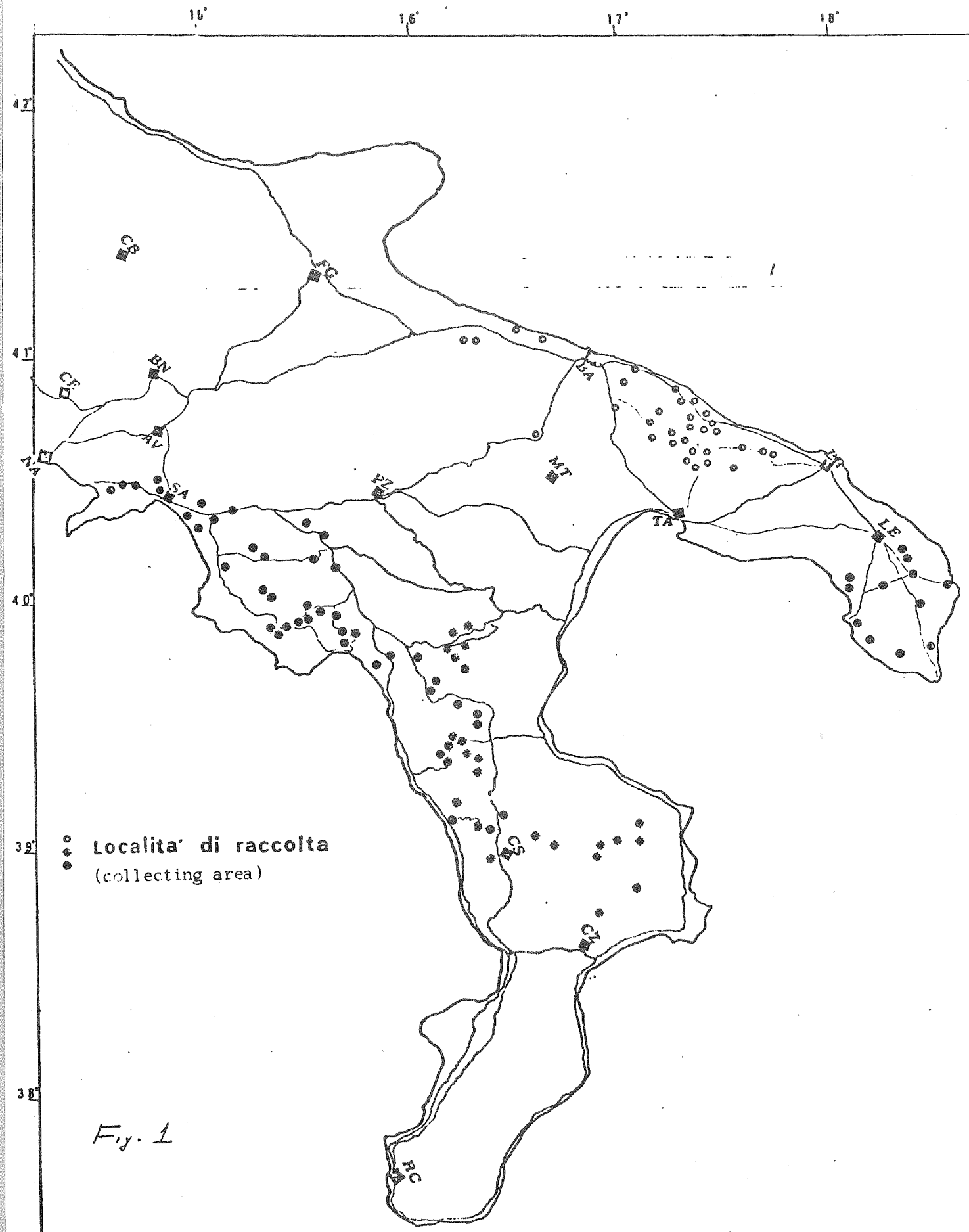


Fig. 1

Table 1 - Species of *Brassica* and number of samples collected in different regions.

