OUR DAILY BREAD

GEORGIA
THE ANCIENT CRADLE
OF AGRICULTURE

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"Should a Georgian man be removed from his roots, he will lose the countenance God blessed him with. Such is importance of the values, the culture and the traditions that the Georgian man was and still is proud of".

Catholicos-Patriarch of Georgia Ilia II
on science, education, culture and art, 2004

INTRODUCTION

Georgia is a cradle of settled life, vigorous cattle breeding, agriculture and metallurgy, possessing a global importance to the world community. Georgian people are among the primary creators of independently evolved and cultivated cereal crops and vine cultures. Natural, ecological, historical, archeological and ethnographical findings corroborate this.

Transcaucasia and Georgia, according to some researchers, are the point of origin of many wheat cultures. Endemic species of wheat such as Makha, Zandury, Dika, Colchic asli etc. appeared and evolved independently here.

As far back as in (1955), Ilia Chavchavadze wrote that the history of Georgia — one of the ancient nations — as well as its diverse life and culture had been studied insufficiently, while the Georgian written sources such as letters and charters contained the most plentiful facts. Therewith, the Georgian language, along with its cognates and plethora of dialects, gives comprehensive materials on all economical trends peculiar to Georgia. Georgian land is a rich repository of antiquity. Even without special archeological excavations, chance findings alone give insight into the wonderful richness of multi-millennial economy. Besides that, towards the end of the 19th and in the first half of the XX centuries, the traditional household economy still existed in the ethnographical reality of Georgia. Having regard to the above, historical times came, which made writing the complex history of the Georgian nation feasible. This mission was assigned to Ivane Javakhishvili, a gifted scientist, historian, polyglot, linguist, archeologist and ethnographer. This outstanding person gave us an impressive picture of genesis and development of the Georgian ethnos. Ivane Javakhishvili, in his two-volume book named The History of Economy, elucidated the high level of excellence of the Georgian multi-branch economy.

Vakhushti Batonishvili, an 18th century Georgian geographer, identified five botanical-agricultural areas in Georgia: Citrus, rice-cotton, vineyard-fruity, non-vineyard fruity and highland alpine grasslands-pasturelands (Batonishvili, 1941). Even today, such division serves as an appropriate basis for restoration and development of agriculture.

A noteworthy detail is that in Georgia, a single gorge may include several botanical-agricultural areas — a fact that didn't escape Vakhushtis' keen eyesight: In the Black sea coastal area, "mountains and lowlands come closer" so that "snowy mountains are not too distant from citruses, olive trees and fruit-filled valleys". From times immemorial, people were aware of this and developed agriculture as a system based on their ancestors' knowledge and experience. As for plant zoning, the European researchers discovered it only in the middle of the 19th century, while Vakhushti Batonishvili revealed it in the 1840s. Awareness of the country's zoning is of decisive importance in efficient management of public economy. Therefore, Ivane Javakhishvili built on Vakhushti's works, corroborating them with other materials and presenting the complete picture of the Georgian botanical-agricultural areas: Kakheti-Hereti-Kukheti, Kartli, Meskheti-Javakheti, Ajara, Kola-Artaani, Tao-Klarjeti-Shavsheti and Lazeti, Likht-Imereti, Racha-Lechkhum-Svaneti, Dvaleti and others. He also identified the boundaries of distribution of each agricultural area within the country's provinces.

The conclusion is as follows: "The Georgian native land is a whole unit surrounded by natural barriers (mountains and gorges) and it embraces the Mtkvari, Rioni and Chorokhi river basins, which are tightly linked to each other geographically and economically" (Javakhishvili 1930; 1986; 1996).

Cereal crops due to their distribution and consumption were of great importance in all epochs. Alongside cattle and poultry, cereals such as barley represented the main food source for the population. Fiber crops were also widely grown and used.

Ivane Javakhishvili showed comprehensively the importance of the Georgian field husbandry, originality and preferential benefit of Georgian tools used in land cultivation, high level of work culture, namely ploughing and sowing, seed selection and rotation, perfection of agricultural plant varieties and diversification, botanical essence of each culture, their zonal distribution, etc. He highlighted the peculiarities of field husbandry peculiar to Georgia. However, the Georgian scientist went further and defined the importance of old Georgian classification principles of food plants, intensity of field husbandry and the level of its development. He purposefully studied and revealed the origin of each cultural plant evolved in Georgia and related terminology. Iv. Javakhishvili determined chronology of genesis of cereals and legumes distributed in Georgia, showed the comparative importance of cultural plants in the Georgian traditional economy, their variability over certain spans of time, etc.

In the first half of the XX century, Ivane Javakhishvili and his works gathered support of other famous Georgian scientists: N.Ketskhoveli, L.Dekaprelevich, I. Lomouri, V. Menabde and their successors G. Abesadze, M.Sikharulidze, V.Supatashvili, P.Naskidashvili, Al. Gorgidze, G. Kandelaki, R.Beridze and others.

Terminological research showed that after adopting Christianity, Georgians were among the first people to translate the Bible into their mother tongue. The richness of Georgian vocabulary was beyond all expectations — namely, the Georgian translation of the Bible contained numerous terms and descriptions pertaining to field husbandry that could not be found in the original.

Today, however, the situation is rather hard, owing to the process of depopulation of the countryside and damage to the ecological balance. G.Alexidze, an academician at the Georgian Agricultural Academy, gave the current situations the following evaluation: "Since the beginning of this century, biodiversity of plants has been drastically endangered, among other things. Natural ecosystems are suffering damage and intensively deteriorating; many varieties of cultivated or wild plants have vanished; thousands of them are on the verge of extinction. Further advancement of such processes may cause catastrophic destabilization of the biosphere and sharp deterioration of our environment" (Berishvili, 2008).

The hazard is real and very dangerous. For the foregoing reasons, restoration and development of a traditional economy is of vital importance for the Georgian nation not only from the pragmatic point of view, but also for protection of nature and maintenance of the ecological balance and the Georgian national identity.

The given book is designed as a manual that could be purposefully applied for restoration of the national, traditional economy. Only a multi-millennial, diversified Georgian economy can play a decisive role in salvation and prosperity of the country, making use of the modern technical achievements.

For the sake of the country's interests and God, the Catholicos-Patriarch of All Georgia, His Holiness and Beatitude Ilia II pays great attention to development of the Georgian countryside and agriculture in his epistles and sermons. Publishing of the given book was inspired by the ideas of His Holiness.

CEREAL CROPS

WHEAT OF GEORGIA

Triticum L.

Georgia is rich in agricultural plants and distinguished by diversity of their species and varieties.

Georgian native wheat, barley and millet confirm the country's unique prehistoric culture.

The first monuments of farming civilization discovered in Georgian territory are dated back to the Mesolithic period (Menabde, 1964). In the Eneolithic and Early Bronze periods, in Georgia there was sown wheat, barley, millet, drying oil (flax) and there were developed fruit-growing, vine growing and grass sowing (Menabde, 1948; Gorgidze, 1977; ICARDA 2003; Akhalkatsi et al., 2012).

The Georgian term *Khorbali* (in Laz dialect — Kov*ali*/K*uvali*/K*uali*/*Qvali*; in Megrelian — *Kobali*; in Svan — *Kvetsen*) initially denoted all kinds of cereal crops and later on, the whole-wheat species. Later on, the term K*horbali* changed its meaning and was complemented by the term *Puri,* differentiating between wheat as a crop and as baked bread, respectively.

Historically, Georgians used the term *Diar* to denominate specifically bread and the cereal plant. Nowadays, only Lazs and Svans preserve this term. (Iv. Javakhishvili, 1930; Menabde, 1948)

According to N. Bregadze's investigations (1987), the Georgian vocabulary contains significant data on crop farming and associated lifestyle, including special terms, crop names and agrarian as well as old Georgian pagan calendar data. Among these terms, the oldest name of wheat — Diar — deserves a special mention, as its genesis must have belonged to the earlier period of Georgians' existence, a pre-agricultural era when agricultural practices and application of cereals has just started to come into being.

"Georgian wheat species represent a special, living museum where the whole diversity of the wheat genus is presented. Only here and nowhere else in the world are the samples of cultured wheat at the initial stages of its evolution preserved. Hence, the Georgian wheat museum is unique, having an importance of a global scale, the analogues of which nowhere to be encountered" (Menabde, 1948; Maisaia et al., 2005).

It is noteworthy that botanical, archeological, ethnographical and linguistic research done in the area confirms that Georgia occupies a special place in the West Asian center of wheat evolution — that of a birthplace of its cultivation It still preserves the earliest domesticated species, as well as wild (fig.1) wheat species (Naskidashvili, 1983; Maisaia et al.., 2005). Those include hulled and brittle-spiked wheat species (hulledness is characteristic of wild and archaic wheat at the earlier stage of "domestication") so naked and free-threshing wheat.

G. Chitaya mentioned that "Lechkhumi was associated to one of the areas of domestication of the world cereal crops. Here endemic wheat species transient from wild to domesticated cereals, such as Makha and Zanduri, were grown" (Chitaya, 1944).

Carbonized wheat grains have been discovered at various archeological sites dating back to the 6th - 5th millennia BC (Arukhlo, Khramis Gora, Shulaveri, Chikhori, Kheltubani). In Arukhlo, the following wheat varieties found alongside archeological monuments of the Neolithic period were identified: *T. boeoticum, T. monococcum, T. di-*

coccon, T. carthlicum, T. durum, T. spelta, T. aestivum/ compactum etc. The results of analyses of paleobotanical materials show that in the neolithic period, naked, free-threshing and non-brittle wheat species dominated over hulled and brittle-spiked wheat forms. From the quantitative point of view, their superiority is evident. Along with the soft wheat seeds, spikelets and rachis fragments of the same wheat species were found at archeological monuments of the neolithic period. Another widely distributed wheat species observed on the monuments of the Neolithic period is Asli — *T. dicoccon* (Rusishvili, 1990; Maisaia et al.., 2005).

In 1926, N. Vavilov published a book named: "Centers of origin of cultivated plants" (Vavilov, 1926).

Samples as belonging to the following species: Triticum boeoticum Boiss., *T. monococcum* L., *T. durum* Desf., *T. dicoccon* (Schrank) Schubl., *T. palaeo-colchicum* Menabde (=*T. georgicum* (Dekapr. & Menabde) Dekapr.), *T. timopheevii* (Zhuk) Zhuk., *T. turgidum* L., *T. carthlicum* Nevski, *T. polonicum* L., *T. aestivum* L., *T. macha* Dekapr. & Menabde, *T. zhukovskiy* Menabde & Eritczjan; Out of them the endemic species of Georgia are: *T. timopheevii* – chelta zanduri, *T. zhukovskiy* – zanduri, *T. macha* –Makha, *T. palaeo colchicum* – Colchic Asli, *T. carthlicum* – Dika (ICARDA, 2003).

As mentioned by E. Sinskaya (Sinskaya 1969), West Asia in general is home for 12 wheat species. Out of these 12, 8 species originate in Transcaucasia. Georgia occupies the first place in the world by diversity of endemic wheat species and varieties (ICARDA, 2003).

Endemic Georgian wheat species are quite precious for selectionists, especially the tetraploid species T.timopheevii and hexaploid wheat T.zhukovskiy, both characterized by high resistance to fungal diseases. The early works of N. Vavilov on the immune system of plants also extensively involve *Dika*, scientifically known as *T. carthlicum* (fig. 2). This species is characterized by strong immunity to diseases, frost resistance and a short vegetation period. It is sown in highlands at 2200-2300 meters above sea level. It should be mentioned that *Dika* used to be widespread in *Javakheti* region (ICARDA, 2003).

Fig.1. Wheat wild relative — Tausch's Goatgrass — *Aegilops tauschii* Coss.

Fig.2. Dika — *Triticum carthlicum* Nevski. Collection plot of the National Botanical Garden of Georgia

Fig.3. Schnakvi. Giorgi Chitaia Open Air Museum of Ethnography

In 1950, Vl. Menabde suggested that "Wheat endemic species of Georgia were generated in the most ancient historical period, in the fields of the original homeland of the Kartvelian people. They came to the current territory of Georgia from the south together with Kartvelian tribes, who maintained this relic up to today" (Menabde, 1950).

Almost all stages of wheat evolution are starkly expressed in relic wheat species (Makha, Zanduri, and Colchic Asli) of the ancient Colchis (Menabde,1948). According to Iv.Javakhishvili (1930), first cases of Georgian agricultural terminology date back to written sources of the V century AD. Ancient Georgian vocabulary includes designations for wheat species and cultivars such as Zanduri, Makha, Ipkli, Khulugo and others.

Evidence of wheat distribution in ancient Georgia is also found in the works of Ancient Greek historians Herodotus and Xenophon (Miqeladze, 1967, Kaukhchishvili, 1960). Later notes about Georgian wheat belong to Sulkhan-Saba Orbeliani (1658-1725), Vakhushti Batonishvili and foreign travelers and naturalists such as Güldenstädt, I. George and I. Claprot (XVIII-XIX centuries). A wide range of Georgian wheat species and varieties has survived from antiquity to modernity, being perfectly adapted to natural conditions of different regions of Georgia. The importance of the Georgian wheat varieties should not be determined only by their historical essence, for they also have a special practical value for selection. Their immunity to fungal diseases, adaptivity and quality of bread baked from their flour are also of particular relevance, especially nowadays.

Aside from regular consumption of wheat as "daily bread", our ancestors also used it as a medicine. Wheat starch, known in Georgian as *Sakhamebeli*, *Bavruki*, *Tangari, Nishanstagi, Nishansta* or *Nisho* was used for medical treatment as a basis of various herbal mixtures, although its main application was treatment of cough and gastrointestinal diseases. Ointments for external application were made of wheat flour. Wheat grain tea was consumed as a refreshing beverage. Dough, kneaded from wheat flour and vinegar, was applied to abscessed wounds for pus extraction. Fried wheat grains were pounded in a mortar, mixed with white alum powder, sieved and gargled by those suffering from stomatitis. In Samtskhe-Javakheti, expectant mothers were fed mostly wheat porridge. Wheat grains were also soaked in water for two days and then spread on a wet cloth. After germination of grains, sprouts were dried, pounded, cooked and mixed with boiled butter and salt. This meal helped normalize digestion and peristalsis in addition to treating hemorrhoids. Farm animals suffering from constipation were given wheat malt, known as *Alao*, as a laxative (Tsutsunava, 1960; Kopaliani, 2002; Chirgadze, 2003; Maisaia, 2009; Gotsadze, Maisaia 2015).

In Ajara people used to cook *Korkoti* (a kind of porridge*).* "Wheat grains were selected and coarsely milled in a groat grinder, known as *Chamuri*, then rinsed in water and cooked. When grains softened, they would get flavored them either with honey or onion stewed in butter; occasionally, walnut, garlic and even sugar were used. *Korkoti* was am essential wedding meal. It was also cooked on Christmas Eve for commemoration of the departed" (Noghaideli, 2010)

Relic elements of material culture, namely tools used for crops, such as the threshing board (known as *Shnakvi/ Shamkvi/Shankvi)* (fig. 3), were all initially created for wheat.

According to the XX century materials, wheat was sown in Samegrelo as well: "...Wheat is sown, running for 7 to 10 years, in the same ground. When the farmer deems the ground to be over-exploited, he allows it to lay fallow and cultivates another plot or a pastureland. In October, the land selected for wheat sowing is cleaned from grass, thorns and roots; all that is gathered and burned. Then seeds are scattered on the rested, unploughed land; oxen, yoked in a plough, till the ground at full depth. Afterwards the ground is harrowed (fig. 4). At the end of May, corns will be reaped and exposed to the sun to dry. They are then threshed on the threshing floor – *Kalo,* by a threshing board – *Kevri* with a boat-shaped base, often set with thick pieces of flint (fig. 5). An ox is yoked in the threshing board. One person stands on the board and slides it round and round until the corn is separated from the wheatear. Afterwards, corns are dried under the sun, milled into flour and stored" (Borozdin et al.., 1927).

The ancient breeds of wheat like *Inpkli, Zanduri, Kentekhila* and *Khulugo* were retained In North-West of Imereti, in the mountainous villages of Khoni region (Jalabadze, 1990).

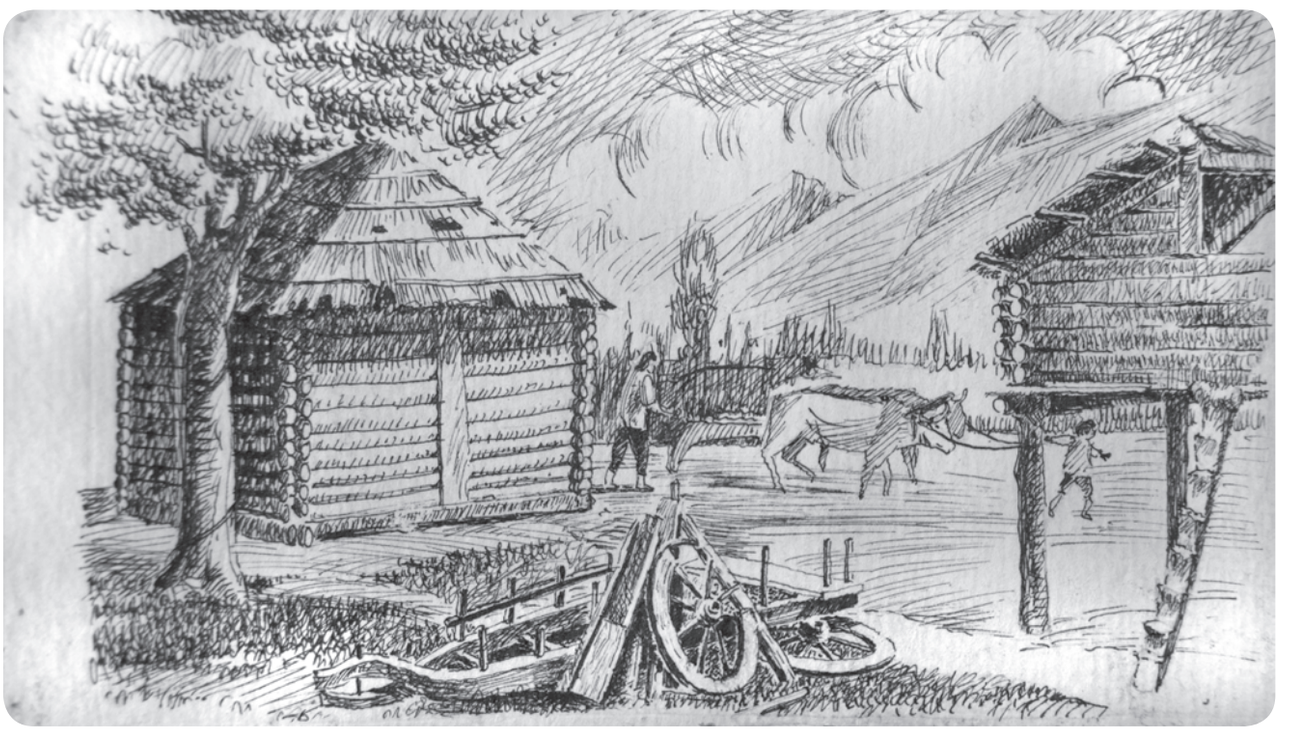

Fig.4. Samegrelo. Peasant serf's farmstead, earth cultivation with a wooden plough

Fig. 5. Threshing board. Giorgi Chitaia Open Air Museum of Ethnography

Fig.6. Meskheti

According to the data of 1878–1920, many varieties of wheat, such as *Dolis puri, Kirmizi, Dika, Tredispera, Niksarulada* etc. were grown in South-West Georgia. Owing to an age-old tradition of wheat cultivation, the names of cereal species were reflected in geographic toponyms. In Livana (present Turkey, Artvini province) one of the villages was named as *Dolis Qhana*, which must be derived from *Dolis puri*. Both spring and fall crops were cultivated in the region, with the former prevailing in Artvini and the latter in Batumi provinces (Turmanidze, 2004).

As G. Jalabadze's field materials state, *Makhnia puri* was a distributed wheat variety in Meskheti. It was sown in almost all villages of Meskheti (fig. 6). *Makhnia puri* was similar to *Dolis puri*, known for its white wheatears. This variety was distributed mainly in upper villages of the Mtkvari valleys. The *Topbashi* variety was also cultivated. *Topbashi* is a Turkish word, meaning "big-spiked wheat". *Paseni* was also a big-spiked and big-grained wheat variety and bread baked from its flour was very tasty (Jalabadze, 1972).

From ancient times, Meskhet-Javakheti was distinguished by its diversity of wild and cultural plants and well-developed agriculture (fig.7). The indigenous population of this part of Georgia yielded rich crops, part of which was intended for export. In the XII century, in the epoch of Queen Tamar, Meskheti was recognized as a granary of Georgia (Beriashvili, 1973).

Georgians of Meskhet-Javakheti kept corns in pits. They were made mainly in the homestead area for grain storage. Sometimes pits were arranged directly inside the house, in s*abdzeli* and *karapani*. Javakhian pit — *kharo*

— was made of stone and shaped like a pitcher. The pit was well dried, and then purified by fire; afterwards it was aerated and a thick layer of hay was spread at its bottom. Only then was the pit filled with dried and winnowed grain; to keep it dry, hay was spread on top of it as well and finally covered with a stone lid. Next, a thick layer of soil was poured on the pit and flattened thoroughly. This way, peasants could store their crops for a long time, although it still depended on soil and corn varieties. Well-dried grains in proper soil conditions were stored for almost fifteen years. Sometimes, however, harmful gases would accumulate in the pit, making it dangerous for people to descend into it. When the peasants wanted to get their grain, they would remove the lid and leave the pit open for some time. For safety testing, they would then put a hen inside the pit and if it did not suffocate, a man could come down without fearing for his life. In Javakheti, besides the stone pit, a large reservoir for other commodities named *Lazambari* was also dug. Laz people introduced the tradition of Lazambari to South Georgia (Chiqovani, 1982).

According to the informants, "...The dwellers on the mountain heights used to sow the *Tsminda* wheat variety. They selected the best lands for that — sunny slopes facing south, which were called *Pirmzitebi*. The land was ploughed in spring for the wheat, which was later used for baking *kada puri* — (Georgian pastry), mainly for taking it to *Khatoba* (a festival dedicated to the patron of the local church to whom it was consecrated), where a *Khevisberi* (head of the community and simultaneously the chief priest) would cut it. He took a *Naotkhali* (one quarter of the bun) and lit the candle in front of it. Besides ceremonial *kada,* palm-sized *kada* loaves were baked as

Fig. 7. Javakheti, Tetrobi mountainous range

well, although they were stored separately. *Zedashe* was a name for the household's best wine or arrack, but not beer. Arrack had to be distilled from *Sulada* (wheat), while beer was brewed mainly from barley. Dastur Khevisberis delivered the wine mainly from Akhmeta (Kakheti region), dedicating it to icons of their churches' patrons. Akhmeta region, until the middle of the XIX century, belonged to the Tianeti province. Thus, all lands and vineyards of Akhmeta were sacred places, which belonged to religious patrons of Tianeti province. Wheat arrack was produced in the following way: wheat grains were germinated in water; after shooting sprouts, they were exposed to the sun, dried and milled. The resulting mass was called *Pori*. For arrack distillation, large bread loaves of *Pori* were baked on a *Ketsi* (earthenware slab). Then those loaves were broken up, put into wide barrels, covered in water and left to ferment. When the fermentation process was over, arrack was ready.

Arable land cultivation started in spring, after the Easter, when the *Dampali* (Damp or "rotting" week) passed. It owed its name to excessive rainfall that usually occurred in that period. If one tried to sow something, it would simply rot in the ground. Tillage started a week after Easter, from late April to May 15. Peasants would take ploughs, oxen (fig. 8) and baked *kadas* to the field. When the plough was yoked, the ploughmen would cut *kada*, light the candles and stick two of them on the horns of the ox; they would then hold one candle in their left hand and a bowl or a little horn filled with drink in the right. After that they prayed, beseeching God for safety of their families and protection of the crops. *Khmiadi* bread was then broke up and fed to the oxen; then the peasants would sit, eat *kadas*, drink three bowls each and only then start working. *Khurjini* (sacks filled with seeds) were carried over their shoulders; seeds were scattered in rows by handful in measured amounts and at fixed speed. Reaping of the cornfields started in August. They reaped with an ordinary sickle, but a special sickle called *Ghuli* was used for uprooting some cereals. Excess earth was shaken off and the crops were tied into sheaves. This method was applied mainly for harvesting *Trupka* (buckwheat) and *Svili* (rye), as peasants needed rye straw to cover rooves of houses and *Sabdzeli* (fodder storage buildings). The reaped wheatears were gathered; initially three sheaves — *Tserileebi* — were rested against each other and then placed together in *Khutuleebi* (fives). These were then shifted to the threshing floor near the house and stacked. The result was called *Mukhlis dzna* (knee sheaf). When the crops were processed for storage in winter, threshing would be done by oxen. Water was poured on the threshing floor and left to harden into ice overnight. At dawn, sheaves were untied and straw was scattered on the threshing floor. A few bullocks were then yoked together and driven in circles about the threshing floor. When the straw was threshed, the bullocks were pulled aside and straw was removed with pitchforks. After getting cleansed from straw dust, the grain was heaped in the center of the floor and the threshing continued. Then the animals were unyoked and winnowing be-

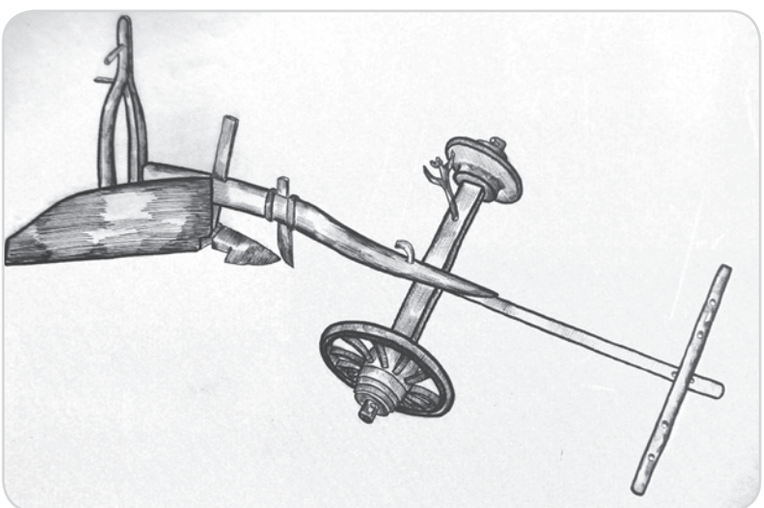

Fig. 8. Georgian wide plough

gan, first by sieving grain through a *Tsqkaavi* (a special sieve), and then filtering it with *Tabaki* (a wide wooden dish) to separate it from stones or other admixtures. The cleansed grains were then put into *Godori* — large cylindrical baskets the outside surface of which was pasted with a mixture of cinder and manure to keep mice away (Dusheti region, village Katsalkhevi, informant G.Khornauli, 2014).

Jean Chardin provides some interesting notes about the XVII century Georgia and the Caucasus: "... The Caucasian mountain is fruitful from foot to peak: rich in honey, bread and millet. The women mill the corn whenever they need to bake bread. They bake bread in *Ketsi* — an earthenware slab. They overheat *Ketsi*, put dough in it, and cover it with hot ashes and embers. There are also cases when bread is baked in ashes. They clean up one corner of a *Keria* (an open hearth), put dough on it and spread over it hot ashes and embers, although the bread crust is quite white and the bread very tasty" (Chardin 2014).

At Christmas Eve in Racha (fig. 9) the head of a family used to bring (or sledge) a piece of wood covered with *Nekeri* (willow branches), nut panicles and mistletoe into the house. At night, the family would bake a *Katsabasila* — a human-shaped bun along with a large loaf of sweet bread named *Keria Beria*. Before baking, round incisions were made on it with a thin piece glass; every member of the family had to make one. The bun and the loaf were baked separately, and each would also get stamped either with a *Borjghali* (ancient Georgian ornament representing the sun) or a cross. A patrimonial stamp with the image of a cross was kept in every family. In Bajikhevi, *Keria Beria* was also called *Mzidara* (*sun-like*). This name derives from the ancient worship of the deity *Keria* (hearth), whom a *Mekvle* (the first person to congratulate a family with the New Year), asked for abundance and plentitude (Dvalidze, 2014).

An interesting tradition of *Teslgagheba* (seed giving) was evidenced in all villages of Racha and Lechkhumi regions; it was connected to the first day of cultivation. It started everywhere after 9 March or on the day of *Tevdoroba* in some villages. Before the seed-giving day, under a full moon, a typical family would prepare: *Tabla, Zedashe* wine, and crescent-shaped pieces of bread symbolizing oxen, ploughs, etc. All those were then taken either to a cornfield or a nearby yard; rolls of bread and lit candles were stuck on the horns of oxen; in some cases, baked *Kirinebi* (round buns) were strewed over the animals' heads. After the candles melted, the family would pray and beg God for a fruitful year; then they would eat bread and drink wine. They also made one or two furrows with a plough and sown about two handfuls of grains, mixed with grains sanctified in baptismal water on the day of christening and sanctification of water. After returning home, the sower would bring back the buns stuck on the oxes' horns and those *Kirinebi* that had fallen on their front faces. He would then put them into a kneading trough and light candles again to have a fruitful year. On the seed giving day, the villagers also had a rite of *Damzneveba,* also known as *Bedoba* or *Pekhisdacda* — a day of fickle fortune during which no one gave away anything, in order not to lose the crop yield and avoid misfortune in the family. After accomplishment of the aforementioned rite, the villagers were allowed to start cultivation even a month later, in warmer weather. The beginning of tillage was called *Alostavis dadgoma* (hard work during harvest time) (Bregadze, 1959).

According to narrators, two varieties of fall wheat were sown in Svaneti: white and red *Ipkli,* which were both called *Kvetsen* by locals. The spring wheat was called *Kuli* or *Dika*. In autumn the land was cultivated and manure introduced as soon as the sun rose. It was the time of snow. Spring wheat was sown in early spring. One of the villages of Becho is Doli, where large cornfields were cultivated and these fields were called *Dolis Qhana* (Doli's

Fig. 9. Racha, Gorge of the river Sharaula

field), derived from *Dolis Puri* wheat species. Ripened wheatears were reaped with sickles; a special threshing floor was arranged. It was watered, and then trampled by sheep and children to harden the ground. Svans threshed the straw with *Kevri,* a threshing board. They had a special wooden ark (fig. 10) called *Kibdon* in Svan, in which they stored the winnowed and threshed wheat. Seeds for future sowing and grain intended for immediate consumption were stored separately. Flour received from the first yield of fall wheat was called *Tsminda* (holy) and used for ritual purposes on holidays (Mestia region, village Mazeri, narrator I. Kvitsiani, 2014).

