

## Collection of land-races of cultivated plants in South Italy 1983

PIETRO PERRINO<sup>1</sup>, KARL HAMMER and PETER HANELT

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### Summary

In continuation of collecting missions in 1980, 1981 and 1982a further mission has been carried out in South Italy jointly by staff members of the Istituto del Germoplasma, Bari, and the Zentralinstitut für Genetik und Kulturpflanzenforschung, Gatersleben, in July 1983 for studying and collecting indigenous forms of cultivated plants and their wild relatives. 277 samples, mainly of cereals, grain legumes and vegetables have been collected. The material represents highly variable old land-races; this is especially true for wheat, maize, french beans, faba beans and *Brassica* spp. In some fields of the Sila Mts. introgressions from *Secale montanum* into cultivated rye could be observed. The results of this mission stress the necessity for continuing the exploration of plant genetic resources in South Italy.

### Introduction

The joint explorations of plant genetic resources in South Italy—begun in 1980—have been continued in 1983 by the Istituto del Germoplasma in Bari and the Zentralinstitut für Genetik und Kulturpflanzenforschung in Gatersleben within the frame of the agreement between the Consiglio Nazionale delle Ricerche (C.N.R.) of Italy and the Academy of Sciences of the GDR. Regarding the importance and the general agricultural situation of this region one should compare the earlier travel reports (PERRINO et al. 1981a, 1982a, PERRINO and HAMMER 1983a).

The recent mission could confirm the observations made during the last years of the still existing small-scale cultivation of old varieties and land-races of cereals and leguminous species and especially of different garden crops but likewise also of the advanced stage of gene-erosion for the whole of the collecting region and for distinct crops. Especially in Calabria this process is enhanced by the widespread rural emigration and the frequent abandonment of former farms.

The collecting work has been concentrated in 1983 on the southern parts of the region Basilicata and on northern and central Calabria (fig. 1) which means a

<sup>1</sup> Istituto del Germoplasma, Via G. Amendola 165/A, I-70126 Bari, Italy

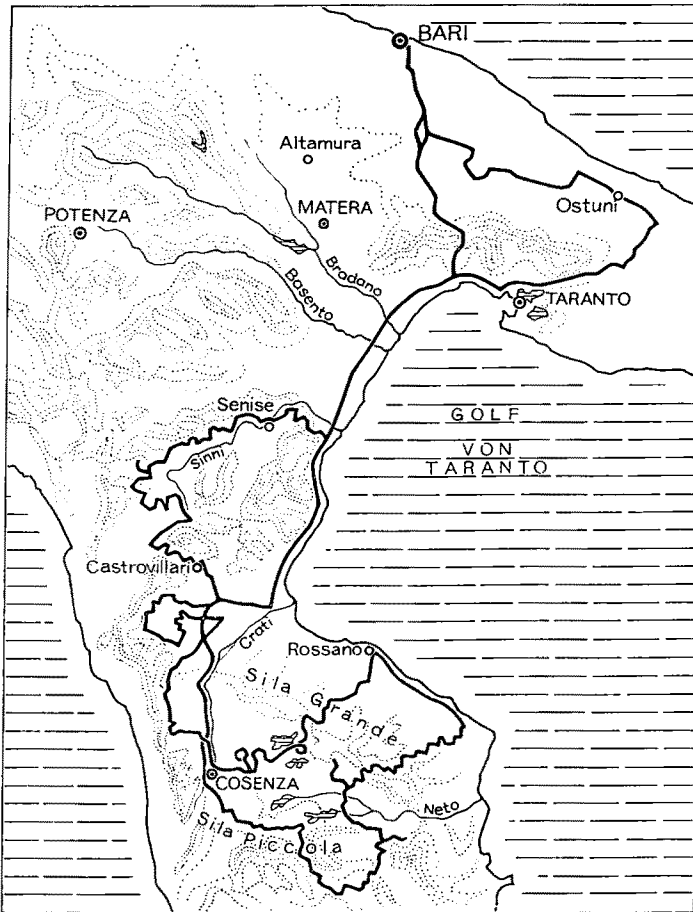


Fig. 1 Route of the collecting mission

systematic continuation of the earlier activities in southward direction. The exploration has been done mostly in altitudes between 400 and 1200 m NN within the belt, in which the original vegetation is represented by deciduous broadleaved forests, *Quercus* ssp.–*Castanea vesca* in the lower, *Fagus sylvatica* associations in the uppermost parts.

