Aglione di Valdichiana

Carlo Citterio - Ariano Guastaldi - Niccolò Terzaroli



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Front cover: detail of a garlic clove – Translation by: Oonagh Stransky

piccoli Borghi e...grandi Prodotti

incontri nelle Terre dell'Aglione di Valdichiana

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Describing a plant might seem banal if it was not for the fact that the plant being described is on the verge of extinction and practically unknown. Aglione di Valdichiana is, on the one hand, a basic garden vegetable. But it is also much more than that. It is a pearl that has been hidden away for years (and which we have now rediscovered) that relays the character of the terroir and the sweet breath of Venus. It's the beginning of a new project! An incipit! Hidden in its vertical shape is a sign that indicates a path that speaks of distant origins, powerful symbols, and ancient civilizations. We shall leave to others the work of looking for and discovering the cultural references that confirm intuitions or creative fantasies. We have a different task: beginning. - We need to begin producing aglione according to fair agricultural trade regulations that respect the earth and its fruits;

- us cultivate ourselves;
- passion for farming;
- or provincial narrow-mindedness.

Prologue

- We need to begin a path of communication that, before even cultivating the earth, helps

- We need to begin welcoming growers who believe in a sustainable project that is respectful of the fundamental rules of healthy living, people who are not subordinate to or trapped by commercial interests or ideologies that have nothing to do with the healthy

- We need to look beyond, not simply at the result of our planted fields but at a new use of the product, we need to collaborate with producers of specialty foods, without jealousy In so doing we will see *Aglione di Valdichiana*, when paired with the culture of Mediterranean cuisine, can travel the world.

We will discover how the cultures that ring the Mediterranean have been and still are much closer to us than we generally imagine. We will discover how the people of these cultures have, since ancient times, encouraged continual exchanges of art, ideas, and merchandise. The first seed produced the first sprout: this is the meaning of this publication. This is the work of a handful of people who have a goal of making the information available for all.

The first seed produced the first sprout: this is the meaning of this publication. This is the work of a handful of people who have a goal of making the information available for all. The sprout that produced the flower that appears on the back cover is an invitation to discover the essence of things. There is a world beyond that nucleus that is not just about fatigue, dirt, and sweat. It is a real and spiritual world, a joyous world filled with doing and offering things, where we imagine the taste of pleasure and act with love.

Aglione di Valdichiana

A hidden pearl – the flavor of a terroir – the sweet breath of Venus

I take inspiration from the law of Antoine-Laurent de Lavoisier, which we too often simplify to say, "nothing in nature is created, nothing is destroyed, all is transformed," to reflect on how capable we are at forgetting.

The pages of this book have a precise significance: they assert that there is always something waiting to return to us. It can hide anywhere, from the hidden corners of the planet to our soul. It could be a work of art abandoned in an attic, a musical composition forgotten in the bottom of an old trunk, or a family jewel. Everything can be found with relative ease. The problem, when there is one, is establishing its value - not its commercial value, for that is easily quantifiable - but its real value, its culturally sensitive and very personal value.

Everyone knows what a pearl is. And any jeweler can give you its value. But what about a *hidden pearl*? And by this I mean a pearl that is waiting to be discovered. In its immateriality it takes on a non-quantifiable value, it has no limits. It is precious beyond any figure.

It is the same for the *flavor of a terroir*, where our imagination leads us to explore limitless scents and flavors that change with the wind and seasons, with the light and sounds. But thought can perceive a flavor, especially one with a well-defined character.

And what can be said about *the sweet breath of Venus*, with its reference to pure and sublime love and beauty in the Grecian or Renaissance vein? A sweet scent, a delicate caress.





These three elements characterize the qualities of Aglione di Valdichiana and remind us of the important relationship between Man and Earth. This precious collaboration will give us good products and fruits that will become our good food.

And so we come to understand that wanting to give new life to a garden plant like Aglione di Valdichiana does not count as just another rediscovery of an agricultural product, forgotten in a few precious gardens of some passionate horticulturalists. Rather, it connects us to a more ample vision. It surely will lead to socio-economic opportunities, but it would be sterile, like aglione's beautiful flower, to think only of this.