Nino Abdushelishvili obtained interesting field materials on wheat culture in Imereti: "....wheat occupied one third of upper Imereti's total crop yield. Several wheat varieties were cultivated: *Shavpkha, Dolis puri, Dika* and *Khotora puri*. Corn was consumed as well; corn flour was used to bake a small amount of daily bread, as well as bread intended for holidays and days of remembrance for the deceased. Daily bread included: *Khmiadi* (unleavened bread), *Ketsi*–baked leavened bread and the so-called *Chadpura*— bread made from mixture of wheat and corn flours.

Bread stamped with various images, figures and symbols expressions was used in rituals. For weddings, *Gomij-puri* (unleavened bread) was baked in live coals. Kh*achapuri* (cheese bread) were baked on that day as well, and in some parts of Sachkhere region, even baking of *Khabizgina* (bread with walnuts) took place, which could be

Fig. 10. Wooden bin. Giorgi Chitaia Open Air Museum of Ethnpgraphy

explained by the neighboring Ossetian population. For days of mourning, a *Tone* (Georgian oven) was used to bake *Lavashi* from thin leavened dough and *Murasa*, also known as *Shotis puri,* from unleavened dough. On Christmas day, the baking list included *Gomiji puri, Murasa* and the so-called *Arshiani puri* (sweet bread flavored with honey or sugar), baked on a *Ketsi.*

For Easter, cheese breads and cross breads were baked. On commemoration of the Faithful Departed Day, the following were made: *Khatsapkina* (Ketsi-baked unleavened bread, with folded edges), *Tabla* (walnut and cheese bread), *Mekre-mebazhe* (closed-up Khachapuri) to be eaten without a blessing and *Eulogius*, which was baked with the highest quality flour and kneaded in water and wine. On Saint Barbara's Day, *Lobiani* (bread with kidney bean paste filling) and *Gherghili* (bread with coarse flour paste filling) were baked. A special mention should go to *Khachapuri*, which was essential on the New Year's Day, St. Barbara's Day and Easter. On Mondays of *Mkatatve* (July), one *Khachapur*i had to be baked for each member of a family, symbolizing a fruitful year.

In upper Imereti, *Korkoti* and *Tsandili* were prepared from wheat grain. Traditionally, *Korkoti* was cooked for two days: on the first day corn was boiled (sometimes with onions), on the second day, the onions were fried in oil or boiled butter, and dressed with salt. On days of fasting, *Korkoti* was cooked with oil or walnut and on rest days, with whatever was feasible. It was essential on Holy Virgin's Day and on Christmas Eve; the name of *Korkotoba* (a day of remembrance for the departed) derives from the name of this dish. *Tsandili* was flavored with honey or sugar and was cooked on the first day of a new year. (Abdushelishvili, 1988).

SOFT WHEAT

Triticum aestivum L.

Soft wheat (*Triticum aestivum* L.) is supposed to be one of the most ancient species in the history of wheat culture. According to the results of analyses of paleo-botanical materials, soft wheat populations dominated in the neolithic era. Carbonized seeds of soft wheat and even their preserved particles have been found by archeologists alongside findings dating back to the neolithic period (Rusishvili,1990; Maisaia et al.., 2005);

Theories about dissemination of soft wheat in Georgia are corroborated in written sources of the V century. According to L. Dekapreleviche's (1938) investigations, in the XII-XIII centuries several soft wheat varieties were sown in Georgia.

Soft wheat distributed in Georgia is distinguished by polymorphism, with both awned and awnless varieties (fig. 11).

The local names of awned varieties include *Ipkli*, *Qhana, Puri, Aneulis puri, Dolis puri, Dzveltesli* etc. As for awnless varieties, the names are: *Upkho puri, Khulugo/Khulgo, Poshola, Khozo/Khuzala, Khotora, Gomborula, R*achula etc. — all surviving to this day.

Out of the richness of wheat varieties evolved in Georgia over the centuries, fine-grained varieties of fall awned soft wheat, the so-called *Dolis puri* (fig. 12), are especially precious. These were the most widely disseminated varieties in Georgia. Such varieties of wheat as: *Akhaltsikhian red Dolis puri, Javakhetian Dolis puri, Kartlian dolis puri, Shindian Dolis puri, Red Doli, Kakhetian Doli* etc. are extremely familiar to the Georgian crop farming (Naskidashvili et.al., 1983; Bregadze, 2004; Jorjadze et al.., 2014 Gotsadze, Maisaia 2015).

According to L.Dekaprelevich'es (1947) data: *Red doli* was the endemic variety of Kartli. Akhaltsikhian red

Fig.11. Soft awned wheat. Collection plot of the National Botanical Garden of Georgia

Fig. 12. *Dolis Puri*

doli was the main variety of Adigeni, Aspindza and Akhaltsikhe regions. Kartlian *Shavpkha* was raised in Kartli. *Gomborula (Poshola, Proshova)* was the endemic breed of Bolnisi, Tetri Tskaro and Gurjaani regions; Lagodekhian *Grdzeltavtava* (long ear) was in Kvareli and Lagodekhi regions. *Ipkli* was distributed in west Georgia, namely in the low lands of Ambrolauri, Oni and Tsageri regions; *Khulugo* — in western Georgia; Javakhetian *Dika* in Akhalkalaki tableland, Akhalkalaki, Aspindza and Bogdanovka regions; Kartlian *Dika* in Kartli and partially in Kakheti (Dekaprelevitch, 1947); *Rachula* and Lagodekhian *Grdzeltavtava* were adapted to the natural environment of Lagodekhi-Kvareli regions (Kobakhidze, 1948).

According to narrators, "....In Akhaltsikhe region, *Dolis puri* (Triticum vulgare) was sown in spring. The land was cultivated by a wooden plough under the local name *Jilgha* or *Arona*. They used to reap crops with a sickle and then threshed them on the threshing floor with a wooden board embedded with flints on the bottom, with oxen yoked into it; the threshed yield was dried, winnowed and stored in wooden *Ambars* (granaries). The yield was sorted into food-grade and fodder-grade categories" (Akhaltsikhe region, village Atskuri narrator G. Zedginidze, 2014).

Dolis puri, as evidenced by the ethnographical life of Meskheti, is one of the main sources of sustenance for the aboriginal population — "Our native bread" (Beriashvili, 1973).

Dolis puri in Pshavi was called *Tsminda*. They cultivated land by a wooden plough (fig. 13). Corns were sown on the same day on the cultivated land. Grains germinated in soil and sprouted, developing shoots, and then started ripening. Ripened corns were either plucked by hand if the wheat stalks were very short, or mowed by a sickle. For protecting hands from injury, local denizens used special wooden three-finger sheaths; mowers wore special linen wristbands and leather or flax aprons. The mowing started from the lowest section of the land and gradually went upwards. The mowed corns were stacked, with every two handfuls of wheat straws bunched into a sheaf that was called *Machleuri* in Mtiuleti. As corns could not ripen totally, the newly tied sheaves were placed in a way that would allow wind to easily dry them. Sheaves were placed in groups of five, called *Khadura, Khutula* or *Meleura*, depending on the village. After drying, the corns were threshed. Great attention was paid to selection of seeds (Jalabadze, 1963, 1986).

Georgian *Dolis puri* is the firstborn of Georgian agriculture, distinguished by its good growth ability on both irrigated and non-irrigated lands.

In Georgia, farmers threshed *Dolis puri* by a threshing board and turning straws into chaff by drying. In most regions of eastern Georgia, chaff was used as the main component of fodder and was included into the public tax list. Some grains remained in the chaff after threshing, which increased its nutritional value (Ketskhoveli, 1957).

In upper Svaneti (fig. 14) *Dolis puri* was

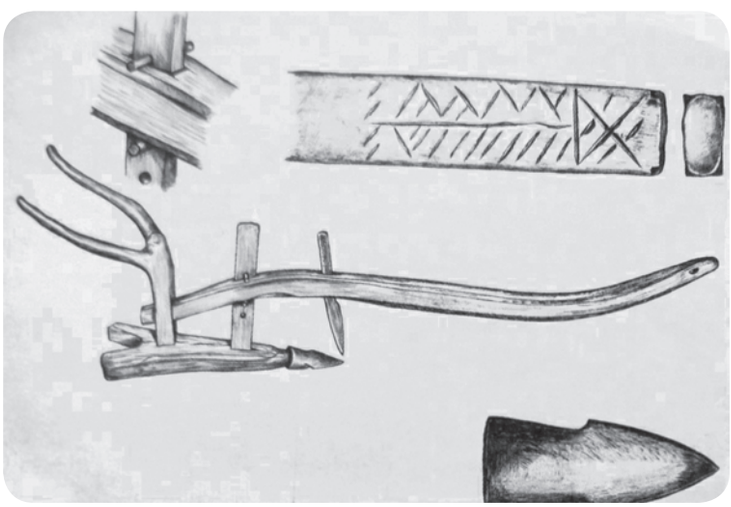

Fig. 13. Pshavian plough —*Achacha*

used almost in all main rituals. Every family had a linen-padded basket called *Lalash*. When the family homemaker went to the church for praying, first she would sprinkle some flour on the bottom of the basket and then put in the dough for the ritual bread-buns, which were baked in the church. After baking them, she prayed for peace, health and multiplicity in her family and for protection of cattle from wild animals. For sowing *Dolis puri* in autumn, manure was taken to the carefully selected land and spread two weeks in advance; then the land was ploughed by a wooden hook called *Ghentsishi*. A tiller followed to hoe and root out weeds and break up the clods. After finishing the preparatory work, grains preliminarily prepared for sowing were poured into small linen padded baskets and tied with a hanging rope. The sower would pull the rope with his left hand while resting the basket on his left thigh and sow seeds with the right hand. Sowers mainly were elderly men who were so skillful in sowing that they would not let a single seed miss a furrow. After sowing, they would harrow the land with a *Lachadiri* — a rake pulled by oxen. At the end of the rake, a wide branch of hawthorn was affixed to help grind wide clods of soil and root out the weeds. (Girgvliani, 2010).

According to G.Jalabadze's notes, (1970) soft wheat varieties were sown in Svaneti. Land was cultivated in two seasons: in summer and autumn by a Svanetian plough not dissimilar to *Ghantsuishi*. The spring works were often disrupted by heavy snow. For speeding up the snow melting process, the Svans dug the ground with a spade in several spots of their fields and spread it over the snow. They also used to carry out manure and spread it over the snow as well, which acceleterate melting of snow and enriched the ground. If the field's yield was low and thin, then the crops were pulled out manually and stacked. Otherwise, the so-called *Shnak*vi (an ancient reaping tool) was used for reaping. Then wheatears were threshed in a special thresher. In the upper and lower Svaneti, except for Ushguli, corns were threshed by a threshing-board. The threshing floor was set up in the yard of a house or simply nearby. The selected plot was re-ploughed and flattened, with the extra land removed by a *Langili* or *Lakkhiri*. If the land was stony, then clay soil was brought, spread over the land and left to harden; tools for that were called *Lagitsalar* and *Laghichunal*, while in lower Svaneti they were called *Laghintsola* and in Lenjeri — *Saghrchela.*

Prior to threshing, Svans would slaughter sheep and bury a bowl of sheep's blood in the middle of the threshing floor. They would prefer to start threshing on Monday or Wednesday. Some would also kill and bury a *Kvastana chiti* (wagtail) there, due to an ancient belief that it would bring an abundant yield. Two oxen were yoked into the threshing board and driven over the corns. If Svans failed to thresh and/or winnow corn in due time, then they would gather the yield and put nettle *(ultrica.*L) branches on it to protect it from evil until they managed to come back to it.

For shifting the yield to the granary, they used *Kvidola* or *Kupi* — baskets padded with locally made linen cloth to keep the corns from falling out. *Kupi* were also used for rinsing the grain by putting it under a spring.

Different wheat varieties, including those derived from *Dolis puri,* are known in the economic life of Georgians who migrated to Iran's province of Phereidan in the XVII century (Bregadze, 1974).

From times immemorial, wheat production occupied a dominant place in Shida Kartlian (fig. 15) agriculture, taking priority over the other cereals. In the valleys of the river Kavtura, namely in the lowlands of Kavtiskhevi, white *Dolis puri* and in the highlands — red *Dolis puri* were sown. The wheat was the main source of sustenance and sometimes acted as currency, getting exchanged for other necessary household things. Its market production started from the second half of the XIX century and was performed successfully by farmers who owned large plots

Fig.14. Zemo (upper) Svaneti

of land. Agriculture, namely crop husbandry, was so highly developed that it served as one of the main sources of income in Georgia.

Historically Georgians' economic traditions were linked to high crop farming culture, which was harmoniously complemented by the natural-geographic environment of the country. *Kabdo*, a wooden furrowing plough was widely used for cultivation. People made use of one-field, two-field and even three-field systems of land resting. They performed various agriculture-related rituals. For instance, during droughts, they would imitate furrowing by driving women yoked in the plough through water. The ritual of *Lazaroba* served the same purpose: a figure of a man, sculpted from clay, was placed on a board, covered with wet cloth and carried from one place to another while getting splashed with water. At harvest time, they made feasts, lit candles and prayed.

To get rich yields and consume it peacefully, the ritual of *Chitpapoba* was performed. Before starting the threshing activities, the peasants invited a priest to give a blessing and all sent prayers to heaven.

Before putting the threshed wheat grains into the *Kharo,* (a plaited cylindrical basket) or the granary, the peasants put into it a blessed cross made of wheatear. They separated *Sazedashe* (high quality wheat) from the threshing floor and baked *Basilas* (sweet human-shaped cakes). On holidays, they used to cook *Korkoti*, *Tsandili*, etc (Pavliashvili, 2005).

Cultivation of *Dolis puri* was particularly developed in Samtskhe, a local variety of red wheatear — *Meskhian doli* emerged. The fact of wide distribution of this wheat variety not only in Samtskhe but also in the whole south-

Fig.15. Kartli. Peasant's farmstead. Giorgi Chitaia Open Air Museum of Ethnography

west of Georgia is evidenced by the name of a village of Klarjeti — *Dolis Qhana*. In Shida Kartli, white *Doli* was distributed more widely (Topchishvili, 2010).

In the mountainous parts of eastern Georgia, the lands dedicated to the patron saint were called *Saipkle*, producing holy *Ipkli* crops. The corn harvested from sanctified lands was considered holy. If the patron saints' icons had a granary dedicated to them, then the yield was garnered there — otherwise, it was kept under the *Cherkho* (roof) of some distinctive house. It was considered to be untouchable — no one could steal, appropriate, or squander it in any form. The basic part of the iconic wheat was used for beer brewing. Beer was the prime ritual drink for all holidays (Nadiradze, 2010).

Dolis puri was sown in western Georgia: in Racha, Ajara and Svaneti. In the 1920s, *Dolis puri,* among other wheat varieties, was the most distributed in Racha. In Svaneti (Ushguli community*), red Dolis puri* was cultivated even at 2000m above sea level (Ketskhoveli, 1928; Dekaprelevich, Menabde, 1929).

According to the 1930s data, *Dola puri* was sown in Racha (Makalatia, 1930). The term *Doli* is mentioned in written sources of theVIII–IX centuries, although Iv. Javakhishvili supposed (1930) that said wheat variety was cultivated in much earlier periods as wll. *Dolis puri* is distinguished by: thick bushy vegetation, average height, thin stalks and narrow leaves; high resistance to drought, grain fall and fungal infections; good adaptation potential to poor lands. Its drawbacks include small seeds, disposition to drooping and difficulty in threshing. *Dolis puri* can grow in both irrigated and non-irrigated conditions. *Dolis puri* is considered to be high quality wheat, therefore in the area of its distribution the population called it "main bread" (Bregadze, 1974; Gotsadze, Maisaia 2015).

From *Dolis puri* the so-called *Makhobliani puri* (bread with *Makhobeli)* was baked. *Makhobeli* (*Cephalaria syriaca* (L) Schrad. Ex Roem&Schult) — is a wild plant (fig. 16). They used to add *Makhobeli*, a weed, to *Dolis puri* fields. After threshing of corns, the intermixed grains of *Makhobeli* and *Dolis puri* were milled together. Bread baked from this flour has a bluish color and maintains softness for a long time (Berishvili, 2008).

Grains of *Dolis puri* are characterized by their high baking potential. In the process of dough kneading, the dough raises, swells, enlarges well, and makes delicious, tasty, soft bread. Therefore, *Dolis puri* was sold at higher prices in comparison to other wheat varieties. At religious rituals, only *Dolis puri* was used. Its flour is the best for *Tatara* (sweet sauce made of grape juice and flour) and *Churchkhela* (threaded nuts soaked in Tatara and then dried up).

According to G.Abesadze's (1920) data, in Avchala, among other soft wheat (*Triticum aestivum*) varieties, the most widely distributed was *white Doli* (*Triticum aestivumvar. erythrospermum* (Korn) Velican) which comprised almost 80% of total crops. Constant satellites of this wheat were *red Doli* (*T.aestivumvar. ferrugineum* (Alef.) Velican), *Qondarapuri* (*Triticum compactum* Host) and hard wheat (*Triticum durum* Desf.) White and red *Doli puri* were distributed in Kojori district; here was also sown *Poshola* — awnless, soft wheat. In autumn, *Dolis puri* was sown in Ertso as well. *Red Doli* was sometimes mixed with its white counterpart in the fields. In outer Kakheti (Sagarejo, Ninotsminda, Aghbulakhi, Patardzeuli, Sartichala) the dominance was held by *white Dolis puri* together with its permanent satellite *red Doli*. According to the data of the 1930s, in Akhaltsikhe region the local population used to cultivate soft, autumn wheat varieties like *Dolis puri* and *Qartuli Khorbali* (Georgian wheat). Georgian Moslems called it *Kuzliuk*. The soft wheat is also known under the name *Chirika* in some regions (Abesadze, 1926; 1930).

Among soft awned wheat breeds, the most noteworthy ones are *Ipkli*, known in Megrelian as *Irkish kobali*, the

Fig.16. Makhobeli *Cephalaria syriaca* (L.) Schrad. ex Roem. & Schult.

Fig. 17. *Ipkli*

earlier form of which must be *kvabli*; in Zan it is known as *Kovali, Kuali or Kvali;* in Laz as *Kovali/Kuvali*; in Svan as *Itk kuetsen*; in Apkhazian as *Ach'a*, *Achara'j* or *Achara'dz* (Chikobava. 1938; Kalandia, 2005; Machavariani, 2006; Ivanishvili, 2014).

According to Iv. Javakhishvili (1930), in ancient Georgia *Ipkli* was the most distributed and important wheat variety (fig. 17*).* *Ipkli* is one of the oldest wheat names, encontered as far back as in written sources of the V century. *Ipkli* is mentioned in "Nativity" (Genesis) and translated texts of the Gospels, as well as in George Merchule's work (Bregadze, 1979; 1980). In XII–XIII centuries, *Ipkli* is also singled out among other wheat varieties (Dekaprelevich, 1938). *Ipkli* was often used for general denomination of wheat in old Georgian medical written sources (Tsutsunava, 1960).

In the letter compiled by David Dadiani in 1852, the subject touched upon a tradition of sowing *Ipkli* in lower Samegrelo and *Ipkli, Makha, Zanduri* and *Khulugo* in upper Samegrelo (Meunargia, 1939).

Ancient Georgia knew two wheat varieties: the first — *Ipkli* — was sown in autumn; the second — *Dika* — in spring. Such grouping (*Ipkli* and *Dika*) is witnessed in Georgian written sources dating back to the V century. Supposedly, wheat grouping according to varieties in agricultural practice has emerged even earlier. Such differentiation points to antiquity of the wheat culture which is corroborated by the Georgian terminology, unfamiliar to other nations (Menabde, 1950).

In western Georgia, beginning from the 1920s to the 1960s, *Ipkli* cornfields are described in Racha-Lechkhumi and Svaneti. To this day, the names of local autumn varieties of *Ipkli* survive in western Georgia, such as: *Chvene-buri puri* (native bread), *Shinauri puri* (homemade bread), *Dzveli puri* (old bread), etc. (Bregadze, 2004).

In his work "The main crops in the epoch of Shota Rustaveli" (1938) L.Dekaprelevich suggested that the varieties of *Ipkli,* maintained up to this day in western Georgia (Racha-Lechkhumi), are characterized by a very narrow area of distribution. The following features distinguish them: wide leaves, rich vegetation, height, large but not hard wheatears with heavy grains in the spikelet, late ripening, and hydrophilic nature. *Ipkli* grain yields high quality flour with a pleasant taste and good bakeability.

According to Samegrelo's elderly, in ancient times, well-dried grains of *Ipkli* were milled and boiled in milk with a sprinking of salt to make porridge, which was a useful diet meal (Maisaia, 2009).

Ipkli, as a high yielding wheat culture resistant to fungal diseases, has a great value.

According to G.Bochoidze's (1993) investigations, "...*Ipkli* was cultivated in all territories of Tusheti (fig.18), except Pirikita and Upper Gometsari. It is sown in April, reaped from the beginning of September; somewhere it ripens, somewhere it is touched with frost, which retards its ripening. If the weather is suitable, with moderate rain and warmth for wheat growth, then the resulting bread has good taste and color. The color of the flour is reddish. An *Ipkli* field is mowed low at the root by a scythe or sickle. If the corn is very low then it is uprooted by hand. One mow equals one sheaf. They tie sheaves with *Ulo* (long stalks of straw steeped in water). The mowed sheaves are pieced together in several places and then staked on palings as *Chadali* (haystacks). *Chadali* is staked in the following way: first, the paling is wedged in and then as many sheaves as can fit are staked on and around it. Regardless of the weather, *Chadali* does not hold rainwater, preventing rot. When the reaping is over, the sheaves are shifted to the threshing floor by sledges and put in ricks at the edges of the threshing floor so that wheatears are facing inwards and roots outwards. The sheaves are threshed in the second half of *Ghvinobistve* (October) and if the weather is bad, on the 1st of *Giorgobistve* (November). Oxen are put in a short yoke and driven around the threshing floor, trampling upon the ears and stalks of wheat. Between the bulls walks a person, most often a child, steering them around the floor; it is a common custom in the whole Tusheti. When the straw is separated from wheatear (when all wheatears are threshed and only straw is left), straw is flicked from the threshing ground and put in ricks again. Then they go back to the threshing floor and sort the crop. Thick straws are separated. They are called *Khibra*, containing some corn grains that are collected separately. Grain collected that way is taken to the barn for storage. When threshing is finished, they start winnowing of grains by *Richa.* The winnowed grains are sieved in a *Tskhavi* (fig.19) and re-winnowed in a *Richa.* This process is called *Khvavis gadatsurva* (yield refining). *Khvavi* means yielded corns stored together. Yield is shifted to the barn by *Khaki* (sacks). Previously, grain used to be stored in pits to protect it from enemy raids. The round pits were dug in dry and loamy soil, and padded with *Chkhlakvi (*birch bark). *Ipkli* was poured into it, covered with a *Sipi* (a flat hard stone), and soil was spread on top to hide it. When necessity arose, they took grain out of the pits and spread them on carpets under the sun for drying before taking them to the mill. The spread grain was called *sravali.* When *Ipkli* dried, it was winnowed yet again with *Richa*, put into *Khaks*, carried to the mill by horses or donkeys, and ground into fine flour.

Khulugo/Khulungo belongs to the soft awnless wheat species. Owing to its ecological characteristics, it stands close to the forms of *Ipkli* and represents its awnless analogue (fig. 20). L.Dekaprilevich (1938) in his work "The

Fig. 18. Tusheti , village Dartlo

Fig. 19. Sieve. Giorgi Chitaia Open Air Museum of Ethnography

Fig. 20. Khulugo

main crops of Shota Rustaveli's epoch" dates this wheat variety to the XII century. *Khulugo* is characterized by its high, straight and wide leafy stalks. It is a high yielding wheat variety. If sown in autumn, it provides a better yield and does not fall down; it is also especially resistant to yellow rust (Dekaprelevich, 1938).

According to the XIX century materials, *Khulugo* was cultivated in Lechkhumi and Racha. In the 1920-1960s, Racha was the main region of its distribution. Local terms of this variety are *Rachula* and *Khotora*. *Khulugo* is a multi-grain wheat, with large wheatear and high yield potential. From its flour, very tasty, white and spongy bread is baked.

Poshola is another representative of soft awnless wheat in Racha. According to ethnographic materials, *Poshola* is similar to *Khulugo*, with round thick wheatear. It is sown in spring and autumn and ripens early (Bregadze, 1969).

L.Pruidze stated in his work "Racha from an Ethnographer's point of view" (1986) mentions: "As of late, wheat is no longer sown in Racha, even though *Ipkli, Khulugo* and *Dika* possess not only historical, but also great economical value".

ZANDURI

"Vivid material monuments of Georgia retain and reflect many mysteries of our ancient past. Namely, the first, initial wheat species represent the monuments of paramount importance." (Menabde, 1950)

Zanduri is mentioned in the dictionary of Sulkhan Saba Orbeliani — "Georgian Lexicon" (1884; 1928). In Raphiel Eristavi's Dictionary, alongside *Makha*, *Zanduri* and *Tatukhi* are also mentioned. Three variaties are identified in the *Zanduri* species: *Triticum timopheevii* (Zhuk) Zhuk. // *Chelta Zanduri*; *Triticum monococcum* L. // *Gvatsa Zanduri*; *Triticum zhukovskyi*, Menabde & Eritczjan-Zanduri.

CHELTA ZANDURI
Triticum timopheevii (Zhuk.) Zhuk.

Chelta Zanduri // *Triticum timopheevii* (Zhuk.) Zhuk. was one of the ancient and mostly distributed varieties in Georgia among the keel-bearing wheat species. (fig. 21)

Among Georgian endemic species of wheat, *Chelta Zanduri,* owing to its special immunity to fungal diseases, deserves particular attention. In Racha, the locals call it *Arjan,* which means "resistant" (Chichinadze, 1951).

Chelta Zanduri is sown in western Georgia in Racha-Lechkhumi-Imereti-Samegrelo at 400-800m above sea level. According to G.Jalabadze's works (1990), in ancient times, two wheat varieties — *Rukhu* and *Duru* — were cultivated in Samegrelo. He suggests that *Rukhu* might be just another name for *Chelta Zanduri* which was harvested by a special tool named *Shnakvi.*

Chelta Zanduri was first discovered in Kartli (Gori district, in Khashuri-Mokhisi direction). It was described by Zhukovskiy in 1924 as a new, wild variety of emmer wheat (autumn form), under the name of *Triticum diccocum* var. *timopheevii* Zhuk (Zhukovskiy, 1924; Menabde, 1948).

E.Stoletova in 1925 mentioned the existence of this variety in Lechkhumi district considering to be a spring cultural variation (Stoletova, 1925). Later, the same point of view was suggested by K.Fliaxberger (Fliaxberger, 1928). P.Zhukovskiy shared the research results of the previous researchers, declaring the *Triticum dicoccum* var.

Fig.21. Chelta Zanduri — *Triticum Timopheevii* (Zhuk.) Zhuk.

Fig. 22. Lechkhumi, Mountain – Khvamli

timopheevii, described as a two-seed wheat variety, to be an independent cultural wheat species, under the name of *Triticum timopheevii* (Zhuk.) Zhuk (Zhukovskiy, 1928).

Data of 1925 (fig. 22) reveals that genuine crops of *Triticum timopheevi* were found in Lechkhumi , although the local population knows it under the name of *Zanduri*. According to them, bread baked from *Zanduri* is extremely tasty, flavorful and can be stored for a long time. *Zanduri* was reaped by *Shnakvi* and bound into small sheaves known as *Odosha*. After harvesting the wheatears, the stalks were left in the field for 7-8 days, and only then gathered in sheaves, preferably in a cool, wet weather (Supatashvili, 1929).

According to Kh. Vermishev, *Zanduri, Makha, Khulugo* and *Puri* were sown in the Racha district. *Makha* and *Zanduri*, according to the region's elderly, were distributed from Samegrelo and sown in small amounts, especially in the Khvanchkara community (Vermishev, 1888).

Archeological research corroborates existence of *Zanduri* in Georgia since ancient times. According to paleo-botanical materials discovered in Tsikhiagora – *Zanduri, Makha*, two-seed and soft *Dakondara* wheat species were cultivated there. Many weeds were revealed alongside traces of cultural plants, with *Makhobeli* being the most distinct, due to getting purposefully mixed with wheat. All this points to existence of ancient bread baking traditions on Georgian territory (Dzidziguri, 2002).

In Dighomi village, carbonized seeds of *Chelta Zanduri* and *Gvatsa Zanduri* were discovered with runins of a Bronze Age settlement (Maisaia et.al, 2005).

The distribution areas of *Chelta Zanduri* are Racha, Lechkhumi, Samegrelo and Imereti (Tsageri, Orbeli, Laylashi, Patara Oni, Xvanchkara, Tamakoni, Gordi, Mekvena, Dghnorisa etc.). In lower Racha (Ambrolauri) this wheat species was known as *Zanduri* or *Chelta Zanduri*; in Samegrelo (Senaki region, Village Tamakoni) as *Pita Kobali* and *Irchi Kobali*, in Lechkhumi simply as *Zanduri* (Menabde, 1948; Makashvili, 1991).

According to P.Naskidashvili's (2013) materials, *Chelta Zanduri* was well-developed in eastern Georgia as well, namely on the Mukhrani plain and in Gardabani.

GVATSA ZANDURI WHEAT
Triticum monococcum L.

First botanical notes about *Gvatsa Zanduri* (*Triticum monococcum* L.) belong to J. Guldenstadt (XVIII century). According to his descriptions, *Gvatsa Zanduri* is a single grained wheat grown in small amounts in Racha (Oni region, village Tsesi) (Guldenstadt, 1962). A similar description was later made by I.Georgi (Georgi, 1800).

The names *Gvatsa Zanduri* and *Chelta Zanduri* are encountered in Lechkhumi too. In lower Racha *Chelta Zanduri* was called *Gobeja,* and Gvatsa Zanduri — *Tsminda* (Makashvili, 1991; Bregadze, 2004).

Fig.23. Gvatsa Zanduri — *Triticum monococcum*. Akhaltsikhe, village Tsnisi

Fig. 24. Gvatsa Zanduri — *Triticum monococcum* var. *eredvianum* Zhuk. Collection plot of the National Botanical Garden of Georgia

Fields of *Gvatsa Zanduri* (fig. 23) occupied vast territories in Georgia not so long ago. Its crops were described in many regions of Georgia, including Racha-Lechkhumi, Imereti and Kartli. Polymorphism of this species started in the prehistoric period. According to I.Georgi's notes (georgi, 1800), this wheat species was sown at the end of the XVIII century. N.Ketskhoveli (1957) mentioned that in old times, mono-grained *Asli* (Triticum monococcum) wheat was so highly distributed that it was simply called Georgian wheat.

