Global
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Farro in Italy

A desk-study by Markus Buerli

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Introduction

Farro, also known 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 until they eventually fell into disuse. However, farro is now becoming popular again. In Italy, farro is attracting farmers' interest due to its high commercial potential. The industrial sector is also looking to farro because of its potential in the production of pasta, biscuits and other items.

What is Farro?

Farro is a strictly ethnobotanical concept, deeply rooted in Italian tradition. The term is used exclusively for three cultivated hulled wheat species: *Triticum monococcum* (einkorn), *T. dicoccon* (emmer) and *T. spelta* (spelt). Its singularity lies in the fact that the berry or kernel retains its hull or husk during harvest. It is also known as wheat with non-threshable grain. As shown in Table 1, in Italy these three species are known as 'farro piccolo', 'farro medio' and 'farro grande', respectively, meaning small, medium and large. In ethnobotanical approaches, hulled wheats are sometimes regarded as synonymies but in taxonomy not only the non-threshable species of *Triticum s.str.* may be regarded as hulled wheat but all species that are considered to belong to *Triticum s.l.*, including *Haynaldia, Aegilops, Agropyron,* etc. (Szabó and Hammer, 1996).

Table 1: Names of faro

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

Einkorn (T. monococcum)

Einkorn is a diploid species with wild and cultivated variants. It was the first wheat to be cultivated some 9,000 years ago but is rarely planted today. In Italy, it grows widespread in mountainous areas, particularly in the South Tyrol and Valtellina in northern Italy (www.mulinomarino.it/cereali.htm). One site in particular where einkorn is known to be cultivated is in the mountainous area of the Daunian Apennin, where it was grown by traditional farmers as a fodder crop until the 1990s, but the practice may have been discontinued in the meantime (Perrino, 1996). T. monococcum, the oldest species of farro, produces a **clear** flour which is used for making bread, cakes, biscuits and pizza (www.tibiona.it).

Emmer (T. dicoccon)

Emmer is a tetraploid species, and was cultivated in ancient times but is no longer used to any great extent. Emmer cultivation began during the Bronze Age, when farmers started

selecting tetraploid types (some 7,000-9,500 years ago) from *T. dicoccoides*, the wild relative of cultivated tetraploid wheats, throughout the Mediterranean basin. In all these areas, emmer wheat has been the most widely diffused hulled wheat until modern times. In Italy, it 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. 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 below). In 2003, the Italian Ministy of Agriculture estimated the surface cultivated with emmer (farro medio) in Italy to be 2000 hectares.

Spelt (T. spelta)

Spelt is a hexaploid species cultivated in limited quantities. It originates from hexaploid wheats (*T. aestivum*) and of the three farro types mentioned, its cultivation was the most recent – approximately 8,000 years ago. Just like *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 is also grown in lowland areas. It is often sold simply as farro, with no further details as to which grain it actually is (Papa, 1996). In 2003, the Italian Ministry of Agriculture estimated the surface cultivated with spelt (farro grande) in Italy to be 500 hectares.

Evolution of farro cultivation in Italy

It is very difficult to make a distinction between the three different farros (einkorn, emmer and spelt), particularly as the term 'spelt' and 'farro' are often used as synonyms. As mentioned above, einkorn (*T. monococcum*) is the least cultivated of the three, in Italy. The cultivation of emmer – which is, today, the most important farro in the country, began 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 era to Europe and Italy in particular. During the Roman period it was the main food source but its cultivation decreased at the beginning of the 20th century, when it was gradually substituted by the naked wheats (common and durum wheats) because of the free-threshing kernel. As a consequence, the species almost disappeared by the second half of the 20th century and its cultivation was reduced to a few thousand square meters in the 1970s (Di Napoli and Marino, 2001). It was only in the 1980s, and increasingly at the beginning of 1990s, that for different reasons (more attention being paid to the genetic resources of cultivated species and to biodiversity conservation, diversification of crop systems, rediscovery of local foods, and so on), it regained it earlier importance, both as a crop and as a food.

