Participatory research approach in mountain pasture management in Central Italy

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Participatory research approach in mountain pasture management in Central Italy

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Abstract. Most mountain pastures in Italy are underutilized or even abandoned due to urbanization, low incomes, limited social opportunities for rural families. A three years research was done on the rehabilitation of some pastures in two farms of North-Western Tuscany, central Italy. During the first part of the trial some agronomic interventions were compared (new pasture fencing, potato cash crop sowing, sowing and oversowing a pasture mixture of grasses and legumes, chemical fertilization mainly nitrogen, planting scattered forage trees), at the end of the agronomic trial 20 more farmers of the area were invited to visit the trials and discuss the results in order to know the level of their appreciation of the interventions done and their further demands. The agronomic interventions more appreciated were the new fencing and shrubs clearing, and the one year cash crop. The farmers had less appreciation for fertilization and oversowing, and very little appreciation for the new planting of scattered forage trees. Under a general point of view however, social actions were demanded much more than agronomical. People asked better and faster links to the near towns, better possibilities to publicize and sell their produce straight to customers by internet, they asked the development of local small scale industries that can process milk for sale and to make cheese, less limitations in starting and managing agri-tourism activities.

Keywords. Pasture abandonment – Pasture rehabilitation – Rural people demands – Social and agronomic interventions – Integrated pastoral systems.

Approche participative dans la gestion des pâturages de montagne en Italie centrale

Résumé. *De nombreuses pâturages de montagne en Italie sont sous-utilisés ou même abandonnés en raison de l'urbanisation, des faibles revenus et aussi du développement social fortement limité dans le milieu rural. Dans ce contexte, une recherche concernent la réhabilitation de certains pâturages a été menée chez deux fermes du nord-ouest de la Toscane. Au cours de la première phase expérimentale, certaines interventions agronomiques ont été réalisées (réalisation de clôtures des pâturages, plantation de pommes de terre, semis et sursemis d'un mélange de graminées et de légumineuses, fertilisation azotée, plantation d'arbres fourragers). Après la conclusion de l'essai, différents agriculteurs de la région ont été invités pour évaluer les résultats. Cela a permis de connaître le niveau d'appréciation sur les interventions effectuées et, en plus, leurs exigences supplémentaires. Les agriculteurs ont beaucoup apprécié le débroussaillement et les cultures de rente plutôt que la fertilisation, le sursemis et la plantation d'arbres fourragers. D'un point de vue général, les actions qui favorisent le développement social sont plus appréciées que les interventions agronomiques. Les agriculteurs ont demandé un lien plus efficace avec les villes, la possibilité de vendre leurs produits directement aux clients par internet, des industries locales à petite échelle pour la transformation du lait et moins de limitations dans la réalisation et la gestion de l'activité agro-touristique.*

Mots-clés. *Pâturages abandonnés – Amélioration des pâturages – Demandes des populations rurales – Interventions sociales et agronomiques – Systèmes pastoraux integrés.*

I – Introduction

Most mountain pastures in Europe and Italy are underutilized or even abandoned due to urbanization, low incomes, limited social opportunities (Skórka *et al*., 2010). The most common causes are related to the difficult physical environment, characterized by very cold winters and hot summers,

steepy slopes with enhanced soil erosion and shallow unfertile soils (Price *et al*., 2015). All this has favored the move of rural families to towns. Marginal lands are now more useful for tourism than for agricultural production (Peeters, 2008), however pasture management supports tourist activities including visiting natural parks, summer trekking, winter skiing, overnights in agri-tourism farms, all this has brought farmers to develop a modern agriculture linked to services, starting Integrated Pastoral Systems (Pardini, 2005). In order to support these activities it is necessary to concentrate any management on the most suitable pastures and crops (Pardini *et al*., 2008; Pardini and Nori, 2011).

A project run for three years was done in an area of Garfagnana (Apennines, in the North-Western Tuscany, central Italy) comparing agronomic practices (Natali *et al*., 2005). At the end of the trial a group of farmers of the area visited the trials and discussed the results, and were interviewed to know their general opinions on interventions done and others possible, this article refers on these last part of the trial.

II – Materials and methods

At the beginning of an agronomic trial the following interventions were done in two farms: new fencing, shrubs clearing, sowing potato cash crops, sowing permanent pastures, sowing and oversowing, chemical fertilization, planting of scattered forage trees.

At the end of the agronomic trial that lasted three years, 20 farmers of the area were invited to visit the trials and to discuss the results, and encouraged to express their opinion on the real benefits of the interventions done or others possible. A total 22 farmers were interviewed (the two owners of the farms and other 20 visiting farm owners).