According to materials collected by N.Ketskhoveli in Kartli, in the fields of Eredvi village in 1921, P. Zhukovskiy (Zhukovskiy, 1924) described one of the varieties of single grained cultural wheat under the name of *Triticum monococcum* var *eredvianum* Zhuk. (fig. 24). According to P.Naskidashvili's (2013) supposition, the wheat variety revealed by N.Ketskhoveli's field work is considered the wild predecessor of *Gvatsa Zanduri* and was raised to the level of species under the name of *T. eredvianum* (Zhuk.) Naskidashvili.

ZANDURI

Triticum zhukovskyi Menabde & Eritczjan

In *Zanduri* populations, the specialists initially identified two species: single grained *Gvatsa Zanduri (Triticum monococcum*) and *Chelta Zanduri* (*Triticum timopheevii*).

Fig.25. Wheat Zhukovskiy –Triticum Zhukovskyi Menabde &Eritczjan

In 1959, V.Menabde and A. Eritczjan discovered plants in *Zanduri* populations that were morphologically distinguishable from *Chelta Zanduri*. Based on cytological analyses they considered it appropriate to identify the 2n=42-chromosomal form of *Zanduri* as a new species and named it *Triticum zhukovskiy* Menabde & Eritczjan – in honor of the outstanding researcher of cultural flora (Menabde, Eritczjan, 1960).

Morphologically *Triticum zhukovskyi* (fig. 25) is similar to *Chelta Zanduri*: it has longer, less pyramid-shaped ears of wheat and is characterized by wide leaves; it is described in the distribution areas of *Zanduri* (Menabde, Eritczjan, 1960).

Zanduri is known as drought and frost resistant plant. It is distinguished by growth potential in all kinds of soils (even in limestone). It is a spring culture but ripens late. By the time when other corns have already been reaped, *Zanduri* is still green. Therefore, it was sown in the late autumn.

Negative features of *Zanduri* include fragility of spikes and being hard to thresh (grains are tightly set in palea). Bread baked from *Zanduri* flour is very tasty and flavorful, not to mention it remains soft for the whole week. Therefore, *Zanduri* bread was often consumed while

Fig. 26. Reaping of wheat spikes with *Shnakvi*

Fig.27. Lechkhumi. Farm building covered with *Koroli*

hiking or travelling. *Korkoti (*porridge) was also cooked from *Zanduri* flour, especially in periods of fasting.

According to informants "...In the 1940-1950s, *Zanduri* was cultivated on small plots of land in Lechkhumi in autumn. Initially wheat ears were removed by a *Shnakv* — two sticks tied together — and gathered in baskets (fig. 26), then they reaped *Zanduri* stalks with sickles and clustered them. The clustered stalks — *Koroli* — were used as roof cover, for *Sabdzeli* or regular homes. (fig. 27) (Tsageri region, village Upper Ghvirishi, informant L.Khetsuriani, 2013).

MAKHA

Triticum macha Dekapr. & Menabde

In Megrelian dialect it is called Makha, in Zan — *Mokha.*

Makha (fig. 28) is a paleo-relic wheat species and thus represents a unique monument of material culture. Its carbonized seeds have been found in Samegrelo (Zugdidi region, Dikhagudzuba). After studying the seeds, V.Menabde (1969) expressed his supposition that wheat farming on the territory of Colchis in the Eneolithic era was represented by keel-bearing species of wheat.

The distribution areas of *Makha* are Racha-Lechkhumi, Svaneti, Imereti and Samegrelo. Interesting varieties of the crop exist, as confirmed by their local names: *Tsvrili Makha*, *Kentekhela Makha*, *Parte Makha*, *Chelta Makha, Pitsara Makha* (Bregadze, 2004).

In Ajara, in the gorge of Machakhela river, *Khasi puri* and *Kharmeni puri* varieties of Makha wheat were evidenced (Kakhidze 1974).

Fig.28. Makha — *Triticum macha* Dekapr. & Menabde; *Collection plot of the National Botanical Garden of Georgia*

Makha is autumn wheat and due to multiplicity of its varieties and forms, prevails over other keel-bearing endemic wheat.

L.Dekaprelevich (1942) identified two groups of *Makha*:

1) *Gvatsa Makha* (Triticum tubalicum Dekapr.) — characterized by lax and fragile spikes.

2) *Chelta Makha* (Triticum imereticum Dekapr.) — characterized by stiffer and less fragile spikes.

G.Jalabadze (1990), identified *Kentekhila (*similar to *Makha)*; *Duru* and *Rukhu* (*Chelta Zanduri*) among wheat cultures widespread in Samegrelo,.

Makha is less capricious when it comes to soil. It easily adapts to limestone, gravel and humid conditions. It is characterized by a strong stalk, rich vegetation and resistance to *Gudapshuta* (smut fungus). It has features of wild wheat, such as fragility of stalks and keel-bearing grain, which impedes its proper threshing. It is a fragile cereal, therefore necessitating timely harvest of crops (Maisaia 2009).

Fig.29. Lechkhumi

In Lechkhumi (fig. 29), *Makhiskrepis chabukoba* (harvesting of Makha) started on Monday, after the Day of Saint Peter and Paul. The family homemaker would bake *Tabla* (salty bread with walnuts) gut and boil a rooster. The woman would then circle the table while holding the plate with the rooster and pray: "God, improve our crops, help us harvest *Makha-Puri*, protect it from crumbling and let us rejoice in hope and peace" (Rukhadze, 1968).

Fig. 30. Wheat threshing on the threshing floor

According to narrators, "Since 1940s, *Makha* hasn't really been sown in Lechkhumi. People only remembered the names of cornfields distinguished by a good yield of *Makha*. Dough mixed from *Makha* flour was flexible and stuck easily to walls of a *Tone* (an oven for baking bread), so the bread would not fall off and burn; the dough was good for *Khachapuri* (cheese pie) too. From 1950s, other species of autumn wheat began to be sown on lands of collective farms. They yielded their harvest in the summer. Wheat was reaped by sickles; the straw was gathered in sheaves and moved to the threshing floor (fig. 30). The threshing process was called *Kalooba*. Before reaping, the threshing floor was cleaned. There were several threshing floors in a village. Wheat straws were evenly spread on the threshing floor. *Kalooba* continued for several days, depending on yield. Wheat was threshed by a thrashing board, yoked by oxen, the number of which was determined by the size of the threshing floor. The threshing board was wooden with inserted pieces of flint at the bottom. Oxen went round the threshing floor, carrying the threshing board for the whole day. At the end of the day, wheat straw was smashed. Via winnowing, straw was separated from grains. Straw was kept in *Sabdzeli* (a building for fodder storage, which was mostly built of wooden logs) and used for cattle feeding" (Tsageri region, Village Upper Ghvirishi, narrator L.Khetsuriani 2014).

Makha bread was highly priced among the local population. It was white, tasty and flavorful, not to mention able to stay soft for several days. It was considered an honor to treat guests to *Makha* bread at feasts. *Khabizgina* (bread with walnut and onion filling) was baked from *Makha* flour as well. According to the elderly, people also used to drink a decoction of *Makha* grains to improve eyesight (Maisaia, 2009).

Nowadays, crops of *Makha* as well as of *Zanduri* are rarely encountered.

ASLI // EMMER WHEAT

Triticum dicoccon (Schrank) Schubl.

Asli (Emmer Wheat) is a relic species of Neolitic period. In the historical sources of the V century, *Asli* is mentioned together with *Ipkli*.

The latest archeological digs have revealed wheat seeds and fragments of spikes on the hill "Gadachrili gora" inhabited in the Neolithic era (6th–5th millennia BC), among which carbonized remains of double-grained *Asli* prevailed (Jalabadze M. et. al., 2010).

According to Xenophon, the Zan tribes/Mosinics used to keep threshed and non-threshed corn yields in their barns for at least two years, with *Asli* distinguished by particular fertility (Mikeladze, 1967).

Asli (fig. 31) is a spring culture. Its vegetation period is comparatively shorter and it can ripen in a timely fashion in highland conditions. *Asli* grains are distinguished by their whiteness, and the flour is especially white. The dough is good for *Khachapuri*. *Korkoti* made from *Asli* was well known everywhere. It was consumed in Georgian monasteries at the time of Lent. It is a wheat of high selective value, distinguished for its ecological adaptability and drought resistance (Naskidashvili, 2013).

In the 1920-1930s, the area of *Asli* distribution in western Georgia included the Racha-Lechkhumi region, located at 1000-1500 meters above sea level and in eastern Georgia — Khevsureti, Pshavi, Ertso-Tianeti, Javakheti, Meskheti, Tsalka regions (Supatashvili 1929; Dekaprelevich, Menabde, 1929; Dekaprelevich, 1942; Menabde, 1948). Ethnographic materials indicate that in ancient times *Asli* was also cultivated in Ajara, in the gorge of Machakhela river (Kakhidze, 1968,1974).

Fig.31. Two-seeded Asli — *Triticum dicoccum* (Schrank) Schubl. Collection plot of the National Botanical Garden of Georgia

According to N.Ketskhoveli's (1957) materials, Asli was cultivated in large amounts in the gorges of the rivers Didi and Patara Liakhvi, Lekhura, Aragvi, Ksani, and Iori; it was also present in Mtsire (minor) Caucasus (mountain Borchalo), as well as in Tsalka, Tetritskaro and Upper Trialeti regions. Among *Asli* varieties, *white wheatear Asli* (Triticum dicoccon var. farrum (Bayle-Bar.) Flaksb) was dominant. Together with it, *red Asli* // (Triticum dicoccon var. rufum Schuebl) was also sown. It was mixed with white *Asli*. *Asli* was frequently grown as *sakorkote (porridge)* wheat.

According to informants, "...On Tsiv Gombori ridge, soft and hard wheat and *Dolis puri* were sown. *Kondara* (Club wheat) was sometimes mixed in, but it was mostly double-grained *Asli* sown on the mountain slopes in spring. It was reaped by sickles on moonlight night to allow it to absorb the morning due and retain wheatear. Reaping at night

was called *Tsukhreula.* Men and women worked together, with the latter reaping and the former making sheaves. The women had to wear thimbles in order not to injure their hands. Two or three *Kheleuli* were packed together in stacks to make a sheaf tied by an *Ulo.* Afterwards three sheaves were put together to make a *Tserila,* positioned in a way that the spikes were turned inwards. They were shifted home on sledges. In autumn, before threshing, the threshing floor was cleaned, flattened by a roller and hardened. Sheaves were spread on the threshing floor and trampled upon by oxen, although sometimes a threshing board was used. When it was partially threshed, the upper layer was upturned by pitchforks. Straw was stored to be later fed to cattle as fodder. Grain that remained on the threshing floor was gathered by wooden spades and winnowed via a *Xelvartsli* (handheld tray), early in the morning, preferably mountain breeze. Grains were dried on carpets, and then taken to flour mills. As the wheat yielded little flour, barley was mixed in; if barley was in deficit, then boiled potatoes were added to bread dough and baked. Sometimes even stove-dried and ground-up crab apples were added to the flour. Such bread was used for treating gastric diseases and had an astringent effect" (Telavi region, village Tetritsklebi, narrator A. Arabuli, 2014).

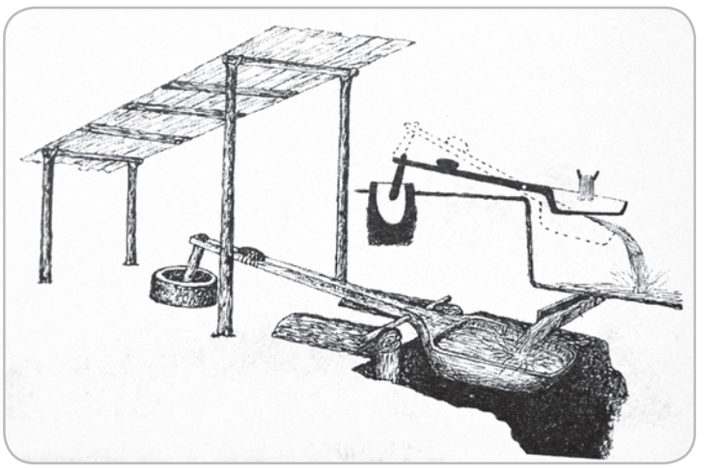

Fig.32. Water grits cutter for hulling of wheat

At the end of the 19th and the beginning of the XX centuries, *Asli* crops were still maintained in Tsalka, Javakheti, Meskheti, Dmanisi, Pshavi and Khevsureti. In Meskheti, *Asli* crops were mostly concentrated in uplands. The double-grained variety of *Asli* distributed in Meskheti was known to the local Georgian population as *Asli*, but Moslems called it *Kabghja.* According to the narrator, the harvested fields were mowed by scythe and then threshed. After threshing, grains were still not fit for usage, as keels were not removed from grains. For their removal, a special tool was used, called *Dingi* (mug) by Meskhetians. Grains separated with *Dingi* were used for *Korkoti* porridge, and flour for baking bread. There were different rules of preparing *Korkoti*: *Chadgmuli Korkoti, Dokorkoti* (with butter milk), *Korkoti Pilaw, Lenten Korkoti* with *Bakmazi* (thick grape juice) etc. (Beriashvili, 1973).

Wheat was often threshed by a mechanized water thresher (fig. 32).

According to N.Ketskhoveli's notes (1957), in Gomareti, Tsalka and Javakheti, a special *Sakorkote* day was allotted to sowing of this variety of wheat.

COLCHIC ASLI

Triticum palaeo-colchicum Menabde (=*T. georgicum* (Dekapr. & Menabde) Dekapr.)

Fig. 33. Asli of Colchis — *Triticum palaeo-colchicum* Menabde (=*T. georgicum* (Dekapr. & Menabde) Dekapr.)

Asli (*Triticum dicoccum* var. *chvamlicum* Supatasch) was firstly discovered by V.Supatashvili in west Georgia, in Lechkhumi fields (Supatashvili, 1929). In 1932 L.Dekaprelevich and Vl. Menabde identified *Asli* as a sub-variety, under the name of T. *dicoccum grex. Georgicum* Dekapr.& Menabde (Dekaprelevich, Menabde, 1932). S. Nevskiy described it as an independent species, under the name of *T. karamyschevii* Nevski (Nevskii, 1935). Discovery of *Asli* grains in Eneolythic layers stipulated its isolation as a separate subspecies under the name of old *Colchian Asli* (*Triticum paleo-colchicum* Menabde) by Vl. Menabde in 1940 (Menabde, 1940).

In 1941, L.Dekaprelevich raised *T. dicoccum subsp. georgicum* initially by him and Vl. Menabde as subspecies, to the rate of species and named it *Triticum georgicum* (Dekapr. & Menabde)Dekapr.) (Dekaprelevich, 1941). Colchic Asli (fig. 33) is autumn wheat. It is an early domesticated relic species which is very interesting for the study of evolution of wheat genera. The modern forms of the Colchic Asli are very similar to wild forms of wheat due to their morphological characteristics, especially fragility and high compactness of ears of wheat, as well as keel bearing. Their important agricultural characteristics include resistance to Natsara (ember), Mtvriana (stamen) and Gudapshuta (smut) fungal diseases; a fertile spikelet (34-39 spikelets on spikes of wheat); broad leaves, tall strong stems (100-120 centimeters tall), which is important for wheat breeding. Among the negative features keel bearing of grains and difficulty in threshing should be mentioned. Grains of Colchic Asli are distinguished by high protein content, and high lysine content in protein (Gorgidze, 1964; Maisaia and etc. 2005). According to the data of the 1940s, by that time sowing of *Colchic Asli* was continued in Racha-Lechkhumi and its bordering Imereti zone (Menabde, 1948).

DIKA

Triticum carthlicum Nevski

> "I have heard that except barley, nothing grows in Svaneti, but it didn't appear to be the truth. Not only barley, but among the local crops I have counted at least fifteen different varieties of wheat including Black Dika, which is rare in other parts of Georgia, and cannot be found outside Georgia." (N. Ketskhoveli, 1943)

Dika (Triticum carthlicum Nevski) is the product of the Georgian people's prolonged farming culture. Its history is reflected in the Georgian vocabulary as well. Sulkhan Saba Orbeliani (1884) and Rap. Eristavi (1884) explained *Dika* as a spring wheat in their dictionaries. Also, according to Guldenstadt (XVIII century) *Dika* is an awned wheat (Guldenstadt, 1962). *Dika* is mentioned in the fifth century historical documents (Aroshidze, 1956). In ancient written sources, such as translated and original monuments of Genesis (Bible), the name *Dika* is encountered alongside *Ipkli* (Genesis, Bible, part I-II, 1884).

L.Dekaprelevich (1938) mentions *Dika* among cereal crops distributed in Georgia in the XII- XIII centuries. Dika is also mentioned in one of the works by Giorgi Mtatsmindeli (X-XI centuries) (Javakhishvili, 1930). N. Vavilov mentioned this most ancient wheat culture of Georgia in 1923 as T. persicum (Percival) Vavilov. The name "*persicum*" (Persian) given to this wheat by N.Vavilov owes itself to the mistake made by the grain transporting firm that delivered him the wheat under the name "Dika — Persischer Weizen" (Persian Wheat) (Menabde, 1948). The name *T. persicum* is an illegitimate name in botany (nomen illegitimum). Besides, this wheat species was never distributed in Persia (Iran).

In 1921, P.Zhukovski (Zhukovski,1923) discovered wide cornfields of *Dika* in eastern Georgia. *Dika,* as the endemic species of the east Georgia, was named by S.Nevskiy (1934) as *T. carthlicum* Nevski (Nevski, 1934). L. Dekaprelevich and VI. Menabde identified Dika as an aboriginal culture; in 1948, VI. Menabde described this plant and named it *T. ibericum* Menabde. In today's botanical literature it is the synonym of *T. carthlicum* (McNeill et al. 2012: ICN Art.53).

Dika is endemic to Georgia. According to N.Ketskhoveli (1957), *Dika* is one of the most ancient wheat species generated and evolved in Georgia.

Crops of *Dika* appear in all major parts of Georgia: Gori, Dusheti, Manglisi, Tsalka, Dmanisi, Borjom-Bakuriani, Ertso-Tianeti, Pshavi, Javakheti, Meskheti, Imereti, Racha-Lechkhumi, Svaneti etc. (Dekaprelevich, 1941; Menabde, 1948; Beriashvili, 1973; Naskidashvili et al.., 2013).

According to G.Jalabadze's notes (1967), large amounts of *Ipkli* were sown in Tusheti (fig. 34), namely Diklo, Shenako and Omalo. In Tusheti, the name *Ipkli* could mean both white and red *Dika.* "... Corn yielded in Diklo was called *Ipkli*. This *Ipkli* was as red as blood dripping from one's nose". It is a summer wheat, and is thus sown in highlands in spring, although Tushetian *spring Ipkli* in Kvemo Alvani was sown even in autumn (Jalabadze, 1967).

"In spring, in early April, Tushetian peasantry start field work, beginning with separation of seeds from weeds by *Richi* — a sieve. The ground is ploughed with *Sakhnueli* (plough), in which a single ox is yoked. *Dika* (i.e. *Ipkli*) is sown on cultivated land approximately in the middle of April. Corn ripening in Tusheti depends on weather. If the summer is cold, corns ripen late; otherwise, they are ready by early September. Corn reaping usually starts at that time, done with sickles which Tushetians call *Tseli*. If the cornfield is low, wheat is uprooted by hand. One swing of a sickle is one *Mjighi* (armful). A stack of straw is comprised of three or four armfuls. They are gathered in bigger

Fig.34. Tusheti. Village Shenako

Fig.35. Meskheti, village Saro

Fig.36. White kernelled Dika wheat — *Triticum carthlicum* var. *stramineum* Zhuk. Collection plot of the National Botanical Garden of Georgia

Fig.37. Black spiky Dika wheat *Triticum carthlicum* var. *fuliginosum* Zhuk.

sheaves, which are carried to cattle-shed on back, by donkey or sledges and put in a heap on the threshing floor. Straws are threshed, then winnowed by a *Richi* and then sieved. *Nakudi* (the last), are selected and kept for arrack distilation. Threshed grains are put in *Godori* (cylindrical baskets), *Kodi* and bins. Harvested grain is not consumed directly from the threshing floor — it is stored until "Giorgoba" in November. In winter, it will be milled. In Pshavi, white and black-awned *Dika* were sown in Karispiri's lands and lowlands (Makalatia 1934, 1983).

Fig.38. Tavtukhi — *Triticum durum* Desf.

In Meskhet — Javakheti (fig. 35) among other cereals, *Dika* (red bread) was sown. Cornfields were cultivated in autumn, accompanied by various rituals. A farmer who brought seeds to the cornfield for the first time would kneel and bow towards each side of the world and then scatter the seeds. The homemaker would bake a thick loaf bread to get a rich harvest. When sowing was finished, the farmer took the remaining seeds into his fists and scattered them over the cornfield, saying:" It's for birds, for guests, newcomers and outgoers, God protect this crop". When leaving, the ploughman would cut out a cross in three places of the field with his *Cheki* (plough scraper) and say: "God protect this crop before we harvest it."

Ripened corn was reaped, then harrowed, tied into sheaves and put together into conical stacks; this was called *Dadzirva* (sinking). After reaping, a stone was cast into the corn pit with words: "Be our crop heavy and rich"; one of the mowers then took ears of wheat, tied them together into a cross and took it home. His homemaker had to slaughter a rooster before his arrival and treat the mower well. The homemaker put those ears of wheat into the barn or pit where fresh corn was to be stored. After mowing, threshing began on a threshing floor using wooden boards; threshed corn was winnowed and measured with *Codoba* (Makalatia, 1938).

It's worth mentioning that Georgians who migrated to Fereidan (Persia) brought Georgian wheat with them, preserving its original name of *Dika* (Bregadze, 1974). In mountainous regions, *Dika* was sown in a mix with other cereals, preferably with barley. Such crops were called *Kerdika* or *Kerchrela*.

Of all *Dika* crops, the leading species were *white ear Dika* (Triticum carthlicum var. stramineum Zhuk.) (fig. 36), *red ear Dika* (Triticum carthlicum var. rubiginosum Flaksb.) and *black ear Dika* (Triticum carthlicum var. fuliginosum Zhuk. (fig. 37).

Dika was familiar to the Georgian peasant from hoary past times as a wheat species least pretentious to environmental conditions. *Dika* is characterized by early yielding, easy threshing, resistance to flattening and grain dropping. Farm distinction of *Dika* is its strong immunity to fungal diseases. Grains of Dika are also distinguished by their high protein and Lysine contents. Dika, as a highland crop, is well adapted to severe conditions. Its important feature is good bread bakeability.

This variety must have formed in Georgian highlands at 1000-2000 meters above sea level, although its crops could be encountered both above and below this range, even at heights that severely limit agriculture — 2200-2300 meters (Menabde, 1948).

TAVTUKHI // DURUM WHEAT

Triticum durum Desf.

Shavpkha, *black awned, black spiky*, *Lha Puri*, *Tavtukhi, Poshola* (Ketskhoveli, 1928; Alavidze, 1951).

Tavtukhi, also known as *hard wheat* and *Triticum durum* Desf. (fig. 38) is not encountered in Georgian historical sources until the XVII century, although its antiquity in Georgia is affirmed by the tradition of the Georgian peasant, to donate spike grains to icons as *Zedashe* after harvesting.

Fig.39. Kondara wheat — *Triticum compactum* Host. Collection plot of the National Botanical Garden of Georgia

Fig.40. Spelt — *Triticum spelta* L. Collection plot of the National Botanical Garden of Georgia

Tavtukhi is the representative of hard wheat varieties. It is a spring wheat, though in Georgia it is mainly sown in autumn. The plant is tall, strongly developed, with glabrous grains. Grains are thick and of varying colors. There are red, black and white ear forms (Chkhenkeli, 1944).

Tavtukhi provides pure white flour, is characterized by its high protein content, stickiness and good bread baking potential. The bread is tasty. According to last century's data, the area of its distribution in western Georgia encompassed Upper Svaneti and Racha-Lechkhumi (Maisaia, 2009). In eastern Georgia, *Tavtukhi* was sown in Dusheti, Bolnisi, Marneuli, Borjom-Bakuriani, Manglisi, Borchalo, Khashuri, Kareli, Gori, Kaspi, Tetritskaro, Sagarejo, Gurjaani, Telavi, Dedoplistskaro, Lagodekhi, Kvareli and Akhaltsikhe regions. *Tavtukhi* was largely known under the name of *Shavpkha* (black awned) by the local population. In the past, *white Tavtukhi* was more distributed in Avchala, although *black Tavtukhi* was also sown (Zhukovskiy, 1924; Menabde, 1929, 1948; Chkhenkeli, 1941; Abesadze, 1926, 1930; Gotsadze, Maisaia 2015).

According to N.Ketskhoveli's data (1957), *Tavtukhi* was also sown in Kvemo (lower) Kartli, Zemo (upper), Shua (middle) Kartli plains, and Zemo (upper) Imereti.

KONDARA, CHAGVERA, NAMGALA // CLUB WHEAT

Triticum compactum Host

In Georgia the relic species – Kondara wheat (Club wheat) dates back to the 6th–5th millennia B.C (Rusishvili, 1990; Dzidziguri 2002).

Kondara wheat, also known as *Triticum compactum* Host (fig. 39) belongs to the soft wheat group. It is of middle height, characterized by compact and short (3–5 cm.) ears, with glabrous grains. According to the data of the 1920–1940s, its distribution as admixture in cornfields is evidenced in Upper Svaneti, Racha–Lechkhumi, Kartli and Meskhet–Javakheti.

In Akhaltsikhe district *Kondara* wheat was known as *Chagvela*. Until 1935, *Chagvera* (Namgala Puri) was encountered as an admixture in *Dolis Puri* cornfields, and as holy cornfields in the gorge of small Liakhvi (Abesadze, 1926; Dekaprelevich, Menabde, 1929; Menabde, 1929; Dekaprelevich, 1942; Ketskhoveli, 1957).

SPELT

Triticum spelta L.

Spelt (*Triticum spelta* L.) (fig. 40) belongs to the *Asli* wheat group, with both autumn and spring forms found. It is less pretentious to soil, resistant to fungal diseases and provides very tender flour, which is used mainly for cakes or grouts. In western Georgia, its cornfields are not found, but are present in east Georgia as admixture.

Carbonized grains of Spelt were discovered on the monuments of the Neolithic and Bronze eras; remains of this wheat were also discovered on the settlement hill Gadachrili Gora of the Neolithic era (VI–V millennia B.C) (Jalabadze et al.., 2010). Supposedly, it did not make independent cornfields and was just a nonessential admixture to other cornfields (Bregadze, 2004; Maisaia et al.., 2005, Maisaia, 2009).

ENGLISH WHEAT

Triticum turgidum L.

In Georgia, the first notes about the *English wheat* culture (*Triticum turgidum* L.) (fig. 41) dated back to the XIX century (Dekaprelevich, 1948).

The first *English wheat* sowings were described in Abkhazia, near Gagra (Bakhtadze, 1927), on the territory of western Georgia. In Lechkhumi this wheat is known as *Tavtukhi*.

According to the data of the 1930–1950s, its sowing in west Georgia was evidenced in Lechkhumi, Lower Svaneti, Ajara and Abkhazia (Maisaia, 2009) and in eastern Georgia's Dusheti, Kakheti and Meskheti (Menabde, 1929; Kobakhidze, 1949; Dekaprelevich, 1948).

Fig.41. English wheat — *Triticum turgidum* L.

Fig.42. Polish wheat — *Triticum turgidum* L.

According to A.Kobakhidze's materials, this variety was widespread in Kakheti, in both non-branched and branched varieties, known as *Kakhuri Datotvili*. In Georgia, its pure crops were grown in Meskheti. In 1874, A.Overin witnessed *Branched wheat* (T.vulgare Vill.) in Meskheti (Dekaprelevich, 1948). Later, in 1885, the species known under the name *T.vulgare*, was allotted to *T. turgidum* by P. Kornike (Körnicke, 1885).

The plant is long (100-165 cm.) with a strong stem resistant to falling. It is characterized by a prolonged vegetation period. The farming values of the English wheat include high starch content in grains, resistance to rust fungus and heavy yield potential.

POLISH WHEAT
Triticum polonicum L.

In Georgia, *Polish wheat*-*Triticum polonicum* L. (fig. 42) was first registered in the 1880s. It was found throughout the 1940-1950s, as admixture in western Georgia (Imereti region) and in eastern Georgia's Kartli. It is glabrous-chaffed wheat, characterized by very long and lax spikes (12-20cm.). It was used mainly in flour producing (Maisaia, 2009; Naskidashvili et al.., 2013).

BARLEY
Hordeum vulgare L.

In Laz and Megrelian dialects it is called *Keri*, in Svan — *Chgmin*, in Apkhazian — *Aka'r*, in Racha — *Kezheri Keri* or *Koberi Keri*, in Lechkhumi — *Kupuri Keri* (Chikobava, 1938; Bregadze, 1969; Machavariani, 2006).

Keri (Hordeum vulgare L) is among the most ancient farming cultures. Due to Iv.Javakhishvili's definition "...

Among plants grown for human consumption, *Krtili* and *Keri* were second in importance after wheat". Vakhushti Batonishvili identified them under the general name *Krtilni* (Javakhishvili, 1930).

Sulkhan-Saba Orbeliani (1658-1725) explains these terms in his dictionary as follows: *Krtili* — autumn sowing of Barley, *Keri* — spring sowing of Barley (Orbeliani, 1928, 1949).

In old medical written sources, we find both *Keri* and *Krtili*. Probably both spring and autumn barley varieties were used for medicinal purposes (Tsutsunava, 1960). According to I. Guldenstadt's materials, both *Kezhera keri* (six-rowed barley) and *Ktekli* (double-rowed barley) were cultivated in villages of Kvemo (lower) Racha (Guldenstadt, 1962).

In Georgia, barley was widely cultivated in XII-XIII centuries (Dekaprelevich, 1938). According to recent archeological investigations, carbonized seeds of barley were discovered alongside monuments of the Neolithic-Eneolithic era (6th-5th millennia B.C), namely: on Gadachrili Gora hill; in Hellenistic barrows of Nokalakevi; in an early agricultural settlement of Tanditskaro I; at the village of Kheltubani (Gori region, Bronze age) and in the Eneolithic complex of Akhalsopeli, Tkibuli region (Chikovani, 1999; Nebieridze, 2001; Lomitashvili et al.., 2010; Jalabadze, 2010; Lomitashvili et al.., 2011).

