

Farro in Italy

A desk-study

For

The Global Facilitation Unit for Underutilized Species

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Introduction

Farro also referred to as hulled wheats (einkorn, emmer and spelt) are among the most ancient cereal crops of the Mediterranean region (Perrino et al. 1996). These cereals were popular within the region for hundreds of years and remained a staple food for a long time. At a certain point in time they fell into a state of abandonment. At present, hulled wheats are becoming popular again. In Italy, 'farro' is gaining farmers' interest due to its high commercial potential. The industrial sector is also looking to 'farro' for its potential in the production of pasta, biscuits and other products.

What is Farro?

Farro is a strictly ethnobotanical concept deeply rooted in Italian tradition. The term is reserved for three cultivated hulled wheat species. This means that the berry or kernel retains its hull or husk during harvest and are also called wheats with non-threshable grain. The term farro includes three species: *Triticum monococcum* (einkorn), *T. dicoccon* (emmer) and *T. spelta* (spelt). As displayed in Table 1 in Italy they are also differentiated by calling them "farro piccolo", "farro medio" and "farro grande" respectively. In ethnobotanical approaches sometimes hulled wheats are regarded as synonymies but in taxonomy not only the non-threshable species of *Triticum s.str.* may be regarded as hulled wheats but every specie considered by lumpers belonging to *Triticum s.l.* including *Haynaldia*, *Aegilops*, *Agropyron*, etc. (Szabó and Hammer, 1996).

Table 1: Names of farro

Scientific name	Common name	Italian name	Other names
<i>Triticum monococcum</i>	Einkorn	Farro piccolo	
<i>Triticum dicoccon</i>	Emmer	Farro medio	
<i>Triticum spelta</i>	Spelt	Farro grande	Dinkel

Einkorn (T. monococcum)

Einkorn is a diploid species with wild and cultivated variants. It has been the first cultivated wheat, about 9,000 years ago, but is rarely planted today. In Italy the production of Einkorn is diffuse in mountainous areas, particularly in Sud Tirol and in Valtellina in Northern Italy (www.mulinomarino.it/cereali.htm). One site of einkorn cultivation is known to be in a mountainous area of the Daunian Apennin, where it was grown as a fodder crop until the 1990-ies by traditional farmers, but cultivation might have been lost in the meantime (Perrino, 1996). *T. monococcum* produce a clear flour and are used for making bread, cakes, biscuits and pizza (www.tibiona.it).

Emmer (T. dicoccon)

Emmer is a tetraploid species, cultivated in ancient times but no longer in widespread use. Cultivation of emmer started during the Bronze Age, when the farmer began to select tetraploid types, starting about 7,000-9,500 years ago from *T. dicoccoides*, the wild relative of cultivated tetraploid wheats, everywhere in the Mediterranean basin. In all these areas the emmer wheat has been the hulled wheat most diffused until a modern time. In Italy emmer was found to be the most widespread species of all wheat landraces

(55.7%), followed by *T. aestivum* L. (18.9%), *T. monococcum* L. and *T. spelta* L. (Porfiri et al., 2001). *T. dicoccon* is used for Italian soups, pasta and also for biscuits and in the mountainous Garfagnana area of Tuscany emmer (known as farro) is grown by farmers as an IGP ([Indicazione Geografica Protetta](#)) product, with its geographic identity protected by law (see chapter below). The Italian Ministry of Agriculture estimates the surface cultivated with emmer (farro medio) in 2003 in Italy to be 2000 hectares.

Spelt (*T. spelta*)

Spelt is a hexaploid species cultivated in limited quantities. It is the origin of hexaploid wheats (*T. aestivum*) and its cultivation has been the most recent, not before about 8,000 years ago. As *T. monococcum*, *T. spelta* produces a clear flour and is used for making bread, cakes, biscuits and pizza. Compared to einkorn and emmer spelt is more productive and also grown in lowland areas and often sold as farro without nearer specification of which grain the product exactly consists (Papa, 1996). The Italian Ministry of Agriculture estimates the surface cultivated with spelt (farro grande) in 2003 in Italy to be 500 hectares.