Nowadays, the farro-cultivated surface is estimated at some 2000-2500 hectares, even if there are no official data available. This is because in the farmers' cultivation statement for community contributions (Common Agricultural Policy) - the most reliable source -, this species is not listed separately from common wheat, barley, oats and rye, but is simply lumped together with the rest, 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. Whereas in Germany and Switzerland the main species of farro produced is spelt (Dinkel, used for making bread, biscuits or pasta), in Italy emmer has the largest surface coverage. Since the early 1980s, emmer has made a comeback in various regions within central Italy, as the healthy properties of this cereal attract consumers. Emmer contains high levels of fibre and is cultivated traditionally, without the use of synthetic pesticides or fertilizer. Why has it survived here? 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 cultivation is particularly widespread in the central-southern areas of the Appenines and concerns mainly organic cultivation. This species is characterized by a high agronomical and environmental adaptability, thus permitting it to cope with weeds and to exploit as much as possible marginal and poor soils, escaping fertilizer treatment more than other cereals. The spread concerns both areas where emmer production is 'traditional' and areas where it has been recently introduced. While in the traditional areas, emmer cultivation has never been totally abandoned and landraces have been maintained, in the new areas such varieties are imported either from the traditional areas or from recent plant breeding programs. This situation creates intense market competition resulting in loss of competitiveness of traditional areas, favours the replacement of traditional genetic material, gives no guarantee of product traceability and makes the local production phases weaker (Porfiri, 2006). One option to cope with this challenge is the establishment of geographical identification labels with clear production regulations (see para on Farro della Garfagnana). Today, the main production areas of emmer are: Garfagnana, Valneriana and Altopiano di 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 for farro increased by about 15% per year and farmgate prices increased in the same period to some 30%. This is mainly due to the kind of marketing, as an increasing amount of the production is marketed by farms that also offer accommodation for tourists. The number of farms offering accommodation, agritourism-type has increased from 18 in 1999 to 28 in 2000.

Today, one can 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

It is only in the past few years that 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. It must be said, however, that through the increasing importance of holidays 'on-farm' - particularly popular in Tuscany - the sale of farro products to these nature-loving and health-conscious tourists plays an important role.

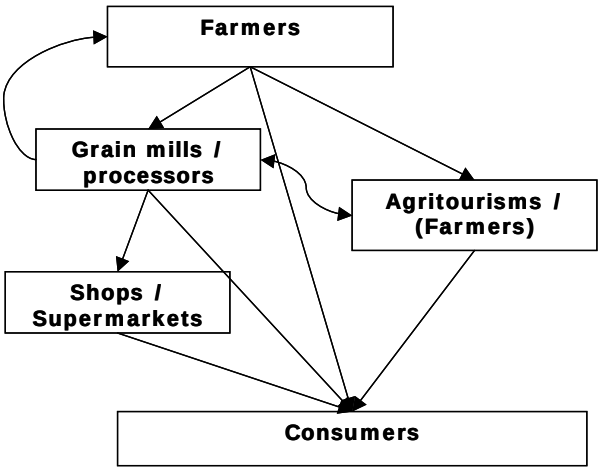

Figure 1: Market chain for farro in Italy

Farmers

Farro-producing farmers are among the poorest in Italy. They live in mountainous areas in the seven main faro-producing zones: Garfagnana, Valneriana and Altopiano di Leonessa, alte Valli del Tronto and dell' Aterno, valle dell'Aniene, alto Molise, Appennino Dauno and Appennino Lucano.

Agritourism

It is impossible to estimate what portion of Italy's total farro production is marketed to the consumers directly by farmers. For sure, those farmers who also offer hospitality to tourists (agritourism) play an important role in the overall farro market chain in Italy. Just by entering the words 'farro' and 'agriturismo' into the Google website, one can get an idea of how many agritourism businesses there are, offering accommodation and selling farro to their 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 for their service. On the other hand, they often buy the product from the farmer, process it, pack it in different packaging 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 brief description of **Prometeo** (www.prometeourbino.it), an Italian company that has been in the business of processing cereals and legumes produced by organic farmers in central Italy since 1991. The production of hulled wheat is particularly focused on emmer, *T. dicoccum*.

Prometeo is situated in Urbino, in the North of the Marche Region in central-eastern Italy, in an environment that is deeply linked to the traditions of central Italy, and is also closely linked to the North Italian commercial areas. The company concentrates its main

work area in the hills of central Italy, where the cultivation and tradition of emmer are still very strong. The factory provides its suppliers with seeds for landraces, carefully selected on their premises, as well as the best techniques for its cultivation. Only a small part of the supply comes from factories that are not direct producers. Prometeo checks fields, assists farmers during growing, and organizes the storage and dispatch of the product. Processors such as Prometeo are also the main actors when it comes to consumer orientation and publicity. Their home page gives a very good example of this.

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

Shops / Supermarkets

Nowadays, farro products are to be found in nearly every supermarket in Italy. The main products are either grains or their flour, and processed products such as pasta, Italian grain soups and a variety of biscuits.

