



The Vegetable Garden for All: Twenty Years of Horticultural Therapy Experiences at the “Animal Farm” in Ladispoli (Rome, Italy)

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Received: 23 Nov 2024; Received in revised form: 28 Dec 2024; Accepted: 05 Jan 2025; Available online: 10 Jan 2025

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Abstract— Contact with nature has always been recognized as having a positive and relaxing effect on people; horticultural therapy is one of the latest forms of unconventional therapy, which uses plants to improve physical and mental condition. Horticultural therapy activities, after a long experimental phase dating back to the 1960s, are now a consolidated practice in the USA, Canada and Europe. In Italy, social farming has developed in a more organic way since the early 2000'S: there are no pre-established models and the various social agriculture projects, in recent years, have aimed to develop good practices starting from personal experience in the field rather than from codified models. The Animal Farm, social farm in Ladispoli (Rome, Italy), has developed a functional model based on twenty years of experience in the period 2003 – 2024, which is reported in the present work. The mixed experience of informative educational activities and rehabilitation activities allowed farm's visitors to come into contact with the participants in the workshop and this increased people's awareness of the problems of people with disabilities. The workshops are organized in daily activities where the various local institutions bring their users (either individuals or groups) to carry out agricultural activities and practical workshops. The path followed is aimed at people with medium and severe mental disabilities. The workshop is structured in two levels of activity: routine works and creative work. The experiments implemented within the horticultural therapy paths in the Animal Farm of Ladispoli (Rome, Italy) confirm the key role of agricultural activities in rehabilitation programs for disabled people and in the present work the positive effects observed in the workshops are reported.



Keywords— Horticultural therapy, good practice model, multifunctional agriculture, rehabilitative workshop, social farm.

I. INTRODUCTION

The positive influence of nature on human health and life has long been known, and contact with nature has always been recognised as having a positive and relaxing effect on people (ULRICH 1979, 1984; ZAWIŚLAK, 2015).

Horticultural therapy (garden therapy, horticultural medicine, from the Latin *hortus* that means vegetable garden) is one of the latest forms of unconventional therapy, which uses plants to improve a

person's physical and mental condition. Horticultural therapy can be passive, when it involves walking, standing in the garden among plants, looking at them, smelling them, touching them; therapy can also take an active form, which involves the active participation of man in gardening work (preparing the soil, sowing seeds, transplanting seedlings, planting plants and bulbs, weeding, watering, picking fruit, vegetables and flowers) (ZAWIŚLAK, 2015; HALLER & CAPRA, 2016).

Generally, scientists have shown that spending time in nature, for everyone and not only for vulnerable or disabled people, dedicating oneself to gardening and picking vegetables and fruit stimulates the brain to release dopamine, the so-called happiness hormone, a substance that is responsible, among other things, for well-being and concentration; furthermore, children in the developmental growth phase are the main ones to enjoy the benefits of outdoors activities (OLIVERIO FERRARIS & OLIVERIO).

Horticultural therapy activities, after a long experimental phase dating back to the 60's are now a consolidated practice in the USA, Canada and Europe (BURLINGAME & WATSON, 1960). In the European model, called "green care" or "farming for health", it is foreseen, in addition to the places typically linked to therapies such as hospitals (CZALCZYŃSKA – PODOLSKA & RZESZOTARSKA – PAŁKA, 2016), the development of a dedicated agriculture in farms, with the involvement of the two worlds of farmers and doctors and health workers; a combination that, on the one hand, provides a healthy and optimal environment for disadvantaged people, on the other hand, offers economic support for small farms, often in economic difficulty (HASSINK & VAN DIJK, 2006; GÓRSKA-KŁĘK *ET AL.*, 2013). Agriculture has therefore taken on, in recent decades, an increasingly evident "social function", meaning that all activities related to agriculture have an impact on society by contributing to the cultural and civil growth of its members (MUGANO *ET AL.*, 2010). The European Union encourages the growth of multi-functionality activities in agriculture, which includes all activities that increase the social role of the agricultural sector (DI IACOVO & O'CONNOR, 2009).