The mission has been again organized by the Bari institute, participants having been the authors of this paper. The field work took place from July 18th to July 30th, the detailed itinerary is summed up in the following (see also fig. 1):

18. 7. Bari – Mottola – Metaponto – Policoro – Senise – Chiamonte;
19. 7. Chiamonte – Fardella – Episcopia – Agromonte – Castelluccio Superiore;
20. 7. Castelluccio Superiore – Castelluccio Inferiore – Rotonda – Viggianello – Contrada – Zarafa – Prastio – Tempa Pertugio – Rifugio;
21. 7. Rifugio – Morano Calabro – Castrovillari – Firmo – Acquafredda – S. Donato – Roggiano Gravina – Altomonte;
22. 7. Altomonte – S. Marco Argentano – Mongrassano – Cavallerizzo – Cerzeto – S. Martino – S. Giacomo di Cerzeto – Rota Greca – Diretto – Latarico – Montaldo Uffugo – Cosenza;

23. 7. Cosenza – Spezzano – Celico – S. Pietro in Guarano – Camigliatello;
24. 7. Camigliatello – Cava di Melis – Longobucco – Destro – Cropalati – Mirto;
25. 7. Mirto – Cariati – Crucoli – Torretta – Cirò – Umbriatico – Perticaro – Verzino – Savelli;
26. 7. Savelli – Pino Grande – S. Giovanni in Fiore – Lago Ampollino – Germano;
27. 7. Germano – S. Giovanni i. F. – Lago Ampollino – Cotronei – Roccabernarda – Petilia Policastro – Foresta – Mesoraca – Filippa – Petronà – Filippa;
28. 7. Filippa – Petronà – Cerva – Sersale – Zagarise – Magisano – S. Pietro – S. Giovanni Albi – Albi – Villaggio Mancuso – Villaggio Mancise – Spineto;
29. 7. Spineto – Rogliano – Cosenza – Sibari – Policoro – Metaponto – Taranto – Carovigno;
30. 7. Carovigno – Ostuni – Alberobello – Putignano – Bari.

## Results

Previous missions in South Italy (PERRINO et al. 1981a and b, PERRINO et al. 1982a and b, PERRINO and HAMMER 1983a and b) have shown that this area is still rich in plant genetic resources. The mountainous areas provide suitable niches for the preservation of old land-races. This impression from the former missions was supported by the observations made this year in southern parts of Basilicata (fig. 2) and in some areas of Calabria, where the traditional agricultural

