Organic Farming in Austria with the concept of Selbsternte: A new and innovative production system for small-scale farming connecting farmers and consumers

Paul Axmann and Christian R. Vogl*

Abstract

In Vienna consultants, organic farmers and green-minded consumers have developed a new concept of urban organic farming – called Selbsternte. Organic farmers prepare a part of arable land (the Selbsternte plot) and sow or plant rows with 18 – 23 plant species. In mid May the plots are divided into subplots that contain 2 – 6 m of every sown species and are rented to consumers. In 2002 Selbsternte was being practiced at 15 plots in Vienna or in neighboring cities represented by 861 subplots, totaling an area of 68,740 m² and managed by 12 organic farmers for 861 registered consumers. At the plot Roter Berg, experimental subplots were established to evaluate yields and value of the harvbested produces, and interviews were conducted with the 27 consumers, the 8 Selbsternte farmers and one Selbsternte consultant. Management of the experimental subplots was done in two different ways, namely, "extensively" (EMS) and "intensively" (IMS; intensively meaning: additional harrowing, mulching and sowing of additional plants). At both subplots, work was done on 51 days each. At the EMS 24.2 hours and at the IMS 38.9 hours of work were invested on these days. 184 $ USD for the EMS and 259 $ USD for the IMS were invested. The total harvest of fresh produce was 163 kg/subplot at the EMS and 208 kg/subplot at the IMS. The total value of the harvest at the IMS is 364 $ USD for conventional and 766 $ USD for organic prices. All consumers saw the rental of a subplot and the work as an activity of leisure. More than half of the consumers reported "trying something new" at their subplots. The most frequently mentioned innovation for them was growing an unknown species. 25 consumers sowed 54 different, additional plant species. The motivating factors in establishing Selbsternte plots, as reported by all the farmers, were firstly personal ones (e.g., diversification of work to be done), and only then economic ones. The contribution of Selbsternte to the income varied at the farms between 0 and 30 % of the total farm income. As a main success factor, all of the farmers reported the intensity of relations between the consumers and the farmers. Selbsternte subplots can be understood as small experimental stations where consumers merge traditional horticultural techniques with urban ideas on permaculture, sustainable land use and participatory farming. Selbsternte has potential value for the improvement of urban agriculture, but also for the development of organic farming in general.

Key words: urban farming, organic farming, small-scale farming, agrobiodiversity, innovation, production systems, consumers relations, farmers experiments

Introduction

Cities like Vienna (Austria) are known for their great monuments and wonderful fine arts. At first glance, Viennese urban agriculture seems to be limited to public baroque gardens, vineyards, allotments (*Schrebergärten*) and intensive vegetable cultivation.

* Institute for Organic Farming, Working Group Knowledge Systems and Innovation, University for Natural Resources and Applied Life Sciences Vienna; Gregor Mendel Strasse 33, A-1180 Vienna, Austria, Mail: paulaxmann@boku.ac.at.

Today especially the outskirts of Vienna are used by intensive agricultural management due to their favorable soil conditions.

At the end of 1950, 2.600 farms existed which managed about 100 km² (about one fourth of the total area of Vienna) of arable land within the city boarder of Vienna. Since this time, agricultural activities have decreased continuously. At present an area of 66 km² (about 16% of the total area of Vienna) is managed by 900 farmers. Most of the arable area is used for crop growing (5.000 ha, cereals & sugar beet), followed by intensive vegetable horticulture (870 ha) and winegrowing (700 ha).Livestock husbandry is not existing anymore.

But recently, consultants, organic farmers and green-minded consumers have developed a new concept of urban organic farming – called *Selbsternte* – that allows new ways of interaction between organic farmers and urban citizens in residential areas. The aim of this paper is to describe the concept, to characterize the involved consumers and the organic farmers behind it, to assess the agronomic and socio-economic benefits and the possible constraints of the concept, and to develop hypothesis for further research.

The involved farmers, consumers, urban planers and scientists dealing with urban farming expect that this kind of land use in and around cities leads to better food security, nutrition and health, improves the social development of neighborhoods, and raises the sustainability of cities by reducing their ecological footprint (Moustier, 1996; Armar-Klemesu, 2000; Deelstra & Girardet, 2000). And there is awareness that urban agriculture needs to be connected to organic farming in order to ensure its own sustainability (Galanti, 2002; Van Hirtum *et al.*, 2002).