Educational farms are realities in the multi-functionality evolution of farm in Italy, developed especially in the last two decades; these are farms where people can visit and learn about domestic animals and breeding cycles, getting in touch with the rural world now so far removed from the daily activities of most of the population, accustomed to urban contexts. (SOFO & NATILE, 2013)

In addition to the Educational farm in recent years, taking the experiences already developed in the US and in the Nordic countries of Europe, begin to appear on the Italian scene the social farms, farms where one of the main activities, if not all, is conducting therapeutic rehabilitation activities aimed at people with disabilities; often disabled people are included in the production process. (HASSINK & VAN DIJK, 2006; VAN ELSSEN *ET AL.*, 2014). A social farm is characterized by both a productive and a social component; in the latter case, horticultural practices can find a wide application in the activities of the so-called "wellness farms" for the rehabilitation of people

with addictions (alcohol, drugs, etc.) or for the support and care of the elderly or physically or mentally disabled people. In this typology of farm, work management and training can be influenced by the use of chemical substances, which can limit the activity of the people involved. In this case, the possibility of using organic farming techniques avoid the use and contact with toxic substances and would guarantee an improvement in the human/plant interaction and a simplified management of agronomic practices compared to conventional methods (DAVIS, 1995, MUGANO *ET AL.*, 2010; PIZZUTI PICCOLI & KACZMARCZYK, 2016).

In Italy, social farming has developed in a more organic way since the early 2000's; only in 2015 a national law on social agriculture was approved, now in the implementation phase. There are no pre-established models and the various social agriculture projects, in recent years, have tried to develop good practices starting from personal experience in the field rather than from codified models (FINUOLA & PASCALE, 2008; ARSIAL, 2011).

At "Animal Farm", a social farm in Ladispoli (Rome, Italy), a functional model has been developed and consists of the simultaneous activities of educational and social farm; an integral part of the model is the performance of horticultural therapy activities, which are discussed in this work.

II. MATERIAL AND METHODS

The "Animal Farm" is an experimental farm, developed on an area of 2 ha, where animals belonging to breeds in danger of extinction are raised and where plant species are grown according to natural methods without the use of chemical substances used in traditional agriculture. The activities of the farm, in addition to breeding, are developed in two main activities: environmental education activities for schools (about 4000 students and visitors per year) and workshops aimed at disabled and disadvantaged people (PIZZUTI PICCOLI & KACZMARCZYK, 2016).

The farm, since 2003, brings to developing a good practice model in horticultural therapy, proposed in this work, which can be exported and implemented in other situations; the farm staff consists of agronomists, psychotherapists, ethologists, farmers who work together as a team in the implementation of educational and rehabilitation activities. All the structures present at the farm have been created by disabled individuals who have participated in the various workshops over the years. The workshops are organized in daily activities where the various institutions of the territory (rehabilitation centers

for disables, hospitals, etc.) bring their users (individual assets or groups) to carry out horticultural activities and practical workshops. The designed path type is aimed at people with medium and severe mental disabilities.

Activities are conducted, at the beginning, always with the presence, as well as of the operators of farm, by operators of rehabilitation services who daily work with the involved disabled people. This is a facilitation providing security in an initially unfamiliar environment for the participants. Over time the role of the farm operator becomes increasingly prominent as participants gain familiarity for the spaces of the farm.

The proposed workshops aim at recovery of psycho-physical well-being of those who participate, to promote a sense of responsibility, autonomy, and socialization opportunities. During practical workshops, participants can decide on the time and space needed to perform the required tasks (for instance to check if weeding is needed, if irrigation is necessary, etc.), developing a sense of autonomy and the ability to make decisions. The attempt is to stimulate users to make proposals regarding the execution of work, in particular those relating to the creation of structures for the farm (arks for sowing seeds on the ground, raised structures for wheelchair people, etc.). Decisions are not imposed from above, but they are involved in the choice of materials, the order in which the work is to be carried out, and operational strategies. Initially, participants will be supervised and guided in practical activities by the operators, and gradually they will be encouraged to carry out phases of vegetable garden and olive tree grove management independently. The importance is undoubtedly, in the rehabilitation phase, of operational autonomy and awareness of own abilities, which the users can then express in new and different work environments.

The workshop is structured according to two levels of activity: routine work and creative work.

Routine work.

The first type includes work on the care and management of the vegetable garden, the olive tree grove and the widespread orchard (the orchard consists of around 40 fruit trees arranged in rows or small groups throughout the farm). The routine work is used to put the participants in confidence with the farm's places and facilities, giving them a sense of security and encouraging their independence. The activities proposed in the routine phase are structured so that they can be carried out in the daily time of permanence of the person in the farm; routine jobs, such as weeding flowerbeds or watering plants in the vegetable garden, must be structured to be able to finish within the time of two or maximum three hours and give

the perception of the finished work. This promotes a sense of gratification for a job started and completed in the defined time frame.

