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Sowing the return

Project for the development of buckwheat crops and a rational agricultural plan for Osmače

The Padua-based association Agronomists and Forestry Experts *sans frontières* began to be involved in the development project for the village of Osmače in mid-October 2012.

A month earlier, the Langer Foundation and the Adopt Srebrenica group had contacted us to see if we would be prepared to support and assist the farmers of Osmače to devise a rational plan for the agricultural activity of the area.

So seven of us set out from the Veneto to meet the inhabitants of the village and to assess the situation: from October 13th to 15th we were guests of the villagers, listening to their stories, inspecting the land and realizing how few resources they had. Perhaps most striking of all was their open-handed hospitality, even when the absence of our translator left the burden of communication to smiles and gestures.

The three days we were there concluded with a simple request from our hosts: «Please help us to improve our agriculture and our income, starting with the cultivation of buckwheat».

Once back in Italy we set about compiling a report of the information and impressions we had gained in Osmače in preparation for drafting a development plan.

The following is a description of the situation in 2012, as it emerges from the report:

Description of the area

Osmače lies some 970 metres a.s.l. at the eastern edge of the Central Dinaric Alps. The geography of the mountains is complex and rugged with the high ground linked by long broad flattish ridges that can also plunge down steep slopes into deeply eroded valleys.

The soil is friable with a high content of small stones, acid-subacid and rich in organic substances.

The natural vegetation is typical of mesophyllic woodland, with beech appearing in the mix at the higher altitudes, as it enters the montane zone.

Woods (with both natural broad-leaved species and European spruce plantations) also cover the uncultivated cacuminal areas; ferns occur widely, also in areas without tree cover. The type of vegetation and the species represented are an indication of adequate hydration, also in the summer months, due almost entirely to rainfall.

The water from the few natural springs is reserved for human and animal husbandry purposes.

Crops

The cultivated areas are situated at the higher altitudes and they comprise irregularly shaped plots that follow the morphology of the land without conforming to any particular agricultural system.

There are no systems for optimizing, regulating or dispersing rainwater nor any form of tank for collecting it.

The steeper slopes that are unsuitable for cultivation are used for grazing or left to spontaneous vegetation.

Not all the plots have been returned to cultivation and extensive areas are neglected and colonized by ferns; the edges of plots in contact with woodland are being taken over by colonizing shrubs.

Bracken is also present as a weed in cultivated plots, where their rhizomes are left untouched by often shallow ploughing and represent a real threat to crops.

The crops in question are mainly herbaceous (autumn-spring cereals, buckwheat, potatoes) with a few fruit-bearing shrubs: raspberries and blueberries.

The surfaces used for grazing support a thin polyphyte cover with a low summer yield.

The very few fruit trees are confined to small areas and even those are mostly blighted or otherwise weakened.

In the cultivated plots, the earth is only summarily treated – it is never turned over to a depth of more than 20 centimetres – and below this the soil is left hard and compact. Seedbeds are normally prepared with a multishare plough, though this often fails to achieve complete ploughing in of the surface turf; this phase is followed by a quick passage with the harrow to break down the surface layer. Sowing is done by hand.

The only items of farm machinery available for working the land are small multishare ploughs and fixed frame harrows.

Sowing is done by hand, using the broadcast method.

Cereal crops are gathered with a single old combine harvester.

The only other equipment available comprises a few mowing machines and swathers for the hay.

Animal husbandry

Apart from farmyard animals and a small number of cattle, which are kept mainly for milking, stockbreeding is limited to sheep.

The sheep are kept in pens and fed with hay and cultivated cereal grains. They are let out to graze for part of the day on nearby grassy areas and on cultivated land after the summer crops have been gathered in. Grazing is therefore of poor quality and the trampling of the animals helps to worsen the quality of the upper surface layers. The plots belonging to families who have not returned to the villages are left alone and are not used.

Product transformation

At the moment, the area has no mill capable of transforming buckwheat and cereals into flour. Milling involves lengthy journeys down to the plain or across the border into Serbian territory.

A small watermill is currently being refurbished, at the expense of the municipality, in the valley floor, where the main road forks towards the village.

Work is being done to join two small watercourses which, together, should prove enough to power it.

The flow of water in the streams is dependent on rain so the mill will be able to function only in rainy periods.

For the moment, the provision of other energy sources is too expensive and has not been taken into consideration.

The farmers

The young families who have returned to the village of Osmaće have embarked on a farming activity that will have to provide a big enough income to maintain them, despite the small extent of the land at their disposal.

One effect of the war that tore the area apart between 1992 and 1995 was to interrupt the normal passage of practical skills and know-how between the generations, and the families now lack in-depth expertise concerning cultivation techniques, they have very limited

economic resources and they are relatively isolated from the social exchange that takes place on the valley floor.