The concept of Selbsternte

On agricultural land within the urban area, organic farmers (organic according to European Council Regulation No. 2092/91) prepare a part of arable land by tillage, fertilization, fencing and the construction of irrigation facilities for *Selbsternte*. The shape of this piece of land for *Selbsternte* is usually rectangular and it is here henceforth called *Selbsternte* plot. At their *Selbsternte* plots, the farmers sow or plant rows with different vegetable species, subspecies or varieties, all henceforth called here species. 18-23 species can be found at these *Selbsternte* plots. For each specie between 1 and 4 rows are sown. In mid May the plots are divided into – as we call it here – subplots of 20, 40, 60 or 80 m^2. Subplots are situated with the longer edge of the subplot in a pattern rectangular to the direction of the rows so that they contain 2 – 6 m of every sown species, or more in cases when one species is grown in more than one row (see an example of a *Selbsternte* plot in Figure 1). Then subplots are rented to consumers at a price falling between 73-182 $ USD in total for the time between May and October. The price of the rental fee depends on the size of the subplot and the additional management offered by the farmer (irrigation, weeding, winter storage of produce, additional plots for flowers and spices, etc. In November the consumers have to leave the subplots and the organic farmers proceed with soil management for succeeding agricultural crops or for the next *Selbsternte* period (basic ideas and working processes of a *Selbsternte* period are shown in Figure 2).

The sequence of work as described above is called *Selbsternte*, literally: "Harvest by ourselves". But *Selbsternte* is not only the technical term for the concept; it is also a registered logo and text trade mark for the *Selbsternte* company that provides the *Selbsternte* trade label to farmers and that supports all participating farmers and consumers with necessary technical information. Consultants of the *Selbsternte* company advertise the concept, and are engaged in the organization of courses for consumers on organic farming, on healthy cooking and on several related topics. Farmers using the trade mark and receiving

consultancy pay an annual license fee (between 185 and 810 $ USD, depending on the number of the subplots) to the *Selbsternte* company.