The interviewing had a Participatory Research Approach: a form was prepared with listed the interventions done, later other interventions suggested by local farmers were added with the percentage of people demanding them. The interviews concerned the following two aspects:

- efficacy of the agronomic interventions already done;
- demands of further interventions (further interventions asked directly by farmers).

Results were subjected to ANOVA performed by means of Sistat software, with interventions as fixed effect.

III – Results and discussion

1. Efficacy of the already done agronomic interventions

The farmers had higher appreciation (Table 1) for interventions whose effects were rapid and at the same time can persist several years (fencing, 100%; shrubs clearing, 100%; sowing permanent pasture 80%). In addition, interventions that have rapid results even if for short time were highly appreciated (potato cash crop, 98%). Oversowing was less appreciated (45%) than sowing (80%) because a small number of introduced plants survive. Tree planting was not much appreciated (15% only) because positive effects are visible only after several years.

Table 1. Appreciation of the interventions already done (% of appreciation in decreasing order)

Intervention	Appreciation (%)	Reason
New fencing	100 a	Improvement that lasts many years. Some wolves are seen in the area.
Shrubs clearing	100 a	Some pastures have been completely encroached and cannot be recovered else.
Sowing cash crop (1 year)	98 a	Allows better control on weeds when pasture is sown the following year. Rapid return of money to the investor.
Sowing permanent pasture	80 b	Useful, but not very much because productivity is little anyway due to physical constraints. Native pasture is cheaper and will do it anyway.
Oversowing permanent pasture	45 c	Oversowing is very sensible to competition with weeds, moreover this improvement lasts only 2-3 years.
Chemical fertilization	40 b	It has only effect for 2-3 years.
Planting of scattered forage trees	15 c	Trees take too long to be reintroduced, moreover the forage gap is in winter when livestock is in stable with hay.

Values in column with different letters are different at P = 0.05.

2. Demands of further interventions

Farmers have asked for several interventions *else* than agronomic, actually socio-economical (Table 2).

Table 2. Appreciation of the further interventions (% of appreciation in decreasing order)

Intervention demanded	Appreciation (%)	Reason
Economic contributions	100 a	Money can compensate the difficult life style and the poor incomes.
Better links to towns (improve roads, transports)	100 a	Need of nurseries, schools, ambulatories, administrative offices, social opportunities.
Develop local small scale industries to process and sale milk and cheese	100 a	This produce can be processed at home in very little amounts, if farmers can increase the number of livestock then need to bring the produce to large industries too far.
Develop internet produce sale straight to customers	100 a	The local market is rapidly saturated with the produce, even with organic and PDO certifications, that is all the certifications related to the geographical area and production methods that give an added value to the produce. Some farms have developed larger markets on line, each separately and spending their own money.
Starting agri-tourisms	89 b	Very useful, but complex. Bureaucracy and law limitations are important constraints. Finally, not all farms have structural characteristics to start an agri-tourism.
Cooperative organization in order to have days off.	75 c	Useful because livestock need daily work. However many farmers have relatives with nearby farms and can help each-other.
High school stages in farm for farmers' children	50 d	Only aged people is still working in mountain farms and they need to employ their children but young people have to study and return to farm when this is already in critical conditions. Periodical stages will help parents to manage the farm.

Values in column with different letters are significantly different at P = 0.05.

This points out that the agronomic interventions done have already hit the technical target, but they are not sufficient to keep the people on their land, and that the reasons of land abandonment are to be seeked more in the gradual social changes than in the little productivity of the vegetation. Some possible actions are considered complex to be achieved (starting agro-tourism activities, co-operative organization, and less than all the others school stages) thus they are asked by a smaller number of rural people.

Actually all the most demanded interventions are related to better link with the rest of the society and the economy of the whole area (a part the simple financial contribution, people asked better connections to towns, develop small scale industries in the area, develop produce sale straight to customers by internet). Also the other interventions, less demanded, have social implications nonetheless.

IV – Conclusions

Pasture management in marginal areas is important for territory conservation and to develop a modern agriculture linked to services, the results of the current trial showed that good agronomic practices are useful, although rural people demand more services that, if implemented together, can bring to the organization of Integrated Pastoral Systems which link agricultural production and services offered in farm. Some agronomic interventions are possible to support these changes and they are appreciated by rural people especially if they can last for several years (new fencing, shrubs clearing). However farmers and their families demand mainly actions with a more immediate effect on social aspects and life style (improve connections to towns, develop small scale local industries, organize connections and trade also by internet). In general, it is clear anyway that agriculture in any marginal area of Italy shall not persist unless the traditional life style can be adapted to the whole regional economy and to a more modern lifestyle.

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