Farro in Italy

Evolution of farro cultivation in Italy

It is very difficult to make the distinction between the three different farros (einkorn, emmer and spelt) as particularly the term spelt and farro are often used as synonyms. As mentioned above einkorn (*T. monococcum*) is the least cultivated form of farro in Italy. The Italian Ministry of Agriculture estimates the cultivation of spelt (*T. spelta*) and emmer (*T. dicoccon*) to be 500 and 2000 hectares respectively.

The cultivation of emmer, today the most important farro in Italy, started in the Fertile Crescent in the Middle-East (Iran, Iraq, Syria and Palestine) some 10.000 years ago. Together with barley emmer was the dominant crop of the ancient Near East, and spread in the Neolithic to Europe and Italy. During the roman period it was the main food source but its cultivation started to decrease from the beginning of the 20th century when the naked wheats (common and durum wheats) substituted “farro” because of the easily cleaning (free-threshing kernel). As a consequence the species almost disappeared in the second half of the 20th century and its cultivation was reduced to a few thousand square meters in the 1970-ies (Di Napoli and Marino, 2001). Only in the 1980-ies and increasingly at the beginning of 1990-ies, for different reasons (more attention to genetic resources of cultivated species and to biodiversity conservation, diversification of crop systems, rediscovery of local foods and so on), it recovered both as a crop and as a food.

Nowadays, it's possible to estimate a farros' cultivated surface of 2000-2500 hectares, even if there are no official data because in the farmers cultivation statement for having community contributions (Common Agricultural Policy), the most reliable source, this species is not kept separate from common wheat, barley, oats and rye, all included as “other cereals”.

Farro today

In Italy as in other European countries all three farro species have experienced a comeback in the past few decades. While in Germany and Switzerland the primary species of farro produced is spelt (Dinkel, used for making bread, biscuits or pasta) in Italy emmer has the biggest surface. In Italy since the early 1980-ies, emmer has seen a return in various regions within the centre of Italy, as the healthy properties of this cereal attract consumers. Emmer contains high levels of fibre and it is cultivated traditionally, without the use of synthetic pesticides or fertilizers. Why had it survived there? Not because the farmers deliberately set out to conserve genetic resources, but because farro, handed down from antiquity, offered something modern wheats could not in the steep mountain fields: a reliable harvest. Farro is particularly spread in the Apennines central-southern areas and concerns prevalingly organic cultivations. This species, indeed, is characterized by a high agronomical and environmental adaptability and these features permit it, more than other cereals, to cope with weeds and to exploit as well as possible marginal and poor soils escaping any fertilizing action. The spread concerns both areas where emmer is “traditional” and areas where it has been recently introduced. While in the traditional areas emmer growing has never been abandoned and landraces have been maintained, in the new areas emmer varieties are imported either from the traditional areas or from recent plant breeding programs. This situation creates an intense market competition that causes loss of competitiveness of traditional areas, favours the replacement of traditional genetic material, doesn't guarantee the product traceability and makes weaker the local production phases (Porfiri, 2006). One option to cope with this challenge is the establishment of geographical identification labels with clear production regulations (see chapter about Farro della Garfagnana). Today's main production areas of emmer are: Garfagnana, Valneriana and Altopiano della Leonessa, alte Valli del Tronto and dell' Aterno, valle dell' Aniene, alto Molise, Appennino Dauno and Appennino Lucano (Falcinelli, 2006).

During the years 1998 to 2000 the market of farro has increased about 15% per year and farmgate prices in the same period about 30%. This is mainly due to the kind of marketing as an increasing amount of the production is marketed by farms that also offer rooms for tourists to stay at. The number of farms offering rooms for the night has increased from 18 in 1999 to 28 in 2000. Today it is possible to walk into almost any grocery shop or supermarket in Italy and buy farro, complete with extravagant claims about its antiquity, its nutritional benefits and its role in protecting the environment.