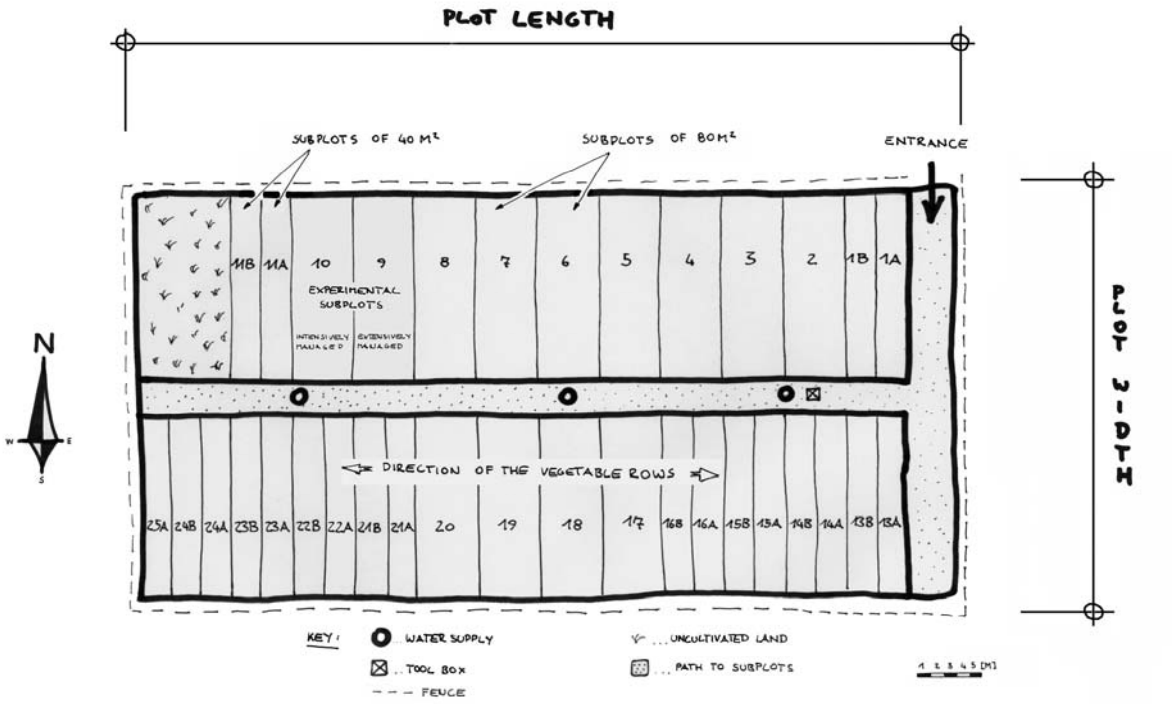

Figure 1: The Selbsternte plot Roter Berg / Vienna with the consumers' subplots of different size (40m2, 80m2) at the two experimental subplots (intensively managed subplot, IMS, subplot 10; and the extensively managed subplot, EMS, subplot 9). Direction of sowing of plant species at the plot as done from right to left and vice versa

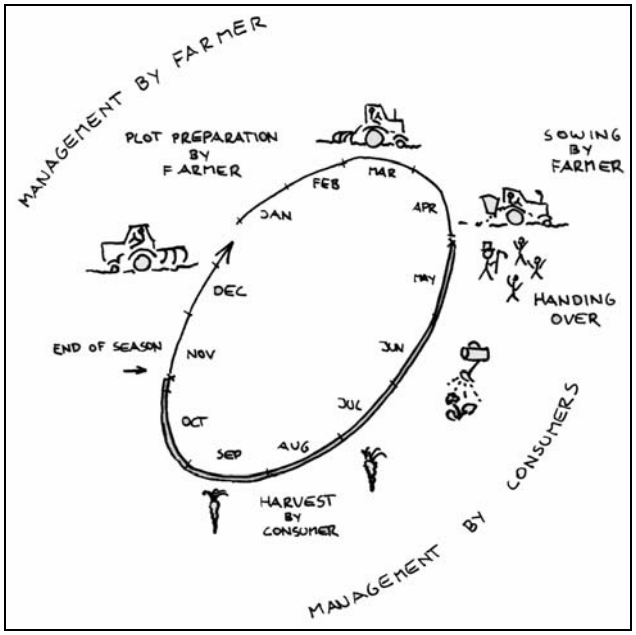

Figure 2: The Selbsternte lifecycle during the year

Methods

To assess the benefits and constraints of the *Selbsternte* concept, experimental subplots were established to evaluate yields and net profit for the consumers, and interviews were conducted with the consumers, the *Selbsternte* farmers and one *Selbsternte* consultant.

Survey at the experimental subplots

The site where this experiment was done has been used since 1999 for *Selbsternte* plots. Precipitation here is 613 mm/year and the annual mean temperature is 9.9°C. In 2001 the plot had a size of 3,000 m^2 and it was divided into 13 subplots of 80 m^2 and 21 subplots of 40 m^2. 20 plant species were sown on May 2, 2001 or planted on May 17, 2001 by the *Selbsternte* farmer at this site. The experimental management started on May 18, 2001, when all subplots were handed over to the consumers and ended on October 31, 2001, when subplots had to be returned to the farmer. Management of the experimental subplots was done in two different ways, namely, "extensively" and "intensively" at two different subplots. We call them the extensively managed subplot (EMS) and the intensively managed subplot (IMS).

Work was done at the EMS in a manner equivalent to that of the average consumer at Roter Berg. Some consumers at Roter Ber*g* took extra care with their subplots and introduced practices like harrowing, mulching and sowing of additional plants. In a kind of mimicry of these consumers, these activities were also overtaken by the authors in the IMS. During the management, inputs (cash to cover the necessary costs, duration of work) and the output (fresh weight of all harvested produce) were surveyed on data sheets. Only those costs related directly to the management of the subplot were recorded (rental fee, cost of seeds and plantlets, materials necessary to manage the subplot). After harvest, the produce was cleaned and/or washed and then dried with a rag from washing water at the plot. It was then weighed and the price of the produce for that species was investigated at a randomly chosen organic produce shop (price for organic produce) and at a randomly chosen supermarket (price for conventional produce) in Vienna. The harvest (kilograms) was multiplied by the organic and the conventional marked prices of the respective produce and quantity at the selected shops.