The producers of Osmaće have not formed any sort of association, company or cooperative; they do, however, collaborate by hiring their few items of farm machinery to each other.

In addition, collaborative relations have already been established with the ethnic Serb inhabitants of the neighbouring village of Brežani.

Buckwheat

Already grown in the area of Srebrenica in the past, buckwheat (*Fagopyrum esculentum*, a member of the *Poligonaceae* family), is often classified commercially as a cereal because of its nutritional characteristics and the ways it is consumed as food; this is scientifically improper, however, as buckwheat does not belong to the *Gramineae* family.

The plant is herbaceous, annual and grows to a height of between 60 and 120 centimeters with a short vegetative cycle (from 70-80 to 90-100 days, depending on the variety and climate conditions).

It is extremely sensitive to climate features such as drought, high temperatures and frost, especially in the flowering period, for which 20° C is the optimum temperature. So it requires a uniformly mild temperature, a reasonably moist environment and with plenty of light; if these conditions are met it will grow very quickly. It adapts well to low-fertility, acidic soils, and flops to the ground in rich conditions. It prefers mountain terrain and is thus well suited to the pedoclimatic conditions of the area.

Buckwheat also has the advantage of being unappetizing to the numerous wild animals present in the area, which cause substantial damage to other crops.

The lysine-rich protein content of buckwheat seed has the highest biological value of any member of the plant kingdom; it is rich in mineral salts, especially iron, zinc and selenium; it contains no gluten and so can be eaten by people with coeliac disease.

Buckwheat contains a glucoside called rutin, a phytochemical that strengthens capillary walls, so reducing the risk of haemorrhage in people suffering from hypertension and improving microcirculation in people with chronic venous insufficiency. Its various characteristics make buckwheat popular with the market for biological products; it can therefore guarantee greater profit than cereals.

In Osmaće buckwheat is sown from the last week of May and throughout June, using non-selected, self-produced seed; this means a high-volume sowing rate of 100 kilogrammes per hectare.

The crop is harvested in September.

Use of an obsolete combine harvester means that the ultimate crop yield is much lower than it should be; confirmation of such losses was unfortunately evident in the widespread germination of buckwheat in September-October in land cultivated in 2012.

Buckwheat is rotated with a cereal (wheat or oats) and after the harvest the land is used for grazing sheep and goats (spontaneous vegetation).

Buckwheat is not grown as a second crop.

Biological certification

Organska Kontrola is the only Bosnian certifying body; it could be contacted with a view to obtaining certification, thereby conferring an added value to the product, which would also be sustainable in the future.

Krav, the Swedish organic production certification organization, is also authorized to operate in Bosnia.

The high cost of inspection controls, however, makes it out of the question, for the moment, for the families to start the conversion period that must precede an application for certification.

Sale of products

There are two main ways of selling agricultural products: wholesale, mainly to a firm based in Sarajevo (Eko Heljda), which purchases the raw product (the price is set by the purchaser); sale of flour or hulled seed direct to the consumer; this method involves small quantities but brings in a better income than bulk product.

Contributions and production

In 2010 a Japanese donation enabled the purchase of enough seed for seven families to be able to sow their land.

In 2011 the same families sowed 13 hectares of buckwheat using part of the seed collected the previous year and a contribution from the municipality of Srebrenica for the purchase of agricultural diesel oil. Production amounted to about 8 tonnes, equivalent to a yield of 615 kilogrammes per hectare.

The municipal contribution was considerably reduced in 2012 because of the expenses the council incurred in organizing the local elections.

There was almost no production in 2012 as a result of the long drought.

This analysis of the situation and its highlighting of the problems affecting the agricultural scenario led to identification of the communities' principal needs as:

1. training in agricultural techniques;
2. improvement of cultivation techniques and the inclusion of other crops in the rotation cycle in order to increase productivity and diversify production; inclusion of the green manure technique in the rotation process in order to improve the fertility of the soil;
3. more machinery and equipment, especially for soil preparation and harvesting;
4. greater financial resources for the purchase of seeds and diesel oil so as to maximize potential in the first phase of production;
5. improve product placement on the market, and differentiation of the products offered.

The project

The fact that the requests for help from the families of Osmače met with a positive response from the associations involved made it possible to translate the analysis made in October into a detailed project: leading from the cultivation of buckwheat to the devising of an area plan designed over time to develop high quality, sustainable agricultural practices with low environmental impact and able to generate sufficient income to enable the families to live with dignity in a multi-ethnic context.