This book hopes to affirm in the way that is dearest to us the love that is put into everything when it is worthy of our attention. We hope that the passion for doing, the certainty of saying, and the creativity of imagining transpire from these pages. Our focus is on the individual, the person who wants to learn and understand, the person who is open to experimenting with new tastes or plants. So little information exists about this plant. The world of scientific research is at work and this book opens a pathway of communication that reflects our character and our desire to share. We feel that no one should be a repository of secrets. We feel that no one should jealously keep their information to themselves.

If these pages have been written, if the photos have been published, it is because generous people who still live in the countryside and who have old farming methods decided to share their precious information and make their knowledge available without constrictions or conditions. It is they whom the authors wish to thank.

L'Amorosa, 15 September 2017

Carlo Citterio



The photographs

A brief introduction to the photographs that appear in this book is necessary. At first glance, this may seem like a normal book of photographs with images linked to texts that explain the context for the images.

But this is not so.

If one looks carefully, the text that accompanies the images is scientific in nature; one might say that the photographs are actually illustrations of the text.

But this is not the case, either.

The fact is that the images function as a frame for the texts, with which they are in sync. In many circumstances, they express the concepts in visual terms. This is because they share the same subject and, more generally, because they tell the same story. The photographs tell the story of the rediscovery of aglione all the way up to the days preceding the printing of this book.



Aglione di Valdichiana



The story they tell is narrated in a different way than the texts, which have the goal of homogenizing the ideas, goals, and results of those who have committed their time to the revival of this plant. Texts and photographs tell the same story and complement each other.

Because of this, the graphic layout takes on a new meaning, with design favoring emotion over captions, even where this means an interruption in the narration. While the order is mainly chronological and in correspondence to the texts, periodically the order has been interrupted to make room for images with a strong emotional pull. The reason for this is because the subject of the book – if looked at from a distance – does not seem particularly important.

The story regarding the rediscovery of the production of aglione does not, in fact, trigger strong feelings when it is perceived purely as a revival of a garden vegetable. After all, we have done without it for so many years; we have even gotten used to using a surrogate for the preparation of the dish that carries its name: pici all'aglione.

But this revival is much, much more. In addition to the culinary aspect and the joy of re-found flavors, behind the rediscovery of the aglione and the geographical delimitation of the area where it is produced, there are stories, ideas, and studies that deserve to be shared, known, and furthered. Thanks to them we will come to understand the entire area better: the people who live there, the people who have become passionate about aglione and who have dedicated not only their physical efforts to it, but also their creativity and far-sightedness.

Ariano Guastaldi





WHAT IS AGLIONE DI VALDICHIANA? A VEGETABLE SAVED FROM OBLIVION

Carlo Citterio

An UNITED MANAGE

On any menu in any restaurant in all'aglione. What exactly is aglione? The need to find an answer has led no one knew a thing about aglione. "No one" includes a wide range of p retail levels, to restaurants and che aglione, to so-called foodies who ne Months of research led to a meeting ventures. Then it was on to Castiglie It was destiny. The first year we plan tivation, the second year we perfected in order to implement mechanization

On any menu in any restaurant in the Val di Chiana diners will be offered a typical dish: pici all'aglione. What exactly is aglione?

The need to find an answer has led to a true "treasure hunt;" it was clear from the beginning that no one knew a thing about aglione.

"No one" includes a wide range of people: from fruit and vegetable sellers at both wholesale and retail levels, to restaurants and chefs who almost unanimously use common garlic in place of aglione, to so-called foodies who never bothered to ask themselves the question.

Months of research led to a meeting with some special people who told us about their agricultural ventures. Then it was on to Castiglion del Lago, where we were given a few bulbs of real Aglione. It was destiny. The first year we planted our first modestly-sized field for experimenting with cultivation, the second year we perfected our planting system, and in the third year we made changes in order to implement mechanization. These were the first three years of our project.







Besides the botanical aspects of being a rare plant or a plant that was going extinct, why did the cultivation of Valdichiana Aglione never develop?

