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Collection of crop genetic resources in Italy, 2004

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Summary
Collection of crop genetic resources in Italy, 2004
In September 2004, a collecting mission was carried out in Italy within the framework of an agreement between the Plant Genetics Institute (IGV), Bari, Italy, of the National Research Council (CNR) and the Crop Science Institute of Kassel University (Germany). The mission collected 116 accessions belonging to 24 species, mainly cereals, pulses and vegetable landraces. The areas receiving most attention were Carnia, Venetian lagoon, Po delta and Salento. Rare landraces were found out, such as 'mugnoli' (a botanical form of *Brassica oleracea* L. var. *italica* Plenck), whose cultivation in the Salento area pre-dates that of broccoli. For each collecting site, information on past and present agricultural state is given, together with an assessment of the degree of crop genetic erosion. Italian agricultural biodiversity has been lost in great part, but some remote and isolated zones are still an important refuge for crop genetic resources. Material is being deposited in the IGV genebank.

Key words: Agricultural biodiversity, genetic erosion, collecting, Carnia, Venetian lagoon

Résumé
Collecte de ressources génétiques de plantes cultivées en Italie en 2004
En septembre 2004, une mission de collecte a été organisée en Italie dans le cadre d'un accord entre l'Institut de phytogénétique (IGV), Bari (Italie), du Conseil national de la recherche (CNR) et de l'Institut d'agronomie de l'Université de Kassel (Allemagne). La mission a permis de collecter 116 accessions appartenant à 24 espèces, essentiellement des variétés locales de céréales, de légumineuses et de légumes. Les régions les plus prospectées ont été la Carnie, la lagune de Venise, le delta du Pô et Salente. Des variétés locales rares ont été trouvées, telles que « mugnoli » (une forme botanique de *Brassica oleracea* L. var. *italica* Plenck), dont la culture dans la région de Salente est antérieure à celle du brocoli. Pour chaque site de collecte, des informations sur l'état actuel et passé de l'agriculture sont présentées, de même qu'une évaluation du degré d'érosion génétique des plantes cultivées. Une grande partie de la biodiversité agricole italienne a été perdue, mais certaines zones éloignées et isolées restent des refuges pour les ressources génétiques des plantes cultivées. Le matériel est actuellement déposé dans la banque de gènes de l'IGV.

Resumen
Recolección de recursos genéticos de cultivos en Italia en 2004
En septiembre de 2004 se llevó a cabo una misión de recolección en Italia, en el marco de un acuerdo entre el Instituto de Genética Vegetal (IGV) de Bari, Italia, el Consejo Nacional de Investigaciones (CNR) y el Instituto de Ciencias de Cultivos de la Universidad de Kassel (Alemania). La misión recogió 116 accesiones pertenecientes a 24 especies, principalmente variedades locales de cereales, legumbres y hortalizas. Las zonas que recibieron más atención fueron Carnia, la laguna de Venecia, el delta del Po y el Salento. Se encontraron variedades locales raras como el "mugnoli" (una forma botánica de *Brassica oleracea* L. var. *italica* Plenck), cuyo cultivo en el Salento es anterior al del brécol. Se suministra información relativa al estado antiguo y actual de la agricultura en cada sitio de recolección, junto con una evaluación del grado de erosión genética del cultivo. La biodiversidad agrícola de Italia se ha perdido en gran medida, pero algunas zonas remotas y aisladas son todavía un refugio importante de recursos genéticos de cultivos. El material está depositado en el banco de genes del IGV.

Introduction
Recent collecting missions in Italy showed that particular areas rich in crop genetic resources are still available (Hammer and Laghetti 2005; Laghetti *et al.* 2003a, 2003b, 2005a). For that reason, in September 2004, a further expedition was carried out to Italian sites previously uncovered (Figure 1). The mission was organized and conducted by scientists of the Plant Genetics Institute (IGV) of the National Research Council (CNR), Bari, Italy, and of the Crop Science Institute of Kassel University (Germany). The main targets of the 2004 expedition were to collect samples of autochthonous crop genetic resources, together with useful information (e.g. variation, degree of genetic erosion, ethnobotany, vernacular names) for genebank curators.

The collecting strategies followed were the same as those used during previous analogous missions (Hammer *et al.* 1991; Perrino *et al.* 1981).

Results and discussion
Altogether the collections comprise 116 accessions. A detailed list of the collected material is given in Table 1.