Survey on the Selbsternte consumers

In 2001 28 female, 3 male consumers, and one family were registered for subplots (all 32 called henceforth here consumers) at Roter Berg. A typical user at this site was female, between 30 and 50 years old, married or lived with a partner and had a high school diploma. Half of the users had children. Two thirds spent their youth in cities and only one third in the countryside, but three quarters reported having helped, at least for a while, in a garden or on a farm at some point in their childhood. 60 % of the predecessors of the users had a farm, nursery or a home garden where some vegetables were grown. 8 consumers participated in *Selbsternte* for the first time in 2001, 8 for the second time, and 9 for the third time. Two of the consumers had more experience than did all the others.

Survey on the Selbsternte farmers

Pre-tested interviews with pre-coded, and with open questions (Bernard, 2002) took place with 8 *Selbsternte* farmers in January 2002. *Selbsternte* farmers own between 30 and 140 ha of land. 7 of them

are managed full time, 1 part time, but all of them are managed by the farmers' families. The size of the *Selbsternte* plots is between 0.02 and 3.3 ha. In addition to the *Selbsternte* activities, farmers keep animals and manage arable crops. Only one farmer grows vegetables in addition to those of the *Selbsternte* plot.

Results

Survey at the experimental subplots

At both subplots, work was done in the *Selbsternte* period (136 days) on 51 days each. At the EMS 24.2 hours (28 minutes per visit) and at the IMS 38.9 hours (46 minutes per visit) of work were invested on these days. At both subplots the biggest proportion of time was used for irrigation (EMS: 12.2 hrs.; IMS: 17.5 hrs.). More time was dedicated for sowing/planting and soil management (preparing the soil for seeding or planting of additional plants) at the IMS than at the EMS due to the additional activities realized at the IMS. 184 $ USD for the EMS and 259 $ USD for the IMS were invested. The biggest proportion is due to the rental fee for each subplot (182 $ USD). The higher costs at the IMS are result from the expense for the additionally sown/planted species (56 $ USD) and the therefore necessary equipment (21 $ USD; e.g. for posts supporting tomatoes).

The total harvest of fresh produce for the plants sown/planted by the farmers was 163 kg/subplot at the EMS and 150 kg/subplot at the IMS. The monetary value of the total of all harvested produce of those plants sown/planted by the *Selbsternte* farmer is at the EMS 219 $ USD, and at the IMS 214 $ USD for conventional prices, and at the EMS 522 $ USD and at the IMS 495 $ USD for organic prices. At the IMS the value of the harvest of the additionally sown/planted produce is 150 $ USD for conventional and 271 $ USD for organic prices. The total value of the harvest at the IMS is 364 $ USD for conventional and 766 $ USD for organic prices (Figure 3). The highest net-profit is achieved at the IMS for organic prices (507 $ USD) and the highest net profit per work hour is achieved at the EMS for organic prices with 14 $ USD per invested hour of labor (Table 1).