One reason is the price: aglione costs as much as four times as much as regular garlic. But it is not just a a problem of the cost; it is also the unavailability of the product on the market. If there is no request, there is no production. Thus was born the website www.aglione.it, whose goal was to communicate and update consumers and passionate growers about scientific information, best methods for growing, and findings from research and experimenting that is done in the field. And thus was born a figurative brand that together with guidelines for growing seeks to relay information about the origins, traceability, and quality of the product.



www.aglione.it





Since Aglione does not appear in any historical botanicals we came up with the idea of creating watercolor plates that demonstrate the various vegetative phases, thereby filling a gap.

The few farmers or passionate "growers" who kept the cultivation alive always did it manually, with hoe and hard work, planting only a limited amount of cloves and producing only enough for their family use or to bring to a country fair.



Before Niccolo Terzaro lic and aglione, no one how it could be mecha acteristics of the Aglior it is better to say a path The production of Agli crops that are not very several variables: the pla and finally, and no less addition to these there's

Before Niccolo Terzaroli's dissertation, which ably describes the relationship between garlic and aglione, no one had every looked into the specific characteristics of the plant, of how it could be mechanically farmed, or how it grows. His thesis on the "Genetic characteristics of the Aglione della Val di Chiana" has opened up an avenue for us, or perhaps it is better to say a path that we hope will become an avenue.

The production of Aglione of Valdichiana could represent a valid economic alternative to crops that are not very remunerative. Everyone has to do their own calculations, there are several variables: the planting method, the kind of earth, the correct phases for cultivation, and finally, and no less important, the qualitative selection and the size of the seed used. In addition to these there's the question of the season and the channels for sale.





The Aglione di Valdichiana is a truly special vegetable.

People who cannot digest garlic can eat Aglione without a problem. It does not give bad breath.

Aglione is more delicate than garlic and can easily substitute garlic in any recipe.

It does not cause perspiration as garlic does, especially in the summer.

Thanks to a higher content of sugars it gives a slightly caramelized flavor.

> Naturally, like all foods with a high concentration of flavors, it needs to be used in the right amount.



The specific characteristics of Aglione are currently being studied at certain universities. In addition to the University of Perugia, where Niccolo Terzaroli is continuing his research, two departments at the University of Pisa are interested in aglione: the department of Agronomia e Gestione dell'Agro-ecosistema and that of Medicina Clinica e Sperimentale. The university of Siena with the department of Biotechnology, Chemistry, and Pharmacy is also doing research on aglione.

Data on the characteristics of Aglione of Valdichiana may contribute to an increase in its consumption.

The universities of Pisa and Siena, together with five organic farms in the Siena area are developing a PIF (Piano Integrato di Filiera); in 2016, their project, "Peter Baby Bio we feed the future," was approved. The project revolves around the production of homogenized baby food produced with organic primary materials all grown exclusively in Tuscany. The Aglione of Valdichiana is involved in this and is being used as an aromatic and nutraceutical ingredient.

The Science of Food campus at the Cesena branch of the University of Bologna, which is interested in the analysis and qualitative characterization of typical and local foods, received samples of the Aglione di Valdichiana in 2016.

Scientific research on this food is vital.

The correct cultivation of a food requires the knowledge of its genetic, chemical and physical characteristics. To commercialize and consume the food, we need to be certain about the nutritional properties and their influence on the individual.

We know everything (or almost) about garlic, but not about Aglione. By using modern information systems we can reach various primary objectives: make people curious and raise the interest level about Aglione di Valdichiana; communicate how the plant is produced, where it grows, and where the selected product can be bought for growing or for consumption; communicate the scientific results and the knowledge acquired regarding the specific characteristics of the Aglione di Valdichiana; govern the production, certify the provenance with a brand or identifying label, and offer procedural guidelines that regulate the production. We are at the beginning of an emotional journey. Discovering wild (or overgrown?) aglione in the abandoned fields in the hills around Sinalunga or on Isola Polvese of Trasimeno Lake is an emotional experience. But it's also a

surprise to learn that distant markets in both the East and the West are interested in aglione.

What is most fascinating, however, is the mystery that this plant carries with it and that is linked back to the symbols and signs of our origins, and to the cradle of our civilization.

But this is a complex story that is best told by others.