Both autumn and spring forms of barley exist. The spring form is upright and the autumn is prostrate or semi-prostrate. Both multiple-rowed barley (*Hordeum vulgare* L. ssp *vulgare)* (fig. 43) and double-rowed barley (*Hordeum vulgare ssp.distichon)* are widespread. (fig. 44). Names for multiple-rowed barley in Georgian are: *Kezheri Keri, Koberi Keri, Charati Keri, Gvirgali (round) Keri, Old grain Keri, Six-rowed Keri, and Four-rowed Keri.* Names for double-rowed barley are: *Simple Keri, Flat Keri, Double-rowed Keri and New grain Keri".*

According to informants, barley was sown in Gudamakari: "... We used to sow barley in spring, on high hills, but we sown wheat lower, at the riversides of Aragvi. Barley was reaped by sickles. Two fistfuls were tied together and then sheaved. We called two sheaves a "mother sheaf". The sheaves were tied by firm stalks of *Svili* (Oats). Although, we used to bake oat-bread separately, sometimes it turned into *Legna* — brown bread, which was mainly used in making of arrack and beer. We put other sheaves upon the "mother sheaf "to dry. A freshly reaped sheaf was called *Tsera*. We placed them together in triangles to dry. After drying, we rearranged them into *Khutsula* (tied together even stronger) and carried them to the village. We made *Jarji* or *Satari* (stretchers) from birch branches, placed the sheaves on them and carried the cropsdown to the village. In the village we had *Kaloiani* (flat roofed) houses. Downstairs we had cattle-sheds, above it were the dwelling spaces and over it, on the roof, a threshing floor was arranged. The roofed houses had big posts for supporting the roof that jutted out of it. We would cut sheaves and spread them around the posts. We tied 4-5 oxen together with chains and drove them around the posts, trampling sheaves. Then we carried away the bulls, took the threshed sheaves with *Samtita* (pitchforks) and removed the straw. The remaining crops was called *Kho*. In windy weather, they got winnowed and chaff was removed; grains were sieved. Chaff was used to feed cattle. We often mixed grains with pure wheat flour as wheat was sown in small amounts. In the valleys, we had private watermills which we used to mill grain. From barley, we made arrack and beer" (Dusheti region, village Makarta, narrator N. Tsiklauri, 2013).

In Tusheti, *Khavitsi* (cottage-cheese stewed in *Erbo* — boiled butter) was eaten with *Khali* instead of bread; roasted oat-flour was kneaded with water, thus creating an irreplaceable product for travelers. Dissolved in cold water, *Khala* easily satisfied hunger, allowed to relax and restored the lost energy (Idoidze, 2006).

Fig.43. Barley — *Hordeum vulgare* L. multi-rowed, "Dzveli Tesli" . Collection plot of the National Botanical Garden of Georgia

Fig.44. Barley — *Hordeum vulgare* L. two-rowed, "Akhali Tesli"

According to narrators, "...Barley and rye were mixed for making beer; grains were preliminarily exposed to water for germination; then wet grains were spread on a carpet and covered by another carpet to keep them warm. After a week, when shoots appeared, the grains were uncovered, exposed to the sun to dry and then got milled. The resulting powder was put into beer kettles and boiled; afterwards, *Sve* (Climber Hop/Humulus lupulus) was added and boiled together. The resulting beer had a dark color. Then it was poured into special filter sacks and swaddled to extract sweet juice. The juice was poured into special wooden barrels, where it underwent alcoholic fermentation. It was kept at a stable temperature of 20-21°C for three weeks. The result was naturally carbonated beer (Telavi region, village "Tetri tsklebi", narrator A. Arabuli, 2014).

According to the elderly, "...In Khevi (fig. 45) mosly barley was sown. In Arsha village, only one man used to sow wheat, at the edge of the military road. Barley was sown in spring. 2-3 days earlier, grains were soaked in water, then dried, left alone for two or three days and sown on cultivated land. Barley was reaped by a sickle and then gathered in sheaves; several sheaves were put together; after drying well, sheaves were stored in the place selected as a threshing floor. A pole was stuck into the floor, oxen or horses were tied to it and driven in circles, trampling and threshing the stacks of barley. Afterwards, the crop was winnowed and grains were sieved. Barley was used for baking and brewing beer" (Kazbegi region, village Sioni, narrator Zurab Kvirchishvili, 2014).

According to inhabitants of Martvili region, in Samegrelo and its adjacent Imereti, barley was traditionally sown in highlands and foothills, at 1200-1300 meters above sea level. The harvested crops were threshed and then ground up in mills; bread baked from the resulting flour was tasty and definitely no worse than wheat bread. Barley was used for cooking porridge, baking scones and brewing beer (Maisaia et al.., 2005).

According to narrators, "...In Guria, barley was sown on the hills near the village of Nakerali, formerly Tsipnari. From barley, beer was brewed. Tar was poured into a pitcher; next, the pitcher was heated and rolled around to be tarred well and then put upside down for extra tar to leak out. In this pitcher, ground barley was poured and water added. Then it was covered with leather greased with goat fat

to avoid air leakage. The leather was pierced in one spot and through it, a gum hose was lowered into the pitcher. The other head of the hose was in a ceramic basin filled with water. When barley started fermenting, air bubbles appeared in the basin. When the bubbling subsided, the fermentation was finished. The leather was removed and beer was poured out. Sometimes, from remains of barley, arrack would be distilled" (Chokhatauri region, village Partskhma, narrator V.Kikvadze, 2014).

Xenophon confirms existence of drinks made from Barley in the Caucasus (V-IV centuries BC). He had seen wheat, barley and "barley wine" poured into vessels in villages neighboring the Khalibs. "Barley wine" seen by Xenophon in the Caucasus was very popular and had consumers everywhere. Laz, used the term *Ludi* for indication of the "barley wine", and this is most likely how the term *Ludi* must have entered the vocabulary of other Kartvelian tribes (Bakhtadze, Koghuashvili, 2009).

In Upper Svaneti (Mestia region) delicious diet foods *Tsaari* and *Lembri* were prepared from barley grouts. Fried and ground grains of barley were mixed with *Matsoni* (yoghurt) and cheese. According to narrators, "...Barley grains are rinsed, roasted, ground, mixed with fresh cheese, a little salt is added and used without baking" (Mestia region, village Becho, narrator P.Kvitsiani, 2013). In Svaneti they used to also male *Litspeki* – a thin porridge of barley with garlic. "...One liter of water is boiled in a kettle; separately, 5 spoonfuls of barley flour are put into a basin with warm water; the received mass is poured into the kettle and boiled for about 7-10 minutes. Then, crushed garlic (5-7 cloves), pepper and salt are added to taste. It was consumed during Lent and also in case of fever"

Fig.45. Khevi, the gorge of the river Sno

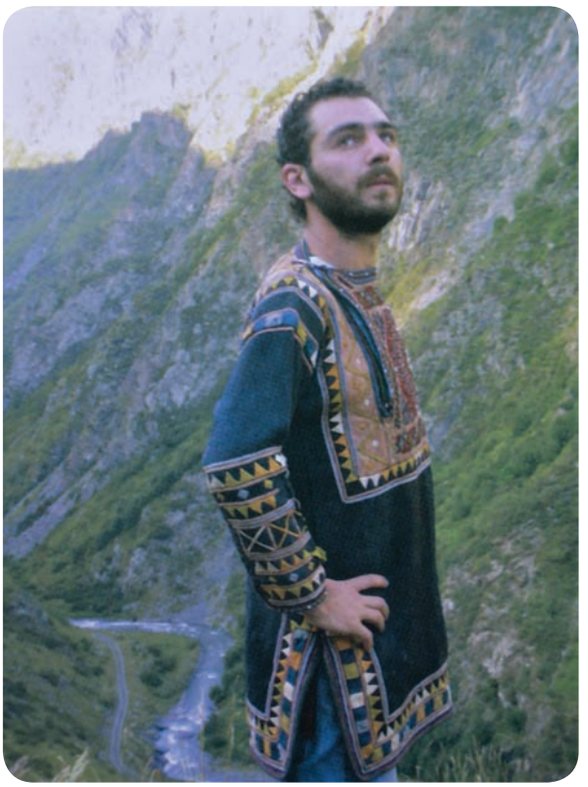

Fig.46. Khevsuri in the national costume

(Mestia region, village Lenjeri, narrator N.Shukvani, 2008). In folk medicine, barley decoctions are used for treatment of inflammations of the digestive tract, cough, bronchitis and diabetes; with barley straw steam baths, gynecological patients were treated. Barley packs are applied for fungal skin diseases. Barley also has an anti-atherosclerotic effect. Malt poultices are applied to mammary glands in case of breast cancer (Kopaliani, 2002). In Khevsureti, barley was one of the leading cultures and was so widely distributed that measuring vessels were made specifically for it. (Jalabadze, 1986; Maisaia et al.., 2006). It should be mentioned that a barley seed was accepted as a measure of weight in old Georgian folk medicine (Tsutsunava, 1960).

In Khevsureti (fig. 46) the cult of beer predominates. Khevsurians used to filter beer only on great holidays, "...Beer was a ritual drink and it was not brewed for mere drinking bout. According to Khevsurians: "Beer fits health" (Arabuli, 2006).

Mokheves started their cultivation in middle spring and reaping after August. The land was cultivated with a plough (fig. 47). Before cultivation, they would draw a cross on the forehead of a bull with flour mixed with water, saying, "Lord, have mercy on us! Give us a peaceful and fruitful year". At home, *Sakvlevi* (furrow scones) were baked. Right after cultivation, seeds were sown and harrowing was done, without any breaks. Seeds were carried in *Satesela* — wicker baskets with wooden bottoms, smeared with ashes and dried manure on the outside to keep the mice away. They had a knitted woolen string to allow carrying them over one's shoulder. One *Satesela* could contain up to one *pood* (16,38kg) of barley. Peasants would hang it over the shoulder, stand facing towards the east and start sowing, followed by harrowing. Harrowers had to stand on their harrows or place loads on them.

The reaping was mostly done by women, who sang, "Men don't reap here, it's embarrassing for them" while working. They reaped with sickles and used armlets with over-sleeves to avoid injury; on their knees, they wore knitted woolen kneecaps. If the cornfield was sparse, it was plucked by hand. One sickle blow is called *Kheleuli*. When reaping

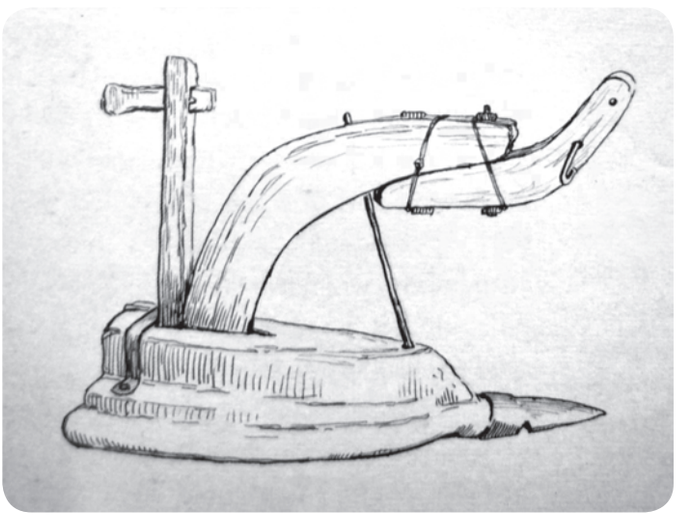

Fig.47. Mokhevian plough

barley, a reaped *Kheleuli* would be placed on the left foot, then the second would be added, then third and thus a sheaf was gathered, which was eventually tied by *Ulo*. Five such sheaves were called *Khutula* (five). The reaped harvest remained in cornfields until the village finished reaping, and then was carried away on sledges or simply by hand. Those who did not have their own threshing floors threshed corn at their neighbors' places. Threshing floors were usually located near homes. Plots of flat land were staked out, hoed and had weeds removed; then they were watered, stamped and left to dry. After that, *Khutula*s were untied and spread equally on the threshing floor. Next, a pole was pegged in the center of the threshing floor. There was a round notch at the top of the pole to which a leather rope was tied. Oxen were yoked into it and driven in one direction around the pole. Straw was removed from threshed barley, and the remaining grain was winnowed by pitchfork; sometimes, a stone thresher would be used. Barley grains were subsequently sieved and put into bins named *Kharo* or *Ako*, with a few lumps of coal put on top "For abundance" (Makalatia, 1934; Jalabadze, 1986).

As N.Bregadze's materials (1978) claim, when Barley is threshed without a threshing board, the barley straw is not chaffed but reserved as straw and then used for household needs. In old times, mountain dwellers used it for padding beds and cradles. Threshed straw contained enough grains to serve as nourishing fodder for cattle.

In Tusheti (fig. 48) barley was the basic crop. Two varieties of barley were sown: flat and polygonal. The latter predominated, because in comparison with the flat variety, it was characterized by better yielding potential. Fertile soil was selected for barley; it was sown on lands producing heavy crops, such as those that had cattle-sheds. Wheat was never mixed with barley — the former was always sown lower than the latter. *Kershvela* (glabrous grain barley) was sometimes sown alongside. Barley ripened by the end of August, was reaped with sickles and gathered into sheaves. After threshing with oxen, peasants started *Datkroba* (manual threshing) of those batches of barley that belonged to shepherds. Each village owned one place for that, called *Tsalo*. Grains were spread on *Tsalo* and mixed by hand in order to be fried evenly; when grains changed color and popped, they were put into a vessel where they were crumpled and dehusked. This procedure was followed by winnowing in the wind and grinding into flour. The resulting product was called *Khali*. It was cooked at home and on pastures as shepherd food. Tushetian *Kha* is tasty and is eaten with cheese, cottage cheese, boiled butter, whey, buttermilk and *Kumeli*. Sometimes barley was mixed with hops, ground together and baked into tasty bread (Jalabadze, 1967, 1986).

In Khevsureti, field works begin late; in Piraketi Khevsureti, crops are sown in April, while in Pirikita Khevsureti — in May. Land is cultivated by wooden *Sap'vnieli* (fig. 49) in which one ox is yoked. Among other cereals, *Charat Keri* barley predominates in Khevsureti, due to yielding much heavier crops than *Pitsar Keri* . Barley is plucked by hand by both men and women; sheaves are tied by *Ulo* and put in triplets. From triplets, *Tserilas* are stacked. If one has too much to harvest, then he hires assistants, who are paid in barley or boiled butter. In Piraketa Khevsureti, Mtiuls and Gudamakarians are employed in reaping. The sheaves are carried from hills manually, on horseback, by donkey, on sledges or via *Satruli* (stretchers). Sheaves are stored near the house or on *Bani* (flat rooves). Soon afterwards, threshing of barley begins. In Khevsureti, threshing floors are usually arranged on rooves. Sheaves are spread on the roof and bulls trample upon them. Threshed crops are winnowed and cleaned from earth particles and pebbles. The grain is measured; after a period of storage, the milling begins (Makalatia, 1984).

According to T.Dvaladze's (2014) materials, "Barley was sown in highlands of Racha: Kodi-tavebi, Khvleri-etebi, Okrokana, and Pkhoni. I know it from my mother — I have personally reaped barley in Pkhoni on *Kerdzooba*.

Fig.48. Tusheti. Village Shtrolta

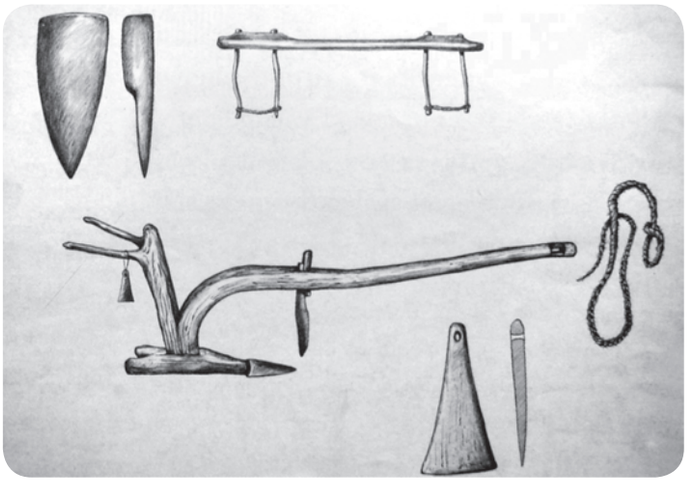

Fig.49. Khevsurian plough with two handles

In highlands, barley was sown and harvested later than usual. In early September, plough cattle was driven from the mountains and crops were carried to threshing floors. Threshing floors were cleaned by hoes to remove grass, then *Zhizha* (liquid manure) was poured upon them; when it dried up, the threshing floor was ready. Grains were kept in the granary. If anyone didn't have his own granary, he would store grains in a *Kharo* — a large bin, mostly made of basswood".

According to narrators, "...In Svaneti, barley was sown in early spring, reaped by sickles, threshed with threshing boards. From barley, beer was brewed. At that time, inhabitants of the Etseri village used to move to Mazeri — the highest village in Becho for brewing. They had a special measure that contained up to 16,38kg of barley. Beer had ritual value as well — for example, it was obligatory to drink it for the Arch Angel's Holiday. For brewing beer, germinated, dried and ground rye was added to the fermenting barley mass. It was called *Salat* (Mestia region, village Mazeri, narrator I.Kvitsiani, 2014).

1948 works by G.Chitaya, founder of the Georgian ethnographic school, precisely describe Georgian folk traditions of beer making. For instance, in Khevsureti "...Quality barley is selected, cleaned thoroughly to remove earth and pebbles and kept dry in a cylindrical basket or ark in order to prevent it from warming or mold. In case of necessity, the needed amount of barley grain is taken out of the basket, measured by a *pood* barrel (16,38kg), put into a fur sack and submerged into a river. A flat stone is put on top of the sack and left alone for two days. On the third day, the barley is carried home, placed in a *Cherkho* at the height of half an *arsheen* (0,711m) and covered with straw, wooden boards and other things to add weight; it germinates fast in warm conditions. On the third day, if the barley sprouts shoots and roots, it is spread on a carpet and exposed to the sun to dry. In Khevsureti, germinating barley is called *Pori*, while Pshavs call it *Alao* (malt). It is taken to the mill for coarse grinding, and then brought back and put into barrels stored in a wet place. In case of need, three portions of water per one portion of flour are measured and mixed with a wooden stick with a thin metal bar at the end. A fire is made and a kettle is put on it. A little stick is submerged into the kettle and notched to mark the depth of the poured mass; then the mass is boiled until a definite amount of water evaporates. The proportion for one batch of beer is usually six portions of flour per twenty-four portions of water. When the necessary amount of water evaporates, the mass is sieved and condensed using a variety of tools and vessels, poured into sacks (fig. 50) and hung from a contraption called *Latba*, not dissimilar to the winepress (fig. 51). In these sacks, the flour precipitates, the juice flows and strained *Tkbili* (sweetness) flows into the *Latba*; it can be consumed immediately, for it tastes good. When a portion of the mass is drained, they are squeezed and tightened with special clamps called *Pirsakravebi* and *Kedebi*; this operation usually requires two people. After the sacks are completely drained, *Khoti* — boiled flour remaining inside — is fed to dogs and cattle; the sacks are taken home and dried (fig. 52). *Tkbili* is then yet again mixed with water and hops

Fig. 50. Sack for beer filtration

are added to match the amount of flour used initially; obtaining the plant is a chore, as it does not grow in Khevsureti. In autumn, when hops are ripened, they is picked, cut up together with stems, gathered in one place, covered to get heated and three days later, spread under the sun to dry; the more heated and ripened hops are and the more flowers it has, the stronger it is. Then it is put into sacks and stored in a dry place. Hops and *Tkbili* are intermixed, boiled in a big kettle and left to cool; this liquid is now called *Sistveni*. Yeast is prepared in the following way: warm *Sistsveni* is poured into the wooden barrel and *Chichi* (skimmed bear foam kept as yeast) stuck on straws is dropped into it. When fermentation starts and bubbles appear, the lid is opened; the foam comes up to the surface, and after removing it, the beer can be drunk."

Beer brewing in Tusheti, village Gudanta: "Water is added to barley and left for two days; on the third day, the grain is take out of the water, spread on a cloth and covered to keep it warm for two days. Afterwards, barley is spread under the sun for drying and then dehusked and ground up in the mill. *Pori* is poured into water; initially, three portions of water are poured per one portion of Pori; the kettle is put on fire, and when it boils, the fire is put out (fig. 53). *Darko* (juice) emerges and is shifted into a *Kodi* (10 liter vessel). *Khoti* stays at the bottom; it is poured into sacks and filtered with the help of *Sakela* (clamps); the rest of *Khoti* is used as cattle fodder, although in times of famine it is consumed by humans as well. *Darko* is poured into a kettle; Hops are added, the fire is set; it starts boiling and will boil until a human palm's worth of water has evaporated. After cooling, it is again shifted into a *Kodi*, yeast is added for fermentation and is left alone for a week; when the fermentation is over, the sediment is removed and the beer is ready to drink".

Beer making in the village of Parsma: "Barley is poured into *Kodi*; water is added and left for three days; then it

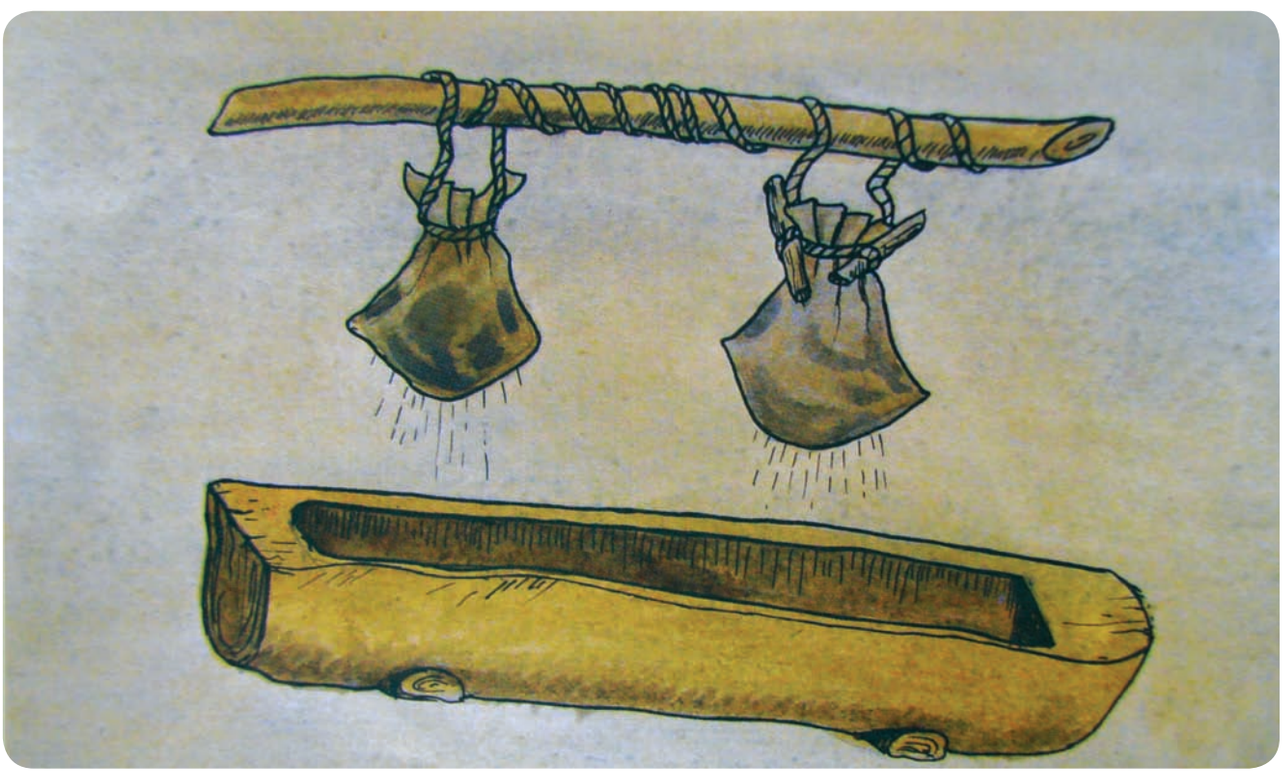

Fig.51.Beer filtration

is taken out and spread for three days; covered with a carpet to warm up and germinate for two or three days and then dried. Afterwards, it will be dehusked and then coarsely ground in the mill; coarse flour is called *Pori* or *Alao (*malt); to 15 liters of *Pori,* about 30 *Chapi* (18 liters) of water are added, to fill up the kettle; the kettle is placed on fire to boil; when the malt goes to the bottom during boiling, the juice comes up and is transferred to *Kedi.* The remaining malt has the juice squeezed out of it. The juice is called *Darko. Darko* is then again poured into a kettle again, four liters of hops are added, boiled until a portion evaporates and then left till morning to cool. This juice is called *Zis'Tsveni*; in the morning it is filtered through an arrack distillatory vessel — *Zarpushi*; the juice is taken for fermentation, poured into kettle and stirred from morning till sunset for all admixtures to evaporate to free from vapor — otherwise it can turn sour. Then it is cooled and poured into *Kodi*, with *Asakuo* added to it. *Asakuo* is a mixture of hazelnuts and "Zis" juice, in total quantity of about 7 liters. The resulting brew is then covered and left in a cool place. On the third day after that, fermentation starts and continues for five or six days; at that time, sediments emerge to the surface. After they are removed, the beer is ready to drink."

Brewing of beer in gorge of Ksani, village Monasteri: "Eight *Chanekhi* (pails; 8 pails equal approximately half a ton) of barley are soaked in water for three days; then the grain is spread on the carpet and put under a stove in a bakery. Afterwards, it is exposed to the sun to dry; dried grain is covered for 3-4 days to germinate and develop shoots; then the grains are manually dehusked and coarsely ground in a water mill. Ground malt is poured into a kettle with the capacity of 14 *Chanekhi,* which is filled with water and stirred. The kettle boils for 24 hours, then it is drained into a straw-padded basket. Resulting *Tkbili* (sweet) is poured into the kettle again. Thickness of boiling mass is tested with a peel-mixer: if the mass has sufficient thickness, the peel will stand vertically, if not, it will become inclined. Residue left after filtration is called *Nakaji* and used as pig fodder; the juice is yet again poured into a kettle and boiled; if the kettle is not replete, then it is filled up with water. Hops should be added immediately; *Tkbili* should boil down by 4 *ver-*

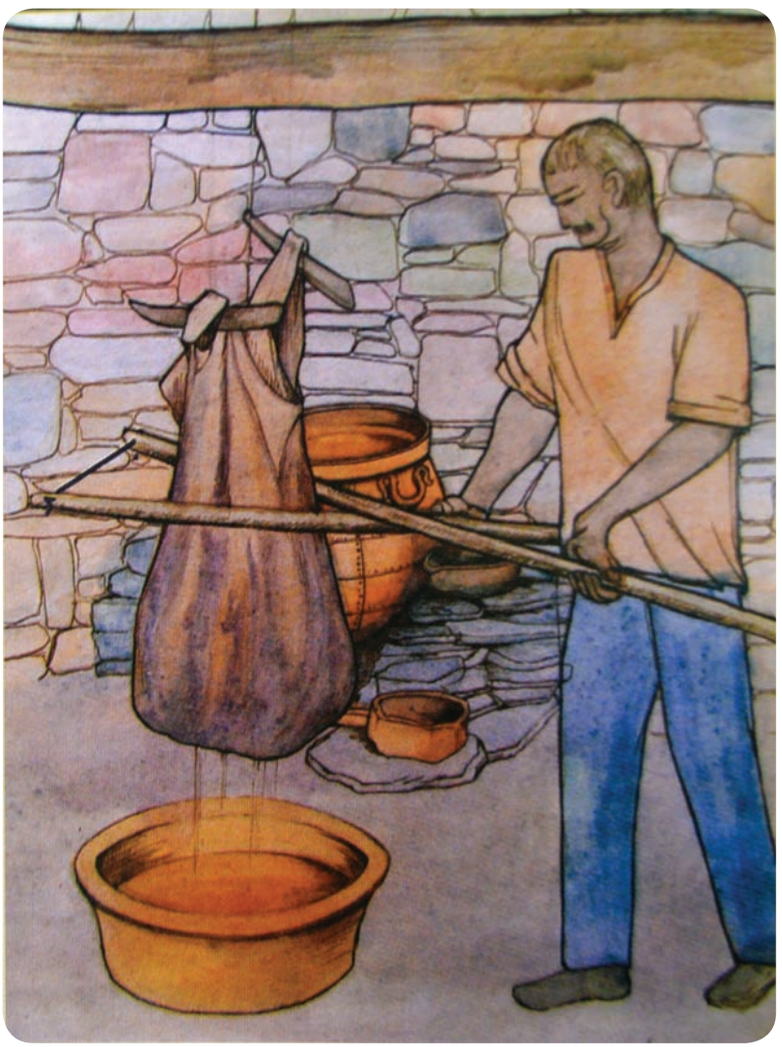

Fig. 52. Beer filtration

shoki (measure of length equivalent to 1.75 inches) before it is allowed to cool. The juice is poured into yet bigger kettle and yeast is added. For this, old malt mixed with a little fresh malt is used to accelerate brewing. One basin of malt per kettle is enough. The kettle must be on fire for one day and night. If hops float to the surface and touch the lid, it is a good sign, for brewing proceeds well; after brewing, the mass must be filtered".

Brewing of beer in the village of Dadianeti, Khadilaant ubani (locality):" Barley is soaked in water for 2-3 days, then spread and covered warmly; it germinates in 3-4 days; after that, it should be dried for four days – exposed to the sun or near a baker's stove; it is then coarsely ground in a mill. Barley is poured in a kettle, water is added and left overnight; in the morning, fire is set and the kettle boils for 5 hours. The mass must become greatly reduced and little water must be left; then the fire is put out and the liquid is filtered through wicker baskets over the kneading trough to extract *Tkbili*. The sediment left in basket is fed to pigs; then the kettle is again placed over the fire and about 2,5 flagons of hops are added. The mass is allowed to cool for half a day before yeast is added. Malted barley, boiled sediment of beer, is used as yeast. After adding a bit of flour to it, it is dried under the sun; in case of necessity, malt is soaked in warm water before it is ready to use; when all these ingredients are brewed together, the beer is ready (Chitaya, 2001).