The development, which is based on a cooperative process and careful attention to the wishes and needs of the local community, provides for the following actions:

- concrete preparations for the establishment of a form of association of producers;
- setting up of training in agricultural techniques, from basic elements to biological production methods (also in collaboration with Italian farmers);
- provision of expertise and equipment to set in motion a productive model capable of guaranteeing the families a reasonable income in the medium term;
- support for the creation of area relational systems for the transformation and sale of output.

The participatory approach has given the right and necessary degree of authority and responsibility to all the actors involved in the project, especially the beneficiaries; it has enabled all parties to adopt an attitude of mutual trust and confidence, also in dealing

together with technical aspects. This approach has facilitated the sharing of ideas, experience and opportunities.

The active involvement of the families should create the basis for the future sustainability of the project.

Preliminary arrangements for the project activities

The first phase of the project mainly concerned the formalization of cooperation agreements between the partners and the appointment of project staff, including the coordination group, the expert trainers, the technicians and the supervisors.

The partners in the project are therefore:

Leader: Agronomists and Forestry Experts *sans frontières*/Agronomi e Forestali Senza Frontiere (ASF) onlus of Padua.

Other partners:

1. Association of Cooperation and Solidarity/Associazione di Cooperazione e Solidarietà (ACS) of Padua;
2. Cooperativa Agricola El Tamiso of Padua;
3. Centro Pace of Venice City Council;
4. Association Buongiorno Bosnia, Dobardan Venecija of Venice;
5. Architects *sans frontières*/Architetti Senza Frontiere, Veneto branch;
6. Adopt Srebrenica group of Srebrenica.

The next issues to be dealt with were the following technical aspects: calculation of the surface areas available; ownership of the land; definition of the crop plan, optimizing the rotation of the various crops in the different areas; resources available in the field, especially as regards machinery and equipment.

Preparations for the establishment of a form of association of producers

From the outset of the project, the beneficiaries were asked to form themselves gradually into an organized group of producers (association, cooperative, company) for the management of the funds destined for the purchase of diesel fuel, equipment and productive inputs. The same organized group will deal more efficiently and profitably with product placement on the market.

It was deemed important for the success of the project that the ethnic Serb families in the village of Brežani be invited to take part.

Technical training

Technical training is agreed to be indispensable for the development of production, transformation and sales activities and it is being provided in different ways:

- the continuous availability of technicians and experts throughout the year, with periodic visits to Bosnia and Herzegovina;
- the provision of support to local producers by Italian farmers, with a trip to Bosnia and Herzegovina for face-to-face transfer of experience and information;
- a visit of representatives of the Osmače farmers to Italy, with visits to farms of similar size to their own where various associative forms of organization (especially cooperatives) can be seen to be functioning well.

The issues tackled through training include:

1. the cultivation of autumn-spring cereal crops (barley, rye, wheat, oats) and buckwheat (the special needs of each crop, the importance of sowing seed quality, cultivation techniques, rotation procedures, etc.);
2. organic fertilizing: manure, green manure, organic pellets;
3. tillage techniques (including double-layer ploughing); management of agricultural machinery and equipment;

4. crop rotation techniques;
5. harvesting techniques, conservation and transformation of the product;
6. biological cultivation methods;
7. preparation of products for sale;
8. record-keeping and its influence on future field activities.

Provision of inputs and equipment

In an attempt to overcome the problems created by the shortage of technical and economic resources, the project includes the provision of finance for the following materials for the cultivation of buckwheat and other crops:

- diesel fuel for ploughing and harrowing the soil and for sowing and harvesting; funds will be distributed on the basis of the surface area cultivated by each family;
- organic pellets for fertilizing, to be used for the first sowing of buckwheat;
- sowing seed for buckwheat and autumn-spring cereals (barley, rye, oats);
- sowing seed for green manure (field pea, barley, clover);
- a mole plough and a cultivator to ensure appropriate soil preparation.

Support for the creation of area relational systems for the transformation and sale of output

It being clear that the boosting of production is not in itself sufficient to guarantee a future for the community of Osmače unless the products find a successful market outlet, the project advocates support for the establishment of contacts at local and national level to ensure that the product transformation and sales phases are also reinforced.

In this case too, the project sets out to avoid a top-down approach involving the imposition of external decisions regarding the channels and methods to be used for product transformation and marketing; rather, the intention is to act gradually, supporting the establishment of relations at a local and national level in Bosnia and Herzegovina that can form a base for the development of future activities that are sustainable from an economic point of view and as far as possible based on the principle of the short supply chain.

With this in mind, it is planned to work (during training visits and maintaining a constant dialogue with the beneficiaries) on:

- the formalization of sales contracts;
- the consideration of alternative sales channels (direct sales);
- the setting up of processing agreements with a mill currently being refurbished near Osmače;
- the organization of current contacts with a view to publicizing product availability to direct purchasers.