Aglione di Valdichiana

An excerpt from the dissertation "Caretterizzazione Genetica dell'Aglione (A. Ampoloprasum) della Val di Chiana"

Degree candidate: Niccolò Terzaroli, Professor: Emidio Albertini Università degli Studi di Perugia Dipartimento di Scienze Agrarie, Alimentari e Ambientali – Academic year 2014-2015

Aglione is a local variety of *Allium ampeloprasum* var. *Holmense* (Mill.) Asch. et Graebn. It is typical of the Val di Chiana, an area that is particularly good for horticulture that extends between the province of Arezzo, Siena, and Perugia. The plant is characterized by bulbils, commonly called cloves, that reach up to weight 70-80 grams each (and which are fundamental for the propagation, which can only happen vegetatively) and entire bulbs that can weigh over 500 grams. By way of comparison, common garlic bulbs weigh between 20-150 grams.

Aglione produces more than 200-300 sterile flowers, which can be used to make an excellent jam. The flowers grow in an umbrella formation at the end of the stem, and can reach more than a one and a half meters in height. Germination takes place in the fall. The development of the leaves continues in the winter and spring. The elongation of the stem, the part that grows the flowers, takes place in the spring. In the summer it is common for the plant to be dormant (during this phase, the plant is incapable of germinating). A long exposure to sunlight is essential for the growth of flowers; the stem, however, has to be removed as soon as possible for optimal bulb growth.

The name Allium is probably Celtic in origins and signifies spicy. The plant has its origins in Central Asia and has existed in the Mediterranean since ancient times. It was widely used by Egyptians, Greeks and Romans, not only in cooking but for medicinal purposes. In the Egypt of the pharaohs, it was thought that garlic increased man's strength, making them better and stronger workers. Jewish slaves, who had long eaten garlic, developed a taste for the vegetable, to the degree that after having left Egypt with Moses they felt the absence: "They missed their fish, watermelons, melons, leeks, onions, and garlic" the Bible says (Numbers, 11: 5) In the Talmud, the important Hebrew text, garlic is considered also to improve the relationship between husband and wife.

Ubiquitous also in ancient Greece (bulbs have been found near temples and in the palace of Knossos in Crete), garlic was used by Olympic athletes as a sort of doping agent. Hippocrates, the father of Medicine,



always had garlic in his medicine chest, which he used for lung problems, as a disinfectant, as a purge, and for abdominal swelling, especially uterine.

The knowledge of Greek doctors was passed on to the Romans. Dioscoride Pedanio, doctor, botanist, and Greek pharmacist, practiced in Rome and was close to Emperor Nerone. In his work "*De materia medica,*" an herbarium written in Greek that had a wide influence on the history of medicine, and which was used with updates and comments until the 17th century, he recommended garlic for "cleaning" the arteries (remember that the circulation of blood was discovered only in the beginning of the 17th century), for stomach and intestinal troubles, for animal bites, for common illnesses and for convulsions.

Pliny the Elder, in his *Historia naturalis*, describes 23 uses for garlic: he was convinced that garlic protected from toxins and infections, a fact that has been confirmed by modern studies on the degenerative illnesses of the liver.

In the Orient, where there is a wide biodiversity of garlic, the plant has been used since ancient times. In 2000 AC in China, garlic was eaten on a daily basis, particularly with raw meat, as it was said to act as a preservative. In Chinese medicine garlic was prescribed to help with breathing and digestion. It was considered fundamental against diarrhea and worms. Considering it was a spice, it was recommended for regular consumption, but in small quantities. There is proof that it was used for weakness, headaches, insomnia, sadness, and depression; it also assisted in cases of male infertility. In the Indian book "Charaka Samhita" it was used for the same illnesses as well as for cardiac illness and arthritis. This book was a classic in the Hindu school until last century. Written by the Indian doctor Caraka in the 1st century AC, it relays information in the form of a dialogue between teacher and student.

During the Middle Ages, garlic was used to fight constipation and to prevent heart attacks. Interestingly, the Abessa of Rupertsberg, Santa Ildegarda Von Bingen, who was an important doctor at the end of the 12th century, said that raw garlic had better effects compared to cooked garlic, probably because of the less pungent odor of the latter. Generally, throughout the Middle Ages, the more elevated classes avoided garlic, thinking it was not good for health.