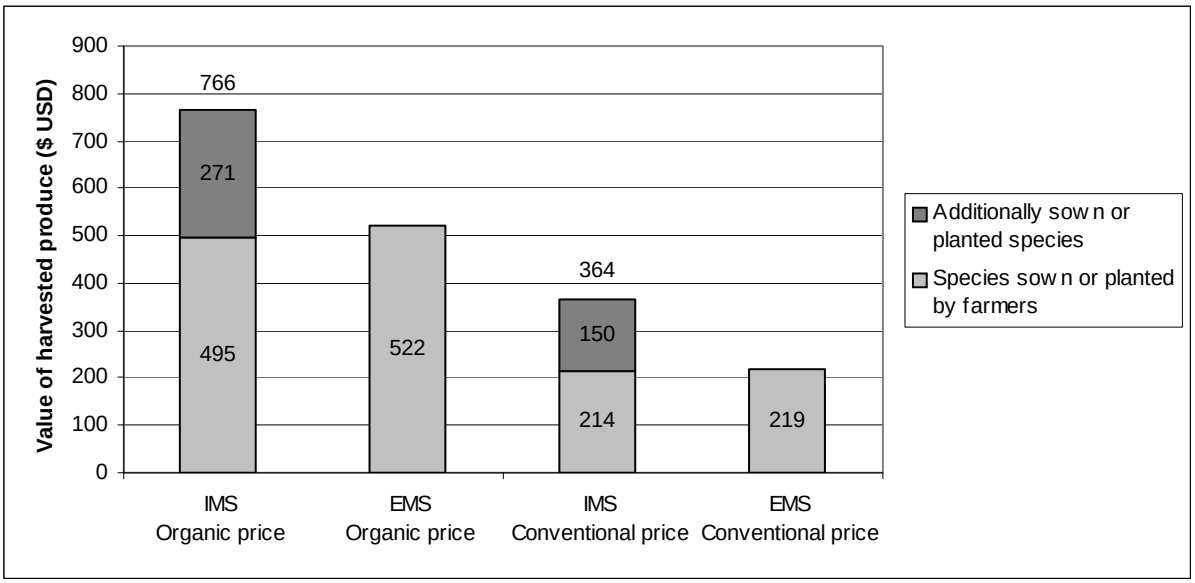

Figure 3: Value of the total fresh harvest calculated according to organic or to conventional prices in $ USD at the both experimental plots (IMS = intensively managed; EMS = extensively managed) at the Selbsternte plot Roter Berg in Vienna

Survey on the Selbsternte consumers

The 27 consumers interviewed live on average 1.8 kms. or 10 minutes away from the *Selbsternte* plot. 26 bridged the distance on foot or by bicycle. Only one consumer traveled exclusively by car. 7 consumers, who usually went on foot or by bicycle used the car only if they had to transport big quantities of harvest.

Of the 27 consumers interviewed, 18 consumers rented subplots of $40m^2$ and 9 of $80m^2$. They worked at their subplots, on average, 2.4 times a week. Every visit took them, on average, 1.5 hours. On average, every consumer reported having been 68 hours at his/her subplot between 18 of May and 31 of October. For half of the respondents, time invested was as they had expected, for one quarter it was less and for one quarter it was more time than expected.

One third of the consumers believe to have invested more cash in the subplot than the value of the harvest yields. Two thirds believe to have harvested more than to have invested. 20 consumers harvested all ripe produce; 7 left ripe produce at the subplot without harvesting it. 26 also reported having given produce away to friends, relatives, other consumers and passers-by as a gift. Reasons given for leaving ripe produce at the subplot or for giving it away as a gift were the large amount of harvested produce or the dislike of a certain plant species. Neither barter nor commercialization was reported or observed.

Table 1: Results of the survey at the experimental subplots (EMS…extensively managed subplot; IMS…intensively managed subplot)

Topic	Parameter observed	unit	EMS	IMS
Species	**Number of plant species, subspecies, or varieties sown/planted**			
	- by the *Selbsternte* farmer	number	20	20
	- by the *Selbsternte* farmer, where additional individuals were sown by the authors	number	0	6
	- by the authors	number	0	14
Work	**Duration of *Selbsternte* vegetation period**	days	136	136
	Days working at the subplots = Number of visits	number	51	51
	Total work time	hours	**24.2**	**38.9**
	Work time/visit	minutes	28	46
Cost	**Cost Total**	$ USD	**184**	**259**
	Cost details	$ USD		
	- rental fee		182	182
	- additional seeds/plantlets		2	56
	- tools/equipment		0	21
Yield	**Total yield fresh for species sown by farmer**	kg/subplot	163	150
	Total yield fresh additional individuals and additional species		-	58
	Total yield all individuals and all species		**163**	**208**
Value of harvest	**Value of produce sown by farmer**	$ USD		
	- Conventional prices		219	214
	- Organic prices		522	495
	Value of additionally sown/ planted species/individuals	$ USD		
	- Conventional prices		0	150
	- Organic prices		0	271
	Value of produce total	$ USD		
	- Conventional prices		219	364
	- Organic prices		522	766
Net-profit	**Net-profit for total harvest (Value minus costs)**	$ USD		
	- Conventional prices		35	105
	- Organic prices		338	507
	Net-profit per work hour			
	- Conventional prices	$ USD/hour	1.5	2.7
	- Organic prices		14.0	13.0