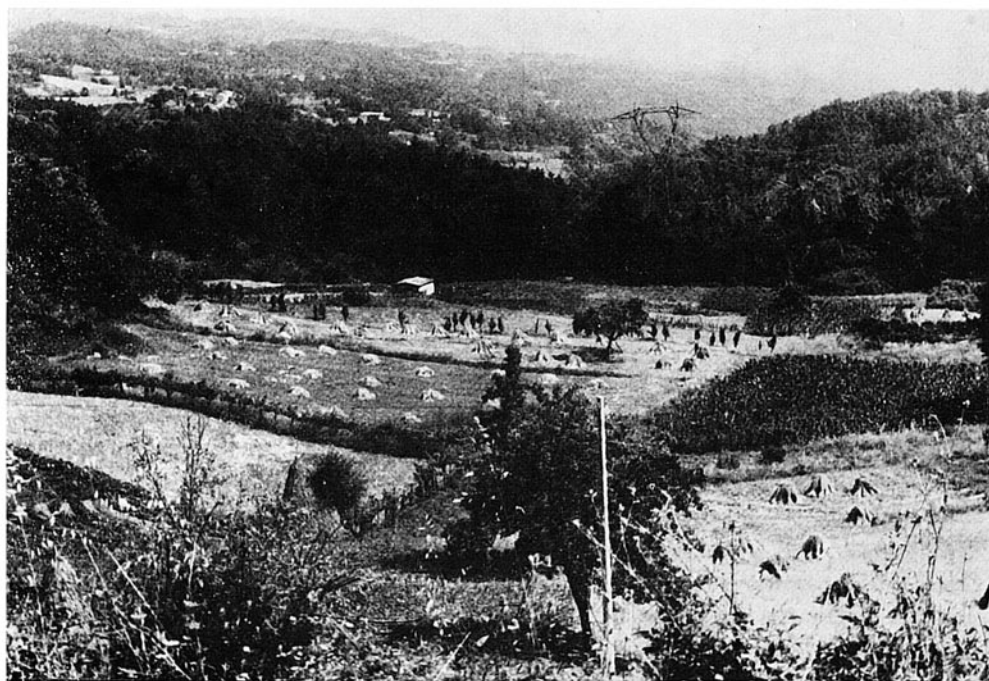


Fig. 2 Traditional type of agriculture guarantees the preservation of old land-races, southern Basilicata (near Fardella)

practice is still maintained. For many sites in Calabria a severe genetic erosion could be observed, mainly because a large amount of farms have been abandoned by rural emigration (fig. 3).



Fig. 3 In Calabria farms are often left and the fields are abandoned (E of Rogliano). By this process genetic erosion is speeded up

Altogether the collections comprise 277 accessions. The detailed list of the material collected is given on p. 479.

In addition some samples of further species have been collected for special purposes of the participating institutes.

The procedure of handling, reproducing and evaluating the collected material has been described elsewhere (see PERRINO and HAMMER 1983a). It is expected that during the reproduction and evaluation of the material there will be detected and separated some further interesting morphological variants.

Crop	Number of accessions	Sum
Wheat, <i>Triticum</i> spp.	22	
Maize, <i>Zea mays</i>	21	
Cultivated and Wild Rye, <i>Secale cereale</i> and <i>S. montanum</i>	18	
Barley, <i>Hordeum vulgare</i>	13	
Oats, <i>Avena</i> spp.	8	
<i>Aegilops</i> spp.	6	
<i>Lolium</i> spp.	2	
Cereals incl. Wild Grasses		90
French Beans, <i>Phaseolus vulgaris</i>	31	
Faba Beans, <i>Vicia faba</i>	14	
Lupins, <i>Lupinus</i> spp.	13	
Chick Pea, <i>Cicer arietinum</i>	9	
Peas, <i>Pisum sativum</i>	4	
Other Pulses	12	
Legumes		83
<i>Brassica</i> spp.	28	
Onions, <i>Allium</i> spp.	5	
Cucumbers, Melons, <i>Cucumis</i> spp.	7	
Lettuce, <i>Lactuca sativa</i>	5	
Tomato, <i>Lycopersicon esculentum</i>	8	
Peppers, <i>Capsicum annuum</i>	9	
Other Vegetables, Medicinal and Spice Plants	42	
Vegetables incl. some Medicinal and Spice Plants		104
Total Sum		277

Some remarkable findings are briefly summarized in the following:

- As in previous missions the variability of *Triticum* land-races was rather high. In some fields *T. durum* and *T. aestivum* were grown together, sometimes with *Secale cereale* as an admixture (fig. 4); *T. dicoccon* could not be observed during this mission. Apparently, the recent cultivation of this relic crop does not pass over the Agri river. On the southern slope of this river basin the farmers still knew emmer wheat but it has not been cultivated already for a long time. Proceeding further to the south and entering into Calabria we could not even find some knowledge concerning this old wheat species (see also HAMMER and PERRINO 1984).
- In the Sila Mts. *Secale cereale* is a widespread cereal (fig. 5). Newly introduced varieties are grown and compete with old markedly variable land-races. Their variability partly results from introgressions of the wild growing *Secale montanum* which often inhabits areas near the cereal fields or even at their borders (fig. 6). Some introgressed spikes of *S. cereale* could be found and also some spikes from *S. montanum* possessing characters of *S. cereale*. These observations can be compared with earlier ones by ZOHARY (1964) who reported introgressed populations between *S. cereale* and *S. montanum* from the Central Anatolian



Fig. 4 Variable cereal population containing several botanical varieties of *Triticum aestivum* and *T. durum* but also some spikes of *Secale cereale*



Fig. 5 In the Sila Mts. rye is a rather common cereal. Field of rye near Germano under a plantation of apple trees



Fig. 6 *Secale montanum* growing at the edge of a wheat field near Camigliatello (Sila Mts.) In this area introgressions from this species into *Secale cereale* could be found

plateau, growing there most commonly at the edges of cultivation. Possible introgressions between the two species have been discussed recently (PERRINO et al. 1982a) when studying material collected from the slopes of Mt. Etna (Sicily). The newly collected material deserves a special study.