Creative work

The second phase involves participants in the construction of facilities for the farm (greenhouse, benches, scarecrows, etc.), first conceived and designed, then built together; the activities will end in several days of work, on each day, participants work on building and completing a single part of the structure. This level gives the idea of something finite, realized in all its phases of construction by the participants, participants who work will have contributed to improving the capabilities of the farm; this gives a sense of belonging and increases self-esteem. Even the creative work, which necessarily takes longer, usually set at two to three months, is organized in daily or weekly phases that give a sense of the contribution made to its realization.

The working day is structured into three phases:

- Preparation of participants and initial meeting with the definition of assets and assignment of duties and organization of the times;
- working activities, interrupted by a break for a snack;
- final meeting of the day with feedback comments.

As part of the daily workshops they are inserted obstacle factors that contribute to maintaining the functions of the person involved and to increase motor and psychic abilities. Of course all the activities proposed are carried out safely and in accordance with hygienic standards corresponding to the parameters of the law currently in force.

Great care has been taken in the choice of species to be cultivated. For seasonal production, preference has been given to short-cycle species, propagated by seed or agamic reproduction, such as tomatoes, beans, eggplants and various aromatic species; for the tree component, in addition to the olive tree grove, rare and little-used fruit plants have been chosen (including European medlar *Mespilus germanica* L., jujube *Ziziphus jujuba* Mill., sorb *Sorbus domestica* L.) in order to promote the conservation of these ancient species and cultivars (GUIDI, 2017).

Regarding work organization, cultivation tasks were identified both for individual responsibility (irrigation, plant protection) and for group work (sowing, transplanting and harvesting). Spring and summer operations were carried out in shaded nurseries and in the open field, while winter operations were carried out in the farm's greenhouse. Agricultural management of cultivation was carried out with the aid of materials and technical

means used professionally and in compliance with the organic production method.



Fig.1. Ground benches used in horticultural therapy programs.



Fig.2. Raised benches that allow work to disabled people in wheelchairs.

Compost and manure from farm animals were used to fertilize the soil and nourish plants, eliminating the use of synthetic mineral fertilizers. Furthermore, as regards phytosanitary strategies, natural methods were employed to control various pests. As regards the specific structures, useful for the implementation of horticultural therapy programs, ground benches have proven to be very useful (Fig.1), these structures delimit a finished space in the vegetable garden and allow the participants to have the perception in time and space of the work that must be carried out and finished, with an increase in the personal gratification. During creative work, people with difficulties were guided in producing functional structures to improve the enjoyment of the workshops for other disabled people; an example is the raised benches that enable work for individuals in wheelchairs (Fig. 2); this aspect has proven extremely important in boosting participants' self-esteem in the workshops. An attempt was also made to stimulate imagination and creativity through the creation of some structures to complete the garden (an example is the scarecrow, with which participants can give vent to their imagination).

III. RESULTS

Horticultural therapy workshops have been running at the farm since 2003 and are still ongoing, allowing approximately 1873 people to participate over the years, with an average of 89 people per year (Table 1); in 2020 the COVID – 19 pandemic slowed down activities from March to May of the same year but the workshops were carried out nonetheless. The mixed experience of informative educational activities and rehabilitation activities allowed the farm’s visitors (approximately 70.000 estimated in the period 2003 – 2024) to come into contact with the participants in the workshop and this increased public awareness of the challenges faced by disabled individuals. The same type of workshops was carried out by the farm staff, from 2007 to 2019 at “Parco degli Angeli” in Cerveteri (Rome, Italy), and from 2020 to 2024 at the “Giardino di Annalisa” in Ladispoli (Rome, Italy).

Table 1: Participants in horticultural therapy workshops in the period 2003 – 2023.

Year	Number of disabled participants	Disability category
2003	55	Autism spectrum disorders, moderate and severe
2004	70	
2005	35	
2006	45	

2007	52	mental illness, Down's syndrome, motor deficits, sensory deficits.
2008	65	
2009	78	
2010	65	
2011	93	
2012	101	
2013	123	
2014	112	
2015	121	
2016	118	
2017	89	
2018	95	
2019	110	
2020	102	
2021	108	
2022	115	
2023	120	

IV. DISCUSSION AND CONCLUSIONS

The experiences of horticultural therapy carried out at the Animal Farm confirm the importance of the natural environment and of agricultural work in the open air as a fundamental part of the rehabilitation activities for disabled people. These benefits for humans have been documented in all the social farms that are today present in Europe and in the American continent (HASSINK & VAN DIJK, 2006).