All consumers saw the rental of a subplot and the work as an activity of leisure. On each occasion, 19 consumers visited the plot with the explicit aim to work there. 8 consumers made additional visits to the subplot without any explicit aim to work there. Nevertheless, when asked another question about what they actually did at the plot, 16 consumers reported having done things in addition to their subplot management. These 16 consumers mentioned activities (multiple answers were possible) such as resting and meditating (33%), talking with other consumers (24%), picnicking (12%), playing with children (9%), walking around, or nature watching (both 6%), reading a book, sun bathing or taking pictures (all 3%).

Almost all users (24) reported to having received support in their management of the subplot: The partner, boy or girl friend, or husband or wife were the most frequently mentioned helpers (in 15 cases), followed by friends (in 12 cases), children (in 9 cases) and parents (in 5 cases). Several consumers report that several of the persons mentioned helped, but on different occasions. 19 Consumers got help during their work from other consumers at the plot, mostly from their neighbors (12; non-neighbors 7). This help concerned mostly irrigation during vacation periods. During the interviews, some cases were reported where border rules were not explained carefully and consequently, these friends worked at or harvested the wrong subplots. 26 of the consumers reported to having actively invited friends and relatives who were not familiar with the *Selbsternte* concept, to visit the plot.

More than half (14) of the consumers reported "trying something new" at their subplots. The most frequently mentioned innovation for them (multiple answers were possible per person) was growing an unknown species (14 consumers), testing plants as repellents against pests (3), testing effects of mixed cropping, improving the soils with alternative additives (for both, 2), or e.g. testing different sowing dates, while taking into account the influence of moon, mulch, plant extracts and so on.

25 consumers sowed/planted 54 additional plant species or additional individuals of species already sown by the *Selbsternte* farmer. The most frequently introduced additional individuals of already sown/planted species were from iceberg lettuce (*Lactuca sativa* var. *capitata*), dwarf bean (*Phaseolus vulgaris* ssp. *vulgaris* var. *nanu*) and carrot (*Daucus carota* ssp. *sativus*).

The most frequently introduced additional new species were broccoli (*Brassica oleracea ssp. oleracea convar. botrytis var. italica*), basil (*Ocimum basilicum*), ruccola (*Eruca sativa ssp. sativa*) and dill (*Anethum graveolens* var. *hortorum*).

Seeds/plantlets of these additional 54 species were distributed by the *Selbsternte* company (61%), shops (12%), friends (8%) and mail delivery companies (6%) or they came from the consumers' own subplots from previous years (8%). In 5 % of the cases, the source was not reported. Per consumer up to 25, new species were introduced, but the majority introduced between 6 and 15 new ones. 20 consumers reported having bought only organic seeds/plantlets, while 5 of them report having bought organic seeds/plantlets, but having also bought one or the other species from conventional sources.

The most frequently mentioned reasons for sowing/planting additional species (n=25 consumers reported on all additionally sown species) were the preferred taste of a certain species (37%), curiosity (23%), contribution to health (18%), aesthetics (15%), allelophatic effects (4%) and the role in the control of pests and diseases (3%).

6 users related some species to specific events in their youth and 9 users related some species to an experiences in a foreign country. One of them was German and he reported to have introduced chives (*Allium schoenoprasum ssp. schoenoprassum*), peppermint (*Mentha x piperita*), lemon balm (*Melissa officinalis*), savory (*Satureja hortensis*) and dill. One consumer was from Iran and he reported to have introduced chick peas (*Cicer arietinum*). One consumer having been a resident in Japan reported having sown additional Chinese cabbage (*Brassica rapa ssp. pekinensis*), edible crown daisy (*Chrysanthemum coronarium*) and purple shiso (*Perilla frutescens*).

Survey on the Selbsternte farmers

All 8 farmers reported that the consultancy provided by the *Selbsternte* company was helpful in establishing their activities. Farmers reported activities such as obtaining technical information, marketing of the concept, organization of meetings and the provision of organic seeds through their license fees as the main benefits of their participation in the *Selbsternte* company.