- Some spikes of *Triticale* were collected from a wheat field. According to informations of the farmers *Triticale* has been cultivated in this area in experimental plots some twenty years ago. Today it is a rare admixture of some wheat fields in the Sila Mts.
- As in other regions of South Italy *Phaseolus vulgaris* proved to be very variable. But also *Vicia faba* is characterized by a considerable variability. Of special interest are dark seeded and small grained varieties of this crop which are cultivated as green manure.
- Weedy types of *Lupinus graecus* grew abundantly in some fields of the Sila Mts., they are characterized by comparatively large seeds (this species has not been reported from South Italy, cf. GLADSTONES 1974).
- Again variable early ripening land-races of maize have been collected. Forms of hard maize with very small cobs and grains resembling puff maize have been collected for the first time during our missions.
- Rather many old races of vegetable crops are maintained by the farmers in their gardens, in which very often a high crop diversity is to be found mainly by means of frequent intercropping (fig. 7); here e.g. different indigenous varieties of

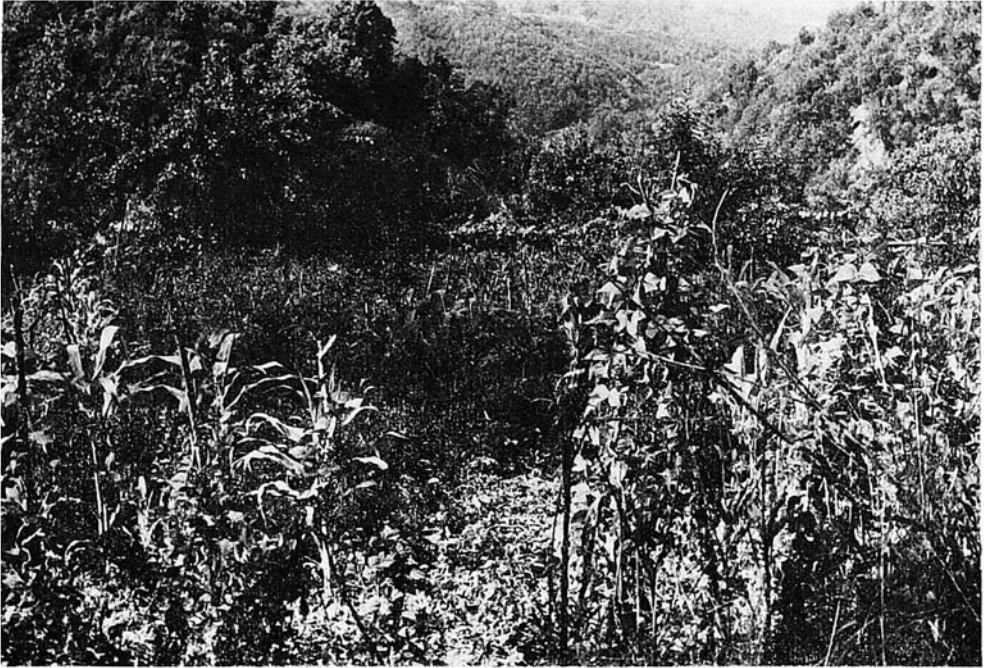


Fig. 7 Various intercroppings, e.g. maize and beans, and selfmade seed production in a garden of the mountain valley east of Cosenza. These conditions favour the preservation of many old land-races, especially vegetables