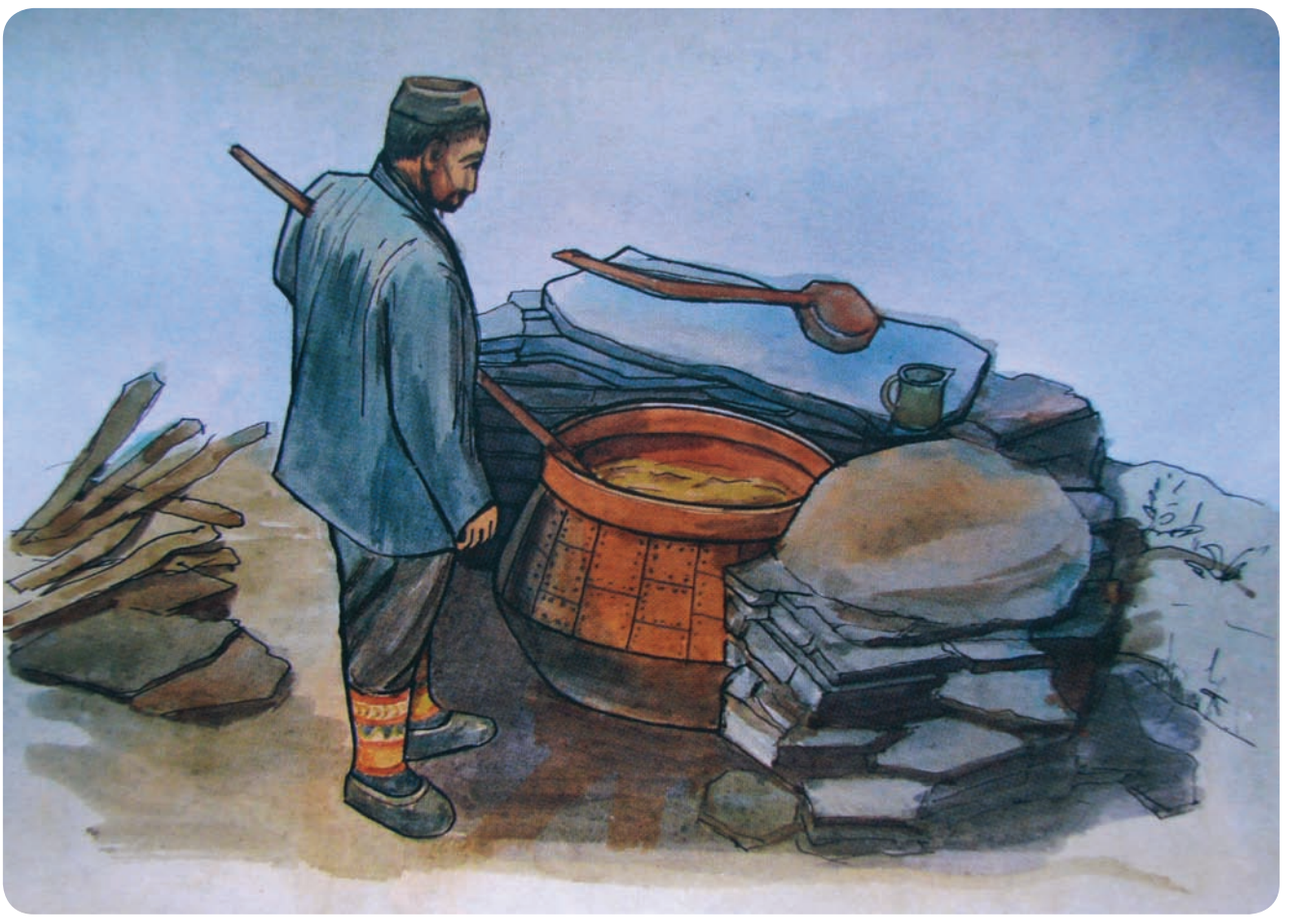

Fig. 53. Beer brewing

In Transcaucasia, the culture of beer was known as far back as in the V century B.C. Here Xenophon himself used to drink barley beer from a big bowl, on the surface of which barley grains floated; for convenience, many used a reed stem instead of drinking it directly.

Georgian mountaineers — Khevsurs, Tushs, Mokheves and Pshavs — celebrated their traditional holidays with beer. Regardless of where a Tushetian was, on a holiday he had to go to his sacred icon, brew some beer and regale any guests who visited. When the icon crops were to be reaped, *Khevisberi* (elder), appointed the day By that time *Dasturi* (servant of the sacred icon) had already brewed the beer; the icon serfs gathered, chose a sheep from the icon's sheep flock and sacrificed it to their icon. *Khevisberi* opened a beer *Kodi* and they filled silver bowls with it, lit candles and put tribute next to them. The tribute largely included *Kada (sweet pie)* and *Khavitsiani* (bread stuffed with flour fried in butter). The elder would say the prayer suitable for the day and bless the icon's devotees with beer. Then everyone blessed and worshiped their icon. The Elder was the first to go to the cornfield; he cut *Khleuri* — a handful of barley spikes — with a sickle, blessed again and gave the sickle to the reapers. Men who reaped the first cornfield were followed by *Dasturi* who carried beer kettles and handed out drnks. They reaped, drank and sang at the same time. After reaping, one reaper would take the last reaped barley ears and say: "God bless young lakhsar, and you bless the men devoted to you in turn. Long live." This was the sign that reaping of icon corn was finished (Nadiradze, 2010).

According to the eldest of Machakhela valleys: "Before collectivization, barley and rye were sown and used for bread only; bread was baked on *Ketsi* (earthenware frying pans) laid with *Shkeri (Rhododendron ponticum* leaves) and covered with the same leaves on top. Straw was used as fodder for horses" (Machakhela, village Kokoleti, narrator Kh. Kokoladse, 2014).

RYE

Secale cereale L.

In Megrelian dialect it was called *Chve* or *Chvia*; in Laz — *Nchvavi*, in Svanuri — *Manash*, in Lechkhumian — *Kube*, in Rachuli — *Achua* or *achia* (Maqhashvili, 1991; Kalandia, 2005; Machavariani, 2006).

Rye — *Secale cereal* L. (fig. 54) is an ancient agricultural culture archeologically proven to have been cultivated in Georgia. Even today, in some villages of Samegrelo (fig. 55) toponyms such as *Nachvu* and *Nachvi* (places were rye was sown in old times) are encountered.

According to the eldest dwellers of Samegrelo (Martvili region), *Chve-Chvavi* (rye) was sown mainly in highlands and foothills. Autumn and spring seeds were distinguished. Autumn seeds were sown before the frost came and spring seeds in late April or early May. The crop was harvested by late June or in early July. In this period, straw became yellow pointing to corns ripening. Heavy ears bent downwards, therefore corn was reaped earlier in order not to scatter the grains. Highlands' rye ripened comparatively late, getting harvested by the end of *Mariamobistve* (August) or in the beginning of *Enkenistve* (September). Rye straw was to be stored away immediately, because in wet days its value reduced. It was cut with sickles. Before consumption, *Kvakvi* (reaped straw) was

Fig. 54. Rye–*Secale cereale* L.

stored in granaries. In windy weather, straw sheaves were spread on *Chelti* (waved harrow); by striking with a stick or *Kakuti* (wooden hook) the grain was threshed. Then it was winnowed. In cold weather, spikes were hung up on chains over the hearth and rye spikes got smoked in order to dry well and become easily ground (Maisaia et al.., 2005).

Rye is less choosy when it comes soil and humidity; it is frost and draught resistant and is a useful member of crop rotation.

Rye bread, owing to its flavor and taste peculiarities, is not inferior to wheat bread. It is quite nourishing. Rye cake was used in various church rituals. For accomplishment of "Nertsis Khvami" ritual, for example, a big loaf of *Lobio-puri* (bean-bread) was baked for supper, placed in a *Nisori* (wooden trough) and placed on the ground, in the east corner of the house. This ritual was accomplished to appease the angry house goblin (Abakelia, 1999).

The eldest woman of the family baked *Khachapuri* from rye flour to protect the family from disease known under the name of *Napra* or *Napurakha*. She carried *Khachapuri*, candle, incense and a firebrand of alder tree to the forest or a maize field, kneeled facing the west, turned the dish left and right and beseeched God for recovery from illness (Bregadze, 1969).

In the XIX–XX centuries, rye crops were evidenced in Racha-Lechkhumi, Svaneti and Abkhazia.

In the letter compiled by David Dadiani, the last sovereign of Samegrelo, the crops cultivated in Samegrelo in the first half of the XIX century are precisely described, and rye is mentioned among them (Meunargia, 1939).

Field ethnographical materials of the 1960s verify that the following cultures were grown in Samegrelo from ancient times: white long-grained rye, *Nabadi (black cloak)* rye, fine red grain rye and thick grain rye named *Moshkhue Kakali* (Bregadze, 1968).

According to inhabitants of Gali region, rye ripened before mize. It was reaped in June, stacked in sheaves and placed under a roof to avoid moistening and rot; after drying, a mat was spread in the field and sheaves were placed on it. Beating sheaves with wooden sticks separated the grains; then the crops were winnowed, well dried and used for bread baking. *Sapuari* (yeast) was prepared by separately kneading a little rye flour and allowing it to go sour (Gali region, village Sida, narrator T.Shamugia, (2014).

In Tusheti rye was traditionally cultivated alongside other cereals (fig. 56). From ancient times, it was used along with *Dika* in bread baking. Drinks were also prepared from it: grains were cleaned, dried and ground; then they were dissolved in water, boiled and left in warm place; after a week, fermentation would start, resulting in a very tasty drink. Tsova-Tushetians called it *Nikhi*; it was often made in winter. In Tsova-Tusheti, people also used the liquid that emerged on the surface of the mass prepared for arrack distillation as a drink, calling it *Boza* (Shavkhelishvili, 1987).

Fig. 55. Samegrelo, Nokalakevi, river Tekhura gorge

In Pshavi, *Batsaroba* (spring rye) was sown in spring, while *Stvilis Svila* was sown in summer. Sowing in that region was usually done by men. The seeds selected for sowing were put into a *Guda* (wineskin) and hanged from the shoulder. Alternatively, they could be poured into a apron; the sower took a handful of seeds and scattered them in the cultivated soil; sown seeds were immediately harrowed to protect them from birds. When harrowing was finished, the owner would split a small log and put some roots and grass inside; then he stuck the log into the harrowed soil and prayed to God for mercy and heavy crops.

For threshing rye, a large flat stone was used. Stone was placed in the middle and a board was rested on it. The thresher would take two straws, hold them in both hands and strike the board with them simultaneously; after three or four blows, grains would pour out of rye ears. If sheaves had grains still left in the ears, the shaker would use a small iron stick to beat them out. *Maka* (unthreshed spikes of rye) were separated from crops by a pitchfork. At the end of threshing, one straw of rye called *Karti* was left and used for covering the Pshavs' houses. Rye crops were winnowed and kept in *Kodi* (bin). Pshavs started milling crops and preparing for winter in autumn (Makalatia, 1934; Jalabadze, 1963, Bodzashvili, 1988).

In Tusheti, rye was grown at more than 2000 meters above sea level. It had long, pale, bluish grains; lowlands' rye is blackish. Taste of Tushetian rye greatly differed from its lowlands counterpart as well; it was sown mostly in autumn and yielded crops in the second half of next year's August. The rye was reaped by sickles and gathered

Fig.56. Tushian house

into sheaves which, in turn, were gathered into *Chadali* (stacks) before getting carried home. An inclined board was placed on the threshing floor. Rye was not threshed – it was shaken. Straws and ears were stroked upon the board and grains rolled off them and down it. The remained grains were pounded out by a small iron stick. After shaking, a lot of *Makata* (broken spikes) remained behind; they were brushed out, poured on the threshing floor and then winnowed. Straw was put into stacks called *Nabari*, and put under a roof for storage. (Jalabadze, 1986; Bochoridze, 1993).

Highland regions of Georgia are known for predominantly growing rye.

MILLET CULTURES

GHOMI // ITALLIAN MILLET

Setaria italica (L.) P. Beauv.

One of the most ancient achievements of the Georgian agriculturists among cereals is millet culture.

Before spreading of maize culture (XVII century) in Georgia, namely in its western part, the main food culture was Italian millet, called *Nchkhvari* in Laz dialect, *Ghomu/Ghomi* in Chan and *Ghumu/Chkhveri* in Megrelian (Maisaia, 2005, 2009).

Fig. 57. Italian millet –*Setaria italica* (L.) P. Beauv. Dighomi experimental base plot of the Botanical Institute, 2000

In the past, Italian millet (fig. 57) occupied wide areas of Georgian settlements. Important notes about its distribution are corroborated by old Georgian sources, records of foreign travelers and scientists.

According to descriptions of the XV century travelers, Josaphat Barbaro and Ambrogio Kontarini, it is evident that Italian millet was one of the main foods in Georgia. Significant notes are provided by the XVII century missionaries such as Pietro Avitabile (1623-1634), Juzepe Judiche (1632-1640) and Don Christophoro de Casteli (1632-1645) indicated that Italian millet dominated among crop cultures in western Georgia (Rukhadze, 1976).

According to the XVII century missionary Archangelo Lamberdt, "...Megrelians usually eat Italian millet, not bread; and the foreigners are sure that even if they import bread they will not be able to sell it here" (Lambert, 1938).

French traveler Jan Chardin (XVII century), who visited Georgia in 1672-1673, mentioned that "...Cherkhezians, Megrelians, tributary to Turkey Georgians, Apkhazians, inhabitants of

Fig. 58. Samegrelo, Tsikhe-Goji, Senaki, village Nokalakevi

Fig. 59. Italian millet crops. Collection plot of the National Botanical Garden of Georgia

he Caucasus, all those dwelling at the Black Sea littoral area from the strait of Meotidi to Trebizond, eat only this porridge of Italian millet, this is their bread, they have nothing besides it. They are so much used to it that they even prefer Italian millet to bread" (Chardin, 1975).

Italian missioners Don Christopher de Kasteli and Don Juzepe Judiche Milaneli (XVII century), and later German scientists J. Guldenstadt (18th c.), K. Kokh and O. Spencer (first half of the XIX century) Italian millet was one of the leading cultures indicate that in Megrelian agriculture (Maisaia, 2009).

Church and Monastic duty lists of western Georgia, at the end of the XVI century and in XVII-XVIII centuries, only mention Italian millet and omit all other cereals (Rukhadze, 1976).

In the document (1852) compiled at the time of the last Sovereign David Dadiani (1846-1853) specification of cereal cultures distributed at that time in Samegrelo is given, and Italian millet tops the list (Meunargia, 1939).

Carbonized relics of Italian millet have been discovered on the

Fig. 60. Wooden plough (hook), in Megrelian dialect–Agapa. Exhibit of G.Eliava Museum of Local Lore of Martvili

territories of Nokalakevi (IV–III centuries) and Vani (V c.) (fig. 58). Italian and regular millets were widely applied cultures for that period (Lomitashvili, 2010; Bokeria et al..2013, 2014).

The grains of Italian millet discovered in Vani (2–1 cc B.C.) are particularly noteworthy. Theoretically, they could have been used as a sacrifice for for ritual purposes; there also are other signs pointing at Vani inhabitants worshipping the millet cultures (Dzidziguri, 2002).

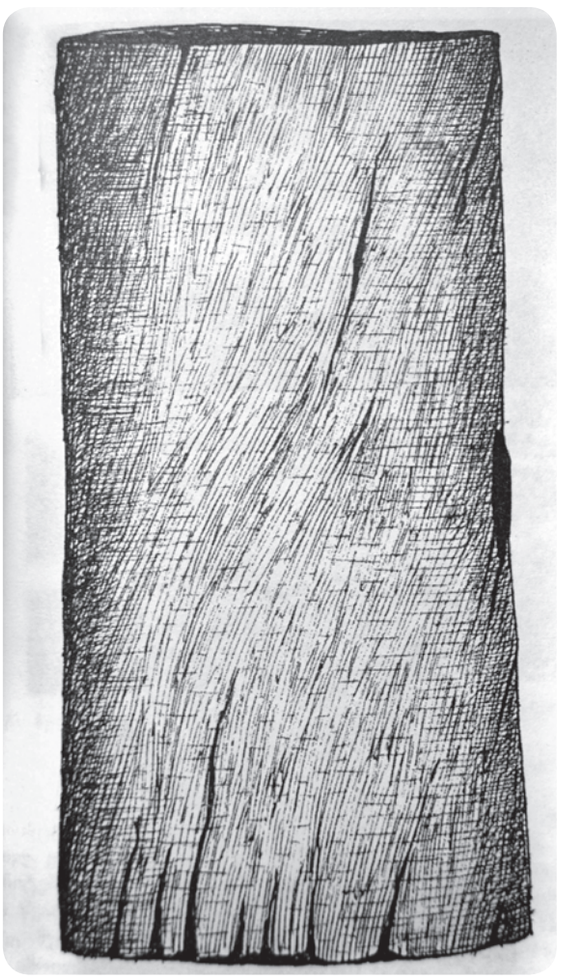

Fig. 61. Bukhuni. Exhibit of Zh. Shartava Museum of Local Lore of Senaki

West Georgia was distinguished by diversity of Italian millet varieties. There were early sorts of Italian millet such as *Shvidkviria* (sevenweek) and *Motsorozi,* the ripening of which took almost two months. It allowed the farmer, after harvesting wheat in the summer, to sow and yield Italian millet on the same land and thus receive two harvests; Italian millet varieties widespread in Lechkhumi were distinguished for their extremely short vegetation period (Mushkudiani, 2001).

Ethnographic research reveals the following varieties of Italian millet culture widespread in Georgia: *Chkinebura, Chita Ghumu, Tsets (tsits) Ghumu, Che Ghumu, Kukhuru Ghumu, Baramula, Dzirdabala, Khuchila, Joriela, Bojga* or *Beghela Ghomi, Kuda Ghomi, Kodzua, Chakura, Nazhghvli Tetri, Matrakha, Kviteli usaxelo, Khitira Tetri, Ortita, Gvelikuda, Kvirikhina, Kuntsuraula, Mgliskuda, Bobokvauri, Khotora, Kirchkheula, Jarula, Gudure, Khazarala, Burchkha Ghomi, Batsarai*, etc.

Italian millet (fig. 59) was sown at the end of April. It was harvested in late August, during the whole September and sometimes in the first half of October.

Italian millet was often sown after harvesting wheat, "...They often sow on the land where wheat was yielded before" (Borozdin et al.., 1927).

According to Archangelo Lambert, "...Usually, if land is

fertile, they follow the following rule: on the first year, they sow Italian millet, next year regular millet (*Miglio*) and on the third — wheat. Afterwards, land is allowed to rest for three or four years" (Lambert, 1938). The practice of burning arable lands was also known — it allowed to clean them from weeds while fertilizing them. Italian millet gave especially bountiful harvests on *Akho* (rested land) and generally on newly cultivated lands which were superficially cultivated with spades for 2-3 years.

In Samegrelo, a comparatively simple rule of land cultivation named *Khonua-Khvna* (tilling with wooden ploughs) (fig. 60) was practiced. *Khula,* a little lump of earth that remained after tilling, was hoed into mush by a special spud for Italian millet, which in Samegrelo was called *Chengi*. Then a special wooden tool called *Meruli* flattened any remaining clods; alternatively, a harrow was used. Prepared that way, the land was ready to receive Italian millet seeds.

In Guria, the land intended for sowing Italian millet had to be dry. If the land wasn't stony, it was initially tilled with spuds then hoed with *Meruli*, harrowed and sown (Sakhokia, 1950).

Fig. 62. Wooden vessel, in Megrelian dialect Kotkho. Martvili, village Mukhurcha

According to elderly denizens of Samegrelo, Italian millet was generally sown on comparatively loose lands completely cleaned from weeds. Sowing of Italian millet on the second cropland after maize harvesting was also favorable due to such land getting weeded three times prior to maize sowing. Places where wide-rooted trees such as oaks and hornbeams grew were also beneficial, as their roots solidified the land and drew water. Italian millet was sown on Monday, called *Tutashkha* (lucky day) or on Thursday, called *Kvatieri* (fertile day). Attention was paid to moon phases; sowing had to start under a full moon, because under a new moon, crops could be wormed. Seeds were poured into a thick-skinned pumpkin (called *Khapi* in Gurian and Ajarian dialects and *Chura* in Megrelian) or a wine-skin (called *Laguji* and *Kechkho* in Megrelian and Gurian dialects, respectively) (fig. 61) or a wooden (*Kotkho*) or ceramic (*Dergi*) vessel (fig. 62). Seeds were sown *Tskorilit* — sparsely and equally, because improperly sown Italian millet grew too densely, becoming hard to weed and developing many infertile spikelets. The sower had to stingily distribute seeds in small handfuls (Maisaia, 1987; Maisaia et al.., 2005).

According to a narrator, "...In Guria, Italian millet was sown sparsely on hill slopes. For equal growth, sand was mixed with seeds; in some cases, the peasant had to sow while running. Sowing of Italian millet required training" (Chokhatauri region, village Partskhma, narrator V. Kikvadze, 2014).

"...In Guria, namely in Shemokmedi, Italian millet was sown. When Italian millet ripened, it was plucked and set out to dry. A special drying rack was set up — four posts were driven into the ground and a flat reinforced board was placed over them. Spikes of Italian millet were spread over it and a fire was started beneath it, at a sufficient distance to warm but insufficient to ignite. Italian millet dried very fast that way. Dried grain was poured into a *Chamuri* (grinder) and milled; chaff was easily separated from dried spikes, which were then dehusked, rinsed and

Fig. 63. Machakhela gorge

Fig. 64. Khula – bin. Giorgi Chitaia Open Air Museum of Ethnography

Fig. 65. Jargvali. Giorgi Chitaia Open Air Museum of Ethnography

eaten with trout soaked in *Bazhe* (walnut sauce) (Ozurgeti region, village Shemokmedi, narr. V. Goliadze, 2014).

"In Ajara's Machakhela gorge (fig. 63) Italian millet was cultivated up to the 1930s — until collectivization came in and ruined it. Threshing time started in August-September; spikes were reaped and tied into bunches; grain was milled and *Ghomi* was prepared; it was eaten with cheese, or with butter poured in it" (Machakhela valley, village Kokoleti, narr. Kh. Kokoladze, 2014).

Weeding was hard work. Archangelo Lambert wrote, "Due to humidity, weeds here grow very fast and hard work is needed for their removal. If not weeded, grass could overrun and annihilate crops. Therefore, as soon as Italian millet seedlings appear, they must be hoed; if a family cannot do that alone, neighbors are asked for assistance. A man has to work hard in scorching heat. Therefore, to ease the work, they invented such a method, that one would think the whole village is feasting. This method involves help at no charge, except for singing and rich food provided by the landowner. They have special songs encouraging hoeing. Quickening of the song rhythm causes hastening of hoeing process" (Lambert, 1938).

Italian millet grew in about two weeks after sowing. This depended on weather. If crops were lax, Italian millet seedlings were transplanted. For this, a rainy day was selected and all family members participated in the work. However, weeding of dense vegetation i.e. removal of overgrown seedlings started when first 2-3 leaves appeared on Italian millet seedlings. The first hoeing was carried out with *Bergi* — a small hoe which was called *Chengi* or *Bekakuti* in Samegrelo, *Keko* in Imereti and *Panuani Tokhi* in Guria. First hoeing was hard and responsible work that required expertise, because it was difficult to distinguish fresh seedlings of Italian millet from weeds. This process was called *Pirveli Bargva* or *Dokershva* in Megrelian dialect. The second hoeing was carried out after 10-15 or 15-20 days. This work was known in Samegrelo as *Mazhirua* or *Dotskvari*, and as *Gamorideba* or *Morodva* in Imereti. It took place only in sunny weather. (Maisaia,1987).

Second hoeing, unlike the first one, was easy to accomplish. Sparsely sown and well-grown Italian millet was easily distinguishable from weeds. In case the harvest was overgrown by weeds, a third hoeing was carried out, although it happened rarely. Soil was hilled up around the plant and fertilized with silt. At the final stage of growth, Italian millet developed spikes. After ripening, the spikes were reaped with a sickle. Reaping was called *Gimua* in Megrelian, and started mainly in October. Therefore, October in Megrelian was named —*Gimatuta*, in Laz —*Gumatuta*.

In western Georgia, Italian millet was reaped manually — spikes were cut with wooden or metal knives (*Jashi Khamuti* in Megrelian). Local Italian millet crops were of varying colors, including golden, yellow or cinnamon, depending on their type. Italian millet crops were sown and collected in good weather, because wet spikes were hard to dry in special driers. The farmer carefully selected healthy spikes for seeds; selected spikes were cut, tied together and put in barn (fig. 64) or otherwise kept separately. In some cases, the spikes were weaved together and hung in a *Jargvali* (fig. 65) to get smoked. During sowing, spikes were ground up by hand.

According to the elderly, Italian millet yielded twice. At first only spikes were cut, as straw was still fresh. They did not have to wait for drying of straw, because grains easily fell from from over-dried spikes (Maisaia, 1987).

After reaping and threshing Italian millet, at supper a praying meal (*Otsesuri* in Megrelian) was held. The prayer was usually said by the eldest member of the family. Pig or chicken haslets, candles, incense and *Muncha* —

Fig.66. Granary for the maize — Nania. Giorgi Chitaia Open Air Museum of Ethnography

the first bunch of Italian millet — were taken to a sacred pitcher. A prayer was said to God, creator of *Ghomi* and life-giving angel; only then the new harvest could be consumed (Chanturishvili, 1973).

Reaped spikes were put in plain or cylindrical baskets and carried home manually or on special carts. It was first dried under the sun and then taken to a granary named *Nania* (fig. 66). In Samegrelo, *Nania* is also called *Okvale*. Under the granary a fire was lit and covered with fresh alder leaves to dry the crops. The fire was maintained until the leaves dried. A single man was tasked with turning the spikes over and watching the fire. He kept a jug filled with water handy in order to spray water at blazing flames if they got too high. Afterwards, Italian millet was relocated to another granary (*Baghu* in Megrelian, *Begheli* in Guruli) in special baskets that could keep it clean and away from mice. Before consumption, Italian millet would be brought from the granary in a basket and placed on *Lasti* (*Oleshi* in Megrelian, *Ovleshi* in Laz), which hanged over the soft fire of the hearth for drying (fig. 67). When millet stems became crunchy and easily broken, it was ready for milling. Contaminants and straw were picked out, the dried spikes of Italian millet were distributed in even piles and women threshed them with flails or feet. In Megrelian, this process is called *Chachua/Onakasua/Chicholua/Kasua*, while Gurians call it *Mogundaveba* or *Motekhva* (breaking). Next, milling started, usually by hand; cleaned spikes of Italian millet were put into a wooden (fig. 68) or stone grinder (fig. 69). Milling of Italian millet was hard work. Landowners had grinder serfs called *Mojalabe* for this work; in Samegrelo, they belonged to the lowest category of serfs. For milling of Italian millet, *Nadi* was

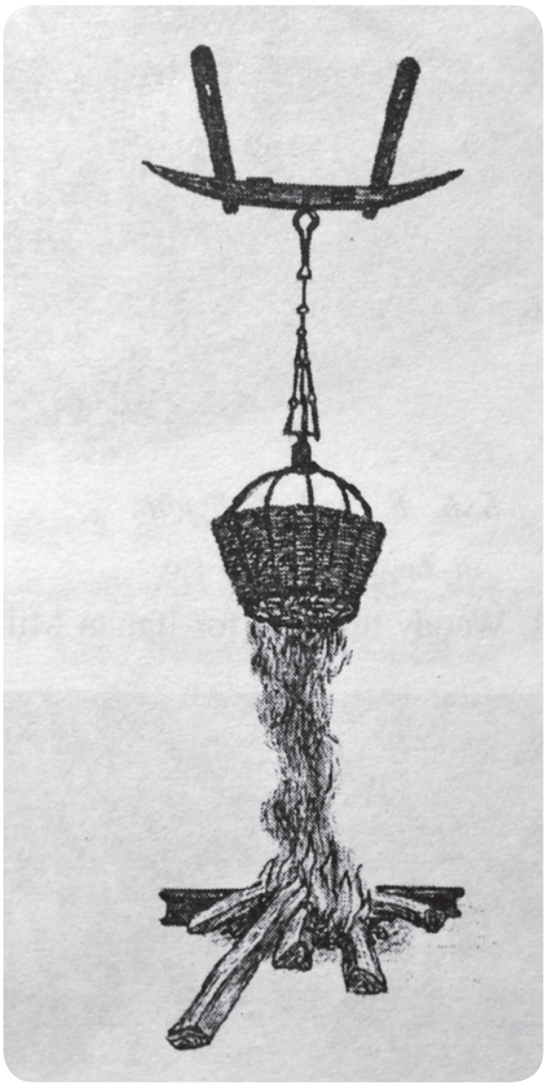

Fig. 67. Weaved tray, in Megrelian *Ole*

Fig. 68. Wooden flail. Exhibit of G. Eliava Museum of Local Lore of Senaki

Fig. 69. Stone mortar. Khoni, village Besiauri

organized. Millers would stand around *Chamuri* and strike with their flails in turns (fig. 70). In Samegrelo, this hard work was accompanied by counting or, in case of Guria, chanting (fig. 71). According to notes by M.Vanilish and A. Tandilava (1964), Laz *Nadi* was distinguished by singing of folk songs and making puns while working. It was prepared for in advance; a separate meal was cooked for every family member, and on the day of *Nadi,* early in the morning, one of the family members would climb the highest spot in the village and call "Haide", haide" (Let's go).

After the first grinding, called *Gvardua* in Megrelian, grains were semi-husked. It was a dusty work. To avoid spikes getting stuck in the bottom of *Chamuri,* frequent stirring was necessary. Semi-threshed Ghomi grains were shifted into a wooden trough (fig. 72) known in Megrelian as *Nisori* or *Sargha*, and as *Pileki* in Laz (fig. 73), which was rotated by a woman who manually dehusked the grains. After that it was winnowed in windy weather and the winnowed grains were poured into the grinder for a second grinding, which was called *Mopijorua* in Megrelian.

Fig.70. Threshing of Italian millet, Samegrelo, Homestead of Landlord

Fig. 71. Threshing of Italian millet, Guria. N.Berdzenishvili Museum of Local Lore of Chokhatauri

Fig. 72. Wooden tray, Tsageri, village Makhashi

Fig. 73. Laz wooden tray; in Lazian — *Pileki* Lazeti, Artvini

This required a very careful and staid approach to avoid grains erupting from the grinder. Double-ground Italian millet was shifted to the wooden tray and winnowed yet. The second winnowing was called *Bakva*. If the spikes were not well dried, Italian millet was ground for the third time. This work was called *Chkhvarva* and grains were winnowed again. Threshed and cleaned grains of Italian millet were called *Chkhveri* in Megrelian (Maisaia 1987).

Megrelians still maintain the tradition of cooking thick porridge from dehusked Italian millet grains — a delicious and healthy meal known as *Ghomi* (fig. 74); another tradition includes using Italian millet flour for baking bread called *Mchadi*. Manually operated mill for grinding Italian millet was called *Skibu* in Megrelian and *Kheshi karmate* in Laz (fig. 75).

According to the notes of German traveler Eduard Eichwald (the first third of the XIX century), "Italian millet was cultivated in Imereti, from which soft cake or "pudding" were prepared. No meal was eaten without it. They boiled it in a cast iron kettle and put their portions in with wide spoons… When water started boiling, they stirred this Ghomi mass until all granules were mashed and thickened, fire was lit, water evaporated and from the mass a kind of quadrangular loaves were made, which were stored for a long time" (Eichwald, 2005).

"In Guria, Italian millet was ground by hand, foot or in a water grinder (fig. 76). From ground grains of Italian millet they used to boil a milky porridge, a wonderful diet meal" (Chokhatauri region, village Surebi, narrator L.Lomineishvili, 2014).