Carnia
Carnia is a mountainous area of the Friuli Venetia Giulia Region (NE Italy), preliminarily explored in 2001 by Laghetti *et al.* (2003b) to collect local plant germplasm. In that mission, the exploration team visited a few German-speaking villages, including Timau, Sappada and Sauris, which were founded by Austrian immigrants in the 13th century. Among them, Sauris (Zahre), was found to be of special interest, because of several indications of traditional agriculture (Hammer *et al.* 2007; Isabella *et al.* 2005). This small Italian Region is a land of differences, including 3 of the 5 European biogeographical regions. Crossroads for Latin, Slavic and German cultures,

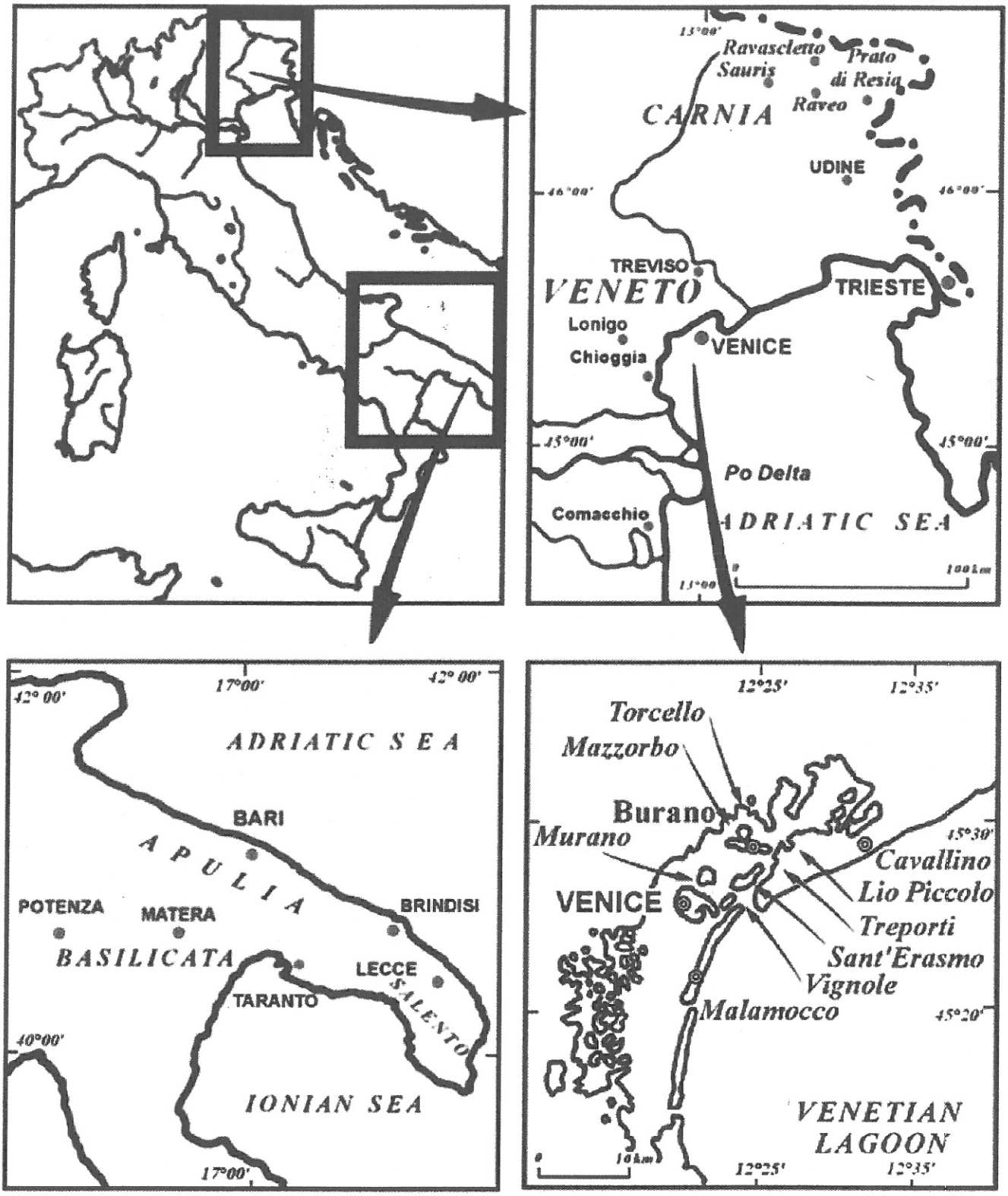

Figure 1. Areas and localities visited during the collecting mission.

which met and clashed here for centuries, the entire region is an assortment of idioms and languages (Miceli *et al.* 2007). After the disastrous earthquake in 1976, a strong recovery of the economy reduced the role of agriculture, with a strong depopulation of unfavourable and mountainous areas. This in turn extended to crop genetic erosion, largely due to the loss of agropastoral habitats.