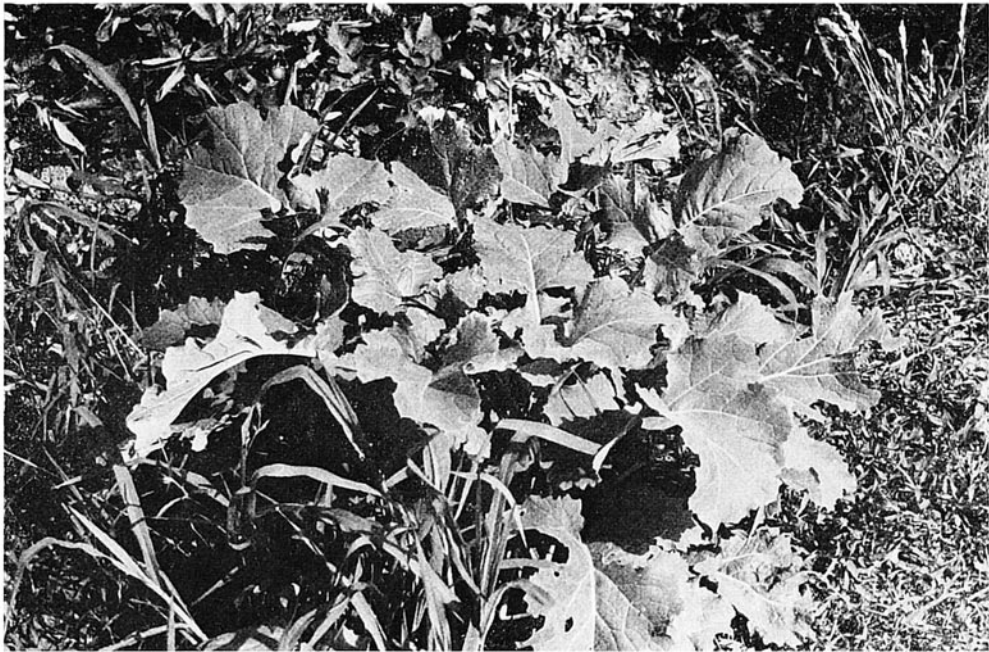


Fig. 8 Tubiferous *Brassica rapa*, a rare root-crop in South Italy, from the garden shown in fig. 7



*Brassica* spp. (leafy races of *Br. rapa*, primitive cultivars of *Br. oleracea*, variable broccolis etc.) are still rather often cultivated (fig. 8).

The collections have confirmed that South Italy is an important refuge for land-races. The exploration of this area will be continued in the following years.

## Zusammenfassung

### Sammlung von Kulturpflanzen-Landsorten in Süditalien 1983

In Fortführung von Sammelreisen in den Jahren 1980, 1981 und 1982 wurde im Juli 1983 eine weitere Reise nach Süditalien gemeinsam von Mitarbeitern des Istituto del Germoplasma, Bari, und des Zentralinstituts für Genetik und Kulturpflanzenforschung, Gatersleben, unternommen, die dem Studium und der Sammlung indigener Formen von Kulturpflanzen und ihrer verwandten Wildsippendienste. 277 Proben, besonders von Getreiden, Körnerleguminosen und Gemüsen, wurden gesammelt. Das Material besteht aus hochvariablen alten Landsorten, besonders von Weizen, Mais, Gartenbohnen, Ackerbohnen und *Brassica*-Arten. In einigen Feldern des Sila-Gebirges konnten Introgressionen von *Secale montanum* in Kulturroggen beobachtet werden. Die Ergebnisse dieser Sammelreise unterstreichen die Notwendigkeit zur Weiterführung der Exploration pflanzengenetischer Ressourcen in Süditalien.

## Краткое содержание

### Сборы местных сортов культурных растений в Южной Италии в 1983 г.

Начатые в 1980 г. и продолженные в 1981 и 1982 гг. экспедиционные сборы, смогли осуществиться и в 1983 г. Экспедиция в Южную Италию была предпринята для дальнейшего изучения и сборов автохтонных форм культурных растений и их сородичей совместно сотрудниками Института зародышевой плазмы в Бари и Центрального института генетики и культурных растений в Гатерслебене. Было собрано 277 образцов, главным образом, зерновых злаков, зерновых бобовых и овощей. Материал сборов представлен сильно изменчивыми старыми местными сортами, большинство которых относится к пшенице, кукурузе, огородной фасоли, конским бобам и видам *Brassica*. На некоторых полях в горах Сила наблюдалась интрогрессия между *Secale montanum* и культурной рожью. Результаты экспедиции говорят в пользу того, что необходимо и дальше продолжить изыскания генетических растительных ресурсов Южной Италии.

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Dr. K. HAMMER and Dr. P. HANELT  
Zentralinstitut für Genetik und Kulturpflanzenforschung  
der Akademie der Wissenschaften der DDR  
DDR - 4325 Gatersleben  
Corrensstr. 3