According to the elderly, "…In Guria, ground grains were boiled in a special kettle for Ghomi, called *Kapchana* or *Tenjera,* and porridge of Italian millet was put on tripod or quadruped tables (Chokhatauri region, vil-

Fig.74. Keria — the Hearth, Giorgi Chitaia Open Air Museum of Ethnography

lage Partskhma, narrator, V.Kikvadze, 2014).

According to the elderly denizens of Samurzakano, Gali region, *Chkhveri* (Italian millet) was grown in only small amount. In autumn, ripened spikes were tied in bunches and hung in a *Patskha* — (wicker house covered with straw) for drying. They used to grind them in manual or foot-driven grinders (Fig. 77). Ghomi was made mainly for Christmas and New Year's Eve to honor their guests. For children, this milky porridge was prepared only as a diet meal (Gali region, village Sida, narrator T.Shamugia, 2014).

People held a strong belief that meals produced from Italian millet had not only high nutrient value, but also a very positive effect on human organism. After eating Ghomi, even those who had just finished a long bout of hard physical work, felt rather strong and able-bodied. *Chkuka*, another kind of porridge, was made in Samegrelo in accordance to a special rule. Thick porridge was boiled with a little salt sprinkled in, and half a glass of honey along with a glass of mortared walnuts was added to it while it boiled. It was an extremely nutritious foodstuff. Italian millet al.so served in preparation of *Elarji* — same as *Ghomi,* except with fresh cheese. *lapopi* was a thin cake similar to *Khachapuri.* It was also made of Italian millet flour, and over it ground walnut and chopped onions were sprinkled. Boiled porridges of Italian millet

Fig. 75. Hand mill, in Laz *Kheshi Karmate*, Lazeti, Artvini

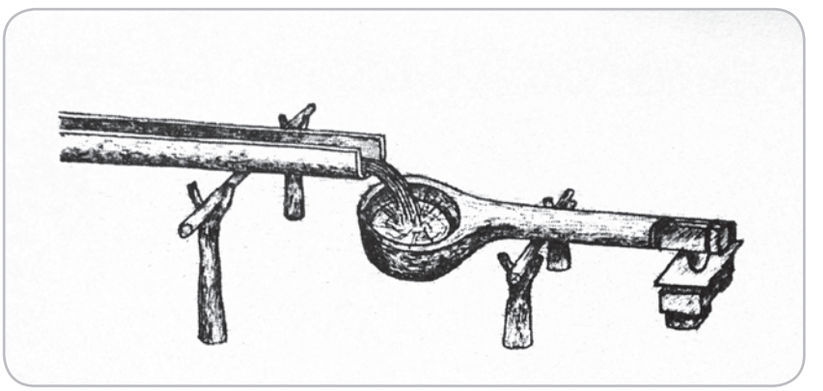

Fig. 76. Water thresher

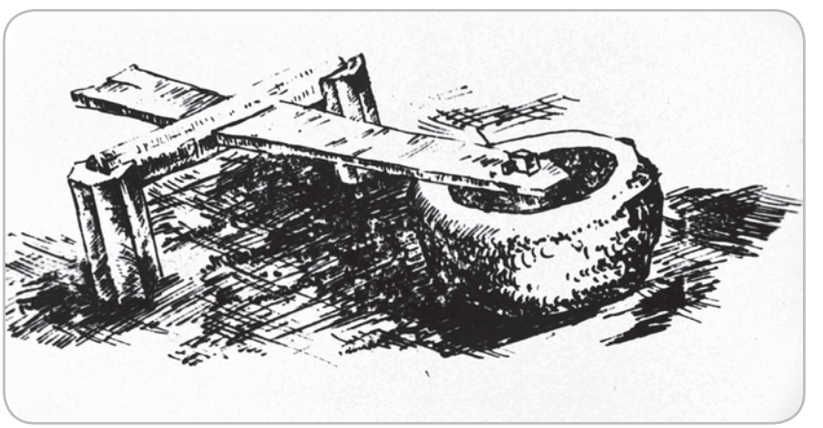

Fig. 77. Foot thresher

Fig. 78. Thresher, in Laz — Onchamue, Lazeti, Artvini

were also frequently dressed with walnut and oil. Other examples include *Khavitsi* — porridge with honey which was often suggested to new mothers, and *Alakurti* — made of finest fried Italian millet, flax or yellow maize grains, dressed with walnut oil or boiled butter. In upper Samegrelo, "*Alakurti*" was the synonym of a well-cooked *Ghomi*. (Soselia, 1955).

Ghomi was the staple meal for Megrelians. Traditionally it was prepared every day and eaten hot with cheese and/or sauce. Ghomi was eaten as a garnish with meals dressed with walnut, such as *Satsivi, Kharcho* or *Gebzhalia.* Another popular addition to the porridge was a mixture of cheese and *Matsoni* (Georgian yoghurt) flavored with mint (Topchisvili, 2010).

Italian millet grains were also consumed as diet food for treatment of gastrointestinal diseases. Tibu, the medicine for treating flu, was prepared in the following way: grains were washed and covered with 2-3 liters of boiling water; one or two cloves of garlic were added and flavoured with ground savory and hot pepper. It was given to patients as a diaphoretic.

According to elderly denizens of Lazeti, Italian millet was sown in March and harvested in July or August; they call it K*urumi*. Ripened spikes were cut with a knife and then dried in a *Sachaki* or *Keghemuri*; if stored inside homes, bunches of Italian millet were hanged from pillars to protect them from mice. Italian millet was threshed in a special groat grinder called *Onchamue* with a wooden stick called *Kakuti* (fig. 78) and then winnowed. From threshed grains of Italian millet, four kinds of meals were cooked. First one was a soup called *Chorba* in Laz that involved boiling little threshed groats of Italian millet in milk; the second meal was porridge called *Ghomu,* not dissimilar from Megrelian *Ghomi. Nogubei,* made of chopped cabbage, legumes and threshed Italian millet was the third meal; if they had walnuts (*Neai*), they pounded them in a wooden mortar and added to the meal, calling it *Nogubey orzeni*. This meal was eaten with sour cream and black grape juice. The fourth meal is *Kaplama,* cooked with Italian millet (instead of rice), potato and spinach (Lazeti, Artvini, 2014)[1].

Grains of Italian millet and straw also served as highly concentrated and nutritious fodder for domestic animals.

Due to such multiplicity of applications, Italian millet was part of obligatory sovereign taxes and was taxed at a high rate (fig. 79).

High nutrition value of Italian millet is owed to its high content of proteins and vitamins (PP, B, C, B_2). It is also noteworthy that grains of Italian millet al.so contain globular proteins called albumins (40-60%) and amino acids.

Italian millet has also been an inalienable element of cult rituals since times immemorial.

The ceremony of congratulations on the first day of a New Year in western Georgia follows a fixed, age-old routine. At dawn, *Mekvle* gets up and goes round the yard carrying *Chichilaki* — a New Year's tree and a basin filled

[1] *The data was provided by Ceren Kazanci.*

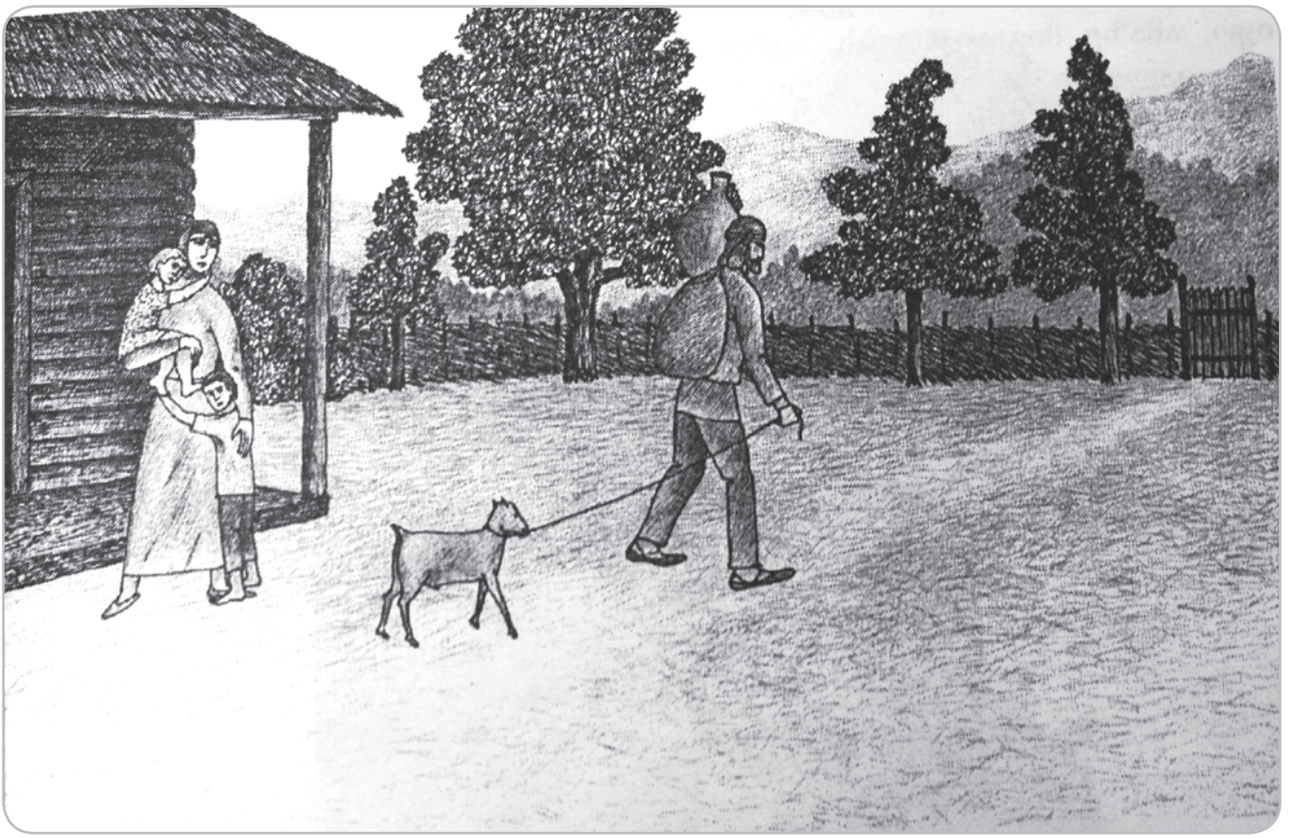

Fig. 79. Peasant is carrying the harvest to the Landlord

with *Chkhveri* (Italian millet), silver coins, an egg, some ivy and damp nut branches symbolizing abundance (Maisaia 1987, 2009).

According to notes of T. Sakhokia (1897), "...In the morning, when birds are still sleeping, the Megrelian Mekvle is awake and ready to go to the cold spring and wash his hands and face there. Afterwards, he takes a fistful of Chkhveri, submerges it into water for a moment, then takes it out and opens the palm: if they are dry, the year will be droughty, if wet, then the year will be wet. When the Mekvle returns from the spring, he carries a jug of water as he enters Jargvali, holding in one hand a Chichilaki with lit candles, in the other hand a tray – Barqashi, on which are placed: a jug with wine, head of a pig, sugar, chicken, pies, one basin of Chkhveri and roasted pork. The head of the family goes and throws Chkhveri grains around, then enters the house and does the same. At this time, he prays: "Saint Basil's coming, flourish and multiply our family and bring us mercy." For dinner, a chicken is slaughtered for Mekvle and blood is poured on Chkhveri. Then other chickens are fed with this bloody Chkhveri. Such chicks, when grown, would not eat grapes". (Sakhokia, 1897, 1956).

Cooking of Ghomi for Kalanda/New Year's Eve was a way of predicting the future. If Ghomi started boiling from the center, rich harvest was expected only in that village, if from the sides (edges), good harvest was expected everywhere (Maisaia, 2009).

In the ethnographical life of western Georgia, grains of Italian millet were the symbol of fruitfulness (fertility) and production. Italian millet was brought by a groom entering the bride's house as a symbol of abundance and generation.

A *Mperkhavi* used to visit Gurian families on the second day of the New Year. He was given a clay jug filled with grains of Italian millet and walnuts. He would go to the henhouse accompanied by children, walk around it and then drop and break the jar. Children would pick up the walnuts, but grains would be left to chickens; if all walnuts were picked up quickly, hens would be in lay for the whole year. Afterwards, the *Mperkhavi* was invited to dinner (Sakhokia 1997; Rukhadze 1976: Abakelia et al. 1991).

Millet represented milestone of Messrs (title.,Chxvere — Tsitela) (Chanturishvili, 1973)

In Imereti, the following rite was performed on Saint Barbara's Day: "... A bitter pumpkin was emptied, *Chkho* — unthreshed Italian millet — was poured inside and a *Godori* (cylindrical basket) was placed in front of it. A child would stand on the basket and turn around clockwise with his right hand stretched out. In his right hand, the child had to hold an egg; meanwhile, other children would walk in circles around it and cluck as chickens do. After doing three spins on the basked, the child would stand straight and say: "God multiply ducklings and chicks!". After that, he would jump from the basket, kick the pumpkin and send the grains flying. However, if he missed the pumpkin or failed to properly scatter the grain, he would be scolded. People believed that the number of poultry owned by the family depended on the number of scattered grains (Kakhiani, 1964).

In Samegrelo, the so-called Icon of Ghomi existed, named *Ghumushi okhvameri.* When Italian millet shot its first spikelets, families baked buns with crosses stamped on them and took them to the field to bury. They asked God for a plentiful harvest, and when Italian millet was harvested, the eldest woman of the family would bake *Tabla* from freshly milled grain, with the filling of walnut and spices. She would then slaughter an old rooster for a Mekhvave — a person who prayed for abundance and richness of the following year (Makalatia, 1941; Rukhadze, 1976).

Since ancient times, Italian millet was the breadwinner culture of Colchis. Today, however, Italian millet is a rare culture in west Georgia, as it was driven out by maize.

FETVI // PROSO MILLET

Punicum miliaceum L.

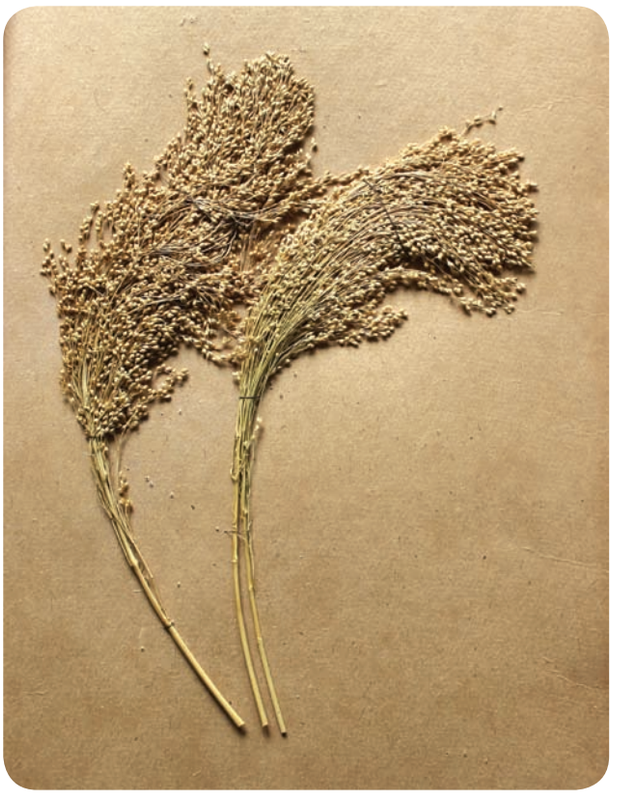

Fig.80. Millet —*Panicum milliaceum* L.

For a long time among cereal cultures, millet occupied a significant place in agricultural life of Georgians (fig. 80). In Laz and Chan it is called *Mchkidi,* in Megrelian — *Chkidshi/Chkidi,* in Svan — *Petv/Petvera,* in Imeretian and Gurian dialects — *Chadi;* in Apkhazian — *Ashagrdz,* in Kakhetian — *Parchkha/Pachka.* In Racha, millet was also called *Chadi* and in Lechkhumi — *Petvi* and *Shavi chadi* (Chikobava, 1938; Makashvili, 1991; Alavidze, 1951; Kalandia, 2005; Machavariani, 2006).

According to Iv. Javakhishvili's definition (1930), in ancient Georgia millet was the most distinguished plant in the millet group of cereal cultures. *Petv* is mentioned in documents and monuments depicting the life of both eastern and western Georgia. In the Georgian translation of Genesis, *Petvi* is mentioned among wheat cultures and other cereals (Javakhishvili, 1934). Millet is also mentioned in the XI century manuscripts of the Monastery of the Mount Athos (the XI century) and Nikortsminda (11th cen.), under the name of *Petvi kabitsi.* According to it, in the document pertaining to the period of David Narini (XIII century) sent to the monastery of Gelati, peasants of Parsmanqhana and Maghlaki had to pay taxes with *Ipkli,* millet and Italian millet. Millet was cultivated in Georgia in XII–XIII centuries (Dekaprelevich, 1938; Jalabadze, 1990; Maisaia, 1998).

According to notes left by Italian travelers, in Samegrelo people used to cook thin millet porridge, which was eaten as soup (Collection: Notes of the XV century Italian travelers, 1981). S.Makalatia mentions in his book "History and ethnography of Samegrelo" (1941) that "...From ancient times, Megrelians sown millet and Italian millet — *Chkhveri* and *Chkidi* — which were the main cereals consumed by the population. With Italian millet, porridge Ghumu was cooked and from millet flour, Chkidi was baked or little buns — *Kveri* — were boiled".

When describing Samegrelo, Archangello Lamberdt (XVII century) and Jean Chardin (XVII century) mentioned that besides Italian millet, large amounts of millet were cultivated there (Lamberdt, 1938; Chardin, 1975).

According to notes of Don Christophoro de Casteli (XVII century) and J. Guldenstadt(XVIII century) millet is mentioned among cereals distributed in west Georgia (Casteli, 1976, Guldenstadt, 1962).

Byzantine historian Prokophi Caesarian (VI century) has indicated several times that the aboriginal population of the region consumed millet, ignored by Romans. Roman historian and geographer Strabo (1st century BC. and

Fig. 81. Millet crops

1st c. A.D*)* considered millet to be a rather resistant culture, sown in the kingdom of Ponto in enormous amounts (Dzidziguri, 2002).

Vakhushti Batonishvili gives noteworthy information on cultural plants of Georgia and their importance: "There is a country beautiful and fruitful where all kinds of cereals flourish: rice, wheat, barley, oats, Italian millet, millet, chickpea and others" (Vakhushti, 1941).

K.Kokh (1836-1838) and O.Spencer (1836-1837) in their notes describe in detail how some kind of porridge — Polenta was prepared from millet flour in Georgia (Maisaia, 1998).

G. Chitaia (1959) wrote that millet and highland wheat predominated in Colchis. Millet played an important role in seed rotation.

Paleobotanical data confirms that from the second millennium BC and until the end of the first millennium, millet was widely distributed in both eastern and western territories of Georgia. As suggested by VI. Menabde (1948) according to rich archeological materials of ancient Colchis and excavated plant traces, it can be said that in the prehistoric period in western Georgia millet cultures (millet, foxtail millet) were more widespread than wheat and barley.

Another important finding involves carbonized seeds unearthed in Arukhlo, in the layers dating back to the 6th- 4th millennia (Rusishvili, 1990). In archeological excavations of Dikha Gudzuba, among other cereals, millet was

also found. N.Khoshtaria assigned these materials to the end of the Neolithic period (8th–6th millennia) (Khoshtaria. 1944).

According torecent investigations, traces of millet were also found on archeological monuments of west Georgia (Nokalakevi, IV–III centuries; Vani–V–c.) (Bokeria, 2013; 2014).

According to legends maintained in different parts of Georgia, there were four millet varieties: red, white, yellow and black.

In the document compiled by David Dadiani in 1852, cultural plants that were cultivated in Samegrelo in the first half of the XIX century were described in detail. From this description it becomes evident that in that period two millet varieties were sown, named white and black millet, respectively (Meunargia, 1939).

According to data provided by N.Kakhidze's (1968), millet cornfields (fig. 81) occupied the main place in field agriculture of Machakhela valleys.

According to the length of the vegetation period, two geographic–ecological groups could be identified:

1) Highland millet group, characterized by a short vegetation period that takes about 70–80 days from germination to full ripening. Millet varieties distributed in Svaneti, Racha–Lechkhumi and other highlands of Georgia are representatives of this group.

2) Lowland millet, distinguished by a relatively long vegetation period that takes about 100–120 days from germination to full ripening. Typical representatives of this group are millet varieties distributed in lowlands of Guria, Imereti, Samegrelo and some other parts of Georgia. (Maisaia, Mosulishvili, 2003).

National agrotechnical methods of millet growing, while similar to that of Italian millet, are nevertheless specific. Millet was sown in August. According to the eldest: "ploughing for millet must be done only on Monday or Thursday. These days are assigned for land cultivation. Seeds must be sown on a new moon" (Maisaia, 1998).

One of the characteristic biological peculiarities of millet is its comparatively slow growth at the initial stage, which causes overgrowth of weeds. Therefore, special attention is paid to selection of millet predecessor cultures in seed rotation. Legumes are good in this regard, due to enriching soil with nitrogen.

It is worth mentioning that millet itself is a good predecessor of other cultures. For instance, Svan agriculturists noticed long ago that millet ripened earlier than other cereals, therefore making it possible to sow it in late spring. By that time, fields would already be covered in weeds. Initially the earth would be cleaned from weeds with hoes and other tools. Afterwards, the remained weeds would finally be exterminated in the process of millet weeding. Millet was weeded by a special tool called *Tsami*. Millet, sown on well–cultivated soil, not only gave a rich yield, but also cleansed the soil for other cultures (Maisaia, 1998).

Drought tolerance and short vegetation are features significant from the economic point of view, conditioning the importance of millet as a protective and fall–back culture. In case of damage of autumn and spring cultures due to a variety of reasons, it is always possible to re–sow the damaged crops with millet. In ancient Colchis there was a tradition of rotating ploughed fields of millet cultures: millet was sown for two years, the following two years were reserved for Italian millet, then millet again and so on.

In western Georgia, earth was cultivated in early spring by wooden hooks (fig. 82). According to narrators, "When sowing of maize ended, *Mchadi* was sown in May or late April. It could be sown on fields after wheat. If *Mchadi* was sown after wheat, then earth was hoed only once; otherwise, it took two times" (Kvemo Imereti).

"Earth was ploughed in spring — in March or April. On the next day it was harrowed thoroughly; seeds were sown immediately and harrowed again. First harrowing was needed to level the land in order to allow the plants to grow evenly, otherwise millet seeds wood drop deep into soil and become slowed in growing and ripening. Millet must be reaped with a sickle and threshed similarly to wheat (Zemo Kartli)". "Millet here is reaped after August, with grain fall very carefully avoided. Stacks of millet straw were not stacked into tenths of sheaves, but rested against each other in a circle called *Meleuri* (Materials for the history of the local industry and handicraft, 1987; Kakhadze, 1987; Maisaia, 1998). Millet was sown in Pshavi as well, with men and women participating equally in reaping. Stacks were put into a *Tseri* (wide sheaf) and over it three stakes were put to keep sheaves from falling and protect grains from rotting in rain or snow. Sheaves were shifted to the threshing floor manually

Fig.82. Wooden plough (hook). Khoni, village Gubi

Fig. 83. Kakhetian homestead. Giorgi Chitaia Open Air Museum of Ethnography

or by horse or sledge (*Manjiki* — little sledge and *Kali* — improvised strechers). Threshing of millet took place on two types of threshing floors: *Velis* (valley) and *Sapriani* (roofed). Pshavs who lived in valleys of the lori river used to thresh millet with a threshing board (Jalabadze, 1963, 1986).

In early spring, large amounts of millet were cultivated in almost all villages of Kakheti (fig. 83). Usually millet had to be sown in March and April in order to ripen for early August. The harvested crops were stored in pits and bins. Grains were ground in a groat grinder (fig. 84). Millet was milled and from the millet flour, sometimes mixed with wheat flour, *Mchadi* was baked. It was also used as cattle fodder (Jalabadze, 1963, 1986).

According to observations of Koch and Spencer, European travelers in the first half of the XIX century, mountaineers of eastern Georgia consumed little millet or *Matsoni* (Koch, Spencer, 1981).

Fig.84. Threshing of Millet

According to the elderly, "...In ancient times in Samegrelo, millet was ground in *Skibu* (manual grinder). Fine flour was kneaded with milk and baked on flat stone slabs; slabs were heated, padded with walnut leaves and the paste was placed on them and flattened. Then it was covered with a tin plate called *Tanaka* on which glowing embers were spread. When the surface of the paste dried, additional walnut leaves were placed, creating an oven-like effect" (Martvili region, village Levakhane, narrator N.Sigua,1996).

Ethnographic research of ancient Georgia reveals that millet was sown in rows, with a distance of approximately 45-50 cm. The depth was envisaged at 4 — 5 cm because seeds penetrated deeper due to their small size, which would result in fragile and week seedlings. In a week's time millet seeds germinate and sprout. As soon as the rows of seedlings appear, the crops need multiple weeding and hoeing. Millet is harvested in the period of the plant full ripening — it is tied into bunches and stored in dry conditions.

In Samegrelo, *Mchadi* was usually ground by a *Chamuri* (groat grinder) (fig. 85).

"...If anyone in Svaneti had sown millet in large amounts, he would thresh it by trampling it. He'd put *Chavi* (a wide plated container) upside down, place millet bunches on it and trample them with his feet, letting the grain pour down" (Kvemo Svaneti). Afterwards, grains were poured into a groat grinder and flailed with *Kakuti* (flails), then

Fig.85. Threshing of Millet. Giorgi Chitaia Open Air Museum of Ethnography

winnowed — cleaned and flailed again but in this case, millet in the groat grinder was covered with maize leaves in order not to lose any of it. When half was flailed, grain was taken out of the grinder and winnowed again (Materials for history of local industry and handicraft, 1987; Kakhadze, 1987; Maisaia, 1998).

Flailed grains were stored in the millet bin (*Laptural kibdven* in Svan). According to narrators, "*Mchadi* (thin bread) or boiled small buns mixed with cheese were baked with millet flour. Sometimes it was mixed with mashed fresh cheese and warm water and baked on flat stone slabs. It was called *Chvishtari*" (Martvili region, village Muchurcha, narrator P.Pochkua, 2010).

In Zemo Svaneti (fig. 86) millet flour was used in preparation of *Petvra Chishdvari, Petvra lukvne, petvra khevtsari. "* ... Millet grains are ground in a hand mill and sieved. Then the flour is mixed with cheese, flavored with *Utskho suneli* (spices), the prepared filling is then put into the paste made of wheat flour and *Petvrai* is baked. Sometimes little buns are made of millet flour and cheese, which can be eaten raw. We also cook *Chishdvar* by mixing millet flour, fresh cheese and cold water. The paste-like mass must be thick and is baked in oil on a frying pan (Mestia region, village Becho, narrator P.Kvitsiani, 2013).

According to the elderly, "...In Samegrelo, they used to make *Kumus* from fried millet flour, which substituted sweet cakes. Millet flour was fried and mixed with honey and water, then rounded and was ready to be served." Svan woodcutters used to take millet cakes to work. Millet is a wonderful concentrated feed for poultry, and its green mass and straw are equally nutritious as cattle fodder (Maisaia, 2009). In Meskheti, millet flour was often mixed with wheat and barley flours to make porridges. (Beriashvili, 1973).

Protein content in millet grains varies between 16-19%. In Georgian millet, protein content is the highest (19,1%). Georgian millet is also distinguished by high content of lysine (6,2-5,5 %) and glutamine acid (12,7- 17,7 %) contents (Maisaia et.all., 2005).

In old times, millet served as a necessary element of religious rituals in Georgia. For example, in Svaneti all old religious and public rituals were connected to this culture: *lenshieri, Samtaishob, Likhevtsari,* etc. The festival known under the name of *lenshieri* was a holiday for women; It was dedicated to millet harvesting and storage. Preparation for the festival started at the beginning of autumn. From the entire millet crop, the fullest and heaviest grains were selected, ground up and placed in a special bin (ark). This supply of grains was called *Patva gviz* or *lana gviz*. The family's homemaker was the first to open the bin. She would then knead the dough for *Gvizi* and *Mchadi*. During the festival of *Lilashune,* ritual buns called *Petvi shda* were baked, with the millet spikes pattern imprinted on them (Bardavelidze, 1951; Abakelia, Alaverdashvili, Ghambashidze, 1991).

According to the elderly, "...Two millet varieties were known in Svaneti — white and black. Svanetian millet was characterized by its short vegetation period. It was sown a bit late. Millet was considered a cult plant with both practical and spiritual value. Millet flour and cheese were intermixed and millet cheese cakes named *Khachapuri* were baked, especially before starting of earth ploughing and reaping".

Millet was used in various religious rituals: For example, a Svanetian ritual (fig.87) called *Lipanali* is dedicated to paying respects to souls of the deceased. It is held on January 5. If the date falls on Sunday, the ritual lasts for only one day and was finished on Sunday, but if it falls on Monday, then the ritual lasts for the entire week. The entire household is cleaned up, starting with dishes and ending with furniture. At nightfall, the eldest man of the family goes to the cemetery, carrying with him hempseed oil and arrack distilled from barley. He pours both oil and arrack

Fig.86.Zemo (upper) Svaneti

Fig.87. Zemo (upper) Svaneti, Ushguli

on the burial ground and says loudly: We did everything we could for your respect. I ask you to visit our family, a sweet table is waiting for you."

Millet *Chvishtari* was cooked specifically for this day. Along with meat, chickpea and broad bean soups were cooked and served hot. The head of the family would bless the table and invite souls of the deceased to join. Loud conversation was forbidden. If an infant was in the room, it would have to be taken to another room so that no crying would be heard. Peace and quiet had to be kept; everyone prayed and talked in low voices. For this day, the family also prepared honey cakes. Every day and night, the table had to be renewed. On Sunday morning a new table was laid and souls of deceased were bid farewell. The visiting souls could be accompanied by evil spirits; therefore, little children would walk around the hearth three times, beating drums or iron crockert to make evil run from the house (Mestia region, village Mazeri, narrator I.Kvitsiani, 2014).

Samegrelo's cult of Mikamgaria, which was considered the lord of weather and protector of cattle and crops, was also connected to millet culture (Abakelia, 1999).

Millet flour was used for medicinal purposes, mainly as an astringent and as an anti-cancer drug (Tsutsunava, 1960; Bagrationi, 1992).

The amount of millet sown in Svaneti today is very small, and mostly confined to homesteads.

RICE

Oryza sativa L.

Cheltuki/Oriza/Orza/Orgza (in Megrelian).