Consumers

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

Characteristics of farro

Farro is appreciated by consumers because of the 'nutty' flavour it gives to pasta, biscuits or traditional Italian soups. But it is not just the good taste that has caught the attention of consumers. The grain is naturally high in fibre, 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, the husk of the farro 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 bread, pasta, cookies, crackers, cakes, muffins, pancakes and waffles. Modern cooks are rediscovering the full flavour of whole grain farro pastas and breads, and the subtler flavour and texture of white pastas and flours as well as farro kernels in their dishes (Hoagland, 1998).

Enabling Environment

Hulled wheat genetic resources network

In order to promote the conservation of hulled wheats and safeguard them from genetic erosion, IPGRI, in 1993, 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 in 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 the wide adaptation potential of newly-developed spelt lines from the three breeding programs still existing in Europe. The following 12 countries participated in this project**:** Austria, Belgium, Denmark, Germany, Finland, France, Greece, Italy, Norway, Spain, Switzerland and the UK.

One study in the 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 sustainable agriculture: evaluating 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 was financed by the European Union and executed by the National Institute for Agro-Economy (INEA). The primary objectives of the project were:

- Adoption of farro varieties with good production and agronomic characteristics 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 standards of hygiene.

Some of the major results of this project:

- New mechanisation programmes were developed for the production of pulverized farro for more nutritionally adapted final products
- A process was developed for the production of a kind of 'parboiled' farro that includes cleansing and calibration, a cooking process, a process for decortication 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 tolerates the often strong spring rains in the Italian mountains without bending. This means that very few crop protection chemicals and fertilizers – if any - are used for its cultivation; input markets for these products are thus of minor importance for the producers of farro. So far, there is no Italian national breeding program for this species. The source of seeds for farmers producing farro is either from their own fields or from those of their neighbours, or else from a grain mill or a processor who is also buying the produce from them.

Consumer manipulation

Publicity for farro is mainly done by the grain mills or by processors such as Prometeo (see above). The health aspects of farro and the evolving trend of consuming farro products has also been the subject of many articles and has consequently reached a wide public. In The Culinary Trend Mapping Report, published by a well-known journal for food trends, farro is classified as being at *stage 2* in market development, which means that it has graduated from *stage 1* - where it 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 has not been in active use in Italy for the intervening centuries: it has, even 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 appearing regularly on the menus of high-profile restaurants..."

New York Times, June 11, 1997

Marketing strategies

Organic farming

The best-known farro products, such as those from Prometeo or from many Agritourism farms, are produced organically with relevant certification. Many of the target consumers buy farro because of its healthy nutritional aspects. These are often the same individuals who prefer organically-produced food rather than food produced commercially. The organic production of farro is not only a very promising option but has already become probably the most important marketing strategy. Moreover, 'farro della Garfagnana' (Garfagnana farro) is produced organically.

Protected Geographical Identification (PGI) – Farro della Garfagnana

In the early 1990s, consumers' interest had determined an increase in the price of farro and, consequently, the diffusion of its production from the traditional mountainous areas to the plains. There the yields are higher but cultivation practices do not always follow traditional methods and often consist of a different wheat species, 'spelt (*T. spelta*)', thus threatening the production on the hills which has been maintained for centuries. In order to overcome this situation and give importance 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 which, through the years, has adapted to the local climate and terrain, prescribes the agronomic practices required for its 'organic' production. These include rotation with meadows, prohibition of the use of chemical pesticides, herbicides and fertilizers and the mandatory use of seeds from local populations. Compliance with these regulations is guaranteed through the activities of the Italian Association for Organic Agriculture (AIAB), authorized by the Italian Ministry of Agriculture (El-Hage Scialabba et al., 2002).

Conclusions

Farro, the traditional cereal planted over the centuries in the Italian mountains, has become popular once again, due to its particular characteristics. It is considered to be a healthier food than other cereals because of its higher fibre and protein content and certain vitamin B complexes. As it is highly resistant to adverse environmental conditions it can also grow without any chemical crop protection interventions and is quite easy to produce organically - which made the production of certified, organically-produced farro become an important niche. These characteristics enable farro to fit almost perfectly 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 rapidly in the past 25 years is due to a variety of interventions. Some farro pioneer farmers have recognised the potential of selling farro to tourists who frequent the regions where farro is grown. Farro has also received support from the research community that was especially interested in biodiversity conservation. Support to farro production from the political side, 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, the private sector - such as processors and bigger grain mills - has also started to market its products, giving it even greater visibility in the

market and propagating its health aspects even further. As the farro market becomes more and more commercial, a farmers' cooperative in Garfagnana successfully applied for the PGI label for their farro. This label forms the basis for keeping more of the benefits of this product at the level of the producer while, at the same time, conserving the local variety.

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