To complete the scientific programme initiated with the first mission in Carnia (Laghetti *et al.* 2003b), in 2004 the areas noted in Figure 1 were covered, with special attention

Table 2. Additional list of landraces known from the Veneto region.

Landraces (vernacular name)	Crop	Landraces (vernacular name)	Crop
aglio bianco polesano aglio del medio Adige	garlic	giuggiola dei colli Euganei	jujube-tree
		kiwi di Treviso kiwi di Verona	kiwi
asparago bianco del Sile asparago bianco di Bibione asparago bianco di Cimadolmo asparago di Arcole asparago di Bassano asparago di Giare asparago di Padova asparago di Palazzetto asparago di Rivoli asparago verde amaro montine	asparagus	kodinzon mela del medio Adige mela di Monfumo mela di Verona	apple
		melone del delta polesano melone precoce veronese	melon
		noce di Feltre noce dei grandi fiumi	walnut
bietola di Bassano	beet		
bisi de Lumignan biso di Peseggia pisello di Borso del Grappa	pea	nettarina di Verona pesca bianca di Venezia pesca di Povegliano pesca di Verona	peach
broccolo di Bassano broccolo fiolaro di Creazzo	broccoli		
		patata americana di Anguillara e Stroppare patata americana di Zero Branco	sweet potato
castagne del baldo castagne e marroni dei colli Euganei marrone di San Mauro marrone di San Zeno marroni di Combai marroni di Monfenera marroni di Valrovina	chestnut		
		patata cornetta patata del Montello patata del quartier del Piave patata di Chioggia patata di montagnana patata di Posina patata dorata dei terreni rossi del Guà patate di Rotzo	potato
ciliegia dei colli Asolani ciliegia delle colline veronesi ciliegie dei colli Euganei ciliegie di Marostica ciliegie durone di Cazzano durona del chiampo	cherry		
		peperone di Zero Branco	pepper
		pera del medio Adige pere del veneziano pere del veronese	pear
cipolla rosa di Bassano	onion		
craut - verde agre crauti delle Bregonze	head-cabbage	sedano di Rubbio	celery
		sedano-rapa di Ronco all'Adige	celeriac (*Apium graveolens* L. var. *rapaceum* (Miller) Gaudin)
cren	horseradish		
fagiolino meraviglia di Venezia fagiolo borlotto nano di Levada fagiolo di posina "scalda" fasola posenata	French bean		
		scarola o insalata d'inverno di Bassano	prickly lettuce
fragola di Verona	strawberry	susina gialla di Lio piccolo	plum

shipped later to the IGV from the institutions and farmers cited in the 'acknowledgements' section (e.g. 'sedano verde', 'cicoria catalogna gigante', 'carota', 'barbabietola rossa', all from Chioggia, and 'riso del delta del Po').

Other areas

In Salento (southern Italy), a rare landrace of *Brassica oleracea* L. was found. It is called 'mugnoli' or 'mugnuli' and is cultivated traditionally in this part of the Apulia region. This crop is widely known in Salento but almost unknown in the rest of Apulia and, of course, in Italy. Mugnoli is a surviving landrace, more cultivated up to ten years ago, even if it is still very much appreciated by local people. Its cultivation in the area predates that of broccoli (*B. oleracea* L. var. *italica* Plenck). Mugnoli cultivation is carried out only for family consumption, and in few cases for the local market. Mugnoli is an old sprouting form of broccoli producing many small heads that may be cut from the same plant from November to April. It might be considered as an early step in the evolution of broccoli. More details on Mugnoli are reported in Laghetti *et al.* 2005b.

In some fields, together with the cultivation of mugnoli, the rare growing of white mustard (*Sinapis alba* L. ssp. *alba*) as a leaf vegetable was observed, as already reported by Laghetti *et al.* (1993) for the Basilicata region. During the mission, in the ruins of the old part of Matera town (Basilicata), a primitive type of white mustard was sampled, possibly the last relics of a former landrace of this crop from this traditional cultivation area.

Conclusions

Italian agricultural biodiversity has been lost in great part, and remote and isolated zones have to be investigated. The mission showed that Italy, despite previous collecting expeditions, is still an important refuge for undiscovered crop genetic resources, so that the exploration of this area will be continued in the next years. In particular, the cultural and linguistic islands can conserve plant genetic resources for a longer time than other places, even if alongside the decline of the specific culture and language the traditional crops also lose their importance.

Further data and details about this collecting mission are reported in the exploration registers of IGV, Bari.

Availability of germplasm

The material collected is being deposited in the Bari genebank for further classification and characterization. After multiplication, the accessions will be ready for distribution to scientists.

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