Market chain of farro

Only in the past few years farro has reappeared in shops and even in some supermarkets. The more informal market chain from producers through the grain mills directly to the consumers as displayed in Figure 1 still plays a very important role although it is impossible to estimate the percentage of farro that is marketed through either of these market channels. However, it can be said that through the increasing importance of holidays on farm that is particularly popular in Tuscany the sale of farro products to these nature loving and health conscious tourists play an important role.

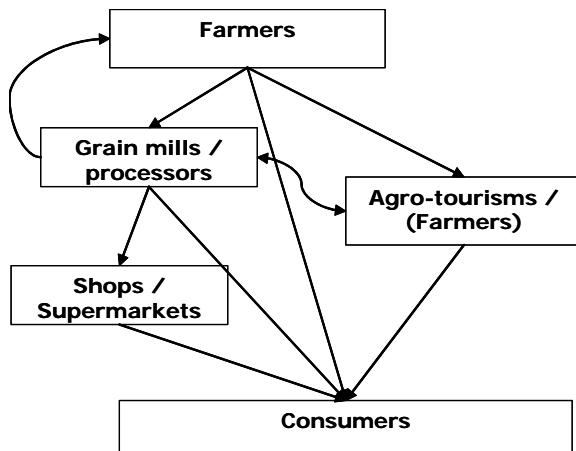


Figure 1: Market chain of farro in Italy

Farmers

Farmers producing farro belong to the poorest in Italy. They live in mountainous areas in the seven main farro producing areas: Garfagnana, Valneriana and Altopiano di Leonessa, alte Valli del Tronto and dell' Aterno, valle dell' Aniene, alto Molise, Appennino Dauno and Appennino Lucano.

Agro-tourisms

It is impossible to estimate which part of the total farro production in Italy is marketed to the consumers directly by farmers. For sure the farmers that also offer rooms for tourists (agro-tourisms) have an important role in the whole farro market chain in Italy. Just by entering the words "farro" and "agriturismo" into the google website one gets an idea of how many agro-tourisms there are offering rooms and selling farro to there clients (39,900 hits).

Grain mills / Processors

The grain mills displayed in Figure 1 very often play a dual role. On the one hand they process the grains that are delivered to flour and give it back to the producer against a payment of their service. On the other hand they often buy the product from the farmer, process it, pack it in different confections and sell it either directly to consumers or to shops and supermarkets. The processors are also the market chain actors that are the most active in making publicity for farro and farro products. As an example below the reader can find a very brief description of Prometeo, a

Prometeo (www.prometeourbino.it)

Prometeo is an Italian factory that since 1991 has processed cereals and legumes produced by the organic farmers of central Italy. The production of hulled wheats is particularly focused on emmer, *T. dicoccum*. Prometeo is placed in Urbino, in the North of the Marche Region, central-eastern Italy, in an environment deeply linked to the traditions of central Italy, and also, closely bound to the North Italian commercial areas. Prometeo concentrates its main work area on the hills of central Italy, where the

cultivation and tradition of emmer are still very strong. The factory provides its suppliers the seeds for landraces, carefully selected in their facilities, and the best techniques for its cultivation. Only a small part of the supply comes from factories that are not direct producers. Prometeo checks fields and assists the farmers during growing, and organizes the storage and dispatch of the product. Processors like Prometeo are also the main actors when it comes to consumer orientation and publicity. Their home page is giving a very good example of that.

Prometeo's products are made by 94% from *T. dicoccum* (emmer), southern Italian varieties (soft type) (77%) and central Italian varieties (hard type) (17%). Only 6% of production involves *T. spelta* (spelt). Products of *T. monococcum* (einkorn) are not marketed by Prometeo but there are other companies such as Mulino Marino (www.mulinomarino.it) or Molino Bongiovanni (www.molinobongiovanni.it) that have einkorn on their product list.

Shops / Supermarkets

Nowadays in nearly every supermarket in Italy one can find farro products. The main products are either grains or their flour or processed products such as pasta, Italian grain soups and different biscuits.

Consumers

In the mid-20th century farro was mainly consumed by the poor rural communities that also continued to grow it. As mentioned above the market for farro developed in Italy in the early 1980-ies. In the beginning it was mainly health aware people in Italian cities that restarted to consume farro but since then this trend has spread to other consumer groups also in other countries as the company "Il Farro" based in Newport Beach in Canada shows (www.ilfarro.com).