Ethnographical materials and historical notes point to rich traditions of rice (*Oryza sativa* L.) cultivation in western Georgia.

According to Archangelo Lambert (XVII century), so much rice was grown in Samegrelo (fig. 88) that it was exported. "...In many parts of the country where soil is watery and Italian millet cannot be sown, they grow rice, which gives so much yield that it is more than enough for locals, and is carried away by Turkish ships that arrive here" (Lamberdt, 1938). While describing Samegrelo (Odishi), Vakhushti Bagrationi (XVIII century) mentions: "...Rice grows without watering" (Vakhushti, 1941).

Dry rice (*Oryza montana* Lour) was also widespread in Georgian mountains. According to G.Jalabadze's notes (1990), two rice species were raised in Guria, for dry and wet soils. Sowing of rice had to be over by the 20th of April. Rice started germination in two weeks. Initially it was weeded and then hoed. When the grains acquired a golden color, rice was considered ripened and in September it was cut to the stem with a sickle, tied into small bunches, shifted and stored under a roofed place to dry well; afterwards, bunches of rice were beaten against a board to remove grains; those were later stored in the garner. Before usage, rice was poured into a *Chamuri* to separate chaff from grain. Dry rice was widespread in Guria as well as in Samegrelo, Ajara and Lazeti (Jalabadze, 1990).

Iv.Javakhishvili (1930), referencing the notes of N.Mari, wrote: "In Chaneti, a local variety of rice was distributed, which was dark and tasty, did not need watering and grew in mountains as well as in dry places."

J.Rukhadze (1976) mentions that dry rice was distributed mainly in the mountains.

The Laz start sowing of rice on and after April 15th. Rice is sown by women. In May, the sowing is finished. As soon as autumn comes, the reaping starts. The reaped rice is tied into bunches. Men usually help women with reaping and shifting rice in cylindrical baskets to storehouses. If the harvest was plentiful, they stack it in sheaves. From time to time, dried bunches are spread out in the field and beaten by sticks; in windy weather, rice is winnowed by a hayfork called *Okhintsu*. In winter, rice is threshed by an ox or a horse (Vanilishi, Tandilava, 1964). Rice culture was particularly prolific in the coastal area, from Choloki river to Makriala village, although dry rice was sown mainly on dry slopes. (Turmanidze, 2004).

According to N.Ketskhoveli's (1957) notes, the zone of rice distribution also encompasses Colchic plain lands as well as Kakhetian and Kvemo (lower) Kartli lowlands.

According to historical Georgian documents, rice in Kakheti was known under the name *Cheltuki* and the land where rice was raised was called *Sacheltuke*. Cultivation of rice in Kakheti is corroborated by Vakhushti Batonishvili (Batonishvili, 1941) and also by J. Guldenstadt (XVIII century) who indicates that rice was raised in Kakheti in the description of his voyage, (Guldenstadt, 1962).

According to Samegrelo's elderly, "Rice — *Oriza* or *Orza* — was sown in Abasha region, Chaladidi, in marshlands of the river Noghela and quite rich harvests were yielded. The color of rice grains was a bit winy.

Rice was used for porridge, which was considered to have nourishing, dietary and medicinal value. A bowl of rice porridge prepared with wine was used as an inhalator for those suffering from flu and common cold (Abasha region, village Sepieti, narrator V. Baghaturia, 1999). Rice was sown in early spring. In autumn, the harvest was reaped with sickles, dried and then softly flailed. In the past, any meal made from rice was called *Masulka*. It was known for its effective constipatory effect (Tsutsunava, 1960; Maisaia et, all., 2005). The territory of Georgia is suitable for rice cultivation due to appropriate climatic conditions on the Black sea coastal strip.

URISHI // JAPANESE MILLET // WHITE PANICUM

Echinochloa frumentacea Link

Japanese millet (*Echinochloa frumentacea* Link) is the most ancient of millet cereals (fig. 89).

Written sources and ethnographical materials corroborate that Colchis and related Kartvelian tribes used to raise Japanese millet too.

According to the Byzantine historian Prokophi Caesarean, in the VI century the aboriginal population of Skandi and Shoropani used to consume a cereal called *Elkhmos*. According to him, from ancient times the Laz, similarly to denizens of Colchis, used to consume *Elkhmos*, but it was a foodstuff of such low quality that Greek troops staying in fortresses of Skandi and Shorapani couldn't stand being fed with this plant to the point of leaving the fortress (Bakradze,1889; Chkonia, 1890; Iv. Javakhishvili, 1930).

Al. Maqhashvili (1951) supposed that *Elkhmos*, mentioned by Prokophi Caesarean had to be Japanese millet,

Fig.88. Samegrelo, canyon of the river Abasha, Martvili, village Gachedili

Fig.89. Urishi — *Echinochloa frumentacea* Link. A. Maqhashvili's herbarium Iv. Javakhishvili State University

known in Georgia as *Urishi*. Greek name of this plant — *Elkhmos* — is most likely derived from the Greek word *Helosis* (*helos* meaning marshland), because this plant grows in damp places and in marshlands (Javakhishvili, 1930).

On the territory of the former settlement of Nokalakevi (VIII–VI centuries; IV–II centuries BC.) carbonized grains of *Urishi* have been discovered. Same goes for the territory of the former settlement of Vani (2008) (IV–III centuries B.C) (Bokeria, 2010).

This culture was detected in ethnographic life of western Georgia. Japanese millet is one of the most ancient cereals in Samegrelo and was raised there till the end of the XIX century. According to inhabitants of Martvili region, village Kurzu, a kind of cereal plant was sown in Samegrelo, which bore resemblance to *Pati* (millet), but it was not millet and was also called *Paidza* and *Tamaka*. The first name, *Paiza,* seems to be borrowed from Russian *Paiza* which corresponds to the Chinese word *Paitsza*. As for *Tamak*, it seems to be an ancient, genuinely Megrelian name for this plant. In the mountainous part of Samegrelo, there is a village called Tamakoni, where Tamaki used to be sown (Bebia, 2003).

Japanese millet is an annual culture. Morphologically it is very similar to *Burchkha* (Echinochloa crus galli L. P.Beauv.) (fig. 90), a weed widely distributed in Georgia. Japanese millet, similarly to *Burchkha* is characterized by its strongly developed root system, good vegetation potential (often developing up to ten stalks) and being wide and dense-leaved. For sowing Japanese millet, soil was prepared in a similar way to rice.

Ripened spikes of Japanese millet were reaped with a wooden knife or sickle and stored in a loft or *Nalia* (maize granary) to dry; in case of need, they were flailed (Maisaia, Jinjikhadze, 2013). Japanese millet was used as fodder for cattle. The plant is characterized by fast development of green mass after reaping, which makes it possible to reap the plant twice in the period of vegetation.

According to information provided by some agriculturists residing in Samegrelo, Japanese millet of very low value as bread grain. In times of old, its grains were boiled as porridge similarly to Italian millet, but the result tasted very badly; this food was mainly consumed by serfs and poor peasants.

According to J.Rukhadse's materials (1976), Japanese millet was more often ground in a hand grinder — *Skibu*. From its grits, porridge or *Mchadi* were cooked. Japanese millet was of a bitter taste and serving guests bread baked from its flour was considered shameful. Honey or walnut was added to the porridge to hide the bitter taste.

According to materials provided by Georgian ethnographical research, Japanese millet was sown in Samegrelo for medicinal purposes as well. In the 1950s, Japanese millet, sown with this purpose in some villages of Zugdidi region, got mixed with maize fields. Presence of this plant was confirmed in 1948 as a weed in Martvili re-

gion, village Kitsia (Maqhashvili, 1951). According to narrators, "... Sometimes grains of Japanese millet were used in Colchis (Abasha, Martvili and Zugdidi regions) for preparation of *Tibu* — medicine against flu; if they did not have Italian millet grains, then garlic, hot pepper, savory and saffron were added to grains of Japanese millet and boiled together. The tea was given to a patient three times a day to cure common cold (Maisaia et. all. 2005).

Nowadays, neither Japanese millet nor Italian millet nor foxtail millet are sown in Georgia anymore.

Fig. 90. Burchkha — *Echinochloa crus-galli* (L.) P.Beauv.

KVRIMA // FOXTAIL MILLET

Setaria mocharica (Alef.) Menabde&Ericzjan

In Megrelian it is called *Kurima*; in Zan — *Mtkui kurum*; in Kakhetian — *Dzurtsa petvi*. Foxtail millet is also known under the names of *Dzurtsa, Kvrima petvi, Mchadi* or *Mchadis petvi* and *Kartsumeli* (Dekaprelevich, Kasparian, 1928; Makashvili, 1949; Chikobava, 1938).

Foxtail millet (*Setaria mocharica* (Alef.) Menabde&Ericzjan) (fig. 91) is morphologically similar to green *Dzurtsa* and Italian millet (Chikobava, 1938).

In the dictionary of R.Eristavi (1884*), f*oxtail millet is mentioned under the name of *Kartsumeli,* but in some places it is also known as *Chadi* or *Chadis-chadi*.

In the 1950s, N.Ketskhoveli mentioned that in different parts of Georgia names such as *Kvrima chadi, Kvrinoka chadi, shavi chadi* etc. survived. All these names indicate the plant known as *Kvrima*, *Chadi* or *Chadis-chadi*, aka foxtail millet (Ketskhoveli, 1957).

Foxtail millet is mentioned in Shota Rustaveli's "The Knight in the Panther's skin" (XII century). This name is also encountered in a document pertaining to the time of David Narini (XIII century) that was granted to the Gelati monastery (Javakhishvili, 1930).

Fig. 91. Kvrima — Setaria mocharica (Alef.) Menabde & Ericzjan. Collection plot of the National Botanical Garden of Georgia

Guldenstadt (XVIII century) writes of distribution of foxtail millet in Racha and Imereti (1962). In Imereti, this plant was sown at the beginning of the XIX century and German linguist I.Klaproth (1783–1835) saw it in the vicinity of Dusheti (Javakhishvili, 1930).

According to I.Bakhtadze's notes, until the end of the XIX century *Kvrima-chadi, Black chadi* and *Red Chadi* were sown in Racha (Javakhishvili, 1930). Archeological excavations carried out on the territory of Georgia have revealed that foxtail millet culture was cultivated from the most ancient times.

According to VI.Menabde's notes, carbonized grains of foxtail millet were found on the archeological monument of Dikha Gudzuba (Zugdidi region). This monument is multilayered, featuring layers from late Neolithic period to Greek civilization (Menabde, 1940). Archeological excavations of Ertso valley unearthed foxtail millet seeds and carbonized traces of them. Paleo-botanical investigations showed that in V–VII centuries, this culture was cultivated independently from millet. Its pure crops were cultivated in subsequent centuries too. Ertso valley is situated at 1000–1100 meters above sea level and existence of pure fields of foxtail millet in this zone is quite plausible (Ramishvili, 1979; Rusishvili, Maisaia, 2001).

According to investigations of L.Dekaprelevich and VI. Menabde, the following regularity is stated to exist on the territory of Georgia: up to 600–700 meters above sea level, Italian millet is grown, higher, in Racha — the mixture of millet and foxtail millet and in the highest zone of agriculture, pure foxtail millet is sown and harvested (Dekaprelevich, Menabde, 1929).

In comparison with millet and Italian millet, foxtail millet grain is of low quality. Despite that, foxtail millet stands out among annual millet cultures with its drought tolerance, short vegetation period and unpretentiousness to soil.

In ancient time, cultivation of foxtail millet was preferable in highland zones, as its biological characteristics dictate.

Nowadays, foxtail millet as well as other millet cultures (Italian millet, millet, Japanese millet and rice) is not cultivated in Georgia.

LEGUMINOUS CULTURES

Georgia, being among the most ancient agricultural countries, possesses a distinctive variety of leguminous cultures.

Legumes, along with varieties of wheat and millet, have always been important for the Georgian population, in no small part due to their high protein content (from 25 to 47 percent). Legumes are also rich in carbohydrates. They were in particular demand during Lent, when Georgians consumed them to compensate the lack of protein from meat and fish.

Another advantage of legumes is their ability to enrich the soil and increase its fertility, due to bacteria inhabiting the outgrowths on their roots excreting nitrogen into the environment. This makes legumes excellent for following them up with other cultures — the harvest is guaranteed to be bountiful.

Of all leguminous cultures, Georgians devoted the most attention to chickpeas, peas, lentils, cicers, lupines and a particular species of adzuki beans.

L. Pruidze wrote in (1975), "Fereydan Georgians were the best land tillers ever. Aside from grains, they also grew lentils, chickpeas and so on."

Unfortunately, since introduction of foreign legumes towards the end of the 19th century, native Georgian species have started to slowly fade into obscurity.

PEA

***Pisum sativum* L.**

Bardi // Bardvi // Bardoni are Megrelian names of pea; In Guria pea is known as *Okros tsertsvi*–golden broad bean; in Svaneti the plant is called — *gheder //mengre gheder //netsin ghedar //begva //bego //netsin gheder*; in Lechkhumi — *pskhvili tsertsvi*; *tsertsvis barda* is the local name of pea in Racha; tsvertsvi/ tsertsvi — in Tusheti; in Akhalkalaki the crop is known under the name — *khanduri* (Eristavi, 1884; Shukvani, 1977; Maqhashvili, 1949; Maisaia, 2013).

Pea (pic.92) is mentioned in the Great Synaxarion by Giorgi Mtatsmindeli (XI century) as the principal Lenten fare of Georgian monks. According to the Russian envoys: Nikiphor Tolochanov and Alexiy Yevliev, pea was sown in Imereti in the XVII century. In the travel records by Anton Guldenshtadt (XVIII century) areas under white pea are mentioned for Racha (Guldenshtadt, 1962, 1964).

Remains of pea grains are found on a number of archaeological monuments of Georgia: Dikha Gudzuba (dated back to the 7th–6th millennia B.C.), "Gadachrili Gora"and Arukhlo (the 6th–5th millennia B.C.), Hellenistic burial places of Nokalakevi (the 6th–5th millennia B.C.), on the territory of the ancient settlement Vani (4th–3 rd cc. B.C.), in Tsaghvli, Tsikhia Gora and Dedoplis Gora (1st c. A.D.) (Bokeria et al., 2009; Lomitashvili et al., 2011; Jalabadze et al., 2010; Bokeria 2010).

According to the data of the 1910s–30s, pea distribution area in western Georgia embraced Svaneti and Racha (Maisaia, 2013).

Fig. 92. Pease — Pisum sativum L. Collection plot of the National Botanical Garden of Georgia

According to the data of the 1990s, Pea was grown in Zemo Svaneti (Becho), Martvili and Abasha regions. Pea was cultivated in Tsqhaltubo region for canning (Qharalashvili, 1998).

According to the data of 1920s,-50s-70s pea distribution areas in eastern Georgia were: Shida Kartli, Trialeti, Dusheti, Akhaltsikhe, Tsalka, Ninotsminda, Aspindza, Kareli and Dmanisi regions, Ksani and Aragvi gorges. This culture is mainly described in Javakheti. The most ancient native population of pea known as *Javakhetis Barda* is described in Javakheti Tableland. (Maisaia, 2013).

Pea is an annual herb, characterized by short vegetation period, which allows its application as an intermediate culture. Pea is a heliophilous, long-day plant. Compared to other cultural crops pea endures cold well. In west Georgia pea is sawn in the late autumn and produces crop in early spring. Pea is grown for food and fodder. Its fresh pod, green grains and mature fruit are rich in easily assimilated proteins, amino acids and vitamins. It is characterized by high mineral content and energetic value. Protein content in mature pea grain reaches up to 26-30%, in green grains-79%. Pea is known as one of the best products to treat avitaminosis. Along with vitamin A, its grain contains vitamins B_1, B_2, B_6, C, PP, E, B_{15}, etc. Pea is successfully used in folk medicine. Pea grain decoction is used as a diuretic to cure kidney stone disease. Pea also has blood glucose level decreasing action (Tsutsunava, 1960; Maisaia, 2013).

Previously, pea occupied more significant place in the diet of the Georgian population. Its portion in the diet was sharply decreased from the second half of the XVII century, induced by importing of kidney bean.

BROAD BEAN

***Vicia faba* L.**

In Georgia broad bean is known as — khaji in Samegrelo; Khaji //khajivakalobia — in Lazeti; Rog//rogu //ghedar in Svaneti; Mitsis tsertsvi-in Guria; Bakla — in Javakheti-Dusheti; Qholangari in Meskheti (Maqhashvili, 1949; Tsutsunava 1960; Beriashvili, 1973; Shukvani, 1977).

Broad bean-*Vicia faba* L. (pic.93) is one of the most ancient cultural crops. The term *Tsertsvnairebi* (broad bean like plants) was applied as a general name of legumes in the old Georgian language. Notes on broad bean can be found in the Georgian translation of the Genesis, dated back to the V century A.D. Broad bean is one of the principle foods out of Lenten fare.

In the Georgian written monuments — *Tsigni Saakimoy* (XIII century), medical book Karabadini- *ladigar daudi* (XVI century) broad bean is characterized as a medicinal plant (Kotetishvili, 1938; Bagrationi, 1992). In the Georgian book by Kananel — *Ustsoro Karabadini* broad bean — *Bakla* is estimated as a very useful food for patients (Kananel, 1940).

In the description of Kakheti by the Russian envoys: Prince Myshetskiy and lector Klyucharev (1640-1643) mention that in East Georgia "Lentil and broad bean" were also cultivated; the Russian envoys N.Tolchanov and A.

Yevliev wrote in their report on travel in Imereti (1650-1652) that the major food of the population in this area were pea and broad bean (Javakhishvili, 1934). At the beginning of the XVIII century at the Royal court of Georgia Lenten fare was prepared from broad bean (Javakhishvili, 1986).

Vakhushti Bagrationi also mentions broad bean among the legumes spread in Georgia at that period of time (Vakhushti Bagrationi, 1941).

I. Guldenshtadt while describing his travel to Georgia, names only broad bean out of other legume cultures (Guldenshtadt, 1962).

According to Iv. Javakhishvili's (1934) works, cultivation of broad bean was practiced also in West Georgia.

As reported by S. Tevdoradze (1964) aboriginality of the broad bean culture is corroborated by presence of endemic forms distributed in Georgia, namely in Svaneti called- Svan broad bean.

According to the findings of the 1890s, broad bean was cultivated in Svaneti (Margiani, 1890).

Fig. 93. Pea — Vicia faba L. Collection plot of the National Botanical Garden of Georgia

Findings of 1920s-60s corroborate broad bean cultivation both in West and East Georgia: In Svaneti and Racha, Tusheti and Pshavi, Kakheti, Javakheti, Meskheti, Barisakho, Shatili, Kvesheti and Pasanauri.

In the 1980-90s broad bean croplands were described: on the Javakheti upland, in Tusheti (villages Chero and Intsokhi), in Kakheti (village Cheremi), in Svaneti (village Latal, Mestia), Achara, Racha, Lechkhumi, Imereti, in the vicinities of the settlement Aspindza, Akhalkalaki region (village Gokio), Meskheti (Maisaia, 2013).

The broad bean culture had a special importance in Tusheti and Pshavi. In Pshavi the local population used broad bean *Dokhani* as Lenten fare (Makalatia, 1933; 1934).

Broad bean is an annual plant. It is not very demanding to heat. The plant is moisture loving. It is sown in Colchis in the autumn and in East Georgia in early spring. In Tusheti the broad bean is reaped, then gathered and stacked in *Chadli,* threshed on the threshing floor by oxen, then winnowed (Bochoridze, 1993). This culture is well developed in humus rich, loamy, brown soil.

Broad bean is used for preparation of various soups, pottages with walnut; boiled green pods are dressed with walnut, vinegar and different flavorings. This food was mainly prepared in the period of Lenten. High nutritional value of bread bean is determined by high content of proteins in its grains. High content of full value proteins, mineral substrates and vitamins stipulate application of broad bean as additive in bakery (Purtskhvanidze-Asatiani, 1996).

As reported by L.Beriashvili, broad bean was used also as a fodder for cattle in Meskheti (village Vale). "... We knew broad bean in the past and called it *Kolangari.* It was a very good fodder for cattle; we sowed it in the resting fields to harvest also hay; It was sown in autumn with wheat; it was used to feed cattle and sometimes we ourselves ate it too" (Beriashvili, 1973). Broad bean was a necessary component of various church rituals.

In Racha-Lechkhumi on "Bosloba" holiday a housekeeper "kneaded dough, added broad beans and prayed". Three broad bean *tablas* //cakes were prepared for family prayer and three smaller cakes for Annunciation prayer; on the first day of Lenten of Assumption Day, broad bean cakes called "tsertsviani sartvianebi" were baked; in Pshavi on the holiday called "mgelt-ukme"... broad bean grains were roasted on a pan, wolf-shaped cakes were

baked with eyes of black grains". "In Svaneti "Sunday cake" necessarily had broad bean filling. Roasted grains of broad bean were milled in a stone mortar; mortared beans were exposed to air flow; hulled and aired beans were boiled, salted, spiced and baked. Prayer cakes were called "rogva lemziri" in Svaneti (Rukhadze, 1976; Berishvili, 2008; Girgvliani, 2010).

Besides nutritional value, broad bean had medicinal importance too. Patients with headache were fed with broad bean dishes. The ointment prepared from broad bean flour was used at suppurative inflammation.

Liquid prepared from broad bean flour was also used as a curative (Tsutsunava, 1960). Broad bean is a very valuable nutrition applied at Lenten.

At present broad bean is sown on farmstead Lands but in small amounts.

LENTIL

***Lens culinaris* Medik.**

In the Georgian medicinal written sources lentil (*Lens culinaris* Medik.) is mentioned under different names: *ospi, uspi,adsi, narsaki, murdushaki.* In Svaneti this culture is known as *kirts* i.e. *kirs* (Eristavi, 1884; Maqhashvili, 1949; Tsutsunava, 1960).

The first written note about lentil can be found in the Georgian translation of the Genesis (V century A.D.) (The Bible Encyclopedia, 1998). Archeological findings corroborate existence of the most ancient centers of lentil cultivation in Georgia. Lentil carbonized grains were discovered on Nokalakevi archeological monument dated back to the VI–IV centuries B.C. and on the territory of ancient settlement of Vani (IV–III centuries B.C.); on archeological monuments *Khramis Didi Gora* (big hill of Khrami) (the VI–IV millennia); on the ancient settlement hill *Gadachrili Gora* (Neolithic age, the 6th–4th millennia B.C.) (Jalabadze, Esakia et al., 2010; Bokeria, 2010; Lomitashvili et al., 2011; Maisaia, 2013).

Fig. 94. Lentil — Lens culinaris Medik. Collection plot of the National Botanical Garden of Georgia

According to the research works of M. Svanidze, in the XVI century lentil (fig.94) was widely spread in Meskheti and the village Ude was distinguished by abundant harvest (Svanidze, 1984).

Existence of lentil in Georgia in the XVIII century is corroborated by records of Vakhushti

Batonishvili and also by Anton Guldenshtadt. (Batonishvili, 1904; Guldenshtadt, 1962).

The last prince of Samegrelo –David Dadiani mentioned in his *Ustari* (letter) that lentil was cultivated in Samegrelo-Kvemo Odishi and in Guria (Meunargia, 1939).

According to statistics, in 1917 lentil cropland area in Georgia was 73 ha; in 1923 – 74 ha. The lentil crops were concentrated in Dusheti, Gori, Akhaltsikhe and Tianeti districts. In West Georgia Svaneti and Racha were main lentil distribution areas. In West Georgia (Racha) fine seeded lentil breed was mainly cultivated; in the east Georgia, namely in Tianeti community, large seeded lentil breeds dominated (Dekaprelevitch, 1926; Dekaprelevich, Menabde 1929; Mikava, 2004).

According to the data of 1980s, lentil croplands are described in Racha, Zemo Svaneti (Latali, Mestia), Tusheti (Omalo) (Maisaia, 2013).

Lentil is characterized by fine and round grains. In Tusheti it is sown in April and is ripened by the first of August –*Mariamobistve*. It is boiled and flavoured similar to kidney-bean. The harvest is gathered by hands, tied in bunches, and put in stacks- *Chadli;* then threshed by an iron stick on the threshing floor and afterwards winnowed by *richa//*riddle (Bochoridze, 1993).

According to narrators: "... In old times, lentil used to be the major Lenten fare in Georgia. A variety of dishes were prepared from this legume: soup, porridge, pottage". In Svaneti pottage is cooked even today. "...Lentil grains are washed, boiled, potatoes are added, and flavoured with coriander, parsley, fennel and spiced salt //*Svanuri marili" (Mestia region, village Becho, narrator P.Kvitsiani, 2013).*

Medicinal properties of lentil are worth particular mentioning. Lentil grains were used as anti-diarrheal medication, while lentil broth was used as laxative (Tsutsunava, 1960). Lentil is a valuable food crop which has also medical application. It must be conditioned by high content of proteins (23, 8-35%), fats (2, 1%), nitrogen-free extractable substance (60%), Cellulose (up to 4, 9), sugar and pectin. Lentil grains contain also vitamins B_1 and B_2 and green grains –Vitamin C (Mikava, 2004; Vacheishvili, 2005).

Lentil is an annual plant, is sown in early spring. It is well cultivated in highland areas. It is a good predecessor of all spring cultures. Lentil is sown in Svaneti nowadays (Maisaia 2013).

CHICKPEA

***Cicer arietinum* L.**

The old Georgian names of chickpea are: *erevindi, bardatsertsvi*; in Samegrelo, Imereti, Guria it is called *mukhudo*, in Kakheti- *sisiri* and in Kiziqhi-*tsitsiri*; (Maqhashvili,1991; Eristavi, 1884; Orbeliani, 1949).

The name of Chickpea – *Cicer arietinum* L.(pic.95) was primarily mentioned in the Georgian translation of the Genesis (the V century) and also in another written monument of the XIII century, the Georgian translation of *Khojaqhopili's Karabadini* (Khojaqhopili's Medical Book) (Panaskerteli, 1950) and in Kananeli's book *Tsigni Saakimoi* (1940) etc.

Fig. 95. Mukhudo – Cicer arientinum L. Collection plot of the National Botanical Garden of Georgia

Fig. 96. Mukhudo crops, Akhaltsikhe, villageTtsnisi. Collection plot of the National Botanical Garden of Georgia

Chickpea was sowed in old Georgia as one of the Lenten fare. Dish made of it is mentioned in *Dasturlamali* of the King Vakhtang VI (Vacheishvili, 2005). Chickpea cultivation is described in Akhaltsikhe, Khertvisi, Ude, Atsqhuri and Mzvare (Svanidze, 1984).

Vakhushti Batonishvili (1941) placed chickpea at the top of the list of legume-crop cultures cultivated in Georgia at his time. Due to the findings of 1920s, on Ertso valley which is considered the highest zone of chickpea distribution, at 3200 feet above sea level, chickpea – *Cicer arietinum var. album* Alef. croplands are described (Dekaprelevich, 1926).

According to the data by I. Javakhishvili, "...chickpea is sown both in East and West Georgia but its croplands cover larger areas in the eastern part of the country" (Javakhishvili, 1986).

Chickpea is mentioned under the name – *Kartuli khanduri*, by the Russian envoy N. Tolochanov (1660-1662) in description of Imereti (Javakhishvili, 1986); in his report the Russian envoy A.Yevlev, while describing Imereti kingdom in the middle of the XVII century mentions chickpea- golden broad bean (Maisaia, 2013).

Anton Güldenstedt describes chickpea croplands in Racha – Utsera (Güldenstedt, 1962).

In the first half of the XIX century chickpea was sown in Lechkhumi, also, Samegrelo and Svaneti (Meunargia, 1939; Gelovani, 2003).

L. Dekaprelevich and VI. Menabde (1929) report that in Racha chickpea is on the second place among the legume crops; in Racha chickpea is distributed at 800-850 m above sea level.

According to the data of 1920s-90s chickpea in Georgia was cultivated in Svaneti, Zemo Imereti, Racha, Javakheti, Meskheti (pic.96), Kakheti and Kvemo Kartli (Maisaia, 2013).

In ancient times three cultivars of chickpea were distributed in Georgia and the Georgian farmer assigned relevant names to each of them: *Gogra mukhudo* (pumpkin chickpea), *tetri mukhudo* (white chickpea), *tsiteli mukhudo* (red chickpea). (Eristavi, 1884). By seed size chickpea cultivars are divided into small, middle and large seeded groups.

Chickpea is an annual legume plant, drought tolerant. It is sown in early spring; is easily adapted to almost all kinds of soils. In seed turnover chickpea is the best predecessor for cereal crops, owing to its ability to enrich soil with nitrogen.

Chickpea grains are rich in amino-acids indispensable for human / animal body (tryptophan, Lysine, cystine, etc), valuable proteins, content of which varies depending on cultivars from 12.6 to 31.2%; fats from 4.1-7.2%; nitrogen free extractable substance 47-60%; chickpea seed also contains high level of vitamins (Vacheishvili, 2005; Chachava, 2009).

White-seeded cultivars were used for food. Chickpea was boiled and spiced with vinegar, garlic and pepper. Sometimes it was used instead of rice at *Kelekhi* -commemoration dinners of deceased. When cooked, the white chickpea is dressed with onions, black pepper, laurel leaf, coriander and marigold; then potato and rice are added.

Chickpea is used to prepare *mukashari, sisiri*: coarse grinded red chickpea is cooked and dressed with crushed walnut, onion, salt and coriander. Cooked white chickpea is stewed in oil and then finely chopped onion and salt are added (Old Georgian dishes, 2006).

Chickpea and broad bean were also eaten fried. Fried legume grains were used for cooking porridge and cake fillings — *nachduni* (Chartolani, 1961).

As elder people from Samegrelo, Martvili region narrate: "... In former times chickpea cakes were mainly baked for breakfast on flat stone slabs. Chickpea grains were fried and mortared; then the flour was mixed with warmish water and fresh cheese and flat cakes were baked on stone slabs" (Martvili region, village Lepochkhve, narrator T. Pochkhua, 2000).

According to elder people of Abkhazeti: '... White chickpea was cleaned and similar to maize milled in the mill; pasta was kneaded adding some bread yeast and little salt; finally flat cakes were baked in the stone slabs. Stone slabs were heated and pasta was stuck to the slab, covered with tin-plate with embers over it" (Gali region, village Sida, narrator T.Shamugia, 2014).

Chickpea grains were used for medical purposes. Its decoction is thought to relieve intestinal pain at diarrhea; Chickpea decoction and grains have positive effect at uroschesis, reduce pain at urination. Chickpea and beet seed boiled together were used to cure head and body itching.

Chickpea flour, crushed madder and barley flour were used for preparation of ointments, for treatment of various skin diseases. (Tsutsunava, 1960; Vacheishvili, 2005; Maisaia, 2013).

Nowadays soybean is cultivated in some regions of Georgia which is known under the name chickpea among the population of Samegrelo.