5 farmers had contact to the other *Selbsternte* farmers either at the beginning or later on in their *Selbsternte* activities. They reported that exchanging information and exchanging technical equipment were the main reasons for the contact.

When asked what they would do differently if they could begin again, they reported wishing to have made better cost/benefit calculations (2), to have reduced expensive marketing activities (1), to have offered only 80m^2 subplots instead of a choice of sizes (1) and, because it is too labor intensive, to have done the sowing only, leaving the planting of plantlets to the consumers (1). Farmers estimated the value of produce harvested by the consumers as somewhere between "less than 100 $ USD" and "up to 500 $ USD". None of the farmers could give a figure for the value of the subplot output based upon previous calculations of the same.

The motivating factors in establishing *Selbsternte* plots, as reported by all the farmers, were firstly personal ones (direct contact to consumers, diversification of work to be done, fun), and only then economic ones.

Only three farmers reported that the income from *Selbsternte* allowed a satisfactory return on the investments made for *Selbsternte*. The contribution of *Selbsternte* to the income varied at the farms between 0 and 30 % of the total farm income according to the perception of the farmers. Those farmers who sell their own produce from the farm gate (7) emphasized the fact that *Selbsternte* consumers did actually buy produce at the farm gate or from the farm's own shop and therefore contributed to the income not also with their *Selbsternte* fees but with their weekly spending for produce bought from the farmers.

In total, the farmers sowed or planted 25 plant species. Seeds came from organic seed producers (e.g., the organic seed propagation and retailing company *Reinsaat*). Plantlets originated from organic seeds and were – depending on the species – bought from organic nurseries or raised at the *Selbsternte* farm by the farmers themselves. Criteria in selecting certain species were personal observations on yields, requests by consumers and recommendations made by the *Selbsternte* consultant. Only one farmer made a cost calculation to determine the rental fee of a sub-plot. The other 7 farmers adjusted their prices to the fees charged by the *Selbsternte* company for its sub-plots and according to recommendations of colleagues.

Problems reported with *Selbsternte* are problems currently challenging the management of organic farms as well (pressure of weeds, pests and diseases, supply of nutrients). But more frequently farmers reported specific, technical and social problems. These are:

- The control of EC-Regulation 2092/91, which requests the use of organic seeds/plantlets in subplots, is difficult to manage with consumers that continuously sow seeds / plant plantlets from unidentified sources;
- Lazy consumers that do not weed well may risk weed infestation at other subplots and may cause conflicts between consumers;
- Deposition of garbage at the plot by consumers effects the appearance of the plot;
- Low technical skill and consumer knowledge of gardening practices (e.g. frequent and long irrigation), which then lead to effects that are a source of complaints (e.g. strong growth of weeds);

- Theft of ripe produce or even of tools in a few cases;

All 8 farmers reported that during the course of the vegetation period, many questions from consumers arose and were then addressed directly to the farmers. In many cases, these questions not only covered technical topics matching the farmers' knowledge (time of harvest of certain species, techniques for pest management etc.), but also related to topics such as processing, storage and cooking. In addition, all of the farmers reported that they were confronted with problems concerning the social dynamics at the plot (e.g. consumer anger about the behavior of neighboring consumers).

As a main success factor, all of the farmers reported the intensity of relations between the consumers and the farmers. At one farm, the farmer gave a subplot for free to an experienced consumer, who is present almost every day at the plot and who serves as a kind of representative for the farmer at the plot.

Conclusion

Our results show that consumers who manage a subplot intensively can harvest up to 208 kg of fresh produce with a value of 766 $ USD from a subplot of 80m^2 under like growing and management conditions. This is above the value expected by the farmers who offer subplots and above the value reported from subplots in Witzenhausen, Germany, with 538 $ USD (Wortmann, 2000). This result might help farmers to better advertise the concept. Nevertheless, the germination rate and the juvenile growth (not quantified in this survey) of the plants on the experimental subplots, as also seen in some other subplots at Roter Berg, was lower than expected due to failures in plot preparation by the farmer. Taking into account that other subplots at Roter Berg and subplots at other sites (e.g. Mödling) showed much better developed plants, it is evident that higher yields and higher values of harvested produce can be expected for better growing conditions.