Genus	Species	Botanical group	REGIONS				Total
			Puglia	Campania	Basilicata	Calabria	
Brassica	campestris(1)	ruvo	90	25	-	10	125
"	" (2)		-	-	3	4	7
"	"		-	6	-	-	6
"	oleracea	italica	7	23	3	10	43
"	"	botrytis	-	6	-	7	13
"	"	sabauda	2	5	1	2	10
"	"	capitata	-	-	-	2	2
"	"	acephala	-	-	4	1	5
	TOTAL		99	65	11	36	211

(1) subsp. *campestris* and others.

(2) " *rapa*.

Table 2 - List of materials collected in Puglia, Campania and Calabria (September 1983).

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
9748	Brassica	campestris	ruvo	Rape di natale o Natalina	Martano	0091	40°10'	18°20'
9750	"	oleracea	italica	Broccoletto verde o Poverello	"	0091	40°10'	18°20'
9752	"	"	botrytis	Cavolfiore di Natale o Natalino	"	0091	40°10'	18°20'
9753	"	campestris	ruvo	Rapa quarantina	Castri	0047	40°15'	18°19'
9754	"	oleracea	sabauda	Verza	"	0047	40°15'	18°19'
9756	"	campestris	ruvo	Rapa quarantina	"	0047	40°13'	18°20'
9757	"	"	"	Rapa di S.Martino	"	0047	40°13'	18°20'
9758	"	"	"	Natalina	"	0047	40°13'	18°20'
9762	"	"	"	Rapa quarantina	Otranto	0015	40°10'	18°28'
9763	"	"	"	Rapa Natalina	"	0015	40°10'	18°28'
9764	"	"	"	Rapa sessantina	"	0015	40°10'	18°28'
9765	"	"	"	"	"	0015	40°10'	18°28'
9766	"	oleracea	italica	Broccoletto poverello	"	0015	40°10'	18°28'
9768	"	"	"	Broccoletto precoce	Sanarica	0080	40°03'	18°20'
9769	"	"	"	" tardivo	"	0042	40°03'	18°20'
9771	"	campestris	ruvo	Rapa ottobre	Tricase	0098	39°53'	18°21'
9773	"	"	"	Cima di rapa S.Martino	"	0098	39°53'	18°21'
9774	"	"	"	" sessantina	"	0098	39°53'	18°21'
9775	"	"	"	" di Natale	"	0098	39°53'	18°21'
9776	"	"	"	" quarantina	"	0098	39°53'	18°21'

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
9777	Brassica	campestris	ruvo	Cima di rapa dell'Immacolata	Tricase	0098	39°53'	18°21'
9779	"	oleracea	italica	Broccoletto precoce	"	0098	39°53'	18°21'
9780	"	"	"	"	Galatina	0058'	39°58'	18°05'
9781	"	"	sabauda	Verza	"	0058'	39°58'	18°05'
9782	"	campestris	ruvo	Cima dirapa sessantina	Nardò	0045	39°58'	18°03'
9783	"	"	"	" Natalina	"	0045	39°58'	18°03'
9784	"	"	"	" Novantina	"	0045	39°58'	18°03'
9785	"	"	"	Rapa di Marzo, Marzarolo	"	0045'	39°58'	18°03'
9787	"	"	"	Cima di rapa Natalino	Gallipoli	0030	39°58'	18°03'
9788	"	"	"	"	Taviano	0058	39°54'	18°05'
9789	"	oleracea	italica	Cavolo broccolo	"	0058	39°54'	18°05'
9791	"	campestris	ruvo	Cima di rapa Natalina	Acquica	110	39°53'	18°12'
9792	"	"	"	" Marzaiola	Arnaci Sottano	281	40°25'	15°30'
9793	"	oleracea	italica	"	"	281	40°25'	15°30'
9794	"	campestris	ruvo	"	dopo Polla	463	40°23'	15°33'
9795	"	"	"	Rapa Maggeola	Km.695 Sala Consilina	614	40°15'	15°35'
9796	"	"	"	Cima di rapa Torsa o Tuzzi	"	614	40°15'	15°35'
9798	"	"	"	Rapa da foraggio	Km.713 Rielli (S.Rufo)	645	40°18'	15°31'
9799	"	"	"	Cima di rapa	Cont.Torre Aquara	500	40°19'	15°15'
9804	"	oleracea	italica	Cavolo broccolo	"	500	40°19'	15°15'
9805	"	"	"	"	Cont.Isea Controne	204	40°21'	15°12'
9806	"	campestris	ruvo	Cima di rapa quarantina	S.Paola Campagna	280	40°31'	15°10'