GRASS PEA

Lathyrus sativus L.

The Georgian name of grass pea is *tsulispira,* another local name is *ukadrisa.* According to old Georgian medicinal sources, it was also called *marphashta, phurchaqhi* and *murdumaki* (Tsutsunava, 1960; Javakhishvili, 1986).

Grass pea remains are found in the archaeological materials from Nokalakevi (6th –4th millennia B.C.) (Bokeria et al., 2009).

According to G. Vasilev, grass pea (pic.97) had been cultivated in Georgia before the discovery of America (Vasilev, 1953).

According to the data of the 1920s, grass pea was cultivated in Racha at 800–1200 meters above sea level (Dekaprelevich, Menabde, 1929).

Grass pea (Pic. 98) is an annual plant; it is sown in early spring; its stem is weak and easily decumbent. Grass pea in comparison with chick pea is more plenteous than pea. Grass pea is productive on black, clayey, brown and alluvial soils. Grass pea is not demanding to heat. It is a good predecessor for eared crops as well as hoe-farming crops.

As narrated by local residents of Georgia's rural areas, "...grass pea was sown in vineyards; it fertilized the soil and was important in traditional seed turnover. From grass pea grains tasty pottage was prepared; it was dressed with walnut, onion and coriander, salt and black pepper; to give the pottage sour taste *tkemali* or *tklapi* were added. In Racha it was used for baking traditional cakes called *sartvianebi".* Grass pea was mixed with rye or wheat and very nourishing bread was baked (Old Georgian Cuisine, 2006; Maisaia, 2013).

Grass pea was also used as a medicine; its broth was used to treat constipation, also, cough, cold, and scurvy (Tsutsunava, 1960). Protein content in different grass pea cultivars varies between 23–35 %.

Restoration of grass pea culture will enrich diet of the Georgian population with protein products.

Fig. 97. Tsulispira — *Lathyrus sativus* L. Collection plot of the National Botanical Garden of Georgia

Fig. 98. Tsulispira crops, Akhaltsikhe, village Tsnisi

AZUKI BEAN

Vigna angularis (Willd.) Ohwi & H.Ohashi

The Georgian name for azuki bean *sakadrisa* or *sakadrisi* can be found in the written sources of the XVII–XIX centuries (Maisaia, 2013).

As reported by G. Abesadze (1945), azuki bean // *Vigna angularis* (Willd.) Ohwi & H.Ohashi. was widespread in Georgia starting from the Black Sea coastline to the Liakhvi ridge.

Azuki bean is sown in autumn and flowers in May–June. It forms elongated and broad pods. Each pod contains up to ten seeds.

Fresh pods of azuki bean are used for food; cooked pods are dressed with vinegar, walnut and greens (Gotsiridze, 2007).

COWPEA

Vigna unguiculata (L.) Walp.

Cowpea // *dzadza* in different parts of Georgia is known under different names. In Samegrelo it is called *dikhash lebia, che chiphelebia, che chkhiralebia, girdze lebia;* in Imereti – *masha lobio, mamakalia, tsvrili lobio, mitsa lobio, dzadza*; in Guria – *mitsis lobio, grdzeli lobio*; in Kakheti – *masha lobio, mashi, masha, phlava lobio, mamikalia lobio, kuchshava lobio, shavkucha lobio, tuchshava lobio*; in Kiziqhi it is known as *pirshava lobio*. Cowpea is known also as *laponiis lobio*// japanese beans, *kva lobio*// stone beans. In Sulkhan Saba Orbeliani's dictionary cowpea is defined as fine beans (Eristavi, 1884; Dekaprelevich, 1926; Maqhashvili, 1949; Chikovani, 2005).

In the Georgian translation (13th c.) of a written monument by khojaqhopili, cowpea // *mashi* is mentioned as a medicinal plant (Phanaskerteli, 1950).

Vakhushti Batonishvili in his work "Description of the Kingdom of Georgia" (1941) mentions cowpea among other crops.

Cowpea forms distributed in Guria (Ozurgeti) were described in the 1920s by L. Dekaprelevich (Dekaprelevich, 1926).

Cowpea // *Vigna unguiculata* (L.) Walp. (pic.99) is an annual plant. Its stem is weak, sometimes creeping, with well developed root system; its Georgian forms are long day plants; cowpea

Fig. 99. Dzadza – Vigna unguiculata (L.) Walp. Collection plot of the National Botanical Garden of Georgia

grows well under humid Colchis conditions; Colchis forms of cowpea are characterizes by rather long vegetation period approximately 130 days. Cowpea grains are rich in proteins and fats. In ancient Georgia they used to cook very tasty pottage from cowpea, with fried onions or dressed with walnut and vinegar. Sometimes cowpea flour was mixed with wheat flour to bake bread.

After spreading kidney bean culture in Georgia, cowpea is seldom sown on the Georgian territory (Maisaia, 2013).

WHITE LUPINE

***Lupinus albus* L.**

White lupine in Georgia (Imereti, Guria, Samegrelo) is known under the names *Khanchkola, Khanchkvala* and *Khanchikoli (*Eristavi, 1884).

In dictionaries of Sulkhan-Saba Orbeliani (1949) and A. Maqhashvili (1949), *Khanchkola* (white lupine) is explained as *Khanchkala, Lopinari, Termia, Termisi, Termuzi* etc. The name of the plant *Khanchkola* consists of the two words: *Khaji* — broad bean and *Kola* — bitter.

L. Beriashvili (2001), citing a Georgian source named *Ustsoro carabadini*, mentions that in the X-XI centuries, white lupine was known under the names of *Turmizi/Tirmizi/Tirmisi* and was considered a medicinal herb. White lupine is also mentioned in written works *Tsigni saaqimoi* (Book of Treatment, XIII century) and *Iadigar Daudi* (XVI century).

In the letter compiled in 1852, David Dadiani mentions that white lupine was sown in Samegrelo and yielded crops were sold in Imereti, Racha and Guria (Meunargia, 1939).

According to Iv.Javakishvili's materials (1986), white lupine was cultivated in Guria. Besides Guria, in old times white lupine was also cultivated in Samegrelo and Racha and used for food.

In Georgia, three species of white lupine annual cultures were distributed: *Lupinus Angustifolius L. Lupinus Luteus L.* and *L. Albus L.* Lupinus Albus — White Lupine — is one of the most ancient crops in Colchis lowlands. All species of white lupine are lightly demanding and thermophylic plants. Acording to L. Dekaprelevich's date (1926, 1929) white lupine in Guria was sown in the beginning of September. This culture ripens by the end of May and beginning of June.

In traditional agriculture of Colchis, white lupine was used in seed rotation to enrich the soil. As a legume plant, it was considered the best predecessor for other crop cultures. It was both as food and cattle fodder.

High nutritional value of white lupine is conditioned by high protein content in its grains and green mass (30-50% and 20-50%, respectively).

According to the elderly, boiled grains of white lupine were consumed in Samegrelo and Guria. Since white lupine did not lose its bitter taste from cooking, grains were soaked in water for about 24 h. and rinsed in running water; grains were then put into the wickers and left in the running water. This process was colled *Daptsnileba* in Guria and *Dachorapeba/Mochorua* in Samegrelo.

Fig. 100. Guria, Bakhmaro

According to the elderly, "...In Guria (fig. 100) white lupine was sown for soil fertilizing. When the land was poor, white lupine was sown. Still, they used to boil grains, cool them in running water and eat them" (Ozurgeti, village Shemoqmedi, narrator V.Goliadze, 2014).

Plant *Termisi,* which is nowadays called white lupine, contains poisonous alkaloids — Lupanine, Lupinine and Sparteine. In old Georgian medicine, it was used for external application and was an ingredient in the so-called yellow ointment which was widely used by old doctors. This ointment was used for treatment of wounds and rushes (Tsutsunava, 1959).

White Lupine was used to treat radiculitis and liver as well as gastrointestinal diseases. It was also used against helminthic infestations, scabies and other skin diseases (Maisaia, 2005; Maisaia, 2013).

Nowadays this culture is rarely cultivated.

FLAX

Linum.L.

Besides cereals and legumes, fiber and oil crops, especially flax, have from ancient times had great importance in the economic life of Georgia (fig. 101). This plant is called *Su/Psu/Kumu* in Megrelian, *Sulei* in Laz, *Sel* in Svan, *Lertsami* in Gurian and Ajarian dialects, *Kumeli* in Pshav-Khevsurian and *Seli* in Kartl-Kakhetian dialect (Maqhashvili, 1949; Maisaia et al.; 2005).

"Colchisian flax" was very famous in the antique period. Mentions of it are encountered in works of Herodotes (V century B.C), Xenophone (435/31-355/54 BC), Strabo (64/63BC-23/24AD), Archangello Lambert (XVII century), Jean Chardin (XVII century) etc.

According to notes of Giorgi Mtatsmindeli, in the X-XI centuries, Georgian monks in Iveria Laura on Athos Mountain used to cultivate *Dika* and flax (Javakhishvili 1930). According to L.Dekaprelevich (1938), both oil and flax cultures were widespread in the XII century Georgia. Archeological investigations have unearthed lots of earthenware materials with traces of flax linen imprints in the most ancient Colchisian settlements such as Zugdidi region, Nokalakevi (VII-I BC), Abkhazia, Eshera former settlement (II-I BC) and the whole Black Sea coastal area. The most ancient of these materials date back to the II millennium B.C., while others belong to the Late Bronze age and subsequent periods (Maisaia et al., 2012; Maisaia 2013).

The most ancient flax fiber simples (fig.102), dating back to upper Paleolithic, were discovered in western Georgia, in the cave of Dzidzuana located in the foothills of the Caucasus (Qhvavadze et al., 2009).

Therefore, at least 30000 years ago, humans were aware of how to produce linen. The most ancient thread,

Fig. 101. Flax — Linum usitatissimum L., Collection plot of the National Botanical Garden of Georgia

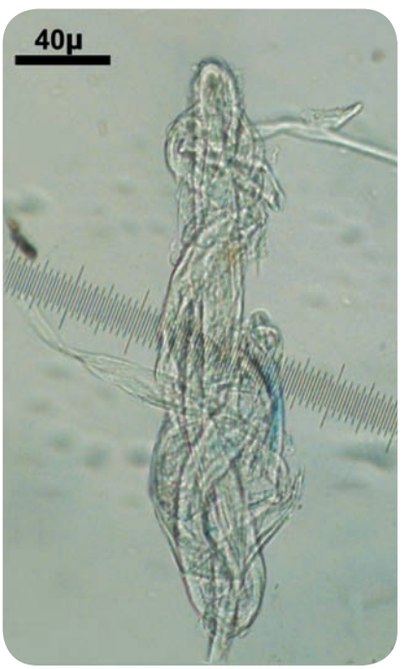

Fig. 102. Sample of flax fiber from *Dzudzuana Cave*

made of nettles (*Urtica dioica L.*) was found in Czech Republic and dates 29000 years back. The relics of manmade linen found in the cave of Dzidzuana totally change the attitude to the intellect of a Stone Age human (Chagelishvili, 2014).

Traces of flax fiber were also evident on the archeological monument unearthed at Gadachrili Gora, dated with Neolithic era (VI millennium B.C.). The same goes for south Georgia – in Tsalka and in the Saphar-kharaba barrow of Beshtasheni, although findings made here date to the Late Bronze age (Qhvavadze, Narimanashvili; 2006 a; 2006 b).

Traces of linen spread on a burial cask were also discovered in Paravani barrow (first half of the third millenium B.C.) (Kvavadze et. all, 2007).

The ancient traces of flax linen were also found on the archeological monuments of Ergeta (Dikhagudzuba, middle of II millennium A.D.) and Arukhlo (VI-IV millennia) (Rusishvili, 1990; Papuashvili R; Papuashvili N; 2005).

Flax in Colchis was a cult plant. Flax clothes were the symbol of cleanness and sacredness. Therefore, it is safe to say that flax linen discovered in tombs of Vani, Qobuleti, Dabla Gomi must have once been used as veils to cover the deceased. Earthenware relics found on the shore of Ochamchire also carry traces of linen. They must have been produced by the aboriginal population, as they are several centuries older than the Greek colony that existed there (Solovev, 1950; Lomouri, 1962: Rukhadze et al., 1988: Lomitashvili, 1999).

Carbonized grains were discovered alongside traces of flax on the archeological monuments of Nokalakevi (VIII-II c. B.C.) (Bokeria, 2010). Tools connected to flax production (VII-I c. B.C.) were also discovered, such as a vertical spinning-weaving loom and ornamental bone spikes for cleaning yarn. (Lomitashvili, 1999).

Based on archeological investigations and Greek-Roman sources, O.Lortkipanidze (1972) considers that Colchisian flax was famous in the antique world by the V century B.C., maybe even earlier.

Flax is mentioned in the Georgian text of Genesis (Bible) (Nativity, I, II, 1884).

Georgian flax culture is devided into two bio-ecological groups: to the first group belongs flax-linum (*Linum Bienne* Mill.), distributed in the Black sea area and known as Colchisian flax. This flax culture was widespread on the territories of old Colchis: Samegrelo, Abkhazia and Adjara. Colchisian flax bears characteristic features of both wild flax – *Linum angustifolium* Huds (many-stemmed, prostrate growth, rich vegetation, etc.) and cultural flax (fiber and oil production). To the second bio-ecological group belong varieties of *Linum humille* Mill. and *Linum usitatissimum* L., widespread in southern mountainous parts of Georgia (Akhalkatsi, 2009; Maisaia and etc. 2012). In 1980s, mountain oil flax crops were described in Tusheti, Omalo and Shenako (Berishvili, Shanshiashvili, Gorgidze, 1989).

Philogenetic investigations corroborate that Colchisian flax is a vivid relic of flax culture, and Colchis it one of the homes of its genesis (Gorgidze, 1958). According to the data of 1920s and 1950s, flax distribution area encompassed almost the entirety of western Georgia (Maisaia, 2009).

Wide distribution of flax from the ancient times was caused by its economic and nutritional importance.

Linen made of Colchisian flax was famous in the antique world; Greeks called it "*Sardinian linen*". It was considered a worthy competitor to high quality fabrics produced in Egypt (Mikeladze, 1967).

Interesting notes are found in works of Jean Chardin (XVII century) and Don Christoforo de Casteli (XVIII century) etc. on importance of export sales of Colchisian flax.

Jean Chardin (XVII century), when describing the Samegrelo region, mentions that "...Megrelians trade mainly with Turkish and European merchants, who arrive by ships to the Black Sea coast to buy silk, flax thread, linen, different furs, willow (boxwood), wax, honey, etc. Dadiani, the Sovereign of Samegrelo, paid tribute to Ottomans in flax linen" (Jean Chardin, 1975).

Maxim Kutateli (XVIII), envoy of Solomon I, King of Imereti, writes in his report: "...At the Black Sea coast, citruses and olives are grown. Silk, cotton and linen fabrics are in abundance. The merchants, who purchase them cheaply, export them to other countries" (Berdznishvili, 1969).

Historical Lazeti — known today as Rize — was an important centre of linen production. Here the Laz produced high quality linen (Chachashvili, 1956). According to the elderly of Samegrelo, shirts made of linen were known under the name of *Sus-Osares*. Linen shirts were cool and plasent to wear. Man used to wear them when working in the field. Linen towels were famous as well.

Ethnographic research of Samegrelo also points to production of fishing nets with flax thread. Flax fabric had not only civil, but also military importance for the ancestors of Georgian people. According to Xenophon, warriors of the *Mosinik* Georgian tribe wore shirts made of linen, while Khalibs used to wear linen tabards on their armor (Mikeladze, 1967).

Flax was a cult plant, and garments made of it symbolized purity and cleanness. According to beliefs of old Colchians, for salvation of the soul of the deceased it was nececery to wrap the body into linen cloth.

According to the elderly of western Georgia (Martvili region) high-stemmed flax was chosen for producing cloth of pure white color.

Production of linseed oil from flax was well-known and well-developed in Colchis since ancient times. It was both applied as ointment and taken internally for treatment of various diseases. Flax seeds contain 30-48% esters, up to 33% proteins, up to 26% carbohydrates, organic acids, vitamin A, glicozide-linamarine, etc. Extracts from flax seeds are used for prophylaxis and treatment of atherosclerosis as well as in pharmacotherapy of gastric ulcers. Linseed oil has protective, sedative and anti-inflammatory effect. It is also used for external application in case of thermal burns and skin damage; it hastens regeneration of tissues and epithelization (Turmanauli, 1997; Kvatadze, 2009).

Fig. 103. Flax oiler in Gelazi, Samtskhe -Javakheti

Medea, daughter of the legendary Ayet, King of Colchis, was famous in the antique world as a master of making potions and concoctions. It is supposed

that in Colchis, which was famous for flax cultivation, medicinal potions were based on linseed oil. According to local sources, people used to treat wounds with a medicine made with equal amount of honey/wax and pork belly butter mixed with linseed oil (Martvili region, narrator G. Eliava, 1992).

"...Nitweed (*Hypericum gentianoides L.*) must be put in linseed oil and a claret colored mass will be received, which is applied in case of gynaeological diseases (Akhalkatsi et. all,. 2008).

Peasants paid particular importance to cold-pressed oil, which was given to a patient on an empty stomach in case of heartache.

In case of complicated child birth, a midwife would fry an egg in linseed oil, wrap it in wool and put on the sore wound (Molodini, 1959, Beriashvili 1964, Chirgadze, 2003, Maisaia et al., 2012).

Linseed oil was used for treatment of gastrointestinal, cardiovascular, respiratory, urinary and venereal diseases. One of the consumers of linseed oil was the Church, especially in the period of Lent. In everyday life, linseed oil was used for food dressing as well as lighting.

Linseed oil was used in leather processing and creation of dyes (Chiqovani, 1979).

From flax flour, the so-called *Kumu* – porridge – was cooked. *Kumu* was a nutritious food and had a mild soothing effect. From *Kumu* and honey, sweet cakes called *Kandzili* were backed (Maisaia et. all, 2005).

In the mountains of eastern Georgia wounds were treated with linen tampons. Soaked in salty water, linen provided disinfection of wounds and stopped bleeding. Besides, salt caused tissues to contract. After taking salty linen out of the wound, the doctor would fill it with *Karaqmdinari* (melted and filtered butter) and cover it with a linen bandage also soaked in melted butter and honey; alternatively, he could just pour melted butter and honey into the wound and leave it for 2-3 days. Then he would open the wound, examine it and in case of necessity fill it with tampons soaked in butter and honey, or put medicinal herbs in it. If the wound started healing and pus accumulated in it, then flax seeds were roasted, ground and boild into *Kumeli* porridge which was spread on a linen bandage that would be used on the wound. Sometimes mallow juice was added to it as well. *Kumeli* porridge and Mallow promoted drainage of pus from the wound. After it was drained, various procedures were used for total cleansing and healing of the open wound (Mindadze, 1981).

In Javakheti, two flax varieties were sown: flat and long. From long flax fibers, good quality linen was made, while from flat flax, a lot of good quality oil was extracted. At the end of August, when flax was well ripened, it was reaped. Reaped flax was shifted to the threshing floor by a special cart and threshed on a threshing board. In comparison with wheat, flax had to be threshed lightly; otherwise, flax grains would be damaged and no longer suitable for use. Flax grains were threshed on a threshing floor, winnowed, cleaned and then carried to the oilery (fig. 103), which was bedded with flat tiles. Linseed oil was used for preparing meals, and the squeezed mass of flax (oilcake) remained in the stony manger to be used as fodder for cattle, which gave the diary products high calories and extra fat. Cheese made from such milk was distinguished for its special taste (Chiqovani, 1982).

In Meskheti, flax was one of the most ancient and important cultures of field crop raising, which was stipulated by diverse application of this culture in food, weaving of linen and oil refining. Three sorts of flax grew in Meskheti: flat, cress and black. Flax in Meskheti was mainly used for oil, with linseed oil extracted from flat flax predominating. In spring, people avoided sowing flax while the earth was still wet, as flax sown in dry soil yielded much better crops. Therefore, flax was sown when the soil was dried. Special attention was paid to harvest period limits, be-

Fig. 104. Flax — Linum bienne Mill. Herbarium of Professor A.Giorgadze; the Botanical Institute of Ilia State University

Fig. 105. Flax crops; Collection plot of the National Botanical Garden of Georgia

cause ripened flax spikes tend to scatter their grains. Therefore, spikes were harvested comparatively fresh. They were dried on the threshing floor and threshed with threshing board. After threshing, the grains were processed. Oil was extracted in winter or late autumn in a special oil extractor. Linseed oil was used similarly to boiled butter. Meskhetian population used linseed oil to cook dinners, *Kadas,* cakes and *Bishi*. Oil was stored in earthenware jugs (Beriashvili, 1973).

Kumel (Flax) was often sown around the cornfield for producing the oil. When the crops were ripened flax received yellow color similar to wheat; Ripened flax was gathered by hands, tied in bunches and put on a branchy sticks-*Chkhari* and left for a week to dry. Dried bunches were beaten against a board and grains fell down and if any were remained in spikes, they bit it by iron stick. Afterwards it was winnowed by *Richy*. Before using in food, flax grains were poured on *Tsalo* over the fire and fried. After that, it was to be ground in wide mortar. Flax grinder had to be deep, because pestle would slide in extracted oil. In deep mortar *kumel* would be ground easily. Ground *kumeli* was mixed with salt and stored. This was used for food dressing at Easter Lanten (Jalabadze, 1986).

In Tsalka too, varieties of oil flax were known: flat and black. Judged by oil quality alone, flat flax was preferable. Black flax was used mainly for oiling cattle and lighting. For flax sowing, mountainous slopes were selected. Ground was ploughed and harrowed in March and immediately sown with flax. Cloudy days were ideal for that, as seeds maintained an optimum level of moisture and temperature in the soil. After sowing, the field was harrowed again. Seed material was mixed with dry soil and scattered in a row, to avoid dense crops of flax.

According to narrators, the sower would touch his beard to check how thick it was and measure fistfuls of flax seeds to match its thickness. Flax would grow in almost a week's time. Crops were reaped by the end of August or in early September. Ripening of grains was tested manually, by threshing. Flax grew low, so it was reaped by sickles and put in sheaves. Flax was threshed on the threshing floor, which was well flattened. Usually, a threshing

board was used; then the grains were sieved and stored in granaries in sacks. Oil extraction occurred in winter. *Jagani* (flax straw) served as fodder for cattle and pigs, while stalks were used to cover houses (Molodini, 1959, 1963).

In old times, three varieties of flax were sown:

1. High flax — produced high quality fiber and few seeds.
2. Curly flax (fig. 104) — comparatively low, yielded low quality fiber and many seeds.
3. Average flax (fig. 105) — had medium quality fiber and gave out few seeds (Rekhviashvili, 1969, Berdznishvili, 1969).

Old Colchians cultivated mainly high flax.

According to elderly denizens of Samegrelo (Khobi, Martvili, Senaki, Abasha, Chkhorotsku regions), "...Flax likes virgin or newly ploughed lands. Flax was sown in autumn after maize was harvested. The land was ploughed with *Ogapa* (wooden hooks) and handfuls of seeds were scattered in the rows. Often seeds were mixed with sand to receive equal density of shoots. After about 10-12 days, sometimes later, the shoots would appear. Crops used to weather winter well and after winter, flax grew in height. In early June, basal leaves of the stem started to turn yellow, pointing to the flax ripening".

Ripened flax was uprooted by hands. If done earlier, more fiber was received, but the linen was rough. If flax was gathered, when basal leaves turned completely yellow, then little fiber was received, but thinner linen was produced. Reaped plants were tied and left in the shade to promote equal drying of stems. Drying proceeded for three days; on the fourth, flax could be picked up. A mat was spread, flax sheeves were put on it and threshed with feet or hit with cudgel to remove the grains. After threshing, the sheeves were untied and exposed to the sun for three days, then they were tied again and put into running water, or left in open air for three nights. Moistened flax bunches were stored in dry place and used according to necessity. According to narrators, flax was sown in Guria for a long time and mainly used for baskets and mats (Chokhatauri region, village Zemo Partskhma, narrator Suliko Vashalomidze, 2014).

Colchisian flax is characterized by the autumnal cycle of development; therefore, it must be sown in narrow rows in autumn, before the frosts begin. To obtain fiber, flax must be harvested only when the plant is still green; and to get grain, when 80-90% of boxes grow yellow or brown.

In the XIX century, silk fabrics gradually occupied the export market and from the second half of the XX century, completely took over the European production, causing linen production to fail.

This vivid relic of an ancient culture is almost extinct.

COTTON

***Gossupium Herbaceum* L.**

In Megrelian dialect — *Bambe*, in Imeretian — *Bamba, Banba* (Eristavi, 1884).

According to A. Borozdin, Rap. Eristavi and Zh. Murie (1927) cotton was cultivated in Georgia since ancient times. In Samegrelo, so much cotton was cultivated that it was exported to neighbouring countries. Later, how-

Fig. 106. Titistara — in Megrelian dialect Cheria, Martvili, village Mukhurcha

ever, *Kima* was sown only for domestic needs (Azikuri 2003). In the villages located in Imeretian lowlands, cotton was sown in spring, by scattering seeds in rows and then harrowing. Seeds germinated in two weeks' time. (Jalabadze 1990). From cotton, mattresses, blankets and clothes were weaved and various belts, bags and carpets knit.

Kurka (oil) was also extracted from cotton seeds. Cotton seed contains 20-27% oil. After oil extraction, the remaining oilcake made very good cattle fooder (newspaper "Land cultivator"- Micis musha, 1924; Japaridze, 1971).

Cotton is a thermophylic and light-loving plant. It grows poorly in highlands and can be sown only until the middle of April. In case of late sowing, plant ripens much slower. Before sowing of cotton, the land was well watered. After two or three days, the surface of the land was hoed. Fewer weeds would grow and more moisture would be maintained on the land cultivated in such a way. It is preferable to sow cotton in rows.

According to the elderly of Samegrelo (Senaki region) "...One of the main activities in the cotton plantation was cutting of plant spins. This accelerated plant growth and ripening of boxes. Cotton boxes do not ripen simultaneously; their ripening takes two months. Cotton was picked with both hands and put into special aprons with three pockets. Good quality raw material was put in one pocket, infected in the other pocket; the rest was put in the third pocket. First gathering of cotton started when one or two boxes on each bush opened and was finished before frosts came. Cotton picked after the frosts was collected separately. One could not be late with harvesting of cotton, because it would result in crop loss due to opened boxes. Cotton harvests were gathered in September. Picking it was hard work as cotton boxes have thorns (Maisaia, Shanshiashvili, Rusishvili, 2005).

According to the elderly, "...Hard fragments were removed from ripened boxes. Clean cotton was placed on a mat woven from wheat straw and spread thinly on it. The mat was dry, preventing the cotton from getting wet. After drying, the cotton was fluffed with a stick and became like snow; then cotton wool was spinned on a spinner, or *Cheria* in Megrelian (fig. 106). *Cheria* was made from nut sticks on which maize cobs were spitted. The women would take some cotton, stick it on the cobs and spin, creating a thread. Clothes and socks were knit with crochet needles" (Senaki region, village Gejeti, narrator R. Alasania, 1992).

According to N. Ketskhoveli's (1957) notes, cotton used to grow well in Kvemo Kartli, the eastern part of Kakheti and Eldari. Nowadays, however cotton is not cultivated in Georgia.

SUMMARY

For almost four centuries, Georgian population has been using non-traditional agricultural cultures, while the ancient native cultures which conditioned the formation of the Georgian Nation and Georgians' mental perfection, are going extinct and might be lost forever.

This work provides a list of ancient and endangered cultures, botanical and ethnographic characteristics of each along with original data about their application in life and folk medicine. Historical notes about their distribution on Georgian territory and accompanying research history are presented.

The book deals initially with wheat cultures of the first group, namely Georgian wheat species, which represented a staple food of historical Georgia before getting replaced by maize, which today feeds more than 90% of the world population. An interested reader will get acquainted with the most important data on cultural plants' vertical and horizontal distribution, their genesis, sowing, cultivation and application.

After wheat cultures in the book are discussed, millet cultures follow — namely, Italian millet, millet, foxtail millet, Japanese millet and rice, followed by legume, oil and fiber cultures.

Cereals i.e. wheat crop cultures belong to the most important plant group. They are a necessary food source for humans, having held such importance since the earliest stages of human social life, which has been maintained within the multi-millennial history of humankind and will not lose this importance in the future.

Cereals are also the main source of fodder for animal husbandry. They are also widely used in alcohol, beer and confectionary production.

Archeological excavations corroborate that the aforementioned plants were developed in Georgia in the Neolithic period together with viticulture and animal husbandry, becoming the basis of strengthening settled life. Legume cultures played a significant role in this regard, namely peas, broad beans, lentils, chickpeas, grasspeas, azuki beans, white lupines, cowpeas etc., which are distinguished by their high protein and vitamin contents and ability to compensate for the lack of animal products during Lent. Therefore, the Church took special care of their cultivation. Legumes are the best predecessors for other cultures in seed rotation. Extinction of each plant from agriculture is a very serious and sorrowful problem, especially if their role in increasing soil fertility is taken into consideration. It is scientifically proven that legume plants enrich the soil with nitrogen and phosphorus, negating the need for mineral fertilizers. In old Georgia, legumes were sown in vineyards and formed a symbiosis with vine.

Catholicos-Patriarch of All Georgia Ilia II pays great attention to restoration of traditional agriculture, revival of historical knowledge and implementation of a lifestyle that would match the Christian Orthodox Calendar.

Under the leadership and with the blessing of Catholicos Patriarch of All Georgia Ilia II, Fund for Survival of Ancient Agricultural Cultures and Traditional Husbandry of Georgia should be founded. The Georgian nation should return to its initial source of existence, which provided it with staple foods before discovery of America.

Nowadays it is very urgent to obtain and disseminate information on endemic species and aboriginal varieties of endemic Georgian plants.

One of the main values of this work is its popular scientific character, which allows wide circles of readers to get the necessary information on genesis, application and the current state of Georgian ancient cultures.

Via plain narration and suitable illustrations, this work outlines the key problem of the country's national trea-

sure facing the threat of extinction. While up to the 1970s it was possible to find cereals, legume, oil-fiber culture species and aboriginal varieties on farmers' homestead lands, today it is almost impossible to find them. These ancient cultures have been replaced by highly productive foreign wheat and barley varieties. Cultures such as as Makah, Zanduri, Italian millet, millet and flax are not cultivated today.

Significance of this book is very high because it will promote popularization of the aforementioned problem among a wide range of social layers and set before relevant organizations the issue of maintaining the valuable treasure Georgia is rich in.

The book will be useful not only for botanists, but also for genetists, selectionists, plant-breeders, teachers, bachelors, magisters and doctoral candidates as well as a regular reader. It will create a basis for restoration of the precious original cultures and unique genetic resourses.

Academician Petre Naskidashvili

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