It is essential to emphasize that horticultural therapy should be conducted by a multidisciplinary team of professionals and therapists, in a working context suitably adapted to the needs of each individual user (NOWAK, 2012).

According to other authors, application in work is a fundamental moment in a therapeutic-rehabilitative program whose aim is to allowing for tasks suitable for each participant to be found maximum level of psychological, social, physical and economic independence (HASSINK & VAN DIJK, 2006; GÓRSKA-KŁĘK ET AL., 2013; ZAWIŚLAK, 2015; HALLER & CAPRA, 2016).

The planning of the workshops has always been based on the choice of agricultural work suitable for everyone and easy to perform: of fundamental importance is the organization of the work in modules, to allow the activities to be divided into small actions with different

levels of difficulty and involvement, allowing to find a work suitable for each participant. Agricultural work is often repetitive and therefore easier to follow and remember; the simple execution of some actions (watering, harvesting the products, sowing in pots) therefore allows people with limited physical or mental abilities to be involved.

Over the years we have seen an increase in the overall well-being of participants. The condition of disability implies that others take care of disabled persons; in farming activities, this condition is reversed: it is people with disabilities or other forms of disadvantage who take care of other organisms. There is a sort of positive feedback that helps to strengthen the sense of individual responsibility and consolidates self-esteem. Any agricultural activity carried out in the care of a vegetable garden or an orchard requires decision-making effort; for example, in the case of watering plants, decisions are required, such as deciding the right amount of water for each plant. The agricultural activity, therefore, stimulates judging and calculation skills and, by offering moments of participatory planning, encourages the person to make proposals on the work to be done.

Not secondary is the fact that working in a farm, to manage and treat plants and structures, allows participants to stay outdoors, with very wide possibilities of movement, favoring the physical activity and decreasing the sense of constriction given by the closed spaces. To carry out activities related to plants management multiple motor functions are necessary: they are, in fact, required unilateral movements, bilateral movements (involving both arms or both legs), bimanual movements (one hand performs the action and the other helps), bending, stretching, rhythmic or/and automatic movements, the coordination of movements and global purposes, the hand-eye coordination, muscular strength and endurance, the learning of the strength dosage, the ability to maintain an upright position for a certain period of time.

The activities that are carried out on the farm also allow all the human senses to be stimulated: sight, touch, hearing, smell and taste are stimulated in the various phases of the cultivation processes. These are sensorial stimuli that can be particularly useful in the rehabilitation of people affected by pathologies that generate a high degree of isolation from the outside world. Contact with the earth, observing the shapes and colors of plants, transmit relaxing sensations and stimulate perceptive abilities activated by taking care of plants. The times during which agricultural processes develop represent another important aspect in rehabilitation activities. The various agricultural phases (sowing, flowering, harvesting) require us to understand and organize time: obtaining

products requires processes that develop over a period of time, which is never short. The rhythms of agricultural work, which are never pressing and such as to generate stressful situations, help individuals who have difficulty dealing with reality to rebuild a relationship with time, observing and participating in the continuous transformations of biological organisms.

The activities, even the simplest ones, developed in the workshops, are generally conducted in groups of two or more people. Contact allows the establishment of closer interactions, promoting communication and socialization. Furthermore, the possibility of interacting with visitors to the farm helps reduce social isolation, which often affects people with mental, psychological, or behavioral deficits.

Finally, the product of work provides a decisive reward: the plants 'react' to the care of man and 'reward' him by producing new leaves, flowers and fruits. A positive feedback occurs and this contributes to strengthening the individual's sense of responsibility and to consolidating his self-esteem. Even obtaining a product that is 'useful' for the community (or sometimes just for the family), as in the case of vegetables or flowers, contributes to the individual's self-esteem as a participant in the local community, contributing to its well-being.

In conclusion, the results obtained in twenty years of activity represent a standardized experience of horticultural therapy that has led to the development of a repeatable format. The format can represent a reference for many farms that can carry out experiences of social agriculture and, more generally, can serve as a repeatable model with significant social impact, encouraging the participation of disadvantaged individuals in work and rehabilitation programs.

ACKNOWLEDGEMENTS

The Authors are grateful to Fondazione CARICIV – "Cassa di Risparmio di Civitavecchia" (Rome, Italy), for the contribution given to the realization of horticultural therapy workshops at the Animal Farm.

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