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
9807	Brassica	oleracea	italica	Cavolo broccolo	Battipaglia	30	40°27'	15°02'
9808	"	campestris	ruvo	Cima di rapa	"	30	40°27'	15°02'
9809	"	"	"	" quarantina	S. Vito	120	40°30'	15°00'
9810	"	"	"	" "Shitaiuli"	prima di Scafati	40	40°32'	14°33'
9811	"	"	"	" (miscuglio)	Loc.Bagni	40	40°32'	14°33'
9812	"	oleracea	botrytis	Cavolfiore genovese	Scafati Bagni	40	40°35'	14°33'
9813	"	"	"	" Natalese	"	40	40°35'	14°33'
9814	"	"	"	Broccolo di Natale	"	40	40°35'	14°33'
9815	"	"	"	Cavolo verza genovese	"	40	40°35'	14°33'
9816	"	campestris	ruvo	Cima di rapa tardiva	Con.Magliano-Forino	420	40°41'	14°49'
9817	"	"	"	" sessantina	Con.Fasarese	420	40°26'	14°55'
9818	"	oleracea	botrytis	Cavolfiore Febbrese tardivo	Campolongo	10	40°21'	14°58'
9819	"	"	"	" genovese	"	10	40°21'	14°58'
9820	"	"	italica	Natalino	"	10	40°21'	14°58'
9821	"	"	"	Cavolo Marzatico	"	10	40°21'	14°58'
9822	"	"	sabauda	" verza	"	10	40°21'	14°58'
9823	"	"	"	"	"	10	40°21'	14°58'
9824	"	"	"	"	Cortigliano-Paestum	20	40°19'	15°03'
9825	"	campestris	"	Cima di rapa sessantina	"	20	40°19'	15°03'
9826	"	oleracea	italica	Broccoli di Natale	"	20	40°19'	15°03'
9827	"	"	"	Cavolo "pinolo"	Stio	700	40°11'	15°15'



Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
9828	Brassica	oleracea	italica	Cavolo broccolo	Stio	700	40°11'	15°15'
9829	"	"	"	Cavolo	"	700	40°09'	15°13'
9830	"	"	"	Broccolo	"	700	40°09'	15°13'
9831	"	"	"	Cavolo	"	700	40°09'	15°13'
9832	"	"	"	"	"	700	40°09'	15°13'
9833	"	"	"	broccolo	"	700	40°09'	15°13'
9834	"	"	"	"	"	700	40°09'	15°18'
9835	"	"	sabauda	Verza	"	700	40°09'	15°18'
9836	"	campestris	ruvo	Cavolo rapa	"	700	40°09'	15°18'
9837	"	"	"	Rapa paesana invernale	Cuccaro Vetere	600	40°02'	15°20'
9838	"	oleracea	italica	Cavolo broccolo	"	600	40°03'	15°20'
9839	"	campestris	ruvo	Rapa	"	600	40°03'	15°20'
9840	"	oleracea	italica	Cavolo broccolo	"	600	40°00'	15°20'
9841	"	"	"	"	Laurito	475	40°02'	15°24'
9842	"	campestris	ruvo	Rapa sessantina	"	475	40°02'	15°24'
9843	"	"	"	" novantina	"	475	40°04'	15°25'
9844	"	oleracea	sabauda	Verza	Alfano	250	40°05'	15°23'
9845	"	campestris	ruvo	Rapa	"	250	40°05'	15°23'
9846	"	"	"	" sessantina	"	250	40°05'	15°23'
9847	"	oleracea	italica	Cavolo verza	"	250	40°05'	15°23'
9848	"	campestris	ruvo	Rapa	"	250	40°05'	15°23'