Characteristics of farro

Farro is appreciated by consumers due to its "nutty" flavour that it gives to pasta, biscuits or Italian traditional soups. But it's not just good taste that has caught the attention of consumers. The grain is naturally high in fiber, and contains significantly more protein than wheat. Farro is also higher in B complex vitamins, and both simple and complex carbohydrates. Another important benefit is that some gluten-sensitive people have been able to include farro-based foods in their diets. Also, unlike other grains, farro's husk protects it from pollutants and insects and usually allows growers to avoid using pesticides. Flour made from the versatile grain can be substituted for wheat flour in breads, pasta, cookies, crackers, cakes, muffins, pancakes and waffles. Modern cooks are rediscovering the full flavor of whole grain farro pastas and breads, the subtler flavor and texture of white pastas and flours as well as farro kernels in their dishes (Hoagland, 1998).

Enabling Environment

Hulled wheat genetic resources network

To promote conservation of hulled wheats and to safeguard them from genetic erosion, in 1993 IPGRI initiated a project on underutilized Mediterranean species (UMS). The project operated largely through four species-oriented networks, covering hulled wheats, rocket, pistachio and oregano. In 1994 a working group and the hulled wheat genetic resources network were established (Padulosi et al. 1996). This network had the following objectives:

- Promote the conservation and enhance the genetic diversity of landraces of these species;

- Promote research on and development of landraces of the selected species;

- Encourage farmers, NGOs, cooperatives, etc. to conserve and promote the utilization of landraces of these species;

- Develop new products and promote the use of health/special foods from these species.

These activities proved very fruitful. The UMS project has contributed to raising the interest of both growers and scientists on hulled wheats with a beneficial impact on their conservation (Padulosi et al. 1996). The UMS project is considered a model for the establishment of other new sub-regional cooperation projects for the conservation and sustainable use of underutilized species (Michalová, 2000).

SESA : Spelt, a recovered crop for the future of sustainable agriculture in Europe

The goal of the SESA project (1997 – 2000) with spelt (*Triticum spelta*) was to support this crop as an alternative culture for sustainable agriculture in Europe as well as to promote a niche market for special products. The more specific objectives were to test a wide adaptation potential of newly developed spelt lines of the three breeding programs still existing in Europe. The following 12 countries have been participating in this project: Austria, Belgium, Denmark, Germany, Finland, France, Greece, Italy, Norway, Spain, Switzerland and the UK.

One study in this project included different spelt lines as well as locations and production systems including organic farming. As a result it was evident, that there exists a large variation within the test set for all the characters analysed, indicating a large genotypic influence.

Multiregional Operative Programme on Farro (POM-B13)

The Multiregional Operative Programme (MOP) “Farro, a crop to rediscover for a sustainable agriculture: valuing the different varieties and their transformed products for human nutrition (Programma Operativo Multiregionale (POM) Il farro, una coltura da recuperare per una agricoltura sostenibile: valorizzazione varietale e dei prodotti trasformati per l’alimentazione umana). The project has been financed by the European Union and was executed by the National Institute for Agro-Economy (INEA). The primary objectives of this project were:

- Adoption of farro varieties with good production and agronomic characteristics that are adapted for organic production
- Installation of stocking systems and technologies for the transformation of farro into innovative final products conserving its organoleptic and dietary qualities respecting modern hygiene standards

Some of the major results of this project are:

- New mechanisation programmes for the production of pulverized farro for nutritionally more adapted final products were developed.
- A process was developed for the production of a kind of “parboiled” farro that includes the cleansing and calibration, a cooking process, a process for the decortications and a polishing process (Cubadda et al., 2001).

Input markets

In general farro is very robust and well adapted to the mountainous environment. It can also grow on poor and stony soils where it even support the often very strong spring rains in the Italian mountains without bending. This means that if any, only very few crop protection chemicals and fertilizers are used to cultivate farro and input markets for this products are thus of minor importance for farro producers. Upon today there is no Italian national breeding program for farro. The source of seeds for farmers producing farro is thus either from their own or neighbours fields or provided by a grain mill or a processor that is also buying the produce from them.