Experimenting with introduced plants is consumers' favorite area of experimentation. Nevertheless, control of the organic origin of seeds and plantlets is a challenge for farmers not easily met.

In managing a *Selbsternte* plot, the farmers involved in the project report the need for close communication with consumers, which not only helps to attract them as clients (marketing), but also provides prior precise and accurate information on necessary technical and social details (e.g. regulations on "the do's" and "don'ts"). Crucial is information that helps to avoid unachievable expectations; secures appropriate social relations between consumers; and secures that substances prohibited in organic farming are not used at all.

During the course of the vegetation period, many questions arise on the part of consumers. Most farmers have, in our observation, only limited experience and training in the handling of these communication processes. In addition, the huge amount of time necessary for consumer relations competes with other activities on the farm. A successful management of *Selbsternte* plots therefore needs a concept of communication, care and consumer education that would reduce the working load for farmers while ensuring good relations with consumers.

The concept of *Selbsternte* needs not only proper social skills but also special technical training for farmers prior to the start of the project. Only one farmer grows vegetables in addition to the *Selbsternte* activities and no farmer has experience with small-scale horticulture. The participating farmers are growers of arable crops and are used to thinking on a larger scale of agriculture than are consumers, gardeners or horticulturists.

At an arable plot measuring one or more hectares, a failure to sow or germinate, which has an impact on only a few centimeters of a row, might have no real impact for the farmer, if at all. At a *Selbsternte* plot the lack of a species or of some plant individuals in a certain part of the subplots resulting from technical

errors lead to adverse social dynamics, and can be difficult for the farmer to handle. Therefore, an adaptation of thought, management and of technical equipment to small-scale horticulture is necessary, and farmers must be trained accordingly.

The need for the training of farmers, for the exchange of experiences between farmers, for accompanying consumer education and for advertising are easier to handle on a common or outsourced level rather than on an individual one. To secure proper advice when needed, higher fees for subplots and higher license fees were discussed in the *Selbsternte* company but were not seen as viable. If this cannot be realized, honorary advisors that are nominated on the basis of experience, and referred to as "senior" consumers, might be one valuable solution.

The proponents of *Selbsternte* are convinced that this concept leads to ecological, economic and social benefits, which will help to design a sustainable alimentary system for small, medium and large cities. The data of our preliminary study allows for the prior formulation of an evidence-based hypothesis on which further testing may be based:

Possible ecological benefits

- The high amount of produce harvested and the close distance between the residential areas of the consumers and the plot may help to reduce the duration and frequency of individual tours to shopping malls by car;
- The concept of *Selbsternte* leads to higher agrobiodiversity in the urban area, where this concept is practiced; consumers actively enrich the subplot by seeding/planting additional species. These might be endangered species or cultivars and therefore the concept might be a valuable element for strategies of in-situ conservation of agrobiodiversity;
- The produce so harvested does not need packaging and therefore package production and deposition can be reduced for the quantity harvested.

Possible economic benefits

- The monetary value of the vegetables harvested is higher than the money invested by the plot owner. *Selbsternte* plots help to reduce costs for organic nutrition, compared to consumer purchases at organic produce shops.
- Local organic gardeners, tool retailers and other providers of necessary and allowable substances benefit from the demand of consumers who have rented *Selbsternte* plots.

Possible social benefits

- *Selbsternte* initiates new networks of communication and collaboration between inhabitants of residential areas, who have not yet met;
- *Selbsternte* plots serve as meeting points for people, allowing for the exchange of opinions, information and knowledge (incl. about organic gardening);
- Work at subplots helps participants to relax, meditate and rest after daily business;
- Parents consciously use the work at the subplot to educate their children in horticulture, plant species and related topics;
- Consumers get involved in primary agricultural production. They therefore better understand the risks and challenges that farmers face as well as the pleasure involved.

Up to now only few descriptive questions on *Selbsternte* have been addressed. More quantitative data on the ecological, economic and social impact of *Selbsternte* is needed. *Selbsternte* subplots can be understood as small experimental stations where consumers merge traditional horticultural techniques

with urban ideas on permaculture, sustainable land use and participatory farming. The outcomes of this participatory process of innovation have to be assessed at their potential value for the improvement of urban agriculture, but also for the development of organic farming in general.

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