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
9849	Brassica	campestris	ruvo	Rapa quarantina	Alfano	250	40°05'	15°23'
9850	"	"	"	"	Rofrano	461	40°08'	15°28'
9851	"	oleracea	italica	Cavolo verza	"	461	40°08'	15°28'
9852	"	campestris	ruvo	Rapa	Campolacorte(Sansa)	600	40°07'	15°33'
9853	"	oleracea	italica	Broccolotto nero	Battaglia	400	40°01'	15°38'
9854	"	"	"	Cavolo	Tortorella	582	39°59'	15°36'
9855	"	"	sabauda	Cavolo verza	"	582	39°59'	15°36'
9856	"	campestris	ruvo	Rapa	Torraca	425	39°58'	15°59'
9857	"	oleracea	italica	Cavolo	"	425	39°58'	15°59'
9858	"	campestris	ruvo	Rapa	"	425	39°58'	15°59'
9859	"	"	"	"	"	425	39°58'	15°59'
9860	"	"	"	" quarantina	"	425	39°58'	15°59'
9861	"	"	"	"	Maratea	910	39°58'	15°42'
9862	"	oleracea	italica	Cavolo broccolo	"	910	39°53'	15°42'
9863	"	"	"	"	Lauria		39°54'	15°48'
9864	"	campestris	ruvo	Rapa	Prestieri	836	39°57'	15°48'
9865	"	oleracea	italica	Cavolo broccolo	"	836	39°57'	15°48'
9866	"	campestris	ruvo	Rapa	Normanno	850	39°48'	15°58'
9867	"	oleracea	sabauda	Cavolo verza	"	850	39°47'	15°58'
9868	"	"	italica	" broccolo calabrese	"	850	39°47'	15°58'
9869	"	campestris	ruvo	Rapa	Morano Calabro	694	39°43'	16°04'
9870	"	"	"	"	Castrovillari	362	39°40'	16°12'

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
9871	Brassica	campestris	ruvo	Rapa	Castrovillari	362	39°38'	16°13'
9872	"	oleracea	italica	Cavolo broccolo	"	362	39°38'	16°13'
9873	"	campestris	ruvo	Rapa	Aquaformosa	756	39°37'	16°01'
9874	"	"	"	"	S. Donato	790	39°35'	16°00'
9875	"	oleracea	italica	Cavolo	S. Agata	461	39°30'	15°58'
9876	"	campestris	"	Rapa	Santoanni	700	39°29'	15°51'
9877	"	oleracea	italica	Cavolo verde	Fuscaldo	378	39°18'	15°58'
9878	"	"	capitata	" cappuccio	S. Benedetto Ullano	435	39°18'	16°01'
9879	"	campestris	ruvo	Rapa marzatica	Montando Uffugo	430	39°16'	16°04'
9880	"	"	"	Rapa	Luzzi	200	39°18'	16°11'
9460	"	spp.	"	Rapa	Fardella (Pz)	700	40°07'	16°11'
9472	"	"	"	"	Chiaromonte	700	40°06'	16°07'
9476	"	oleracea	acephala	"	" Magnano -		40°03'	16°04'
9478	"	"	"	"	Castelluccio super.	700	40°02'	16°00'
9494	"	"	"	"	"	700	40°01'	16°01'
9518	"	"	"	"	Terpa Pertuglio (Viggiannello)	950	39°58'	16°06'
9530	"	"	italica	Broccoli rapa	Albanese	250	39°47'	16°10'
9531	"	"	"	"	S. Donato	500	39°41'	16°03'
9538	"	"	"	"	"	500	39°41'	16°06'
9539	"	"	sabauda	Cavolo verza	Roggiano	600	39°37'	16°11'
9549	"	"	"	Rapa catalogna	"	600	39°37'	16°11'
9581	"	"	italica	Rapa quarantina broccoli	S. Giacomo Cerzeto	550	39°30'	16°07'