Communication, monitoring and appraisal of plans to encourage good practices

The ultimate aim of the project is, through the pilot scheme being implemented in Osmače, to contribute to the establishment of good agricultural practices, which in turn will lead to increased family incomes and the permanent return of young people to neglected rural parts of Bosnia and Herzegovina.

To this end the project has adopted a long-term programme, one which is not simply a stop-gap but which lays the basis for possible future activities such as a move into the biological agriculture sector, a model of good practice in local development and one that can be reproduced in other communities.

Fulfilment of this aim will be ensured by continuous monitoring and reappraisal of the various activities, with the direct on-site participation of members of the coordination group. Real-time adjustments can then be made as necessary, thus guaranteeing that the development of the project will take account of the results achieved.

Interim report and latest developments

At the end of November 2012, the operational plan was submitted to the *Tavola Valdese*, the Executive Board of the Waldensian and Methodist Church in Italy as an application for funding which the Church contributes to international cooperation projects from its portion of the national charity allocation (8 per 1.000 of income tax).

In any case, the project got underway in 2013 with the limited funds made available by the partner associations.

During the first working visit, from 28th February to 3rd March, a meeting was held to illustrate the various activities scheduled and the participating families signed commitments to cultivate their land. And to everyone's immense satisfaction, a family from Brežani also took part in the meeting and signed up to the project.

A let-up in the last snowfalls of winter allowed the meeting to take place in the open air in the only space big enough to accommodate all the participants.

During the three days of their working visit to Osmače, the project officers identified the plots that were suitable for sowing and which belonged to the twelve families who have joined the project.

The economic support available enabled seeds and diesel fuel to be purchased but the very low rainfall during spring caused delays in the preparation of the ground for sowing.

If the soil is too dry there can be no certainty that the seeds will sprout, so sowing was left until the end of May, once the long-awaited rains had come. In the meantime, however, one family withdrew from the scheme because of contingent difficulties.

At the end of April, a number of Italian farmers from one of the project partner organizations, the El Tamiso cooperative of Padua, paid a visit to Osmače for a first exchange of information.

Altogether 11.52 hectares were sown (including 10.52 in Osmače and one in Brežani). The crop was harvested in the first ten days of September, a total of 7.2 tonnes of grain with an average yield of 625 kilogrammes per hectare. The low yield was largely due to the still unresolved limits of the context: ploughing that was too shallow and serious losses because of inadequate harvesting machinery.

At the same time as actual farming was continuing, more training sessions were held during further working visits to Bosnia and Herzegovina throughout the year. The issues tackled mainly concerned land preparation techniques and soil management.

The training activities culminated with several representatives of the families visiting Italy and being taken around a number of the farms belonging to the El Tamiso cooperative in Padua and to the La Fiorita cooperative in Cesiomaggiore in the Province of Belluno.

This provided the visitors with an opportunity to gain first-hand experience of ploughing techniques, machinery and equipment and to exchange opinions, comments, questions and answers directly with Italian farmers.

In-depth information and explanation was also given about the role of the cooperative in terms of programming work and combining produce for marketing.

Then in autumn, the news that the *Tavola Valdese* had approved a grant, a boost to the project's income which ensured that the activities scheduled for 2014 could go ahead.

The Sedlari Association

Another subject broached during the working visit to Bosnia and Herzegovina in August 2013 and discussed in concrete terms at the general meeting was the proposed creation of an association of producers. Despite in-principle agreement, however, the costs and administrative commitment involved meant that the decision had to be carefully weighed.

Finally, in December 2013, an application was made to the court in Bijelina to register the Sedlari Association (the name, meaning “saddlers”, recalls a craft activity for which the area was famous in the past).

During the winter of 2013-2014 the farmers of Osmače and Brežani met several times to open membership of the association to as many families as possible.

With this evolution the joint project took on the true characteristics of a cooperative area development plan, an identity which is also conveyed by the project logo adopted at the end of 2013.

The ongoing exchange of ideas, the gradual increase in understanding of the area and potential for joint action mean that agricultural activities can be developed with more ambitious objectives.

One of these is to begin growing medicinal plants, an initiative that could considerably increase the profitability of the farms. The environment of Osmače and Brežani lends itself particularly well to this branch of cultivation because of its pedoclimatic conditions and the absence of pollutants.

The use of such plants in phytotherapeutic cosmetics, veterinary treatments and in other commercial fields would open up a valuable new line in production and sales, in addition to the now consolidated production of buckwheat.

One of the issues still to be tackled concerns the processing of products (the drying of medicinal plants, the milling of buckwheat and cereals) and their packaging in a shared facility that has not yet been created.

Direct sales, supported by biological certification and its guarantee of high-quality production standards, remain the challenge for the near future.