In the 16th century the Sienese doctor, Pietro Mattioli, whose work was translated into several languages, prescribed garlic for intestinal disorders, kidney problems and for difficult childbirth. In this period and in the royal homes of Europe the use of garlic was systematic. Stories go, for example that Henry IV, King of France, was baptized with water that held cloves of garlic in it, to protect him from malign spirits and illnesses.

In more recent times it was noticed that garlic has a diuretic effect, and it has been proven that if used in the correct manner it can reduce blood pressure, diminish the aggregation of platelets and protect from damages of LDL, the so-called bad cholesterol.













Importance of growing

Garlic is grown in many Countries around the world for a total production of 2700 million tons. The most important producers are China, South Korea, Spain, and India. In Europe it is grown mainly in Spain, France, Greece and Italy, where the growth extends for approximately 5000 hectares with a production of 45,000 tons. In Italy, it grows in the following regions in order of importance: Campania, Emilia Romagna, Veneto, Sicily, Piedmont, and Puglia. Average yields are 9,5 tons/hectare.

Mechanical farming, both for planting and for harvest, is not common. The high costs of labor and its scarcity limit production and Italy can not compete with countries that have lower labor costs. Over the past few years, the worldwide sale of garlic grew steeply, especially that of Chinese production. The export of Italian garlic, which usually goes to France and Germany, has dropped because of competitive prices from Spain, other Mediterranean countries, Eastern Europe, and Latin America. Farmers could deal with this situation by increasing the level of mechanization and by organizing the commercial side of the business better.







Áglione di Valdichiana

Aglione di Valdichiana

Allium ampeloprasum

Allium ampeloprasum L. is a species composed of different cytotypes spread out over the countries around the Meditteranean Sea and extending to North Africa, South West Asia all the way to Southern England. It is commonly accepted that this species is formed of four gene pools: wild leek, the European cultivar of the leek, the Egyptian kurrat and the great-headed garlic.

The first and wildest gene-pool is relatively variable in terms of the dimension of the bulb, the color of the flowers, the number of reproductive units (bulbils, flowering bulbs, or seeds) and for its adaptation to soil. The classification of wild Allium ampeloprasum is based principally on the morphology and geographic distribution. Only recently, and in order to discriminate better within the same species or among diverse species, were different DNA levels used: on the basis of the level of ploidia (the number of the same series of chromosomes present in a cell) and the isolation of the populations due to geographic distance, a fertility rate was established.

Aglione di Valdichiana

The Kurrat, Allium ampeloprasum var. kurrat Schweinf. ex Krause, which can be found in the Far and Middle East and which is widely used in Egypt, is the third most important domesticated vegetable coming from the gene-pool primary.

The cultivated leek, Allium ampeloprasum var. porrum (L.) J. Gay is a tetraploid allogamous with 20% autogamy. It grows all over the world. The irregularities in the meiosis determine errors of segregation that interfere with the floral fertility and the quality of the seed. It can tolerate low temperatures.

The Great headed garlic, Allium ampeloprasum var. holmense Asch. et Graebn is a synonym for aglione, elephant garlic, big tex garlic or tahiti garlic. It has large bulbils, and has a much larger bulb than common garlic. This vegetable is considered a cultigen (a cultivated plant that is not known in its wild form, but that originates from cultivation), it is vegetatively propagated around the world, has a notably large floral umbrella which is usually sterile, the origins of which can be found in the Mediterranean. The aroma of the cloves is more delicate but very similar to that of garlic, which is often substituted for it. The notable size of the plant and the diameter of the bulbs are apparently associated with polyploidia (4x, 6x, or 8x). The main source of loss of yield comes from the cloves used for vegetative propagation.