Consumer manipulation

Publicity for farro is mainly done by the grain mills or processors such as Prometeo (see the chapter above). The health aspects of farro and the evolving trend of consuming farro products has also been subject to many articles and has like that reached a wide public. A widely known journal for food trends publishes the Culinary Trend Mapping Report. In this report farro is classified as being in stage 2 in market development what means that faro has graduated from stage 1, where the product appears at upscale dining establishments, with creative chefs and diners with adventurous palates to the stage where the product is featured in specialty consumer-oriented food magazines, such as Gourmet, Food & Wine and Gourmet. (MarketResearch.com, 2005)

"From a cross-country reading of the culinary winds, it appears that farro, an ancient grain believed to have sustained the Roman legions, has finally made it to the New World. Used in soups, salads and desserts, the little light brown grain is an intriguing alternative to pasta and rice.

Not that farro hasn't been in active use in Italy for the intervening centuries; it has, if only in a few central and northern Italian regions, where it is grown. These are relatively poor areas, where the longevity of the populace is sometimes attributed to regular farro consumption.

But now farro (pronounced FAHR-oh) appears to be moving from rustic tables into fashionable restaurants not only in Tuscany and northern Italy (where it suddenly seems ubiquitous on menus), but also in the United States, particularly on the West and East Coasts. Farro dishes are now regularly on the menus at high-profile restaurants..."

Marketing strategies

Organic farming

The most known farro products such as those from Prometeo or from many Agritourisms are produced organically with according certification. Many of the target consumers buy farro because of its healthy nutritional aspects. These are often the same persons that prefer organically produced food rather than commercially produced food. To produce farro organically is not only very promising but has already become the probably most important marketing strategy. Also the farro della Garfagnana is produced organically.

Protected Geographical Identification (PGI) – Farro della Garfagnana

In the early 1990-ies consumers' interest has been determining an increase in price of farro and consequently, the diffusion of its production from the traditional mountainous areas to the plains. There yields are higher, but cultivation practices do not always follow traditional methods and often consisting of a different wheat species, spelt (*T. spelta*), thus threatening the production on the hills that has been maintained for centuries. In order to overcome this situation and give value to local production, the Mountain Community of Garfagnana applied for, and obtained, European recognition for Protected Geographical Indication (PGI) in 1996. The regulations drawn up for Garfagnana emmer common variety (*T. dicoccum*), and the description of the genotype that through the years has adapted to the local climate and terrain, prescribes agronomic practices for its production as "organic". These include rotations with meadows, the prohibition of the use of chemical pesticides, herbicides and fertilizers and the mandatory use of seeds coming from local populations. Compliance with these regulations is guaranteed by the activities carried out by the Italian Association for Organic Agriculture (AIAB), under the authorisation of the Ministry of Agriculture (El-Hage Scialabba et al., 2002).

Conclusions

Farro, the traditional cereal planted over centuries in the Italian mountains has become popular again due to its very characteristics. It is considered as a healthier food due to its higher content in fibre, protein and certain vitamin B complexes compared to other cereals. Due to its high resistance to adverse environmental conditions it can also grow without any chemical crop protection interventions and it is rather easy to produce it organically what made the production of certified organically produced farro to become an important niche. These characteristics let farro nearly perfectly fit into a recent food trend focussing on healthy food with a good taste and a history. The fact that the farro market in Italy has developed so fast in the last 25 years is due to many different interventions. Some farro pioneer farmers have recognised the potential by selling farro to tourists that more often started coming to the regions where farro is grown. Farro also received support form the research community that was mainly interested in conserving the biodiversity. Support of farro production from the political level through different

regional and national projects envisaged mainly the development of remote rural areas and the improvement of the livelihoods of the mountain population. As farro has become commercially interesting also the private sector such as processors and bigger grain mills have started to market farro products giving it even a better visibility in the market and propagating its health aspects even further. As the farro market becomes more and more commercial a farmer's cooperative in Garfagnana successfully applied for the PGI label for their farro. This label builds the basis to keep more of the benefit of this product at the level of the producer and at the same time to conserve the local variety of this farro.