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
9582	Brassica	oleracea	botrytis	Broccolo di Sponza	S. Giacomo Cerzeto	550	39°30'	16°07'
9588	"	"	"	Cima di rapa	Celico	650	39°19'	16°21'
9589	"	"	Sponza	"	"	650	39°19'	16°21'
9590	"	"	capitata	Cavolo cappuccio	"	650	39°19'	16°21'
9591	"	"	sabauda	" verza	"	650	39°19'	16°21'
9592	"	"	botrytis	Broccolo sponza	"	650	39°19'	16°21'
9629	"	spp.	"	"	Camigliatello	1250	39°21'	16°28'
9635	"	oleracea	"	Cima di rapa	"	1250	39°21'	16°25'
9660	"	"	"	Rapa	Perticaro (Umbriatico)	800	39°22'	16°17'
9661	"	"	"	"	Verzino	350	39°20'	16°52'
9663	"	"	"	Cavolo	Savelli	1000	39°20'	16°47'
9666	"	"	acephala	"	Scilligria Savelli	1000	39°18'	16°45'
9669	"	"	"	Rapa	S. Giovanni in Fiore	950	39°14'	16°41'
9681	"	"	"	"	Roccabernarda	350	39°50'	16°50'
9682	"	"	"	Rapa sponza	"	350	39°50'	16°50'
9701	"	"	"	Cavolo	Foresta Magisano	750	39°00'	16°37'
10	"	campestris	ruvo	Sessantina, cima di rapa, cima grande	Bari		41°00'	16°57'
11	"	"	"	Sessantina	"		41°00'	16°57'
14	"	"	"	Cima di rapa, Natalina cima grande	"		41°00'	16°57'
27	"	"	"	Cima di rapa di gennario	"		41°00'	16°57'

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
32	Brassica	campestris	ruvo	Cima di rapa Novantina	Bari		41°00'	16°57'
43	"	"	"	Marzaiola, cima grossa	"		41°00'	16°57'
47	"	"	"	Cima di rapa tardiva di Febbraio-Marzo	"		41°00'	16°57'
48	"	"	"	Cima di rapa tardiva di Marzo	"		41°00'	16°57'
49	"	"	"	Cima di rapa di Aprile	"		41°00'	16°57'
51	"	"	"	Cima di rapa 120 days	"		41°00'	16°57'
53	"	"	"	" " di Marzo	"		41°00'	16°57'
56	"	"	"	Marzotica precoce	"		41°00'	16°57'
13	"	"	"	Molfettese	Molfetta		41°10'	16°38'
61	"	"	"	Quarantina	Bisceglie		41°12'	16°23'
62	"	"	"	Cima di rapa di Natale	"		41°12'	16°23'
63	"	"	"	Marzaiola	"		41°12'	16°23'
3	"	"	"	Quarantina cima grande	Andria		41°09'	16°18'
48	"	"	"	Cima di rapa tardiva di Marzo, cima grande	"		41°09'	16°18'
2	"	"	"	Cima di rapa quarantina	"		41°09'	16°18'
9	"	"	"	Cima di rapa sessantina	"		41°09'	16°18'
57	"	"	"	Cima di rapa di Marzo	Mola		40°59'	17°07'
58	"	"	"	Cima di rapa di Martina, rapone	"		40°59'	17°07'
20	"	"	"	Cima di rapa tre stelle	Monopoli		40°52'	17°22'
22	"	"	"	Cima di rapa normale	"		40°51'	17°24'