The lack of genomic differences in the repeated sequences as in the irregular disjunctions

of the chromosomes during meiosis, associated with floral sterility, suggest autopolyploidy rather than allopolyploidy.

headed garlic are both found in the Mediterranean region suggests a cultigen hybridization of the two species. Aglione has a growth and development of the bulb similar to common garlic but when it is mature it forms a floral stem, unlike the softneck garlic. However, as the name suggest, aglione and elephant garlic are much larger than regular garlic: a single clove can be as big as an entire bulb of common garlic. Morphological descriptors are not valid for distinguishing within the species Allium ampeloprasum, but they can be used for distinguishing between Great headed garlic and Allium *sativum* L., because the strong interaction genotype-environment leads to a morphological convergence: it is much easier to discriminate between the genotypes by analyzing the natural variations of DNA in the repeated sequences of the nuclear genome, which showed how the RAPDs and especially the variation of the ITS function well at a intra-specific level: a fundamental source of information on the nuclear genome of the plants can be found precisely in this region, which includes the gene 5.8S rRNA and two internal spaces ITS-1 e ITS-2. The polymorphism of a single nucleotide in the ITS sequence function in a intra-generic manner but in Allium ampeloprasum SNPs were found also within the species.

Despite this, the fact that both wild Allium ampeloprasum and the local varieties of Great

Growing methods

The soil has to be well tilled in order to bury all residuals of growth: the earlier done, the better. This cultivar requires a Ph between 6.0 and 6.5, the bed needs to be slightly raised and convex as done for onions. From interviews done with farmers (done specifically for the thesis, of which this is an excerpt) it has emerged that the distances adopted are highly variable, and can range from 20-25cm between plants and 40-45 cm between rows to 25-30 in 70 cm or 150 per 150 cm, a system that allows for mechanization and allows the leaves not to touch each other so that they don't transfer illnesses to each other, especially botrytis cinerea.

The bulbils should be planted at a depth of 2-3 cm with the bulbil positioned upright, in order to favor its germination. Everyone agrees that it is important to plant the biggest "cloves" possible, in fact one of the farmers says:

"I only plant bulbs that are around 70 g in order to get bigger heads, and in so doing in a good year, I can get four quintals of aglione in 1500 sq. meters. For this surface the quantity of "seeds", with a planting system of $1.5 \ge 1.5$. meters is around 3000 cloves, so about 70 kg."

Garlic, leeks and other species of Allium consume a lot of nutrients, which means that they require notable fertilization of the soils, given also the duration of the growth cycle. In soils that are normally poor in sulfur, which is not very common in Italy, nutrients needs to be added. Among the farmers that were interviewed very few fertilize and almost everyone does it with manure, which is better to have given to the precious crops to avoid rot. The cultivar requires discrete amounts of nitrogen, at 60-65 kg per year, from 35-60 of phosphorous P2O5 and potassium K2O depending on the residual levels in the soil.

Planting can be done in early October all the way through until December or January, when, however, it becomes harder to work the soil. Garlic and aglione produce bulbs that are divided into sections called cloves: these are necessary for vegetative reproduction. To obtain the "seed" it is necessary to remove the basal level and subdivide the bulb or head. The majority of fields invested with this kind of cultivar, in fact, can be considered like clonal populations of the same varietal, as garlic does not produce vital seeds in as much as it is auto-incompatible. This makes the cultivar more vulnerable to illnesses, both biotic and abiotic, but the runners or vegetative propagules are easy to manage and constitute a great source of reserves that facilitate the recovery of the plant, which has a high germination rate.

that are heavy and that do not have good drainage. Checking for pests is fundamental as the species of Allium is not very competitive: this can be done either manually, given the small areas, or with mechanical hoes, but it should be done at least once a month. Allium does not have particular problems related to insects but it can be eaten by snails, mice, badgers, and other rodents. Once the floral stem emerges, this has to be cut back so that it does not interfere with the quality and size of the head and so that it forms its cloves. Harvest takes place between June and July as soon as the leaves begin to yellow. The duration of the cycle is 210-240 days.

The varietals of garlic registered in the varietal registers are very few, and aglione is not listed there. For this reason there are not any products specifically for aglione, so most growers use copper-based preparations. The illnesses that the plant is subject to are principally rot and botritis which are spread easily in soils that are heavy and that do not have good drainage.