References

Cubadda R., Marconi E., and Messia M.C. (2001) *Utilizzazione del farro in alimentazione umana: Tecnologie di trasformazione e sviluppo prodotti*, Università degli Studi del Molise - Dipartimento S.T.A.A.M., Campobasso, Italia.

Di Napoli R. and Marino D., 2001. *Biodiversità et Sviluppo Rurale*, Quaderno informativo n. 11, Programma d'iniziativa Comunitaria LEADER II, Comunicazione CEE 94/C/180/12 dell'1/7/1994, Istituto Nazionale di Economia Agraria (INEA), Italia.

El-Hage Scialabba N., Grandi C. And Henatsch C. (2002) *Organic Agriculture and genetic resources for food and agriculture*, Proceedings of the international conference Biodiversity and the Ecosystem Approach in Agriculture, Forestry and Fisheries in Rom, 12-13 October 2002,FAO, Rome; Italy.

Falcinelli M. (2006) *Monteleone di Spoleto ed il suo farro*, Università degli Studi di Perugia, Italia.

Hoagland J.T. (1998) *The healthy spelt grain makes a comeback: The Best New Grain Has a Long History*, Purity Food Inc. <http://www.purityfoods.com/>

MarketResearch.com, 2005. Culinary Trend Mapping Report, Summer 2005: A Quarterly Journal of Food and ingredient Insight, marketresearch.com, New York. US www.marketresearch.com

Michalová A. (2000) *Minor Cereals and Pseudocereals in Europe*, Report of a network coordinating group on minor crops, Research Institute of Crop Production, Prague – Ruzyne, Czech Republic.

Padulosi S. Hammer K. and Heller J. (editors), 1996. *Hulled wheats. Promoting the conservation and use of underutilized and neglected crops*. 4. Proceedings of the First International Workshop on Hulled Wheats, 21-22 July 1995, Castelvecchio Pascoli, Tuscany, Italy. International Plant Genetic Resources Institute, Rome, Italy.

Papa C. (1996) *The 'farre de Montelione' : landrace and representation*, in Padulosi S. Hammer K. and Heller J. (editors), 1996. *Hulled wheats. Promoting the conservation and use of underutilized and neglected crops*. 4. Proceedings of the First International

Workshop on Hulled Wheats, 21-22 July 1995, Castelvecchio Pascoli, Tuscany, Italy.
International Plant Genetic Resources Institute, Rome, Italy.

Perrino P., Laghetti G., D'Antuono L.F., Al Ajouni M., Kanbertay M., Szabó A.T. and Hammer K. (1996) *Ecogeographical distribution of hulled wheat species*, in Padulosi S. Hammer K. and Heller J. (editors), 1996. *Hulled wheats. Promoting the conservation and use of underutilized and neglected crops*. 4. Proceedings of the First International Workshop on Hulled Wheats, 21-22 July 1995, Castelvecchio Pascoli, Tuscany, Italy. International Plant Genetic Resources Institute, Rome, Italy.

Porfiri O. (2006) *Phylogeny of "Farro", Emmer wheat*, on the homepage of Prometeo: <http://www.prometeourbino.it/farro.htm>

Porfiri O., Torricelli R., Silveri D.D., Papa R., Barcaccia G. and Negri V. (2001) *The Triticeae genetic resources of Central Italy: Collection, evaluation and conservation*, Hereditas 135, Mendelian Society of Lund, Sweden. P. 187-192

Szabó A.T. and Hammer K. (1996) *Notes on the taxonomy of farro*, in Padulosi S. Hammer K. and Heller J. (editors), 1996. *Hulled wheats. Promoting the conservation and use of underutilized and neglected crops*. 4. Proceedings of the First International Workshop on Hulled Wheats, 21-22 July 1995, Castelvecchio Pascoli, Tuscany, Italy. International Plant Genetic Resources Institute, Rome, Italy.