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
23	Brassica	campestris	ruvo	Cima di rapa di Natale o di Galatina	Monopoli		40°51'	17°24'
15	"	"	"	Cima grossa Natalina	Fasano		40°52'	17°25'
18	"	"	"	Mezzo tempo rapa Fasanese a cima grande	"		40°42'	17°48'
19	"	"	"	Natalina di Fasano	"		40°42'	17°48'
6	"	"	"	Fasanese e cima piccola	Fasano		40°46'	17°25'
17	"	"	"	Natalina	Canale Pirro		40°46'	17°25'
4	"	"	"	Quarantina	Fasano Laureto		40°47'	17°29'
5	"	"	"	Quarantina cima grossa	" Savallettri		40°49'	17°30'
7	"	"	"	Primitiva	Fasano		40°48'	17°30'
39	"	"	"	Tardiva Fasano cima grossa	"		40°46'	17°31'
40	"	"	"	Tardiva	"		40°46'	17°31'
1	"	"	"	Cima di rapa Quarantina	Ostuni	271	40°00'	17°40'
44	"	"	"	Tardiva	"	271	40°00'	17°40'
33	"	"	"	Novantina	"	271	40°00'	17°40'
29	"	"	"	Rapa di Natale	Carovigno	170	40°40'	17°47'
50	"	"	"	Rapa di Marzo	"	170	40°40'	17°47'
54	"	"	"	Cima di rapa di Marzo	"	170	40°39'	17°49'
60	"	"	"	Cima di rapa di Aprile	"	170	40°39'	17°49'
65	"	"	"	Precoce	Ceglie Messapico		40°38'	17°38'
66	"	"	"	Mezzo tempo	"		40°38'	17°38'
67	"	"	"	Tardiva	"		40°38'	17°38'

(10)

Field No.	Genus	Species	Botanical group	Local name	Locality	Alt.	Lat.	Long.
8	Brassica	campestris	ruvo		Martina Franca	435	40°40'	17°29'
21	"	"	"	Precoce	"	435	40°40'	17°29'
26	"	"	"	Mezzo tempc	"	435	40°40'	17°29'
41	"	"	"	Media	"	435	40°38'	17°29'
52	"	"	"	Marzaiola gigante	"	435	40°38'	17°26'
63	"	"	"	Cima di rapa tardiva	"	435	40°38'	17°25'
64	"	"	"	Stracordola	"	435	40°38'	17°25'
55	"	"	"	Mezzo tempc	"	435	40°38'	17°25'
16	"	"	"	Locale, tardiva, grossa di Martina Franca	Locorotondo		40°40'	17°25'
37	"	"	"	Mezzo tempo di Martina F.	Alberobello		40°42'	17°23'
38	"	"	"	Tardiva di Martina F	"		40°40'	17°23'
24	"	"	"	Cima grossa tardiva di Aprile	Zingarelli (Alberobello, Castellana)		40°43'	17°20'
25	"	"	"	Cima di rapa di dicembre	Noci	411	40°43'	17°15'
36	"	"	"	" " " gennaio	"	411	40°43'	17°15'
45	"	"	"	" " " aprile	"	411	40°43'	17°15'
46	"	"	"	Marzaiola	"	411	40°43'	17°15'
42	"	"	"	Cima di rapa di febbraio	"	411	40°43'	17°15'
38	"	"	"	" " " maggio	"	411	40°43'	17°15'
59	"	"	"	Locale cima grande di marzo	Castellano Grotte		40°50'	17°16'
12	"	"	"	Cima di rapa di marzo	Putignano	375	40°47'	17°12'
30	"	"	"	" " Sessantina	Altamura		40°41'	16°40'
31	"	"	"	" " gennaio	"		40°41'	16°40'
				Novantina	"		40°41'	16°40'