Purpose of the thesis

Saving biodiversity is an important notion the world over. Part of agrarian biodiversity is represented by local varietals, or landraces. A local varietal can be defined as a "variable population that is easily identifiable and that usually has a local name. It has not been part of an organized program or genetic improvement, it is characterized by a specific adaptation to local conditions and to a determined area, and it is closely connected to the uses, knowledge, habits, dialects, and customs of the people that developed it or that continue to grow it." (Negri, 2005; PGR Secure, 2012).

With regards to regulations and laws for herbaceous species of an agrarian interest, the European Union introduced Directive 98/95/CEE, which permits the on-farm realization, conservation, and the sustainable use of phytogenetic resources through the cultivation and commercialization of seeds that have been grown in a traditional manner and which are threatened by genetic erosion. This norm has to do with all autochthonous genetic resources, which can be defined by various regional usages as species, races, local varieties, cultivars, populations, ecotypes, and original clones of the regional territory, or of external origin, as long as they were introduced more than fifty years ago and traditionally integrated into agriculture. This includes the local varieties that disappeared from the regional territory, but which are conserved at botanic gardens or research centers present in other regions or countries.

All regions work at safeguarding their autochthonous genetic resources starting with the specific needs of their territory, even with specific regional laws. For example, the regions of Umbria approved Regional Law n. 25 September 4, 2001: «Tutela delle risorse genetiche autoctone di interesse agrario», which went into practice only recently, while the region of Tuscany approved regional law n. 64 from November 16 2004 for the «Tutela e valorizzazione del patrimonio di razze e varietà locali di interesse agrario, zootecnico e forestale» and on the basis of this inducted a «Rete di conservazione e sicurezza delle risorse genetiche di specie vegetali ai sensi della L.R. 64/2004» according to the Regolamento di attuazione LR 64/04, D.P.G.R. 1/03/2007, n° 12/R.

All regional initiatives have essentially been concerned with the identification of resources, their morphological and genetic mapping, their conservation, and their valorization.

Regional registers have a fundamental role in governing the system chosen by the regions; they keep records of the races and local varietals, especially those at risk of extinction. A varietal is included in the register only after its link with the local rural culture and the territorial agrarian tradition is understood, both in terms of its morphology and molecular makeup. For this reason, the Dipartimento di Scienze Agrarie Alimentari e Ambientali of the Università degli Studi di Perugia, via this thesis, is involved in genetically mapping with molecular markers the Aglione di Val di Chiana varietal. The goal of the study is to clarify the botanical collocation so that it can be included in the regional registers of varietals that need to be safeguarded in order to preserve the biodiversity, both in sito and ex-situ, and thus give due attention to the resource itself.

Aglione di Valdichiana

The life cycle of the Aglione di Valdichiana: Botanical illustrations

Simonetta Occhipinti

Aglione di Valdichiana

Áglione di Valdichiana

Áglione di Valdichiana

June 2015

Aglione di Valdichiana

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Bruschetta aglione, olio, sale e pepe Bruschetta aglione, pomodoro e basilico Bruschetta con cavolo nero, uovo e aglione

Pici all'aglione

Primi Piatti:

Spaghetti aglione, olio e peperoncino Penne al pomodoro, aglione e basilico Linguine calamaretti, aglione e pomodori datterini Fusilli pesce spada, olive, aglione e capperi Vermicelli al sugo di cernia e aglione Spaghetti Seppioline nere, aglione e pomodoro Spaghetti cipolle di Tropea, aglione, olive di Gaeta e origano Spaghetti con ratatuille di verdure e aglione Pasta con broccoli romaneschi, aglione e rigatino di cinta senese Zuppetta di alici finocchietto e aglione Pasta e ceci con aglione Zuppa di farro con aglione Minestrone di verdure con aglione

Secondi Piatti:

Contorni:

Rombo con patate e aglione Pesce spada in guazzetto con crostoni di pane all'aglione Pollo al limone e aglione Rotolo di coniglio in porchetta Arista di maiale in porchetta al forno Roast beef di manzo all'aglione

Pomodori, aglione e basilico Cime di rapa, aglione e peperoncino Patate al rosmarino e aglione Peperoni al forno con aglione e prezzemolo Fagioli all'aglione Verdure al forno all'aglione e origano Zucchine spdellate all'aglione Ceci all'aglione Lenticchie rosse alla curcuma, cocco e aglione

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